



Atlantic States Marine Fisheries Commission

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Patrick C. Keliher (ME), Chair

Spud Woodward (GA), Vice-Chair

Robert E. Beal, Executive Director

Sustainable and Cooperative Management of Atlantic Coastal Fisheries

MEMORANDUM

October 7, 2020

TO: Commissioners; Proxies; American Lobster Management Board; Atlantic Coastal Cooperative Statistics Program Coordinating Council; Atlantic Herring Management Board; Atlantic Menhaden Management Board; Atlantic Striped Bass Management Board; Horseshoe Crab Management Board; Executive Committee; Interstate Fisheries Management Program Policy Board; South Atlantic State/Federal Fisheries Management Board; Spiny Dogfish Management Board; Winter Flounder Management Board

FROM: Robert E. Beal 
Executive Director

RE: ASMFC 79th Annual Meeting Webinar: October 19-22, 2020

The Atlantic States Marine Fisheries Commission's 79th Annual Meeting will be held October 19-22, 2020 via Webinar. Meeting materials are now available on the Commission website at <http://www.asmf.org/home/2020-annual-meeting-webinar>. Supplemental materials will be posted to the website on Wednesday, October 14.

Board meetings will be broadcast daily via webinar beginning Monday, October 19 at 9:00 a.m. and continuing daily until the conclusion of the meeting on Thursday, October 22 (expected to be 1:45 p.m.). The webinar will allow registrants to listen to board deliberations and view presentations and motions as they occur. Meeting participants and attendees can register for the webinar at <https://register.gotowebinar.com/register/1878402776294803471> (Webinar ID: 796-314-395).

Each day, the webinar will begin 30 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.

If you are joining the webinar but will not be using VoIP, you can also call in at 562.247.8422 (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, you can do so by dialing 562.247.8422 (access code: 225-820-088).

We look forward to meeting with you at the 79th Annual Meeting Webinar. If the staff or I can provide any further assistance to you, please call us at 703.842.0740.

Enclosure: Final Agenda



Atlantic States Marine Fisheries Commission

79th Annual Meeting Webinar

October 19-22, 2020

Public Comment Guidelines

To provide a fair opportunity for public input, the ISFMP Policy Board approved the following guidelines for use at management board meetings. **Please note these guidelines have been modified to adapt to meetings via webinar:**

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

1. Comments received 3 weeks prior to the start of the webinar (September 28) will be included in the briefing materials.
2. Comments received by 5:00 PM on the Tuesday, October 13 will be included in the supplemental materials.
3. Comments received by 10:00 AM on Friday, October 16 will be distributed electronically to Commissioners/Board members prior to the meeting.

Comments should be submitted via email at comments@asmfc.org. All comments must clearly indicate the commenter's expectation from the ASMFC staff regarding distribution.

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. It is our intent to begin at the scheduled start time for each meeting, however, if meetings run late the next meeting may start later than originally planned.

Monday, October 19

9:00 – 10:00 a.m.

Atlantic Herring Management Board

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

Other Members: NEFMC, NMFS

Chair: Patterson

Other Participants: Zobel, Brown

Staff: Appelman

1. Welcome/Call to Order (*C. Patterson*)
2. Board Consent
 - Approval of Agenda
 - Approval of Proceedings from August 2020
3. Public Comment
4. Set 2021 Fishery Specifications (*M. Appelman*) **Final Action**
 - Set Quota Period for Area 1A
5. Update on New England Fishery Management Council and Commission Coordination Discussions (*T. Kerns*)
6. Other Business/Adjourn

10:00 – 11:00 a.m.

Break

11:00 a.m. – Noon

Winter Flounder Management Board

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

Other Members: NMFS, USFWS

Chair: Borden

Other Participants: Nitschke, Blanchard, Wood

Staff: Colson Leaning

1. Welcome/Call to Order (*D. Borden*)
2. Board Consent
 - Approval of Agenda
 - Approval of Proceedings from February 2019
3. Public Comment
4. Review 2020 Assessment Updates for Gulf of Maine and Southern New England/Mid-Atlantic Winter Flounder Stocks
 - Presentation of Gulf of Maine Stock Assessment Report (*P. Nitschke*)
 - Presentation of Southern New England/Mid-Atlantic Stock Assessment Report (*T. Wood*)
5. Elect Vice-Chair (*D. Borden*) **Action**
6. Other Business/Adjourn

Noon – 1:15 p.m.

Lunch Break

1:15 – 4:15 p.m.

American Lobster Management Board

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

Other Members: NEFMC, NMFS

Chair: McKiernan

Other Participants: Reardon, Perry, Beal, Celestino, DeVoe, McKown, Webb

Staff: Starks

1. Welcome/Call to Order (*D. McKiernan*)
2. Board Consent
 - Approval of Agenda
 - Approval of Proceedings from October 2019
3. Public Comment
4. Consider 2020 American Lobster Benchmark Stock Assessment **Final Action**
 - Presentation of Stock Assessment Report (*K. McKown*)
 - Presentation of Peer Review Panel Report (*M. Celestino*)
 - Consider Acceptance of Benchmark Stock Assessment and Peer Review Report for Management Use (*D. McKiernan*)
 - Consider Management Response to the Assessment and Peer Review (*D. McKiernan*)
5. Report on Data Collection Requirements for 2021 (*A. Webb*)
6. Report on Electronic Tracking Pilot Program (*W. DeVoe*)
7. Consider Approval of Fishery Management Plan Reviews and State Compliance (*C. Starks*)
Action
 - American Lobster for the 2019 Fishing Year
 - Jonah Crab for the 2018 and 2019 Fishing Years
8. Other Business/Adjourn

Tuesday, October 20

9:00 a.m. – Noon

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: Woodward

Other Participants: Flora, Kersey, Kaelin

Staff: Appelman (for Rootes-Murdy)

1. Welcome/Call to Order (*S. Woodward*)
2. Board Consent
 - Approval of Agenda
 - Approval of Proceedings from August 2020
3. Public Comment
4. Update on Fecundity Estimates Associated with the New Ecological Reference Points and Set 2021-2022 Fishery Specifications (*S. Woodward*) **Final Action**
 - Technical Committee Report (*C. Flora*)
 - Advisory Panel Report (*J. Kaelin*)
5. Other Business/Adjourn

Noon – 1:15 p.m.

Lunch Break

1:15 – 4:15 p.m.

South Atlantic State/Federal Fisheries Management Board

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

Other Members: NMFS, PRFC, SAFMC, USFWS

Chair: Fegley

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

Staff: Lewis

1. Welcome/Call to Order (*L. Fegley*)
2. Board Consent
 - Approval of Agenda
 - Approval of Proceedings from August 2020
3. Public Comment
4. Consider Atlantic Cobia Addendum I to Amendment 1 for Final Approval (*T. Kerns*) **Final Action**
 - Review Options and Public Comments
 - Consider Final Approval of Addendum I to Amendment 1
5. Review 2020 Traffic Light Analyses for Atlantic Croaker and Spot
 - Review 2020 Reports (*D. Franco, H. Rickabaugh*)
 - Review Management Response Requirements from Addendum III (*S. Lewis*)
6. Consider Approval of Fishery Management Plan Review and State Compliance for Red Drum for the 2019 Fishing Year (*S. Lewis*) **Action**
7. Other Business/Adjourn

Wednesday, October 21

8:00 – 10:00 a.m.

Executive Committee

Members: Abbott, Anderson, Bell, Bowman, Cimino, Clark, Davis, Estes, Gilmore, Keliher, Kuhn, McKiernan, McNamee, Miller, Murphey, Patterson, Woodward

Chair: Keliher

Staff: Leach

1. Welcome/Call to Order (*P. Keliher*)
2. Committee Consent
 - Approval of Agenda
 - Approval of Meeting Summary from August 2020
3. Public Comment
4. Report of the Administrative Oversight Committee (*S. Woodward*)
 - Consider Approval of Fiscal Year 2020 Audit **Action**
5. Future Annual Meetings Update (*L. Leach*)
6. Discuss Pennsylvania's Participation on the Atlantic Menhaden Management Board (*R. Beal*)
7. Discuss Improvements to the Public Comment Process (*R. Beal*)
8. Other Business/Adjourn

10:00 – 10:30 a.m.

Break

10:30 – 11:15 a.m.

Horseshoe Crab Management Board

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

Other Members: NMFS, PRFC, USFWS

Chair: Cimino

Other Participants: Brunson, Messeck, Sweka

Staff: Starks

1. Welcome/Call to Order (*J. Cimino*)
2. Board Consent
 - Approval of Agenda
 - Approval of Proceedings from October 2019
3. Public Comment
4. Set 2021 Harvest Specifications **Final Action**
 - Review Horseshoe Crab and Red Knot Abundance Estimates and 2020 Adaptive Resource Management (ARM) Model Results (*J. Sweka*)
 - Set 2021 Harvest Specifications (*J. Cimino*)
5. Progress Update on ARM Revisions (*J. Sweka*)
6. Consider Approval of Fishery Management Plan Review and State Compliance for the 2019 Fishing Year (*C. Starks*) **Action**
7. Review and Populate Advisory Panel Membership (*T. Berger*) **Action**
8. Other Business/Adjourn

11:30 a.m. – 12:15 p.m.

Spiny Dogfish Management Board

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

Other Members: NMFS

Chair: Batsavage

Other Participants: Newlin, Moran, Didden

Staff: Kerns (for Rootes-Murdy)

1. Welcome/Call to Order (*C. Batsavage*)
2. Board Consent
 - Approval of Agenda
 - Approval of Proceedings from October 2019
3. Public Comment
4. Consider Revised Specifications for the 2021 and 2022 Fishing Seasons (*J. Didden*) **Final Action**
5. Elect Vice-Chair (*Batsavage*) **Action**
6. Other Business/Adjourn

12:15 – 1:30 p.m.

Lunch Break

1:30 – 4:30 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: Borden

Other Participants: Sullivan, Blanchard, Bassano

Staff: Appelman

1. Welcome/Call to Order (*D. Borden*)
2. Board Consent
 - Approval of Agenda
 - Approval of Proceedings from August 2020
3. Public Comment
4. Consider Approval of State Implementation Plans for Addendum VI Mandatory Circle Hook Requirements (*M. Appelman*) **Final Action**
5. Review Technical Committee Report on Factors Limiting Recreational Release Mortality Estimates (*K. Sullivan*)
6. Consider Draft Amendment 7 Public Information Document for Public Comment (*M. Appelman*) **Action**
7. Other Business/Adjourn

Thursday, October 22

8:30 – 9:45 a.m.

Atlantic Coastal Cooperative Statistics Program Coordinating Council

Partners: ASMFC, Connecticut, Delaware, District of Columbia, Florida, Georgia, MAFMC, Maine, Maryland, Massachusetts, NEFMC, New Hampshire, New Jersey, New York, NMFS, North Carolina, Pennsylvania, PRFC, Rhode Island, SAFMC, South Carolina, USFWS, Virginia

Chair: Fegley

Staff: White

1. Welcome/Call to Order (*L. Fegley*)
2. Council Consent
 - Approval of Agenda
 - Approval of Proceedings from August 2020
3. Public Comment
4. Consider Recommendations for FY2021 Submitted Proposals (*J. Simpson*) **Action**
5. Committee and Program Updates (*J. Simpson, G. White*)
6. Elect Chair and Vice-Chair (*Fegley*) **Action**
7. Other Business/Adjourn

10:00 – 11:00 a.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: Keliher

Staff: Beal

1. Welcome/Call to Order (*P. Keliher*)
2. Committee Consent
 - Approval of Agenda
 - Approval of Proceedings from February 2020
3. Public Comment
4. Review and Consider Approval of the 2021 Action Plan (*R. Beal*) **Final Action**
5. Elect Chair and Vice-Chair (*R. Beal*) **Action**
6. Other Business/Recess

11:15 a.m. – Noon **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: Keliher

Staff: Kerns

1. Welcome/Call to Order (*P. Keliher*)
2. Board Consent
 - Approval of Agenda
 - Approval of Proceedings from August 2020
3. Public Comment
4. Chair's Report (*P. Keliher*)
5. Executive Committee Report (*P. Keliher*)
6. Recess

Noon – 12:30 p.m. **Lunch Break**

12:30 – 1:30 p.m. **Interstate Fisheries Management Program Policy Board (continued)**

7. Reconvene
8. Consider Dividing the South Atlantic State/Federal Fisheries Management Board (*T. Kerns*) **Final Action**
9. Set 2021 Coastal Sharks Fishery Specifications (*T. Kerns*) **Final Action**
10. Review Noncompliance Findings (if Necessary) **Action**
11. Other Business/Adjourn

1:30 – 1:45 p.m. **Business Session (continued)**

7. Reconvene
8. Consider Noncompliance Findings (if Necessary) **Final Action**
9. Other Business/Adjourn

Atlantic States Marine Fisheries Commission

Atlantic Herring Management Board

October 19, 2020

9:00 - 10:00 a.m.

Webinar

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>C. Patterson</i>) | 9:00 a.m. |
| 2. Board Consent | 9:00 a.m. |
| • Approval of Agenda | |
| • Approval of Proceedings from August 2020 | |
| 3. Public Comment | 9:05 a.m. |
| 4. Set 2021 Fishery Specifications (<i>M. Appelman</i>) Final Action | 9:15 a.m. |
| • Set Quota Period for Area 1A | |
| 5. Update on New England Fishery Management Council and Commission Coordination Discussions (<i>T. Kerns</i>) | 9:45 a.m. |
| 6. Other Business/Adjourn | 10:00 a.m. |

MEETING OVERVIEW

**Atlantic Herring Management Board Webinar
October 19, 2020
9:00 – 10:00 a.m.**

| | | |
|---|--|---|
| Chair: Cheri Patterson (NH) Assumed the Chair: 2/20 | Technical Committee Chair: Renee Zobel (NH) | Law Enforcement Committee Representative: Delayne Brown (NH) |
| Vice-Chair: Megan Ware (ME) | Advisory Panel Chair: Jeff Kaelin (NJ) | Previous Board Meeting: August 5, 2020 |
| Voting Members: ME, NH, MA, RI, CT, NY, NJ, NMFS, NEFMC (9 votes) | | |

Public Comment – For items not on the agenda, public comment will be taken at the end of the meeting. 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.

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from August 2020

3. Public Comment (1:20-1:30 p.m.)

| |
|--|
| 4. Set 2021 Fishery Specifications (9:15 – 9:45 a.m.) |
| <p>Background</p> <ul style="list-style-type: none"> • In September, the NEFMC set specifications for the 2021-2023 fishing years through Framework 8 (Briefing Materials) • Per Amendment 3, states annually set quota specifications, including the quota period system in Area 1A. • For the 2020 fishing year, the Board adopted a seasonal quota approach with 72.8% available June-September, and 27.2% available October-December. • The Board will consider approving sub-ACL for Area 1A for 2021-2023 after a final rule is published by NOAA Fisheries. |
| <p>Presentations</p> <ul style="list-style-type: none"> • Presentation of 2021 fishery specifications by M. Appelman |
| <p>Board Actions for Considerations</p> <ul style="list-style-type: none"> • Set quota periods for the 2021 Area 1A fishery |

5. Update on New England Fishery Management Council and Commission Coordination Discussion (9:45 – 10:00 a.m.)

Background

- Concerns have been raised in recent years that management alternatives considered by the Commission may have been inconsistent with the federal Atlantic Herring FMP and NEFMC comments on specific measures may not be given appropriate consideration by the Commission.
- Therefore, Council and Commission leadership (Leadership) met to discuss issues about shared Atlantic herring management and agreed to define the roles of each management body by identifying the measures that would be addressed by each.
- A technical work group of Commission Plan Review Team and NEFMC Plan Development Team members, co-chaired by the Commission Herring Board and Council Herring Committee chairs, was formed to prepare a proposed list of shared management responsibilities for review by Leadership.

Presentations

- Update by T. Kerns

7. Other Business/Adjourn (10:00 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 PDT
- Participation on NEFMC PDT (currently working on Framework 7)
- 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), Deirdre Boelke (NEMFC), Jonathan Deroba (NOAA NEFSC), Carrie Nordeen (NOAA)

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

**Webinar
August 5, 2020**

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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INDEX OF MOTIONS

1. **Move to approve agenda** by Consent (Page 1).
2. **Move to approve proceedings of May 5, 2020** by Consent (Page 1).
3. **Move to elect Megan Ware as Vice-chair to the Atlantic Herring Management Board** (Page 8).
Motion by Dan McKiernan; second by Dennis Abbott. Motion carried (Page 9).
4. **Motion to adjourn** by Consent (Page 9).

ATTENDANCE

Board Members

| | |
|--|--|
| Megan Ware, ME, proxy for P. Keliher (AA) | Matt Gates, CT, Administrative proxy |
| Cheri Patterson, NH (AA), Chair | Robert LaFrance, CT, proxy for B. Hyatt (GA) |
| G. Ritchie White, NH (GA) | Jim Gilmore, NY (AA) |
| Dennis Abbott, NH, proxy for Sen. Watters (LA) | Emerson Hasbrouck, NY (GA) |
| Dan McKiernan, MA (AA) | John McMurray, NY, proxy for Sen. Kaminsky (LA) |
| Raymond Kane, MA (GA) | Joe Cimino, NJ (AA) |
| Sarah Ferrara, MA, proxy for Rep. Peake (LA) | Tom Fote, NJ (GA) |
| Conor McManus, RI, proxy for J. McNamee (AA) | Adam Nowalsky, NJ, proxy for Asm. Houghtaling (LA) |
| Eric Reid, RI, proxy for Sen. Sosnowski (LA) | 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 | Jonathan Deroba, Technical Committee Representative |

Staff

| | |
|-----------------|--------------------|
| Robert Beal | Jeff Kipp |
| Toni Kerns | Sarah Murray |
| Maya Drzewicki | Kirby Rootes-Murdy |
| Max Appelman | Mike Schmidtke |
| Kristen Anstead | Deke Tompkins |
| Chris Jacobs | |

Guests

| | |
|----------------------------------|----------------------------------|
| Karen Abrams, NOAA | Monty Deihl, Ocean Fleet Svcs |
| Fred Akers | Russell Dize, MD (GA) |
| Rep. Thad Altman, FL (LA) | John Duane, Wellfleet, MA |
| Steve Atkinson | William Dunn |
| Jerald Ault, Univ Miami | Maddie Dwyer, MD DNR |
| Dave Bethoney, U MASS | Paul Eidman, Tinton Falls, NJ |
| Alan Bianchi, NC DENR | G. Warren Elliott, PA (LA) |
| Deidre Boelke, NEFMC | Lynn Fegley, MD DNR |
| Jason Boucher, DE DFW | Marianne Ferguson |
| Jeff Brust, NJ DEP | James Fletcher, Wanchese Fish Co |
| Mike Celestino, NJ DEP | Tony Friedrich, SGA |
| Benson Chiles, Chiles Consulting | Mel Gardner |
| Matt Cieri, ME DMR | Lacie Gaskins, Reedville, VA |
| Allison Colden, CBF | Pat Geer, VMRC |
| Caitlin Craig, NYS DEC | Emily Gilbert, NOAA |
| Jane Crowther, Omega Protein | Brooke Goggins |
| Jessica Daher, NJ DEP | Willy Goldsmith, SGA |
| Pamela D'Angelo | Zoe Goozner, Pew Trusts |
| Maureen Davidson, NYS DEC | Joseph Gordon, Pew Trusts |
| Justin Davis, CT (AA) | Zach Greenberg, Pew Trusts |
| Jeff Deem, Lorton, VA | Jon Hare, NOAA |

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Draft Proceedings of the Atlantic Herring Management Board
August 2020

Guests (continued)

| | |
|-----------------------------|--|
| Pete Himchak | Eric Schneider, RI DEM |
| Kyle Hoffman, SC DNR | Bret Scholtes, Omega Protein |
| Rusty Hudson, DSF | Tara Scott, NOAA |
| Aaron Kornbluth, Pew Trusts | Alexei Sharov, MD DNR |
| Phil Langley, PRFC | Dave Sikorski, CCA |
| Thao Le, NOAA | Melissa Smith, ME DMR |
| Tom Little, NJ Legislature | David Stormer, DE DFW |
| Bob Lombardi | Helen Takade-Heumacher, FL FWS |
| Mike Luisi, MD DNR | Mary Beth Tooley, Lincolnville, ME |
| Loren Lustig, PA (GA) | Corinne Truesdale, RI DEM |
| Chip Lynch, NOAA | Sarah Vogelsong, <i>Virginia Mercury</i> |
| John Maniscalco, NYS DEC | Mike Waine, ASA |
| Nichola Meserve, MA DMF | Craig Weedon, MD DNR |
| Roy Miller, DE (GA) | Anna Weinstein, Audubon Society |
| Derek Orner, NOAA | Kelly Whitmore, MA DMF |
| Penelope Overton | Catlyn Wells, SC DNR |
| Patrick Paquette, MSBA | Kelly Whitmore, MA DMF |
| Olivia Phillips, VMRC | Chris Wright, NOAA |
| Mike Ruccio, NOAA | Erik Zlokovitz, MD DNR |

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The Atlantic Herring Management Board of the Atlantic States Marine Fisheries Commission convened via webinar; Wednesday, August 5, 2020, and was called to order at 1:15 p.m. by Chairwoman Cheri Patterson.

CALL TO ORDER

CHAIRWOMAN CHERI PATTERSON: Good afternoon everyone, we will be starting the Atlantic Herring Management Board webinar now.

APPROVAL OF AGENDA

CHAIRWOMAN PATTERSON: I'm Cheri Patterson, the Chairperson, and I would like to move forward with asking if there are any changes to the agenda that any Board member would like to present. Please raise your hand.

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

CHAIRWOMAN PATTERSON: Thank you, then the agenda is approved by consent.

APPROVAL OF PROCEEDINGS

CHAIRWOMAN PATTERSON: I would also like to approve the proceedings from the May 2020 meeting, or webinar. Is there any objection to this request for approval by the Board? Please raise your hand.

MS. KERNS: I see no hands raised.

CHAIRWOMAN PATTERSON: The proceedings are approved by consent.

PUBLIC COMMENT

CHAIRWOMAN PATTERSON: Next, we'll move to achieving some public comment for items that are not on the agenda, please. Please raise your hand so I can recognize you.

MS. KERNS: For those members of the public, just to make sure everybody knows how to raise your hand. You just click on that little hand

button on the webinar if you wanted to comment. Cheri, I do not see any hands raised.

MS. PATTERSON: Didn't we have somebody that wanted to?

MS. KERNS: I think that was (broke up) during the assessment.

MS. PATTERSON: Okay, thank you. No public comment.

REVIEW OF THE 2020 ATLANTIC HERRING MANAGEMENT ASSESSMENT AND PEER REVIEW REPORTS

CHAIRWOMAN PATTERSON: So, we will move forward with Reviewing the 2020 Atlantic Herring Management Assessment and Peer Review Reports. I would like to turn that over to Ms. Deroba, and the materials were sent out in the supplemental materials e-mail for everybody else. Thank you. Mr. Deroba, sorry about that.

MR. JONATHAN J. DEROBA: I was going to awkwardly just ignore it, but thank you. I will dive right in. A little bit of background. Prior to this year the herring was previously assessed October, 2018. It was a benchmark assessment. It is assessed using the assessment model typical of New England, the ASAP model of forward projecting statistical catch at age model. It has two fishing fleets, a mobile fleet, and a fixed-gear fleet. You'll see the fixed fleet is highlighted in bold there, noting that over 90 percent of that fleet is Canadian. Just keep that in the back of your mind. That will become important when we get to reference points.

It has four surveys, three NMFS bottom trawl surveys, and an acoustic time series that is collected during the fall bottom trawl survey. Natural mortality is constant at 0.35 among time and age. The model doesn't have any ability to estimate a stock recruit relationship, so MSY reference points were based on an F40 percent proxy.

I will go through the assessment term of reference by term of reference, as it was laid out during the review.

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Term of Reference 1, estimate catch from all sources. I make a note there that discards have only been available since 1996, but they're generally less than 1 percent of landings, so kind of ignore that little hiccup.

There is the catch time series divvied out, color coded by each of those fishery fleets that I mentioned, mobile fleet in black, mobile fleet being trawls and purse seines for the most part. Then the purple is the fixed fleet, which again is largely Canadian. I would like to highlight one aspect of these catches, and that is if you look at the table on the right.

Typically, the fixed fleet is catching 1-7 percent of the total catch, except in the last two years, 2018, 2019, where it's catching 21 to almost 30 percent of the total. That is expressed graphically on the left with the purple bar representing the proportion of the fixed, and the black bar representing the proportion by mobile.

Again, I mention this because it's going to become important when we get to biological reference points. The proportion of the total coming from the fixed gear has increased quite a lot in the last two years. Term of Reference 2 is, evaluate indices of abundance. This is the spring NMFS Bottom Trawl Survey time series, at least over the range of years where we're using the Bigelow vessel, so 2009 through 2019.

Generally speaking, a decline. I won't say too much about these, as I like to let people interpret as they see fit. Here is the fall Bottom Trawl Survey time series, again for the Bigelow years. The anomalous blip there in 2016, I believe was the result of a few large catches. A couple tows caught a lot of herring, which is why you see this increased blip with increased uncertainty.

This is the Summer Time Bottom Trawl Survey, which the time series begins in 1983. This survey has used, I think it uses the Gloria-Michelle, but I can't remember for sure. But it

has used the same vessel throughout the entire time series, so there are no vessel effects here to worry about. This is the full time series for the Summer NMFS Bottom Trawl Survey.

This is the Acoustic Index time series. The Acoustic Index again is collected during the fall bottom trawl survey. The units of measure here on the vertical axis are acoustic backscatter, so it has no absolute biomass interpretation. Term of Reference 3 was to apply the ASAP model, so estimate the time series that we typically would. I made no changes to the ASAP configuration, other than to add two years of data. Here are the retrospective patterns. We're fortunate enough not to have a retrospective pattern to worry about in our management track. The fishing mortality rate retrospective pattern is in the top row. The left column is in absolute units of fishing mortality. The right is relative to the full time series estimates, and the lower row is spawning stock biomass.

Here are the time series of biomass estimates, so total biomass time series is reddish brown. Blue dash is spawning stock biomass, which is what we use for stock status determination, and exploitable biomass in green. The time series of fishing mortality, F, report is what we use for stock status determination, and that represents the average fishing mortality over ages 7 and 8.

We use those ages, because they are fully selected by the mobile fleet, which catches the majority of the total catch. Again, the black line is the one that is of greatest interest in what we use for a stock status. Here is the recruitment time series. Obviously, the elephant in the room is the last seven years have been well below average, including I believe the time series low somewhere in there.

Term of Reference 4 is the biological reference points. This is where we start to make some changes to what we did previously, and I'll get into why here in just a second. Previously what we would do to define biological reference points is premise your F40 percent and SSB40 percent on life history traits, such as weights at age averaged over the last five years.

To define selectivity for the biological reference points, we would take the total F at age, meaning the sum of fishing mortality at age, from each of those fleets that I mentioned, mobile and fixed. Average that over the last five years, and rescale it to have a maximum of 1. Another way to say this, it's not exactly equivalent, but it's essentially a catch-weighted mean selectivity.

Each fleet has a very different selectivity. The mobile fleet selectivity at age is on the left, the fixed fleet selectivity is on the right. If you take a sort of catch-weighted mean of these two things. The more catch comes from the mobile fleet, the more the combined selectivity will look like the selectivity on the left.

But if more catch comes from the fixed fleet, as I noted earlier, the greater that combined selectivity will look like the selectivity curve on the right. When we do long term projections, and for some of the short-term projection years, recruitment is sampled from the entire time series F above estimates, so from '65 to in this case 2017, because we exclude the last two years, because they are very poorly estimated.

Of importance here is in short term projections we would use this combined selectivity curve to define the reference points. We would use this combined single-selectivity curve in short-term projections, and use that to define an ABC and OFL. From the ABC we deduct a recent average fixed-gear catch.

Remember I said the fleet is largely Canadian. They don't have a formulaic approach to setting annual catch quotas, so in order to account for that they are catching fish from the same stock. We would take our ABC from short term projections, and take a recent average of fixed-gear catches, deduct that from the ABC to arrive at an ACL, as a way to account for that source of mortality. The implication here is that the combined selectivity that I described earlier includes just the right amount of fixed-gear catches, largely Age 2 fish is what that fleet

catches. The implication is that there is just enough Age 2 fish being caught that it equates to this recent average, and appropriately accounts for some anticipation of the fixed fleet catches, again largely Canadian catches.

This illustrates the problem we ran into. If you do the combined selectivity as I described, using sort of a catch weight and mean of the selectivity's from each of the fleets, the dash line in the graphic there is what you end up with for selectivity at age, which is this weird wonky shape that has an excessive amount of Age 2 selection.

The problem here is that the reference points are now being unduly effective by the catches of a foreign fleet that don't have a formulaic method for specifying annual quotas that we're able to anticipate. Also, a consequence of this sort of 2020 wonky looking combined selectivity is that if we were to do short term projections using the selectivity, any combined selectivity really.

The assumption is that the Canadian fixed gear fleet would adhere to the U.S. Harvest Control Rule, whatever that may be, and that is not true. If we were to use the combined selectivity there pictured with the dashed line, the short term projections would have far too many Age 2 fish being caught, and it would make the assumption that the Canadian fleet would respond to status changes in the same way that we would, and that is not true.

The solution was to base the biological reference points on the mobile fleet selectivity pattern only. The mobile fleet is a U.S. only fleet. It removes the effect of the Canadian foreign fleet. The graph there showed the difference between what we did in 2018, and the mobile fleet selectivity. You can see they are quite similar, because prior to 2018 and 2019, 95 plus percent of the catch was mobile fleet.

Given that that is no longer the case, we ran into those problems. I want to point out here though, the reference points are going to be based on the mobile fleet selectivity only. Reference points are just goalposts. I'll get into some more details about the

short-term projections, but the short-term projections will still include the Canadian fixed-gear catches.

It's just that the goalposts we're setting for ourselves are now premised on a mobile fleet selectivity pattern. Here are the previous biological reference points. F40 percent was 0.51, the SSB proxy, the corrected value you'll see a corrected value there in parentheses is 266,000 metric tons. In doing this management update, I found out that I flat out just screwed up somehow, and screwed up the SSB proxy in the last assessment.

The updated reference points using the mobile fleet selectivity are 0.54 for F40 percent, and 269 metric tons for SSB proxy, so quite similar, if I had gotten it correct the last time. Now even though the reference points and the goalposts, so to speak, that we have for the stock and fishing mortality are premised on a selectivity pattern that is only the U.S. mobile fleet.

The short-term projections will still explicitly include both fleets. Just as the ASAP Assessment model had two fleets, our short-term projections now have two fleets. Fixed catches are going to be set equal to a recent average, similar to before, except now then instead of taking that recent average after the projections are done, we take the recent average first, and plug that explicitly and directly into the short-term projections. The probability of overfishing will be based on comparing the mobile fleet fishing mortality rate to the reference points as I described, and that are premised on the mobile fleet selectivity.

But they will be explicitly responsive to any changes in Canadian catch. All else being held constant, if Canadian catches were to go up the probability of overfishing would also go up, and respond accordingly, and vice versa. The probability of overfished is based on comparing SSB to the SSB proxy as it always was.

Those are the only real changes to the projection methodology. In short, instead of using a combined selectivity to define the reference points, we're just using the mobile selectivity. Then instead of having this implicit amount of Canadian fixed fleet catches in the short-term projections, we're removing the fixed fleet explicitly, and having two fleets in the short-term projections, so that the effects of each fleet are carried forward separately and explicitly throughout the entire process.

Here is the stock status plot or Kobe plot. The vertical axis is fishing mortality rate in 2019 over the Fmsy proxy. The horizontal axis is SSB in 2019 over the SSB proxy, so the horizontal dash line of 1 would be where F equals FMSY. The vertical dash line is where SSB would equal half SSBmsy.

The crosshairs there, I believe are the 90 percent probability intervals from the stock assessment. There is a triangle just offset from the center of the crosshairs. Should a retrospective adjustment been necessary, that is what the adjustment would be. But obviously the retrospective wasn't severe enough to warrant that.

If this were to become official, the stock would be declared overfished, but overfishing would not be occurring. On to some short-term projection results. As I said, the fixed and mobile fleets are now both explicitly included. For these projections the fixed-gear catches equal their recent ten-year average in all years.

The exact values there are under the second bullet, and the mobile fleet fishing mortality rate is based on the New England Council's Harvest Control Rule that I believe has been finalized. I'll let that there a second, so folks can soak it in, or spit it back out if they choose. Term of Reference 6 was review research priorities from previous assessments and SSC discussions.

I pulled out those that were called the high priority research areas during the 2018 assessment, so the first line was further research on the use of acoustic technology. To my knowledge, no progress has been made there in the last two years. We don't have a

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dedicated acoustic program anymore at the Science Center, so advancing that one will be a bit rough.

Second bullet, at least major bullet is to evaluate the data collected in the study fleet program. I am working with the Cooperative Research Branch of the Science Center, to see if the depth preferences for Atlantic herring are systematically changing through time. For example, are they occupying benthic habitats more frequently than they use to? Then the last bullet was to evaluate the ability of state-space models to utilize in the region more generally. In the 2018 benchmark we had a state-space model, which even if you don't know exactly what that means, it's sort of the state of the art, next generation type of stock assessment model.

We had one available in 2018, but most of the Working Group members weren't comfortable with the statistics behind it, and weren't comfortable sort of diagnosing it, and so it wasn't adopted. But anyway, the recommendation was to do some follow up work on how state-space models function, and are they reliable, and so on and so forth.

That research recommendation is actually one that the ICES community that Europe is heavily involved with, Australia, most major regional management bodies are going this way. There is lots of local, national, and international projects going on in that research priority. Moving beyond the terms of reference here.

I don't actually know if the reviewer report has been made public yet. If it's not, it certainly will be, I would assume within days. The reviewer comments were largely positive. They only had one or two research recommendations. I believe one was about continued evaluation of acoustics.

The second was continued research on how to define reference points in a multi-fleet context, particularly when one of those fleets doesn't

have a formulaic way of setting annual quotas that you can anticipate, so how best to account for that mortality in determining reference points. That is all I had, and I'm happy to take some questions.

CHAIRWOMAN PATTERSON: Thank you very much. Are there any questions from the Board?

MS. KERNS: Cheri, you have Conor McManus.

CHAIRWOMAN PATTERSON: Conor, go ahead.

MR. CONOR McMANUS: Thank you, Jon for your presentation, really informative. I guess I was just curious. Is there any belief that the selectivity curves for the fleets are changing through time? I saw in the figure legend it said 1969. I wasn't sure if those are based off more historical information, or if there is evidence that the selectivity curves are rather stable.

MR. DEROBA: The 1960 whatever label you saw in the graph is a default label that is produced by an R package, which I should probably fix. It's not indicative of much. But to answer your question. No, there is no indication that selectivity of either fleet is shifting systematically through time. If it were, it would likely manifest in residual patterns in the age composition fits in the stock assessment, and the residuals are actually quite good in this stock assessment, at least for the age compositions. There are no obvious indications of time-bearing selectivity.

MR. McMANUS: Great, thank you.

CHAIRWOMAN PATTERSON: Anybody else from the Board before I go out to the public?

MS. KERNS: I don't see any hands, Cheri.

CHAIRWOMAN PATTERSON: Are there any questions for Mr. Deroba from the public?

MS. KERNS: We have a question from Jeff Kaelin, but Jeff, you somehow lost your audio. We need to send you a PIN. We're going to send you a PIN. Tina, can you do that?

MS. TINA BERGER: Just sent.

MS. KERNS: Okay, and perhaps we can come back to Jeff, or if you can text your question to somebody that would have audio ability, we could read your question off for you, Jeff.

MR. DEROBA: You can even e-mail me, Jeff, if you're able to do that from your truck with your phone.

MS. KERNS: Jon, just so you know, we can take control back from you if we need to. Cheri, I don't see any other hands raised for questions at this moment.

CHAIRWOMAN PATTERSON: Okay, is Jeff able to type in his question, maybe?

MS. KERNS: Well, Cheri, he's in his truck, because I think he had lost power. He is on his telephone. I think it's a lot harder to type in a question on your phone.

CHAIRWOMAN PATTERSON: Okay, Jon, are you going to be with us for the rest of this meeting, in case Jeff does come back to us?

MR. DEROBA: I can be if you think it imperative. I have a plumbing issue that has required me to shut water off for my entire house at the moment. I would prefer to go fix that. But if you would like me to hang out for a bit to see if Jeff can get online, I can do that.

CHAIRWOMAN PATTERSON: No, go ahead and fix your personal issues.

MR. DEROBA: Jeff knows how to find me, and he knows I'm happy to answer his questions at any time. I'm happy to do that, Jeff, if you can hear me, or anybody else for that matter.

CHAIRWOMAN PATTERSON: Thank you very much, Jon, good luck.

MR. DEROBA: Thank you, good luck to all those without power.

PROGRESS UPDATE ON THE 2020 AREA 1 FISHERY

CHAIRWOMAN PATTERSON: Okay, next I would like to go to looking at the Progress Update on the 2020 Area 1 Fishery. The Area 1A sub-annual catch limit is 2,957 metric tons after adjusting for the research set-aside. The 30-metric ton fixed-gear set-aside, and the fact that Area 1A closes at 92 percent of the sub-ACL.

In October 2019, the Board implemented seasonal allocations for this year's fishery, which the season was allocated between June through September at 72.8 percent of the ACL, and October through December was designated at 27.2 percent of the sub-ACL. Also, in May of 2020 the Board set effort controls for the Area 1 fishery, which is in your briefing materials, and the fishery did begin in mid-July. It started in Maine on July 19, and in New Hampshire and Massachusetts on July 20. If we could get an overview of the current Area 1A fishery, Renee, we can move on to your presentation.

MS. RENEE ZOBEL: Everybody can see the presentation. I will have staff help advance me through this. Cheri gave a little bit of an update of what this year has looked like thus far, so this is just a reminder. My very high tech, very flashy presentation you'll be seeing today looks very similar to the one that I gave (breaking up) recently.

Just as a reminder to the Board (breaking up) on Friday. We are currently sitting at four landing days for Category A vessels, and a six-truck limit, which is 240,000 pounds weekly per vessel, so there is a landing limit per vessel per week. For Category C and D small mesh bottom trawl vessels, (breaking up) five landing days.

Currently no use of carriers and harvester vessel to harvester vessel transfers only. As of this morning, the best available numbers that we have would be understanding that this fishery is still open for the week. We were sitting at about 872 metric tons taken for the week, which is 1,922,590 pounds. There were five vessels reporting to date this week.

We've had a range of 5-10 vessels participating thus far. I'm actually confirming something, bear with me

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one second to make sure. I understand what the state of Maine sent to me appropriately. Oh, can you guys hear me okay? I'm hearing that I'm breaking in and out.

CHAIRWOMAN PATTERSON: Yes, you are breaking in and out. If you want to come into my office and finish it up, you can.

MS. ZOBEL: Okay, bear with me one moment. All right, sorry about that. Am I a little bit clearer now? We've had 5-10 vessels participating per week. As Cheri stated earlier, the sub-ACL for Area 1A is a little bit higher than this. This is the June 1 through September 30th amount of that catch, which is 2,152 metric tons. With the value as of today that sets us at about 1,600 metric tons taken to date, with 540 metric tons remaining.

We will update again on Friday, as far as the catches overall for this fishery, and determination of whether the Board would like to decide to make a change headed into next week. This is just the visual through GARFO. Their last official quota monitoring update ran through the end of last Thursday, so last week's catches. We were sitting at about 738 metric tons total for the 1A fishery to date at that time. That is all I have; I am happy to take any questions.

CHAIRWOMAN PATTERSON: Toni, Renee and I are sharing a microphone, so if you can just guide us if there are questions.

MS. KERNS: Will do, Megan Ware has a question.

MS. MEGAN WARE: Can we go back maybe one or two slides. I'm still a little confused, one more slide. Is that 872 metric tons, is that landings cumulative over the three weeks we've been open, or just for this week?

MS. ZOBEL: Megan, I'm going to be honest. I worked up this presentation this morning, and this is the VMS, it was a little tricky earlier in the

year, so I was asking for information out of Maine, which you guys have been gracious to help with the reporting program. My understanding was, I was asking for the amount for this week. But I very well may have gotten the cumulative amount. As soon as I started this presentation, I realized we may have crossed paths. If you have information that says that this is the cumulative that would be helpful.

MS. WARE: Okay, give me a second here to do some messaging. I'm getting a message that it is cumulative, that information.

MS. ZOBEL: All right, so that made a lot more sense. As soon as I started into this presentation, and I apologize for the confusion to the Board members. We're juggling a lot of balls at once, and I asked for something and wasn't probably very clear about it, so we were both thinking we were asking for something else.

I'll give you, bear with me one second and I'll give you what remains for the period, which will be significantly more. My apologies on that. We have about 1,300 metric tons left in the fishery then. Everything else is true, but that was the cumulative value and not the weekly value, so my apologies for that confusion. We have caught less than half of what is available for June through September, currently.

MS. KERNS: We have Dennis Abbott with a question.

MR. DENNIS ABBOTT: I'm looking at the NOAA Fisheries report dated 7/31, which said that the cumulative catch at that point was 736 metric tons. Are we saying it's now, the total is 872, meaning we only caught 140 tons this week so far?

MS. ZOBEL: As of this morning that is correct.

MR. ABBOTT: They're still not catching many herring.

MS. ZOBEL: If anybody from the state of Maine or any industry can field that question. I'm hearing in general that the fish have still been difficult to find, but others may have better insight on that.

MS. KERNS: We have Megan Ware.

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MS. WARE: Yes, Renee, I'm not sure I have better information than that, other than I think that the landings have continued to be on the pace that we've seen them so far this year. We haven't seen a spike in the landings yet.

CHAIRWOMAN PATTERSON: Are there any other questions from the Board for Renee or Megan?

MS. KERNS: I do not see any hands raised.

CHAIRWOMAN PATTERSON: Okay, thank you. We will be having a conference call on Friday, to see if we're going to need to do any further adjustments on the Days-Out meeting. I also wanted to remind the Board. I should say, thank you, Renee for that presentation. I wanted to remind the Board that Jon's presentation of the management track assessment was just keeping us up to date on the results of that assessment.

We're not looking to approve the assessment at this time, because the New England Fisheries Management Council hasn't seen it yet. Therefore, there is no formal recommendations to consider at this point in time. It was just informational.

MS. KERNS: Cheri, Ritchie had raised his hand. I don't know if he wanted to ask a question. There it is, his hand is up again.

CHAIRWOMAN PATTERSON: Go ahead, Ritchie.

MR. G. RITCHIE WHITE: I was just questioning the need for the Friday call, given the rate of harvest. It seems like another week there is no issue, then we're going another week.

CHAIRWOMAN PATTERSON: I would agree with that, but I'm Chair, so is there any other individuals on the Board that see a need to meet on Friday, and can we postpone it for another week?

MS. KERNS: We have Dan, then Megan, and then Ray Kane.

CHAIRWOMAN PATTERSON: Dan, go ahead.

MR. DANIEL MCKIERNAN: Yes, Cheri. I agree with Ritchie. We can postpone another week.

CHAIRWOMAN PATTERSON: Megan.

MS. WARE: I agree as well.

CHAIRWOMAN PATTERSON: Ray.

MR. RAYMOND W. KANE: I agree as well.

MR. ABBOTT: I do, Cheri.

CHAIRWOMAN PATTERSON: Thank you, Dennis. Is next Friday the 14th okay for people's schedule? The 8:30 to 10:00 o'clock slot, will that work, Max or Toni?
MR. MAX APPELMAN: Yes, that should be fine.

MS. KERNS: Yes, we'll send out a notification cancelling the call, and announcing the call for the following Friday.

CHAIRWOMAN PATTERSON: Thank you, Toni, and thank you Board members. Our presentations are done.

ELECTION OF VICE-CHAIR

CHAIRWOMAN PATTERSON: Information has been passed on, so if we could move on to the next agenda item on Election of a Vice-Chair. I believe we have Dan, who would like to make a motion.

MR. MCKIERNAN: Yes, thank you, I would like to nominate Megan Ware as the incoming Vice-Chair.

CHAIRWOMAN PATTERSON: The motion is to elect Megan Ware as Vice-Chair to the Atlantic Herring Management Board.

MR. ABBOTT: I'll second the motion.

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CHAIRWOMAN PATTERSON: Seconded by Dennis, thank you.

MR. ABBOTT: And cast one vote for Megan Ware.

CHAIRWOMAN PATTERSON: Is there any opposition to this nomination? Please raise your hand if there is opposition.

MS. KERNS: I do not see any hands raised.

CHAIRWOMAN PATTERSON: Thank you, and congratulations, Megan.

CHAIRWOMAN PATTERSON: Is there any other business that the Board members would like to bring forward, please raise your hand?

MS. KERNS: I don't see any hands raised.

CHAIRWOMAN PATTERSON: Have we heard back from Jeff at all?

MS. KERNS: His hand is raised, but again he's still not connected.

MS. BERGER: He did reply in the question area that he was fine.

MS. KERNS: He did just raise his hand again though, so I feel bad about this. I'm so sorry, Jeff. We can send you an audio pin again. We'll see if we can work with you, so that you can be able to speak in time for the Menhaden Board meeting, and then if you do have questions, we'll try to answer those. You can always call me via the office line.

MS. BERGER: Jeff, your audio PIN number, if you can't retrieve it, is 27906.

MS. KERNS: Bear with us for one second, Cheri. We will try to make this technology work for everyone. I understand this is hard where people are having power outages and such. I think he's fine. He just said that he's all good. I think you're good to perhaps adjourn the meeting.

ADJOURNMENT

CHAIRWOMAN PATTERSON: Okay, thank you. Is there any opposition to adjourning this meeting? Please raise your hand if there is opposition, or if there is further business.

MS. KERNS: I don't see any hands raised.

CHAIRWOMAN PATTERSON: Okay, meeting is adjourned. Thank you everyone.

(Whereupon the meeting adjourned at 2:00 p.m. on August 5, 2020.)



New England Fishery Management Council

FOR IMMEDIATE RELEASE
September 30, 2020

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Atlantic Herring: Council Adopts 2021-2023 Specifications; Adjusts Herring Measures to Facilitate Mackerel Harvest

During the first day of its [September 29-October 1, 2020 webinar meeting](#), the New England Fishery Management Council took final action on Framework Adjustment 8 to the Atlantic Herring Fishery Management Plan. Next, the framework will be submitted to the National Marine Fisheries Service (NMFS/NOAA Fisheries) for review and final approval.

Framework 8 contains two parts:

- Specifications for the 2021-2023 fishing years for Atlantic herring; and
- Adjustments to measures in the herring plan that potentially inhibit the Atlantic mackerel fishery from achieving optimum yield (OY).

The Council based the 2021-2023 catch limits on the best scientific information available, which included:

1. Results from the [2020 Management Track Stock Assessment](#) for Atlantic herring;
2. Overfishing limit (OFL) and acceptable biological catch (ABC) [recommendations](#) from its Scientific and Statistical Committee (SSC), which followed the ABC control rule in [Amendment 8](#); and
3. Input from the Herring Plan Development Team.

The SSC initially considered a higher ABC for 2023 but ended up recommending that the Council maintain the 2022 ABC of

| 2021-2023 Atlantic Herring Specifications (in Metric Tons) | | | |
|---|--------|--------|--------|
| Specification | 2021 | 2022 | 2023 |
| Overfishing Limit (OFL) | 23,423 | 26,292 | 44,600 |
| Acceptable Biological Catch (ABC) | 9,483 | 8,767 | 8,767 |
| Management Uncertainty | 4,669 | 4,669 | 4,669 |
| Optimum Yield / Annual Catch Limit (OY/ACL) | 4,814* | 4,098* | 4,098* |
| Domestic Annual Harvest | 4,814 | 4,098 | 4,098 |
| Border Transfer | 0 | 0 | 0 |
| Domestic Annual Processing | 4,814 | 4,098 | 4,098 |
| U.S. At-Sea Processing | 0 | 0 | 0 |
| Area 1A Sub-ACL (28.9%) | 1,391 | 1,184 | 1,184 |
| Area 1B Sub-ACL (4.3%) | 207 | 176 | 176 |
| Area 2 Sub-ACL (27.8%) | 1,338 | 1,139 | 1,139 |
| Area 3 Sub-ACL (39%) | 1,877 | 1,598 | 1,598 |
| Fixed Gear Set-Aside | 30 | 30 | 30 |
| Research Set-Aside as % of Sub-ACLs | 3% | 0% | 0% |

* If the New Brunswick weir fishery catch through October 1 is less than the associated "trigger," then 1,000 mt of the management uncertainty buffer will be added to the Area 1A sub-ACL.



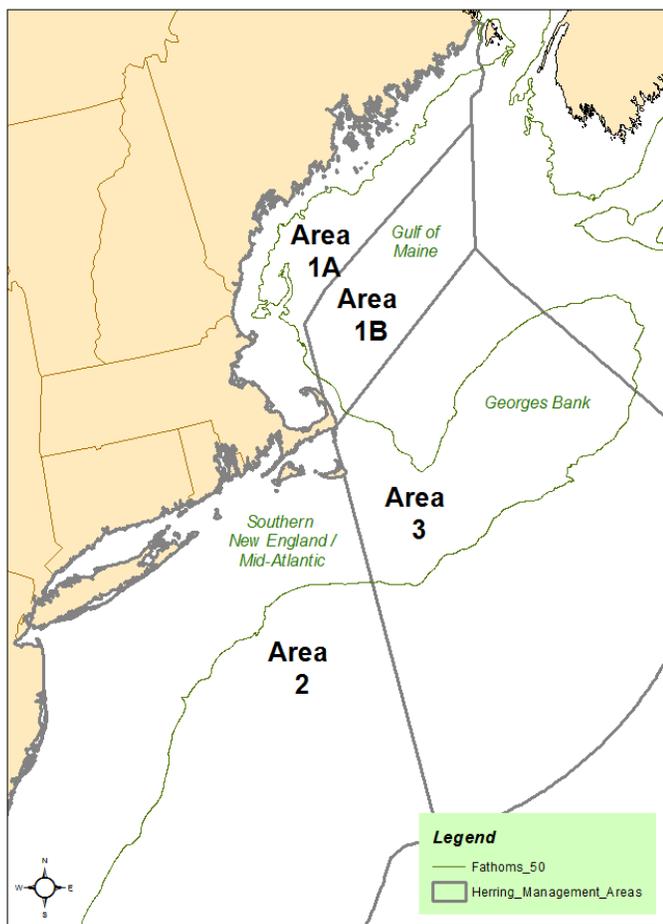
New England Fishery Management Council

8,767 metric tons (mt) in 2023 for this framework. The Council agreed to do so for two primary reasons:

- The lower ABC helps reduce scientific uncertainty, which the SSC deemed important, especially since the new assessment concluded that the resource is now overfished, even though overfishing is not occurring; and
- Both the SSC and Council viewed the 2023 ABC as a placeholder. A new management track assessment for herring is [scheduled for 2022](#), and the 2023 specifications will be updated based on the 2022 assessment results.

The Council takes into account management uncertainty when it sets specifications. While management uncertainty comes from several sources, the biggest one is the weir fishery in New Brunswick, Canada since the Council cannot control catches in that fishery. For the 2021-2023 specifications, the Council voted to set the management uncertainty buffer at 4,669 mt, which reflects the most recent 10-year catch totals from that New Brunswick fishery.

Given the low catch limits available to the U.S. fishery in the near future, the Council voted to set border



Atlantic Herring Management Areas 1A, 1B, 2, and 3. – NEFMC graphic

transfers at zero for the next three fishing years. Typically, the Council allocates a small percentage of fish to at-sea transfers from U.S. vessels to Canadian vessels, which buy herring from U.S. boats for the food-fish market. Border transfer activity has not occurred for the past several years, so the allocation has not been utilized since 2015.

While expressing strong support for the Atlantic Herring Research Set-Aside (RSA) Program, the Council determined that, given the current low quotas, 0% of the annual catch limit (ACL) should be reserved for the RSA program in 2022 and 2023. The Council approved a 3% set-aside for 2021 so that an ongoing project could be completed.

As a result of these decisions, the quotas for Herring Management Areas 1A, 1B, 2, and 3 flowed from there and are shown in the table on page 1.

CARRYOVER: Also related to catch limits, the Council agreed to allow 5% of unharvested catch from 2019 and/or 2020 from each management area – not 10% as would be allowed under “no action” – to automatically roll over to fishing years 2021 and/or 2022 respectively. The Council viewed this as a “balance” between addressing the



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needs of the fishery while maintaining protection of the resource. This balance was considered to be especially important in light of the current low biomass situation. The Council recognized that additional fish may be caught in one particular management area through the carryover allowance, but this also could lead to less fish being available in another area because the overall annual catch limit cannot be exceeded. Since near-term allocations for all areas will be extremely low, the Council determined that the 5% carryover was more appropriate than 10% and is expected to have lower risks of unintended distributional impacts on various segments of the fishery that access the resource in different areas and seasons.

RIVER HERRING/SHAD: The Council made no changes to the river herring and shad catch caps that currently apply to the Atlantic herring fishery.

Stock Status

Q: Why are herring quotas so low?

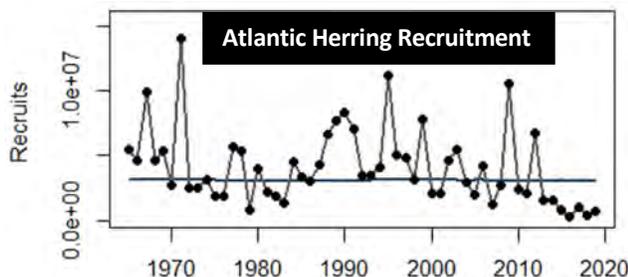
A: According to the new [management track stock assessment](#), the resource is at an extremely low level of spawning stock biomass (SSB). The Council is using a new ABC control rule to set catch limits. The control rule is applied to the estimate of SSB (see box at right). In 2020, the projection of SSB was 21% of the maximum sustainable yield (MSY) level for the herring resource. At this low level of biomass, the maximum fishing mortality rate (F) allowed is 24% of the fishing mortality rate estimated to produce MSY for the herring resource.

Q: What did the assessment peer review panel say?

A: The [peer review panel](#) said that trends in relative abundance of herring from all four surveys used in the assessment “indicate a substantial decline in stock abundance during the past few years.” The panel added, “Survey indices in 2019 were at or near record-low values.”

Q: Did the assessment show any signs of recent, improved recruitment?

A: No. Fishery and survey data have not yet detected improved recruitment, which has been at record low levels for the past seven years as seen in this graphic.



What Does the ABC Control Rule Do?

The Council adopted an ABC control rule for Atlantic herring as part of [Amendment 8](#) to better account for herring’s important role as a forage species. The amendment is under review by NOAA Fisheries. This relatively new control rule was used to develop the ABC recommendations for 2021-2023 and 2019-2021.

The control rule is biomass based. When biomass is greater than 50% of SSB at MSY, the maximum fishing mortality rate can be up to 80% of F at MSY. When biomass falls below 50% of SSB at MSY, then the allowable fishing mortality rate declines linearly. When SSB falls to 10% of SSB at MSY or lower, fishing mortality is set at zero, which means the ABC is zero.



New England Fishery Management Council

MACKEREL-RELATED ACTIONS: The Council voted to adjust two measures in the Atlantic herring plan that potentially inhibit mackerel fishermen from being able to more fully utilize the mackerel quota.

- The Council voted to adjust the current 2,000-pound incidental possession limit of herring in the mackerel fishery in Herring Management Areas 2 and 3 as follows:
 - When 90% of each area’s sub-ACL is reached, the mackerel fishery’s incidental catch limit of Atlantic herring would be limited to 40,000 pounds;
 - When 98% of each herring management area’s sub-ACL is reached, the incidental catch limit of Atlantic herring would be 2,000 pounds; and
 - If the total ACL for the herring fishery is reached at 95%, then the incidental “backstop” catch limit for the mackerel fishery would be 2,000 pounds.
- In Area 1B, which currently is subject to a seasonal closure from January through April, the Council voted to eliminate the closure to potentially allow directed mackerel harvests during the early winter months when mackerel typically are present in the area.

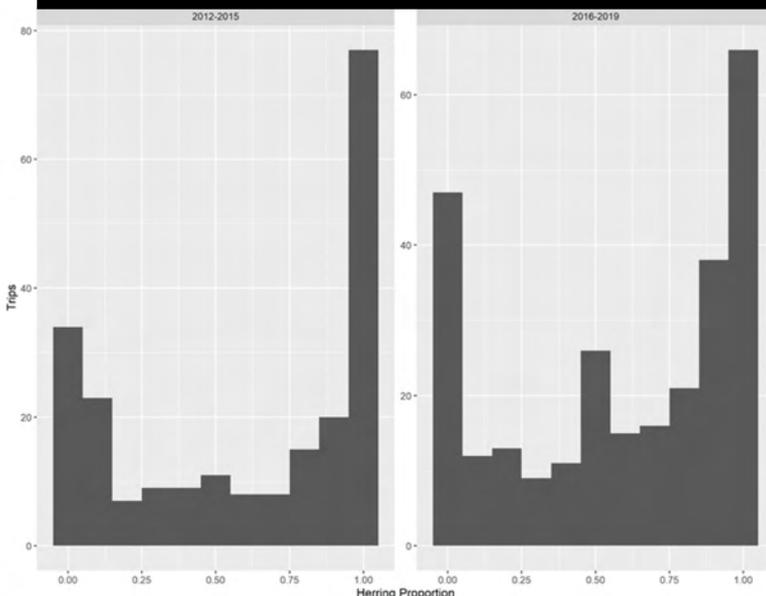


Mackerel and herring often intermix, and many of the region’s midwater trawlers target both species. When the incidental possession limit for Atlantic herring is 2,000 pounds, vessels generally find it challenging to fish for and target mackerel in certain areas and seasons when both species are present. Framework 8 to the herring plan includes two measures to help the mackerel fishery potentially better utilize its available quota.



– NOAA Fisheries graphics

Proportion of Herring Landed on Midwater Trawl Trips With > 1 Pound of Atlantic Mackerel: 2012-2015 Versus 2016-2019



What are These Bar Graphs Showing: The proportion of herring on midwater trawl trips landing mackerel has varied over time. The number of trips where midwater trawl vessels landed *primarily mackerel* are shown on the left side of each bar graph, while the trips where midwater trawlers landed *primarily herring* are depicted on the right side of each graph. The bars in the middle depict trips where mackerel and herring were intermixed.

Questions? Contact Deirdre Boelke, the Council’s Atlantic herring plan coordinator, at (978) 465-0492, ext. 105, email dboelke@nefmc.org.

- All herring documents and the presentation used during this meeting are available at [NEFMC September 29, 2020 Atlantic Herring Discussion](#).

Atlantic States Marine Fisheries Commission

Winter Flounder Management Board

*October 19, 2020
11:00 a.m. – 12:00 p.m.
Webinar*

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>D. Borden</i>) | 11:00 a.m. |
| 2. Board Consent | 11:00 a.m. |
| • Approval of Agenda | |
| • Approval of Proceedings from February 2019 | |
| 3. Public Comment | 11:05 a.m. |
| 4. Review 2020 Assessment Updates for Gulf of Maine and Southern New England/Mid-Atlantic Winter Flounder Stocks | 11:15 a.m. |
| • Presentation of Gulf of Maine Stock Assessment Report (<i>P. Nitschke</i>) | |
| • Presentation of Southern New England/Mid-Atlantic Stock Assessment Report (<i>T. Wood</i>) | |
| 5. Elect Vice Chair (<i>D. Borden</i>) Action | 11:55 a.m. |
| 6. Other Business/Adjourn | 12:00 p.m. |

MEETING OVERVIEW

Winter Flounder Management Board

October 19, 2020

11:00 a.m. – 12:00 p.m.

Webinar

| | | |
|---|---|---|
| Chair: David Borden (RI) | Technical Committee Chair: Paul Nitschke (NEFSC) | LEC Representative: Kurt Blanchard |
| Vice Chair: Vacant | Advisory Panel Chair: Bud Brown | Previous Board Meeting: February 5, 2019 |
| Voting Members: ME, NH, MA, RI, CT, NY, NJ, NMFS, USFWS (9 votes) | | |

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from February 2019

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. Review 2020 Assessment Updates for Gulf of Maine and Southern New England/Mid-Atlantic Winter Flounder Stocks (11:15 – 11:55 a.m.)

- The 2020 management track stock assessments were completed in September **(Supplemental Materials)**
- A peer review was held in September **(Supplemental Materials)**

Presentations

- Gulf of Maine assessment overview by P. Nitschke
- Southern New England/Mid-Atlantic assessment overview by T. Wood

5. Elect Vice Chair (11:55 a.m. – 12:00 p.m.) Action

- Vice Chair position is currently vacant.

6. Other Business/Adjourn

Winter Flounder Technical Committee Task List

Activity Level: Low

Committee Overlap Score: Low

Committee Task List

- There are no on-going tasks for this Winter Flounder TC at this time
- Annual state compliance reports are due December 1

TC Members

Paul Nitschke (NEFSC – Chair), Tony Wood (NEFSC), Dr. Robert Pomeroy (UCONN), Alex Hansell (MA DMF), Rebecca Heuss (NHFG), Timothy Daniels (NJ DEP), Paul Nunnenkamp (NYS DEC), Richard Balouskus (RI DEM), David Ellis (CT DEEP), Joseph Myers (ACCSP)

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

The Westin Crystal City
Arlington, Virginia
February 5, 2019

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

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Adjournment 7

INDEX OF MOTIONS

1. **Approval of agenda** by consent (Page 1).
2. **Move to approve the 2019 Winter Flounder FMP Review and state compliance reports** (Page 4).
Motion by Emerson Hasbrouck; second by Bob Ballou. Motion carried (Page 4).
3. **Motion to adjourn** by consent (Page 7).

ATTENDANCE

Board Members

| | |
|--|--|
| Pat Keliher, ME (AA) | Justin Davis, CT (AA) |
| Steve Train, ME (GA) | Willian Hyatt, CT (GA) |
| Doug Grout, NH (AA) | Sen. Craig Miner, CT (LA) |
| G. Ritchie White, NH (GA) | Maureen Davidson, NY, proxy for J. Gilmore (AA) |
| Dennis Abbott, NH, proxy for Sen. Watters (LA) | Emerson Hasbrouck, NY (GA) |
| Raymond Kane, MA (GA) | Joe Cimino, NJ, proxy for L. Herrighty (AA) |
| Sarah Ferrara, MA, proxy for Rep. Peake (LA) | Adam Nowalsky, NJ, proxy for Sen. Andrzejczak (LA) |
| David Pierce, MA (AA) | Russ Allen, NJ, proxy for T. Fote (GA) |
| Bob Ballou, RI, proxy for J. McNamee (AA) | Allison Murphy, NMFS |
| David Borden, RI (GA) | Mike Millard, USFWS |
| Eric Reid, RI, proxy for Sen. Sosnowski (LA) | |

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

Ex-Officio Members

Staff

| | |
|-------------|--------------------|
| Robert Beal | Kirby Rootes-Murdy |
| Toni Kerns | Jessica Kuesel |
| Megan Ware | |

Guests

| | |
|---------------------------------|-------------------------------|
| Peter Burns, NMFS | Melissa Smith, ME DMR |
| Rene Cloutier, ME Marine Police | Jack Travelstead, CCA |
| Heather Corbett, NJ DFW | Kevin Wark, Orsted, GSSA |
| Arnold Leo, E. Hampton, NY | Danny White, ME Marine Police |
| Kathleen Reardon, ME DMR | |

The Winter Flounder Management Board of the Atlantic States Marine Fisheries Commission convened in the Jefferson Ballroom of the Westin Crystal City Hotel, Arlington, Virginia; Tuesday, February 5, 2018, and was called to order at 10:30 o'clock a.m. by Chairman Dr. David Pierce.

CALL TO ORDER

CHAIRMAN DR. DAVID PIERCE: It's the Winter Flounder Management Board; we're starting at 10:30. We're scheduled to go to 12:00 o'clock, but obviously that time is going to be changed. Good morning everyone. I had an option today to wear this sweatshirt or to wear the vest that I received last year at the annual meeting in New York City.

I chose not to wear the one from New York City; because of the pain that still is within my system, the New York Giants beating the Patriots twice in the Super Bowl. Anyways, with that said; oh by the way I did meet a gal in the elevator going up and she had a Philadelphia Eagles sweatshirt on, and I did give her nothing but praise for what the Eagles did last year. Patriot's fans are not as arrogant as some may think; even though I'm wearing the sweatshirt.

APPROVAL OF AGENDA

CHAIRMAN PIERCE: You have the agenda before you. Is there any desire to make modifications to the agenda? I see no desire to make any changes; therefore the agenda will be approved as written.

APPROVAL OF PROCEEDINGS

CHAIRMAN PIERCE: Proceedings are available. I'm assuming that many of you have had a chance to go over those proceedings; any desire or need to make a revision to those proceedings? All right, I see none; therefore without objection the proceedings from May, 2018, will be adopted.

PUBLIC COMMENT

CHAIRMAN PIERCE: Public comment, anyone in the audience care to make any reference, make any comment to an item specific to winter flounder management that is not on the agenda? I see none. This meeting is only scheduled to be about a half an hour. I expect that it won't take any more than a half an hour; maybe even 15 minutes; but we'll see.

CONSIDER SPECIFICATIONS FOR THE 2019 FISHING YEAR

CHAIRMAN PIERCE: Next on the agenda is consider specifications for the 2019 fishing year; final action. As noted in the documents giving us the blueprint for this meeting, per Addendum III, we can adjust through Board action the recreational limits, the size limit, the bag limit, the season. Commercial we can do the size limit, the season, the trip limit, the trigger-trip limit, area closures. We have all those options regarding the 2019 fishing year. I'm going to pause here and turn to Megan and have her provide an overview of the winter flounder specifications for 2019.

MS. MEGAN WARE: We're going to review winter flounder specifications, and then also our recent catch numbers. This slide here is our current management measures for both the Gulf of Maine and the Southern New England/Mid-Atlantic winter flounder stocks. These are the regulations that have been in effect since 2014. If no action is taken by the Board, then the management measures will roll over into 2019. For the Gulf of Maine we have a 500 pound commercial trip limit and an 8-fish recreational limit. Then in Southern New England/Mid-Atlantic it's a 50 pound commercial limit and a 2-fish recreational limit. That Southern New England/Mid-Atlantic fishery, those regulations are quite strict; because it's supposed to be a bycatch-only fishery.

As our Chairman noted, under Addendum III the Board can adjust a suite of measures through Board action. They're listed on the screen here. I won't read through all of those again. The 2017 fishing year provides the most recent information on our

catch estimates. I thought I would review those with the Board today.

This is the slide for Gulf of Maine catch estimates. On the top row there we have our total ACL; which was set as 776 metric tons. Then our catch was 308.1 metric tons. Overall we were well below that ACL. On the bottom there we have the state water subcomponent. I did want to draw the Board's attention to that.

It was set at 122 metric tons. Our catch was 185.3 metric tons; so we were above the state water subcomponent. There is no accountability measure associated with that; so there is not a payback or a penalty. But I did want to note that our 2018 to 2020 state water subcomponent is set at 67 metric tons. Then this slide is the fishing year 2017 catch estimates for Southern New England and Mid-Atlantic.

Again on the top we have our total ACL; which was set at 749 metric tons, and our catch was 550.5 metric tons. Again, we were below the ACL. For the state water subcomponent, it was set at 70 metric tons; 23.2 metric tons were caught, so we were well below that. The 2018 to 2020 state water subcomponent is set at 73 metric tons; so there is really not much of a difference moving forward there. With that I'll take any questions.

CHAIRMAN PIERCE: Questions for Megan. David.

MR. DAVID V. BORDEN: A couple of quick points. If anybody looks at the minutes from previous meetings, you know I have consistently complained about this; so I'm not going to belabor the point. I want to pick on the Southern New England portion of this. If you look at the document, and I'll just use the numbers right out of the document.

In Southern New England we're basically landing 1.2 million pounds from federal waters and 50,000 pounds from state waters. My

biggest complaint with this is we have two inconsistent management strategies in place for the two areas. The states are managing this; for right or wrong, and I'm not saying that the Commission is right on this.

I'm saying that we're managing this in an extremely conservative manner. The Council is not. The Council has a completely different extraction policy. I think my own view is these two extraction policies are inconsistent. At some point here we need to get technical review from our Committee basically; to ask them whether or not these two extraction policies are consistent. If they are consistent then they should continue. If they're not consistent then we should change them so that they are consistent. Otherwise it's a bit of a charade is what we've got going on here. I would hope; regardless of what we do today, even if it's just continue the measures that we would refer this to the Technical Committee, and ask them explicitly whether or not the extraction policy in federal waters is consistent with the extraction policy that the Commission maintains for the stock. If anybody wants to take the other side of the argument on this, I'm happy to be educated if I've misstated the facts.

CHAIRMAN PIERCE: Questions of Megan; yes, Emerson.

MR. EMERSON C. HASBROUCK: Relative to what the issues that Dave Borden just raised. I fully agree with Dave on that. Also, relative to that the table that's in our information packet and the slide that you put up about the commercial and recreational possession limits. I'm focusing really on the commercial possession limits there. Is my understanding correct that those are for the state fisheries only; to piggyback on what Dave was talking about? People with federal permits fishing in federal waters are fishing under totally different trip limits than state waters; is that correct?

MS. WARE: Correct. The trip limits in the table apply to non-federal permit holders, so state-only permit holders.

CHAIRMAN PIERCE: I'll highlight one thing, Emerson that in Massachusetts if a federally permitted fisherman is fishing in Massachusetts waters with the appropriate permits, they are still required to live with the state limit and not the federal limits. They can't come in and take large amounts in excess of what's being allowed for someone who just has a state permit.

CHAIRMAN PIERCE: Questions for Megan. I see no additional questions; therefore we go right to the specifications. It's indicated by Megan, unless there is a motion to make a change in the specifications for the 2019 fishing year, the specifications will rollover. Is there a motion to make any changes or revisions to the specifications that we have had for 2018 fishing year?

I see no motion for a revision; therefore the specifications, those that have been described by Megan in her presentation roll over to the 2019 fishing year. Next on the agenda is the Fishery Management Plan Review. State compliance reports were due on December 1, and now we'll have a presentation describing those reports. We'll see if any recommendation comes out of those.

**CONSIDER APPROVAL OF 2019 FMP REVIEW
AND STATE COMPLIANCE REPORTS**

MS. JESSICA KUESEL: Good morning, I'll be presenting on the Winter Flounder FMP Review for the 2017 fishing year. The 2017 Operational Stock Assessment determined that the Gulf of Maine winter flounder stock biomass status is unknown; and that overfishing is not occurring. The 2016 biomass for fish over 30 centimeters was estimated to be 2,585 metric tons. The exploitation rate was estimated to be 0.086; below the exploitation threshold of 0.23.

Significant sources of uncertainty include gear catchability, and deriving stock biomass from area-swept survey estimates. The 2017 Operational Stock Assessment concluded that the Southern New England/Massachusetts winter flounder stock is overfished; but

overfishing is not occurring. Specifically the 2016 spawning stock biomass was estimated to be 4,360 metric tons; well below the biomass threshold of 12,343.5 metric tons. In addition, fishing mortality was estimated to be 0.21 in 2016; below the threshold of FMSY 0.34. Notable sources of uncertainty include the estimate of natural mortality and the length distribution of recreational discards; given they represent a small portion of the catch. Commercial and recreational landings have declined since the 1980s; specifically commercial landings peaked at 40.3 million pounds in 1981, but have generally declined throughout the 1990s and 2000s.

In 2017, commercial landings were 2.3 million pounds; with the majority of landings about 80 percent taken in Massachusetts. Recreational harvest in 2017 was 138,477 pounds; and represents a significant decrease from the 16.4 million pounds caught in 1982. Between 2013 and 2016, Massachusetts, New Jersey, and New York comprised the majority of coastwide recreational winter flounder harvest.

In 2017, Massachusetts had the highest recreational harvest. Maine and New Hampshire recreationally harvested the second and third highest amounts of winter flounder; though the PSE values of the data are very high, and indicate very imprecise estimates. Winter flounder are currently managed under Amendment 1, and Addenda I to III. The management measures presented above for 2018 have not changed since 2014.

Under Amendment 1 the states of Massachusetts, Rhode Island, and New York are required to continue annual surveys of juvenile recruitment; to develop an annual juvenile abundance index for winter flounder. In addition the states of Massachusetts, Rhode Island, Connecticut and New Jersey, are required to continue annual surveys to develop an index of spawning stock biomass.

All states met this monitoring requirement. All state management programs are consistent with the FMP; and there were no requests for de minimis for the 2019 fishing season. The PRT recommends

the Board approve the 2019 FMP Review and State Compliance Reports. I will now take any questions, thank you.

CHAIRMAN PIERCE: All right, any questions of Jessica. All right no questions; I'm going to pause for one second. I have to consult with Megan. Thank you, Jess. **Do I have a motion from any member of the Board to accept the 2019 FMP Review and state compliance reports? Emerson, you make that motion, is there a second, and from Bob Ballou.**

The motion is on the floor. Is there any discussion on the motion? Is there any objection to the motion? Then it stands approved.

**DISCUSSION OF BELL ET AL. 2018 PAPER
"REBUILDING IN THE FACE OF
CLIMATE CHANGE"**

CHAIRMAN PIERCE: Next on the agenda is an item I thought would be useful to bring forward to the Board; to make everyone aware of this paper. You all have a copy of the paper; it was sent to you, it's on the web as one of our reading materials for today's meeting.

I'm the first one to admit that it's a bear of a paper; very difficult to read, and the best thing to focus on is the abstract and the discussion. Written by six scientists from the Northeast Fisheries Science Center out of New Jersey, out of Woods Hole, and out of Narragansett, and it is entitled "Rebuilding in the Face of Climate Change."

I just wanted to highlight for the benefit of the Board an issue that's of overarching concern to ASMFC as an organization; and that is the effect of climate change, ocean warming on these important resources that we manage that we regulate. Summary of the profile and conclusions that might also pertain, with further investigation, to fluke, black sea bass, maybe some other stocks. I'll only highlight a few points that are in this document; and then turn to you, Board members for your reaction, in

terms of the implications of this particular paper. This would be again in the discussion section, the next to last page.

They use winter flounder as an example to document the effects of ocean warming on stock size, on rebuilding efforts, and right at the top of the first paragraph it says: "In our winter flounder example there is evidence that winter conditions are driving changes in productivity. Warmer winter estuarine temperatures enable greater predation on the early life stages; decreasing the number of recruits expected per spawner, and the stock recruitment relationship."

It goes on to say: "In the northern hemisphere, increasing temperature is likely to negatively impact species at the southern extent of their range; with particular respect to Southern New England /Massachusetts, (I always say Massachusetts, sorry about that it's that parochial thing.) With particular respect to the Southern New England/Mid-Atlantic winter flounder example, however, the results are not without question."

They highlight some of the uncertainty. Then it goes on to say towards the end that "future projections of stock biomass, with the conditions over the last five years, suggest the stock will not be able to attain the spawning stock biomass MSY; while the exact estimate of biomass will vary with the explicit assumption made for the projection models." It goes on from there.

The reduction in recruitment (and here is the important factor) "with a reduction in recruitment due to changes in productivity as a function of temperature, or other factors, will likely make it challenging for Southern New England/Mid-Atlantic winter flounder to achieve, and more importantly sustain its biomass above the rebuilding target."

Again, I wanted to bring this to your attention; because it has implications for our further discussions about what to do with winter flounder management down the road, not too far down the road. Certainly with Southern New England and

Mid-Atlantic winter flounder, which we're all very familiar.

Are there any reactions to the paper; any suggestions as to how we might want to deal with the findings, with the conclusions reached by these very prominent scientists from Woods Hole, Narragansett, and New Jersey? By the way, Jonathan Hare of course is the Director of the Northeast Fisheries Science Center is one of the authors of the paper. Are there any thoughts regarding this particular paper and its findings? Bob Ballou.

MR. ROBERT BALLOU: Well, just to state the obvious. It strikes me that winter flounder is not in fact, at least Southern New England/Mid-Atlantic, not overfished, but rather depleted due to climate change. Just that sort of characterization is something that I think perhaps this Board, this Commission is going to need to come to terms with.

I know we talked a lot about how we characterize stock status. But having just heard the FMP review, and again seen that characterization of overfished. Hearing your report on this paper, it just strikes me that we need to change our terms of reference, in essence, based on what the science is suggesting. That is my immediate response. Thank you for the opportunity to comment on this.

CHAIRMAN PIERCE: Any further comment on the paper? David Borden.

MR. BORDEN: Thank you for bringing this forward. I think it's a useful document. My take away from the message is slightly different. My read of this is you can't necessarily rebuild a population to the levels that existed previously, historically. But that doesn't mean we can't improve the status of a population.

With a different management strategy I think it would be useful, kind of consistent with what I

said before; to ask the technical people to review the paper and see whether or not there are other strategies that the Commission could utilize to improve the chances of rebuilding, recognizing that we may never be able to rebuild to the levels that existed before.

CHAIRMAN PIERCE: With that said, David. Are you prepared to make a motion regarding the tasking of the Plan Development Team or TC; specific to a reviews paper?

MR. BORDEN: I wasn't prepared to make a motion, Mr. Chairman. I would suggest that we do that unless we have objections. If we have objections, I'll cobble together a motion.

CHAIRMAN PIERCE: Unless there is an objection to tasking the Plan Development Team and/or the Technical Committee to review this paper, we'll have them do that. Pat.

MR. PATRICK C. KELIHER: Not an objection; but are any of the authors on this paper on the PDT or the Technical Committee? I just want to ensure that we don't instill bias in anything that we get from those bodies.

MS. WARE: Yes, some of the authors are on the Technical Committee.

MR. KELIHER: Mr. Chairman, I think that is something that we – I don't object to the assertion that this should be done. I think it's important to have this review. I think we just need to understand that if there are authors in there, there may be some bias that we should make sure we take that into account.

CHAIRMAN PIERCE: All right thank you, plus they may be able to elaborate and clarify points that are not necessarily well made in the very difficult to understand document. Toni.

MS. TONI KERNS: The Plan Development Team would not be the right group to do this. One, we don't have a Plan Development Team currently for winter flounder. You only have plan development

teams when we initiate management action. The TC could be a group. The Assessment Science Committee or Management and Science Committee also may be a group that might be appropriate to look at it.

It depends on the complexity of the paper; which I do believe it is not a simple topic. In addition that it is looking at a lot of species; not just winter flounder. The other thing that I would want to hear the Board's thoughts on is; since this is one of the species that we manage complementary with the New England Council. Is it something that we would want to see some input from their SSC on or not?

CHAIRMAN PIERCE: That was going to be my suggestion then in addition; the TC reviewing the paper, and giving us their recommendations as to its usefulness, its implications. We would also request the New England Council to do pretty much the same thing with its SSC. If there is no objection to that approach, we will send this document to the Technical Committee, and we'll also engage conversation with the Council about them doing something similar. Doug.

MR. DOUGLAS E. GROUT: I think it is important that as there is communication with the Council, we also have communication with the Science Center about this; because ultimately how this comes about is if we have a different rebuilding target, as a result of this being new science that is suggesting that we can't rebuild to levels that we've had historically.

That may; when they do the next benchmark assessment, affect what our fishing mortality target is on this. That's really where you're going to get the change in management; because right now we have a certain F is the way I understand. We have a certain F, because we're trying to rebuild to a higher level, and if that is not possible. If the best science says that it's a different rebuilding level, it would change the target fishing mortality.

CHAIRMAN PIERCE: Dennis.

MR. DENNIS ABBOTT: I think it's just very important for us to continue to shine a light on what climate change is doing to fisheries management. Most important is it affects our ability to manage the fishery. We have to shine the light as much as we can.

CHAIRMAN PIERCE: David.

MR. BORDEN: A quick point, I agree with the Chair's suggestion on the way to proceed on this. But I would just add that if the Council is willing to do that; then it might be useful, at least in our case, to kind of have the staff develop some terms of reference that we want that process to look at, and then submit a written document so that we make sure that the questions that we're all talking about are clearly brought forth.

CHAIRMAN PIERCE: Justin.

DR. JUSTIN DAVIS: Following up on what Toni said. I would just advocate for including the Assessment Science Committee as one of the groups to review this; because to me what's not only interesting are the conclusions relative to winter flounder, but the modeling approach described in this paper.

I'm kind of curious as to what degree it might be applicable to other species; if stock assessments are at this point sort of routinely considering models that include these environmental parameters and stock recruitment functions. I think adding the Assessment Science Committee to the body that would review this paper would be a good idea.

CHAIRMAN PIERCE: Without objection, I'll work with the staff with Megan, to put together the request of the different groups that have been mentioned, the SSC the Assessment Science Committee, you know the Northeast Fisheries Science Center, and anyone else who can help us better understand the implications of this.

Without objection that is what I will do, working with staff.

ADJOURNMENT

CHAIRMAN PIERCE: All right that brings us to the conclusion of our meeting, except for one other thing, which is other business. Is there any other business to be brought forward to the Board for discussion? I see none; without objection we will adjourn.

(Whereupon the meeting adjourned at 11:00 o'clock a.m. on February 5, 2019)

Atlantic States Marine Fisheries Commission

American Lobster Management Board

October 19, 2020

1:15 – 4:15 p.m.

Webinar

Draft Agenda

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

1. Welcome/Call to Order (*D. McKiernan*) 1:15 p.m.
2. Board Consent 1:15 p.m.
 - Approval of Agenda
 - Approval of Proceedings from October 2019
3. Public Comment 1:20 p.m.
4. Consider 2020 American Lobster Benchmark Stock Assessment **Final Action** 1:30 p.m.
 - Presentation of Stock Assessment Report (*K. McKown*)
 - Presentation of Peer Review Panel Report (*M. Celestino*)
 - Consider Acceptance of Benchmark Stock Assessment and Peer Review Report for Management Use (*D. McKiernan*)
 - Consider Management Response to the Assessment and Peer Review (*D. McKiernan*)
5. Report on Data Collection Requirements for 2021 (*A. Webb*) 3:30 p.m.
6. Report on Electronic Tracking Pilot Program (*W. DeVoe*) 3:45 p.m.
7. Consider Fishery Management Plan Reviews and State Compliance **Action** (*C. Starks*) 4:00 p.m.
 - American Lobster 2019 Fishing Year
 - Jonah Crab 2018 and 2019 Fishing Years
8. Other Business/Adjourn 4:15 p.m.

MEETING OVERVIEW

American Lobster Management Board Meeting

October 19, 2020

1:15 – 4:15 p.m.

Webinar

| | | |
|--|---|---|
| Chair: Daniel McKiernan (MA) Assumed Chairmanship: 02/20 | Technical Committee Chair: Kathleen Reardon (ME) | Law Enforcement Committee Representative: Rob Beal |
| Vice Chair: VACANT | Advisory Panel Chair: Grant Moore (MA) | Previous Board Meeting: October 28, 2019 |
| Voting Members: ME, NH, MA, RI, CT, NY, NJ, DE, MD, VA, NMFS, NEFMC (12 votes) | | |

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from October 28, 2019

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 2020 American Lobster Benchmark Stock Assessment (1:30-3:30 p.m.) Final Action

Background

- The lobster 2020 benchmark stock assessment was completed in July 2020 which evaluated the status of lobster for the Gulf of Maine/Georges Bank and Southern New England stocks. (**Briefing Materials**)
- The assessment was peer-reviewed virtually by a panel of independent experts in August 2020. The Peer Review Report provides the panel's evaluation of the assessment findings. (**Briefing Materials**)
- After reviewing the stock assessment, the Board may consider management response if warranted by the assessment results.

Presentations

- 2020 Benchmark Stock Assessment Overview by K. McKown
- Overview of Peer Review Panel Report by M. Celestino

Board Actions for Consideration at the Meeting

- Accept the Stock Assessment Report and Peer Review Report for management use
- Consider management response, as needed

5. Report on Data Collection Requirements for 2021 (3:30-3:45 p.m.)

Background

- Addenda XXVI (AL) and III (JC) were approved in 2018, and modified harvester reporting and biological data collection requirements for the lobster and Jonah crab fisheries. Specifically, they improve the spatial resolution of data through the reporting of 10 minute squares, as well as require additional data elements including number of traps per trawl and number of buoy lines in order to collect information on gear configurations.
- The new data elements were to be implemented on January 1, 2019, but were delayed in order to incorporate the elements into all reporting platforms. Some elements were implemented in 2020, but the Lobster Data Elements Work Group has been meeting weekly for several months in order to develop definitions for the remaining data elements and determine the implementation timeline for state and federal reporting requirements. The workgroup has also recommended a few additional data elements for a more comprehensive understanding of the fishery.
- It is expected that these data elements will be fully implemented for the 2021 fishing year, and federal reporting will be implemented for either 2022 or 2023.

Presentations

- Report on Data Collection Requirements for 2021 by Anna Webb

6. Report on Electronic Tracking Pilot Program (3:45-4:00 p.m.)

Background

- To improve the spatial resolution of data in the American lobster and Jonah crab fishery, Addendum XXVI established a one year pilot program to test a suite of electronic tracking devices in the Gulf of Maine, Georges Bank, and Southern New England regions. The project was completed during 2019 and 2020.
- The project assessed three devices (Succorfish, Rock7, and Pelagic Data Systems) by placing them on volunteer lobster vessels in Maine and Massachusetts with federal lobster permits. A draft report was submitted to describe the differences in features, performance, and cost between the devices, as well as industry reactions and future work. **(Briefing Materials)**

Presentations

- Report on Electronic Tracking Pilot Program by William DeVoe

7. Consider Fishery Management Plan Reviews and State Compliance (4:00-4:15 p.m.)

Action

Background

- State compliance reports for American lobster and Jonah crab were due August 1, 2020.
- The Plan Review Teams reviewed state compliance reports and compiled the annual FMP Reviews for the 2019 Fishing Year. **(Supplemental Materials)**
- Delaware, Maryland, and Virginia have requested and meet the requirements for *de minimis* in the lobster and Jonah crab fisheries.
- The Jonah Crab FMP Review and State Compliance Reports for the 2018 fishing year have not yet been approved due to the Board not meeting since October 2019. **(Briefing Materials)**

Presentations

- Overview of Lobster and Jonah Crab FMP Reviews by C. Starks

Board Actions for Consideration at the Meeting

- Accept the FMP Reviews and State Compliance Reports for the 2019 fishing year
- Accept the Jonah Crab FMP Review and State Compliance Reports for the 2018 fishing year
- Approve *de minimis* requests

8. Other Business/Adjourn

American Lobster and Jonah Crab TC Task List

Activity level: Medium

Committee Overlap Score: Low

Committee Task List

Lobster TC

- Annual state compliance reports are due August 1

Jonah Crab TC

- November 2020: Pre-assessment data workshop
- Spring 2021: Develop recommendations on initiating stock assessment
- Annual state compliance reports are due August 1

TC Members

American Lobster: Kathleen Reardon (ME, TC Chair), Colleen Bouffard (CT), 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)

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)

SAS Members

American Lobster: Kim McKown (NY, SAS Chair), Joshua Carloni (NH), Jeff Kipp (ASMFC), Conor McManus (RI), Tracy Pugh (MA), Kathleen Reardon (ME), Burton Shank (NOAA)

Jonah Crab: None

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

Wentworth by the Sea
New Castle, New Hampshire
October 28, 2019

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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October 2019

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INDEX OF MOTIONS

1. **Approval of agenda** by consent (Page 1).
2. **Approval of proceedings from April 2019** by consent (Page 1).
3. **Move to adjourn** by consent (Page 9).

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ATTENDANCE

Board Members

| | |
|--|--|
| Pat Keliher, ME (AA) | Maureen Davidson, NY, proxy for J. Gilmore (AA) |
| Stephen Train, ME (GA) | John McMurray, NY, proxy for Sen. Kaminsky (LA) |
| Sen. David Miramant, ME (LA) | Joe Cimino, NJ (AA) |
| Cherie Patterson, NH, proxy for D. Grout (AA) | Tom Fote, NJ (GA) |
| Ritchie White, NH (GA) | Adam Nowalsky, NJ, proxy for Sen. Andrzejczak (LA) |
| Dennis Abbott, NH, proxy for Sen. Watters (LA) | John Clark, DE, proxy for D. Saveikis (AA) |
| Dan McKiernan, MA, proxy for D. Pierce (AA) | Roy Miller, DE (GA) |
| Raymond Kane, MA (GA) | Mike Luisi, MD, proxy for B. Anderson (AA) |
| Sarah Ferrara, MA, proxy for Rep. Peake (LA) | Russell Dize, MD (GA) |
| Jason McNamee, RI (AA) | Phil Langley, MD, proxy for Del. Stein (LA) |
| David Borden, RI (GA) | Bryan Plumlee, VA (GA) |
| Eric Reid, RI, proxy for Sen. Sosnowski (LA) | Pat Geer, VA, proxy for Sen. Mason (LA) |
| Justin Davis, CT (AA) | Peter Burns, NMFS |
| Bill Hyatt, CT (GA) | Allison Murphy, NMFS |
| Sen. Craig Miner, CT (LA) | |

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

Ex-Officio Members

Rob Beal, Law Enforcement Representative

Staff

| | |
|----------------|-------------------------|
| Robert Beal | Maya Drzewicki |
| Toni Kerns | Katie Drew |
| Caitlin Starks | Julie Defilippi Simpson |

Guests

| | |
|------------------------------------|---------------------------------|
| Sen. Thad Altman, FL (LA) | Glenn Normandeau, NH F&G |
| Erik Anderson, NHCFA | Michael Pentony, NOAA |
| Chris Batsavage, NC DMF | Story Reed, MA DMF |
| Gabriela Bradt, NH Sea Grant, UNH | John Satterly, USSA |
| Robert T. Brown, MD Watermen Assn. | Geoffrey Smith, TNC |
| Kelly Denit, NOAA | Kevin Sullivan, NH F&G |
| Jon Hare, NMFS | Pam Thames, NOAA |
| Peter Kendall, NEFMC | Jack Travelstead, CCA |
| Nicole Lengyel, RI DEM | Lindsey Williams, MIT Sea Grant |
| Arnold Leo, E. Hampton, NY | Chris Wright, NMFS |
| Charles Lynch, NOAA | Renee Zobel, NH F&G |
| Brandon Muffley, MAFMC | |

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October 2019

The American Lobster Management Board of the Atlantic States Marine Fisheries Commission convened in the Wentworth Ballroom of the Wentworth by the Sea Hotel, New Castle, New Hampshire; Monday, October 28, 2019, and was called to order at 9:45 o'clock a.m. by Chairman Stephen Train.

CALL TO ORDER

CHAIRMAN STEPHEN TRAIN: My name is Steve Train. I'm the Governor's Appointee from the state of Maine; and I'm the Chairman of the Lobster Board, and we're going to start the Lobster Board meeting now. It's kind of nice to have the meeting this close, in New Hampshire. It's easy for me to get here, and like most of the things in New Hampshire it's led by two Mainers.

APPROVAL OF AGENDA

CHAIRMAN TRAIN: Everybody got the agenda, I'm certain. Do we have any additions, deletions or corrections on the agenda? I'm sure everyone approves of the agenda.

APPROVAL OF PROCEEDINGS

CHAIRMAN TRAIN: Do we have any additions, deletions, corrections on the previous meeting's minutes? If not I'll consider them both approved by consensus.

PUBLIC COMMENT

CHAIRMAN TRAIN: I'll move forward. Public comment, I don't have anybody on my list for public comment. Is there anybody in the back of the room that would like to comment on anything not on the agenda, which pretty much leaves it wide open? Seeing none, we're on to the next thing.

**DISCUSS REPORTING REQUIREMENTS
FOR 2020**

CHAIRMAN TRAIN: Discuss reporting requirements for 2020. Caitlin.

MS. CAITLIN STARKS: I'll go quickly through this. But for some context, Addendum XXVI for lobster and III for Jonah crab require the collection of a few additional data elements in the Commercial Harvester Reports that had not previously been required, and the original implementation date for those was January 1, 2019, but that date was delayed to January 1, 2020 to allow for those data elements to get added into the reporting platforms.

Most of the elements have been added in at this point, but there are still two, which are bolded on the screen here that have not been added in, and those are location reported via 10-minute square, and the number of buoy lines. Additionally there are a few data elements that are not reported consistently across the management unit, and a few data elements that have been recommended to be added for lobster and Jonah crab reports.

These are the four inconsistently reported data elements, and they include number of traps hauled, traps set, traps per trawl, and number of buoy lines. In different areas these are just reported in different formats. The recommendation is that the Data Workgroup be tasked with determining a consistent method or format for reporting and collecting this information in the Harvester Reports. Reporting data on maximum depth, bait type, bait quantity, and buoy line diameter is not currently required for Addendum XXVI or III. However, the Whale and Bait Related Workgroups discussed these items and thought they would be helpful information to collect for their efforts. It's recommended that these four data elements also get added to the Commercial Harvester Reports and reporting platforms.

Today, the recommended action for the Board is to postpone the implementation of the requirement to collect location via 10-minute square, and number of buoy lines until January 1, 2021, in order to allow more time for these

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to get to the reporting platforms. That is all I've got.

CHAIRMAN TRAIN: Cheri.

MS. CHERI PATTERSON: Number of buoy lines. I'm a little concerned with postponing that sort of information. As people well know there is a critical data need for that particular data element, especially as we are moving into a new right whale versus lobster harvester scenarios. We're all trying to come up with some sort of risk reduction.

That is going to have to happen in 2020, some sort of risk reduction. After that there needs to be some sort of way to show that risk reduction does not increase from that particular baseline. In order to determine that you pretty much need to have the number of buoy lines that are out there. I'm a little hesitant to postpone the implementation of the buoy lines.

CHAIRMAN TRAIN: Jason.

DR. JASON McNAMEE: I was curious; I also have some discomfort with the postponement. I was curious about the data recording aspect of this. We could require something, and there might be nowhere to put the data electronically. I'm trying to get a little more information on that. Is it not ready for 2020, because that would influence my vote on this?

CHAIRMAN TRAIN: Toni.

MS. TONI KERNS: For the 10-minute squares, the aspect for collecting that on eTrips is available now, or will be available for 2020. But in the SAFIS computer system it is not available, and it won't be available until about middle of the year, once the SAFIS redesign has been completed. For the number of buoy lines, that aspect could be available for the eTrips, if I am correct, but also would need to be added to the computer version of SAFIS for 2020.

CHAIRMAN TRAIN: Go ahead, Jason.

DR. McNAMEE: It's in eTrips if a state has altered their paper logbook system it could be there. Its paper logbook is there, it's stored on paper, which isn't ideal but it's there, it could be entered later. I don't think I understand. If you put in data into the field in eTrips, where does it go?

MS. JULIE DEFILIPPI SIMPSON: If you choose a 10-minute square it's actually doing sort of a lat/long tag, and that is what's going into our system. The issue with the 10-minute square outside of the eTrips system, specifically the eTrips mobile system, is that the eTrips online system does not have a similar 10-minute square. We would just have a lat/long, which could be translated into a 10-minute square, which is a possibility. For those partners or states that are not collecting a lat/long coordinate, there is no finalized existing grid for how they would name those 10-minute squares, therefore there is no ability for them. Electronically it's easy, we just created a map, they pick one and it's done.

There would need to be maps that accompanied a paper logbook, where people would have to have names for all of the 10-minute squares, and that hasn't been done. Additionally, those who are having this conversation were very concerned about the fact that any particular change in area or gear is how we are currently defining effort.

If you change the area definition from a statistical area to a 10-minute square, you are not just doing it for lobster, you're doing it for every fishery. Every time you change 10-minute squares you would have to start a new effort, and that would be across every fishery, including lobster. We were concerned that that was a very large change to make without making sure everyone was aware of the impact of what that change would be.

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CHAIRMAN TRAIN: Pat Keliher.

MR. PATRICK C. KELIHER: I'm trying to in my mind figure out how this is all going to play out, because the state of Maine has been now required to have 100 percent harvester reporting by 2024. That harvester reporting is going to include all of these things that we're postponing. We're in the develop process of starting to develop these tools.

I am hesitant to have a workgroup start working on these things not knowing how that is going to change the work that we're trying to do right now. Is something else going to come up through this process that is going to potentially modify our ongoing efforts at DMR to come into compliance? We had talked about this, and it's all fundraising dependent on how we can or cannot come up with the overall cost of the program to implement.

Requiring Maine to go to 100 percent harvest reporting is probably the most costly motion ever put in place, as far as what the impact to the state is. I'm very concerned about how this particular action could impact the work that we're doing going forward. I want to make sure if we're going to do this we're going to do it once, and we're going to do it right.

CHAIRMAN TRAIN: Toni.

MS. KERNS: For the postponement of the 10-minute squares and the buoy lines, I think that that is pretty straightforward, it's just that there is not the ability to collect it on all platforms, and so therefore we didn't want to make it a requirement for fishermen for states that don't utilize just eTrips Mobile.

There are also some states that had some concerns that they would not be able to fit it on their paper forms, and wanted additional time to work through that. For the items that were recommended by the Workgroup. We had a concern that some states or agencies were

collecting that information, or deriving it in different ways, and if you're wanting to use some of that information on an assessment level then it's important that we're collecting it consistently, to be able to utilize it at the assessment level consistently. We wanted to work with the folks from the states that are doing the data collection, to get that information in the most efficient and effective way, in order to be able to translate that to the assessment process cleanly. I believe we should be able to do that within a six-month time period.

CHAIRMAN TRAIN: Anybody else? I do think we do also, if this does get delayed, we do have the Control Date that we put in on 04-19. We might not have all the data, but we have that date saying anything after that may be treated differently. If we see a real escalation of effort before this happens, we do have that Control Date available to us. I don't know if it will work, but we have it. Toni.

MS. KERNS: Just one other thing. Just because we delay this, if a state has the ability to collect this information, we are not preventing them from doing that. I recognize that it is very important to get the number of buoy lines for the whale information. If there is a way for a state to go ahead and collect that this year, then that is fantastic.

CHAIRMAN TRAIN: Now on to Update on the Resiliency in the Gulf of Maine. Sorry about that. Are there any objections to the discussion on the reporting requirements? Okay, now on to the discussion on resiliency. Did you see one? Who is it? Peter Burns, go ahead.

MR. PETER BURNS: I just wanted to note, I'm going to abstain on this because this pertains to state reporting requirements. Thank you.

CHAIRMAN TRAIN: Back to you, Caitlin.

MS. STARKS: I'll go over this quickly as well.

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CHAIRMAN TRAIN: Craig Miner.

SENATOR CRAIG A. MINER: I also have a concern about extending this to 2021. Just the optics isn't good. I wonder if there is a way to change that last portion so that it doesn't appear as though it's another whole year of putting it off. It may be that technologically, even if everybody gathers the information it will be sometime after January 1, 2021. But the message I think that sends is not good. But I don't know how to exactly fix it to do what Toni was saying probably we will be able to do.

CHAIRMAN TRAIN: Toni.

MS. KERNS: I understand the concern, Craig, and I don't know what else we can do. Technologically we just don't have the ability to collect all of these data pieces on all platforms. Therefore, it would be very difficult for us to make it a requirement for states to collect that information from the fishermen, if we can't make it available on all the platforms, unless we forced everybody to use eTrips or if you had it on your paper form the state could collect it there.

In terms of compliance and consistency, we discussed having the requirement be made halfway through when it became available, when the SAFIS redesign had been completed, but we were concerned about getting that information out to the fishery, and getting compliance and having inconsistency from the data collection for the entire fishing year. Therefore, as a Workgroup we decided to make that recommendation to start in the next fishing year, when all the data elements would be available on all the platforms.

CHAIRMAN TRAIN: Dan McKiernan.

MR. DANIEL MCKIERNAN: Is a motion in order to delay these elements?

CHAIRMAN TRAIN: I was advised no, so I just need a consensus on accepting the report.

MR. MCKIERNAN: Well before you do, what I've found in this process is there are us as a Board, and we come up with certain mandates through our votes. Then the TC folks also have their desires and needs, and then it all falls on the data people to figure all this out. What I've learned is that there were some unintended consequences of some of the requirements that even the TC had asked for, specifically trip length.

What we discovered through internal conversations is that trip length was of great interest to the TC when they wanted to look at the offshore fishery, or the fishery that's functionally offshore. But they didn't really care about trip length for an inshore lobsterman who's doing a day trip. Well this is going to have an enormous amount of implications and burden for us as we have our paper reporting lobstermen who give us trip level reports, to be giving us trip length data, which is actually not really of any importance to the TC.

If this is an ongoing initiative, and we're going to hear back from the data folks, maybe at our February meeting about progress, I would also like to see if trip length could be reexamined, because our data folks feel that that may be an unnecessary parameter to be collecting, because our data collection systems is the same for everybody, whether you're digging clams, quahogs, dragging or lobstering. If you're part of the state reporting system it's one form, and we don't feel that trip length is worth it. Could I ask trip length to be examined as well?

MS. KERNS: It's not one of the elements that any of the states said that they had an issue collecting, so it was not brought up in the discussion that the Data Workgroup had, and trip length can be collected in two different ways. It either can be collected through start times and end time on the report, or total trip

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time, just you know number of hours. If it's an issue for your state then we can bring it back up to the Workgroup, but it was already a requirement. It's been a requirement all along since Addendum X, I believe.

MR. McKIERNAN: But I would still like to have it discussed by the Data Workgroup if I could.

MS. KERNS: We can do that. It was my understanding that this Board already agreed to the postponement through, we just asked if anybody objected, so if we need to do that again because somebody is objecting then we can. But I thought we just agreed to it, to postpone.

CHAIRMAN TRAIN: Ritchie White.

MR. G. RITCHIE WHITE: A question that just came to me during this discussion. It was said that not all platforms that fishermen use that will work now, but how many platforms would work now, and what percentage of the fishermen are using what percent of platforms? If it's a substantial amount, wouldn't it make sense to go ahead and collect the data on the platforms that do work?

MS. KERNS: It varies by state, Ritchie. In some states they will be able to put it on their paper forms, in other states they will not. It is available on eTrips Mobile, but there is not a large percentage of the fishery that is using eTrips mobile at this time, and it is not available on SAFIS, which is where the larger percentage outside of state paper forms.

CHAIRMAN TRAIN: Okay we've gone back to 4. We've had enough; I hope everyone is satisfied with the answers now. Pat, I guess not.

MR. KELIHER: No, I haven't had enough. I'm having too much fun with this. Bait and the amount of bait, can somebody please tell me how we're going to use that for management

decisions? Why are we going to be pulling that type of information?

MS. KERNS: It came out of the Bait Workgroup for wanting to know the different types of bait that are being utilized in the fishery. When the herring bait quota dropped we were trying to figure out what other types of bait are being used, to be able to make sure that there aren't things going into the fishery that could be potentially dangerous to the environment or the species, and so therefore it was something that came out of that Workgroup to ask for. As again, it's not a requirement it was a suggestion. It wouldn't be a requirement unless the Board moved on that.

UPDATE ON RESILIENCY IN THE GULF OF MAINE

CHAIRMAN TRAIN: On to Item Number 5 again, Update on Resiliency in the Gulf of Maine.

MS. STARKS: I have a very brief presentation on Addendum XXVII on Gulf of Maine/Georges Bank resiliency. For some background, in August, 2017, the Board got a report from the Gulf of Maine/Georges Bank Subcommittee that was established to discuss future management of the stock, given changing ocean conditions.

The Committee was concerned about the decreasing trends in Maine's Larval Settlement Survey over recent years, worried that it could foreshadow declines in recruitment and landings for lobster, and the Subcommittee based on that recommended initiating an addendum to increase the resiliency of the Gulf of Maine/Georges Bank stock by considering uniform management measures across the stock.

They felt this would be a proactive response to provide some additional biological buffer through the protection and spawning stock biomass across the LCMAs. The Board did take that recommendation and initiated Draft Addendum XXVII, but following the initiation of

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that Addendum as you know, Atlantic right whale issues became prioritized, so efforts on Draft Addendum XXVII were stalled.

The PDT did manage to draft a document, but it was never presented to this Board. Currently the focus of that draft document is on the standardization of management measures across the LCMAs in the Gulf of Maine/Georges Bank stock, since there are currently some differences in management measures in those LCMAs that would allow some lobsters to be protected in one LCA but harvested in another.

Five issues are focused on in that addendum. Issue 1 is focused on v-notching; Issue 2 asks what the minimum gage and vent sizes should be. Issue 3 asks about the maximum gage size for the LCMAs in this stock. Issue 4 asks whether tags issued for trap tag losses should be issued before or after trap tag loss occurs, or trap loss occurs, and Issue 5 asks if the regulatory changes that would result from this Addendum should apply throughout LCMA 3, or just to the Gulf of Maine/Georges Bank portion of LCMA 3.

Today the Board should consider the current priority level of this Addendum, and whether work on it should be continued at this time, and if so what the desired timeline would be for its completion. In addition, it would be worthwhile to discuss whether the management measures being proposed in the Draft Addendum would result in the level of resiliency that this Board is looking for.

Standardizing management measures could add some protection for the stock; however it would not likely result in reduced harvest, so it might be valuable to discuss what levels of resiliency are needed for the Gulf of Maine/Georges Bank stock, and whether the proposed management measures would achieve those. That's all I've got, any questions?

CHAIRMAN TRAIN: Questions for Caitlin. Go ahead, Pat Keliher.

MR. KELIHER: Caitlin thanks for the update on the resiliency addendum. I fully supported delaying the development of the addendum at the time we were dealing with the right whale issue. While the issues around regulatory environment of right whales are not finalized, we certainly are in a place where I think we need a PDT to be working on a resiliency addendum as a high priority.

Just to update the Board. As of the end of September, Maine lobster landings are down significantly, below 50 million pounds to date, and as a reminder we landed 119 million pounds in 2018, so our landings are way off. Now that doesn't mean the sky is falling that means we certainly have a very big delay in the shed.

But that is certainly not the entire reason why we are having significant declines in lobster landings, and as such I think we need to be getting the assessment work done, finalizing the assessment, and then reinitiating efforts at the PDT level on this resiliency addendum, so we can start taking actions on it.

CHAIRMAN TRAIN: Toni.

MS. KERNS: Pat, I have a question based on what you just said. Do you feel that the PDT should be working now as the Stock Assessment Team is finishing up the assessment, or do you want the PDT to wait until the assessment results come out? Then question two is are you still looking for a consistent management measures, or are we looking for something different that as Caitlin said, may reduce harvest or make other changes to the fishery?

CHAIRMAN TRAIN: Go ahead, Pat.

MR. KELIHER: Considering the people are going to be the same from an assessment standpoint

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to a PDT standpoint. I mean I would like to start working on it now, but I don't want to delay the assessment. I think we need the assessment to be finalized, and possibly, it's always dangerous when I'm thinking and talking at the same time.

Maybe we need a small workgroup to start looking at the issues around what is currently in the Addendum, and if we need to add any additional items. I'm certainly not prepared to put anything on the table right now. But maybe a small workgroup that could be working through that between now and the winter meeting would be useful.

CHAIRMAN TRAIN: Are you happy with that Toni? Okay, anybody else, questions about resiliency, comments?

PROGRESS UPDATE ON 2020 AMERICAN LOBSTER BENCHMARK STOCK ASSESSMENT

CHAIRMAN TRAIN: Item Number 6 is a Progress Update on 2020 American Lobster Benchmark Stock Assessment. Jeff's giving that. I didn't see you over there.

MR. JEFF J. KIPP: I snuck up on you. The last time I've updated this Board on the stock assessment progress, we have had one major milestone. That was a stand-alone Reference Point Workshop. That was two weeks ago. We met, the Stock Assessment Subcommittee in Woods Hole, and talked through some potential alternatives to the reference points that were defined in the last assessment, and we made some good progress towards reference points there.

One of the things we've continued to struggle with that I wanted to bring back to the Board is shifting priorities and competing with those shifting priorities, as Caitlin just mentioned, which has led to some folks on the Stock Assessment Subcommittee having little to almost no time to contribute to assessment work. I just wanted to encourage the Board that if you do have a member on the Stock

Assessment Subcommittee to check in with them.

Make sure that they have adequate time to not only sit in on the calls and attend the workshops that we're having, but also to contribute to actual analyses as part of the assessment, and be able to take on tasks as we kind of hit the home stretch of the assessment. The remaining milestones, we do have an assessment workshop, which we are underway planning for the last week of February.

That will be our last in-person workshop for the Stock Assessment Subcommittee to wrap up assessment work. We do have a Peer Review Workshop tentatively scheduled for August, and then the results of this assessment and that peer review would be brought back to this Board at the annual meeting next year, if we remain on track with our proposed assessment timeline. If there are any questions on the assessment progress I can take those now.

CHAIRMAN TRAIN: Go ahead, Jason.

DR. McNAMEE: Thanks for the update, Jeff. Maybe more of a comment than a question, I know that Jeff you're working on one of the models. Conor McManus from my staff is working on one of the others. It is my understanding, so Larry Jacobson retired, that was a big loss to the Assessment Committee. Burton Shank, who worked on the last assessment, it is my understanding, has been kind of pushed off onto a lot of the whale work.

My concern is, Jeff I don't think you worked on the assessment last time. I know Conor didn't. I'm just hoping that there is going to be support for both of you from someone, specifically from NOAA, Burton. I'm hoping that he will have time that this gets prioritized for him at some point, so that you guys can get some support to kind of check what you've been able to do with the model.

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The Board will review the minutes during its next meeting.

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October 2019

I have full confidence in both of you, you're both excellent. But I just you know, this is a team approach right, it's what we do. It is just kind of critically important that at some point some room is made in the schedule of Burton to kind of check in with you guys, and make sure all of the software is running correctly and all that. Just something I wanted to say on the record I'm concerned about, but I understand the limited resources as well.

CHAIRMAN TRAIN: Pat Keliher.

MR. KELIHER: I appreciate Jason's words. I share his concerns, and I don't want to put Dr. Hare on the spot. But I will put Dr. Hare on the spot, since he's in the back of the room. Jon, can you give us any update on when Burton will be able to spend more time focused on lobster issues?

DR. JON HARE: At this time I can't give any further information about when Burton will be able to focus more on lobsters. He and a number of scientists at the Science Center are preparing for Council for Independent Experts Peer Review, the decision support tool that Dr. Shank led to advise the Take Reduction Team, in terms of the right whale/lobster issue. Once we get further along in that peer review, I can give an update back to ASMFC about his ability to help out in the future.

OTHER BUSINESS

CHAIRMAN TRAIN: Are there any other comments or questions? Do we have any other business? Ritchie White.

MR. WHITE: Not on the agenda, but I was curious if Maine could comment on, with the bait shortage for lobster. Have they dealt with any exotic baits coming into the state that they've had to shut down, or is that process that they have in place, which is pretty thorough. Is that working?

CHAIRMAN TRAIN: Pat Keliher.

MR. KELIHER: Dr. Hare probably asked him to put me on the spot, since I put him on the spot. No, I appreciate that question. Obviously with such a drastic reduction in herring, the Maine industry has worked to make that up. We've made it up with approved hard baits that have gone through our system, several species of Pacific groundfish to name a few.

Carp has been looked at, at many different levels, especially from the Illinois River. That has been to date been rejected, but it looks like we are going to move forward with a very small pilot. We did approve one exotic, and the species name is rosefish, I believe from Uruguay, if I remember correctly, which went through our Bait Review Committee, and was given the green light. We've seen very little of that come in yet though. All in all I think the system has worked. Considering that we rely heavily on volunteers, as I've expressed in the past. But with that in mind, I think it's worked. We've said no to a lot of things, and hopefully the process will evolve, and we'll continue to make good decisions to stop bad stuff.

CHAIRMAN TRAIN: Ritchie is shaking his head, you're satisfied? Bill Hyatt, go ahead.

MR. WILLIAM HYATT: Just a follow up to Pat. You said the Asian carp were rejected. I'm just curious as to why, was it a disease related rejection, or having to do more with the mechanics and the amount of fish coming in?

MR. KELIHER: Bill, both really. VHS is one of the reasons we're trying to continue to look at it. We wanted some environmental testing for the areas that they are going to harvest from during cold weather periods, so they are doing that. The state along with U.S. Fish and Wildlife Service will be doing more of that work this fall and early winter.

Then chain of custody became an issue, so we're continuing to look at refining chain of custody, as it pertains to the Illinois River. We

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do allow carp from Kentucky to come in. There are no disease issues there, so we still maintain a chain of custody to ensure there is no mixing. But that was approved, actually carp from Kentucky was approved, I believe two years ago. We bring quite a bit of that in.

ADJOURNMENT

CHAIRMAN TRAIN: Anything else? If no, I'll entertain a final motion. Does anyone object to adjourning? We're done.

(Whereupon the meeting adjourned at 10:25
o'clock a.m. on October 28, 2019)

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ACCSP Collaborative Electronic Tracking Pilot Program in the American Lobster Fishery – Draft Report

Bill DeVoe, Maine Department of Marine Resources (MEDMR) and
Story Reed, Massachusetts Division of Marine Fisheries (MADMF)
September 4, 2020

Objective

To improve the spatial resolution of data in the American lobster and Jonah crab fishery by conducting a one year pilot program to test a suite of electronic tracking devices in the Gulf of Maine, Georges Bank, and Southern New England regions.

Approach

This project was initiated by the adoption of Addendum XXVI to the American Lobster Fishery Management Plan, which established a one-year pilot electronic tracking program, and by the recommendations of the Atlantic States Marine Fisheries Commission (ASMFC) Lobster Electronic Tracking Subcommittee (Subcommittee) that was formed to help design the tracking program. The Subcommittee was made up of representatives from multiple state agencies, industry, ACCSP, and ASMFC. Through the guidance of the Subcommittee it was determined that multiple devices should be tested in a variety of geographical areas from Southern New England to the Gulf of Maine.

Devices

Tracking devices were acquired by ACCSP from three vendors and placed on volunteer lobster vessels in Maine and Massachusetts. Vessels with federal lobster permits were specifically chosen. The three vendors utilized were Succorfish, Rock7, and Pelagic Data Systems. A fourth vendor (Faria-Beede) had been included in the initial proposal. Due to ongoing issues MEDMR has had with Faria-Beede devices, testing of these devices was dropped in favor of the Rock7 trackers.

This project proposal had initially planned to test tablets running eTrips Mobile. However, this testing did not occur for several reasons. First, a second VMS project being carried out in MA and RI is testing eTrips Mobile on tablets and is working to integrate VMS provider APIs with eTrips. Secondly, as MEDMR is developing a different harvester reporting application, having Maine fishermen test eTrips Mobile would have been confusing and mostly inconsequential.

Deployment

Initial deployment of devices occurred in June 2019 in Maine and November 2019 in Massachusetts. The Rock7 RockFleet devices were the first to be acquired. The Succorfish and Pelagic Data Systems devices were not available for deployment until September and November 2019, respectively.

For devices requiring a direct connection to the vessel's power system (Succorfish and Rock7), installations were completed by the captain or the primary investigators. Several devices in Maine were also outfitted with 12-volt cigarette-lighter style adapters to facilitate easy connections to vessel power systems where these outlets were available.

The COVID-19 shutdown in March 2020 impacted the deployment of some devices in both Maine and Massachusetts. Agency personnel were not able to install some devices due to COVID-19 protocols. Additionally, the seafood industry was severely impacted by the COVID-19 shutdown and many lobster boats fished less than planned during the spring and early summer.

Ping Rate

All devices tested were set to report data at a one-minute ping rate. This rate is necessary to distinguish lobster fishing activity from transiting activity. Faster rates, while possible with these devices, do not generally improve the track resolution as the expected distance between points in the track falls below the horizontal accuracy of the GPS signal.

Results

Device Features & Performance

Rock7

Rock7 is one of the largest distributors of Iridium satellite-based tracking technology. A large portion of their sales seem to come not from VMS devices, but from Iridium modems for use in satellite-connected embedded systems. The company produces VMS devices in both Iridium-only and hybrid Iridium/cellular modes. Rock7 VMS devices are currently required for use in several Australian fisheries; however, it should be noted that a 3rd party vendor handles the installation and data stream management for these units, and that Rock7 is essentially the hardware vendor.

MEDMR tested Iridium-only Rock7 RockFleet devices in 2016; for this project, the dual-band devices were tested. RockFleet devices were set up to report over cellular every minute when in range and every 15 minutes over Iridium when out of cellular range. The RockFleet does not support caching points at a faster rate for later upload; as such, when out of cellular service, the device is limited to only reporting over Iridium. The higher costs per ping associated with Iridium transmissions would limit the offshore ping rate possible with Rock7 units.

MEDMR deployed 4 RockFleets on vessels fishing out of Portland, Stonington, Swans Island, and Steuben. All but one of these devices reported until January 2020, when many vessels ceased fishing for the winter. One device experienced issues periodically “freezing”. Rock7 provides a magnet with each device that can be swiped over the unit to reset it in the event of a lock up. This would seem to be prima facie evidence that the devices are prone to this issue. The single RockFleet that froze was only powered when the vessel was running; as such, once the vessel had gone several days without fishing, the internal backup battery was exhausted and the unit reset.

MADMF deployed two RockFleet devices beginning in November 2019; these devices reported successfully until data subscription ended in July 2020.

The Rock7 web interface generally functioned as expected. Multiple vessel positions could be viewed concurrently, and querying vessel positions by date range was straightforward. Options were present for changing the basemap and coloring vessel tracks by speed. Unlike other devices, the web interface allowed for the end user to modify device options like ping rate. The Rock7 website offered no options for distinguishing device vs vessel, which is necessary if devices are reused on multiple vessels or if a vessel needs a replacement unit installed. Ping data was successfully exported both using the web interface and the Rock7 API, which pushes data to endpoints in XML format. Rock7 also provides a pull API that allows for configuring RockFleet options over both cellular and Iridium networks.

Succorfish

Succorfish produces several tracking devices for use in fishing and fleet operations. The company is based out of the United Kingdom, and has previously deployed VMS in fixed and mobile gear fisheries in the UK and Ireland. The Succorfish SC2 is available in cellular-only and dual-band cellular/satellite modes. Both are capable of caching data at a faster ping rate for upload when back in cellular range, making for a cost-effective high-resolution tracking solution.

Succorfish is possibly the only vessel tracking provider to address the issue of distinguishing vessels from tracking devices. Devices are managed separately from assets (vessels) in their data systems, and a dedicated installer mobile app captures detailed metadata about device installations. This metadata may include photos of the vessel/tracker install and forms to obtain captain’s consent. The installation app also creates the association between the tracking hardware device and the vessel identifier; a barcode on the SC2 is scanned into the app, creating a verifiable link between each. If a tracking device is installed on a new vessel, or if a vessel receives a new device, newly reported data is associated with the correct vessel.

The Succorfish SC2 contains additional hardware that is of potential interest to lobster vessel tracking. Perhaps most importantly, the Succorfish SC2 has a light on the side clearly indicating that it is receiving external power. The device also has a high-accuracy GPS utilizing several GPS networks (Gaileo, GLONASS, and BeiDou). For communicating with other devices onboard a vessel, the SC2 also has WiFi, Bluetooth, and LoRa capabilities. Additionally, the wiring harness connecting the SC2 to vessel power has additional circuits

for external hardware integration. An anti-tamper loop sends an event with the tracking data if the cable is cut or temporarily disconnected. Normally open/normally closed circuits are also included that trigger ping events; this could facilitate the connection of a hauler sensor to the SC2 with minimal circuitry necessary.

The LoRa (Long Range) capabilities of the SC2 may warrant further investigation. LoRa is a wireless radio system that can reach distances of up to 10 kilometers in rural areas. Since cellular data costs remain the largest recurring expense in deploying VMS, if LoRa-to-internet bridges could be placed in the larger lobstering ports, vessels may be able to upload position data when in port without the costs of a cellular connection. This concept is being discussed with engineers at Succorfish.

Succorfish SC2 cellular-only tracking devices were utilized on 6 vessels in Maine and one in Massachusetts. Succorfish has previously provided SC2s for testing to Maine Marine Patrol; 2 of these bonus devices were also installed on lobster vessels. As of August 2020, 4 Succorfish SC2s are still reporting vessel positions in Maine; the other two have been removed. When out of cellular range, the SC2 cached data as expected for future upload.

MEDMR also tested Succorfish's wireless Gear-in-Gear-Out (GIGO) tags with the SC2 devices on both fixed and mobile gear. The tags have a three-year battery life and utilize Bluetooth Low Energy; as such, they are detectable by the SC2 when they are anywhere onboard the vessel. The timestamp that each unique tag transits on/off the vessel is transmitted by SC2 with the vessel location data. This technology contrasts with previous Radio Frequency Identification (RFID) technology used on lobster gear, which required a passive RFID tag in the buoy to pass in close proximity to a sensor. Since the tag haul event and set out event are both captured, it is conceivable that this technology could be used to maintain a complete spatial census of all the gear a vessel had in the water at any given time. However, the cost of these tags may be prohibitive to any such effort. Currently, Succorfish offers GIGO beacons for \$25 each with a three-year battery life. Additionally, delimiting lobster trawl gear locations using cluster analysis of VMS data has been found to be mostly successful, such that a dedicated hardware device may not be necessary.

MEDMR tested GIGO beacons on one lobster vessel. The captain attached beacons to several of his endlines. Results were inconsistent, possibly due to poor reception due to the position of the SC2. GIGO beacons were also used during the department's scallop surveys. Beacons were attached to both the scientific survey dredge as well as the vessel's normal commercial dredge, allowing each tow to be visualized and survey vs commercial fishing to be easily discerned. These beacons were also invaluable during the Spring 2020 survey when MEDMR staff were unable to work aboard survey vessels due to COVID-19. The GIGO beacon passively captured tow start/tow end times and positions for later analysis.

Compared with other companies involved, Succorfish has taken an active role participating in this project. Representatives traveled to Maine and Massachusetts several times over the last two years to meet with representatives from MEDMR, MADMF, NOAA and the lobster industry. The company has also provided two SC2s, several GIGO beacons and associated data plans free of charge to MEDMR for testing.

Pelagic Data Systems

Pelagic Data Systems offers a lightweight, ruggedized Vessel Tracking System (VTS) device. The VTS device is solar-powered and does not require or allow any power connection from a vessel's electrical system. The simple installation requires screwing the device and bracket to the vessel, in a location that gets direct sunlight for as much of the day as possible. VTS devices receive location information directly from GPS/GLONASS satellites and transmit this information securely, when in range of the cellular network. Data transmission costs are relatively low. The VTS devices were designed for use on fleets and boats of all sizes, including small, open boats with little vessel power and constant exposure to the elements.

The VTS devices record, on average, 600 locations per hour and this ping rate is dependent on vessel speed. They are capable of logging up to one location per second but that is not necessary or practical. The data upload interval can be set individually, depending on cellular network availability, but the default is to upload data every six hours. The default upload rate was sufficient for this project. Pelagic Data Systems staff were available to answer questions on ping rates and showed a willingness to adjust ping rates and upload intervals if needed.

The VTS devices were received in October 2019. Pelagic Data Systems had informed the project that New England was likely on the northern fringe of the optimal range for solar charging, particularly during the winter months. MEDMR tested a VTS during the months of December and January at their office in Boothbay Harbor, ME. The device did not receive enough sunlight to fully charge and become reliably active. MADMF installed the first VTS device on a vessel in late-November 2019. The vessel began recording trips and location data on December 1, 2020. VTS devices were installed on three additional vessels over the course of the winter. During the months of December and January, when sun angles are at the lowest, vessels tied up to docks that were more susceptible to shadows did have some difficulty charging the devices. The vessels on moorings had less issues.

These experiences in the winter months verify that New England is on the northern fringe geographically for successful use of the VTS devices year-round. When the device is operational, it provides a good low-cost option, especially for vessels with limited power. More testing will be done with the device in the Rhode Island/Massachusetts Electronic Tracking and Reporting project.

The Pelagic Data Systems web interface was updated during the project. The updated web interface is simple and functions well. Devices can be assigned to vessels and device battery levels can be monitored. Multiple vessel positions and trips can be displayed.

The Pelagic Data Systems software assigns a unique Trip ID for each trip. Based on changes in speed, the device triggers the start of a trip. The end of a trip is calculated based on multiple parameters, including movement, distance to shore, and distance from known docking locations. Essentially, each device learns where it docks.

Device Cost

Approximate Device Costs – see Appendix I for a more detailed comparison of device features:

| | Pelagic Data Systems | Succorfish SC2 | Rock Seven |
|---------------------|----------------------|----------------|----------------------------|
| Unit Price | \$200 | \$300 | \$750 |
| 1 Yr Service | \$300 | \$300 | \$600 (cellular & Iridium) |

Industry Involvement and Perception

Comments from lobsterman participating in this project ranged from very positive to indifferent. However, MEDMR specifically targeted captains who have been previously involved with department research, this is expected and likely not an effective indicator of industry perception. Several participants indicated their feelings that VMS is inevitable. VMS is unobtrusive, low-cost and does not require gear modification. Compared with many of the solutions to protected species interactions being currently discussed, VMS may not always generate the visceral response that technologies like ropeless fishing can produce.

Many VMS vendors offer the ability for vessel captains to access their own position data; indeed, some like Succorfish have made it a central part of their marketing strategy. Several captains involved in this project did request access to their VMS device through the various web interfaces. However, this feature may not offer much benefit to the wider industry as many vessels already maintain a track of the vessel's past positions as part of their plotter/navigational system.

The reaction to VMS by the lobster industry will also be influenced by the costs to fishermen, if any, associated with VMS.

MADMF contacted fishermen to gauge their interest in participating in this project and provided outreach to members of the Massachusetts Lobstermen's Association (MAMLA). Members of the MAMLA have begun to change their perception of VMS and see the need for better spatial data in the lobster fishery for a variety of reasons including fisheries management, enforcement, and siting of wind areas. Some also see the value of having access to their own spatial data through a web interface. After attending a February MAMLA delegates meeting, several fishermen expressed interest in participating in the program. Three additional vessels from this interested group were outfitted with devices prior to the COVID-19 shutdown.

Use of VMS by Law Enforcement

Several captains involved in this project were supportive of mandatory VMS in the lobster fishery since they believe it will prevent illegal fishing activity. Although just having a VMS device onboard may be a deterrent to illicit fishing, there will likely be an expectation from the industry that if VMS is mandatory regulators will use it for enforcement purposes.

Several Marine Patrol Officers in Maine were involved in this project and were highly supportive of expansions of VMS in the lobster fleet. Maine officers did not indicate that

real-time data is essential, and supported the lower costs and higher ping rates of the cellular-based devices.

The authors recommend that law enforcement agencies involved in patrolling the lobster fleet be involved in future discussions regarding VMS, particularly regarding the actual necessity of real-time data.

Effort Analysis

MEDMR has experimented with several methods for quantifying fishing effort from VMS data. These methods were developed from past use of VMS in the urchin and scallop fisheries, as well as VMS data from lobster vessels as part of this project. These experiences have identified several methods for identifying fishing activity in different fisheries.

Early experiments with VMS devices on urchin and scallop vessels used vessel speed as a proxy for fishing effort. Since divers and draggers tended to move slowly while fishing, using either the reported speed or calculated speed allowed pings occurring in areas of fishing effort to be identified. An immediate issue with this method was that pings produced while a vessel was sitting at the dock are also identified as effort using both speed filtering and clustering methods for effort detection. This situation is hereafter referred to as 'pings-in-port'.

Pings-in-Port

Given the limited spatial extent in which these VMS devices were required on urchin vessels, known ports/mooring locations were identified and data from within these areas were removed prior to effort detection. However, this method would be impractical for use in the lobster fishery, where hundreds of ports are utilized, and vessels often tie up in different locations throughout the year.

Several methods for removal of pings-in-port for lobster vessels have been tested using VMS data from lobster vessels obtained during this project:

1 - If a harvester report is available, the trip start/trip end times can be used to filter VMS data within the trip timeframe. This removes extraneous pings produced when the vessel was sitting on a dock or mooring. Since a harvester may report times slightly before or after the actual trip start or end time, an effective method may be to further filter these data before effort detection by reducing the temporal range on either end, or by buffering the first few pings of the trip by a set distance and removing pings within this buffer. This may still create artifacts if a vessel stopped for fuel or ice. These artifacts can be identified programmatically by their proximity to shore, but as fishing effort may also occur near shore (hauling singles around ledges) this can be a difficult distinction.

2 - If no harvester report is available, for a given date the home port can be detected by filtering pings within an hour of midnight and proximity to shore. Since much of the lobster fishery is day boat based, this will often provide a reliable estimate of where the vessel was tied up that night, allowing this portion of the track to be removed.

Preprocessing

All VMS devices tested produce at a minimum ping data with the following fields: device identifier, datetime, latitude, and longitude. Additional fields produced may contain data such as device speed, bearing, and GPS accuracy. These extra data are usually unnecessary, as attributes like bearing and speed can be calculated at any time.

Preprocessing of data produced by devices in this project involved adding several track metadata fields necessary to organize ping data into tracks/trips. Generally, ping data is arranged by vessel and timestamp, and track IDs are assigned sequentially by splitting tracks by vessel/day or using the trip start/end times from a harvester report. Fields are also added to each ping containing the time, distance and bearing to the next ping. The track IDs can then be used to create line features for each trip track. Several tools exist for preprocessing of VMS data; NOAA has created a [Track Builder Plugin](#) for ArcGIS Desktop, and MEDMR has developed R/C++ based tools internally.

Quantifying Effort

Detection of lobster fishing effort by vessel speed alone has been shown to produce errors; lobster boats often move at slower speeds when the distance between gear sets is small and may also slow down during transiting. The below maps contain the track of a lobster vessel fishing 10-trap trawls (green line), recorded by a Succorfish SC2 at a 1-minute ping rate. The orange dots are haul start locations as recorded by an onboard MEDMR observer. The red polygons in the left map are detected trawl locations using vessel speed. Pings less than a 2.5 m/s speed (roughly 5 knots) were identified by first buffering all pings by 150m (the furthest a vessel going 2.5 m/s could travel between 1-minute pings), then dissolving these buffers together and selecting only polygons with >1 ping. This method has the advantage over just speed filtering in that some basic cluster analysis can be incorporated by varying the minimum number of pings per polygon. The vessel slowed down to eat lunch at the southern end of the track, and this part of the track was incorrectly identified as effort. Fishing effort on the right-hand map was correctly identified using cluster analysis. The centroids of these effort clusters can be used as a haul location, and clusters can be numbered sequentially within a trip.

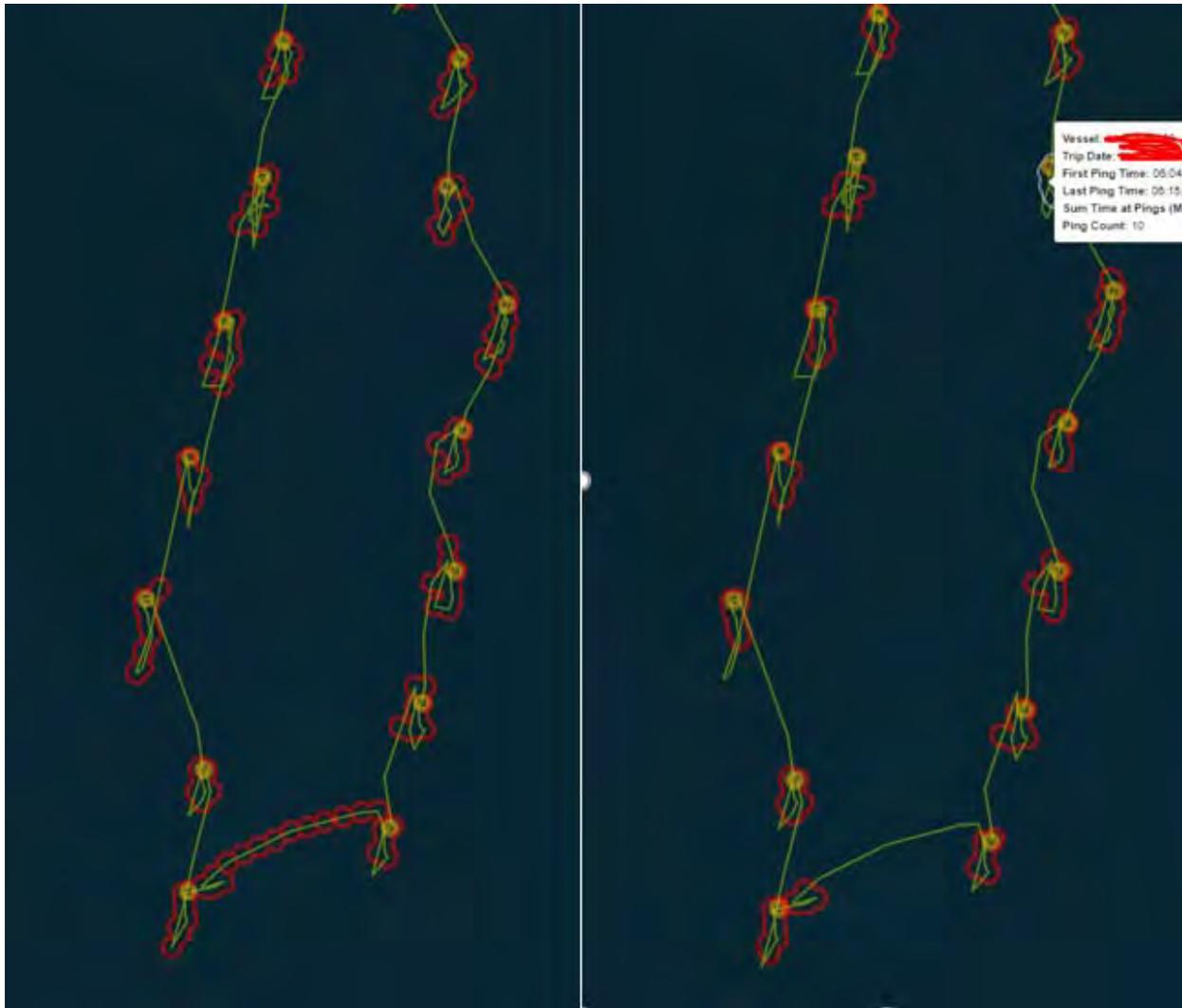


Figure 1: Track of lobster vessel hauling 10-trap trawls. Orange dots are observer recorded haul locations. Red is effort detected based on vessel speed (left) and cluster analysis (right). Note incorrectly identified effort at southern end of track on left map.

The cluster analysis in the map at right used Ward's method as implemented in the base R 'stats' package. A matrix of the geographic distance between all pings in the trip was first calculated (i.e., for a 12-hour trip at 1-minute ping rate, a 720x720 matrix). This distance matrix was then used to create a hierarchal cluster tree using the single linkage method, which could be cut into clusters using two methods:

1. If the number of hauls/trawls occurring within the trip is unknown, the hierarchal tree was cut into clusters based on height. Since the single linkage method was used, this height threshold is the minimum distance between points in adjacent clusters. Clusters that have fewer than 3 points were then filtered out. This method can be thought of as 'speed filtering with clustering.' This method was used in the map above.

2. If the harvester report provides the number of trawls hauled, k-means clustering can be used to cut the tree into the most significant k number of clusters. This is a particularly useful method for trips hauling mostly trawls and providing trawl quantities in a harvester report.

One limitation of this approach is that clusters are only identified spatially and not temporally. If a vessel transits back through the same area during the same trip creating a cluster of points (such as in a channel), these pings can be misidentified as effort. This situation can be remedied by calculating a matrix of time between all points in the trip in addition to the distance matrix described above. The product of the time and distance matrices would then be used to classify clusters.

The above method has also been used with VMS data collected by a Succorfish SC2 on a vessel contracted by MEDMR for the Ventless Trap Survey, which fishes triples. Trawl locations were detectable from these datasets and matched up well with positions taken by MEDMR staff. However, fishing trips where triples were fished in tightly spaced groups of 5 (a common practice in some areas in Maine) were only detectable as single clusters of points. Any attempt to identify gear locations must therefore take into account information from the harvester report, as well as a geospatial model of gear sizes based on regulations and common fishing practices.

While cluster analysis methods may have difficulty identifying smaller inshore trawls, these results indicate that it is possible to programmatically quantify larger trawl locations from VMS data. This is significant as larger offshore trawls are implicated in producing a greater risk to protected species, and the improvement of spatial data related to these gear types is likely of higher management priority than quantification of inshore effort. The methods described also permit storage of haul locations as coordinate values at the effort level, versus existing methods of creating large raster heatmaps of vessel effort over time. Recent efforts by federal and state agencies to model risk to North Atlantic Right Whales have attempted to model the spatiotemporal distribution of actual vertical line numbers versus just fishing effort; this demonstrates that being able to quantify fishing effort as gear types and distributions is important in addition to simply quantifying transit time.

It may be possible with further work to develop better methods of effort quantification using time series classification of observer-verified VMS data; see the further work section for more detail.

Future Work

Expansion of Vessel Monitoring in the Lobster Fleet

MEDMR is currently developing a harvester reporting app (VESL). The app vendor is working to integrate vessel position data from the Succorfish API with harvester reports, such that positional data can be submitted to SAFIS along with harvester reports. Other VMS provider's APIs may be added as needed. Additionally, the MEDMR is discussing an expanded pilot project testing up to 25 SC2s alongside the VESL app.

MADMF continues to work with Rhode Island DEM on the ongoing ACCSP-funded project to integrate vessel monitoring systems and electronic reporting in SAFIS. Field testing will begin soon on multiple hardware options.

Further Industry Involvement

The authors suggest that the original subcommittee involved in this project be reconvened to discuss further steps and provide industry outreach. Further discussions with regional lobster associations is also recommended.

Software Development

The collection of VMS data alongside harvester reports will facilitate the development of better effort detection algorithms. When gear configurations, like total gear in the water and number of trawls is known, these variables can be used to better identify lobster fishing activity in track data.

An additional area of further work is the collection of activity-classified time series of tracking data by captains and/or department staff. If an activity field indicating hauling vs steaming and gear size could be added to the existing ping fields (vessel, timestamp, lat, lon), the resulting classified ping data could be used to train effort detecting machine learning models. An example ArcGIS QuickCapture application developed at MEDMR to record classified vessel tracks is shown to the right; when the app is started, the number of traps per trawl is input by the user and can be changed at any time during the trip. The app records the vessel track along with the selected activity type and trawl size. Separate buttons allow for quickly capturing gear events that may result in anomalies in tracking data.



Hardware Development

Several of the devices tested included additional hardware and peripheral options that may warrant further research. All three device models included some variety of local wireless connectivity (Bluetooth, WiFi, etc). The Succorfish SC2 also includes connections in the wiring harness, that when closed, trigger ping events. These connections could provide a method of incorporating a hauler sensor with the VMS device, if such a sensor is deemed necessary.

In addition to the experiments with gear beacons carried out by MEDMR, the Succorfish SC2 is also capable of communicating wirelessly with a low-cost water temperature sensor. The sensor can be placed on a trap, and when hauled relays temperature readings to the SC2 which are then uploaded with positional data. This offers the possibility of using VMS to drastically expand the resolution of bottom temperature data in the Gulf of Maine,

similar to current projects like [Environmental Monitors on Lobster Traps and Large Trawlers \(eMOLT\)](#). Collection of environmental data via VMS devices could also provide an avenue for regulatory agencies to cover the cost of a vessel's tracking device in exchange for that vessel providing useful scientific data.

Summary

The need for higher spatial resolution data in the lobster fishery has become increasingly apparent. The continued risk of protected species interactions demands better accounting of where lobster fishing occurs than the currently reported zone/distance from shore/10 arc-minute square attributes. Further pressure to develop wind energy resources within the Gulf of Maine is also highlighting the paucity of spatial data for this fishery. It is no longer enough to say that 'lobstering can occur anywhere', and it is inevitable that the lobster industry and state/federal managers will need to delineate areas most critical to the fishery.

Incorporating cloud-connected vessel monitoring devices can also relay valuable secondary data, improving the availability of oceanographic data like sea bottom temperature. In addition to providing necessary data for conversations pertaining to ocean resource use, widespread deployment of VMS devices in the lobster fleet will provide valuable scientific data on the distribution of lobsters throughout the year and across multiple years. This information will be invaluable to managers and scientists as lobster populations continue to adapt to changing ocean conditions.

Testing of multiple devices as part of this project and others has shown that there are clear technological paths to accomplish large-scale vessel monitoring at a fraction of the cost of past efforts. The use of cellular VMS is a cost-effective alternative to satellite based VMS, offering significantly higher ping rates for the slight tradeoff of a several hour delay in data availability when vessels are offshore. Testing of these devices showed that vessel position was almost always successfully reported, provided that the tracking device was receiving power. However, while testing has shown these devices to work as expected, there remain several hurdles to expanding cellular VMS in the lobster fishery:

1. Installation of many VMS devices will require dedicated installation technicians. These technicians will need to travel throughout New England and coordinate times with vessel captains to install VMS devices. If devices requiring vessel power are used, consideration will need to be given as to how the connection is made. Should the VMS device be powered all the time, or only when the vessel engine is running?
2. Significant data integration work remains. At a minimum, vessel positions will need to be linked with harvester reports. Further work will be necessary to convert raw vessel positions into meaningful indicators of lobster fishing activities, such as heat maps of effort/catch and CPUE indices.
3. There remain questions as to who will pay for the upfront hardware costs of VMS devices, including installation, as well as the monthly data subscription cost.

Appendix I: Comparison of VMS Device Characteristics

| | Succorfish SC2 | Rock7 RockFleet | Pelagic Data Systems |
|---|--------------------------------|---------------------------------|--------------------------------------|
| Tested in Project? | Yes | Yes | Yes |
| Waterproof Rating | IP67 | IP68 | IP68 |
| Cost | | | |
| Device Cost | \$300 | \$750 | \$200 |
| Data Cost (Yearly) | \$300 | \$600 (cellular & Iridium) | \$300 |
| Connectivity | | | |
| Cellular | Yes | Optional add-on | Yes |
| Satellite | Iridium | Iridium | No |
| Bluetooth | Yes | Yes | No |
| WiFi | Yes | No | No |
| LoRa | Yes | No | No |
| Accelerometer | Yes | Yes | No |
| Serial/UART | Yes | Optional add-on | No |
| Magnetometer | No | No | No |
| Normally Open/Normally Closed Contacts | Yes | No | No |
| Power | | | |
| External | Yes; 5-36V | Yes, 9-30V | No |
| Internal Battery | Yes; Li-ion 5200mAh | Yes | Yes |
| Solar | No | No | Yes |
| Consumption(GSM/Iridium) | 160/350mA | 500mA max, < 30mA sleep | |
| Software | | | |
| Vessels managed separately from devices | Yes | No | No |
| User-adjustable ping rate | No | Yes | No |
| API | Push/Pull Non-Persistent | Push XML | Pull JSON |

ATLANTIC STATES MARINE FISHERIES COMMISSION
REVIEW OF THE INTERSTATE FISHERY MANAGEMENT PLAN

**For Jonah Crab
(*Cancer borealis*)**

2018 FISHING YEAR



Prepared by the Plan Review Team

April 2020



Sustainable and Cooperative Management of Atlantic Coastal Fisheries

Draft Document for Board Review

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2019 REVIEW OF THE ATLANTIC STATES MARINE FISHERIES COMMISSION FISHERY MANAGEMENT PLAN FOR JONAH CRAB (*Cancer borealis*)

2018 FISHING YEAR

1.0 Status of the Fishery Management Plan

| | |
|---|---|
| <u>Year of ASMFC Plan's Adoption:</u> | FMP (2015) |
| <u>Framework Adjustments:</u> | Addendum I (2016) Addendum II (2017) Addendum III (2018) |
| <u>Management Unit:</u> | Maine through North Carolina |
| <u>States with a Declared Interest:</u> | Maine through Virginia (Excluding Pennsylvania and DC) |
| <u>Active Committees:</u> | American Lobster Management Board, Technical Committee, Plan Review Team, Advisory Panel, Electronic Reporting Subcommittee, Electronic Tracking Subcommittee |

2.0 Status of the Fishery

2.1 Commercial Fishery

Historically, Jonah crab was taken as bycatch in the lobster fishery; however, in recent years a directed fishery has emerged causing landings to rapidly increase. Throughout the 1990's, landings fluctuated between approximately 2 and 3 million pounds, and the overall value of the fishery was low. In the early 2000's landings began to increase, with over 7 million pounds landed in 2005. By 2014, landings had almost tripled to 17 million pounds and a value of nearly \$13 million dollars. This rapid increase in landings can be attributed to an increase in the price of other crab (such as Dungeness), creating a substitute market for Jonah crab, as well as a decrease in the abundance of lobsters in Southern New England, causing fishermen to redirect effort on Jonah crab.

Today, Jonah crab and lobster are considered a mixed crustacean fishery in which fishermen can target lobster or crab at different times of the year based on slight gear modifications and small shifts in the areas in which the traps are fished. While the majority of Jonah crab is harvested as whole crabs, fishermen from several states, including New York, Maryland and Virginia, land claws. Jonah crab claws are relatively large and can be an inexpensive substitute for stone crab claws. As a result, they can provide an important source of income for fishermen. A historic claw fishery takes place along the Delmarva Peninsula where small boat fishermen harvest Jonah crab claws because they do not have a seawater storage tank on board to store whole crabs.

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In 2018, landings along the Atlantic Coast increased to 19.8 million pounds of Jonah crab, representing \$17.6 million in ex-vessel value. The states of Massachusetts (67%) and Rhode Island (23%) were the largest contributors to landings in the fishery. Landings in descending order also occurred in Maine, New Jersey, New York, Maryland, New Hampshire, Virginia, Delaware, and Connecticut. 99.9% of coastwide landings in 2018 came from trap gear.

2.2 Recreational Fishery

The magnitude of the Jonah crab recreational fishery is unknown at this time; however, it is believed to be quite small in comparison to the size of the commercial fishery.

3.0 Status of the Stock

Jonah crab are distributed in the waters of the Northwest Atlantic Ocean primarily from Newfoundland, Canada to Florida. The life cycle of Jonah crab is poorly described, and what is known is largely compiled from a patchwork of studies that have both targeted and incidentally documented the species. Female crab (and likely some males) are documented moving inshore during the late spring and summer. Motivations for this migration are unknown, but maturation, spawning, and molting have all been postulated. It is also generally accepted that these migrating crab move back offshore in the fall and winter. Due to the lack of a widespread and well-developed aging method for crustaceans, the age, growth, and maturity of Jonah crab is poorly described.

The status of the Jonah crab resource is relatively unknown and no range wide stock assessment has been conducted. Massachusetts, Rhode Island, Maine, and New Hampshire conduct inshore state water trawl surveys, and NOAA Fisheries conducts a trawl survey in federal waters which collects data on Jonah crab abundance and distribution. In addition, several studies are on-going (Section 7.0) to gather more information on the species.

4.0 Status of Management Measures

Interstate Fishery Management Plan for Jonah Crab (2015)

Jonah crab is managed under the Interstate Fishery Management Plan (FMP) which was approved by the American Lobster Management Board in August 2015. The goal of the FMP is to promote conservation, reduce the possibility of recruitment failure, and allow for the full utilization of the resource by the industry. The FMP lays out specific management measures in the commercial fishery. These include a 4.75" minimum size with zero tolerance and a prohibition on the retention of egg-bearing females. To prevent the fishery from being open access, the FMP states that participation in the directed trap fishery is limited to lobster permit holders or those who can prove a history of crab-only pot fishing. All others must obtain an incidental permit. In the recreational fishery, the FMP sets a possession limit of 50 whole crabs per person per day and prohibits the retention of egg-bearing females. Due to the lack of data on the Jonah crab fishery, the FMP implements a fishery-dependent data collection program. The FMP also requires harvester and dealer reporting along with port and sea sampling.

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Addendum I (2016)

Addendum I establishes a bycatch limit of 1,000 pounds of crab/trip for non-trap gear (e.g., otter trawls, gillnets) and non-lobster trap gear (e.g., fish, crab, and whelk pots). In doing so, the Addendum caps incidental landings of Jonah crab across all non-directed gear types with a uniform bycatch allowance. While the gear types in Addendum I make minimal contributions to total landings in the fishery, the 1,000 crab limit provides a cap to potential increases in effort and trap proliferation.

Addendum II (2017)

Addendum II establishes a coastwide standard for claw harvest. Specifically, it permits Jonah crab fishermen to detach and harvest claws at sea, with a required minimum claw length (measured along the forearm of the claw) of 2.75" if the volume of claws landed is greater than five gallons. Claw landings less than five gallons do not have to meet the minimum claw length standard. The Addendum also establishes a definition of bycatch in the Jonah crab fishery, whereby the total pounds of Jonah crab caught as bycatch must weigh less than the total amount of the targeted species at all times during a fishing trip. The intent of this definition is to address concerns regarding the expansion of a small-scale fishery under the bycatch limit.

Addendum III (2018)

Addendum III improves the collection of harvester and biological data in the Jonah crab fishery. Specifically, the Addendum improves the spatial resolution of harvester data collection by requiring fishermen to report via 10 minute squares. It also expands the required harvester reporting data elements to collect greater information on gear configurations and effort. In addition, the Addendum established a deadline that within five years, states are required to implement 100% harvester reporting, with the prioritization of electronic harvester reporting development during that time. Finally, the Addendum improves the biological sampling requirements by establishing a baseline of ten sampling trips/year, and encourages states with more than 10% of coastwide landings to conduct additional sampling trips.

5.0 Fishery Monitoring

The provisions of Addendum III did not impact fishery monitoring programs in 2018. As a result, language in the FMP sets the standard for fishery monitoring. Specifically, the FMP requires that *"at a minimum, state and federal agencies shall conduct port/sea sampling to collect the following types of information on landings, where possible: carapace width, sex, discards, egg-bearing status, cull status, shell hardness, and whether the landings are whole crabs or parts."* The FMP also establishes coastwide mandatory reporting and fishery dependent sampling with 100% dealer and harvester reporting. Jurisdictions which currently require less than 100% harvester reporting in the lobster fishery are required to maintain, at a minimum, their current programs and extend them to Jonah crab. *De minimis* states are not required to conduct fishery-independent sampling or port/sea sampling. These requirements for fishery monitoring will be amended in future years to reflect implementation of Addendum III.

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Overviews of the states' port and sea sampling are as follows:

- **Maine:** Maine conducted 27 sea sampling trips and sampled 2,147 Jonah crab. Sampling occurs through the Lobster Sea Sampling program, which has a sampling protocol for Jonah crab including collecting data on carapace width, sex, reproductive status, cull status, and shell hardness. Maine's lobster port sampling program was suspended in 2011.
- **New Hampshire:** Staff sampled 36 Jonah crab on 15 sea sampling trips and collected information on sex, the presence of eggs, cull condition, molt stage, and carapace length. NH initiated a quarterly port sampling program in late 2016. Quarterly sampling took place at shellfish dealers, where an interview with the captain occurred and a biological sample was taken. A total of 675 Jonah crab were sampled through this new program, of which a maximum of 250 crabs were sexed, measured for carapace length, and (when feasible) weighed.
- **Massachusetts:** Massachusetts conducted 13 sea sampling trips and sampled 757 Jonah crab. Data collected include shell width, sex, egg bearing status, cull status, and shell hardness. Massachusetts also conducted 16 port sampling trips and sampled 12,570 Jonah crab.
- **Rhode Island:** Currently, RI DEM DMF does not have a structured Sea Sampling program due to staffing and budget limitations. The Division plans to develop a Jonah crab sea/port sampling program by 2020.
- **Connecticut:** No sea sampling or port sampling trips were conducted for Jonah crab.
- **New York:** Staff conducted 6 market sampling trips, collecting information on 140 Jonah crab. No sea sampling trips were conducted for Jonah crab.
- **New Jersey:** No sea or port sampling trips were conducted for Jonah crab.
- **Delaware:** No sea or port sampling trips were conducted for Jonah crab.
- **Maryland:** Maryland conducted one multi-day sea sampling trip and sampled 100 Jonah crab. Data collected included carapace width, egg bearing status, cull status, shell hardness, sex and whether the landings are whole crabs or parts.
- **Virginia:** No sea or port sampling trips were conducted for Jonah crab.

6.0 Status of Surveys

The FMP for Jonah crab encourages states to expand current lobster surveys (i.e. trawl surveys, ventless trap surveys, settlement surveys) to collection biological information on Jonah crab. The following outlines the fishery-independent surveys conducted by each state.

Maine

A. Settlement Survey

The Maine settlement survey was primarily designed to quantify lobster young-of-year (YOY), but has also collected Jonah crab data from the sites throughout the survey. Jonah crab information collected includes carapace width, sex (when large enough), ovigerous condition, claw status, shell hardness, and location. The density of Jonah crab has increased over the past

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two decades with high values in 2012 and 2016 (Figure 1). Similarly, the density of all Jonah crab noticeably increased in the early 2000's and has remained high since (Figure 1).

B. State Trawl Survey

The ME/NH Inshore Trawl Survey began in 2000 and is conducted biannually (spring and fall) through a random stratified sampling scheme. Jonah crab data has been collected throughout the history of this survey. The 2018 spring survey completed 118 tows and sampled a total of 234 Jonah crab. The spring abundance indices for Jonah crab significantly increased from 2013 to 2016, but declined in 2017 and 2018 (Figure 2). The 2018 fall survey completed 96 tows and sampled 415 Jonah crab. Abundance indices for Jonah crab declined in 2017 and 2018 (Figure 2).

C. Ventless Trap Survey

Maine began its Juvenile Lobster Ventless Trap Survey in 2006. Since the beginning of the survey, Jonah crab counts were recorded by the contracted fishermen, but the confidence in early years of this data is low because of the confusion between the two *Cancer* crabs (Jonah crab vs. rock crab) and similar common names. In 2016, the survey began collecting biological data for Jonah crab including carapace width, sex, ovigerous condition, claw status, shell hardness, and location. Figure 3 shows the catch of Jonah crab per trap in 2018.

D. Sea Urchin Survey

Maine DMR conducts an annual dive survey of the sea urchin stock within state waters. From May through June, divers evaluated approximately 60 1-meter square quadrats at each site. Beginning in 2004, the data collected on crabs was expanded to include carapace width and sex. A total of 139,371 quadrats have been evaluated for Jonah crab through 2018. Counts of Jonah crab in 2018 were slightly lower than 2017 (Figure 4).

New Hampshire

A. Settlement Survey

Since 2009, species information has been collected on Jonah crab in the New Hampshire Fish and Game portion of the American Lobster Settlement Index. Figure 5 depicts the CPUE ($\#/m^2$) of Jonah crab for all NH sites combined, from 2009 through 2018. This time series shows a general upward trend to a time series high in 2018.

B. Ventless Trap Survey

Since 2009, New Hampshire Fish and Game has been conducting the coastwide Random Stratified Ventless Trap Survey in state waters (statistical area 513). A total of six sites were surveyed twice a month from June through September in 2018. Beginning in 2016 all Jonah crab were evaluated for sex and carapace length. A total of 9 Jonah crab over 8 trips were measured during the 2018 sampling season.

Massachusetts

A. Settlement Survey

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The Juvenile Lobster Suction Survey has consistently identified Jonah crab since 2011, and has identified the *Cancer* crabs to genus since 1995. Figure 6 shows that Jonah crab are generally absent from the two sampled locations in stat area 538 (Buzzards Bay and Vineyard Sound) but are present at other sampled locations. The number of Jonah crab per square meter increased from 2017 to 2018 at all sites in statistical area 514 (Figure 6).

B. Ventless Trap Survey

CPUE of Jonah crab from the MA DMF Ventless Trap Survey within NMFS statistical areas 538 and 537 has been low but relatively stable between 2010 to 2018 (Figure 7). The 2018 data point is the second lowest in the time series. Though the survey started in 2005, Figure 7 only shows data from 2011 through 2017 due to changes in areas surveyed prior to 2011. Area 514 has been on an overall downward trend, but has been fairly stable since 2009 (Figure 8).

C. Trawl Survey

The MA DMF Trawl Survey is conducted in five geographic regions; data is grouped into two regions, north of Cape Cod and south of Cape Cod. Recent trends in both regions have been positive, but the 2018 fall data south of Cape Cod was below the time series median (Figure 9). All other 2018 data points were above time series medians and trending upward based on a fitted generalized additive model.

Rhode Island

A. Ventless Trap Survey

Since its inception in 2006, the RI Ventless Trap Survey (VTS) has recorded counts of Jonah crab per pot. In 2014, carapace width and sex were also recorded for all individuals. In 2018, the VTS was conducted during June-August and over 18 sampling trips. A total of 106 Jonah crab were sampled. All sampling was conducted in LMA 2, NMFS Statistical Area 539. The stratified mean catch per ventless trap on a six pot (three ventless, three vented) trawl was 0.27 Jonah crab (Figure 10).

B. Trawl Survey

RIDEM has conducted Spring and Fall trawl surveys since 1979, and a monthly trawl survey since 1990. However, the survey did not begin counting Jonah crab specifically until 2015. Given the short time series of Jonah crab data available and few Jonah crab observations by the surveys, the information is not available at this time. As the datasets for Jonah crab from these trawl surveys grow, these data will be provided as abundance indices.

Connecticut

A. Trawl Survey

Jonah crab abundance is monitored through the Long Island Sound Trawl Survey (LISTS) during the spring (April, May, June) and fall (September and October) cruises, all within NMFS statistical area 611. The survey documents the number of individuals caught and total weight per haul by survey site in Long Island Sound. The Long Island Sound Trawl Survey caught one Jonah crab in the fall 2007 survey and two in the fall 2008 survey. Both observations occurred in

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October at the same trawl site in eastern Long Island Sound. No Jonah crab have been observed in the survey since 2008.

New York

A. Trawl Survey

New York initiated a stratified random trawl survey in the near shore ocean waters off the south shore of Long Island in 2018 from the Rockaways to Montauk Point and the New York waters of Block Island Sound. Sampling was conducted five times a year during the winter (February), spring (May, June), summer (August), and fall (December). Twenty-five to 30 stations were sampled each trip. Thirty-four Jonah crabs were caught during the 2018 survey. They ranged in size from 18 to 143 mm shell width (SW) and averaged 56 mm SW.

New Jersey

A. Trawl Survey

A fishery-independent Ocean Trawl Survey is conducted from Sandy Hook, NJ to Cape May, NJ each year. The survey stratifies sampling in three depth gradients, inshore (18'-30'), mid-shore (30'-60'), and offshore (60'-90'). The mean CPUE, which is calculated as the sum of the mean weight of Jonah crab collected in each sampling area weighted by the stratum area, has remained low throughout the time series (Figure 11).

7.0 Recent and On-Going Research Projects

A. Maturity Study

MA DMF, in collaboration with AOLA and CFRF, has conducted a Jonah crab maturity study. Results suggest that females mature at a smaller size than males (~88-94mm carapace width vs. ~103-117mm carapace width, depending on region sampled). Importantly, the sizes at maturity for both sexes are below the current minimum legal size for harvest (121 mm).

In addition, a graduate student at the University of Maryland Eastern Shore completed a master's thesis on the size at sexual maturity and reproductive biology of Jonah crabs in the Mid-Atlantic Bight in the spring of 2018. Jonah crabs were collected as bycatch in black sea bass and lobster pots from December 2015 to September 2017 as well as from the 2016 and 2017 Virginia Institute of Marine Science Mid-Atlantic Sea Scallop dredge survey. Measurements included: sex, weight, length, width, chela length and height, abdomen width (females), molt condition, presence/absence of egg clutches, and presence/absence of external sperm plugs. A gonadosomatic index was created for female Jonah crabs.

B. Tagging Study

MA DMF, in collaboration with AOLA, NH F&G, and ME DMR, completed a Jonah crab tagging study in 2018 in which over 32,000 Jonah crabs were tagged across 12 different NMFS statistical areas. Preliminary data suggests that most Jonah crab are not migrating far; Most of the recaptures (over 900 crabs) were recaptured within 5 km of where they were released, though six crabs traveled more than 100 km. None of the seven crabs recaptured after more than 600 days had molted.

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C. Declawing Study

New Hampshire Fish and Game and Wells National Estuarine Research Reserve conducted a laboratory study to investigate mortality rates associated with declawing Jonah crabs. Four mortality trials were conducted over three seasons. Mortality rates (% died) by treatment were: Controls=16%, 1-claw removed=51%, and 2-claws removed=70%. Additional research is being conducted to assess how declawing affects mating, feeding and movement.

D. Growth and Fishery Dependent Data

A graduate student at URI is completing a Master's Thesis on Jonah crab, focusing on fishery-dependent data collection and growth. From June 2016 to August 2017, a pilot sea sampling program was implemented to collect information on size distributions, length-weight relationships, sex ratios, molting condition, and shell disease levels. In addition, a laboratory study was conducted in 2016-2017 to describe the growth of Jonah crab in RI Sound. Results include quantification of growth-per-molt in male and female Jonah crab, and a description of molting seasonality and molt probabilities in male Jonah crab. Finally, the Master's Thesis includes fifteen in-person interviews with Jonah crab fishermen to collect their knowledge concerning Jonah crab biology and fishery characteristics. The interviews provided insight into aspects of the species biology and life history that have not been well studied, identified topics requiring more research like stock structure and spawning seasonality, and highlighted some predominant perceptions and concerns related to fishery management.

E. CFRF Research Fleet

The Commercial Fisheries Research Foundation (CFRF) has expanded their lobster commercial research fleet to sample Jonah crab. Biological data collected include carapace width, sex, shell hardness, egg status, and disposition. As of September 2018, 56,301 Jonah crab have been sampled through the program.

8.0 State Compliance

All states except New York have implemented the provisions of the Jonah Crab FMP and associated addenda. The implementation deadline for the Jonah Crab FMP was June 1, 2016; the implementation deadline for Addendum I was January 1, 2017; and the implementation deadline for Addendum II was January 1, 2018.

- New York has not yet implemented the full suite of management measures required under the Jonah Crab FMP or Addendum I and II. New York crab legislation currently prohibits harvest of female crabs with eggs, limits recreational harvest to 50 crabs, establishes a 4.75" minimum carapace width, and establishes a 2.75" minimum claw length for harvest of claws only. Regulations to limit the directed trap fishery to lobster permit holders only and the 1,000 crab bycatch limit have not been implemented. NY will need to revise the crab legislation to require a lobster permit for the directed trap fishery and adopt regulations to allow a 1,000 crab daily bycatch to crab permit holders; it is unclear how long it will take to get the legislation revised.

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9.0 De Minimis Requests.

The states of Virginia, Maryland, and Delaware have requested *de minimis* status. According to the Jonah crab FMP, states may qualify for *de minimis* status if, for the preceding three years for which data are available, their average commercial landings (by weight) constitute less than 1% of the average coastwide commercial catch. Delaware, Maryland, and Virginia meet the *de minimis* requirement.

10.0 Research Recommendations

The following research questions were compiled by the Jonah Crab TC and need to be answered in order to complete a coastwide stock assessment.

- ***Growth Rates*** – While there has been some research on Jonah crab growth rates, more studies are needed to determine growth rates along the entire coast. In particular, it is necessary to determine the molt frequency, molt increment, and if there is a terminal molt.
- ***Maturity and Reproduction*** – Studies are needed to determine the size at maturity of crabs in different regions, the size ratio of mating crabs, and sperm limitations.
- ***Migration*** – There are several tagging studies on-going in the Jonah crab fishery. Hopefully these studies will elucidate the migrations of Jonah crab as well as seasonal habitat preferences.
- ***Natural Mortality*** – An estimate of natural mortality must be developed for Jonah crab in order to carry out a stock assessment. In particular, it will be critical to determine the natural mortality of the adult size crabs.

11.0 Plan Review Team Recommendations

The following are recommendations from the Plan Review Team:

- The PRT recommends the Board approve the *de minimis* requests of DE, MD, and VA.
- The PRT raises concerns about the unimplemented Jonah crab regulations in NY, particularly the regulations to limit the directed trap fishery to lobster permit holders only and the 1,000 crab bycatch limit. Similar issues were raised in the 2018 compliance reports and have not been addressed within the last year.
- The PRT recommends that jurisdictions with crab-only fishermen report on the number of these fishermen, their collective number of traps fished, and the rules governing their fishing activity.
- The PRT recommends continued research of the Jonah crab species so that a coastwide stock assessment can be completed in the near future.
- The PRT recommends the LEC review compliance in the Jonah crab fishery, given it is a fairly new fishery management plan and lessons may be learned.

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12.0 Tables

Table 1. Landings (in pounds) of Jonah crab by the states of Maine through Virginia. 2010-2017 landings were provided by ACCSP based on state data submissions. 2018 landings were submitted by the states as a part of the compliance reports and should be considered preliminary. *C= confidential data*

| | ME | NH | MA | RI | CT | NY | NJ | DE | MD | VA | Total |
|-------------|-----------|---------|------------|-----------|--------|---------|---------|----|---------|----|------------|
| 2010 | 1,093,962 | C | 5,689,431 | 3,720,440 | C | 968,122 | 30,441 | | 18,045 | C | 11,690,987 |
| 2011 | 1,096,592 | C | 5,379,792 | 3,213,119 | C | 69,440 | 26,909 | | 92,401 | C | 9,947,027 |
| 2012 | 556,675 | C | 7,540,510 | 3,774,300 | 2,349 | 410,349 | 68,459 | | C | C | 12,560,390 |
| 2013 | 379,073 | 340,751 | 10,109,590 | 4,651,796 | 51,462 | 371,675 | C | | C | C | 16,075,597 |
| 2014 | 348,295 | 404,703 | 11,904,611 | 4,435,934 | C | 83,060 | C | | 153,714 | C | 17,413,451 |
| 2015 | 312,063 | C | 9,128,876 | 4,298,894 | C | 207,437 | 68,116 | C | 39,750 | C | 14,253,340 |
| 2016 | 604,138 | 150,341 | 10,668,039 | 4,224,092 | C | 165,427 | 260,856 | C | 14,656 | C | 16,093,104 |
| 2017 | 1,042,782 | 113,354 | 11,698,705 | 4,111,281 | C | 158,271 | 433,132 | C | 23,564 | C | 17,594,243 |
| 2018 | 1,079,729 | 22,136 | 13,333,278 | 4,629,276 | C | 196,060 | 491,122 | C | 60,628 | C | 19,816,742 |

13.0 Figures

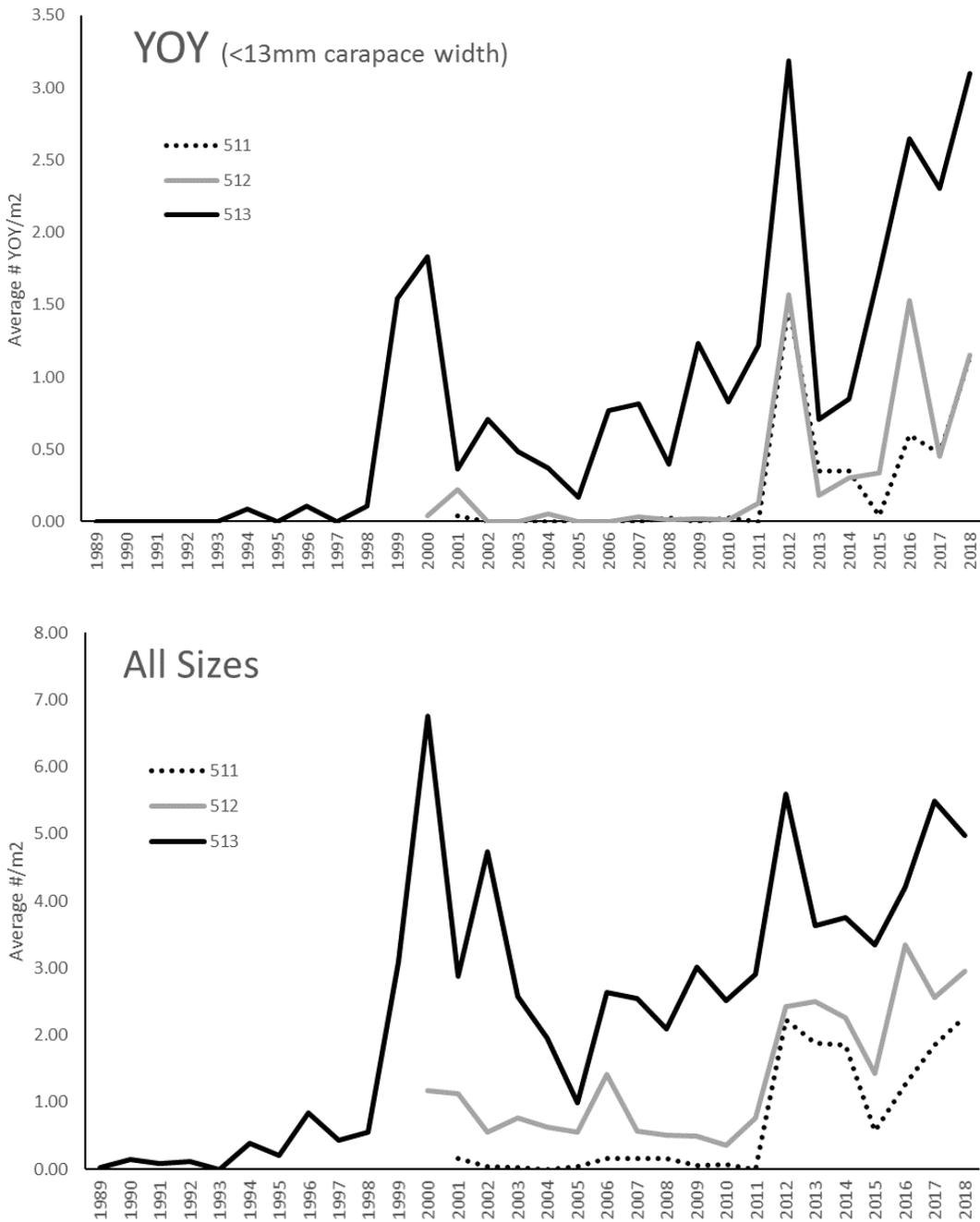


Figure 1: The density of Jonah crab measured over time in the Maine Settlement Survey by statistical area. The top graph shows the density of YOY Jonah crab (<13mm carapace width) and the bottom graph shows the density of all Jonah crab.

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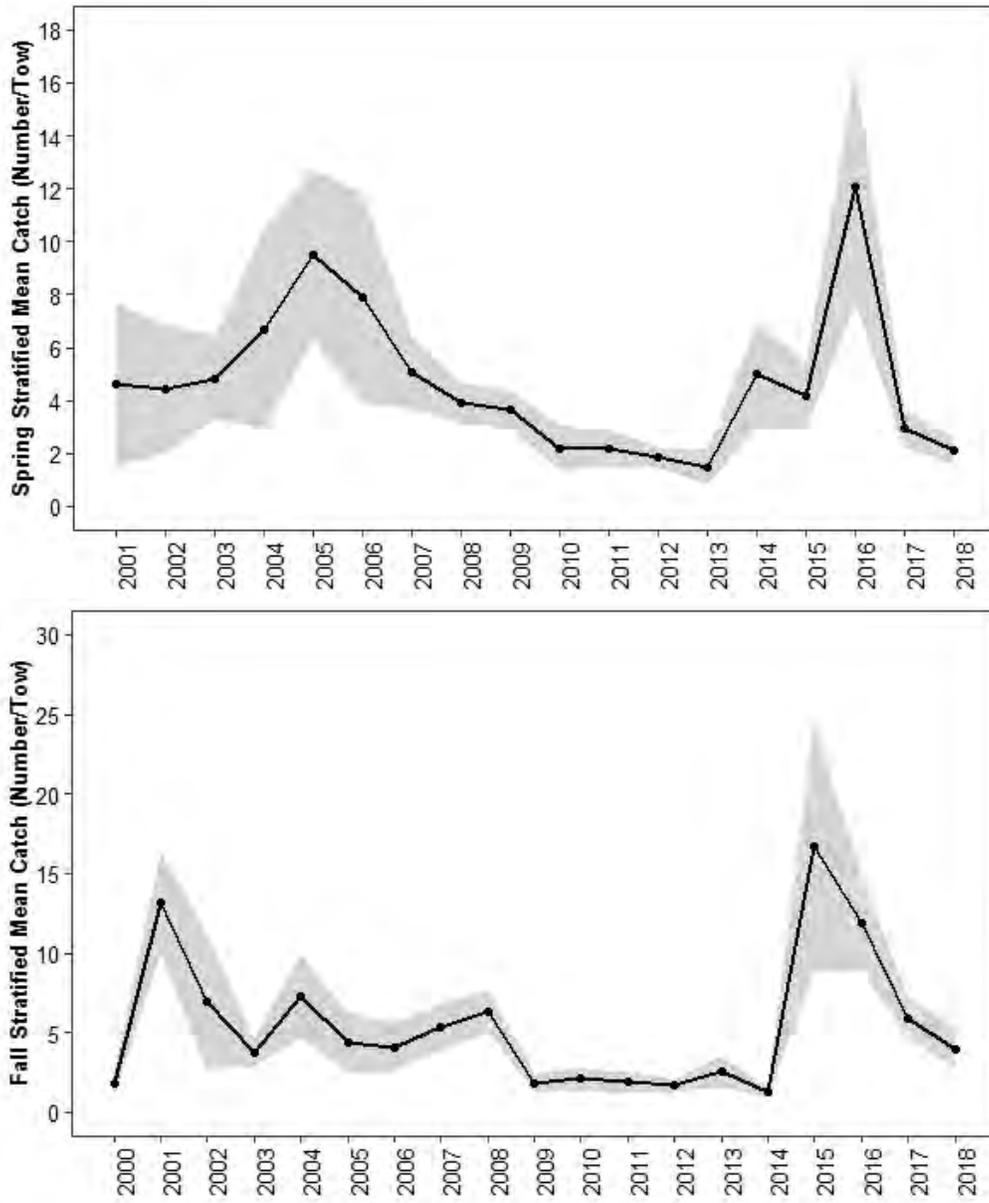


Figure 2: Maine-New Hampshire survey abundance indices for Jonah crab, 2001-2018. Results of the spring survey are on the top and results from the fall survey are on the bottom.

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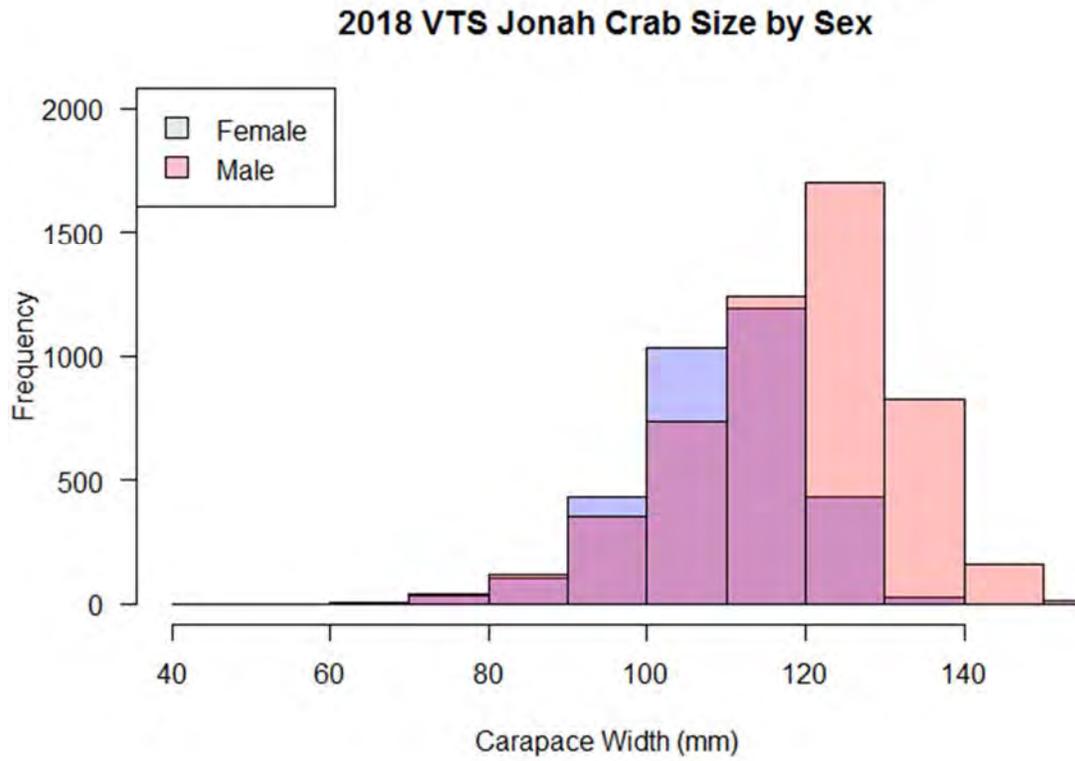


Figure 3: Jonah crab size frequency by sex from the 2018 Maine Ventless Trap Survey.

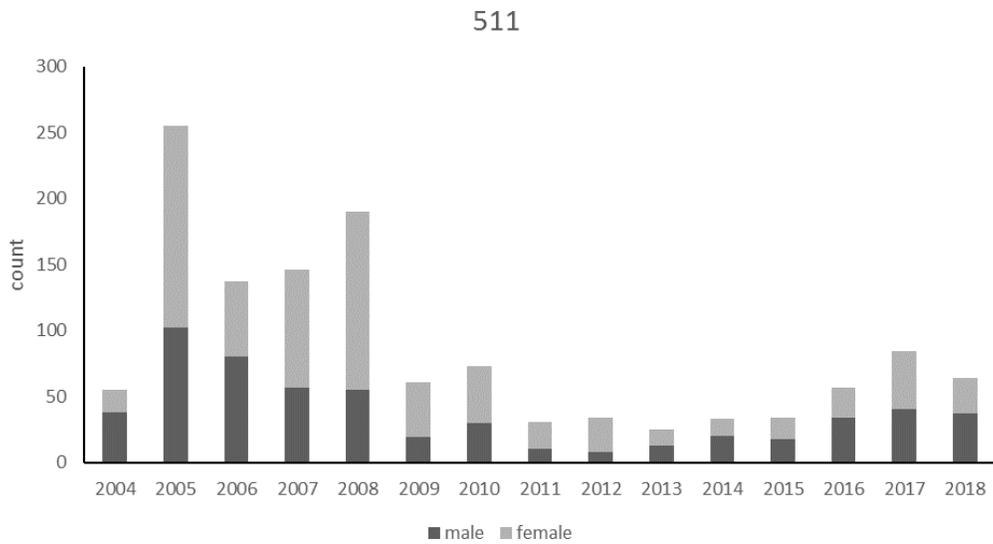


Figure 4: Observed crabs from the Maine Sea Urchin Survey (statistical area 511).

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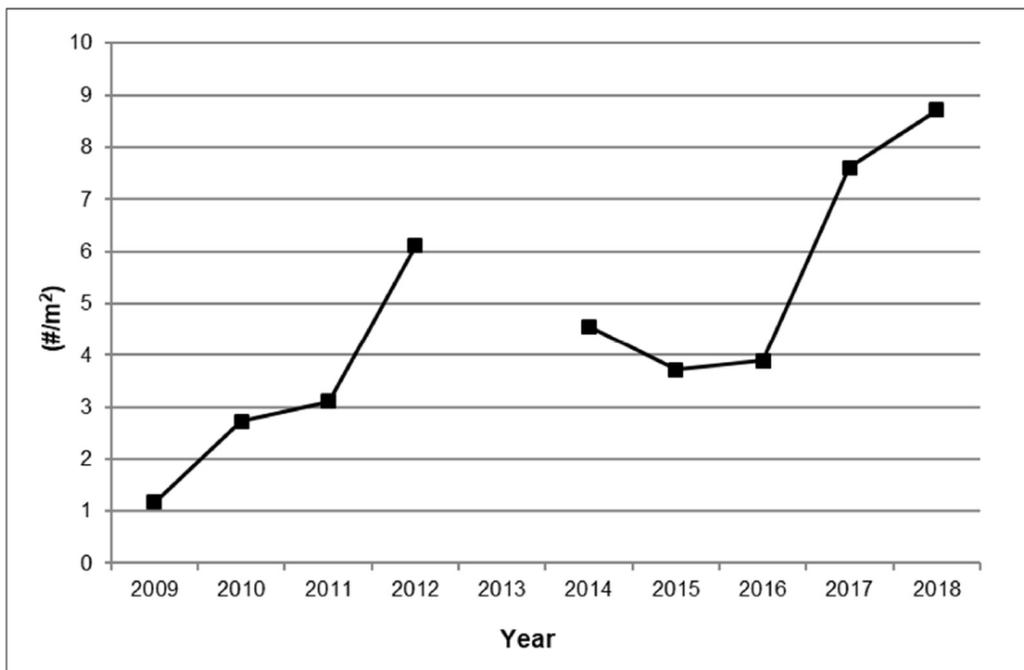


Figure 5: Catch per unit effort (#/m²) of Jonah crab during the American Lobster Settlement Index Survey, in New Hampshire, from 2009 through 2018.

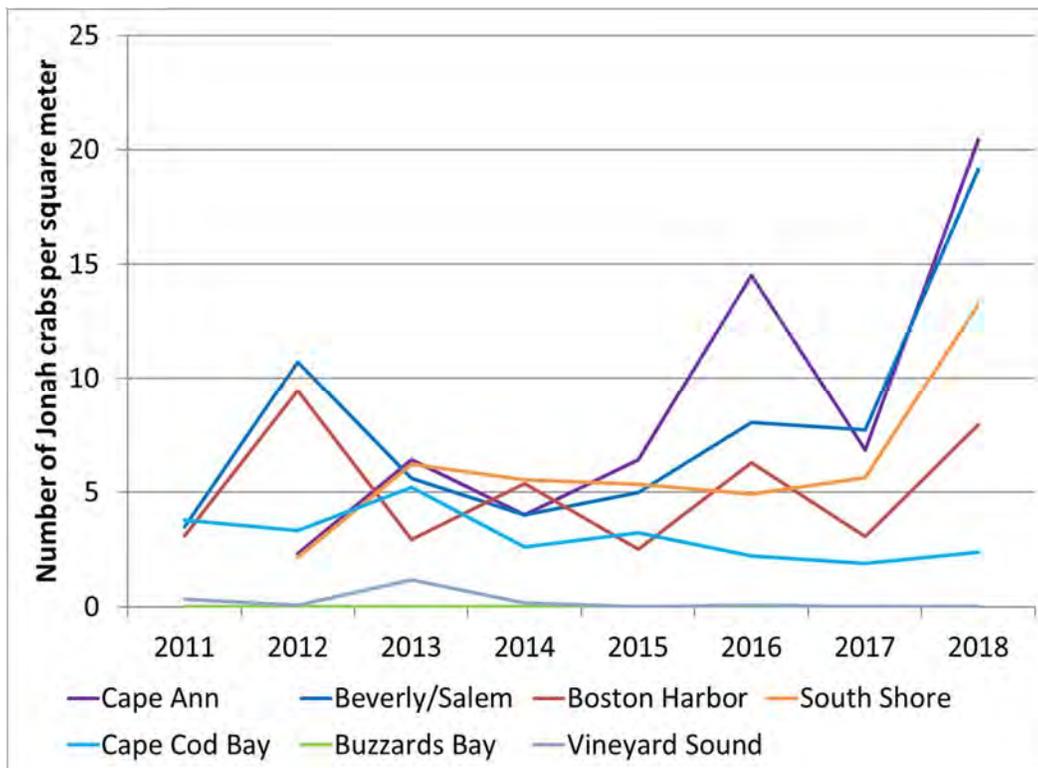


Figure 6: Number of Jonah crab per square meter from the MA DMF juvenile lobster suction survey. Cape Ann, Beverly/Salem, Boston Harbor, South Shore, and Cape Cod Bay are in NMFS statistical area 514; Buzzards Bay and Vineyard Sound are in statistical area 538.

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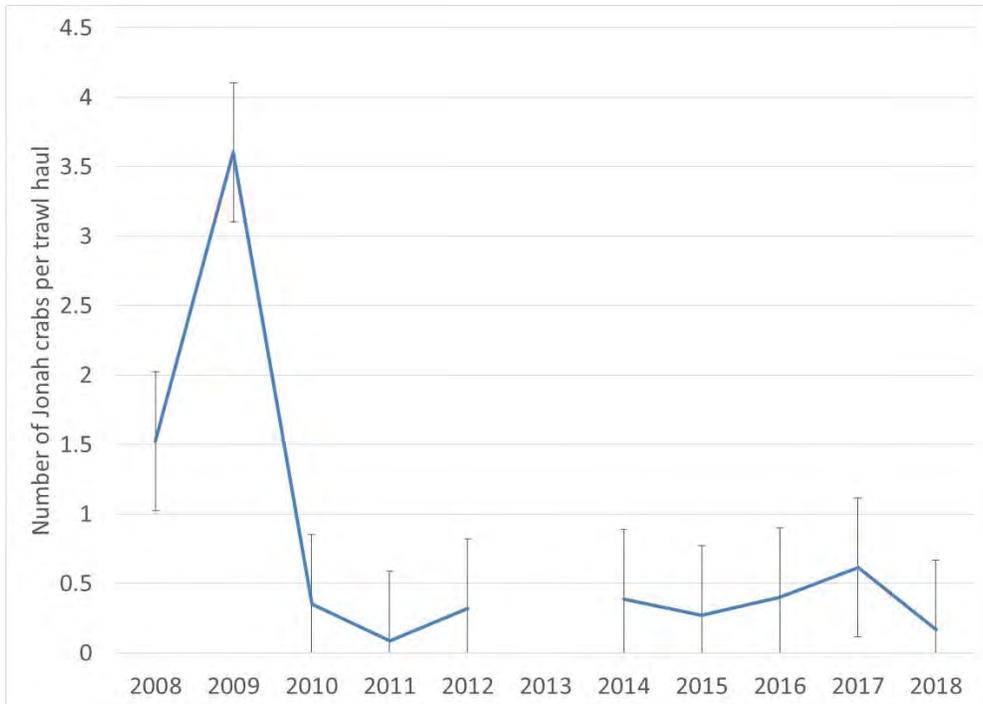


Figure 7. Number of Jonah crab per trawl haul from NMFS stat area 538 from the MA DMF Ventless Trap Survey. CPUE is standardized to a 6 pot trawl with three vented and three ventless traps. Error bars are \pm two times the standard error. The survey did not occur in 2013.

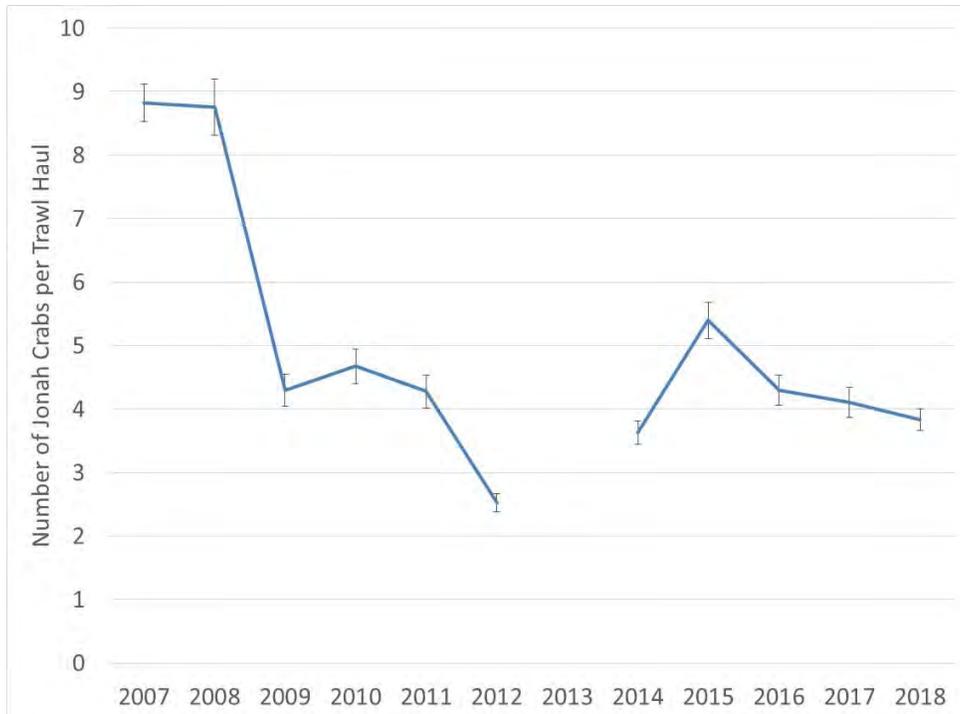


Figure 8. Number of Jonah crab per trawl haul from NMFS stat area 514 from the MA DMF Ventless Trap Survey. CPUE is standardized to a 6 pot trawl with three vented and three ventless traps. Error bars are \pm two times the standard error. The survey did not occur in 2013.

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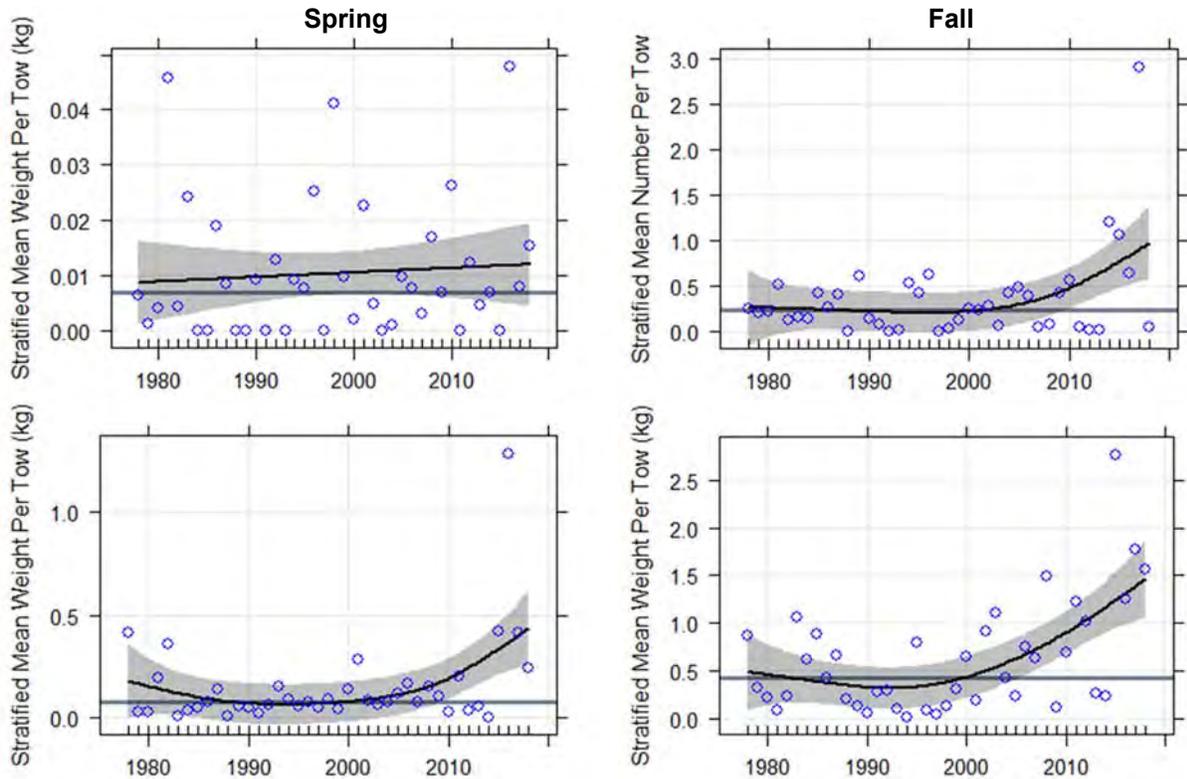


Figure 9. Jonah crab (sexes combined) stratified mean weight per tow from the MA DMF spring (left) and fall (right) trawl survey for regions 1–3 (south and east of Cape Cod, top) and regions 4 and 5 (north of Cape Cod, bottom). Black line is the generalized additive model fit, grey line is the time series median, shaded area is \pm two times the standard error of the predicted value.

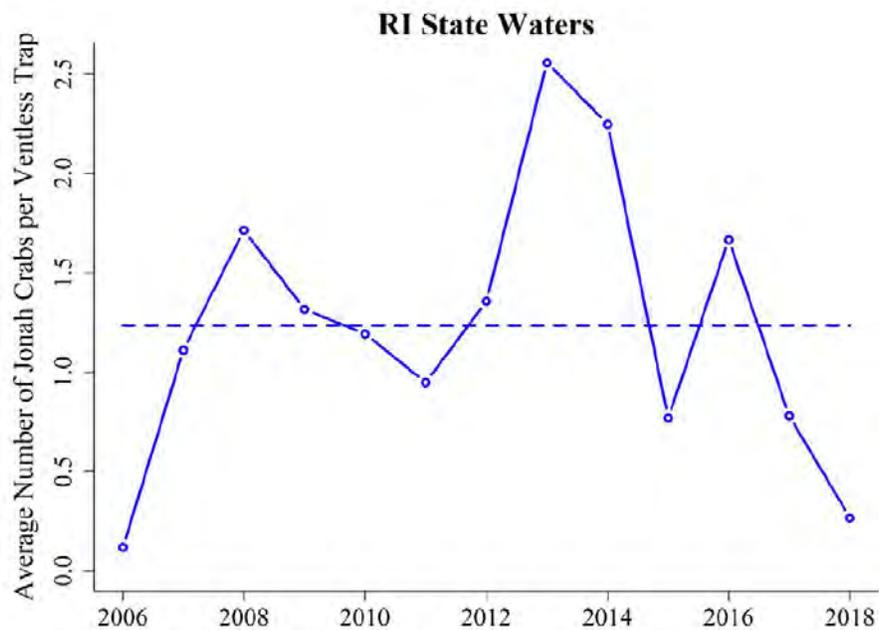


Figure 10: Stratified mean catch (#) per ventless trap in a VTS haul for Jonah crab. Dashed line

Draft Document for Board Review

indicates time series mean.

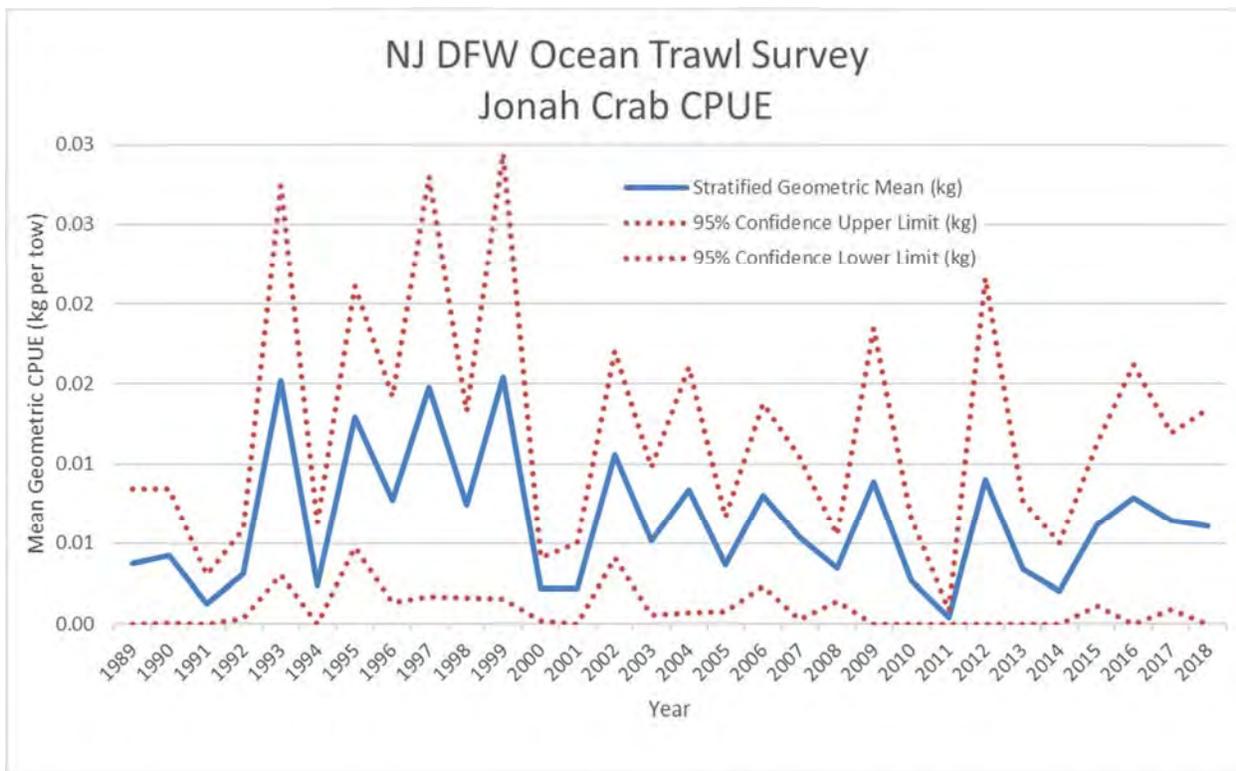


Figure 11: Stratified mean CPUE of all Jonah crab collected aboard the NJDFW Ocean Trawl Survey. The survey stratifies sampling in three depth gradients, inshore (18'-30'), mid-shore (30'-60'), offshore (60'-90'). The mean CPUE was calculated as the sum of the mean weight (in kg) of Jonah crab per size class collected in each sampling area weighted by the stratum area.

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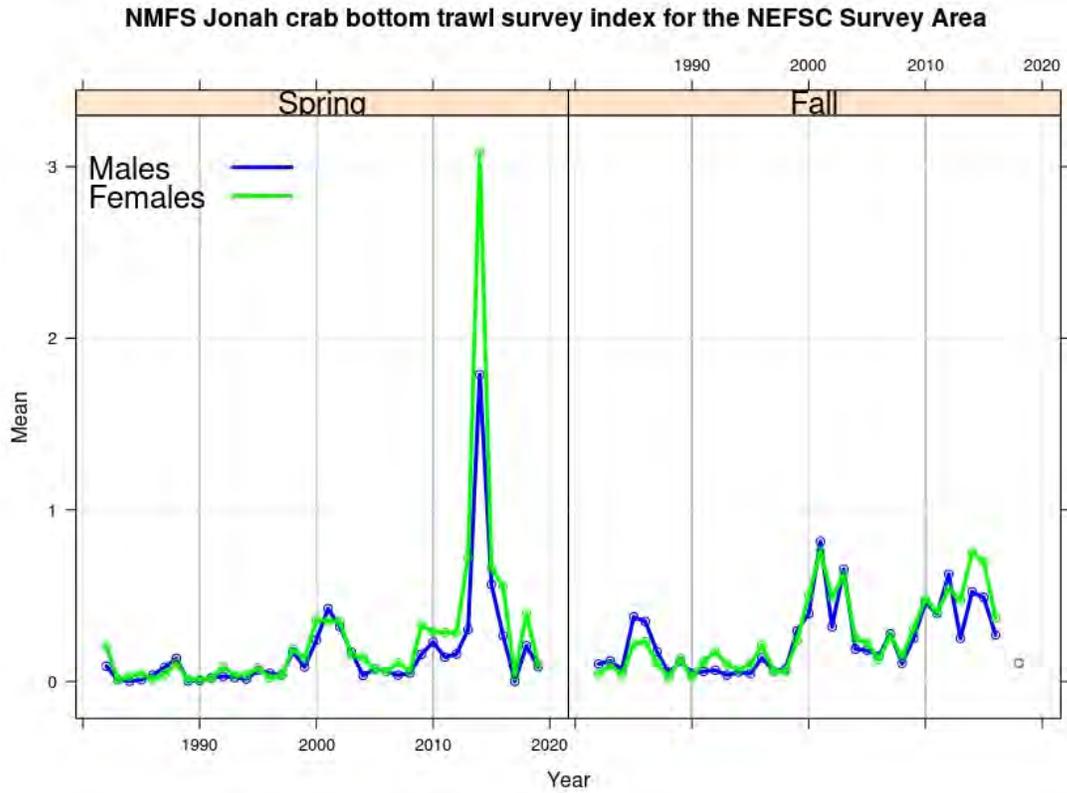


Figure 12: NMFS Jonah Crab index (mean number per tow) from the bottom trawl survey for the NEFSC Survey Area, through 2019.

Atlantic States Marine Fisheries Commission

Atlantic Menhaden Management Board

October 20, 2020
9:00 a.m. – 12:00 p.m.
Webinar

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>S. Woodward</i>) | 9:00 a.m. |
| 2. Board Consent | 9:05 a.m. |
| • Approval of Agenda | |
| • Approval of Proceedings from August 2020 | |
| 3. Public Comment | 9:10 a.m. |
| 4. Update on Fecundity Estimates Associated with Ecological Reference Points and Set 2021-2022 Fishery Specifications (<i>S. Woodward</i>) Final Action | 9:20 a.m. |
| • Technical Committee Report (<i>C. Flora</i>) | |
| • Advisory Panel Report (<i>J. Kaelin</i>) | |
| 5. Other Business/Adjourn | 12:00 p.m. |

MEETING OVERVIEW

Atlantic Menhaden Management Board Meeting Webinar
October 20, 2020
9:00-12:00 p.m.

| | | |
|---|---|--|
| Chair: Spud Woodward (GA) Assumed Chairmanship: 03/20 | Technical Committee Chair: Corrin Flora (NC) | Law Enforcement Committee Representative: Maj. Robert Kersey (MD) |
| Vice Chair: Mel Bell (SC) | Advisory Panel Chair: Jeff Kaelin (NJ) | Previous Board Meeting: August 2020 |
| 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 August 2020

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. Update on Fecundity Estimates associated with Ecological Reference Points and Set 2021-2022 Specifications (9:20 a.m.– 12:00 p.m.) Final Action

Background

- The Board sets an annual or multi-year Total Allowable Catch (TAC) using the best available science. From 2018-2020, the Board set the TAC at 216,000 metric tons with the expectation that setting of the TAC in subsequent years guided by menhaden-specific Ecological Reference Points (ERPs).
- In August, the Board approved ERPs to manage Atlantic menhaden. The approved ERPs also adjust the fecundity (FEC) reference points outlined in Amendment 3. The Board tasked the Technical Committee (TC) and EEP Workgroup (ERP WG) with updating the FEC reference points based on the newly approved ERPs as well as exploring a range of TAC alternatives and to determine the percent risk of exceeding the F_{target} in order to inform setting specifications for 2021-2022.
- In September, the TC and ERP WG met to complete the Board tasks on developing a range of TAC alternatives and updating the FEC reference points. **(Briefing Materials)**
- In October, the Advisory Panel met to review and provided comments on the TC's memo. **(Supplemental Materials)**

Presentations

- TC and ERP WG Reports by C. Flora

- Advisory Panel Report by J. Kaelin

Board Actions for Consideration

- Approve Updated FEC Reference Points
- Consider setting fishery specifications for 2021-2022

6. 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, SAS, ERP WG – various taskings relating to management response to the 2019 benchmark stock assessments
- TC – April 1st: Annual compliance reports due

TC Members: Corrin Flora (NC, Chair), Joey Ballenger (SC), Jason McNamee (RI), Lindsey Aubart (GA), Jeff Brust (NJ), Matt Cieri (ME), Ellen Cosby (PRFC), Micah Dean (MA), Kurt Gottschall (CT), Jesse Hornstein (NY), Rob Latour (VIMS), Chris Swanson (FL), Ray Mroch (NMFS), Josh Newhard (USFWS, Vice-Chair), Derek Orner (NMFS), Amy Schueller (NMFS), Alexei Sharov (MD), Jeff Tinsman (DE), Kristen Anstead (ASMFC), Kirby Rootes-Murdy (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), Kirby Rootes-Murdy (ASMFC), Joey Ballenger (SC)

ERP WG Members: Jason Boucher (DE), Matt Cieri (ME, BERP Chair), Michael Celestino (NJ), David Chagaris (FL), Micah Dean (MA), Rob Latour (VIMS), Jason McNamee (RI), Amy Schueller (NMFS), Alexei Sharov (MD), Howard Townsend (NFMS), Jim Uphoff (MD), Kristen Anstead (ASMFC), Katie Drew (ASMFC), Sara Murray (ASMFC)

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

**Webinar
August 4 and 5, 2020**

These minutes are draft and subject to approval by Atlantic Menhaden Management 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 May 2020** by Consent (Page 1).
3. **Postponed Motions from February 2020**
An Atlantic menhaden ecological reference point fishing mortality rate (F) target equal to the maximum F on Atlantic menhaden that maintains Atlantic striped bass at its biomass target when striped bass is fished at its F target and all other ERP species as defined in the NWACS-MICE model are fished at their status quo F rates.

An Atlantic menhaden ecological reference point F threshold equal to the maximum F on Atlantic menhaden that maintains Atlantic striped bass at its biomass threshold when striped bass is fished at its F target and other ERP species as defined in the NWACS-MICE model are fished at their status quo F rates.
Motions approved unanimously (18 in favor) (Page 24).
4. **Move to elect Mel Bell as Vice-chair to the Atlantic Menhaden Management Board** (Page 32).
Motion by Malcolm Rhodes; second by Steve Murphey. Motion approved unanimously (Page 32).
5. **Motion to adjourn** by Consent (Page 33).

ATTENDANCE

Board Members

| | |
|--|---|
| Megan Ware, ME, proxy for Pat Keliher (AA) | G. Warren Elliott, PA (LA) |
| Sen. David Miramant, ME (LA) | John Clark, DE (AA) |
| Cheri Patterson, NH (AA) | Roy Miller, DE (GA) |
| Ritchie White, NH (GA) | Craig Pugh, DE, proxy for Rep. Carson (LA) |
| Dennis Abbott, NH, proxy for Sen. Watters (LA) | Lynn Fegley, MD, proxy for Bill Anderson (AA) |
| Nichola Meserve, MA, proxy for Dan McKiernan, (AA) | Russell Dize, MD (GA) |
| Raymond Kane, MA (GA) | Allison Colden, MD, proxy for Del. Stein (LA) |
| Rep. Sarah Peake, MA (LA) | Steve Bowman, VA (AA) |
| Conor McManus, RI, Proxy for Jason McNamee (AA) | Bryan Plumlee, VA (GA) |
| David Borden, RI (GA) | Sen. Monty Mason, VA (LA) |
| Eric Reid, proxy for Rep. Susan Sosnowski (LA) | Steve Murphey, NC (AA) |
| Justin Davis, CT (AA) | Jerry Mannen, NC (GA) |
| Matt Gates, CT, proxy for Sen. Miner (LA) | Mel Bell, SC, proxy for P. Maier (AA) |
| Bill Hyatt, CT (GA) | Malcolm Rhodes, SC (GA) |
| Jim Gilmore, NY (AA) | Sen. Ronnie Cromer, SC (LA) |
| Emerson Hasbrouck, NY (GA) | Doug Haymans, GA (AA) |
| John McMurray, NY, proxy for Sen. Kaminsky (LA) | Spud Woodward, GA (GA) |
| Joe Cimino, NJ (AA) | Jim Estes, FL, proxy for J. McCawley (AA) |
| Tom Fote, NJ (GA) | Sen. Thad Altman, FL (LA) |
| Adam Nowalsky, NJ, proxy for Asm. Houghtaling (LA) | Marty Gary, PRFC |
| Kris Kuhn, PA, proxy for T. Schaeffer (AA) | Derek Orner, NMFS |
| Loren Lustig, PA (GA) | Mike Millard, USFWS |

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

Ex-Officio Members

Corrin Flora, Technical Committee Chair

Matt Cieri, Ecological Reference Point WG Chair

Staff

Bob Beal
Toni Kerns
Kristen Anstead
Max Appelman
Pat Campfield
Maya Drzewicki

Lisa Havel
Chris Jacobs
Jeff Kipp
Sarah Murray
Kirby Rootes-Murdy
Caitlin Starks

Deke Tompkins
Michael Schmidtke
Geoff White
Katie Drew

Guests

Karen Abrams, NOAA
Michael Academia
Fred Akers
Bill Anderson, MD DNR
Mike Armstrong, MA DMF
Steve Atkinson
Pat Augustine, Coram, NY
Jerald Ault, Univ Miami
Michael Auriemma, NJ DEP

Joey Ballenger, SC DNR
Bob Ballou, RI DEM
Richard Balouskus, RI DEM
Vincent Balzano, ME
Chris Batsavage, NC DMF
David Behringer, NC DENR
Rick Bellavance, Narragansett, RI
John Bello, VSSA
Peter Benoit, Ofc. of Sen. King, ME

Alan Bianchi, NC DENR
Karl Blankenship, *Bay Journal*
Deidre Boelke, NEFMC
Ellen Bolen, VMRC
Jason Boucher, DE DFW
Rob Bourdon, MD DNR
Dick Brame, CCA
Jeff Brust, NJ DEP
Andre Bucheister, Humboldt Univ

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

Draft Proceedings of the Atlantic Menhaden Board Meeting Webinar
August 2020

| | | |
|----------------------------------|--------------------------------|--|
| Steve Cadrin, U MASS-Dartmouth | Ken Hinman, Wild Oceans | Olivia Phillips, VMRC |
| Mike Celestino, NJ DEP | Carol Hoffman, NYS DEC | Ellen Pikitch, Stony Brook Univ |
| David Chargaris, Univ FL | Jesse Hornstein, NYS DEC | Nick Popoff, FL FWS |
| Benson Chiles, Chiles Consulting | Ed Houde, UMD | Jill Ramsey, VMRC |
| Germain Cloutier | Asm. Eric Houghtaling, NJ (LA) | Dave Ress, <i>Daily Press</i> |
| Zack Cockrum, NWF | Rusty Hudson | Harry Rickabaugh, MD DNR |
| Allison Colden, CBF | Annie Innes-Gold | James Rogers |
| Caitlin Craig, NYS DEC | George Jackman | Mike Ruccio, NOAA |
| Robert Crockett | Cameron Jaggard, Pew Trusts | Tom Rudolph, Pew Trusts |
| Jane Crowther, Omega Protein | Jeff Kaelin, Lund's Fisheries | Charlotte Runzel, Audubon Society |
| Jessica Daher, NJ DEP | Julia Kaplan, MA DMF | Brandi Salmon, NC DENR |
| Maureen Davidson, NY DEC | Pat Keliher, ME | Christine Santora, Stony Brook |
| Pamela D'Angelo | Richard Klyver | Eric Schneider, RI DEM |
| Jeff Deem, Lorton, VA | Aaron Kornbluth, Pew Trusts | Bret Scholtes, Omega Protein |
| Monty Deihl, Ocean Fleet Svcs | Adrienne Kotula, CBF | Amy Schueller, NOAA |
| Jon Deroba, NOAA | Alexa Kretsch, VMRC | Tara Scott, NOAA |
| Greg DiDomenico, Cape May, NJ | Ben Landry, Omega Protein | Alexei Sharov, MD DNR |
| John Duane, Wellfleet, MA | Rob LaFrance, CT | Andy Shiels, PA F&B |
| William Dunn | Thao Le, NOAA | Dave Sikorski, CCA |
| Maddie Dwyer, MD DNR | Tom Lilly, Menhaden Project | Melissa Smith, ME DMR |
| Paul Eidman, Tinton Falls, NJ | Tom Little, NJ Legislature | Nick Sterrett, Omega Protein |
| Steven Epstein | Carl LoBue, TNC | David Stormer, DE DFW |
| James Fletcher, Wanchese Fish | Bob Lombardi | Helen Takade-Heumacher, FL FWS |
| Christine Fletcher, Pew Trusts | Mike Luisi, MD DNR | Howard Townsend, NOAA |
| Jared Flowers, GA DNR | Dee Lupton, NC DENR | Jim Uphoff, MD DNR |
| Tony Friedrich, SGA | Chip Lynch, NOAA | Sarah Vogelsong, <i>Virginia Mercury</i> |
| David Frulla, ME | Pam Lyons Gromen, Wild Oceans | Mike Waine, ASA |
| Erica Fuller, CLF | Shanna Madsen, VMRC | Craig Weedon, MD DNR |
| Mel Gardner | John Maniscalco, NYS DEC | Anna Weinstein, Audubon Society |
| Lacie Gaskins, Reedville, VA | Dan McKiernan, MA DMF | Hannah Welch, UNE |
| Matt Gates, CT DEP | Kevin McMenamin, MD | Catlyn Wells, SC DNR |
| Shaun Gehan, Gehan Law | Jason McNamee, RI DEM | Holly White, NC DENR |
| Pat Geer, VMRC | Steve Meyers | Kelly Whitmore, MA DMF |
| Lew Gillingham, VMRC | Fred Michaud | Angel Willey, MD DNR |
| Angela Giuliano, MD DNR | Mike Millard, FL FWS | John Williams, CBF |
| Willy Goldsmith, SGA | Drew Minkiewicz, Kelley, Drye, | Charles Witek, W. Babylon, NY |
| Zoe Goozner, Pew Trusts | Chris Moore, CBF | Chris Wright, NOAA |
| Zach Greenberg, Pew Trusts | Will Mosley | Phil Zalesak |
| Max Grezlik, Humboldt Univ | Brandon Muffley, MAFMC | Erik Zlokovitz, MD DNR |
| Jon Hare, NOAA | Allison Murphy, NOAA | Renee Zobel, NH F&G |
| Brendan Harrison, NJ DEP | David Mussina | |
| William Harward | Ken Neill | |
| Marin Hawk, MSC | Josh Newhard, FL FWS | |
| Dave Hersch | Patrick Paquette, MSBA | |
| Pete Himchak | Rich Pendleton, NYS DEC | |

Draft Proceedings of the Atlantic Menhaden Board Meeting Webinar
August 2020

The Atlantic Menhaden Management Board of the Atlantic States Marine Fisheries Commission convened via webinar; Tuesday, August 4, 2020, and was called to order at 1:30 p.m. by Chairman A. G. "Spud" Woodward.

CALL TO ORDER

CHAIRMAN A. G. "SPUD" WOODWARD: Good afternoon everybody, this is Spud Woodward, Governor's Appointee from Georgia, and your current Chair of the Atlantic Menhaden Management Board. I appreciate everybody joining in for the Board meeting today.

As if virtual meetings weren't challenging enough, now we have an unpronounceable tropical storm that is rolling across the eastern seaboard, so we will do the best we can. Before I get into the business of the Board, I would like to call on Justin Davis. He would like to make a brief introduction to the Board.

DR. JUSTIN DAVIS: It is my pleasure to introduce Rob LaFrance, who is going to be a new voice for us around the table on the Connecticut side. Rob is going to be serving as the ongoing proxy for our Governor's Appointee, Bill Hyatt, so I expect he'll be filling in for Bill periodically. Rob is a former employee of our agency, the Connecticut DEP. He worked as our agency's legislative liaison.

He also worked in our office of legal counsel, during which time he worked really closely with the Bureau of Natural Resources Programs, including Marine Fisheries. Essentially, he was our lawyer, and he managed to keep me from doing anything too stupid, and getting in trouble, which is no small feat. Rob has since retired from the Agency, and he is now serving as an adjunct professor of Environmental Law at Quinnipiac School of Law, and he is also the Policy Director for Audubon, Connecticut, so welcome, Rob!

CHAIRMAN WOODWARD: Thank you, Justin, and welcome, Rob. We appreciate you joining us, and look forward to your input.

ROBERT LAFRANCE: Thank you very much, I appreciate it.

APPROVAL OF AGENDA

CHAIRMAN WOODWARD: A little brief overview of our agenda. As you can tell this will be a split meeting. We have an hour to do our business this afternoon, and then we will reconvene tomorrow afternoon at 2:45 to complete our business, so an hour we've already used up five minutes of our hour, so I'm going to try to keep us moving along quickly. We have an agenda before us. Are there any modifications to the agenda? If so, please raise your hands and you can be recognized by Toni.

MS. TONI KERNS: I do not see any hands raised.

CHAIRMAN WOODWARD: No modifications recommended, I'm going to use consent to approve our agenda, and also our proceedings. If there is any opposition to accepting the agenda as presented, please raise your hand.

MS. KERNS: I do not see any hands raised.

CHAIRMAN WOODWARD: All right we will consider the agenda accepted by consent.

APPROVAL OF PROCEEDINGS

CHAIRMAN WOODWARD: We also have the proceedings from our May, 2020 meeting, they have been provided to you in the materials. Are there any modifications to the proceedings?

MS. KERNS: I do not see any hands raised.

CHAIRMAN WOODWARD: Is there any opposition to accepting the proceedings as submitted, raise your hand?

MS. KERNS: I do not see any hands raised.

CHAIRMAN WOODWARD: We'll consider the proceedings accepted by consensus.

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

PUBLIC COMMENT

CHAIRMAN WOODWARD: Next, we have an opportunity for public comment for items that are not on the agenda. We would want to see this as brief as we can. I know we have two individuals that have stated that they want to speak during this public comment period. Each have been informed that they have three minutes, so we're going to keep you pretty tight to that so we can get our business done. Raise your hand if you would like to provide public comment at this time, and identify yourself.

MS. KERNS: We have both Phil Zalesak, and Steve Cadrin.

CHAIRMAN WOODWARD: Okay, well Phil, I'll let you go ahead and start with your public comment, and please keep it at three minutes, sir, if you will.

MR. PHIL ZALESAK: I will. Good afternoon, my name is Phil Zalesak. My remarks are in your e-mail as of noon today. I have four basic questions. What was the actual Omega Protein harvest of Atlantic menhaden in the Virginia portion of the Chesapeake Bay in 2019? They were supposed to harvest no more than 51,000 metric tons.

However, they harvested 66,000 metric tons. That is 31 percent of the total allowable catch for the entire Atlantic coast of 216,000 metric tons, or 46 times the Maryland harvest of 1422 metric tons in the Chesapeake Bay. In the past Omega Protein has been allocated over 110,000 metric tons of menhaden, over 500 million fish harvested per year.

What has been the impact on the commercial harvest of predator fish in Chesapeake Bay and its tributaries? Striped bass, bluefish and weakfish are highly dependent on Atlantic menhaden as a primary source of food, and are among 22 other predators, which forage on Atlantic Menhaden in the Chesapeake Bay. Over the last 22 years, the commercial harvest in the Chesapeake Bay and its tributaries have

declined by 34 percent for striped bass, 76 percent for bluefish, 98 percent for weakfish. What are the other significant impacts of the Chesapeake Bay and its tributaries?

Over the last 20 years commercial harvesters have declined by 43 percent in Maryland, 40 percent in Virginia, and over the last 20 years for-hire trips have declined by 43 percent in Maryland, and 62 percent in Virginia. The economic damage to the Atlantic Coast commercial and recreational fishing industry is incalculable. However, in 2016, the Atlantic striped bass recreational fishery alone supported over 100,000 jobs, and the economic impact was 7.7 billion dollars.

What is the solution to overharvesting the Atlantic menhaden in the Chesapeake Bay? The southern Maryland recreational fishing organizations Board of Directors has reviewed several proposals submitted by members of this Board, Maryland recreational fishermen, Maryland charter captains, and they evaluated the pros and cons of each proposal. Based on their evaluations they recommend an addendum to the current fishery management plan, which would require one sentence, one sentence change.

Under Chesapeake Bay reduction fishery cap, the sentence would simply read, reduction fishing is prohibited within the Chesapeake Bay, and within the three-nautical mile limit of the economic exclusive zone. This proposal would seem the least disruptive, and would have no impact on the current allocation among the states. Science and 22 years of empirical data demand action now, as this issue is over 16 years old. I thank you for your time.

CHAIRMAN WOODWARD: Thank you, Phil, we appreciate the comments, and I appreciate you keeping it within the three minutes. Next, we have Dr. Steve Cadrin.

DR. STEVE CADRIN: Thanks to the Chair and the Management Board for your time, I know you're on a tight schedule. For those of you who don't know me, I'm Steve Cadrin, I'm a professor of Fisheries and Oceanography at the University of Massachusetts, Dartmouth School for Marine Science and Technology.

The Science Center for Marine Fisheries asked me to review the SEDAR 69 stock assessment of Atlantic menhaden, including the analysis and ecological reference points, which I think represent a substantial amount of work by the Menhaden Technical Committee, and Ecological Reference Points Working Group, and they all provided information for fisheries management.

I think the most relevant scientific guidance for the management board is public briefing (inaudible)...by Ray Hilborn and his colleagues that 2017 paper titled, When Does Fishing Forage Species Affect Their Predators? (inaudible). In each of these...

MS. TINA BERGER: Steve, I'm sorry to interrupt you, but you're cutting in and out.

DR. CADRIN: Sorry about that, that could be my connection. Should I proceed?

MS. BERGER: Let's try again, yes.

DR. CADRIN: The factors that we have to consider for the issue on forage fish but can serve as predators is the high natural variability, and the high natural mortality rate. We have had a direct estimate of natural mortality, which is better than most assumptive stock assessments, a weak stock recruit relationship. The fishery does not target the juvenile menhaden, which are the primary food source for predators, and the changes of spatial distribution has not been fully addressed in the multispecies model.

Therefore, I ask the Menhaden Board to consider the decision of Hilborn and his colleagues for Atlantic menhaden, and the likelihood that the impact of the forage fish multispecies model is less than estimated by the model. The impact of fishing on forage fish is less than indicated by the model. I would be happy to supply further details of my review, and thank you for your time and consideration.

CHAIRMAN WOODWARD: Thank you, Dr. Cadrin. We appreciate your input. You also had

some material presented in the supplemental from Dr. Cadrin for Board review, so everybody has had access to those. All right, is there anyone else that would like to make a public comment about anything that is not on the agenda? Any hands raised, Toni?

MS. KERNS: No, I do not see any other hands.

CHAIRMAN WOODWARD: Very good. That concludes our public comment period. There is one housekeeping matter that needs to be attended to, and I'll call on Bob Beal for that.

EXECUTIVE DIRECTOR ROBERT E. BEAL: I just want to let you know that Steve Bowman is having technical difficulties due to the storm. He doesn't have power, doesn't have internet, so he's asked Shanna Madsen to sit in as his meeting-specific proxy for this session. He hopes to be back online tomorrow afternoon, so I just want to let everyone know that Steve can't make it, Shanna should be here for the meeting.

CHAIRMAN WOODWARD: All right, thank you, Bob, we appreciate it.

REVIEW OF THE ECOLOGICAL REFERENCE POINT WORKING GROUP ANALYSIS

CHAIRMAN WOODWARD: Our next item on the agenda will be a review of the Ecological Reference Point Working Group Analysis. As everyone remembers, we have tasked this group with a formidable challenge, and we have continued to ask them to answer questions about the NWACS-MICE model and various scenarios, so I'm going to ask for Dr. Matt Cieri to next present the results of this latest analysis for us, so Matt, it's all yours.

DR. MATT CIERI: Hopefully you guys can see my title screen.

CHAIRMAN WOODWARD: Yes.

DR. CIERI: Excellent. My name is Matt Cieri; I am with the Maine Department of Marine Resources, and I'm also the Chair of the Ecological Reference Point Working Group. Today we'll be talking about ecological reference point assessments, some additional analysis charged by the Board. Just to give

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The Board will review the minutes during its next meeting.

Draft Proceedings of the Atlantic Menhaden Board Meeting Webinar
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you an idea, we're first going to go over an introduction, which will probably be a little lengthy. Then we'll go into some additional analysis, most of which you guys have seen before. We'll then follow up with some conclusions and recommendations, and then we'll take questions and we'll wrap this puppy up.

The ERP Working Group back in February recommended a combination of the BAM single-species model and the NWACS-MICE model tool, to allow managers to evaluate the tradeoffs between Atlantic menhaden predator biomass, and to establish reference points and quotas for menhaden that account for menhaden's role as a forage fish.

The ERP Working Group developed an example ERP target and threshold, based on striped bass, and where striped bass reference points are, with an ERP target being the maximum F on menhaden that sustains striped bass at their B target, when striped bass are fished at their F target, and an ERP threshold being the maximum F on menhaden that keeps striped bass at their B threshold, when they're fished at their F target.

In this sort of example scenario, all other ERP species are fished at their 2017 levels in this example. At that meeting, the Atlantic Menhaden Board tasked us with conducting additional runs of the NWACS-MICE tool, to explore sensitivities of the ERP, so different assumptions about ecosystem conditions. I'm going to go over those again. I believe we saw these during the spring meeting as well. I tend to talk with my hands, so I'm going to talk with a pointer.

We have a series of scenarios here, including our example ERP under 2017 status quo conditions. Scenario 2 is all at the target, and as you can see this is accomplished by fishing striped bass at its F target, and then the other species at their F targets, all at the threshold, with striped bass being fished at its F target, and everybody else being fished at their F

threshold. Then Scenario 4 would be just to have bluefish and Atlantic herring at their B target.

It's important to note here that when we say F target and F threshold, this sort of particular example. This is the F that is required to keep these species at their target or at their threshold levels, respectively. Just to sort of remind you guys of what status quo 2017 conditions really are, at the time Atlantic herring for its status was not experiencing overfishing, was below its target, but not yet overfished.

Bluefish were overfishing and overfished. Spiny dogfish were below its F target, and above its SSB target, and for weakfish its mortality was too high, and its biomass was considered depleted. Putting some numbers on these, you know on each of these examples. We dropped Scenario 4. Scenario 4 was exactly the same as Scenario 2.

We have an ERP target and an ERP threshold. In our example ERPs, the ERP target is 0.19, and an ERP threshold of 0.57. For Scenario 2, everybody at their B target, the ERP threshold was 0.36. I'm sorry, the ERP target was at 0.36, and the threshold was undefined, and I'll get to that in a minute. With Scenario 3, everybody at their B threshold, the ERP target was 0.03, and a threshold of 0.32.

Now for comparison purposes you can look at the single-species biological reference points with a target of 0.31, and a threshold of 0.86. The Scenario 2, what we found was that Atlantic herring when they were at their biomass target, striped bass was fished at their F target. The ERP threshold was undefined, meaning that there wasn't really a menhaden F value that we explored that could push striped bass to their biomass threshold. In sort of a graphic representation of what this all looks like.

First, let's start off here on this axis with striped bass biomass over its B target. At the ratio, this is a ratio, and so at a ratio of 1, striped bass would be at their target, and a little bit below this 0.8, striped bass would be at its threshold. The example here for status quo in the dark line. Then you can see that it crosses both the B target and the B threshold.

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What you can do is you can sort of drop a line from where this line sort of crosses the B target and B threshold dotted lines. You can end up with this is Atlantic menhaden full F. You can end up with the F that would be associated with that relationship here. As you can see, this is everybody at status quo, except for striped bass.

When we looked at Scenario 2, where everybody was at their B target, you can see that the line doesn't quite actually make it to the B equals B threshold for striped bass. This is because Atlantic herring biomass just simply didn't allow it to reach that point. You can also see that when everyone was at their B threshold, you could also see that Atlantic menhaden F would be a lot lower if you were to drop a line.

Atlantic herring are an important component of striped bass diets, certainly in some regions and in some seasons. Sensitivity analyses indicate that the model may be overestimating the importance of Atlantic herring, however, especially on a coastwide or an annual level. It was observed that when we looked into this further that the model predicted a higher proportion of Atlantic herring diets of striped bass than what we've actually observed in coastwide studies.

To explore this a little bit further, we instituted some seasonal variability sensitivity runs in the Atlantic herring and striped bass relationship. When we were finished with this, and I won't really bore you with the details. This predicted lower levels of Atlantic herring in the striped bass diet, compared to the peer review model without seasonality that we showed during the assessment process.

But when we did this, we found that the data was more in line with the observed diet data that was seen. The sensitivity to Atlantic herring in the NWACS-MICE model therefore, seems to be due to the lack of seasonal and spatial dynamics, rather than reflecting realistic ecological dynamics consistently.

I'm going to show you a little bit graphically what this kind of looks like. This is basically the same graph that we looked at before, with striped bass B over B target. The target here is a ratio of 1. The B to B threshold just below 0.8. Atlantic menhaden fall out here on this axis, and again in the dark solid line you have our status quo, the example ERP.

Scenario 2, everybody at their B target here, and everybody at their B threshold here. The blue line is the current menhaden F in 2017. When you add in seasonality, I want you to take a look at, here we had seasonality. Again, it's the same sort of graph. But what I do want you to notice is that there are three interesting changes that have happened. The first is that all of those scenarios sort of converge, particularly near the B target. The second thing is that the Number 2, Scenario 2, everybody at their status quo is now the lowest line here. It's gone from here down to here in relationship.

The second thing is that the entire line, all of the lines have moved up to the right, meaning that there is a greater distance between the menhaden effort in 2017, and the ecological reference point that would come from this that would be derived from this. However, this is only used for exploration. It only accounts for the seasonality between Atlantic herring and striped bass, rather than for all the predators and prey.

As you can imagine, you would have to institute the seasonality, not just between Atlantic herring and striped bass, but between menhaden and striped bass, between menhaden and dogfish, between menhaden and bluefish. We haven't really totally examined or tested this as a working group, but only use this as an exploratory analysis.

Look at sensitivity. This really needs to be fully vetted through a peer review process prior to management, simply because the model seems to be sensitive to assumptions about seasonality. We need to look at this more in the future, probably during our next benchmark for this tool. What conclusions can we draw from this?

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The ERP Working Group and the Menhaden TC recommend the example ERP Scenario 1, based on status quo 2017 F levels, with near-term management of Atlantic herring. The example ERP was able to provide enough menhaden to sustain striped bass, the most sensitive predator in our models, when striped bass are at or near their biomass target under these conditions.

Sensitivity to Atlantic herring biomass shown in Scenarios 2 and 3, are likely due to a lack in spatial dynamics, rather than reflecting realistic economic dynamics in the system. But this isn't a source of uncertainty that the Board could consider when setting specifications, especially given Atlantic herring are now well below their biomass target, and as you will find out in the next couple of days, pretty far below its threshold as well.

The Board can take a look at this or approach this uncertainty kind of in two ways. One would be to apply a buffer to whatever TACs it generated out of this management action, and the other is to adjust the probability of reaching your F target. This is based on the Risk and Uncertainty Policy Working Group's document that you guys will be reviewing in the next couple of days as well, so we can get into more of that a little bit later.

Again, just to give you an overall summary of what we're talking about here would be Example Scenario 1 ERP reference points. These are exactly as it was presented at the 2020 winter meeting. We're looking at an F target of about 0.19, a threshold of about 0.57. The current menhaden F for 2017 was at 0.16, so overfishing is not occurring.

The probability of exceeding the ERP target from 2019 through 2021 at a 216,000 metric ton quota, would range between 60 and 70 percent. The probability of exceeding that ERP threshold would be pretty much 0. What are the next steps? We have identified and recommended the example ERPs there in Scenario 1. The next steps would be to start

generating TACs of the probabilities, to reach that ERP target. This would be based on the Board's risk tolerance level. You could certainly see how you would maybe want to look at different probabilities of achieving that ERP F target, and then have a series of TACs that are associated with them.

With that I am going to wrap up and take questions. The Ecological Reference Point Working Group is a mad group of huge numbers of scientists who have worked on this continuously, not only during the peer review, but afterwards in doing some of this additional analysis and additional work requested by the Board. With that I will take any questions.

CHAIRMAN WOODWARD: Thank you, Matt, and again on behalf of the Board, we appreciate the work this group has done, and it has been a monumental undertaking, and it really is just a beginning of a bold phase, hopefully in fisheries management. We do appreciate you and the others taking the lead on this, and moving us down the line towards better fisheries management. With that I'll open up the floor for questions. Just raise your hand and we'll work through you one by one.

MS. KERNS: Spud, I just want to see if I can get Connor's voice on here. Connor, can you give it a try right now?

MR. CONOR McMANUS: Hey Toni, can you hear me?

MS. KERNS: I can. Okay, so Connor, if you have questions just text me, and then we'll be able to get it in that way.

MR. McMANUS: Perfect, thank you.

MS. KERNS: Spud, you have Lynn with a question.

CHAIRMAN WOODWARD: Go ahead, Lynn.

MS. LYNN FEGLEY: Thank you, Matt for that. I really appreciate it. It is interesting to me that when you put those spatial dynamics in for herring and striped bass that those scenarios came in line. But my question is really, I just was looking for sort of an affirmation from you, and hopefully help the Board.

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Right now, if the TAC is maintained at 216,000 metric tons that results in this 60 to 70 percent probability of exceeding the ERP target over the next couple of years. Just stated another way, that implies that if the TAC remains the same then F will rise. Is that correct?

DR. CIERI: That would be correct.

MS. FEGLEY: Okay, thanks.

CHAIRMAN WOODWARD: Nice question, Lynn. That is a good clarifying question. Who is next?

MS. KERNS: We have Allison Colden, and then Emerson Hasbrouck.

CHAIRMAN WOODWARD: All right, go ahead Allison, and Emerson you're on deck.

DR. ALLISON COLDEN: I just want to echo the Chair's comments, thanking the TC and the ERP Workgroup for all the great work they've done. Every presentation you give, Matt, I learn more and more about the model and the dynamics. This is really a great presentation to learn more about that.

I wanted to sort of ask two clarifying questions to make sure I'm understanding things correctly. Related to some of the exploratory runs you guys did including seasonality, did you say that the ERP target that was generated when you included seasonality was more conservative than the ERP that is generated when you don't take that into account?

DR. CIERI: Hopefully you can still see my screen. What ends up actually happening is it would be a little bit less conservative in that regard. There would be a higher menhaden F that would be associated. If you were, for example to, can you see my cursor? If you were to drop a line here down, and compare that to here and down.

DR. COLDEN: Okay great, thanks, and while we're there the other question is sort of, Lynn talked on this a little bit too. It was interesting to see the conversion of those three scenarios,

and I'm sort of wondering. Is that related to you know the conclusion or the observations that the model is most sensitive to striped bass, and that is why they are closer, once you sort of address that model artifact of seasonality?

DR. CIERI: It's mostly because when you include the seasonality you drop the importance of Atlantic herring, and most of these scenarios were built around Atlantic herring, as you can imagine. I would be really, really careful about making sort of any sort of decisions based around the seasonality component.

Simply because it just includes the seasonality between Atlantic herring and striped bass. That is what drives it. It doesn't include, you know we don't know what would happen if you include the seasonality between other predators and other prey in the model. That is something that we need to explore.

DR. COLDEN: Great, thanks Matt.

CHAIRMAN WOODWARD: Okay, Emerson, you're next. Anybody on deck, Toni?

MS. KERNS: No one else has their hand up so far.

MR. EMERSON C. HASBROUK: Thank you, Dr. Cieri, for your presentation, and thank you to the entire Working Group for all their work on this. One of the recommendations that came out of the Working Group is that the Board may want to consider applying a buffer when setting the TAC, when Atlantic herring are at a low biomass. That is a fairly subjective statement. Was there any discussion about what the Committee meant by low biomass? Does that mean below their target, below their threshold, some other biomass reference number?

DR. CIERI: We were just sort of trying to come up with options for the Board to take. You know certainly the status of Atlantic herring is an uncertainty within this sort of framework, simply because it is at a very, very low level. One approach would be to simply, you know again because it's an uncertainty.

Like any uncertainty there are sort of two ways the Board could approach it. One would be to set a

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precautionary buffer, if that is the Board choice. While we didn't have anything specific in mind, it is something that you are of course always able to do when you guys are facing an uncertain future.

MR. HASBROUCK: A follow up, Mr. Chairman.

CHAIRMAN WOODWARD: Go ahead.

MR. HASBROUCK: Then from your answer then the Board would also have the ability, if we chose to have a buffer, we would have the ability to discuss what low biomass means, and define that ourselves.

DR. CIERI: Exactly. This is more of an opportunity for you guys, what's a low biomass for you? How low does it have to be in order to increase your uncertainty? How big is that uncertainty? If it's too big then you may wish to account for it.

MS. KERNS: Mr. Chairman, you have Justin Davis, Nichola Meserve, and Lynn Fegley, and Allison, I'm not sure if your hand is up again, or if you forgot to take it down.

CHAIRMAN WOODWARD: You've still got Justin, Nichola, and who? Lynn?

MS. KERNS: That's correct.

CHAIRMAN WOODWARD: Go ahead, Justin.

DR. DAVIS: Matt, I want to see if I understand correctly. This will follow up a little bit on Emerson's question, so this concept you brought up of having a buffer on the TAC to adjust for uncertainty around Atlantic herring. The way I was taking this, and maybe I'm not interpreting this correctly, is that the status quo for Atlantic herring under the modeling runs that were done, reflect a population status for Atlantic herring that may not be the case now, they might be at a lower biomass than the 2017 situation.

Because they are sort of the other primary prey item here, the Board might want to adjust for that probability by putting that precautionary buffer around the TAC. If that is correct, what I'm wondering, is there any way to provide any sort of mathematical advice on the magnitude of that buffer, using this modeling framework by doing additional runs under a lower Atlantic herring biomass scenario, if that makes any sense.

DR. CIERI: Yes, it does. We of course did that. That would be here for everybody at their threshold, including Atlantic herring. The one caveat is that we think Scenario 3 and Scenario 2 are likely more due to the lack of spatial dynamics. In this particular case, we could take a look at what different buffers might look like.

But, because when we input this into the model the model is sensitive to Atlantic herring, we're going to get results that look like the blue or the orange line here, depending on where you put Atlantic herring. This was simply put up as a vehicle for the Board, as a way of accounting for uncertainty if they chose to do so.

CHAIRMAN WOODWARD: Follow up on that Justin or are you good?

DR. DAVIS: I'm good, thank you that was a good answer.

CHAIRMAN WOODWARD: Nichola, you're next, and Lynn, you're on deck.

MS. NICHOLA MESERVE: Thank you Matt, I appreciate the work of the Work Group and the TC to do these additional analyses to vet the example ERPs, especially at a time when I'm sure you are all ready to think about something other than menhaden for a bit, It does seem that it was important that we did take this pause on the motion to adopt the ERPs that conduct these additional analyses.

To understand that these particular ERPs showed some sensitivity that they're appropriate for the near term, in the words of the Work Group, and that additional consideration of seasonal and spatial parameters are going to be years in the future. My

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question is your definition of a near term. Was the Work Group comfortable in the use of these particular ERPs up until the next benchmark, for example, five years away?

DR. CIERI: To sort of your first point. We will be eating, sleeping, and breathing this stuff for quite a while beyond this, because we have a series of scientific papers coming out, and most of us are actually bum rushing the AFS with a bunch of presentations. Be looking for that if you attend AFS online this year.

Having said that sort of plug, to answer your question, yes. We felt comfortable using these ERPs the Scenario 1 examples that we presented in February, for near term management until the next benchmark. In that time, we're going to be working on seasonal and spatial aspects of this model, to bring you a better product after that benchmark.

CHAIRMAN WOODWARD: All right, Lynn, got anybody on deck, Toni?

MS. KERNS: No one on deck as of yet.

MR. JOHN CLARK: Can you put John Clark in the queue?

CHAIRMAN WOODWARD: Yes sir, I've got you, John. Go ahead, Lynn.

MS. FEGLEY: Really, Justin Davis almost exactly asked my question, but I was curious about how to get at this "precautionary buffer" in some objective way, and my question is, how would setting a precautionary buffer differ from applying the Risk and Uncertainty Policy, and wouldn't picking a probability of, you know like if we went down to a 50 percent probability of exceeding F.

Wouldn't holding the fishery at the ERP target, giving the uncertainty with herring. Wouldn't that provide us more in the near term, like Nichola said. It seems though we're taking one step. I'm just curious just to really how we get to that precautionary buffer. I guess I'm losing

my train of thought, I'm sorry. But I guess I'm confused about the difference between the precautionary buffer and the risk and uncertainty policy.

DR. CIERI: Sure, let me see if I can give you an idea of what that might look like. These lines that give you a menhaden full F. Those are based on 50 percent probabilities. What you could do, for example, is set your ERP target to be this particular number, which ends up being 0.19. That produces a quota.

That quota has a 50 percent chance of achieving that F target. You could have a different probability, and therefore would get a different TAC associated with it. Say for example that you wanted a 65 or a 70 or an 80 percent probability of achieving your F target. That would decrease that TAC, increasing your probability.

The opposite is also true, you could choose a 40 percent chance of achieving your F target that would give you a higher TAC. That would be one way of actually accounting for some of this uncertainty, is to say for example that you want to have a higher probability of achieving your F target when Atlantic herring are at a low biomass, say for example at or below its threshold.

That is one approach. That other approach would be to use the 50 percent probability or some other probability. Then say, because Atlantic herring are in a not such a good place, we want to add a precautionary buffer of X percentage just because, on more of an ad hoc basis. Does that make sense the differences between the two?

MS. FEGLEY: Yes, that was excellent, thank you.

CHAIRMAN WOODWARD: Thank you for that question, Lynn and thank you, Matt. All right, John Clark.

MR. CLARK: Thanks for the presentation, Matt, and all the great work the ERP Work Group has done. I was just curious, something you said earlier in response to a question, putting the seasonality in there for Atlantic herring, and increased F on menhaden. Were those the only two species in the model that are actually

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prey, so lowering the importance of one would automatically raise the other?

DR. CIERI: To answer your question, generally for the most part. I mean you only have two prey items in this particular model. The difficulty here is the seasonality component is only between Atlantic herring and striped bass. You may get different results when you put in seasonality between menhaden and striped bass. We don't know what that is going to look like until we try it. But you know putting seasonality in, determining what magnitude it is, and other aspects along with that are a lot of work, and not something that we can do in any short, reasonable amount of time.

Even if we were able to do it, that is probably going to require a peer review. But to answer your question more completely, yes that is pretty much how it works, in which you sort of shift striped bass predation off of Atlantic herring and more than likely on to menhaden, with again one caveat. If you do that for all of the species, you may get very different results.

DR. KATIE DREW: Hey Matt, sorry this is Katie. I was just going to add to that to say there actually are a couple of prey species in there. We do have bay anchovy, and then we also have sort of general other prey in there as well. But I think the overall concept is yes, there is limited amounts of place for some of that predation or that natural mortality to go and to come from, and so that is certainly a consideration.

MS. KERNS: John, you're breaking up again on us.

CHAIRMAN WOODWARD: Looks like we lost John. John, we can't hear you. You broke up and then we lost you. All right, well maybe we can get him back. Is there anybody else in the queue for questions, Toni?

MS. KERNS: No one that I saw. Nichola and Lynn's hands were raised, but I put them down, because I think they were from before.

MR. WOODWARD: All right we'll conclude our question and answer period. Again, thank you, Matt for the presentation and thanks to the people in the Work Group. We do appreciate it. Your answers have certainly helped us all to understand better what we're trying to accomplish here.

CHAIRMAN WOODWARD: We've got about 11 minutes left on our allotted time.

What I wanted to do with the remaining time is put up the two postponed motions that are for us to consider at this meeting, just so we can read them once again. I want to make sure that we're clear understanding what those motions do. Those motions, we don't need any action by the Board to bring them forward for consideration, they were postponed not tabled, so they are live motions.

I just want to make it clear to everyone that no management action, further than approval by this Board at this meeting is necessary but not lose focus. It doesn't require an addendum; it doesn't require an amendment. Amendment 3 authorized us to adopt ecological reference points. We're clear there from a procedural standpoint. Can we get those motions up where everybody can see them? There we go. This is the first one.

You notice in there it does not have a number. There is not a number, this refers to a process, and we have had recommended to us a scenario with associated numbers. I don't want to get into deliberations about these motions in our remaining time. What I wanted to do is ask Kirby, if he's got enough time, to give us a summary of the very extensive public comment we have received related to this issue. Kirby, are you ready to do that?

MR. KIRBY ROOTES-MURDY: Yes, sir. I just need to get the presentation up. All right, it looks like Maya's got it now. Great! We'll just switch over to the next slide. I just wanted to offer up a brief summary. Leading up to this week's meeting we received a lot of public comment on the postponed motions.

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Based on when it was received, these comments were included in briefing materials, supplemental materials, and additional supplemental materials that were sent out last Friday. While you all have had the ability to review these comments, given the volume of them I provided a brief summary, just a general breakdown of some of the numbers. In terms of organizations. We received 16 letters from organizations that in many instances had cosigning organizations.

In combination there were over 100 organizations that had endorsed or cosigned on public comments that we received. Regarding form letters, we received at least three different types of form letters for three different organizations, and in total we received over a thousand respondents.

In terms of individual comments in the form of e-mail, we received over 200 comments from each individual. In terms of those comments, an overwhelming majority of the public comment indicated support for the Board approving ERPs to manage Atlantic menhaden. Most of the public comments did not define the ERP that should be implemented.

Comments highlighted a range of predators from whales to birds that benefit from menhaden's role as an important forage species, and adopting ERPs for management would help ensure enough fish are left in the water for these predators. That being said, there were many comments to specify that the Board should adopt ERPs defined such that it allowed stripe bass to rebuild to its biomass target.

In speaking to either general or specific ERPs definition the Board should adopt, many commenters also noted the importance of menhaden to coastal economies, business that rely on the water, and in particular recreational anglers in supporting industry. That is just a summary of some of the comments we've received that you all should have been able to

review in the materials we've provided. That concludes my presentation, Mr. Chair.

CHAIRMAN WOODWARD: These comments have come in after we have received numerous comments as we've been going through this process for the last several years. All in support in the public for adopting ecological reference points moving forward with a paradigm shift in management, the way that we've been hopefully working towards.

Are there any questions about the postponed motions, about them themselves, or about comments? At this point we can ask those questions. If not, what I would like to do is recess. We will reconvene tomorrow at 2:45 p.m. and at that point I am going to allow some public comment about the postponed motions, and open up the floor for a discussion and deliberation on the postponed motion. Then we will move after we make a decision, we will move into the next agenda item that is going to be dealing with the timing and tasks to setting the 2021-2022 fishing specifications, and we'll receive a presentation on that. We've already had some preparatory questions sort of leading us in that direction. Then we'll also be electing a Vice-Chair. Are there any questions about the motions?

We divided this meeting into two parts, because I wanted to give everybody a chance to think about the presentation from Matt, and have an opportunity to caucus amongst the delegations, have some time to reflect on this, so that when we reconvene tomorrow everybody will be prepared to go into decision-making mode. We've been deliberating on this for a long time, and now we come to the point of we need to make a decision. Are there any questions or comments from the Board at this point?

MS. KERNS: Emerson Hasbrouck.

CHAIRMAN WOODWARD: Go ahead, Emerson.

MR. HASBROUCK: I have a comment on the public comment, and I think as we go forward here the Board has some responsibility to manage expectations. I haven't read all of the public comment, but I've looked at a lot of it. I think a lot of the public perceives adopting ERPs as a panacea.

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That by adopting ERPs we're going to save the striped bass, save the bluefish, save the weakfish, save the whales, save the birds, save other wildlife. That is not what this is. It's not a panacea that is going to fix everything for all species. I think we need as a Board to try to manage those expectations.

CHAIRMAN WOODWARD: I certainly appreciate and agree with those comments. It's easy to think that this will fix all the woes of fisheries management, but the reality is, we all know this that we're not going to create ecological reference points that is going to bring weakfish back to a healthy condition.

You can't bring back striped bass without controlling fishing mortality directing on striped bass, so there is a lot. I appreciate that, saying that on the record, because I do think it is important for us to manage those expectations to be realistic. Are there any other questions or comments? Any hands raised, Toni?

MS. KERNS: Hold on one second. I was just unmuting a Commissioner that we had lost before. I have Adam Nowalsky.

CHAIRMAN WOODWARD: Go ahead, Adam.

MR. ADAM NOWALSKY: As I think about where we were at the last meeting, the task we sent the TC back to do and what they've come back with us. I'm left with the sense that the best available science the TC is comfortable putting forward, would basically define ERPs at the present time as limiting to bluefish, striped bass, herring, and menhaden. I'm wondering if one, if that is a fair assessment, and two if there was some guidance from leadership and or staff, to think about over the next 24 hours about if there would be some way to move forward with ERPs, but classifying them at this time just as such, only to include striped bass, bluefish, herring and menhaden, since that is what it seems the advice we're being given is. And so I appreciate confirmation if my characteristic of if the ERPs being referenced and

recommended is accurate, and if there was a way forward that they could be defined as such for the time being.

CHAIRMAN WOODWARD: I guess if Matt is still on here, I would sort of bounce that question back to you, because the current motions basically specify the relationship between menhaden and striped bass, and not necessarily, they don't mention specifically bluefish and herring. Is that something you feel comfortable addressing, Matt?

DR. CIERI: Yes. I think it's important to note that the NWACS-MICE model was built around those particular species, in particular for striped bass. Striped bass is the most sensitive one in the model. As Adam I'm sure knows, we ran the full NWACS model of the northeast shelf and I actually do have a slide, but I don't have access to you guys anymore.

What it shows is that striped bass and birds were the most sensitive in the full model. However, the idea that always has been behind this is that reference points that are based around striped bass are likely to cover all of those other species, given that they're less sensitive to the changes in menhaden.

That has been the whole push behind using a less complex, intermediate complexity approach, because including something like all of the full NWACS model for everything. It just becomes way too cumbersome for management purposes. Basically, setting this up for striped bass will set you up for all the other species involved, given the striped bass are the most sensitive.

CHAIRMAN WOODWARD: Thanks for that. Does that answer your question, Adam?

MR. NOWALSKY: I guess so. I guess then the takeaway from that and with the motions as they're before us. I guess that the takeaway is that if we want to define the ERPs to include the four species I mentioned that would require modifications to the motion, because right now the motion is specific to the F target or the threshold. Depending on the motion for only menhaden and striped bass, but does keep everything else status quo, with everything else not being limited to bluefish and herring.

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We would include all of those things, but one potential option, I guess could be to modify the second part of both of these motions to say, all other ERP species as defined in the NWACS-MICE model could we consider, menhaden and bluefish and herring as defined in the NWACS-MICE model. Could the model run only on those species? My concern here is that with the second part, we've gone far down the road here.

I think the expectation is that we continue to move forward with it, and I think what our challenge is, is to find the right intermediate step. I think there are three steps. After we took one step (inaudible). We'll figure it out as we...designed in that step. I think what it provided us with is definitive information that we're definitely not ready to move forward with ERPs based on a large number of other species. We definitely have to define the scope of what those species are that we think the science can provide a reasonable level of information to us as managers, to make a decision that we think one, we can justify to the public, and two, we think realistically is going to provide a tangible outcome, in line with our management decisions.

I think that is what I'm looking for. I have concerns that this whole (inaudible)...motions, and trying to get some information about what the middle ground might look like for consideration in the next 24 hours.

CHAIRMAN WOODWARD: Again, we're four minutes over, so we've got to be judicious with the time we have, I don't want to impinge on striped bass. Is there anything, Matt that you can add that you haven't already said, to maybe address what he said? If not then fine, and we can continue this discussion tomorrow when we reconvene.

DR. CIERI: Yes, just that we built the ERP examples based around striped bass, their targets and their thresholds, simply because they were the most sensitive within the model. Yes, by doing things to striped bass you do end

up being precautionary for the other species in the model.

CHAIRMAN WOODWARD: Thank you Matt, and thank you for that question, Adam. We can certainly carry this discussion forward tomorrow when we reconvene at 2:45. Hopefully the weather system will be moved up farther to the north away from us. At this point I am going to recess the Board, until we reconvene tomorrow at 2:45 p.m. Thanks again everyone for being here.

(Whereupon the meeting adjourned at 2:30 p.m. on August 4, 2020)

RECESS

RECONVENE

**ATLANTIC STATES MARINE FISHERIES COMMISSION
ATLANTIC MENHADEN MANAGEMENT BOARD**

Summer Meeting Webinar

AUGUST 5, 2020

WEDNESDAY AFTERNOON SESSION

The Atlantic Menhaden Management Board of the Atlantic States Marine Fisheries Commission reconvened via webinar; Wednesday, August 5, 2020, and was called to order at 2:45 p.m. by Chairman A. G. "Spud" Woodward.

CALL TO ORDER

CHAIRMAN A. G. "SPUD" WOODWARD: This is Spud Woodward; Georgia's Governor's Appointed Commissioner, and Chair of the Atlantic Menhaden Management Board. The recess of our Board is ended, and I am going to call the meeting to order. We have until 4:15 to conduct our business today. Hopefully that will be enough time for us to do what we need to do.

**CONSIDER POSTPONED MOTIONS FROM
FEBRUARY 2020**

PUBLIC COMMENT

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CHAIRMAN WOODWARD: I want to start off the Board meeting with an invitation for some public comment about the motions that are under consideration. We'll limit it to comments of these motions. Also, I would ask anyone who is going to make public comment if you'll please try to keep it to three minutes.

We want to make sure that we give plenty of time for the Board to have necessary discussions about the pending motions, but also about the other item we have, which will be a discussion about setting the fishery specifications. With that Toni, who do we have in the queue?

MS. TONI KERNS: We have Steve Cadrin in the cue, and Maya, if you don't mind putting the postponed motions up so folks can see what those are that would be great.

CHAIRMAN WOODWARD: Okay, Dr. Cadrin, you've got the floor, if you'll please just keep it to three minutes if you can.

DR. STEVE CADRIN: Thanks again, Chair, and to the Board for your time and the second opportunity for input. I know you're on a tight schedule. Once again, I'm Steve Cadrin, a professor at the UMass Dartmouth School for Marine Science Technology, and I asked the Menhaden Board to consider the conclusions of Ray Hilborn and his colleagues for Atlantic menhaden, specifically four important factors.

Trying out for variability of the forage fish which applies to menhaden, a weak stock recruit relationship of the forage species, again applies to menhaden, size selective predation, in which most of the predators are consuming sizes that are smaller than the sizes and ages being targeted by the fishery, and changes in spatial distribution of the forage fish.

What Hilborn and his coauthors conclude is that when these factors are applied, the likelihood that the impact of fishing forage fish on the predators is actually less than estimated from multispecies models, because of those factors.

Revealing the SEDAR 69 assessment, it is fairly clear that the updated and revised single-species Beaufort assessment model as applied to Atlantic menhaden, is the best scientific information available for fishery management.

The SEDAR 69 ecological reference point report suggests that the single-species management target for menhaden actually performs quite well for meeting menhaden and striped bass management objectives. There is little apparent benefit to striped bass with other predators from fishing menhaden at a lower target fishing mortality.

Our revised scenarios of the SEDAR 69 peer reviewed model suggest that the results are highly sensitive to assumed conditions for other species in the model. For example, reducing fishing on menhaden doesn't appear to be needed to rebuild striped bass if other stocks are managed at their target. I would be happy to provide further details from my review, and thank you again for your time and consideration.

CHAIRMAN WOODWARD: Thank you, Dr. Cadrin, we appreciate that. Anybody else, Toni?

MS. KERNS: I see Jeff Kaelin with his hand up, and then just for any other members of the public, if you want to speak, you just push on that hand button and it will raise your hand, and I will be able to see you. Then in the queue is Jim Fletcher.

CHAIRMAN WOODWARD: All right, go ahead, Jeff.

MR. JEFF KAELIN: Thank you, Chairman Woodward and members of the Menhaden Board. I'm Jeff Kaelin with Lunds Fisheries in Cape May New Jersey. We've been active in the menhaden bait fishery for a long time. We kind of specialize in pelagics. I appreciate the chance to speak briefly, and all I wanted to say was that you know I've been tracking this.

I think I've been to every one of these meetings, you know going back over the last few years. One of the things that Matt Cieri said yesterday that really kind of seems to have been missing from the presentation that the Board has received to date, and hopefully we can get into this in more detail between now and October.

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Matt said that the peer review supported the BAM single-species model, a combination of the BAM projections and the NWACS-MICE as a tool, to kind of tune where we're trying to go, where the Commission is trying to go dealing with all the species under management. We didn't see anything about that yesterday.

We didn't see any of the BAM projections, and because we have tuned into this for a number of years, and we've done everything, certainly since 2012 that we've been asked to do as a fishery. We really think that the status quo harvest is pretty darn close to these ERP projections, and that means the Board has done a good job over time. We may actually be in the happy zone, which is what used to be discussed in these assessments many, many years ago.

I just hope that we can see some BAM projections in October, and also of course consider the issue of striped bass F, and the fact that under the management, the management board for striped bass, the stripers won't be at their target until 2029. We certainly hope we can avoid nine years of cutting back on menhaden fishing against that day, Mr. Chairman, so thanks again for the opportunity to make a few comments.

CHAIRMAN WOODWARD: Thank you, Jeff, we appreciate it. Jim Fletcher, you're next.

MR. JAMES FLETCHER: This isn't what you're voting on, but you need to go back and look at the hybrid menhaden that were in the St. Augustine River, and supported the Nassau Fishery Menhaden Plant down in the fifties and the sixties. The other thing that is not being discussed is the effect of surfactants as a chemical, and other chemicals that are in the water, and affecting the reproduction of menhaden and all fish.

We're running around saying we're using best science and we have people making models, but they are not into the science of what is in the

water produced by man that is affecting the reproduction of menhaden. The example in Virginia is ketone. Now it is not fair to the American public to have us importing 92 to 93 percent of the seafood we eat that is probably the product from fish like menhaden, by not using good science. It's not what you're voting on today, but we have got to get into the chemicals in the water, and the surfactants and how they affect our fish. That is just an input, rather than doing what we're doing now, we need to look at the underlying cause. I would point out that the bald eagle did not die because of people shooting them, it was because of the chemicals. Thank you for your time.

CHAIRMAN WOODWARD: Thank you, Mr. Fletcher, anybody else, Toni?

MS. KERNS: We have one last person with their hand up, Jerry Ault.

CHAIRMAN WOODWARD: All right, go ahead, Dr. Ault.

DR. JERALD AULT: Yes, this is Jerry Ault; I'm a professor and Chair of the Department of Marine Ecosystems and Society at the University of Miami's Rosenstiel School of Marine and Atmospheric Science. I've been following the process very carefully over the last number of years, and like I said in my letter to the Board, I do appreciate what I would define as herculean efforts of both the Board and the ERP Work Group in putting together, I think a solid piece of work that allows the management process to move forward.

This process really is groundbreaking, trendsetting. I think it is the appropriate way to move in the context of ecosystem-based management. You know it's going to be a difficult road forward, because so many things are being considered, but I think there was a question yesterday about number of animals in the model, and I think the scaled-down model is about six, six of the premium, primary species that are under management of the Atlantic States Marine Fishery Commission.

I point out that five of the six basically are in overfished state. Moving forward, rather than getting the rosy glasses on. I think really acting with the

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precautionary tone moving forward is the appropriate way to look at this, but I absolutely support the Board's acceptance of the ERP process, and I think moving forward is the appropriate thing to do, and I think the issues that are involved in the context for science can be worked out through meaningful discussion and analysis. Thank you very much for your time, and I support your efforts.

CHAIRMAN WOODWARD: Thank you, Dr. Ault, we appreciate it. Anyone else, Toni?

MS. KERNS: I do not see any additional hands raised.

CHAIRMAN WOODWARD: All right, very good. I appreciate those folks who made public comment. All right, at this point we have two motions to be considered by the Board. What I would like to do is, we had some discussion yesterday afternoon. Adam had brought up some concerns, so I want to invite him to continue his query about that. We can address that and then after that I will open up the discussion on the pending motion. Adam, would you like to speak again to what you brought up yesterday?

MR. ADAM NOWALSKY: Thank you very much, I appreciate it. The question I had asked yesterday as was just referenced by our public speakers revolved around what specific species we're including, and what our steps might be for making sure that those species are completely clear to all of us around the table, as well as the public, for whatever decision we ultimately make today, knowing what the scope of that would be. I am appreciative of other Board members who reached out to me to continue that discussion, as well as staff for taking time, both last night and again this morning, to continue that ongoing discussion.

Again, as we discussed this yesterday, and as I've thought about the ERPs, my goal would be that if we do move forward as a Board with implementing the ERPs today that we're very clear on what the scope of species are that are

considered in the model, and what those impacts are going to be on those species, and our menhaden TACs as we move forward. Let me try to briefly summarize what I think I heard, and then I would like to turn back to staff, to make sure the information that I got was in fact accurate.

What I believe I've heard to this point is that the NWACS-MICE model focuses on, and basically uses sliders, if you will, with regards to menhaden and striped bass, as well as weakfish, bluefish, spiny dogfish, and herring. The model itself uses a number of other species as prey, including bay anchovies, zooplankton, and a number of other species that probably have Latin names that I would grossly mispronounce in the model, but that those are not directly affected by our choices.

What I also heard was that the biggest driver in TACs that were associated with target and threshold reference points, were going to be largely driven by the assessed status of the menhaden resource and its availability. One of the biggest drivers, however there remained significant sensitivity in the model from Atlantic herring. That was learned in having taken this time to have the TC do the initial analysis they wanted to do that was helpful in informing us.

The conversation I had with some additional Board members was that they supported the suggestion that whatever our final motion be, be it the ones that are presently before us, or some modification of those. Do at a minimum go ahead and label those six upper level species. I'll refer to them as, including striped bass, menhaden, spiny dogfish, bluefish, herring and weakfish, so that we're very clear what it is that we're talking about.

But that we have on the record that there is the need for these other species to be part of the model, and any removal of these species or addition of other species to the model, would likely require the model go back to peer review, and after the outcome of that peer review the Board go ahead and then reconsider that for management use. That gives a recap of the help I've received in answering the question I asked 24 hours ago.

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I remain in support of, again staff just going ahead and making sure that what I thought I heard I am correct on, or correcting me for whatever is not. Then as we move forward, making references specifically to the species, so that there isn't any misconception here by the public or any other new Board members in the future that take this on. That somehow these ERPs we have introduced and accepted at this point in time, are in full encompassing of all environmental species that come into play with menhaden.

CHAIRMAN WOODWARD: Kirby or Dr. Drew, would either of you like to just respond back to Adam's concerns, and maybe give the Board some guidance on what do we need to do, if anything, to these postponed motions?

DR. KATIE DREW: I will just say, Adam correctly summarized the discussions that we've had, following up with him about what exactly is included in the NWACS-MICE model, as well as the fact that adding or removing predators to the NWACS-MICE model or other species to the NWACS-MICE model, would require a peer review, and so the motion as it stands right now.

You know those ERP species as is defined in the stock assessment now, does sort of lock that into place until the next benchmark, should this or a version of this be accepted by the Board. The question I think also came up about what is going to be the sensitivity of the reference points as we do an update, and whether that will be a big driver of future TAC setting.

I think, you know obviously you can't predict everything with model performance, but once we sort of lock in this definition of, this definition or another definition of the ecological reference points going forward, the changes to the predator biomass in the short term that we're managing this over, should have a minimal impact to the reference points and the larger changes, if we see any for the TAC would be as a result of changes in the menhaden

biomass, and fishing mortality rates that are picked up by the BAM.

CHAIRMAN WOODWARD: All right, so at this point I'll open up the floor for comments, further discussion, questions about the proposed motions.

MS. KERNS: Mr. Chairman, I see Justin Davis.

CHAIRMAN WOODWARD: Go ahead, Justin.

DR. JUSTIN DAVIS: Just a question to follow up on the statement that Dr. Drew just made. My understanding would be we're sort of locking a definition here of the NWACS-MICE model, in terms of the species that are included. I would assume that we're also sort of locking it, in terms of the data sources or the types of information that were included in this modeling run.

If for instance between now and the next benchmark a new study became available, a new diet study on predator/prey interaction between some of these species, which might be informative to the model. The idea would be that could not be incorporated until another benchmark was done. Is that correct?

DR. DREW: Yes, that is generally how ASMFC assessment updates have worked, so significant other data sources could not be included in the assessment update that we'll be doing in a couple of years. However, if updates to the stock assessment for any of those species occur, we could incorporate some of that information. But something like major changes to the diet information would not.

CHAIRMAN WOODWARD: Are you good, Justin?

DR. DAVIS: Yes, thank you.

CHAIRMAN WOODWARD: Also, before we have further discussion, just to make clear that we're going to be considering both of these motions together. They will not be treated as separate motions for the purposes of voting, whenever we get to that point. Okay, who is next?

MS. KERNS: You have Allison Colden, and Lynn Fegley in the queue.

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CHAIRMAN WOODWARD: All right, go ahead, Allison.

DR. ALLISON COLDEN: I just want to clarify to Adam's point, and make sure that I'm understanding this correctly. I think Katie, did you just mention that the reference to the MICE model in the motion does sort of implicitly lock in, as Dr. Davis just put it, the six species that are currently included as "focal species" in that model? I just want to make sure I am understanding that definition.

DR. DREW: Yes. The six ERP focal species, which I think is how we refer to them in the assessment document, as well as some of the complementary or supporting species groups that are a little more generic within that model. That whole configuration of the NWACS-MICE model is locked in, because that was the version that was peer reviewed and accepted by the Peer Review Panel.

Changes to that would be kind of a significant revision of the model that staff and the ERP Work Group feels would not be appropriate for an assessment update. I think that could be included explicitly within the model, or within the motion, but it's also, I think implied in kind of the way the peer review and the peer review process at ASMFC, and the way that that model was reviewed and structured implies that as well.

CHAIRMAN WOODWARD: Lynn.

MS. LYNN FEGLEY: I think this might be a question for Kirby. I just want to make sure that the Board is clear on the triggers, if you will, that are outlined in Amendment 3, and how these new reference points relate to that. In Amendment 3, in Section 2.6.4, it talks about the definition of overfishing and overfished, and depleted.

Amendment 3 is very well written, and I think that it is clear that the fishing mortality reference point could be either the single

species or the multispecies, depending on what the Board does. But there is language at the end of the last paragraph, well the last paragraph starts by saying, reference points will direct the Board on when additional management measures are needed.

The first part of it talks about F, which I think is fine, but then it talks about biomass, and it says if the current biomass/fecundity is below the threshold level, the Board will take steps to increase biomass/fecundity to the target level. My question is, on adopting these new reference points, if the Board chooses that route, and we find ourselves in a situation, that the stock becomes overfished, based on the single-species model, the F reference point is no longer linked. Actually, I'm not sure they were linked in the single-species model. But it strikes me that our ability to really manage biomass, you know with the multispecies F, which is more conservative, would be possible. I just kind of want to make sure that everybody is aware, you know and does this mean that if we get in an overfished situation, we would have to figure out some way to bring that back up.

CHAIRMAN WOODWARD: Kirby.

MR. KIRBY ROOTES-MURDY: Not to punt too much, but my understanding of the management document is that these would effectively, by being approved by the Board, replace the single-species reference points we would be working under in managing menhaden, and defined through either this motion or a subsequent motion.

Depending on how those reference points are evaluated and come out in the next assessment update, the Board would need to respond to those accordingly. I think that is, at this point, the extent I would might be able to offer without looking in the document a bit further, maybe Katie Drew or Matt has other input they would want to offer.

DR. MATT CIERI: I'll let Katie go first.

DR. DREW: Thanks, Matt. I was just going to say right, the ERP assessment focused on the F reference points for development. The current single-species reference points take kind of a similar approach, where you have an F reference point based on the

empirical performance of the fishery, and that sets a target and a threshold.

Then the equivalent fecundity levels associated with fishing at that target and threshold, are what's used to establish the fecundity target and threshold for Atlantic menhaden, again under that single-species framework. Something similar could be done to develop equivalent fecundity or biomass targets for Atlantic menhaden, based on the ERP F levels.

To say, you know if we fish at this level of fishing mortality this is the long-term biomass that would be associated with that to help provide that forage base. We could redefine the biomass reference points or the fecundity reference points as well, to be consistent with these F values. Those biomass or fecundity values would be lower than what you would expect under the single-species biomass and threshold, target and threshold levels.

But similarly, so if the biomass did go below that target or that threshold, according to the BAM, either the single species or the multispecies reference points, then you would have to take some kind of action to reduce the fishing mortality below either of the single species or the ERP target and threshold, in order to bring the population back up.

MS. FEGLEY: Okay thank you, very much.

DR. CIERI: This is Matt Cieri, and just to sort of reiterate that. Once you guys decide on the F rates, the target and threshold, we can go back and produce your biological base/fecundity base reference points for managing biomass. We can do that for you, hopefully by the October annual meeting.

MS. FEGLEY: Awesome, thank you.

CHAIRMAN WOODWARD: Thank you, good question, Lynn. Who is next?

MS. KERNS: You have Eric Reid.

CHAIRMAN WOODWARD: Go ahead, Eric.

MR. ERIC REID: My question is about the F rates. I'm concerned about Atlantic herring. If we're going to maintain the F rate at status quo over some period of time, then I'm not so concerned. But right now, there are issues with Atlantic herring, there is some seasonal factors based on Atlantic herring, which we don't understand. Could somebody give me some comfort on how long we're going to maintain status quo at these F rates? It doesn't sound like it will be very long, is that correct?

CHAIRMAN WOODWARD: Well I'll attempt to answer that, because I think what we've got to do, assuming that we accept these motions and put into practice the use of ecological reference points, the next thing we better do on this agenda is to discuss the timeline and the tasking for setting the fishery specifications.

You're going to be hopefully getting some projections for our deliberations at the October meeting, where we can look at risk associated with various projections of catch, as it relates back to F target. That is going to be the time that we really have to consider sort of the herring component of this. Certainly, Kirby or Katie or anybody else can add to that, especially if I've misspoken.

DR. CIERI: That is about right. I think it's important to understand that this is going to be for a relatively short time period, five years. Within that sort of time, Atlantic herring may not be as abundant as it was in 2017. The issue is that when we start putting in some of the seasonality components that we think are more probable, then it doesn't seem to make that much of a difference. However, it is an uncertainty, and that's one of the things I talked about yesterday. This is an uncertainty that you could either put a buffer, to help ease that uncertainty, or to choose a higher probability of achieving a target.

CHAIRMAN WOODWARD: We will have another BAM model assessment of menhaden conducted in 2022, is that correct?

DR. CIERI: That is correct.

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CHAIRMAN WOODWARD: We'll have new information available from that single-species assessment that will also be available to use to inform decision making, because we were considering setting the fisheries specification for two years, recognizing that we're going to have new information available from the status of the Atlantic menhaden stock in 2022 for consideration. Does that help, Eric?

MR. REID: Yes, I appreciate that Mr. Chairman, thank you very much. When you talk about a buffer, is that a positive and negative buffer surrounding a point, or is it a one-directional from a point, one way? I would prefer the earlier, around as opposed to a one way from a point.

CHAIRMAN WOODWARD: That depends on the purpose of the buffer. Is it a stock status buffer? Is it a buffer to provide for greater opportunity of access? I think it depends on how you define it. Matt or Katie or Kirby all certainly jump in here.

MR. ERIC REID: Okay, thank you, Mr. Chairman.

CHAIRMAN WOODWARD: All right, who is next?

MS. KERNS: I don't see any other hands raised. Hold on, no, no, I changed my mind. We have Jim Estes, Adam Nowalsky, and Emerson Hasbrouck.

CHAIRMAN WOODWARD: All right, Jim Estes, Adam and Emerson. All right, go ahead, Jim.

MR. JIM ESTES: I would like to echo a little bit of what I think that Mr. Nowalsky was getting at a little bit yesterday and today. I think you briefly mentioned this yesterday also. First of all, I wholeheartedly support both of these postponed motions. Don't get me wrong here, but reading a lot of the comment that we got back from the public, and talking to quite a few people on the phone.

I don't want to give anybody the impression that population dynamics and all the variables that go into it, are as simple as if you feed them more, there will be more. I think that is kind of what the impression is at the public, that if we do this or we decrease the TAC or something to increase the amount of menhaden in the water.

I think that they believe that everything is going to get better. But there are many other factors, environmental factors that come into play besides what they eat, and I hope that we somehow, and this might be Tina's math, because she does this fairly well. I hope somehow when we describe what we did here that we assure the public that we don't think that this is going to cure everything.

CHAIRMAN WOODWARD: Adam, and then Emerson on deck.

MR. NOWALSKY: Building on a couple of the other comments we've heard, and referencing the earlier public question, and going back to the ERP Review Panel Report, where they recommended the combination of the BAM single-species assessment model with the NWACS-MICE. Two questions. One, assuming these motions or some variant of them that achieved something similar passes.

When we do projections, will it be up to us to provide guidance later on today? It sounds like we're going to start the discussion or have the entirety of the discussion., what projections were looking like. I expect they would be looking for guidance about what range of probabilities we would want to be taking a look at. Would we be providing guidance to get a BAM projection as well that we could compare it to? That would be first question one. Are these motions by themselves, what are we going to get in the way of projected TACs when we come back and actually need to set the TAC?

Then the second question, if I heard you correctly. When the next assessment is done, if these motions pass, will we do both the single-species and our ERP assessment from this day forward until we say stop one or the other, or by virtue of passing these motions, will we only be doing the ERP based assessment moving forward?

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CHAIRMAN WOODWARD: I will try to answer those questions, Adam, and I'll certainly lean on Kirby and Katie and everybody else. After we dispense with the proposed motions or some variation thereof, we'll have a presentation from Corrin Flora, our TC Chair about options for determining projections for our consideration in the future.

In regard to the model, it is my understanding that we will use the BAM based model for single-species assessment, and then there will be another benchmark run of the NWACS-MICE model five years from now. But as long as that NWACS-MICE model is valid and in effect, we'll use it in concert with the BAM model, and the projections are based on the BAM model. If I'm misstating any of that Katie or Matt or Kirby or somebody, you can probably say it better than I did.

DR. DREW: Spud, you are correct, and I would just sort of amplify what you're saying to say, the way we envision this combination working is that the NWACS-MICE tool provides strategic long-term advice about reference points and fishing mortality levels for menhaden that account for its role as a forage species, and helps sustain the predator base. That is where we get the reference points from.

However, because of the way the NWACS-MICE model works, it tends to smooth over some of the sort of short-term dynamics, and we feel that the BAM is better for capturing that short-term population dynamics, especially that variable recruitment. Once you guys approve the reference points, if you approve them here from the NWACS-MICE model, the NWACS-MICE model basically goes on the shelf, until the update.

In the meantime, we switch over and we take those reference points from the NWACS-MICE model, and use them in conjunction with the BAM model, to do the projections that you all have seen before, and that you're all familiar with. It's just that instead of using the single-

species reference points we'll be using the ERP reference points to provide those TAC and those risk levels.

DR. CIERI: Just to jump in here. I think it's important to note that we will be running both of these models together during the next update. We're not going to wait until the next benchmark to rerun the NWACS-MICE model.

CHAIRMAN WOODWARD: Thanks for that clarification, Katie and Matt. All right, Emerson, you're next.

MR. EMERSON C. HASBROUCK: These proposed motions then suggest that we set the menhaden target at a level that is going to maintain striped bass biomass at its target, and that we will set the menhaden threshold at a level that is going to maintain Atlantic striped bass at its threshold biomass.

Right now, striped bass is below both the target and the threshold. Based on our discussion yesterday, at the Striped Bass Board, the pleasure of the Board was to take a slow approach at rebuilding striped bass. That is going to be a many year process, to get up to the threshold, and certainly a long process to get to the target.

In fact, it was pointed out yesterday in the Striped Bass Board that striped bass has never been at the target biomass. What is the purpose of having, I'm going to say these excess menhaden, then in the water right now? If striped bass is neither at its threshold nor at its biomass, and it's not going to be there for some period of time.

Do we need to have all of these menhaden there available for striped bass at their target? Then also, relative to what Jim Estes said a couple minutes ago. You know see them more and there will be more. As Jim said, that is not true. In fact, I don't remember if it was our May meeting or our February meeting.

It was pointed out that we can just stop fishing on menhaden, and that is not going to solve the striped bass problem. I don't know if there is an answer there about what we can do with these extra menhaden. I

keep calling them extra menhaden, maybe people refer to them as something else.

CHAIRMAN WOODWARD: I think that's an important question as we cross the boundary from single-species management into ecosystem-based management as one that we're all going to have to wrestle with. I do think there is a lot of folks that would probably consider there is no such thing as extra menhaden. That is kind of like having extra money, we never seem to have extra money, any of us. But I'll certainly invite Matt or Katie if you would like to provide a response to that.

DR. DREW: I'll jump in first and say, first this is absolutely a conversation that the Board should have, and talk about what is your goal with ecological reference points. I think this particular definition of a reference point is sort of, leaving enough menhaden in the water that striped bass can rebuild themselves, and they are not food limited.

As Emerson points out, we'll probably be leaving extra in compared to say, what if we just assumed striped bass are going to stay overfished for the next five to ten years. They would need less prey than if they are rebuilt to the target, either now immediately, or in the long run. I think you could think of those as either extra menhaden.

You could think of them as a buffer for some of this uncertainty about Atlantic herring, as well as you know general uncertainty about the model. But if you wanted to pursue a different formulation of a reference point to say, you know we're going to leave enough menhaden in the water to sustain striped bass as they are now, is going to require probably more attention in the long run, in terms of developing a reference point that would request that, and then monitoring it so that you continue to crank back on menhaden as striped bass recover. Again, I think the Board can think of their goal as setting these species up for recovery, with a strong forage base, as opposed to you know.

As has been mentioned, it's not a magic wand that is going to fix everything, but it's also a way for the Menhaden Board to support these other predators as they attempt to rebuild through the other Board actions. I don't know if that answers your question. I don't know if this is something the Board wants to get more in-depth analysis on.

Obviously if the Board wanted to see some of those numbers the ERP Work Group would have to come back in October to present some of those results. But it is up to the Board about how you want to interpret extra menhaden, if such a think exists.

CHAIRMAN WOODWARD: Thank you, Katie. Go ahead, Matt.

DR. CIERI: You can certainly make the argument, and some people have that as you're trying to rebuild striped bass, you also don't want to make them food limited. It is sort of a chicken and an egg argument. You may not have the striped bass to consume the menhaden, but if you don't have the menhaden then you won't have the striped bass to rebuild.

CHAIRMAN WOODWARD: I think it's also very important for us to continue to remember that this is the beginning of a process. That we are starting down a road that we all think we should go down. Like any journey sometimes the hardest part is starting. Is there anybody else that would like to speak to these motions? We're getting close on our time. I certainly don't want to constrain Corrin and her presentation, and our discussion about the fisheries specifications, and how that is going to need some deliberation. Anybody, Toni?

MS. KERNS: You have Allison Colden, John Clark, and then Adam, I'm not sure if your hand is up as new, or is that from before?

CHAIRMAN WOODWARD: Okay, go ahead, Allison.

DR. COLDEN: I just want to say I appreciate the discussion that's been going on so far, and I think some very important questions have been asked and addressed regarding, sort of the next step when it comes to how these ERPs in these postponed motions

would be implemented, and what the next steps are following that.

But I sort of wanted to bring it, zoom out a little bit, you know 30,000-foot view. I think some of the comments that have been made recently, in my viewpoint, are more about our next step of quota projections, and so I wanted to bring it back generally to the motion, and that we've got this peer-reviewed model.

The motions I believe, and Katie or Matt can correct me on this, reflect the recommendations of the TC and the ERP Working Group that have been developed over the last three years. I know there are a lot of outstanding questions out there about what this means for the future. But trying to stare into that crystal ball, I think is a rabbit hole that we can spend the rest of the afternoon going down. I just wanted to reiterate those couple of points, and try and zoom out a little bit back on these motions.

CHAIRMAN WOODWARD: John.

MR. JOHN CLARK: I just wanted a quick clarification on something that Katie said about the NWACS-MICE being used for the next five years. Is the Ecological Reference Point Working Group still working on more of those more sophisticated models that have been looked at, and if some of those start coming to fruition before the five years are up, would that be something we would look at as changing what ecological reference point model we use to set these ERPs?

DR. DREW: The ERP Work Group will continue working on both on developing the NWACS-MICE model, and the other models that we looked at, as well as anything else that looked interesting or promising. But those wouldn't be available for management use until they were peer reviewed in five years, as is the Commission standard.

CONSIDER POSTPONED MOTIONS FROM

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CHAIRMAN WOODWARD: **All right, unless there is anyone else clamoring to speak, I think it's time for us to make a decision about these motions, and like I said before we're going to take them together, and because this is a final action it will be a roll call vote.** I assume that each state's Administrative Commissioner or their proxy will be casting the vote. Kirby, anything we need to add before we start the process?

MR. ROOTES-MURDY: No, that's it, Mr. Chair.

MS. KERNS: Could I get you to clarify, you know to Lynn's point that she had made. If the Board adopts these motions, and these are the reference points that we'll be using, obviously for the fishing mortality target. But if we don't make changes to the biomass target, I believe we would be sort of managing on half and half, until we had a biomass target on the ERP model. I just want to make sure that that is clear.

CHAIRMAN WOODWARD: All right. Well Kirby, proceed.

MS. KERNS: Does anybody need a caucus, Spud?

CHAIRMAN WOODWARD: Yes, if you can caucus. Let's just take a couple three minutes, while Kirby gets set up to do this. Let's plan on starting the roll call vote at 3:38. Okay, Kirby, are you ready?

MR. ROOTES-MURDY: I will begin to call the roll call. I will start with the state of Maine.

MS. MEGAN WARE: Yes.

MR. ROOTES-MURDY: New Hampshire.

MS. CHERI PATTERSON: Yes.

MR. ROOTES-MURDY: Massachusetts.

MS. NICHOLA MESERVE: Yes.

MR. ROOTES-MURDY: Rhode Island.

MR. CONOR McMANUS: Yes.

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MR. ROOTES-MURDY: Connecticut.

DR. JUSTIN DAVIS: Yes.

MR. ROOTES-MURDY: New York.

MR. JAMES J. GILMORE: Yes.

MR. ROOTES-MURDY: New Jersey.

MR. JOE CIMINO: Voting yes.

MR. ROOTES-MURDY: Pennsylvania.

MR. KUHN: Yes.

MR. ROOTES-MURDY: Delaware.

MR. CLARK: Yes.

MR. ROOTES-MURDY: Maryland.

MS. LYNN FEGLEY: Yes.

MR. ROOTES-MURDY: Potomac River Fisheries Commission.

MR. MARTIN GARY: Yes.

MR. ROOTES-MURDY: Virginia.

MR. STEVEN BOWMAN: Yes.

MR. ROOTES-MURDY: North Carolina.

NORTH CAROLINA: Yes.

MR. ROOTES-MURDY: South Carolina.

MR. MEL BELL: Yes.

MR. ROOTES-MURDY: Georgia. Georgia, you may be on mute right now. Okay, we'll come back to Georgia. Florida.

JIM ESTES: Yes.

MR. ROOTES-MURDY: U.S. Fish and Wildlife Service.

Mr. MILLARD: Yes.

MR. ROOTES-MURDY: NOAA Fisheries.

DEREK ORNER: Yes.

MR. ROOTES-MURDY: Circling back to Georgia.

MS. KERNS: Kirby, I don't see Doug on the call, actually.

MR. ROOTES-MURDY: We'll mark Georgia as absent then?

MS. KERNS: They're not absent, just blank.

CHAIRMAN WOODWARD: I just texted him, he says he's in his office.

MS. KERNS: I'm not seeing him showing up on the webinar.

CHAIRMAN WOODWARD: Hold on a minute, I'll call him. He had a lapse of memory, he's logging in. He wants to make a dramatic entrance. Well, it's a little awkward for the Chair to be from Georgia. Hmm.

MS. KERNS: Did he tell you his vote?

CHAIRMAN WOODWARD: No, but I think I know what it is.

MS. KERNS: Doug, you are unmuted if you would like to cast your vote for Georgia.

MR. DOUG HAYMANS: I apologize. Could I have just one moment please. If you hold on, I'll be right back to you.

MR. ESTES: Perhaps the Chair could talk to us about his latest fishing trip.

CHAIRMAN WOODWARD: My latest fishing trip was really good until the last 30 minutes, when I got caught between two thunderstorms, and it went from 2 to 3 to 4 to 6, with about a 3-second interval. I got

reminded that I'm not 25 years old anymore, and I needed a bigger boat.

MR. HAYMANS: Thank you, Mr. Chair. Now that I've had an opportunity to confer, our vote is yes, please. Thank you.

MR. ROOTES-MURDY: Thank you. The results of the vote are 18 yes, 0 no, 0 abstain, 0 null.

CHAIRMAN WOODWARD: Thank you, Kirby, so the motions are approved unanimously. Thank you very much to the Board, and thank you again to all the folks who have worked so hard on this with the ERP Work Group. We're starting to see this come to fruition. Yes, there are a lot of questions that remain, probably will be.

But anytime you start something as bold as this, there always be some questions and there will be some discomfort, and hopefully we can work through that. As far as managing expectations, I'll certainly work with Tina to assure that in the press release that we address the fact that this is not the cure-all for all fisheries management problems. It's a step in the right direction.

It's going to be a marathon, not a sprint, but it's a step forward and not a step back.

CHAIRMAN WOODWARD: With that we'll move on to our next agenda item, and this is, Discuss the Timeline and Tasking to Set the 2021-2022 Fishery Specifications. I want to call on Corrin Flora, our TC Chair for a presentation, which will give us some advice and some requests from the TC for guidance on setting these specifications.

MS. KERNS: Mr. Chairman, before Corrin goes into that, you had three people that had had their hands raised. I'm not sure if it's in follow up to the motion that was just passed. But you have Lynn Fegley, Joe Cimino, and I'm not sure if Pat Geer also had his hand up. It has come down since. Joe Cimino's hand just came down, but Lynn's is still up.

CHAIRMAN WOODWARD: Okay, go ahead, Lynn.

MS. FEGLEY: I just wanted, to Toni's point, make sure that we didn't need to offer some clearer guidance to the TC or ERP to produce those biomass reference point estimates. I'm assuming we're good to go, but I just wanted to make sure we didn't leave that unpeeled, thanks.

CHAIRMAN WOODWARD: I would think that the questions and the follow up answers and discussions have made it clear that we want to see the adjustments made as necessary. Toni, do we need anything more formal than the record of the conversation we've had here?

MS. KERNS: With that tasking it will be put to the TC.

CHAIRMAN WOODWARD: Thank you very much, and thank you, Lynn. Corrin.

DISCUSS THE TIMELINE AND TASKING TO SET THE 2021-2022 FISHERY SPECIFICATIONS

MS. CORRIN FLORA: I am here, can you all see my presentation?

MR. ROOTES-MURDY: Yes.

MS. FLORA: Okay, good. Thank you all for allowing me to present here today. I am going to be discussing setting the 2021-2022 specifications for Atlantic menhaden. My presentation today will give you some background on this process, since we haven't addressed it since 2017. Then we will pose some questions for Board consideration, and I will end with a timeline on moving forward. In the past the Board has set annual or multi-year tasks on using the best available science.

I'm going to give a brief overview on how those projections are run, as a refresher. Now that the Board has established ecological reference points, Katie touched on this a moment ago. We will be running these projections using the BAM model, since this model is better for short-term projections.

There are slight differences from the 2017 projections to the BAM model. Of course, now we will be using

the ecological reference points in this model. Also, there has been an update to how recruitment is projected. Traditionally, projections are done after the Board considers the level of risk acceptable in exceeding the F target.

Previously under the single-species reference, the Board buffered the acceptable risk to a lower probability, since it was just under the single species. Now that the Board has established the ERP reference points, you may consider the level of risk acceptable, which is higher or lower than the single-species reference points used previously.

The BAM model uses Monte Carlo bootstrap runs of the 2020 benchmark as the basis for these projections. As I touched on in the previous slide, one difference from the 2017 projections is recruitment. Traditionally, recruitment projections were based on median recruitment from each bootstrap run.

Now, recruitment is projected using nonlinear time series analysis. This model uses the state space of the current recruitment value to predict the space of recruitment in the next year. The projections incorporate uncertainty in recruitment, 2017 abundance, natural mortality, and selectivity.

In the past there have been two approaches the Board has taken, two projection runs. These have been based on a percent increase to the current TAC, and a percent probability of falling below the F target. Previously, these included a range of options for increases to the TAC, or a range of probabilities of exceeding the F target.

Here are examples of analysis from the 2017 projections. The top table being the risk of exceeding the F target at the current TAC, and increased levels of TAC from there. The bottom projections table shows the risk of exceeding F target and F threshold at probability of risk levels, and the associated TAC with those probabilities.

This brings us to what the TC needs from the Board today. The Board may choose risk levels at which the TC will provide the TAC, at requested probabilities of exceeding the ERP target, or the Board may choose TAC levels to which the TC will provide the risk of exceeding ERP target and threshold. The Board can choose either or both of these options. If you choose Number 1, the TC needs to know what level of risk do you want projections run under to develop the TAC. Two ways to move forward with this. Looking at the level of risk exceeding the target, or the level of risk exceeding the threshold. When considering risk level projections, it would be helpful for the TC to know if the Board wants to see a maximum percent chance over the next two years with a single TAC over that two years, because if we run it in the individual years, you will have a TAC for each year.

If you choose Number 2, the TC needs to know what TAC levels do you want to see analysis for. I will return to this. What is the timeline for TAC analysis? Today you all have approved ERPs, and we will be looking to you for direction on these projections. Over the next two months the TC will work, have a couple of meetings, and develop a memo for you for the annual meeting in October.

At the annual meeting the Board will receive the TCs work, and set the TAC for 2021 and 2022. I would like to note that if the TAC is not set at the annual meeting in October, the 2021 TAC will be 216,000 metric tons, which was the 2018-2019 TAC. Then moving forward, at the annual meeting in 2022, the Board will receive an assessment update, new projections available based on this update, and we'll have the opportunity to set the 2023-2026 TAC. With that I can take questions, and I could also go back to the slide with the questions.

CHAIRMAN WOODWARD: Thank you, Corrin, I appreciate that. I'm sure we've got some questions, so Toni, who has their hands raised.

MS. KERNS: We don't have any questions from Commissioners, you do have one member of the public that has a question.

CHAIRMAN WOODWARD: Okay, I'll take that. As long as we can be brief.

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MS. KERNS: Phil, you can unmute yourself and ask your question.

MR. PHIL ZALESK: Spud, I'll be good, really quick. It looks like the overall biomass of Atlantic menhaden are pretty good. However, Amendment 3 refers to a reduction cap of 51,000 metric tons. As we all know that is based on history, not science or a decline in the commercial harvest of the predators. My question is, when will that cap be addressed again? That's it.

CHAIRMAN WOODWARD: That cap will be addressed again whenever a Board member brings it up as an issue, and has adequate support for us to initiate a management action to address it, is my understanding, and Kirby, correct me if I'm wrong.

MR. ROOTES-MURDY: That is correct.

MR. ZALESK: All right, thank you.

CHAIRMAN WOODWARD: You're welcome. All right if there are no.

MS. KERNS: You do now have two Commissioners that have their hands raised, Allison Colden and Nichola Meserve.

CHAIRMAN WOODWARD: Go ahead, Dr. Colden.

DR. COLDEN: It actually wasn't a question, but I was ready to sort of throw out some ideas related to this question from the TC, if and when you're ready for that.

CHAIRMAN WOODWARD: Let me call on Nichola with her question, and then I'll give you the floor again. Nichola.

MS. MESERVE: In looking at the Technical Committee memo that shows the 66 percent chance of the current TAC exceeding the ERP target in 2021. I was wondering if that is a projection that would change with an update.

Was that based on, for instance preliminary 2019 landings that are now finalized or any other assumptions that would change, that that may be a projection that needs to be redone, plus adding in 2022.

CHAIRMAN WOODWARD: Okay, Corrin.

MS. FLORA: That does need to add in 2022, and it does not include the 2019 landings. That is a question for the TC of including the actual landings from 2019, and also does need to include projections through 2021, or as I stated before, if the Board would like a projection that includes 2021 and 2022 together, if they would like a single TAC for both years.

CHAIRMAN WOODWARD: Does that answer your question, Nichola?

MS. MESERVE: It does, thank you.

CHAIRMAN WOODWARD: All right, Allison, I'm going to give you the floor again.

DR. COLDEN: Recognizing that we had somewhat of a robust discussion yesterday, following Matt's presentation and the TC recommendations related to buffers and model uncertainty, and the current status of herring. I wanted to put on the table for discussion and consideration a couple of risk levels that take into account, as I said, you know the current status of herring and uncertainty associated with the model.

I think sort of as a standard, a projection that shows the TAC associated with a 50 percent probability of exceeding the ERP target is sort of a standard, given the projection that Nichola just mentioned that we've already seen. That the current TAC is expected to result in a 66 percent probability of exceeding the target in 2021.

You know I think we should aim for 50 percent at a minimum, and then taking that concept of a buffer into account. I know the TC was not able to provide us with specific advice or recommendations on the magnitude of that. Just trying to consider a range and another end number I would put forward similarly to the 50 percent, a 25 percent probability. Understanding if I'm correct, and staff please correct

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me if I'm wrong, is that we could still pick a TAC that falls anywhere within those two probability ranges. But those are the two that I would like to put forward for discussion.

CHAIRMAN WOODWARD: All right, so we have something put forward for the purpose of discussion, so I'm going to open up the floor for discussions on that, the recommendations provided by Dr. Colden.

MS. KERNS: You have Lynn Fegley.

CHAIRMAN WOODWARD: Go ahead, Lynn.

MS. FEGLEY: I'm going to be a little careful with this. I think because we're blind right now, these projections will include 2019 landings, so we really don't know what we're looking at, in terms of you know what those TACs are going to look like relative to the current TAC. I'm wondering about asking for a TAC projection, in addition to the ones Dr. Colden mentioned.

I'm wondering about if you were to reduce the current TAC by 10 percent, which I think goes down to 194,000 metric tons. What would those risk probabilities look like? I would like to do that, because I would like for the Board to have some context ahead of time, in terms of any sort of reduction magnitude we might be looking at.

CHAIRMAN WOODWARD: What you're suggesting is they sort of take both approaches that have been outlined in the presentation.

MS. FEGLEY: Correct, it would be the third choice that's right.

CHAIRMAN WOODWARD: Dr. Colden's would basically be a risk level analysis, and yours would be a tech level analysis, is that correct?

MS. FEGLEY: Correct.

CHAIRMAN WOODWARD: Is that unduly burdensome on the TC, Corrin?

MS. FLORA: No, that's not. That sort of fits under Number 2, how we would do that in the past, with having a TAC level and then percentages above or below that TAC level. Yes, we could definitely. That is not overly burdensome at all to do both.

CHAIRMAN WOODWARD: Just to get, I think what has been mentioned in some other discussion, so have the current TAC analyzed for its risk of exceeding the ERP target and threshold, with the inclusion of 2019 data. Then project a 10 percent reduction in the current TAC, and provide a risk of exceeding ERP target and threshold. Then project TAC at a 50 percent probability of exceeding F target, and project a TAC at a 25 percent probability of exceeding F target. Now, the folks that have made those suggestions, have I captured that correctly?

DR. COLDEN: Looks right for me, Spud.

CHAIRMAN WOODWARD: Did I get to what you were concerned about, Nichola, in terms of analyzing the current TAC?

MS. MESERVE: It did, thank you, Mr. Chairman, and I also wanted to voice support for the range that Allison has suggested of 25 to 50 percent, and also would hope that the TC would do a couple more steps in between them, you know 30 or 40 percent. I'm assuming it's not going to be a linear change between 25 and 50 percent in the TAC. It would be helpful to have at least one point in between that we can see how it changes in between those two risk levels.

CHAIRMAN WOODWARD: We have some recommendations, and we don't need to approve these in the form of a motion. It's my understanding they are recommendations and guidance to the TC. Are there any concerns about these suggestions provided to the TC relevant to projections?

MS. KERNS: You've had several other people raise their hands throughout the discussion.

CHAIRMAN WOODWARD: All right, give it to me.

MS. KERNS: You have Justin Davis, Megan Ware, Adam Nowalsky, and Steve Bowman.

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CHAIRMAN WOODWARD: All right, Justin you're up, and Megan is on deck.

DR. DAVIS: Nichola more or less covered my point that for the projections of risk level bracketed by 25 and 50 percent that I think we would need to see some projections in between there to have an idea if we were going to set something in between there, where we're going to end up. I mean I don't know if one or two in between there is going to be enough. I don't know how onerous it is to the TC to run these projections, but I would think almost having one at every 5 percent step between 25 and 50 percent would be desirable.

MS. FLORA: The reason we ask for a range is that we will definitely hit steps between that range, it won't just be the beginning and end of that range. In discussions that we've had so far, I don't feel 5 percent may be necessary, but if we get into analysis along the lines that we do see that that becomes a necessary level of analysis. It just depends on what the projections are showing us. But we definitely will have more steps between those two to guide the Board. Then also, I just wanted to ask as well if the Board only wants the 10 percent decrease, or if there is a range in that as well.

CHAIRMAN WOODWARD: Let me go through these folks that have raised their hands, and then we'll put that back out for some response. Megan.

MS. WARE: This is a question for Allison on her projections. Are the, for example the 50 percent probability, is that a single number over two years, or is that what is the TAC in 2021 at 50 percent, and what is the TAC at 2022 at 50 percent?

DR. COLDEN: I think the goal there is to set for the 2021 and then hold that. I'll let you know if I change my mind on that though.

MS. WARE: Can I respond then, Mr. Chair?

CHAIRMAN WOODWARD: Sure, go ahead.

MS. WARE: In that case, thank you, Allison. I might add as like a sub bullet to Allison's that I would like to see what the number is in 2021, and if it is a different number in 2022, I would like to know that. Corrin, that answer is kind of the second part of your question for Number 1 here.

CHAIRMAN WOODWARD: Corrin, you've got that?

MS. FLORA: Megan, let me get this straight. Allison, you're just asking for 2021 and to hold that into 2022. Megan, you would like both years separate?

MS. WARE: Yes, please, so if there is, making up numbers, but 200,000 in 2021 and 205,000 in 2022. I would like to know that they are different, and not what the single number is over those two years.

MS. FLORA: Yes, okay. I was just making sure you wanted them separate not together, as one TAC. If we combine 2021 and 2022 projections together for a 50 percent.

MS. WARE: Correct, I would like them separate. If someone wants them together that's cool too. But I just want to make sure we have a separate run. Thank you.

CHAIRMAN WOODWARD: All right Adam, and then Steve, you're on deck, Steve Bowman.

MR. NOWALSKY: I'll go ahead and be that person that requests them combined. That gives us the opportunity to set not just the one year, not just the two year with a changing TAC, but I would like to see the projections run with a combined, a same TAC offered in 2021 and 2022 combined that would allow us to keep the measure status quo over a two-year period.

The question was also asked about a range with regards to a percent of TAC levels. I would like to see a projection within a range between 10 percent below and 10 percent above. My reason for asking for that is because our discussion about this so far today with these ERPs, and the direction we're giving the TC, has been only to go in a more conservative direction on the management of menhaden.

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I think that message that we've been trying to send is that we as a Board are interested in ERPs, because we believe it's the best available science is a message we need to continue to pass along. Not that we're only interested in ERPs to be more conservative, to take less fish out of the water if the best science says we can.

I think we need to be able to respond to that, we've heard some testimony already today from some published individuals on the topic, and I think we need to be responsive. If we're going to ask for that. Unfortunately, or fortunately, depending on which side of the aisle you're on in this discussion. I suspect a 50 percent probability is probably going to wind up being our upper cap. I'm not sure where that is. But I think we at least need to provide the direction that conveys to the public that we are truly interested in this in a two-way street. For that reason, I would ask for a 10 percent in either direction increase or decrease of the TAC level, relative to the Number 2 strategy.

CHAIRMAN WOODWARD: I think Kirby wanted to jump in here really quick before you, Steve.

MR. ROOTES-MURDY: I would just take a second to pause. We have Corrin, our TC Chair, who has obviously given the presentation, and is I think struggling a little bit with some technical issues right now. She's hopefully going to put up on the screen if she can, some of these requests that the Board has put out, so that you all can see these, because ultimately at the end of the day, we want people to understand what they've asked for, that it's clear to everybody, and so that we can move forward with addressing all those requests.

I will at this stage, at the very least, offer that it's important to keep in mind that for all of the requests that this TC is great and can get this work done. But at the end of the day, keep in mind that the volume of different TAC levels under either evaluating the risk of exceeding the F target or the threshold versus different

TAC levels relative to the current TAC, and evaluating those risks.

That will ultimately be that many more options, so to speak, for you all to choose from, in terms of the TAC. As Corrin has noted, and I believe Amy and other members of the TC, Amy Schueller, excuse me, can indicate we can get this work done. But I'll just caution to keep in mind that the more different variations or options you want to look at for TACs will ultimately be more that you have to choose from in the end.

Corrin is working to get some of these written down on the screen, for you all to take a look at. We might just give her a moment to do that.

One last thing, Mr. Chair. There was a question to Adam's request about the step increments, in terms of the range. If you could clarify that, Adam, that would be helpful.

CHAIRMAN WOODWARD: Go ahead, Adam.

MR. NOWALSKY: I think 5 percent increments, if that is not asking too much, would be more than reasonable. I don't think we would need to be any more discreet than that. If it had to be three numbers, a minus 10 percent, a 0 and a 10 percent deviation due to workload. That would certainly give us the full range to choose from if we choose something else. But if it wasn't too arduous to provide the 5 percent either way numbers, so that they're in front of us, without us having to have to guess or do it on the fly. That would be appreciated.

CHAIRMAN WOODWARD: Corrin, I think if you'll put a plus 10 in front of that other 10 percent or minus 10 percent to that plus 10 percent. I think that is what Adam was speaking to. Is that correct, Adam?

MR. NOWALSKY: It appears correctly on the screen to me right now.

MS. FLORA: That was my intention there.

CHAIRMAN WOODWARD: Okay Steve, thanks for your patience.

Draft Proceedings of the Atlantic Menhaden Board Meeting Webinar
August 2020

MR. STEVEN G. BOWMAN: Yes sir, and I'm going to be very brief. We would like to support Mr. Nowalsky's proposal located at the bottom, and we would ask. I'm not sure whether that is Allison's motion or whatever, but the TAC at the top. If we could do the top number at 60 percent probability as a friendly amendment, so that we could get a little bit more flexibility and oversight. I think that would be a good thing. I just feel very strongly about that. Not to beat it to death, but we would really, really prefer that.

CHAIRMAN WOODWARD: Is there anybody strongly opposed to that? Any hands, anybody? If not.

MS. KERNS: I have Allison and Lynn's hands up. They've been up for quite some time, so I'm not sure if they forgot to put their hands down before.

CHAIRMAN WOODWARD: All right, Allison.

DR. COLDEN: Just to comment very quickly on that. I'm not strongly opposed to Steve's suggestion, but to Corrin's point earlier about investigating. You know by setting that range and investigating risk probabilities within that range, I just want to make sure if we change it to 60 percent that 50 percent is one that we get to see specifically, because I think that is kind of a standard risk probability assessment. I would want to make sure that that one is included in whatever resolutions the TC decides to use within that range.

MR. BOWMAN: We have no problem with that as well. We would like to see all the numbers in making a good decision.

CHAIRMAN WOODWARD: Very good, I think she has captured that. Lynn.

MS. FEGLEY: Sorry that was a holdover, I have nothing to say.

CHAIRMAN WOODWARD: Okay, very good. Okay, so we have presented to the Board the

range of requests for projections to be analyzed by the Technical Committee, and be provided to us so that we can review them, and hopefully make a decision about fisheries specifications for 2021 and 2022 at the October meeting. We're a little bit already over time, so is there anybody that has real heartburn with these, or thinks that there is something to speak that's absent, if you'll raise your hand and be recognized.

MS. KERNS: Megan Ware.

CHAIRMAN WOODWARD: Go ahead, Megan.

MS. WARE: I'm just looking to confirm that that second bullet, negative 10 that's left in. That also would include a run, excuse me current TAC. I'm just trying to confirm that.

MS. FLORA: The percentages from that were from the current TAC, and so yes, we will start at the current TAC, go 10 percent down, 10 percent up with those projections.

CHAIRMAN WOODWARD: All right, is everybody satisfied with that? Are we satisfied that this is going to give us what we need to make a decision in October?

MR. ROOTES-MURDY: Mr. Chairman this is Kirby. I just wanted to clarify. For the range, the 25 to 60 percent probability. I had it in my notes that the Board wanted to see those in 5 percent increments going from 25 up to 60 percent, is that correct? The other is whether the Board wanted to see that same 5 percent increment from the current TAC, you know down 5 percent to negative 10 percent, and then 5 percent above to 10 percent above. Just looking to clarify that.

CHAIRMAN WOODWARD: Does anybody want to opine on that?

MR. BOWMAN: Yes sir, 5 percent is what the Commonwealth of Virginia was asking.

CHAIRMAN WOODWARD: Okay, so you've got that Corrin, 5 percent increments on the minus ten to plus ten analysis as well?

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

MS. FLORA: Yes. I do want to just point out again what was said earlier that that is going to be a lot of decisions and conversation at the October meeting. We are fine giving it to the Board that just might complicate some discussions, but if you want 5 percent on both of them, we can do that.

CHAIRMAN WOODWARD: Well it seems that is what we want. Anything else on this?

MS. KERNS: I do not see any hands raised.

CHAIRMAN WOODWARD: Very good, well thank you all. Thank you, Corrin. It is kind of like being told to go to a restaurant and get takeout orders for 45 people. Everybody wants something different. We appreciate you being with us, appreciate your guidance, and we look forward to seeing the products of this analysis.

ELECTION OF VICE-CHAIR

CHAIRMAN WOODWARD: We are at our final agenda item, and that is the election of the Vice-Chair. I would like to open the floor for nominations.

MS. KERNS: We have Malcolm Rhodes.

CHAIRMAN WOODWARD: Go ahead, Malcolm.

DR. MALCOLM RHODES: If it pleases the Board, I would like to nominate Mr. Mel Bell to assume the vacant position of Vice-chair.

CHAIRMAN WOODWARD: All right, do I have a second?

MS. KERNS: You do, Steve Murphy.

CHAIRMAN WOODWARD: All right very good, so we have a motion and a second to appoint Mel Bell as the Vice-chair of the Atlantic Menhaden Management Board. Any discussion on the motion? Any opposition to the motion? Signify so by raising your hand.

MS. KERNS: I see no opposition; I'm just going to let Maya know that the seconder was Mr. Murphy.

CHAIRMAN WOODWARD: Steve Murphy, very good. It's unanimous and Mel Bell will be assuming the auspicious role of Menhaden Vice-chair. I know he'll do a great job.

OTHER BUSINESS/ADJOURNMENT

CHAIRMAN WOODWARD: With that we're at Other Business. Is there any other business to come before the Atlantic Menhaden Management Board?

MS. KERNS: I do not see any hands raised.

CHAIRMAN WOODWARD: Thanks everyone. This has been a long time coming. I think we've accomplished a lot. Again, I'm going to heap praise on the ERP Work Group and their efforts, and the Technical Committee. They do a lot of hard work and get very little praise for it, and certainly very little formal recognition for it.

But without them we wouldn't be able to do anything. When you have a chance, the folks that work with you and for you, they are all in these groups. Please communicate our appreciation to them. Do I have a motion to adjourn the Board? Raise your hand.

MS. KERNS: Allison Colden has raised her hand.

CHAIRMAN WOODWARD: I have a motion to adjourn, all right, second?

MS. KERNS: Mel Bell.

CHAIRMAN WOODWARD: Very good, thanks everyone very much.

(Whereupon the meeting adjourned at 4:25 p.m. on
August 5, 2020)



Atlantic States Marine Fisheries Commission

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MEMORANDUM

TO: Atlantic Menhaden Management Board
FROM: Atlantic Menhaden Technical Committee
DATE: September 30, 2020
SUBJECT: Stock Projection Memo

The Atlantic Menhaden Management Board (Board) will discuss the 2021-2022 total allowable catch (TAC) for menhaden at its October 2020 meeting. Per Amendment 3, the TAC is set through Board action, either on an annual basis or for multiple years, based on the best available science. If the Board does not set a TAC for 2021 by the Annual Meeting, next year's TAC will automatically be set at the level of the 2020 TAC. At the August meeting, the Board tasked the Atlantic Menhaden Technical Committee (TC) with developing projections using the ecological reference point (ERP) and the single-species assessment model (Beaufort Assessment Model, or BAM). Specifically, the Board requested the following projections:

- The TACs that have a 25%-60% probability of exceeding the ERP fishing mortality rate (F) target, in 5% increments, using 2021-2022 combined and as separate years.
- The percent risk of exceeding the ERP F target and threshold if the current TAC was changed by -10% to +10% in 5% increments, including 0% (the current TAC).

This memo outlines the methods for the projections and the results of the analysis the Board requested to support the specifications process.

TAC Setting Process

As in recent years, the TAC has been informed by the results of projection analysis, which explores a range of TAC alternatives to determine the percent risk of exceeding the F_{TARGET} or the $F_{THRESHOLD}$. Monte Carlo Bootstrap (MCB) runs of the base model run from the Beaufort Assessment Model (BAM) are used as the basis for the projection analysis (see stock assessment report for details on BAM base run and MCB runs; SEDAR-69 2019). Projections were run for 2018-2022 using reported landings for the years of 2018 (191,500 mt) and 2019 (208,800 mt), a TAC of 216,000 for 2020 (actual 2020 landings will not be available until next year; Table 1), and the requests from the Board for 2021-2022. Reported landings for 2018-2019 were compiled from NOAA's Beaufort Laboratory (reduction landings) and state compliance reports (bait landings). The starting conditions of the projection analysis include initial numbers at age, which were the estimated numbers at age, N_a , for year 2018 from the BAM for each MCB run.

Numbers at age after the initial year were calculated as:

$$N_{a+1,y+1} = N_{a,y} e^{-Z_{a,y}}$$

where $Z_{a,y}$ was age and year specific mortality and equaled natural mortality for each age plus the fishing mortality rate for each age and year times the selectivity at age. The vector for natural mortality for each projection was the vector from each MCB run. Selectivity was a vector from each MCB run for each fishery with the northern and southern commercial reduction fishery; selectivities were the values in the last time period. Fishing mortality was estimated using the optimize function in R in order to match the annual landings (level of landings denoted above). Annual landings were calculated using the Baranov catch equation and weight of landings.

The methods are consistent with previous projection methods with two exceptions. With the accepted peer-reviewed benchmark stock assessments in 2019, recruitment is now projected using non-linear time series analysis or empirical dynamic modeling as demonstrated in Deyle et al (2018), not using a median recruitment value from the MCB runs. Additionally, with the Board action to adopt ERPs, the following reference points are used in the projections:

- **ERP target:** the maximum F on Atlantic menhaden that sustains Atlantic striped bass at their biomass target when striped bass are fished at their F target
- **ERP threshold:** the maximum F on Atlantic menhaden that keeps Atlantic striped bass at their biomass threshold when striped bass are fished at their F target.

As usual, projections are highly uncertain and subject to model assumptions (i.e., no changes in fishing effort, seasonality of the fishery is not modeled, there is no structural model uncertainty in projections). Since the implementation of coastwide quota management the TAC has been set at the following levels: 170,800 metric tons (2013–2014); 187,880 metric tons (2015–2016); 200,000 metric tons (2017); and 216,000 metric tons (2018–2020; Table 1).

Results

One of the Board requests was to provide TACs that have a 25%-60% probability of exceeding the ERP target, in 5% increments, using 2021-2022 combined and as separate years. For the projections using 2021 and 2022 as separate years, a TAC has been calculated (Table 2). There were two approaches for combining the years that the TC discussed. One approach was to provide the average value of the risk as the probability level; however, there was not one unique solution with respect to the average and there were concerns that this would result in confusion. The second approach was to provide a TAC that does not exceed the level of risk for either year, or the lower of the two TACs provided in Table 2. Therefore, the TAC for 2021-2022 combined would be the TAC from 2021 when the years were calculated separately.

The second request from the Board was to calculate the percent risk of exceeding the ERP target and threshold if the current TAC was changed by -10% to +10% in 5% increments. The results are presented in Table 3.

Additionally, the TC notes that a TAC in 2021 does affect the TAC in 2022 and therefore a value may not have the same associated risk in Tables 2 and 3. For example, in Table 2, the probability of exceeding the ERP target by 60% results in a 2021 TAC of 197,200 mt and a 2022 TAC of 216,200 mt. Conversely, if one was to maintain the current TAC of 216,000 mt for both

2021 and 2022, the risk of exceeding the ERP target in 2021 and 2022 is 66% and 60%, respectively (Table 3). The TAC in 2022 is 216,000 mt for both of the exercises, but the associated risk is different because the TAC in 2021 is different (197,200 mt in Table 2 and 216,000 mt in Table 3).

Instead of providing figures for all the of scenarios the Board requested, the TC provided figures of the fecundity, recruits, full *F* fishing mortality rate, and landings for the current TAC, a TAC of 237,600 mt (10% increase to TAC), and the scenarios where the risk of exceeding the ERP target in 2021 and 2022 was 25% and 60% (Figures 1-4). These four plots provide the bounds of the highest and lowest risk scenarios (25% and 60%) the Board requested in addition to the highest TAC requested (237,000 mt) and the current TAC (216,000 mt). **Please note:** the projection runs in the four plots use actual landings for years 2018-2019 while 2020, 2021, and 2022 use the TAC value.

Table 1. The TAC and landings for 2017-2020. In 2017, *F* was 0.16, below both the ERP target (0.19) and ERP threshold (0.57).

| Year | TAC | Landings |
|------|------------|---------------|
| 2017 | 200,000 mt | 173,000 mt |
| 2018 | 216,000 mt | 191,500 mt |
| 2019 | 216,000 mt | 208,800 mt |
| 2020 | 216,000 mt | Not available |

Table 2. The TACs (in mt) associated with a 25-60% probability of exceeding the ERP target (0.19) for 2021-2022 combined and as separate years.

| Probability of Exceeding the ERP Target | TAC for 2021-2022 | TAC for 2021 | TAC for 2022 |
|---|-------------------|--------------|--------------|
| 25% | 148,700 | 148,700 | 150,800 |
| 30% | 153,200 | 153,200 | 157,200 |
| 35% | 158,000 | 158,000 | 162,900 |
| 40% | 163,100 | 163,100 | 169,400 |
| 45% | 169,400 | 169,400 | 177,300 |
| 50% | 176,800 | 176,800 | 187,400 |
| 55% | 186,600 | 186,600 | 200,600 |
| 60% | 197,200 | 197,200 | 216,200 |

Table 3. Percent risk of exceeding the ERP target (0.19) and ERP threshold (0.57) for five different total allowable catch (TAC) projections.

| TAC | Probability of Exceeding ERP Target | | Probability of Exceeding ERP Threshold | |
|--------------------------|-------------------------------------|-------|--|------|
| | 2021 | 2022 | 2021 | 2022 |
| 194,400 mt (-10%) | 58.5% | 52.5% | 0% | 0% |
| 205,200 mt (-5%) | 63.5% | 56.5% | 0% | 0% |
| 216,000 mt (current TAC) | 66% | 60% | 0% | 0% |
| 226,800 mt (+5%) | 68.5% | 62.5% | 0% | 0.5% |
| 237,600 mt (+10%) | 70.5% | 65% | 0.5% | 0.5% |

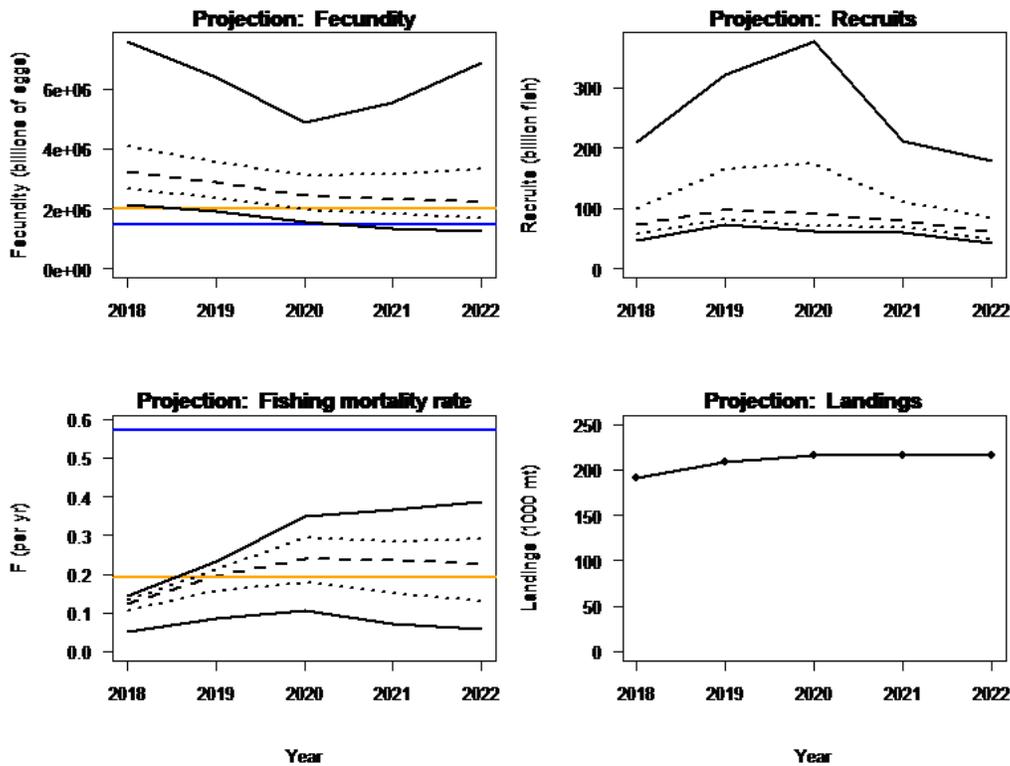


Figure 1. Fecundity, recruits, full F fishing mortality rate, and landings for projections done with the current TAC of 216,000 mt. The blue lines indicate the ERP thresholds and the orange lines indicate the ERP targets. The dashed black line is the 50th percentile (median), the dotted black lines are the 25th and 75th percentiles, and the solid black lines are the 5th and 95th percentiles.

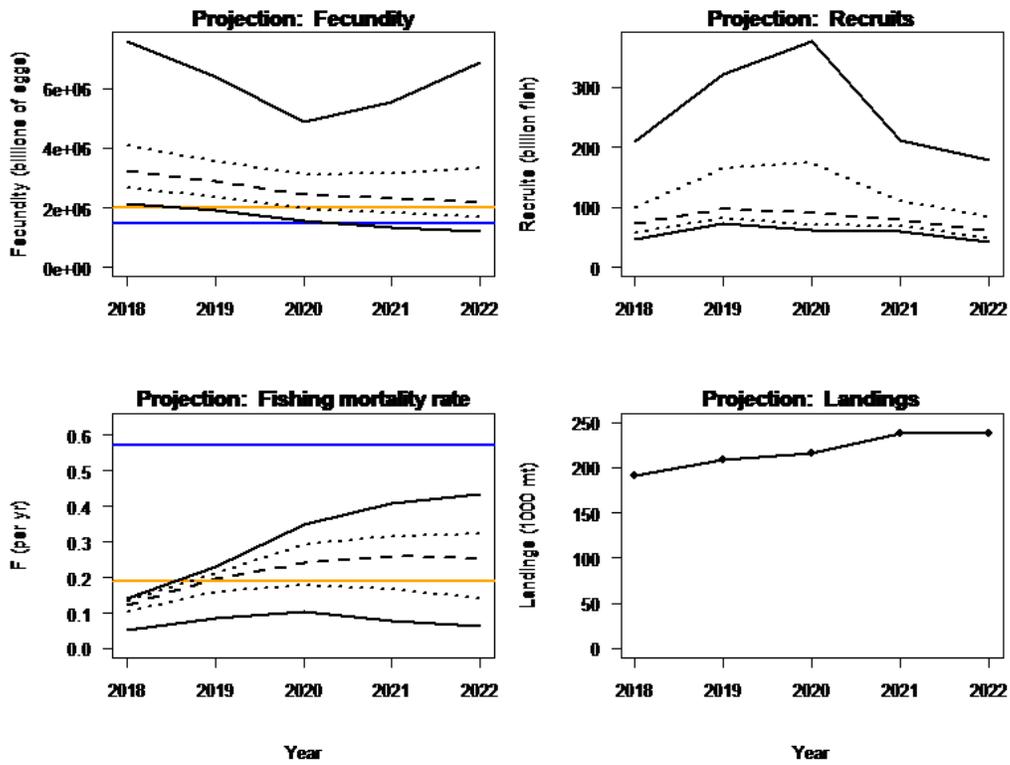


Figure 2. Fecundity, recruits, full F fishing mortality rate, and landings for projections done with the current TAC of 237,600 mt, representing a 10% increase to the current TAC. The blue lines indicate the ERP thresholds and the orange lines indicate the ERP targets. The dashed black line is the 50th percentile (median), the dotted black lines are the 25th and 75th percentiles, and the solid black lines are the 5th and 95th percentiles. Note that the run for 237,600 mt doesn't show any risk of exceeding the threshold, but does show some risk in Table 3 (0.5%). It does not show up in the figures because the risk is outside the 5th and 95th percentiles.

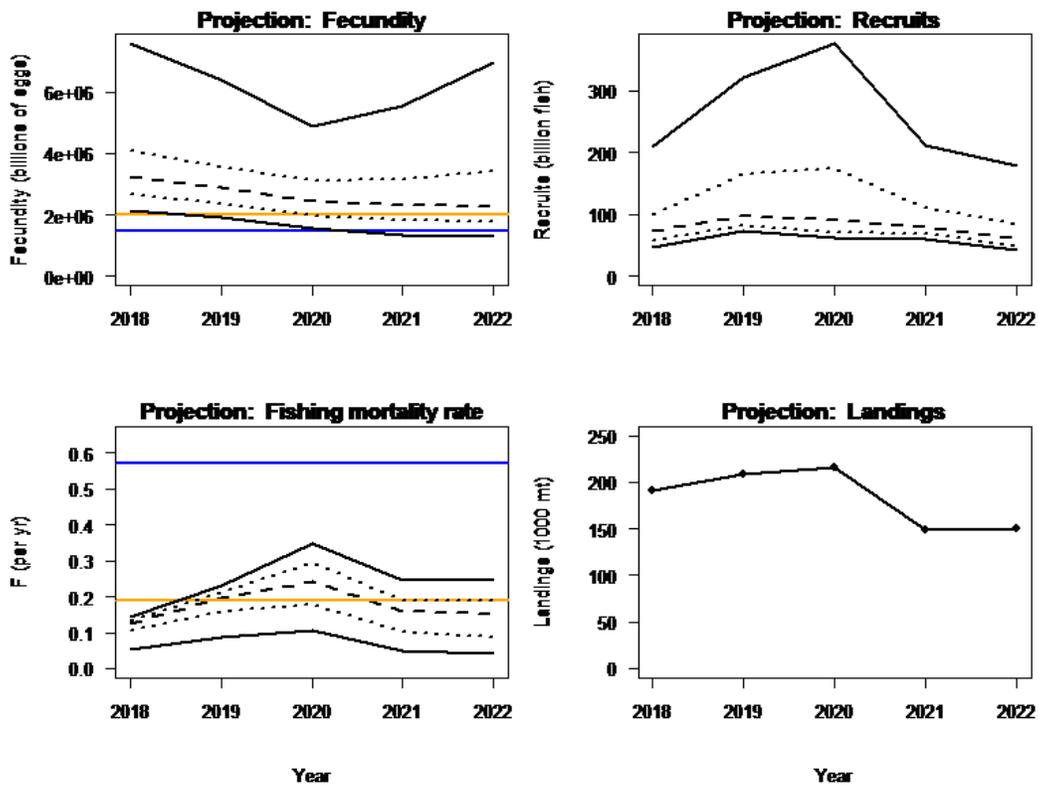


Figure 3. Fecundity, recruits, full F fishing mortality rate, and landings for projections that result in a 25% risk of exceeding the ERP target in 2021 and 2022. The blue lines indicate the ERP thresholds and the orange lines indicate the ERP targets. The dashed black line is the 50th percentile (median), the dotted black lines are the 25th and 75th percentiles, and the solid black lines are the 5th and 95th percentiles.

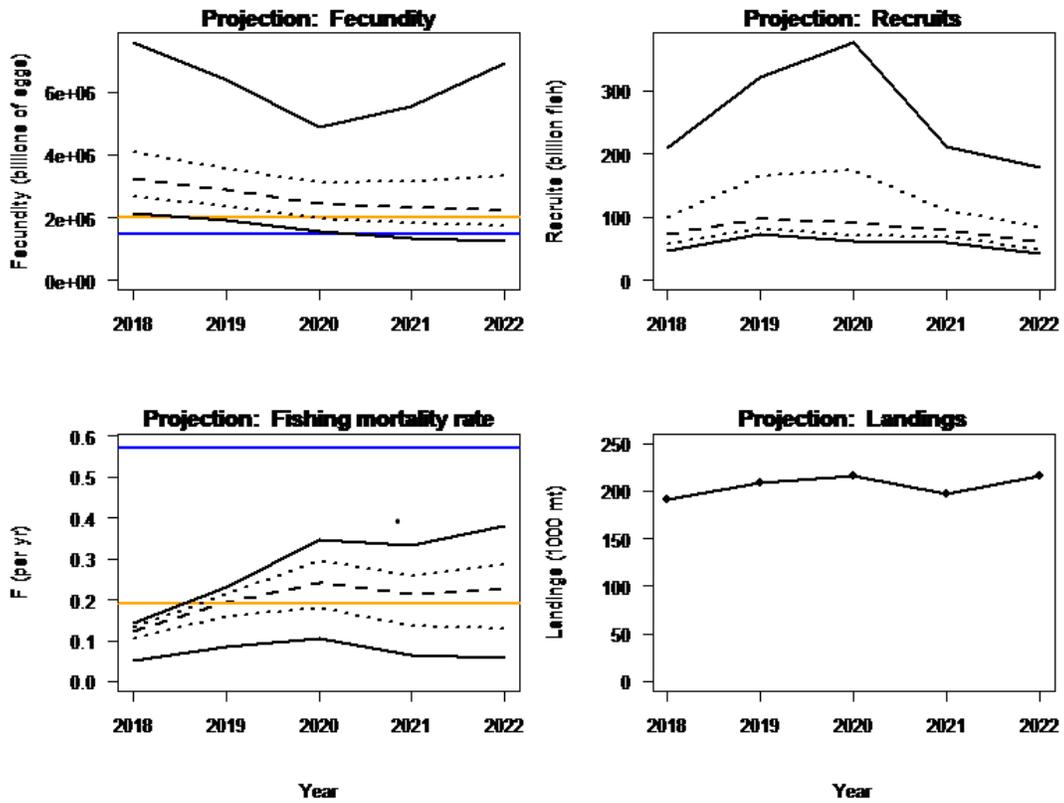


Figure 4. Fecundity, recruits, full F fishing mortality rate, and landings for projections that result in a 60% risk of exceeding the ERP target in 2021 and 2022. The blue lines indicate the ERP thresholds and the orange lines indicate the ERP targets. The dashed black line is the 50th percentile (median), the dotted black lines are the 25th and 75th percentiles, and the solid black lines are the 5th and 95th percentiles.



Atlantic States Marine Fisheries Commission

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MEMORANDUM

TO: Atlantic Menhaden Management Board
FROM: Ecological Reference Point Work Group and Atlantic Menhaden Technical Committee
DATE: September 30, 2020
SUBJECT: Fecundity Reference Points Memo

At the 2020 Summer Meeting, the Atlantic Menhaden Management Board approved the use of ecological reference points (ERPs) in the management of Atlantic menhaden to account for its role as an important forage fish. The ERP fishing mortality (F) target and threshold are defined as:

- **ERP F target:** the maximum F on Atlantic menhaden that sustains Atlantic striped bass at their biomass target when striped bass are fished at their F target
- **ERP F threshold:** the maximum F on Atlantic menhaden that keeps Atlantic striped bass at their biomass threshold when striped bass are fished at their F target.

All other focal species in the model (bluefish, weakfish, spiny dogfish, and Atlantic herring) were assumed to be fished at 2017 levels.

The Board tasked the ERP Work Group with producing an ERP fecundity target and threshold that correspond with the ERP F reference points.

Results

The ERP fecundity target and threshold (Table 1), defined as the equilibrium fecundity that results when the population is fished at the ERP F target and threshold respectively, were calculated using the same methodology that was used to produce the single-species fecundity reference points in the past. The 2017 estimate of fecundity was above both the ERP target and threshold, indicating the stock was not overfished.

Table 1. The equilibrium fecundity associated with the ERP F target and threshold

| Reference Points | ERP Fecundity (Billions of Eggs) | Single Species Fecundity (Billions of Eggs) | 2017 Fecundity Estimate (Billions of Eggs) |
|--|----------------------------------|---|--|
| ERP F_{TARGET} , Equilibrium Fecundity at F_{TARGET} | 2,003,986 | 1,945,613 | 2,601,550 |
| ERP $F_{THRESHOLD}$, Equilibrium Fecundity at $F_{THRESHOLD}$ | 1,492,854 | 1,463,344 | |

From: [Caroline Karp](#)
To: [Comments](#)
Cc: [Tina Berger](#); [Dr. Syma A. Ebbin](#); [Jason E. Mcnamee](#)
Subject: [External] COMMENTS re ERPs, Fishery data and Uncertainty
Date: Monday, August 10, 2020 11:46:37 AM

10 August 2020

Dear ASMFC Commissioners,

I have three major but related comments for the Commission's consideration. The first concerns the Commission's decision on whether to start adopting Ecological Reference Points (ERPs) for a variety of fishes that transit Atlantic state waters. The second concerns the types of socio-economic data the Commission and its advisory committees should consider in developing stock assessments. The third suggests a reasonable protocol to be used by the Commission when the technical advisory committees deem there to be high uncertainty about the status of species under the ASMFC's jurisdiction.

1. I urge the Commission to build on the Menhaden Management Board's recommendation to adopt an [for Atlantic menhaden](#) that recognizes the menhaden's contribution to marine and avian food chains.

I think this approach should also be used to address multi-species fisheries, fisheries with significant bycatch, and fisheries that have significant gear-related impacts on marine habitats related to dragging and/or derelict gear.

2. In my view, it is a dismal proposition for the future of fish, marine ecosystems and the fisheries for the ASMFC to allocate the remnant 10-20% of the so-called un-fished biomass of species under ASMFC jurisdiction among the coastal states and between commercial/recreational users without accounting for:

- Other significant human sources of mortality (e.g., habitat destruction, thermal effluents, impoundments/diversions, climate change);
- Ecosystem service effects of fishing on non-/target species and habitats, e.g., food chain and C contribution of prey species;
- Trend in capacity of fishing fleets (# vessels, # fishermen, technology and *catchability*);
- Sources of fishing, processing and supply chain waste in addition to bycatch;
- Availability and economic effect of cultivated species on wild fisheries;
- Market-distorting effects of subsidies, fleet consolidation related to catch shares programs, supply chains, consumer preferences, and availability of domesticated or industrial substitutions (e.g., for menhaden);
- Political pressures on the States and the ASMFC by different non-/fishing interest groups;
- Effects of different regulatory and market-based strategies and best practices on administrative efficiency, welfare and fish stocks (SSB); and

· Administration, compliance, enforcement by the States,

in addition to the CESS' traditional economic analysis of tradeoffs between use and conservation at low stock levels.

I think all of these bulleted items are fundamentally "socio-economic" and/or issues that can be addressed using social- and economic theories and tools. In my view, the various SAs, TCs, PRTs and PDTs would benefit from CESS involvement, as would the Commission, whose decisions affect the social and economic welfare of non-/fishermen who have many non-/use interests in "sustainable fish" and "sustainable fishing"..

3. In the absence of the information described above, I think the Commission should reduce ABCs/ACLs/TACs by 10 - >20% to account for:

- uncertainty re the socio-economics of fishing (capacity, catchability), markets, supply chains, waste and the value of non-/use interests in coastal shell-/fish and aquatic ecosystems; and

- the public's intergenerational possessory/public trust interest in marine shell-/fish.

Thank you for your consideration of these comments. In closing, I wish the Commission and my former colleagues on the CESS well, as always. The Commission could hardly have a better partner in this endeavor than Drs. Jason McNamee and Syma Ebbin.

With best wishes and regards,

Caroline A Karp

Caroline A Karp, Esq.
Senior Lecturer, Emerita
Environmental Studies and International and Public Affairs
Taubman Center for American Politics and Policy
Brown University
Providence, RI 02912

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Atlantic States Marine Fisheries Commission

South Atlantic State/Federal Fisheries Management Board

October 20, 2020

1:15 – 4:15 p.m.

Webinar

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 (*L. Fegley*) 1:15 p.m.
2. Board Consent 1:15 p.m.
 - Approval of Agenda
 - Approval of Proceedings from August 2020
3. Public Comment 1:25 p.m.
4. Atlantic Cobia Addendum I to Amendment 1 for Final Approval (*T. Kerns*) **Final Action** 1:45 p.m.
 - Review Options and Public Comment
 - Consider Final Approval of Addendum I to Amendment 1
5. Review 2020 Traffic Light Analyses for Atlantic Croaker and Spot 2:45 p.m.
 - Review 2020 Reports (*D. Franco and H. Rickabaugh*)
 - Review Management Response Requirements from Addendum III (*S. Lewis*)
6. Consider Fishery Management Plan Review and State Compliance for 2019 Fishing Year for Red Drum (*S. Lewis*) **Action** 4:00 p.m.
7. Other Business/Adjourn 4:15 p.m.

MEETING OVERVIEW

South Atlantic State/Federal Fisheries Management Board Meeting
Tuesday, October 20, 2020
1:15 – 4:15 p.m.
Webinar

| | | |
|--|--|--|
| Chair: Lynn Fegley (MD) Assumed Chairmanship: 02/20 | Technical Committee (TC) Chairs: Black Drum: Harry Rickabaugh (MD) Cobia: Angela Giuliano (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: August 3, 2020 |
| Voting Members: NJ, DE, MD, PRFC, VA, NC, SC, GA, FL, NMFS, USFWS, SAFMC (12 votes) | | |

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from August 3, 2020

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 Atlantic Cobia Addendum I to Amendments 1 for Final Approval (1:45-2:45 p.m.) Final Action

Background

- In February 2020, the Board initiated Draft Addendum I to Amendment 1 to consider reflecting the updated MRIP data (used in SEDAR 58) in allocation percentages, reconsider *de minimis* measures, and update the method for calculating the commercial trigger so that it can be calculated in scenarios when commercial harvest has not approached the quota. The Cobia Plan Development Team developed Draft Addendum I with management options for each of these issues.
- The Board approved draft Addendum I for public comment in August 2020. Public hearings were held via webinar in September and early October. **(Briefing Materials)**.

Presentations

- Review of options and public comment summary **(Supplemental Materials)** by T. Kerns

Board actions for consideration at this meeting

- Review and consider final approval of Draft Addendum I.

5. Review 2019 Traffic Light Analyses for Atlantic Croaker and Spot (2:45-4:00 p.m.)

Background

- The Traffic Light Analyses is updated annually for both spot and Atlantic croaker to assess changes to the population in non-benchmark stock assessment years.
- Addendum III (2020) of the Atlantic Croaker FMP and Addendum III (2020) of the Spot FMP of the Spot FMP incorporated region specific indices, established the reference points for all surveys, changed the management trigger for Spot and Atlantic Croaker, and outlined management responses if management is triggered.
- The Spot and Croaker Technical Committees ran the TLA for each species with the additional year's data.

Presentations

- Review of 2020 Traffic Light Analyses for Atlantic Croaker and Spot by D. Franco and H. Rickabaugh.
- Overview of management response from Addendum III by S. Lewis

6. Consider Approval of 2019 Fishery Management Plan Reviews and Compliance for Red Drum (4:00-4:15 p.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 *de minimis* status.

Presentations

- 2020 FMP Reviews for Red Drum by S. Lewis.

Board actions for consideration at this meeting

- Consider approval of the 2020 FMP Review, state compliance, and New Jersey and Delaware's *de minimis* requests for Red Drum.

7. Other Business/Adjourn

South Atlantic 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 Simulation Assessment
- Cobia TC – Evaluate state implementation plans for Board approval prior to 2021 fishing season
- Atlantic Croaker TC – July 1: Compliance Reports Due
- Red Drum TC – July 1: Compliance Reports Due
- Cobia TC – July 1: Compliance Reports Due
- Atlantic Croaker TC – Conduct 2020 Traffic Light Approach analysis for Annual Meeting
- Spot TC – Conduct 2020 Traffic Light Approach analysis for Annual Meeting
- Black Drum TC – August 1: Compliance Reports Due
- Spotted Seatrout PRT – September 1: Compliance Reports Due
- Spanish Mackerel PRT – October 1: Compliance Reports Due
- Spot PRT – November 1: Compliance Reports Due

TC Members:

Atlantic Croaker: Dawn Franco (GA, Chair), Kristen Anstead (ASMFC), Savannah Lewis (ASMFC), Stacy VanMorter (NJ), Michael Greco (DE), Harry Rickabaugh (MD), Somers Smott (VA, Vice Chair), Morgan Paris (NC), Chris McDonough (SC), Joseph Munyandorero (FL)

Black Drum: Harry Rickabaugh (MD, Chair), Jeff Kipp (ASMFC), Savannah Lewis (ASMFC), Craig Tomlin (NJ), Jordan Zimmerman (DE), Ethan Simpson (VA), Chris Stewart (NC), Chris McDonough (SC), Ryan Harrell (GA), Liz Herdter Smith (FL), Shanae Allen (FL)

Cobia: Angela Giuliano (MD, Chair), Savannah Lewis (ASMFC), Mike Auriemma (NJ), Olivia Phillips (VA, Vice Chair), Somers Smott (VA), Anne Markwith (NC), Justin Yost (SC), Chris Kalinowsky (GA), Christina Wiegand (SAMFC), Michael Larkin (SERO)

Red Drum: Lee Paramore (NC, Chair), Jeff Kipp (ASMFC), Savannah Lewis (ASMFC), Alissa Wilson (NJ), Michael Greco (DE), Robert Bourdon (MD), Ethan Simpson (VA, Vice Chair), Joey Ballenger (SC), Chris Kalinowsky (GA), Roger Pugliese (SAFMC)

Spanish Mackerel (PRT): Savannah Lewis (ASMFC), McLean Seward (NC), BJ Hilton (GA), Chris Swanson (FL), Christina Wiegand (SAFMC), John Hadley (SAFMC)

Spot: Harry Rickabaugh (MD, Chair), Jeff Kipp (ASMFC), Savannah Lewis (ASMFC), Stacy VanMorter (NJ), Michael Greco (DE), Somers Smott (VA), Morgan Paris (NC), Chris McDonough (SC), BJ Hilton (GA)

Spotted Seatrout (PRT): Savannah Lewis (ASMFC), Douglas Lipton (MD), Tracey Bauer (NC), Joey Ballenger (SC), Chris Kalinowsky (GA)

SAS Members:

Red Drum: Joey Ballenger (SC, Chair), Jeff Kipp (ASMFC), Michael Schmidtke (ASMFC), Angela Giuliano (MD), Lee Paramore (NC), Thom Tears (NC), Jared Flowers (GA), Chris Swanson (FL)

DRAFT PROCEEDINGS OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
SOUTH ATLANTIC STATE/FEDERAL FISHERIES MANAGEMENT BOARD

Webinar
August 3, 2020

These minutes are draft and subject to approval by the South Atlantic State/Federal Fisheries Management Board.
The Board will review the minutes during its next meeting.

Draft Proceedings of the South Atlantic State/Federal Fisheries Management Board Webinar
August 2020

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1. **Approval of agenda** by consent (Page 1).
2. **Approval of Proceedings** of February 2020 by consent (Page 1).
3. **Move to approve Cobia Draft Addendum I to Amendment 1 for public comment as modified today** (Page 10). Motion by Chris Batsavage; second by Malcolm Rhodes. Motion carried (Page 11).
4. **Move to approve a Cobia Commercial Trigger of 135,422 pounds for 2020. If commercial harvest estimated through in-season monitoring meets or exceeds this amount, a coastwide commercial closure for the remainder of the year will begin 30 days later** (Page 14). Motion by Pat Geer; second by Mel Bell. Motion carried (Page 15).
5. **Move to approve Terms of Reference for the Red Drum Simulation Assessment as presented** (Page 21). Motion by Mel Bell; second by Jim Estes. Motion carried (Page 21).
6. **Motion to adjourn** by consent (Page 22).

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August 2020

ATTENDANCE

Board Members

| | |
|--|---|
| Joe Cimino, NJ (AA) | Jerry Mannen, NC (GA) |
| Tom Fote, NJ (GA) | Mel Bell, SC, proxy for P. Maier (AA) |
| Adam Nowalsky, NJ, proxy for Sen. Andrzejczak (LA) | Malcolm Rhodes, SC (GA) |
| John Clark, DE, proxy for D. Saveikis (AA) | Sen. Ronnie Cromer, SC (LA) |
| Roy Miller, DE (GA) | Doug Haymans, GA (AA) |
| Craig Pugh, DE, proxy for Rep. Carson (LA) | Spud Woodward, GA (GA) |
| Bill Anderson, MD (AA) | Jim Estes, FL, proxy for J. McCawley (AA) |
| Lynn Fegley, MD, Administrative proxy (Chair) | Rep. Thad Altman, FL (LA) |
| Phil Langley, MD, proxy for Del. Stein (LA) | Marty Gary, PRFC |
| Pat Geer, VA, proxy for S. Bowman (AA) | John Carmichael, SAFMC |
| Sen. Monty Mason, VA (LA) | Jack McGovern, NMFS |
| Steve Murphey, NC (AA) | Mike Millard, USFWS |
| Chris Batsavage, NC, Administrative proxy | |

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

Ex-Officio Members

| | |
|--|------------------------------------|
| Angela Giuliano, Cobia Technical Committee Chair | Joey Ballenger, Red Drum SAS Chair |
|--|------------------------------------|

Staff

| | |
|-----------------|-------------------------|
| Robert Beal | Dustin Colsen Leaning |
| Toni Kerns | Joe Myers |
| Maya Drzewicki | Mike Rinaldi |
| Kristen Anstead | Kirby Rootes-Murdy |
| Max Appelman | Julie Defilippi Simpson |
| Tina Berger | Mike Schmidtke |
| Lisa Havel | Caitlin Starks |
| Chris Jacobs | Deke Tompkins |
| Jeff Kipp | Geoff White |

Guests

| | | |
|---------------------------------|------------------------|--------------------------------|
| Pat Augustine, Coram, NY | Kyle Hoffman, SC DNR | Jack McGovern, NOAA |
| Michael Auriemma, NJ DEP | Rusty Hudson | Steve Meyers, Williamsburg, VA |
| Peter Benoit, Ofc. of Sen. King | Desmond Kahn | Ken Neill, Yorktown, VA |
| Ellen Bolen, VMRC | Ray Kane, MA (GA) | Derek Orner, NOAA |
| David Borden, RI (GA) | Adam Kenyon, VMRC | Olivia Phillips, VMRC |
| Rob Bourdon, MD DNR | Kathy Knowlton, GA DNR | Kelly Place, Williamsburg, VA |
| William Brantley, NC DENR | Alexa Kretsch, VMRC | Jill Ramsey, VMRC |
| Jeff Brust, NJ DEP | Mike Luisi, MD DNR | Tara Scott, NOAA |
| Heather Corbett, NJ DEP | Dee Lupton NC DENR | David Sikorski, Baltimore, MD |
| Morgan Corey, NOAA | Chip Lynch, NOAA | David Stormer |
| Tony Friedrich, SGA | Shanna Madsen, VMRC | Mike Waive, ASA |
| Lewis Gillingham, VMRC | Casey Marker | Alissa Wilson, NJ DEP |
| Willy Goldsmith, SGA | Ann Markwith, NC DENR | Chris Wright, NOAA |
| Shepherd Grimes, NOAA | Genine McClair, MD DNR | Erik Zlokovitz, MD DNR |

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The South Atlantic State/Federal Fisheries Management Board of the Atlantic States Marine Fisheries Commission convened via webinar; Monday, August 3, 2020, and was called to order at 1:30 p.m. by Chairwoman Lynn Fegley.

CALL TO ORDER

CHAIRWOMAN LYNN FEGLEY: Welcome to the South Atlantic Board everyone. Thank you, Cody and team for getting everybody organized and sound checked. Okay, so we have a pretty full agenda. We have three action items to get done today, and we have until 3:45 to do it. Hopefully all will go smoothly.

APPROVAL OF AGENDA

CHAIRWOMAN FEGLEY: A first order of business is Board Consent, with Approval of the Agenda. With that I wanted to forward to the Board that the fourth action item listed on the agenda was to elect a Vice-Chair.

However, you may be aware that there is an item before the Executive Committee this meeting. It is a proposal to divide this Board in two. The proposal is to alter the agenda to remove that item, until a final decision is made by the Policy Board as to whether we're going to remain as one Board or continue on as two. With that I'll ask if anyone else has any need to modify the agenda. If you do, please raise your hand.

MS. KERNS: I don't see any hands, Lynn.

CHAIRWOMAN FEGLEY: Okay, and I am going to ask to approve the agenda by consent. If anybody does not approve of the agenda, please raise your hand.

MS. KERNS: I don't see any hands.

APPROVAL OF MEETING SUMMARY

CHAIRWOMAN FEGLEY: Great. Hoping everybody has had a chance to review the meeting summary from February. That was a meeting summary the meeting did not record, so

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it was not a transcript. Does anybody have any modifications that they desire to put into the February meeting summary? If so, raise your hands.

MS. KERNS: I don't see any hands raised.

CHAIRWOMAN FEGLEY: Okay, and is there any opposition to approval of the Meeting Summary?

MS. KERNS: I don't see any opposition.

PUBLIC COMMENT

CHAIRWOMAN FEGLEY: Before we move to the public comment. I think I was remiss. I should just introduce myself a little better. My name is Lynn Fegley. I am the Administrative Commissioner. I proxy for my boss Bill Andrews for representing the state of Maryland. That is that and next, is there anybody out there who has public comment? If you do, please raise your hand.

MS. KERNS: If any members of the public don't know how to raise your hand, you click on the little button that is shaped like a hand, and it will raise your hand. If you're having trouble with that you could also send us a chat or a question. I don't see any hand raised, Lynn.

**CONSIDER DRAFT ADDENDUM I TO
AMENDMENT 1 TO THE COBIA INTERSTATE
FISHERY MANAGEMENT PLAN
FOR PUBLIC COMMENT**

CHAIRWOMAN FEGLEY: All right, seeing none. The first action item today, and just to remind everybody. I will be looking for a motion at the end of this discussion, and it is to consider Draft Addendum I to Amendment 1 for approval for public comment. This is the point where we send it out to comment for hearings to happen over the next couple months. I believe that Mike Schmidtke is going to take us through the Draft Addendum.

DR. MIKE SCHMIDTKE: I'm going to go ahead and make myself presenter. Do you see my lead screen for the Draft Addendum I presentation?

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CHAIRWOMAN FEGLEY: I can see it, Mike.

DR. SCHMIDTKE: Today we're going to be going through Draft Addendum I to Amendment 1 for Cobia FMP, with consideration for public comment. This Draft Addendum addresses four different issues, ranging from recreational and commercial allocations, and adjustments to commercial trigger, calculation method, and then consideration of some alternative *de minimis* measures.

As I go through the presentation today, first I'm going to go through a bit of an overview of the timeline that has brought us to this point. Then I'll give a brief introduction of the four issues that we'll be going through, and then go through the issues one-by-one. As I go through each of those issues, I'll present a slide or two of background information that is relevant to that specific issue, then present the management options that are being proposed by the Plan Development Team.

Then I'll pause after presenting each of those sets of options for some issue-specific questions, comments, and discussion by the Board if you all have any alterations to those. After going through all four of those issues, then I'll also pause for some overall questions, comments, discussions, if there is something that any of the Board members want to talk about from a larger perspective related to the addendum document.

In regards to the timeline. You all will remember after the last Board meeting in February of this year, the Board initiated this Draft Addendum. Since then the Plan Development Team has been working on the document. We had a little bit of a delay, due to COVID-19 and travel restrictions and all of that. It got pushed from the spring meeting back to the summer meeting, where we are now.

But now we're bringing it up and having the Board consider Draft Addendum I for approval for public comment. If approved for public comment today, then there would be a time period for written comments as well as public hearings, in between

now and the October meeting, and the October meeting would be when the Board would come back to consider the document for final approval. Looking back to that February meeting. Among many things that happened in that meeting, it was a long one, but one of the things that happened was SEDAR 58 stock assessment for Atlantic cobia was presented to the Board.

This stock assessment was the first for cobia to incorporate the new MRIP recreational catch estimates, based on the Mail-Based Fishing Effort Survey, and transitioning from the Coastal Household Telephone Survey. If you all will remember, those estimates were significantly higher using the new FES estimates, rather than the telephone estimates.

That led to larger population estimates and as you'll see in that second bullet point, a larger quota than what we were previously working under. At the February meeting the Board also specified a new total annual harvest quota of about 80,000 fish, and this was based off of the projections from the SEDAR 58 model.

Under Amendment 1 allocations this total quota is allocated 92 percent to the recreational fishery, and 8 percent to the commercial fishery. A reminder about Amendment 1, and how we manage the recreational fishery. There was a bit of a change in Amendment 1, where the Board decided to move from managing the recreational fishery in terms of a poundage, and moving to numbers of fish.

You'll notice that those different units are reflected throughout the presentation. The previous quotas that had been set were total quota of 670,000 pounds, with 620,000 for the recreational, and 50,000 to the commercial. With such a significant increase to the quota, one of the big questions that came out of that discussion was whether the quota increase that was being seen was only due to the MRIP calibration, and in effect leading to a *de facto* reallocation of the fishery in the direction of the commercial side.

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In response to that question, among a few others, in follow up the Board initiated Draft Addendum I, and one of the requests that was made was for options for a reduced commercial quota percentage that would offset impacts of the increased recreational catch estimates, and the PDT attempted to address this request through Issue 1 in the options shown there.

The Board also requested in some of the follow up discussion's reconsideration of some of the *de minimis* measures that are used for cobia. Those are addressed in Issues 3 and 4, one for the commercial and one for the recreational side. Then after the Board meeting in February, one of the steps in the harvest specification process for cobia is that a commercial trigger is calculated, and that is used in any type of commercial closure that would occur within the season.

The Cobia Technical Committee would normally calculate this commercial trigger, and submit it for the Board's consideration and approval. However, when the Technical Committee attempted to do this using the methods described in Amendment 1, it was not able to be calculated due to the large increase in the commercial quota. There will be a little bit more discussion along those lines when I get to that issue, as well as later on when Angela presents the TC's recommendation. But there was a memo distributed from the TC describing this issue back in May. The Board, via e-mail consent, directed the Plan Development Team to include revising the method for calculating the commercial trigger into Draft Addendum I. It's a little bit out of order numerically, but that is addressed in Issue 2 of the document. Now I'll be moving into Issues 1 through 4, going through one-by-one, and starting off with Issue 1, which deals with the allocation.

The two really long equations that you see on the screen, and those are also in the Draft Addendum I document. Those are from the coastal migratory pelagic FMP from the South Atlantic Fishery Management Council. This is back when Atlantic cobia were being managed by the South Atlantic Fishery Management Council, and these are the

equations that were used to come up with the 92 percent and 8 percent allocations that are used in the current fishery.

These percentages came from data that were from recreational harvest data from 2000 through 2008, with additional weight being put on harvest in 2006 through 2008. Obviously, the 92 percent and 8 percent resulted from that. When the PDT, when we got together and we were discussing what potential alternatives would be to the current allocation.

The first thing that we tried was just simply plugging in the recalibrated numbers, the new FES numbers from 2000 through 2008, and I came up with the result shown on the screen, about 2.5 percent for the commercial and 97.5 for the recreational. Now looking at how those played out into poundage and number of fish for those different sectors.

We did notice that on the commercial side if we were to just put those straight in as is then there would be a decrease, a slight decrease to the commercial quota. This would be happening at a time when the recreational quota is undergoing a significant increase, and there is also a stock that is not overfished and overfishing is not occurring.

In light of that information and where the quota has been recently, the PDT kind of started from the baseline that the increase to the recreational quota shouldn't lead to a decrease in the commercial, and that the options that the PDT would propose would allow at least 50,000 pounds for the commercial fishery.

Additionally, the PDT didn't want to get into trying to allocate by fractions of a percent, so for the baseline option we just rounded up that 2.6 to 3 percent, and that kind of put us over the threshold for that 50,000 pounds. You'll see that when we get to the management options. But once we put that in place then we kind of stepped up by single percentages for a couple of alternatives. We have options for 3 percent commercial allocation, 4 percent, and 5 percent.

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After that decision really was made, just kind of being honest about the timeline. We got information from NOAA, excuse me MRIP specifically, addressing the questions that the Board had asked at the previous meeting. One of the questions was what would the 620,000-pound recreational quota look like if it were in FES units.

We've asked MRIP for that conversion, and I imagine they had quite a bit on their plate with COVID-19 and a lot of the restrictions from that. But we did get that information after we kind of formulated the options. What it ended up being is shown on your screen. It's shown as the 2019 quota, the FES approximation. One of the things to note about this, well there are a couple things. But one of them initially to note about this is this is not considered an official MRIP calibration conversion, because they weren't converting a harvest from one year, they were converting what we put forward as a quota.

In other instances where they calibrated the harvest, they had additional information, such as harvest by region and information about effort that went into the calibration. Whereas this we just gave them a number and they looked at the time period under which that quota was in place and they used. That information had to make some assumptions.

But, this is about what it would translate to is 1.36 million. When converting that poundage into number of fish using the same average weight that was considered when the current 2020 quotas were formed, which was the 2016 through '18 recreational average weight. That translates to about 41,000 fish.

That column on the right is somewhat of a translation of that old quota into new FES units. When reading this table, one other thing to note is that the top line in the recreational row. The top line that is not in parentheses are the units that would have impacted management, or hypothetically would have impacted management. Whereas the parentheses are the alternative

converted units into either pound into fish or fish into pounds, about what those translate into.

The big takeaway from all this is that the increase to the quota does not seem to be solely due to the MRIP conversion. There does seem to be some increase to the actual number of fish that are available and allowable for harvest under the new 2020 quota. Where that comes into play. I talked about the timeline of how these options were developed.

But where that actually comes into play is that with the options that are presented here for Issue 1, there are a couple different backgrounds, and there is some level of numeric basis for a few of the different strategies that the Board could take going from here moving forward. Option A is status quo option, maintaining the 92 and 8 allocations that are in place right now.

Option B is kind of that baseline that the PDT worked off of, the lowest whole percentage that would allow at least 50,000 pounds of harvest. Then skipping Option C for the moment, down to Option D. What Option D ended up being, we found this from looking at that MRIP FES approximation is that is an option that is about as close as we're going to get with whole percentage numbers to a proportional increase on both sides of the fishery.

If you compare that FES number that 41,000 fish number up on the FES approximation to Option D, it is between an 80 and 90 percent increase, it's about 87 percent increase. Whereas, looking at the commercial quota going from 50,000 pounds up to 91,000 pounds is about an 82 percent increase. We're in a similar ballpark, and that is probably just because of the disparity in the amount allocated to one fishery or the other.

That is about as close as we would probably get to a proportional increase in both sides, both of them going up by about 85 or so percent. Then Option C, coming back to that. Option C is an intermediate option in between B and D, where there is increase

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to both sectors of the fishery, but the recreational increase is larger than that of the commercial. Depending on what the Board wants to prioritize with the management of this species, I know there has definitely been some input when we spoke to the AP about these options. There was input from the AP that their impression, at least some of the members there.

Their impression was that cobia was being managed as a primarily recreational species, which is still accomplished in all of these options, as the recreational percentage is only going up. But there was some preference for Option B from some members of the AP there. Regardless, there are a few different strategies for the Board to consider. At this point I can pause and take questions if there are any, or hear any comments or discussion.

CHAIRWOMAN FEGLEY: Are there any questions for Mike on what he just presented?

MS. KERNS: I don't see any hands, Lynn.

CHAIRWOMAN FEGLEY: Okay, well I have one. I just wonder, I don't recall, Mike. That is actually really interesting information on Option D that that is sort of the proportional increase for both sectors. That is not explicitly stated in the Addendum right now, is it?

DR. SCHMIDTKE: It is not in the Addendum right now, and one of the reasons why is because somewhat of the timing with which we got it, and the timing of uploading the document. But also, because that is not a definitive MRIP calibration. That was something that I discussed with some of the MRIP staff was that it wasn't an official MRIP calibration.

It was an approximation that was provided to us at our request. That is one of the reasons why I would rather talk about it, you know speak about it here providing caveats. This is something that can be included, I would think in discussions following here at public hearings. But I don't know

that it is a number that MRIP would feel comfortable putting into a document.

CHAIRWOMAN FEGLEY: Okay, understood. Thank you for that. Still no questions, correct?

MS. KERNS: Correct.

CHAIRWOMAN FEGLEY: All right, so we will move right along to the next section, Mike.

DR. SCHMIDTKE: Next moving to Issue 2, dealing with the commercial trigger. I talked about this a little bit, and you'll hear about this at least one more time from Angela. When the Cobia TC went into looking at the Amendment 1 method that method is the average number of days from the last three years for harvest to go from trigger percentage to the full non *de minimis* portion of the quota.

The trigger percentage is to be calculated to allow at least 30 days from the trigger to the quota. The problem that the TC ran into when trying to calculate that percentage was what if the harvest either doesn't reach the quota or the trigger, and this could be due to low harvest in a preceding time period before that trigger is calculated, or it could be due to a greatly increased quota, which was the case for the 2020 specification. The TC met and discussed this issue, and recommended an adjusted method. This was a method that is really in similar spirit to what was trying to be accomplished through Amendment 1, but is done in a more flexible way. What they've proposed, and it was in the memo that was circulated in I believe briefing materials that they would calculate the average daily harvest rate from the last five years.

They did change the time period from three to five years, and then calculating the trigger harvest level that would be the non *de minimis* quota, minus 30 times the average daily harvest rate, so the average daily harvest rate being about a days' worth of harvest, and they would be taking off 30

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days' worth of harvest from the non *de minimis* quota.

Just reminding of the plan, non *de minimis* states are the only ones that are required to track their landings within the season. The *de minimis* states have a set-aside portion of the commercial quota that is not brought into this, so that we can accurately track those landings against the quota, and not risk overfishing as much.

The advantage of this method is that it can be calculated regardless of what the harvest level has been relative to the quota, because it's reduced down to that daily harvest rate. The options that are put forward in Addendum I are Option A of a status quo, which just kind of read through that method before. But it would require some alterations in years like this.

One of the notes is that within the Cobia TCs memo they did request that that alternative method be used in 2020, and that is something that Angela will get to when she speaks. Option B is the TC recommended method for calculating the commercial trigger. I think I pretty much explained both of those methods at this point, and I can pause once again for any questions, comments, discussion.

MS. KERNS: I don't see any hands raised.

CHAIRWOMAN FEGLEY: If we have no questions there, so we have I think two more issues to go over, so carry on Mike.

DR. SCHMIDTKE: The next issue is looking at the commercial *de minimis* regulations. As a reminder for cobia, *de minimis* status that applies to states with small cobia fisheries, small being defined as on the commercial side less than 2 percent of the coastwide landings, and on the recreational side less than 1 percent of the coastwide landings.

For Issue 3, under the commercial *de minimis* measures. With the current quota of about 146,000 pounds, the 3 percent *de minimis* set aside

is 4,387, and there was some concern about with an increasing quota that the amount of set aside harvest for *de minimis* states would become basically more than what the *de minimis* states are actually going to harvest.

Commercial harvest in *de minimis* states, looking back to 2000, range from 48 pounds to 4,477 pounds, with an average of 1,991. In many of those years they weren't harvesting that full amount of set aside. One thing to note when it comes to that *de minimis* set aside is that it not a quota. It's not something, you know if the *de minimis* states reach that level of harvest then the fishery gets shut down or anything like that. It is meant to be an approximation of what the *de minimis* states are harvesting. That portion of the quota is not accessible to the non *de minimis* states who are tracking their harvest within the season. The idea that the PDT was working under was to cap the *de minimis* set aside at amounts that the harvest is not likely to hit, or doesn't hit frequently.

Looking at the options that were put forward, the status quo is to just maintain the flat 3 percent of the commercial quota as the set aside. Option B is to cap the commercial quota at 3,000 pounds, so it would still be 3 percent, as long as that 3 percent is less than 3,000 pounds. But if 3 percent of the commercial quota exceeds 3,000 pounds then 3,000 would be the set aside, and similar type of thing for Option C, except the cap could be 5,000 pounds.

The reasoning for the two numbers that were chosen, 3,000 it was somewhat ad hoc, but if you'll look at the addendum document, in Table 2 you can see that harvest by the *de minimis* and non *de minimis* states, the non *de minimis* ones are only Virginia through South Carolina. All other states qualify for *de minimis*.

But looking at the *de minimis* harvest over those years, most years they are less than 3,000 pounds. Somewhat ad hoc, but it was just kind of a number where it was most years they fall in that category. Then Option C, in all years. That was the count the

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lowest thousand-pound mark where they fall under that in all years during the recent time period, going back to 2000. Those are the options put forward for Issue 3, and I'll pause here for questions, comments, discussion.

CHAIRWOMAN FEGLEY: Questions on Issue 3.

MS. KERNS: Don't see any hands raised, Lynn.

CHAIRWOMAN FEGLEY: Okay let's do Issue 4, recreational *de minimis*.

DR. SCHMIDTKE: One note I did forget to mention for Issue 3. I did notice when making the presentation that Table 3 presents what the *de minimis* set aside would be under each of the Issue 1 options, and I did not have the Option D listed in that table. But that has been updated, at least in the document that I have been keeping, and that will be updated in the copy of the document that goes out for public comment.

Next moving into the final issue, recreational *de minimis*. For the recreational fishery the FMP allows *de minimis* states to have regulations that would copy from the nearest neighbor, either a neighboring state or the nearest non *de minimis* state, and match those. That in effect is Virginia, because all of the recreational *de minimis* states are those that are north of Virginia, and all of those states have opted for that option of copying Virginia's regulations.

There is an alternative that is allowed in the plan for those states to choose management using a 29-inch fork length minimum size, and one-fish vessel limit with no seasonal restriction, so their fishery would be open year-round, the recreational fishery that is. That 29-inch size was based off of 50 percent maturity of female cobia from the SEDAR 28 assessment. The SEDAR 58 assessment that information seemed to be updated a bit. There is noted that there are limited samples below 33 inches, which is below the legal size for the commercial fishery. Because of that there is uncertainty about size at maturity that is involved

in these data, so not trying to be strict on the numbers for maturity within these sizes, but this is the information that we have from SEDAR 58. It was observed that there was 33 percent female maturity for 23.5 to 29.5 inches.

About 60 percent maturity for 29.5 to 31.5 inches, and 100 percent female maturity above 31.5 inches. These numbers came into play when considering alternatives. It was also brought to the PDTs attention that 29 inches for cobia is a bit of a unique limit, which could potentially lead to confusion among anglers.

It's not really associated with the 33 or 36 that are used in other areas of management. The alternatives that were developed were done so to increase the percent mature at recruitment to the fishery, and possibly connectivity to other limits that are currently in place. The PDT developed two alternatives.

Status quo is 29-inch fork length minimum size limit, Option B is a 31-inch fork length minimum size limit, and that would fall into the category from SEDAR 58 where there is about 60 percent female maturity within that size range. Then Option C uses a 33-inch fork length minimum size limit.

That is the same minimum size limit as the commercial fishery. It also falls into the category from a percent mature perspective for female cobia, it falls into the category of 100 percent mature female fish, so all the fish that would be of legal size under Option C, if they are female, they would be mature cobia. Those are the options that were developed for Issue 4, and I'll pause once more for questions, comments or discussion.

CHAIRWOMAN FEGLEY: Okay, any questions on Issue 4, recreational *de minimis*?

MS. KERNS: I don't see any, Lynn.

CHAIRWOMAN FEGLEY: I think, and Mike that winds up your presentation on the Addendum, right?

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DR. SCHMIDTKE: Yes, I was just going to move one slide just for general questions, comments.

CHAIRWOMAN FEGLEY: There we go.

MS. KERNS: Lynn, I do have a hand up, Doug Haymans and/or Spud Woodward. They are in the room together.

CHAIRWOMAN FEGLEY: Okay, Spud or Doug, go on.

MR. DOUG HAYMANS: Yes, the Georgia delegation has a question. Mike, forgive me, but I want to back up to the opportunity where we had to ask questions about the Issue's 1 and 3, and I'll tackle 3 first. Would you mind just covering one more time, when you used the word unmonitored? Even in the *de minimis* states, are they not reporting commercial catch? I understand it is required annually in the compliance report, but doesn't it still come in?

DR. SCHMIDTKE: No. For the *de minimis* states they don't report catch during the season. Like this year right now I'm getting weekly reports from Virginia, North Carolina, South Carolina, because those are the non *de minimis* states. But I'm not getting any reports from other states, because all the other states qualify for *de minimis*.

MR. HAYMANS: I understand that. What I mean is that the information is collected through trip tickets, right?

DR. SCHMIDTKE: Yes.

MR. HAYMANS: We could change this so that they did have to. The word unmonitored is to me a bit misleading to the public, because they are monitored, they simply don't have to report. I'm just curious as to whether the public will understand that when it goes through.

CHAIRWOMAN FEGLEY: Yes, I'm going to weigh in on that. I agree that the word unmonitored coming from a *de minimis* state. Our fishermen are

required by law to report. They do report, except they don't report at the frequency. The reports come in on monthly logbooks, and they are not compiled until the end of the season. It is a monitored fishery, it's just not monitored at the level for in-season management, and we wouldn't have the resources to make that happen in Chesapeake Bay.

DR. SCHMIDTKE: If I change the wording, if we edited the wording to monitored within the season, would that work or no?

MR. HAYMANS: We think that would make it a bit clearer to the public, or at least clearer to the Georgia delegation, sure. Lynn, just to make sure I understood what you just said. Your commercial folks are required to report those, but they are not required to report on a monthly basis by the tenth of the following month?

CHAIRWOMAN FEGLEY: Yes, they are. But you figure those reports come in and then they are keyed in, so that the state doesn't have the compiled data until at least probably, at best two months and more on an average of four months after the report is submitted. If you're fishing in the ocean and you're bringing your fish through federal dealers.

Then that data arrives much faster, because the federal dealers are reporting electronically. But the Bay fishery is coming in on paper, so we just can't do the in-season monitoring, where those numbers of the harvest coming from the Bay could be incorporated into monitoring the quota toward a closure, if that makes sense.

MR. HAYMANS: That makes absolute sense. Anyway Mike, I have one more question about Issue 1. If you would back up to your last slide on Issue 1, please. I apologize, I didn't catch it all. But to increase the quota, the Production Team solely did an MRIP conversion. Would you mind giving me the idiot's version of that, please?

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DR. SCHMIDTKE: Sure. The number that you see on the right. We went to MRIP and we requested, is there any way that you could convert 620,000 pounds of recreational quota, and tell us what that quota would have been if the FES number, like if it were applied as a FES number. That is what they came back with on the right.

Now like I said, it's an approximation, it is not a definitive MRIP calibration, because it is a quota. It is a single-poundage number that we gave them. We didn't give them poundage by state and effort information throughout the time, all those other things that go into their full-on calibrations, which is one of the reasons why they specifically said that this is an approximate estimate, it is not an official MRIP calibration and it's not included in the document as such.

But it gives a ballpark and, seeing such a large discrepancy that there is potentially 80 percent more quota from what there would have been had, you known in 2019 under that 620,000 pounds, what the quota would have been there if they had been using FES units instead of the telephone survey units in setting that quota. Just seeing that type of difference would indicate that it's very unlikely that the increase of the quota was solely due to the change in MRIP.

CHAIRWOMAN FEGLEY: Does that answer your question, Doug?

MR. HAYMANS: The delegation notes that it still isn't quite clear, but we're willing to continue on. I don't know if we'll ever be quite clear on that but okay.

CHAIRWOMAN FEGLEY: I think I'm seeing a question from Adam Nowalsky.

MR. ADAM NOWALSKY: Is there any other justification for Options C and D, other than these are the quotas that would result in remaining within the range of landings within the given time period and equate to a rounding of the

percentage? I mean I appreciate the simplicity of that approach.

There are certainly many other things I've seen from management that we considered that we do often wish were as simple as that. But I'm just concerned that that is somewhat arbitrary. If there is any other basis that staff used in coming up with that and something that would be suitable for addition to this document before it goes out to the public.

DR. SCHMIDTKE: Options C and D really were, I mean they were the approach for coming up for these alternatives was ad hoc in the nature of, we had a baseline from Option B, and we wanted to provide some additional alternatives. I mean if we wanted, if the Board wanted to, because we're within the range of Options C and D, even if they were deleted, could still be considered.

But, the PDT felt like if there was a chance that somebody wanted the commercial quota to increase beyond that 50,000 mark, then they would put that option in, it could be considered, and it would be up to the Board if you all would want to take it further. But it was really just stepping up single-percentages, adding in just filling the full range. Adding in 6 percent, 7 percent for the commercial side was put on the table, but ultimately, I think some members of the PDT got a little antsy about those numbers getting a little bit higher than what they were comfortable with. But yes, it was admittedly ad hoc justification for C and D, and kind of the aligning of the numbers that came about for D was purely circumstantial, and wasn't learned until after the fact.

CHAIRWOMAN FEGLEY: I guess I just wanted to weigh in, and that was the reason why I asked that question about whether or not that explanation about Option D was included in the document, because I think, correct me if I'm wrong, but Options A through C all fall within that the commercial fishery has harvested that number of fish at some point. I think the highest commercial

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harvest in the time series in your Table 2 is 81,766 pounds, right?

DR. SCHMIDTKE: I don't have it up right now, but I would believe you for that being the number.

CHAIRWOMAN FEGLEY: I think, you know to Adam's point, Options A through C all reflect something that basically has happened, whereas Option D is definitely reaching beyond the highest harvest that we've recorded since 2000. Maybe that one becomes a little bit more arbitrary, but it's less arbitrary when you consider that it is that proportional increase to both sectors. With that I'll leave it, and Adam, did you have any follow up?

MR. NOWALSKY: Yes, I think I would just offer that whatever of these options we choose to leave in out of C and D, if there is anything else we can offer along the lines of the argument you just made for C, I think it would be helpful for the public to understand where these came from, other than just they were ad hoc. I think we would do ourselves well if we could add something a little bit more descriptive than that.

CHAIRWOMAN FEGLEY: Does anybody else have any questions or comments on the Draft Addendum? I think at this point what I would be looking for is a motion to approve this for public comment, so I'll go unmute and see what happens.

MS. KERNS: I have Chris Batsavage.

CHAIRWOMAN FEGLEY: Thank you, Chris Batsavage.

MR. CHRIS BATSAVAGE: Yes, I would like to make a motion to approve Draft Addendum I to the cobia FMP for public comment as modified today.

CHAIRWOMAN FEGLEY: Great, thank you, is there a second?

MS. KERNS: I see lots of names. I saw Malcolm Rhodes first.

CHAIRWOMAN FEGLEY: Okay, we'll give it to Dr. Rhodes. Is there any discussion on this motion?

MS. KERNS: I don't see any hands.

CHAIRWOMAN FEGLEY: Okay, so I'm going to go ahead and read the motion into the record. It is moved to approve Cobia Draft Addendum I to Amendment 1 for public comment as modified today. Motion by Mr. Batsavage, second by Dr. Rhodes. I think what I would like to do is call this question by consensus. Is there any opposition to this motion? If yes, raise your hand.

MS. KERNS: I don't see any opposition, Lynn.

CHAIRWOMAN FEGLEY: Okay, seeing no opposition Addendum I is approved by consent. Thank you very much for the good discussion.

**CONSIDER APPROVAL OF ATLANTIC COBIA
COMMERCIAL TRIGGER LEVEL**

CHAIRWOMAN FEGLEY: I think with that we're going to move on to the next agenda item, which talks about the trigger calculation. I know that Mike just went through that.

As a reminder, the Addendum will essentially codify the methodology for calculating the trigger going forward, but we still need to do it for 2021, because we haven't done that yet. We're going to let Angela Giuliano go through the trigger-setting mechanism right now. Okay, go ahead, Angela.

MS. KERNS: Lynn, really quickly just before we go there. I just wanted to let Board members think about the public hearings. They will all be webinar-based for this document. We're going to reach out to you all via e-mail about having your hearings, but we wanted you to think about whether or not you wanted your hearings to be paired up with other states, focus on just for your state, looking at it in regional aspects or anything like that. Just think about those things, and when we reach out via e-mail, we can discuss it with the states.

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CHAIRWOMAN FEGLEY: You know that is a really good point, since we're not having to have stakeholders drive. Maybe we can do some validation, so absolutely. I assume you want people, is there a date by which you want people to contact you with hearing logistics?

MS. KERNS: I will shoot an e-mail out to folks asking the different questions that we need from them, and put a date in the e-mail that I send out to them.

CHAIRWOMAN FEGLEY: Perfect, thank you. Moving on, Angela Giuliano, take it away.

MS. ANGELA GIULIANO: This will be a pretty short presentation. Mike has already gone through some of the methods. I guess we go to my only slide. As Mike mentioned in his presentation, the Technical Committee has proposed an alternative method for calculating the commercial trigger.

As he said, the previous harvest limit of 50,000 pounds never really allowed the observed harvest to get close to the new quota of 146,000 pounds. Just a quick reminder again, the trigger was calculated using the average daily harvest rate from 2015 to 2019, which is the most recent five-year period.

The total number of days for the season was calculated here using the date of first observed cobia harvest, which in all years was early January to the last day of reported harvest for that year. Once we had that average daily harvest rate that was multiplied by 30 days, which is a minimum number of days required in the FMP for the commercial fishery closure. Walking through the proposed calculation, we have our total commercial quota here of 146,232 pounds. If you take out the 3 percent that is set aside for *de minimis* commercial seats, your non *de minimis* quota works out to be 141,845 pounds.

The average daily harvest rate was pretty low, it was 214 pounds per day. Multiplying that by 30 days, last minute harvest over 30 days would be

6,424 pounds, resulting in the commercial fishery closure being proposed as 135,422 pounds. Then just for the Board's information while they are considering the proposed trigger.

The current harvest at this point for the non *de minimis* states as of Friday was 29,488 pounds. That is what I have, so I guess if there are any questions, I can take those now. I was just going to add, as Lynn said this is the last part, I think of the harvest specification for the 2020 fishing year.

CHAIRWOMAN FEGLEY: Are there any questions for Angela about this? It looks like right now, where Mike went over the general methodology, we're now looking at a specific number for quota trigger that is 135,422 is what I remember seeing. Are there any questions for Angela?

MS. KERNS: I don't see any hands raised, Lynn. I do, first we have Doug Haymans.

CHAIRWOMAN FEGLEY: Okay Doug, go ahead.

MR. HAYMANS: Could you back that slide up, please? This is current quota, it's the status quo, but it's not quota that may be actually passes into one, which is drastically different. Are we being asked to do something here based on the current quota of 135,422 pounds as a trigger, when both Virginia and North Carolina promised to try to restrain their commercial to the 50,000-pound quota until we could get a different one through? I'm not quite sure what we're being asked to do here.

CHAIRWOMAN FEGLEY: Mike, I'm going to defer that to you.

DR. SCHMIDTKE: Sure. We have a quota that is specified right now, and part of the process of specifying a quota is establishing a trigger. I understand that Virginia and North Carolina have decided that they are going to manage their fisheries to close at, I think it was 75,000, somewhere around 75,000 pounds.

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I understand that they've made that decision, but that was a decision that was made for their specific state fisheries. From the perspective of the quota set by the Commission, this is how the trigger would end up being. This is what the methodology for calculating it would be moving forward.

Yes, if Addendum I when it's passed, if the commercial quota changes, then it would need to be recalculated according to the quota, according to whatever the commercial quota is that is decided by Addendum I, and that would likely go in the timeline just a little bit later in the agenda, but that would likely be something to go into effect for the 2021 fishing year. Does that answer your question, Doug?

MR. HAYMANS: It does. I'm just trying to think through what it would look like if it's at 54,000 pounds. That means that the trigger is somewhere around 48,000 pounds, if it was 64,000-pound quota, and how quickly that might. I'm used to the Council. From the Council perspective when we talk about triggers and potential closures, we see projected dates and what not, and I'm trying to figure out exactly what this commercial trigger is going to do to the length of the season.

CHAIRWOMAN FEGLEY: I think I can say it another way, Doug. This trigger will not be hit. It's almost assured that we will not hit the commercial trigger this year. You could say that this action is maybe slightly out of sync with our management trajectory, since we're just doing Draft Addendum I.

But, if we don't take this action then we won't have a trigger at all and that is in violation of the Plan. The reason that we're using this methodology is because the methodology can't be, it's a little bit of a circular argument. The methodology can't be used because the quota from the 2020 fishing year is high.

MR. HAYMANS: Yes, I understand that. When you say most assured, we won't get the quota is that

the 75,000-pound gentlemen's agreement, or is that the 146,000 pounds in the current plan?

DR. SCHMIDTKE: The 146,000.

CHAIRWOMAN FEGLEY: Correct, thank you. I'll defer back to Mike, but I was speaking about the trigger that Angela presented.

DR. SCHMIDTKE: Yes, and it will be very unlikely that we hit the 135,000 either.

MS. KERNS: Lynn, you have Pat Geer with his hand raised. I think maybe he can provide a little clarity, in terms of what Virginia and their gentlemen's agreement quota might be.

CHAIRWOMAN FEGLEY: Go ahead, Pat.

MR. PAT GEER: Doug, it's a shame we don't have the minutes from the last meeting, because as you recall we took a time out and Chris and I had some discussions. It was discussed during the meeting that I believe it's 70,000 pounds, Chris correct me if I'm wrong. But we agreed that these 146 or 135,000 pounds was much more.

We didn't want to see that. It wasn't expected, so we were shooting for around what the average was for the last year, so we agreed on it. It is a gentlemen's agreement of 70,000 pounds. We are monitoring it weekly, and we plan to close when it reaches that level. No one's intent is to harvest 135,000 pounds of cobia commercially this year. But because we need to have a value for this year, and since the Addendum wasn't done yet we have no other option, or we don't have any value at all.

CHAIRWOMAN FEGLEY: Doug, is that getting you straight?

MR. HAYMANS: That's one half. Yes, it is getting me straight, and I appreciate that. Perhaps Mr. Batsavage could sort of speak to the same. It looks like North Carolina is within their agreed upon by each as well, I would appreciate it.

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CHAIRWOMAN FEGLEY: Chris Batsavage.

MR. CHRIS BATSAVAGE: Yes, as Pat mentioned that North Carolina and Virginia are monitoring our landings on a weekly basis, and it looks like, I don't know if we're on track or slightly behind where we were last year at this time. But there doesn't appear to be any chance of catching the 146,000.

Since we're monitoring things on a weekly basis, we can put the brakes on the landings before they exceed what we agreed to. I think the official number is 73,000, but I would have to go back and look too. It's somewhere between 70 and 75 for sure, but so far nothing has really popped up from our landings or from Virginia's landings out of the ordinary that was seen in the last few years.

CHAIRWOMAN FEGLEY: Pat, I see your hand up.

MR. GEER: Chris is right, it's 73,000. I apologize. It is 73 it wasn't 70 as I mentioned, 73,000 pounds.

CHAIRWOMAN FEGLEY: Okay, thank you, Pat. Are there any other questions about this trigger?

MS. KERNS: I don't see any hands, Lynn.

CHAIRWOMAN FEGLEY: Okay, so what we'll need here is a motion to approve the commercial closure trigger. I'm just going to go ahead, and it's for the 2020 fishing year, correct?

DR. SCHMIDTKE: Correct, and I have had some conversations with some Board members that have had kind of a concern about locking a number in for long term. Even though we have a harvest quota that is specified, there is nothing in the Amendment that would suggest that we have to have the trigger in lock-step with that, especially knowing that there is a decent chance that it changes by the next meeting. It can be specified just for 2020, and then after Addendum I is completed, any changes to that can be incorporated and the trigger can be recalculated for 2021.

CHAIRWOMAN FEGLEY: Perfect, thanks, Mike. Right, we'll need a motion to approve the trigger for the 2020 fishing year, and once again I'll go unmute and wait to see.

MS. KERNS: Lynn, we have Pat Geer's hand up. I'm not sure if it's a question or for a motion.

CHAIRWOMAN FEGLEY: Thanks Pat, go ahead.

MR. GEER: I think we already have all of it, but it is: move to approve cobia commercial trigger of 135,422 pounds for 2020, if commercial harvest estimated through in-season monitoring meets or exceeds this amount, a coastwide commercial closure for the remainder of the year will begin 30 days later.

CHAIRWOMAN FEGLEY: Mel Bell.

MR. MEL BELL: I'm just going to second it.

CHAIRWOMAN FEGLEY: All right, second by Mr. Bell. Is there any discussion on the motion?

DR. SCHMIDTKE: Just a brief edit as I heard it from Pat, Maya if we could delete, in any year after amount.

MS. KERNS: Lynn, you have Doug, Pat and Mel with their hands up.

CHAIRWOMAN FEGLEY: We'll go alphabetically, so Doug do you have a comment on the motion?

MR. HAYMANS: Does the motion have to have the pounds; or can it not be the method that is used for the trigger?

CHAIRWOMAN FEGLEY: I think we need a number. Mike?

DR. SCHMIDTKE: Yes, the trigger is an actual number the methodology is being considered for inclusion in the Plan through Addendum I. But in order to apply a trigger to a quota within a year, it would need to be a number or a percent of the quota.

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CHAIRWOMAN FEGLEY: Doug, do you have a follow up to that?

MR. HAYMANS: No, I'll shut up. I'm okay.

CHAIRWOMAN FEGLEY: Pat, did you want to speak to the motion, or did your hand go down?

MR. GEER: My hand went down, I'm sorry.

CHAIRWOMAN FEGLEY: No that's all right, and Mel Bell, did your hand also go down?

MR. BELL: Yes, Ma'am.

CHAIRWOMAN FEGLEY: Okay, all right, so I think at this point I'm going to go ahead and read the motion into the record. Move to approve a cobia commercial trigger of 135,422 pounds for 2020 if commercial harvest estimated through in-season monitoring meets or exceeds this amount, a coastwide commercial closure for the remainder of the year will begin 30 days later. Motion by Mr. Geer, second by Mr. Bell. I think at this point what I'm going to do is try to do this again by consensus. If anyone opposes this motion, please raise your hand.

MS. KERNS: Lynn, I don't see anyone with their hand up. I just wanted to double-check to make sure you didn't want to ask the public if they wanted to comment on this motion, since it didn't go out for public comment.

CHAIRWOMAN FEGLEY: Yes, thank you. I think that is a really good idea. I'm going to put a pause there and just go ahead. Is there anybody in the public who wants to speak to that?

MS. KERNS: Again, for the public to raise your hand, you just click on that little hand button, and I don't see anybody raising their hand, Lynn.

CHAIRWOMAN FEGLEY: Thank you for that. We'll try again then. If anybody is opposed to this motion, please raise your hand.

MS. KERNS: I see no hands raised.

CHAIRWOMAN FEGLEY: Then this motion is approved by consensus, and it will be a little more straightforward next year, once this Draft Addendum is done.

**DISCUSS TIMELINE FOR SUBMITTING
ATLANTIC COBIA AMENDMENT 1
IMPLEMENTATION PLANS**

CHAIRWOMAN FEGLEY: I guess that brings us to our next item that segues well where we will talk about the timeline for implementing cobia implementation plans, and I think Mike with that I'll go back to you.

DR. SCHMIDTKE: Once Maya is ready to pull up the presentation. I've got just a couple of slides giving some description. I sent out a memo in supplemental materials, but I wanted to address it with the Board, because we have upcoming some pretty tight timelines. In February, excuse me, February was not when Amendment 1 was approved, it was approved earlier.

But in February we had a new harvest quota that was approved, and Amendment 1, when it was approved last fall, it was scheduled for implementation by July 1. Kind of in follow up to that we had that new harvest quota that was approved in February, and there were some parts of evaluating implementation that were put on hold because of that, because states were allowed to carry over their regulations from 2019 into 2020, as far as recreational seasons vessels limits are concerned in achieving state harvest targets.

We have some outstanding implementation evaluations that need to occur. Obviously there have been impacts to the world, and there have been attentions diverted to other things. But looking towards 2021, it was the goal from the February, 2020 meeting to have recreational measures under the current quota in place for 2021.

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Since then we've had updates to the timeline regarding Draft Addendum I and Draft Addendum I has potential to impact the quotas. That would be considered for final approval in October, 2020. One thing to note about this is that yes, it could change the quotas, and subsequently the recreational harvest targets. But it's not going to change them by very much, we're talking a percent, a couple of few percent at most. One of the things that I wanted to bring to the attention of the Board, and that the states could have their staff's working on is developing their implementation plans, particularly those states that have harvest targets. I would hope that there would be some communication among the agencies to develop those plans so that they can be evaluated pretty quickly after Addendum I is considered and possibly approved.

Looking forward at the process of how new measures could potentially go into place for 2021. After the October meeting, as long as states are committed and willing to begin working on it, probably soon ahead of even the annual meeting, and then be in a place where small adjustments could potentially be made, based on the results of Addendum I.

Implementation plans could be due to the TC by mid-November. The TC would then, they would need probably a couple weeks to review those, if need be a webinar to review those in early December, and then if the Board wants to have a decision made before 2021, then there would need to be Board consideration, either via e-mail or a South Atlantic Board specific webinar in mid-December.

If either of these options are desired, it needs to be stated and agreed upon on the record. That is something that could be decided today, probably better to do it earlier than later to have that decision, and folks can make the plans for it. But it is something that would need to be stated publicly and agreed upon.

Then states would also need to begin preparing as soon as possible for what is a pretty aggressive timeline. This was throwing out an idea of a way to make it happen before 2021. If the Board, if the states would like to be more aggressive in the timeline to make it happen, with the recognition that several of the seasons don't start until the spring.

There may be a little bit of wiggle room, but if I interpreted what the Board's desire was from February correctly, the Board wanted to have the new recreational measures, any new measure is based off of the new recreational quota, particularly in place for 2021. That's all I had on that and I'll pass it back to you, Madam Chair for hearing discussion and what the Board's plans and commitments are as we move into the fall.

CHAIRWOMAN FEGLEY: It's backing us into an aggressive timeline. Just to repeat what Mike said and what we need discussion on. We need to come to this as not an action item, but we need to come to agreement if we can that we're going to work to get Addendum I measure in place for 2021, which means they would need to follow the timeline on the screen. With that I will put it up for discussion.

MS. KERNS: I don't see any hands, nope, we've got Pat Geer.

CHAIRWOMAN FEGLEY: Okay Pat, and then I see Chris Batsavage on deck, so Pat go ahead.

MR. GEER: One of the concerns I have with this is that. They are not mentioned, but we also have spot and croaker that are going to have some issues as well. Having both this and the Atlantic croaker coming up at the same time, how much of an issue that is going to be for us. In my state, people working on cobia are also working on spot and croaker. This is trying to get this all done. Mike you sent out a letter to us showing the timeline for that as well. Could you elaborate on the timeline for croaker and spot, and how it overlaps with this?

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DR. SCHMIDTKE: Bear with me one second, I'm just going to pull up the memo that I sent, so I can make sure I'm not contradicting myself as much as possible. The timeline for spot and croaker is a little bit less clear. The reason for that is as was stated in the memo that was sent out.

One of the surveys, the CHESMAP Survey, one of the surveys that spot and croaker were kind of depending on, especially for that mid-Atlantic region for determining abundance in the TLA. That underwent some changes to the survey. The survey was conducted, it just needs to be recalibrated, and that recalibration process is taking a while, and the most recent update that we have is that it will not be available until the end of the year.

The TLA will need to be conducted without the CHESMAP Survey, and the Croaker and Spot TCs are going to need to talk about how to do that and talk about whether they are going to potentially to replace it with NEMAP, or if they just run it with only the Northeast Fisheries Science Center Survey in the mid-Atlantic region, or what strategy they would take.

But there is the possibility that the removal of CHESMAP, you know when we were going into croaker in particular. When CHESMAP was in consideration the results were kind of predetermined for croaker that it would trigger this year. With the removal of CHESMAP, I'm not sure. I would need to check with, I believe Chris McDonough has run it a couple different ways.

But I don't know at this point what the result would be for croaker, and there was some uncertainty as far as spot on whether a trigger would occur. There were some scenarios where it could, or it couldn't. I think part of that timeline depends on what exactly is triggering. One of the advantages for croaker and spot is that the management responses are, as I recall a bit more prescriptive, based off of Addendum III to each of those plans.

They are kind of spelled out in the plans. Also, there wouldn't be as much, there would be implementation plans that would need to be submitted, but there wouldn't need to be as much, I guess analysis evaluation for the spot and the croaker implementation plans as there would be for the cobia plans, because again the spot and croaker is a bit more prescriptive. It's spelled out, and there are some states that are already meeting those requirements as well. That is not a great answer to the question, but it's hard to say right now without having the results of the TLA.

CHAIRWOMAN FEGLEY: Now Mike, thanks. I appreciate that and I was honestly secretly hoping that this wouldn't come up. But what I think we need to do, and Pat I really appreciate your appeal that you've got staff doubled up on these species. But I get the sense of what we're going to need to do is take them one at a time.

We have a clear path with cobia. Spot and croaker, you know the TC hasn't met yet. They haven't had the discussion about what to do with the fact that we're going to see a traffic light analysis that has sort of a switch off in data. I think there are some issues there that the Board is really going to need to discuss in October. In October, you know we might be two Boards, I don't know. But I think we need to really put spot and croaker on the table for October, and hear what the TC has to say and see what those analyses look like, and take it from there recognizing what the workload of our respective staffs are. I think that is about the best we can do right now. Chris Batsavage, did you have a comment?

MR. BATSAVAGE: Yes, thanks Madam Chair. It's sort of a question on implementation for cobia. With the new quota that we have in 2020, the harvest targets for the non *de minimis* states for the recreational fishery have all changed, the numbers of fish have gone up, and they may change again depending on the outcome of Addendum I.

Meanwhile, our regulations currently in place are based on old MRIP and the previous stock assessment. There is a big of a disconnect there, in terms of either current and future targets versus our regulations. A question for Mike is for the implementation plans. Will the states have the opportunity to modify their regulations, like seasons or vessel limits or anything like that that better align with the new targets?

DR. SCHMIDTKE: Yes. I think that is kind of the intent of the upcoming implementation. As I remember it from the February meeting, the states have concern about being able to get that process done ahead of the fishing season this year. I know at least a few of the states, I think probably most of the states at this point, when you consider all the states that are using the same regulations as Virginia.

Many states their season doesn't start in January for the recreational fishery. I mean there is a little bit of time in consideration for that and there has also been the time since then to consider what to do in place for 2021. But yes, the states would be given new harvest targets, and the task for the states would be come up with the season and vessel limit that fits this harvest target, as you want to apply it to your fisheries. Yes, there could be change from the regulations of previous years.

MR. BATSAVAGE: Great, thanks Mike, I thought that was the case, and kind of confused as far as when the timing for that lasts. But that also helps in terms of trying to figure out what will you do in terms of an implementation plan, and the pretty aggressive timeline we need to do. Just, I guess a comment on whether to meet via webinar or via e-mail in December.

I think one challenge we're going to face is this other meeting is already on the books, and I believe the South Atlantic Council meets the first week of December, and the Mid-Atlantic Council meets the second week of December. Then we quickly go into the holidays.

Yes, I guess if we could do this via e-mail that might be one option, or I know it's really pushing it, in terms of getting things in place by 2021, but an early January webinar. I just wanted to flag those two Council meetings that are already on the schedule in December, and I think it's a little tougher to do with the timeline.

CHAIRWOMAN FEGLEY: Thanks Chris for highlighting those meetings, I think that's helpful. Okay, so I think where we are right now is, we need to state on the record that as a body we're onboard with this timeline. Does anybody else have any commentary on this?

MS. KERNS: I don't see any hands.

CHAIRWOMAN FEGLEY: Me neither. I think at that point then, Mike what we're going to do for your benefit is just state on the record that the Board is ready and willing to follow the timeline that you proposed, so that will be ready to implement Addendum I for the 2021 fishing season.

DR. SCHMIDTKE: Toni, does that work as far as like that statement on the record, that works for being able to conduct whatever review by the Board, e-mail or webinar?

MS. KERNS: Yes, that will work. We'll work with the states to determine if we think we can figure out a time to do it via webinar, and if not, we'll have to do it via e-mail.

DR. SCHMIDTKE: Okay.

REVIEW TERMS OF REFERENCE FOR RED DRUM SIMULATION ASSESSMENT

CHAIRWOMAN FEGLEY: Fair enough. Now, I think next, and this is going to be our final action item for the meeting. We are going to go onto something completely different, which is red drum, to talk about the terms of reference for a simulation study. With that I think what I'm going to do is hand it over to Jeff Kipp.

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MR. JEFF KIPP: To outline my presentation, I'll be covering the terms of reference for the simulation assessment process for red drum. These define the scope of work to be accomplished by the Stock Assessment Subcommittee and Technical Committee during the assessment. I will then cover the terms of reference for the external peer review, which are going to be similar in language to these assessment TORs, but they direct the Peer Review Panel to evaluate the SAS and TC fulfillment of the assessment TORs.

Then I'll just wrap up with a summary of the timeline of the major milestones during the simulation assessment process. For the terms of reference for the simulation assessment process, TOR 1 is to describe fishery dependent and fishery independent monitoring programs for red drum, and the datasets produced from these monitoring programs for stock assessment, characterize precision and accuracy of datasets.

TOR 2 is to describe available information for parameterizing simulation models, characterize uncertainty of parameters. TOR 3 is to develop methods to project a simulated population through time, implement sampling procedures and simulation models to generate datasets, mirroring datasets available from existing monitoring programs.

TOR 4 is to develop simulated populations that incorporate uncertainty and information used to parameterize the simulation models, characterize uncertainty and limitations in simulated models, and potential impacts on perceived understanding of in situ population dynamics and stock status. TOR 5 is to develop candidate assessment methods and apply assessment methods to dataset sample from simulated populations. TOR 6 is to define reference points for characterizing stock status of simulated populations. TOR 7 is to identify performance metrics and evaluate performance of each candidate assessment method for estimating the population dynamics and stock status of simulated populations, describe strengths and weaknesses of each assessment method.

TOR 8 is to recommend the preferred assessment method or methods for characterizing stock status. The final TOR, TOR 9 is to provide prioritized recommendations on future monitoring to approve assessment. Now moving to the terms of reference for the external peer review. TOR 1 is to evaluate thoroughness of data collection, data treatment, data presentation, and characterization of data uncertainty.

TOR 2 is to evaluate thoroughness and appropriateness of information used to parameterize simulation models. TOR 3 is to evaluate the appropriateness of simulation models for simulating red drum populations, and generating datasets sampled from the simulated populations. TOR 4 is to evaluate the incorporation and treatment of uncertainty in simulated populations.

TOR 5 is to evaluate candidate assessment methods, and application of assessment methods to datasets sampled from simulated populations. TOR 6 is to evaluate choice of reference points for characterizing stock status of simulated populations, recommend alternatives if necessary. TOR 7 is to evaluate choice of performance metrics used to evaluate performance of each candidate assessment method for estimating the population dynamics, and stock status of simulated population, recommend alternatives if necessary.

TOR 8 is to evaluate the choice of the preferred assessment method or methods for characterizing stock status, recommend alternatives if necessary. TOR 9 is to review recommendations on future monitoring provided by the Technical Committee, and comment on the appropriateness and prioritization of each recommendation, provide any additional recommendations warranted.

Then the final TOR for the Peer Review Panel is TOR 10, prepare a Peer Review Panel Terms of Reference and Advisory Report summarizing the Panel's evaluation of the simulation assessment, and addressing each peer review term of reference. Develop a list of tasks to be completed

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following the workshop, complete and submit the report within four weeks of workshop conclusion.

Now moving on to a summary of the timeline. In this table here are the major milestones of the assessment. The full proposed assessment timeline was provided in meeting materials. But the first item is what we're doing currently, Board review of the terms of reference, which will initially, will formally initiate the stock assessment. We have a data deadline proposed for October of this year.

Our first workshop will be a data methods workshop, and that will be in November. Then we'll have two modeling workshops occurring in 2021, the first in February, and the second in June. The TC will meet to review what the Stock Assessment Subcommittee put together in the stock assessment in January of 2022, and then we'll tentatively schedule the Peer Review Workshop for March of 2022. Then we'll bring the assessment and the peer review of that assessment to the Board for consideration at the ASMFC spring meeting in 2022. Then just a couple notes here. We will provide updates to the Board at each ASMFC meeting between this current meeting and the meeting when we present the assessment in May of 2022. Then the current plan is to initiate a traditional benchmark stock assessment with separate TORs following Board consideration of the simulation assessment in May of 2022. That concludes my presentation, and I would be happy to take any questions on those.

CHAIRWOMAN FEGLEY: Thank you Jeff very much, I think this is going to be a really interesting project, and hopefully give us some of the insights that we've been missing with red drum, and to help us manage this fishery. Are there questions for Jeff?

MS. KERNS: I don't see any questions, Lynn.

CHAIRWOMAN FEGLEY: Okay, so I think as a reminder, this is an action item. Oh, Doug, I see your hand go up. Doug Haymans.

MR. HAYMANS: The third member of the Georgia delegation would like to ask a question; Dr. Belcher would like to chime in if that is okay.

CHAIRWOMAN FEGLEY: Please, go ahead.

DR. CAROLYN BELCHER: Just because I haven't been in the discussions relative to this, how does this fit into the traditional approach that we've done with continuity run assessments, and then working towards a new benchmark? Because the concerns that I have is I'm thinking about continuity in knowing that our current model does not have or has not been adapted to the new MRIP numbers. Not really sure how that is going to affect or tie in with that evaluation of the parameters, because all the parameters that we currently have are run based on those older numbers.

MR. KIPP: Yes, so we will be using the updated new MRIP data in this simulation process. Basically, what we're going to do is build a simulation model based on those datasets, including the new MRIP numbers, and then information we know about the population, such as what we believe the natural mortality rates are, growth rates, et cetera.

That way we can develop and simulate known populations with known population parameters. Then the next part of this assessment will be to apply various assessment methods to datasets we draw from those known populations. We are likely going to use the current assessment model as one of those assessment methods as a candidate.

Since we will know what the population parameters are of these simulated populations, we can evaluate the performance of the current assessment model and any other assessment approaches we want to try here, to see what are the most robust for red drum populations. We will be using those new MRIP data, and all the other observed datasets that we have available, such as the survey indices in this simulation model, to simulate information for assessing. Does that answer your question?

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DR. BELCHER: Yes, but then the other part of that is just to like the spawner recruit relationship. Is that something that is going to come out of that last assessment, because if there is a scaling issue between the new MRIP numbers and the old MRIP numbers, those parameters are not going to match well.

MR. KIPP: We will meet to determine what parameters we have, what we have to choose from, and that will drive the structure of the simulation model. All of those things we'll probably evaluate with some level of uncertainty in them. For example, if we do pull stock recruit parameters from the past assessment, or any other assessments that occurred before the most recent.

We would parameterize the uncertainty of those parameters as well, and sort of draw from distributions to capture the uncertainty in those parameters in the simulation model. It will involve how well we know those parameters, how well we think we know those parameters, and we will sort of bring the uncertainty in those through the simulation model.

DR. BELCHER: Are you going to still evaluate with the two separate regions as well?

MR. KIPP: I believe that will probably be the plan. We'll address that probably at the data workshop, but you know at this point one of the first things we'll be doing is gathering information, and particularly information that has come online since the last stock assessment. I think if there is anything to suggest, any different stock structure, we would address it at that data workshop. But I believe currently that there is probably nothing new to push us in that direction to a new stock structure.

DR. BELCHER: Who is going to do the assessment? I was just curious, because I know Mike Murphy has been our historic assessor, but do we have an idea on who is going to be leading this?

MR. KIPP: We have gone out and repopulated the Stock Assessment Subcommittee. There has been a bit of turnover. We've got folks from pretty much all the states. We've got Joey Ballenger as the Stock Assessment Subcommittee Chair, and then we've got analysts from Georgia, Jared Flowers.

From Florida Chris Swanson, from North Carolina, Thom Teears, and then from Maryland Angela Giuliano, and then myself on that Stock Assessment Subcommittee, and then Lee Paramore is also the Technical Committee Chair, so a de facto Stock Assessment Subcommittee member. Those are the analysts on the Stock Assessment Subcommittee.

DR. BELCHER: Okay, thanks.

CHAIRWOMAN FEGLEY: Are there at this point any other questions for Jeff about the terms of reference for this simulation study?

MS. KERNS: I don't see any other hands, Lynn.

CHAIRWOMAN FEGLEY: Okay, so again we are going to need a motion to approve these terms of reference. For the last time I will go unmute, and see what we get. Is there anybody out there willing to make a motion to approve the terms of reference?

MS. KERNS: Mel Bell.

MR. BELL: I move to approve the Terms of Reference and schedule for the 2022 Red Drum Simulation Assessment as presented.

CHAIRWOMAN FEGLEY: Thank you Mel, is there a second?

MS. KERNS: We have lots of names, Jim Estes.

CHAIRWOMAN FEGLEY: All right, second by Mr. Estes. Is there any discussion on the motion?

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MS. KERNS: Mel's hand up, but it might be, now it's down so no hands up.

CHAIRWOMAN FEGLEY: All right, so I will read the motion into the record. It is, move to approve Terms of Reference for the Red Drum Simulation Assessment as presented. Motion by Mr. Bell, second by Mr. Estes. Once again, I'm going to try to do this by consensus, so if there is anybody who is opposed to this motion, please raise your hand.

MS. KERNS: I don't see any hands.

CHAIRWOMAN FEGLEY: Very good. Seeing no opposition, this motion stands approved by consensus. I do believe, because we have stricken the Vice Chair election from the record, pending the decision on what to do with this Board. That concludes our agenda, except that I do have one addition, and I know that everybody is aware that Dr. Mike Schmidtke is headed down to South Carolina, so he will no longer be working for the Commission.

I just want to say that it has been a tremendous pleasure to work with him, he is sharp and professional, and the South Atlantic Fishery Management Council is lucky to get him. I know that we're not all together so it's hard to do a big round of applause virtually, but I know that you are all standing behind your computers right now clapping, in appreciation for the work that Mike has done. With that and Mike, thank you! With that is there any opposition to adjourning this meeting?

MS. KERNS: I don't see any opposition. Thank you, Lynn, and thank you for saying those nice words about Mike, and we here at the Commission are going to greatly miss him. The South Atlantic Council is getting a great staff member. Then Lynn, I think Bob has something to say as well.

CHAIRWOMAN FEGLEY: Absolutely, Bob Beal, please go ahead.

EXECUTIVE DIRECTOR ROBERT E. BEAL: Just two quick things. One is yes, all the best to Mike. I'm glad we get to keep working with him at the South Atlantic Council, and we can solve some Spanish mackerel problems, and other things that we didn't talk about today. I just sent an e-mail around to all the Commissioners and proxies about the storm that is kind of wandering up the east coast now. It's kind of unclear what is going to happen, it's not the strongest of storms that we've seen, but it's still a pretty high-end tropical storm.

You know, there may be heavy rains and winds and some power outages and those sorts of things. I'll work with Pat Keliher, we'll keep an eye on it. If a significant number of Commissioners are unable to participate in a meeting, we'll take that into consideration, and we may adjust schedules as needed. You know we're going to try not to cancel anything. We may slide some things back until later in the week, but we'll just have to see.

The good news is for menhaden, which starts tomorrow, we've got Wednesday afternoon to wrap that up, so tomorrow is kind of a non-decisional meeting on menhaden, striped bass there is a big meeting tomorrow. We'll just have to keep an eye on it. If anyone knows, if your power goes out and you're able to get in touch with Toni and I, let us know, or if somebody in your delegation can't participate let us know, and we'll adjust as necessary. But hopefully we make it through without having to shake things up too much. Thank you, Madam Chair.

CHAIRWOMAN FEGLEY: Absolutely.

MS. KERNS: To add to that, Lynn. For folks, you know along with power outages usually goes internet outages. I just wanted to let everybody know that Go to Webinar does have an App for your cell phone. You can easily download that, and then you would be able to see presentations, communicate, talk on your phone. If you're having trouble with the internet connection on your phone at all, you can also just call into the meetings.

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There are instructions on how to do that. If you wanted to pull that stuff off of the web page now, like writing down the meeting code and all of those things, to prepare just in case something happens tomorrow that would be great. Otherwise, you can always give me a call at the office, it forwards to my cell phone, and I can talk you through and walk you through all these different things.

ADJOURNMENT

CHAIRWOMAN FEGLEY: Thanks, Bob and Toni, hopefully we're all going to get through the storm. Everybody, stay safe, and with that we'll move on to the next thing.

MS. KERNS: Lynn, Doug Haymans has his hand up.

MR. HAYMANS: I was just going to say that we have sat here today, starting with whatever we started with this morning, and I've watched the storm pass the Georgia coast, and if there is anything like what came by here, I think you still need to keep your sprinklers running over the weekend, so do we. We got less than a half an inch of rain and a light breeze.

MS. KERNS: Wow, we will all hope for that. Thank you everybody.

(Whereupon the meeting adjourned at 3:18 p.m.
on May 5, 2020)

Draft Addendum for Public Comment

Atlantic States Marine Fisheries Commission

**DRAFT ADDENDUM I TO AMENDMENT 1 TO THE INTERSTATE
FISHERY MANAGEMENT PLAN FOR ATLANTIC MIGRATORY
GROUP COBIA FOR PUBLIC COMMENT**

*Modifications to Recreational and Commercial Allocations,
Commercial Trigger, and De Minimis Measures*



September 2020



Sustainable and Cooperative Management of Atlantic Coastal Fisheries

Draft Addendum for Public Comment

Draft Addendum I for Public Comment

Public Comment Process and Proposed Timeline

In February 2020, the South Atlantic State/Federal Fisheries Management Board initiated the development of an addendum to the Interstate Fishery Management Plan (FMP) for Atlantic Migratory Group Cobia (Atlantic cobia) to reevaluate recreational and commercial allocations, modify calculation of the commercial trigger, and reconsider *de minimis* measures. This Draft Addendum presents background on the Atlantic States Marine Fisheries Commission's (Commission) management of Atlantic cobia, 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 **October 6, 2020 at 5:00 p.m.** 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.

Mail: Toni Kerns
Atlantic States Marine Fisheries Commission
1050 North Highland Street, Suite 200A-N
Arlington, VA 22201

Email: comments@asmfc.org
(Subject: Cobia Draft Addendum I)
Phone: (703) 842-0740
Fax: (703) 842-0741

Commission's Process and Timeline

| | |
|---------------------------------|---|
| February 2020 | South Atlantic Board Tasks PDT to Develop Draft Addendum I |
| February – August 2020 | PDT Develops Draft Addendum I for Public Comment |
| August 2020 | South Atlantic Board Reviews Draft Addendum I and Considers Its Approval for Public Comment |
| September – October 2020 | Board Solicits Public Comment and States Conduct Public Hearings |
| October 2020 | Board Reviews Public Comment, Selects Management Options and Considers Final Approval of Addendum I |
| TBD | Provisions of Addendum I are Implemented |

Draft Addendum for Public Comment

1.0 INTRODUCTION

The Atlantic States Marine Fisheries Commission (Commission) is responsible for managing cobia (*Rachycentron canadum*) from New York through Georgia (Atlantic cobia) in state waters (0-3 miles from shore) under the authority of the Atlantic Coastal Fisheries Cooperative Management Act, and has done so through the Interstate Fishery Management Plan for Atlantic Migratory Group Cobia (FMP) since 2017. Atlantic cobia are currently managed under Amendment 1 (2019) to the FMP. The states of New Jersey through Florida have a declared interest in the fishery and are responsible for implementing management measures consistent with the interstate FMP as members of the South Atlantic State/Federal Fisheries Management Board (Board).

In 2018, recreational catch estimates were updated by the Marine Recreational Information Program (MRIP), and historical estimates, based on the Coastal Household Telephone Survey (CHTS), were recalibrated to the newer, mail-based Fishing Effort Survey (FES). The recalibration resulted in Atlantic cobia recreational catch estimates that were, on average, about two times higher than those previously estimated using the CHTS. The updated FES estimates were incorporated into the 2020 Southeast Data, Assessment, and Review (SEDAR) 58 Atlantic Cobia Benchmark Stock Assessment. This addendum further incorporates the FES data into management by considering it in the allocation strategy.

The commercial fishery's harvest is evaluated against its quota through in-season monitoring. A commercial trigger percentage is used to determine the harvest level at which a coastwide commercial closure would be initiated at least 30 days later. The significant increase in the 2020-2022 quota made it well beyond what the commercial fishery has harvested in previous years, making the trigger percentage unable to be calculated using methods from Amendment 1. This addendum considers a more flexible, alternative method for calculating the commercial trigger.

Amendment 1 also defines commercial and recreational criteria and measures for *de minimis* states, or those states with minimal commercial or recreational Atlantic cobia fisheries, such that not enforcing full FMP requirements would not significantly impact the coastwide management program. Commercial *de minimis* states are not required to monitor landings within the fishing season. To account for harvest in these states, 3% of the commercial quota is set aside and not available for harvest in non-*de minimis* states. This addendum considers maximum amounts for *de minimis* set asides that can allow greater utilization of the commercial quota.

Recreational *de minimis* states are able to choose to manage according to the regulations of a neighboring or the nearest non-*de minimis* state or adopt alternative measures that allow a reduced minimum size limit (29 inches fork length rather than 36 inches) and 1 fish per vessel with no recreational season restrictions. This addendum considers increased alternative minimum size limits that would increase probability of female maturity before harvest and be more consistent with other management measures.

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2.0 OVERVIEW

2.1 Statement of the Problem

Amendment 1 established recreational and commercial allocations of the total harvest quota, originally derived in 2011 as part of previous Atlantic cobia management through the South Atlantic and Gulf of Mexico Fishery Management Councils' (SAFMC and GMFMC, respectively) Fishery Management Plan for Coastal Migratory Pelagic Resources in the Gulf of Mexico and Atlantic Region (CMP FMP). Allocations to each fishery were based on weighted averages of landings by each sector during 2000-2008, and CHTS estimates were used to determine recreational landings. Following review of the SEDAR 58 assessment and peer review reports, the Board specified a new total annual harvest quota for 2020-2022. Per Amendment 1, this quota is allocated to the recreational (92%) and commercial (8%) fisheries.

With the increase to Atlantic cobia recreational landings and population estimates through incorporation of the FES data, the total, recreational, and commercial quotas all increased substantially. However, while the increase to the commercial quota results in an increase to the amount of Atlantic cobia allowed for commercial harvest, the increase to the recreational quota is largely attributable to the change in the recreational catch estimates and not reflective of a similar effective increase in the number of fish allowed for recreational harvest. Draft Addendum I proposes alternative allocation strategies that will allow for more proportional changes to the commercial and recreational quotas specified in February 2020 and future management based on the new FES recreational data.

Approval of an increased commercial quota also raised an issue in the calculation of the commercial trigger percentage. The calculation method defined in Amendment 1 counts back from the date of harvest reaching the quota to an approximate percentage of the quota that would allow at least 30 days of notice before a closure. Thus, this method is dependent on recent harvests meeting the quota that will be in effect for future years. However, if the quota is increased (as is the case for the 2020-2022 quota) or if harvest decreases, the commercial trigger cannot be calculated. Draft Addendum I proposes a modification of the Amendment 1 method, recommended by the Cobia Technical Committee (TC), which will allow the trigger to be calculated for time periods when the quota increases or harvest decreases.

The SEDAR 58 assessment and increased quotas also illuminate the need for potential changes to the management of commercial and recreational *de minimis* states. An increase to the commercial quota makes the portion set aside (3%) to account for harvest in commercial *de minimis* states also increase. However, the 3% set aside might not fully account for the recent landing by *de minimis* states.

While the coastwide non-*de minimis* minimum size limit is 36 inches fork length, *de minimis* states may choose to harvest 1 fish per vessel with a minimum size limit of 29 inches and no seasonal restriction. The 29 inch limit was based on an estimate of 50% female maturity from the SEDAR 28 stock assessment. Reproductive data from SEDAR 58 indicate there is potential reproductive benefit from using minimum size limits greater than 29 inches fork length, as

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more female Atlantic cobia would be able to reach maturity before being susceptible to harvest. Additionally, a recreational *de minimis* state choosing to manage using the 29 inch minimum size limit can create regulatory inconsistency among states, which could lead to confusion for stakeholders as well as management and enforcement difficulties.

2.2 Background

2.2.1 Recreational/Commercial Allocation

The recreational and commercial quotas are 92% and 8%, respectively, of the coastwide total harvest quota set through Board specification. These allocation percentages were derived from those previously in place through Amendment 18 to the CMP FMP. Allocations were based on harvests from 2000-2008, and calculated using the following equations:

$$\text{Com \%} = \frac{(50\% * \text{Average Com 2000} - 2008) + (50\% * \text{Average Com 2006} - 2008)}{(50\% * \text{Avg Com 2000} - 2008 + 50\% * \text{Avg Com 2006} - 2008) + (50\% * \text{Avg Rec 2000} - 2008 + 50\% * \text{Avg Rec 2006} - 2008)}$$

$$\text{Rec \%} = \frac{(50\% * \text{Average Rec 2000} - 2008) + (50\% * \text{Average Rec 2006} - 2008)}{(50\% * \text{Avg Com 2000} - 2008 + 50\% * \text{Avg Com 2006} - 2008) + (50\% * \text{Avg Rec 2000} - 2008 + 50\% * \text{Avg Rec 2006} - 2008)}$$

When originally calculated, the recreational harvests used in these equations were estimated using the CHTS. When the annual catch limit was set for Atlantic cobia through Amendment 20B to the CMP FMP (SAFMC, 2014), this resulted in allocations of 620,000 pounds for the recreational fishery and 50,000 pounds for the commercial fishery. These quotas remained in place under the CMP FMP and, later, under Commission management until 2020, when a new quota was specified in response to the SEDAR 58 assessment.

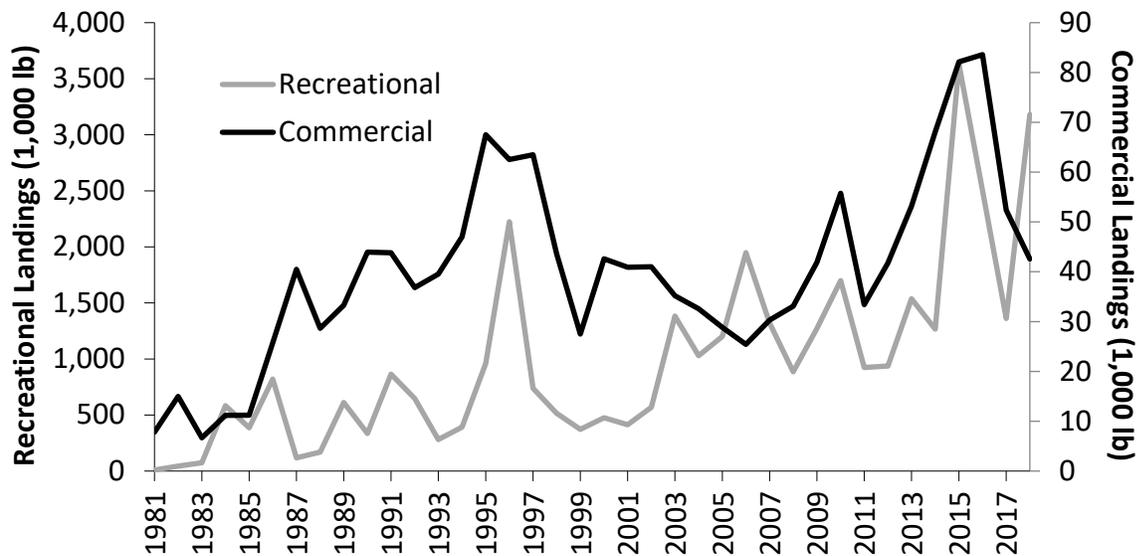


Figure 1. Atlantic cobia landings (GA-MA; in thousands of pounds) from 1981-2018. Recreational landings are shown in gray and correspond to the left vertical axis; commercial landings are shown in black and correspond to the right vertical axis.

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2.2.2 Commercial Trigger Calculation

Along with defining parameters for managing the commercial fishery based on an annual quota, monitored throughout the season, Amendment 1 defines a commercial trigger mechanism, which is set as part of the harvest specification process. The commercial trigger is defined using the following language from Amendment 1:

The trigger percentage and number of following days until a closure occurs will be specified as part of the harvest specification process defined in Section 4.1. The number of days past the trigger percentage until a closure occurs will be calculated as the average number of days from the previous three years for commercial landings to go from the trigger percentage to the full commercial quota, less any *de minimis* set aside. The trigger shall be updated as part of the specification process, using similar methodology, to allow the states at least 30 days' notice of an impending commercial closure.

In calculating the commercial trigger percentage and harvest level with respect to the increased commercial quota specified in 2020, the TC recognized that recent commercial harvests had not met the commercial quota. Therefore, the percentages of the quota harvested at least 30 days prior to meeting the quota could not be determined.

Therefore, the TC recommends the following methodology for calculating the commercial trigger:

1. Calculation of daily commercial harvest rates for non-*de minimis* states based on harvests from the previous 5 years. Daily harvest rates for each year would be estimated as the annual commercial harvest divided by the number of days from the first date of harvest to the last date of harvest in that year.
2. Average the 5 annual harvest rates to estimate the daily harvest rate for the entire time period.
3. Subtract 30 days' worth of harvest (30 times the average daily harvest rate) from the non-*de minimis* portion of the commercial quota.

These methods would provide a level of harvest in pounds or a percentage of the quota that could be used to provide the 30 days' notice prior to a closure required by Amendment 1. Additionally, the use of 5 years of harvest data could better account for variability in year-to-year harvest rates than a narrower three-year harvest window.

2.2.3 SEDAR 58 Benchmark Stock Assessment and 2020 Harvest Specification

A benchmark stock assessment, SEDAR 58, was completed in 2020 for Atlantic cobia and this assessment, following peer review, was accepted for management use by the Board at its February 2020 meeting. This assessment used the Beaufort Assessment Model (BAM), the same forward-projecting age structured model as used previously to assess the species. The stock

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assessment primarily used fishery-dependent data (i.e. data from the recreational and commercial fisheries) as well as information on Atlantic cobia biology, life history, and movement to determine current stock condition. Main changes since the previous assessment included updating data sources with new years of data, updating the natural mortality information, and using newly recalibrated recreational catch and effort data from MRIP.

Changes in recreational landings data represent the most significant change in this assessment. MRIP data have recently been recalibrated following changes to the Access Point Angler Intercept Survey and the implementation of the mail-based FES. On the Atlantic Coast, recalibrated harvest and live release estimates for cobia from 1981-2017, on average, were about 2 times higher, with individual years ranging up to 4 times higher, than previous estimates. This is largely due to increased effort estimates from the FES. In the assessment model, these changes resulted in higher estimates of biomass and spawning stock biomass (SSB) compared to the previous assessment. However, trends in landings, biomass, and spawning stock biomass were similar between the two assessments (SEDAR, 2013; SEDAR, 2020).

The Assessment Panel recommended a fishing mortality rate of F40% and SSB at F40% as reference points for Atlantic cobia (SEDAR, 2020). These reference points are calculated to be the fishing rate and SSB level that allows the population to achieve 40% of the maximum spawning potential it would have obtained in the absence of fishing. This type of reference point is often used as a proxy for maximum sustainable yield-derived reference points when data do not allow sufficient modeling of a stock-recruit relationship. The reference points indicated the Atlantic cobia stock is not overfished nor experiencing overfishing.

The assessment estimated the last strong year class was in 2010 (age 1 in 2011) with the four most recent year classes at low levels of recruitment (SEDAR, 2020). While the SSB remains above the overfished threshold, below-average recruitment has led to a decreasing trend in SSB since 2014. The fishing mortality rate has increased since the late 2000s but has not exceeded the overfishing threshold.

Following completion of the stock assessment, the Board moved forward with harvest specification. The harvest specification process allows managers to specify regulations controlling future harvest through a Board vote, allowing managers to respond quickly to changes in the fishery or react following a stock assessment. Through the harvest specification process, the Board may set coastwide total harvest quota, vessel limits, possession or bag limits, minimum size limits, and the commercial closure triggering mechanism for up to three years. Following the completion of the assessment, the TC reviewed projections of SSB, fishing mortality, and removals through 2024 in order to recommend total harvest quota options to the Board.

At its February 2020 meeting, the Board set the coastwide total harvest quota at 80,112 fish for 2020-2022. This results in a recreational quota of 73,703 fish (92%) and a commercial quota of 6,409 fish (8%), equivalent to 146,232 pounds using the 2015-2017 coastwide commercial

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average weight. This total quota, based on projections from the SEDAR 58 assessment, is much higher than the previous quota. The recreational quota, in numbers of fish, increased from 22,142 fish to 73,703 fish and the commercial quota increased from 50,000 pounds to 146,232 pounds.

The Amendment 1 quota allocation is based on a weighted average of harvest from each sector between 2000 and 2008 (see *Section 2.2.1*). While the commercial harvest numbers have remained unchanged, the recalibration of the recreational harvest, as estimated by MRIP, has resulted in much larger estimates of historical recreational harvest. This increase in recreational harvest is largely due to previously underestimated effort from the private boat and shore modes and is believed to be a better estimate of previous levels of recreational fishery removals. With Amendment 1 allocation based on previous harvest estimates now being applied to new estimates, the Board requested the harvest allocation be reevaluated through this addendum.

2.2.4 De Minimis Measures

The Commission's Interstate Fisheries Management Program Charter (ISFMP Charter) defines *de minimis* as "a situation in which, under the existing condition of the stock and scope of the fishery, the conservation and enforcement actions taken by an individual state would be expected to contribute insignificantly to a coastwide conservation program required by a Fishery Management Plan or amendment," (ASMFC, 2016). Under Amendment 1, a state may apply annually for *de minimis* status for either or both of its commercial and recreational fisheries. Requests for *de minimis* status are evaluated according to criteria defined in Amendment 1 and considered for approval by the Board.

Commercial *de minimis* states are subject to all coastwide commercial regulations, including minimum size, possession, and vessel limits, as well as closures of the commercial fishery resulting from the coastwide commercial quota being reached. A state with *de minimis* status for its commercial fishery is not required to have in-season commercial harvest monitoring for Cobia. In-season harvest monitoring by non *de minimis* states is necessary to ensure the fishery can be close before exceeding the annual quota. *De minimis* states must still report annual landings through state compliance reports. To account for commercial harvest occurring in *de minimis* states and guard against a quota overage, 3% percent of the commercial quota is set aside and not accessible to non-*de minimis* states.

Recreational *de minimis* states may choose to match the recreational management measures implemented by an adjacent non-*de minimis* state (or the nearest non-*de minimis* state if none are adjacent) or to limit its recreational fishery to 1 fish per vessel per trip with a minimum size of 29 inches fork length (or the total length equivalent, 33 inches). If a *de minimis* state chooses to match an adjacent (or the nearest) non-*de minimis* state, the *de minimis* state is subject to all recreational regulations required by Amendment 1, including bag, size, vessel, and season restrictions, of the adjacent (or nearest) non-*de minimis* state. A *de minimis* state that chooses to limit its recreational fishery to 1 fish per vessel per trip is not subject to seasonal restrictions

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for its recreational fishery. One percent (1%) of the recreational quota is set aside to account for harvests in recreational *de minimis* states.

Current recreational *de minimis* measures that do not match those of a neighboring non-*de minimis* state were developed to allow opportunistic harvest of cobia in areas where catches are uncommon. As such, these regulations include a 1 fish per vessel limit with a year-round open season and a reduced minimum size limit of 29 inches FL. This reduced size limit was set to approximately correspond to the female size at 50% maturity, based on the SEDAR 28 stock assessment (SEDAR, 2013). The SEDAR 58 stock assessment indicates similar maturity characteristics, although both assessments had few samples of cobia below the 33-inch FL commercial minimum size limit. SEDAR 58 estimated that 33% of female cobia between 601 and 750 mm (23.7 – 29.5 inches; 9 samples) and 60% of female cobia between 751 and 800 mm (29.6 – 31.5 inches; 5 samples) were mature. All fish larger than 800 mm (31.5 inches) were mature.

3.0 PROPOSED MANAGEMENT PROGRAM

Changes to the management program would replace language in Sections 4.2 and 4.5 of Amendment 1 to the Atlantic Cobia FMP.

3.1 Issue 1: Recreational and Commercial Allocations

In addition to option A which is the status quo allocation (2020 harvest specification based on SEDAR 58 assessment results) a range of alternatives were developed that do not result in a disproportionate increase in the commercial quota. Option B is an allocation that maintains the commercial quota at the Amendment 1 level of 50,000 pounds. Options C and D incrementally increase the commercial allocation within the range of observed commercial harvest percentages in the last 10 years since 2009 (2% to 5%).

Option A. (Status Quo) The recreational quota will be 92% of the coastwide total harvest quota set through Board specification. The commercial quota will be 8% of the coastwide total harvest quota set through Board specification. Under the 2020-2022 total quota, the recreational quota would be 73,703 fish and the commercial quota would be 146,232 pounds.

Option B. The recreational quota will be 97% of the coastwide total harvest quota set through Board specification. The commercial quota will be 3% of the coastwide total harvest quota set through Board specification. Under the 2020-2022 total quota, the recreational quota would be 77,917 fish and the commercial quota would be 54,837 pounds.

Option C. The recreational quota will be 96% of the coastwide total harvest quota set through Board specification. The commercial quota will be 4% of the coastwide total harvest quota set through Board specification. Under the 2020-2022 total quota, the recreational quota would be 76,908 fish and the commercial quota would be 73,116 pounds.

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Option D. The recreational quota will be 95% of the coastwide total harvest quota set through Board specification. The commercial quota will be 5% of the coastwide total harvest quota set through Board specification. Under the 2020-2022 total quota, the recreational quota would be 76,106 fish and the commercial quota would be 91,394 pounds.

Table 1. Atlantic cobia (Georgia – Massachusetts) total landings in pounds and percentages of total pounds caught by the recreational fishery from 2000-2018.

| Atlantic Cobia Landings (lb) | | | | | |
|-------------------------------------|--------------|-----------------------|-------------|--------------|-----------------------|
| Year | Total | % Recreational | Year | Total | % Recreational |
| 2000 | 518,092 | 91.78% | 2010 | 1,754,547 | 96.82% |
| 2001 | 454,261 | 91.00% | 2011 | 957,136 | 96.51% |
| 2002 | 609,890 | 93.28% | 2012 | 978,889 | 95.73% |
| 2003 | 1,418,227 | 97.52% | 2013 | 1,589,819 | 96.66% |
| 2004 | 1,062,367 | 96.93% | 2014 | 1,334,373 | 94.90% |
| 2005 | 1,229,884 | 97.66% | 2015 | 3,711,695 | 97.79% |
| 2006 | 1,974,824 | 98.71% | 2016 | 2,587,126 | 96.77% |
| 2007 | 1,350,144 | 97.75% | 2017 | 1,413,915 | 96.30% |
| 2008 | 919,332 | 96.40% | 2018 | 3,231,501 | 98.44% |
| 2009 | 1,314,431 | 96.81% | | | |

3.2 Issue 2: Commercial Trigger Calculation

The commercial trigger is used to determine when to close the commercial fishery in order to fully utilize but not exceed the quota.

Option A. (Status Quo) The number of days past the trigger percentage until a closure occurs will be calculated as the average number of days from the previous three years for commercial landings to go from the trigger percentage to the full commercial quota, less any *de minimis* set aside.

Option B. Calculate the commercial trigger using the following method (recommended by the TC):

1. Calculation of daily commercial harvest rates for non-*de minimis* states based on harvests from the previous 5 years. Daily harvest rates for each year would be estimated as the annual commercial harvest divided by the number of days from the first date of harvest to the last date of harvest in that year.
2. Average the 5 annual rates to estimate the daily rate for the entire time period.
3. Subtract 30 days' worth of harvest (30 times the average daily harvest rate) from the non-*de minimis* portion of the commercial quota.

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3.3 *De Minimis* Measures

3.3.1 Issue 3: Commercial *De Minimis* Set Aside

Virginia, North Carolina, and South Carolina are the only states that currently do not qualify for commercial *de minimis* status. Commercial harvests that have occurred within and outside of these states from 2000-2018 are shown in Table 2. These numbers include harvests within the Atlantic cobia stock (defined by SEDAR 58 as including cobia from the US Atlantic coast north of the Georgia-Florida state border as far as landings persist) that occur outside of the management unit (north of New York).

Option A. (Status Quo) To account for potential landings in *de minimis* states not tracked in-season against the quota, 3% of the commercial quota would be set aside and not accessible to non-*de minimis* states.

Option B. To account for potential landings in *de minimis* states not tracked in-season against the quota, 3% of the commercial quota or 3,000 pounds, whichever is less, would be set aside and not accessible to non-*de minimis* states.

Option C. To account for potential landings in *de minimis* states not tracked in-season against the quota, 3% of the commercial quota or 5,000 pounds, whichever is less, would be set aside and not accessible to non-*de minimis* states.

Option D. To account for potential landings in *de minimis* states not tracked in-season against the quota, 4 % of the commercial quota would be set aside and not accessible to non-*de minimis* states.

Option E. To account for potential landings in *de minimis* states not tracked in-season against the quota, 4% of the commercial quota or 3,000 pounds, whichever is less, would be set aside and not accessible to non-*de minimis* states.

Option F. To account for potential landings in *de minimis* states not tracked in-season against the quota, 4% of the commercial quota or 5,000 pounds, whichever is less, would be set aside and not accessible to non-*de minimis* states.

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Table 2. Commercial Atlantic cobia (MA-GA) landings for states that do (Massachusetts – Maryland and Georgia) and do not (Virginia – South Carolina) qualify for commercial *de minimis* status in 2020, 2000 – 2018.

| Year | VA-SC | MA-MD, GA (<i>De Minimis</i>) | Year | VA-SC | MA-MD, GA (<i>De Minimis</i>) |
|------|--------|------------------------------------|------|--------|------------------------------------|
| 2000 | 39,253 | 3,352 | 2010 | 54,718 | 1,037 |
| 2001 | 24,718 | 1,633* | 2011 | 32,444 | 950 |
| 2002 | 37,510 | 3,502 | 2012 | 40,712 | 1,438* |
| 2003 | 33,446 | 1,746 | 2013 | 50,185 | 2,992 |
| 2004 | 30,319 | 3,008* | 2014 | 66,545 | 1,531 |
| 2005 | 27,743 | 1,086 | 2015 | 80,523 | 1,594 |
| 2006 | 25,380 | 48* | 2016 | 81,766 | 1,817 |
| 2007 | 28,341 | 2,108* | 2017 | 47,899 | 4,477 |
| 2008 | 31,818 | 1,279 | 2018 | 40,656 | 1,903 |
| 2009 | 39,956 | 1,944 | | | |

*Landings exclude confidential data

Table 3. *De minimis* set-aside portions of the commercial quota for each of the commercial quota options listed for Issue 1.

| Issue 1 Commercial Quota Options (lb) | <i>De Minimis</i> Set-Aside (lb) with 3% | <i>De Minimis</i> Set-Aside (lb) with 4% |
|---------------------------------------|---|---|
| A. 146,231 | 4,387* | 5,849*^ |
| B. 54,837 | 1,645 | 2,193 |
| C. 73,116 | 2,193 | 2,925 |
| D. 91,394 | 2,742 | 3,656* |

*Would be reduced to 3,000 pounds if Issue 2: Option B or E approved.

^Would be reduced to 5,000 pounds if Issue 2 Option C or F is approved.

3.3.2 Issue 4: Recreational *De Minimis* Minimum Size Limit

Option A (status quo) was originally proposed to allow harvest at a minimum size where approximately 50% of female cobia were mature. SEDAR 58 provided more recent data that informed percent maturity estimates listed below. SEDAR 58 does note uncertainty in the percentages due to limited data for fish smaller than 33 inches fork length. Alternative recreational *de minimis* minimum size options were developed with two objectives. Option B would increase the estimated percent mature for harvest to be closer to 100%, allowing more female cobia the opportunity to spawn before being susceptible to harvest. Option C would further increase the percent mature, but would also equal the commercial minimum size limit, allowing more consistent regulations based on those used elsewhere in cobia management, rather than a completely different, separate limit.

Option A. (Status Quo) A recreational *de minimis* state may choose to match the recreational management measures implemented by an adjacent non-*de minimis* state (or the nearest non-*de minimis* state if none are adjacent) or limit its recreational fishery to 1 fish per vessel

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per trip with a minimum size of 29 inches fork length (or the total length equivalent, 33 inches). SEDAR 58 estimated 33% female maturity between 27.6 and 29.5 inches.

Option B. A recreational *de minimis* state may choose to match the recreational management measures implemented by an adjacent non-*de minimis* state (or the nearest non-*de minimis* state if none are adjacent) or limit its recreational fishery to 1 fish per vessel per trip with a minimum size of 31 inches fork length (or the total length equivalent, 35 inches). SEDAR 58 estimated 60% female maturity between 29.6 and 31.5 inches.

Option C. A recreational *de minimis* state may choose to match the recreational management measures implemented by an adjacent non-*de minimis* state (or the nearest non-*de minimis* state if none are adjacent) or limit its recreational fishery to 1 fish per vessel per trip with a minimum size of 33 inches fork length (or the total length equivalent, 37 inches). SEDAR 58 estimated 100% female maturity above 31.5 inches.

4.0 COMPLIANCE

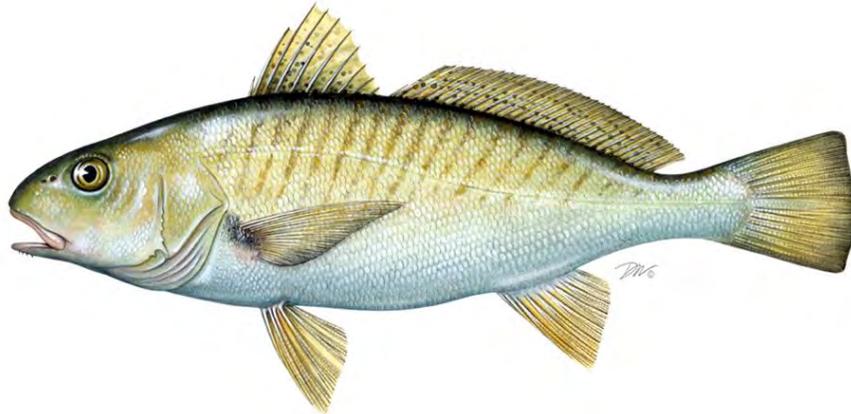
The management framework contained in *Section 3* of Addendum I to Amendment 1 is effective XX.

5.0 REFERENCES

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- ASMFC. 2019. Amendment 1 to the Interstate Fishery Management Plan for Atlantic Migratory Group Cobia. ASMFC, Arlington, VA. 82 p.
- SAFMC. 2011. Amendment 18 to the Fishery Management Plan for Coastal Migratory Pelagics Resources in the Gulf of Mexico and Atlantic Region. NOAA Award # FNA05NMF4410004. Charleston, SC. 399 p.
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- SEDAR. 2013. SEDAR 28 – South Atlantic Cobia Stock Assessment Report. SEDAR, North Charleston, SC. 420 p. Available at: <https://sedarweb.org/sedar-28>.
- SEDAR. 2020. SEDAR 58 – Atlantic Cobia Stock Assessment Report. SEDAR, North Charleston, SC. 500 p. Available at: <https://sedarweb.org/sedar-58>.

Traffic Light Analysis of Atlantic Croaker (*Micropogonias undulatus*) for the Atlantic States Marine Fisheries Commission Fishery Management Plan Review

2019 Fishing Year



Atlantic Croaker Technical Committee

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Dawn Franco, Georgia Department of Natural Resources, Chair

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1 INTRODUCTION

Atlantic croaker are managed under Amendment 1 to the Interstate Fishery Management Plan for Atlantic Croaker (2005) and Addendum I (2011), Addendum II (2014), and Addendum III (2020). The Amendment does not require any specific measures restricting harvest but encourages states with conservative measures to maintain them. It also implemented a set of management triggers, based on an annual review of certain metrics, to respond to changes in the fishery or resource and initiate a formal stock assessment on an accelerated timeline if necessary. Addendum I revised the management program's biological reference points to assess stock condition on a coastwide basis as recommended by the 2010 stock assessment.

In August 2014, the South Atlantic State/Federal Fisheries Management Board (SAB) approved Addendum II to Amendment I to the Atlantic Croaker Fishery Management Plan (FMP). The Addendum established the Traffic Light Approach (or TLA) to evaluate fisheries trends and develop state-specified management actions (i.e., bag limits, size restrictions, time and area closures, and gear restrictions) when harvest and abundance thresholds are exceeded. Addendum II established the TLA as a precautionary management framework to evaluate fishery trends and develop management actions. Starting in the late 2000s, there were inconsistent signals in the data used to examine the resource. The lack of clear information from the TLA and the assessment made it difficult to provide management advice.

The most recent benchmark stock assessment for Atlantic croaker was completed in 2017 and was not recommended for management use, but did provide more data for further refinement and modification of the existing TLA, as recommended by the Atlantic Croaker Technical Committee (TC). In February of 2020, the SAB approved Addendum III to Amendment I allowing modification of the TLA to use a regional approach as well as establishing management actions to be taken if the TLA triggers were tripped. Addendum III addressed several issues by modifying the TLA to better reflect stock characteristics and identifying achievable management actions based on stock conditions.

The TLA is a statistically-robust way to incorporate multiple data sources (both fishery-independent and -dependent) into a single, easily understood metric for management advice. It is often used for data-limited species, or species that are not assessed on a frequent basis. As such, it serves as an appropriate management tool for Atlantic croaker. The name comes from assigning a color (red, yellow, or green) to categorize relative levels of indicators on the condition of the fish population (abundance metric) or fishery (harvest metric). For example, as harvest or abundance increase relative to their long-term mean, the proportion of green in a given year will increase, and as harvest or abundance decrease, the amount of red in that year becomes more predominant. Under Addendum II, state-specific management action would be initiated when the proportion of red exceeds specified thresholds (30% or 60%), for both harvest and abundance, over three consecutive years. The thresholds were maintained in Addendum III but the trigger mechanism was changed as described below.

Addendum III incorporated the following changes into the TLA:

1. Incorporation of indices from the Chesapeake Bay Multispecies Monitoring and Assessment Program (ChesMMAAP) and the South Carolina Department of Natural Resources (SCDNR) Trammel Net Survey into the adult composite characteristic index, in addition to the currently used indices from the Northeast Fishery Science Center (NEFSC) Multispecies Bottom Trawl Survey and Southeast Area Monitoring and Assessment Program (SEAMAP).
2. Use of revised adult abundance indices from the surveys mentioned above, in which age-length keys and length composition information are used to estimate the number of adult (age 2+) individuals caught by each survey.
3. Use of regional metrics to characterize the fisheries north and south of the Virginia-North Carolina state border. The ChesMMAAP and NEFSC surveys will be used to characterize abundance north of the border, and the SCDNR Trammel Net and SEAMAP surveys will be used to characterize abundance south of the border.
4. Change/establish the reference time period for all surveys to be 2002-2012.
5. Change the triggering mechanism to the following: Management action will be triggered according to the current 30% red and 60% red thresholds if both the adult abundance and harvest thresholds are exceeded in any three of the four terminal years.

Addendum III retained the TC's ability to alter the TLA as needed to best represent trends in Atlantic croaker harvest and abundance, including selection of surveys and methods to analyze and evaluate these data. Such changes may be made without an addendum, but Addendum III was necessary because of the change to the management-triggering mechanism.

This report includes the harvest and abundance composite indices in Section 2 which are the TLAs that trigger management action. Individual TLAs for commercial and recreational harvest by region, which go into the harvest composite, as well as effort and discards of Atlantic croaker in the South Atlantic Shrimp Trawl Fishery, which are included as supplementary information to be reviewed by the TC and are not included in harvest composite indices, are described in Section 4. TLAs for each fishery-independent index that go into the abundance composite are described in Section 5. Supplemental information with NEAMAP incorporated into the TLAs is provided in Section 6.

2 TRAFFIC LIGHT ANALYSIS (COMPOSITE INDICES)

2.1 Harvest Composite Index

- The harvest (recreational and commercial landings) composite TLA index for the Mid-Atlantic indicates that the management response trigger would have been tripped for the fourth year in a row at the 30% threshold (Figure 1).
- The mean red proportion for the most recent three year time period (2017-2019) in the Mid-Atlantic was 68.3% with the red proportion being above 60% in 2018 and 2019 which indicates a significant level of concern (Figure 1).
- The harvest composite TLA index for the South Atlantic also triggered in 2019 at the 30% threshold and represented the seventh consecutive year above 30% (02).
- The mean red proportion in the South Atlantic for 2017-2019 was 46.2% (02).
- The important trend to point out in both regions is the continuing decline in recreational and commercial landings for Atlantic croaker with increasing red proportions in the TLA.

Figure 1. Annual color proportions for harvest composite TLA of Mid-Atlantic region (NJ-VA) for Atlantic croaker recreational and commercial landings

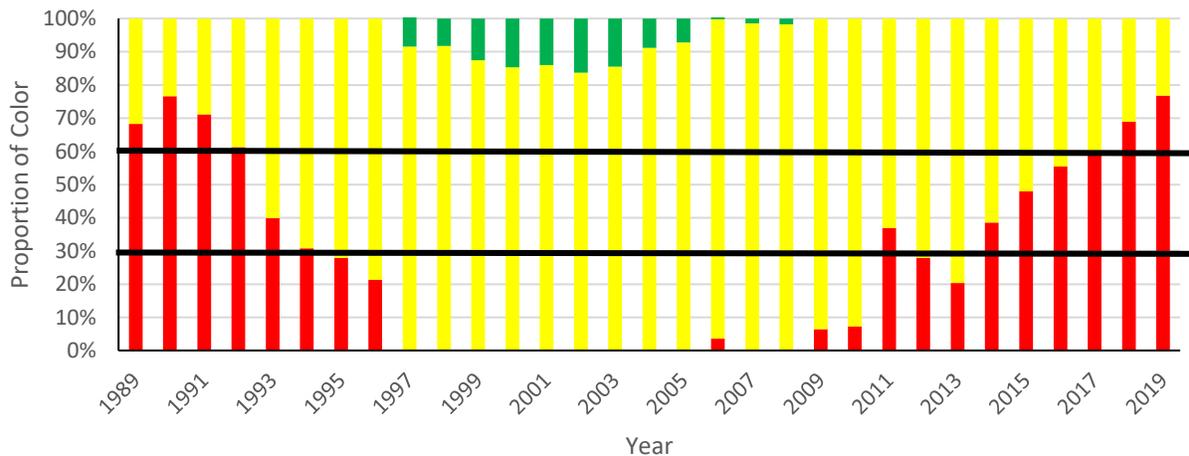
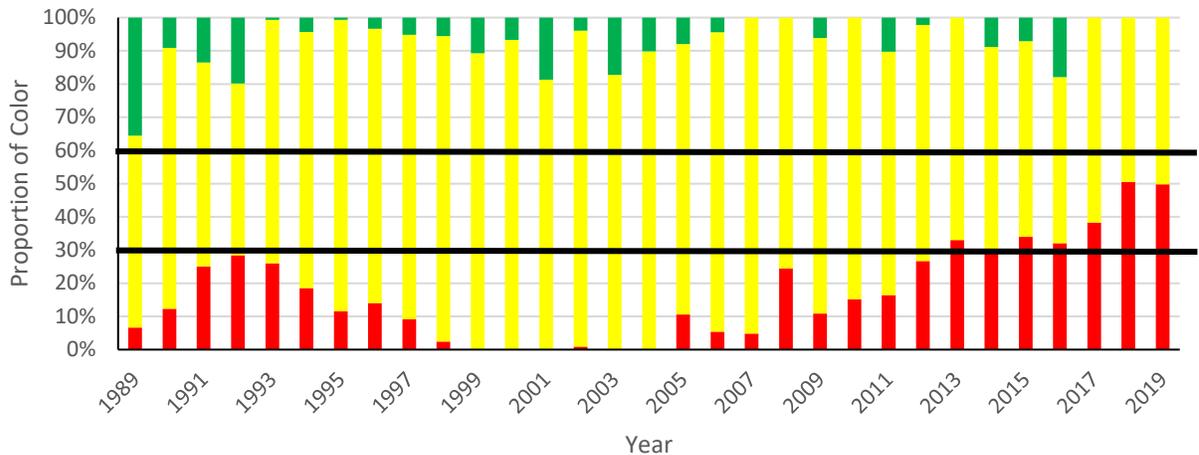


Figure 2. Annual color proportions for harvest composite TLA of South Atlantic region (NC-FL) for Atlantic croaker recreational and commercial landings using a 2002-2012 reference period

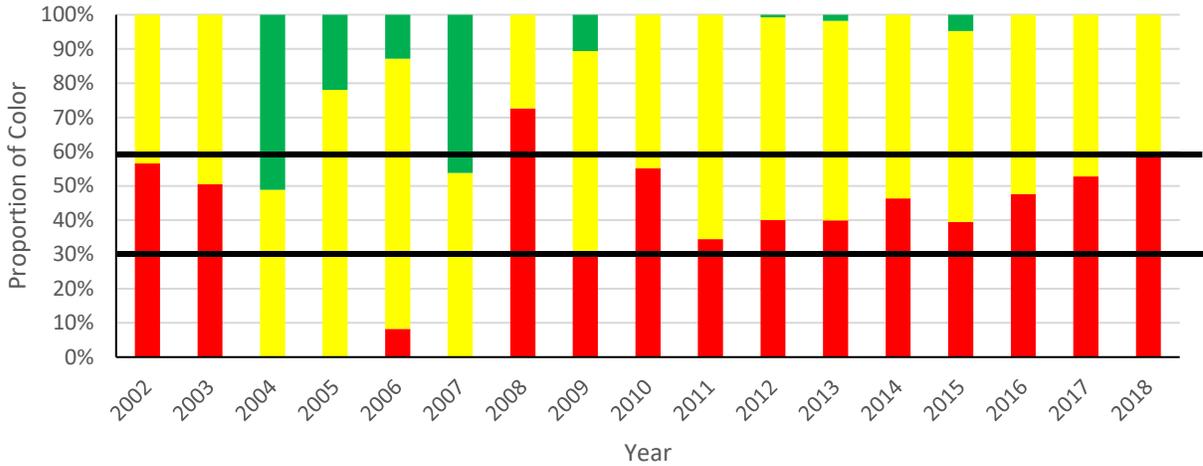


2.2 Abundance Composite Characteristic Indices

The abundance composite TLA index was broken into two components based on age composition in each region. The adult composite index was generated from the NEFSC and ChesMMAP surveys for the Mid-Atlantic and SEAMAP and SCDNR trammel net survey in the There was not a Mid-Atlantic adult composite TLA in 2019 owing to the lack of an index for ChesMMAP. ChesMMAP should return to use for the 2020 sampling year, with a 2019 index once survey calibrations are complete. One additional survey that is available in the Mid-Atlantic is the North East Area Monitoring and Assessment Program (NEAMAP) which samples from Block Island Sound south to Cape Hatteras. The NEAMAP survey has been considered for use in the TLA but is currently not used due to the shorter time frame (2007-2019) compared to the other surveys. It is anticipated that this survey will come into use with the TLA once it reaches a 15 year sampling time span, which corresponds approximately to the max life span of Atlantic croaker. There is a supplemental section at the end of this report that describes the trends in the NEAMAP survey and gives composite characteristics that include NEAMAP. Only adult abundance will be used to determine if management action is triggered, but the juvenile composites are available as supplementary in section 5.7

- The adult composite TLA characteristic for the Mid-Atlantic (Figure 3) showed a trend of increasing red proportions over the last four years. There was not a 2019 data point for the Mid-Atlantic adult composite, as the ChesMMAP index was not available.
- The composite index has been above the 30% threshold since 2008 (Figure 3).
- The adult composite TLA for the Mid-Atlantic meets the 30% threshold of moderate concern and it did trigger at that level in 2019, as three of the four terminal years exceeded the 30% threshold.

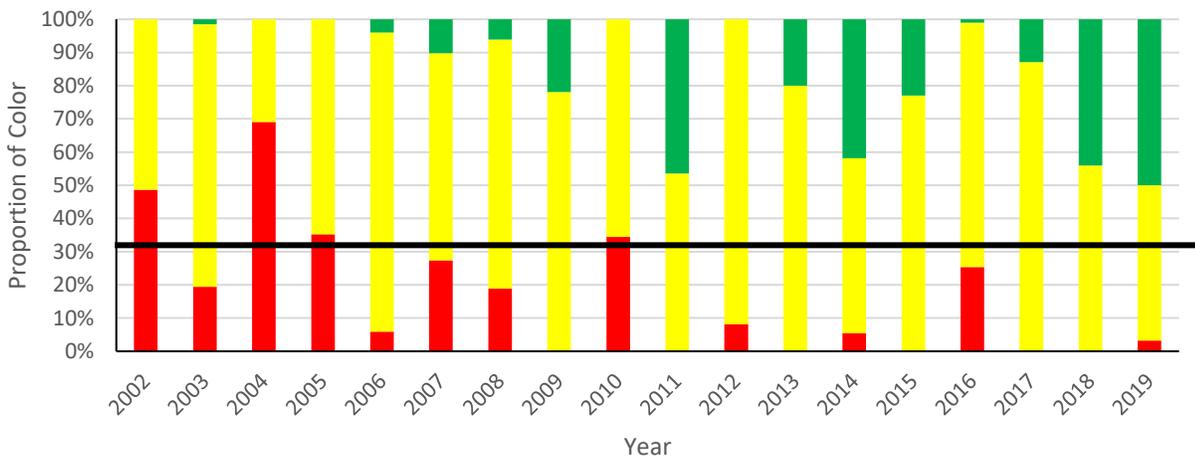
Figure 3. Adult (age 2+) Atlantic croaker TLA composite characteristic index for the Mid-Atlantic (NEFSC and ChesMMAP surveys, no 2019 ChesMMAP value included)



Both the adult abundance and harvest TLA composite characteristics triggered in the Mid-Atlantic at the 30% threshold in 2019. Both the adult abundance and harvest composite showed a continued declining trend which is cause for concern in the Mid-Atlantic region. The continued declining trend in the juvenile composite does not bode well for a positive change in the adult population if recruitment continues to decline (Figure 17).

- The adult composite TLA characteristic for the South Atlantic (Figure 44) showed an increasing trend with a relatively high proportion of green in both 2018 and 2019.
- This index did not trigger any management response in 2019 for the South Atlantic region.

Figure 4. Adult (age 2+) Atlantic croaker TLA composite characteristic index for the South Atlantic (SEAMAP and SCDNR trammel survey)



3 SUMMARY AND MANAGEMENT MEASURES

The harvest composite TLA characteristic triggered in both the Mid-Atlantic and South Atlantic in 2019 at the 30% threshold indicating moderate concern. The continued declining trend in the commercial and recreational harvests for the Atlantic coast is a concern since the decline has become greater in the last two years. The adult abundance characteristics for the Mid-Atlantic exceeded the threshold in 2019 while the South Atlantic abundance composite characteristic did not exceed the trigger in 2019. An implementation of the management guidelines in Addendum III have been triggered in the Atlantic croaker management unit coastwide due to the Mid-Atlantic region composite harvest and abundance TLAs exceeding the 30% threshold for at least three of the past four years. Based on management guidelines, bag limit regulations of no more than 50 Atlantic croaker per person per day and a reduction in commercial harvest of 1% of the average state commercial harvest from the previous 10 years will be required in *non-de minimis* states.

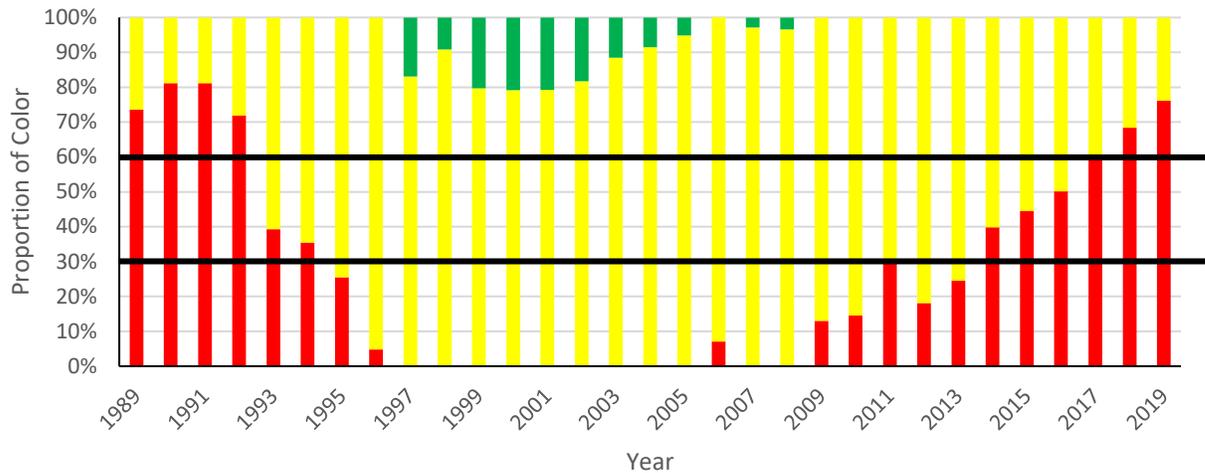
4 TRAFFIC LIGHT ANALYSIS (FISHERY DEPENDENT)

4.1 Commercial Landings

4.1.1 Mid-Atlantic

- Commercial landings in the Mid-Atlantic declined 54.2% in 2019 (385.9 metric tons) from 2018 (1,619 metric tons) and represented the 14th year of decline in commercial croaker landings (Figure 5).
- The TLA for commercial landings has been above the 30% threshold every year since 2014 and 2019 was the 6th year in a row where landings were above the 30% threshold.
- More concerning is that the red proportion has been above the 60% red threshold for the last two years of the series (2018-2019) and was just under 60% in 2017 (59.5%).
- The three year mean red proportion for croaker has exceeded 30% since 2010 and exceeded 60% in 2019. The continued steady decline in croaker landings in recent years represent some of the lowest landings levels in the time series.

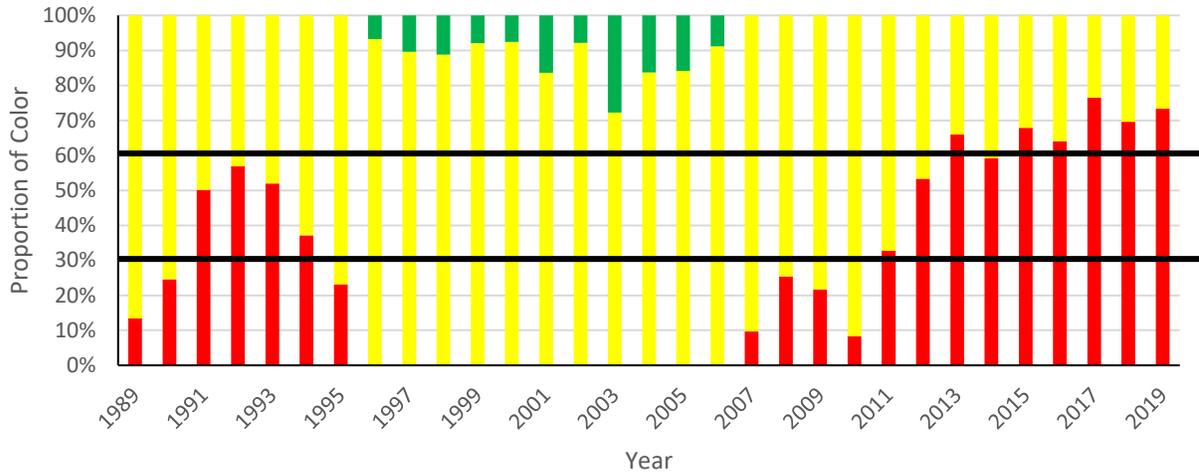
Figure 5. Annual TLA color proportions for Atlantic croaker commercial landings for the Mid-Atlantic (NJ-VA) coast of the US



4.1.2 South Atlantic

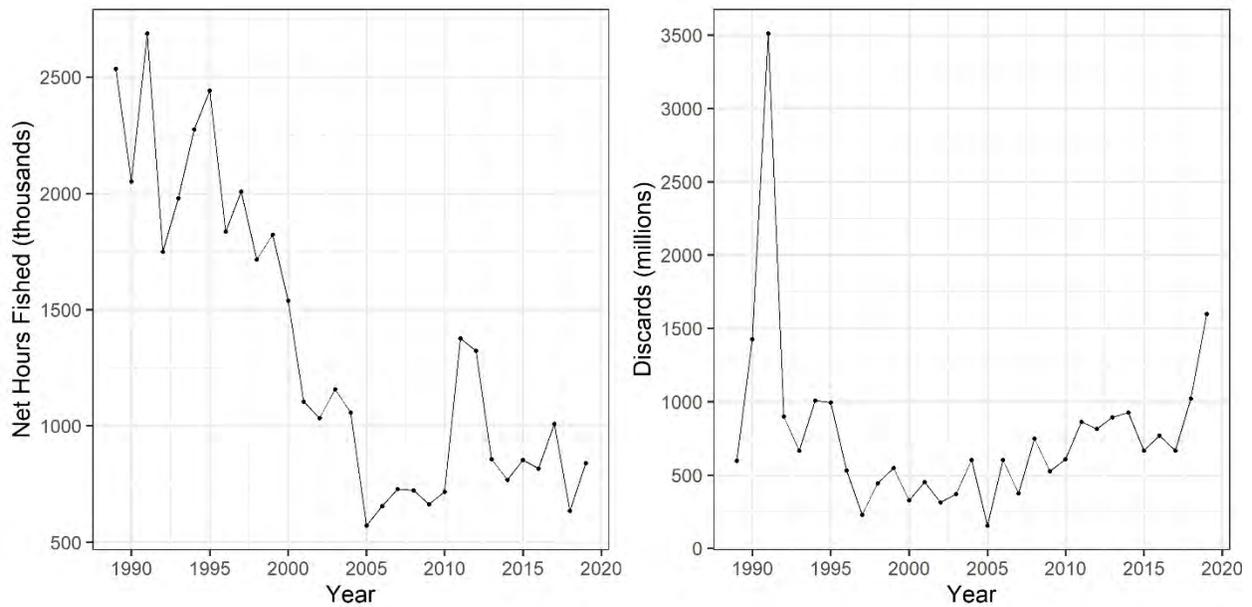
- Commercial landings in the South Atlantic declined 20.4% in 2019 (618.1 metric tons) from 2018 (776.1 metric tons) and represented the 11th year of decline in commercial croaker landings in the South Atlantic (Figure 6).
- The TLA for commercial landings in the South Atlantic has been at or above the 60% threshold every year since 2014 (Figure 66) and 2019 was the 9th year in a row where landings were above the 30% threshold.
- More concerning is that the red proportion has been near or above the 60% red threshold for six of the past seven years of the series (2013-2019) and was only just under 60% in 2014 (59.1%).
- The three year mean red proportion for croaker has exceeded 30% since 2011 and exceeded 60% for the past five years. The continued steady decline in croaker landings in recent years represent some of the lowest landings levels in the time series.

Figure 6. Annual TLA color proportions for Atlantic croaker commercial landings for the South Atlantic (NC-FL) coast of the US



- Total effort (net hours) in the South Atlantic Shrimp Trawl Fishery declined from a time series high in 1991 to a time series low in 2005 and varied around an increasing trend through the remainder of the time series (Figure 7; left).
- Total discards of Atlantic croaker in the South Atlantic Shrimp Trawl Fishery were high during the late 1980s and early 1990s, declined to relatively low levels in the early to mid-2000s, and then increased to levels similar to the beginning of the time series during the 2010s (Figure 77; right). Discards during the final two years of the time series were the highest since 1991 and included the second highest number of the time series in 2019.

Figure 7. Total net hours fished (left) and discards of Atlantic croaker (right) in the South Atlantic Shrimp Trawl Fishery.



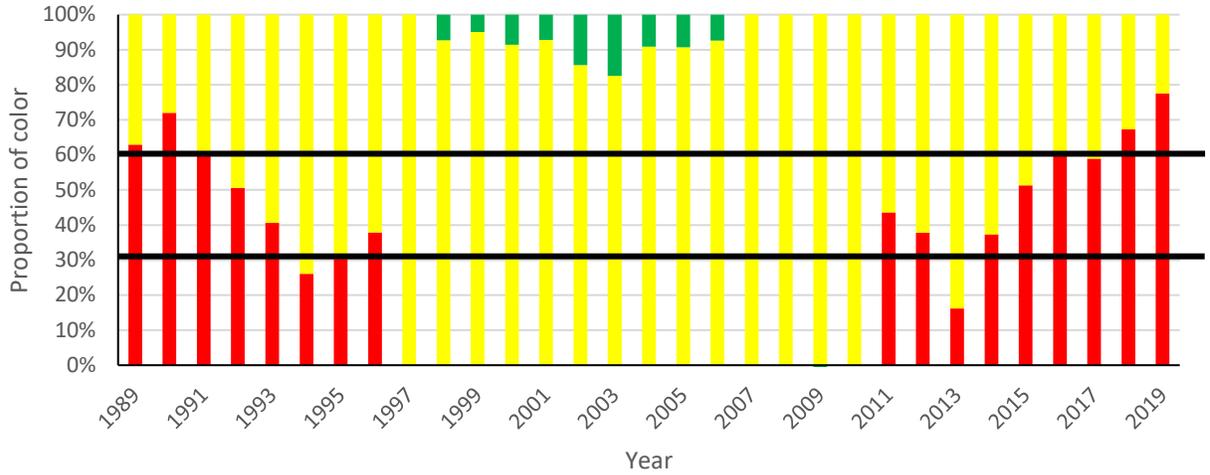
4.2 Recreational Harvest

In July 2018, the Marine Recreational Information Program transitioned from the catch estimates based on effort information from the Coastal Household Telephone Survey (CHTS) to effort information from the mail-based Fishing Effort Survey (FES). FES estimates are used in this and future reports, so recreational estimates and analyses may be different from previous years that used CHTS estimates.

4.2.1 Mid-Atlantic

- The recreational harvest index continued to decline in 2019, down 58% (468.2 metric tons) from 2018 (1,113.6 metric tons).
- The recreational harvest level in 2019 was the lowest annual harvest in the entire time series (1981-2019) for the Mid-Atlantic.
- The proportion of red in the TLA was 77.5% in 2019 increasing from 64.1% in 2018 (Figure 8), indicating the recreational index has exceeded the 30% threshold level for the last six years (Figure 8).
- As with commercial landings, the continued decline in harvest levels for Atlantic croaker in the recreational fishery are cause for concern.

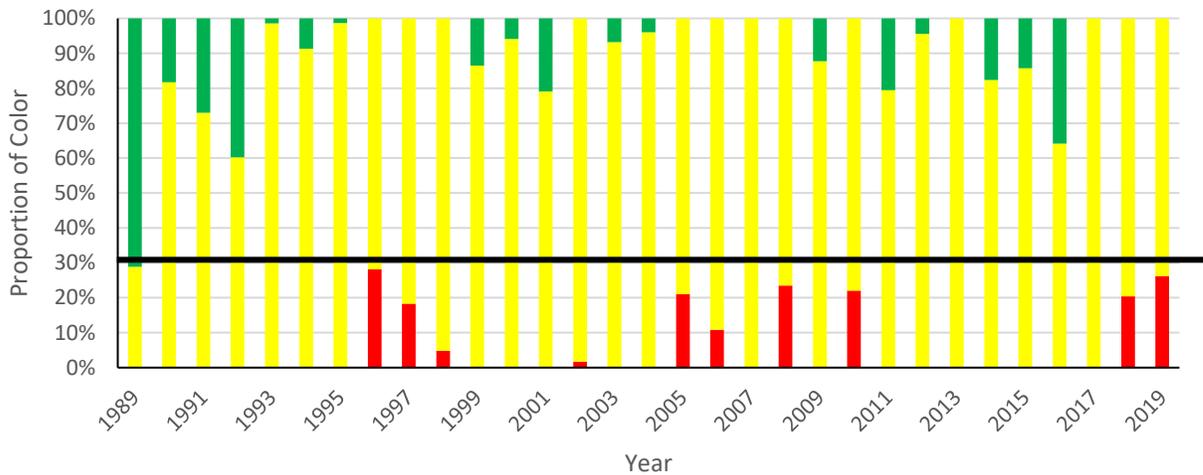
Figure 8. Annual TLA color proportions for Atlantic croaker from the Mid-Atlantic (NJ-VA) coast recreational harvest of the U.S. based on a 2002-2012 reference period



4.2.2 South Atlantic

- The recreational harvest index for the South Atlantic declined 9.3% in 2019 to 429.5 metric tons from 473.4 metric tons in 2018.
- While recreational landings in the South Atlantic have declined over the past two years, red proportion levels have remained below the 30% threshold (Figure 99).

Figure 9. Annual TLA color proportions for Atlantic croaker for the South Atlantic (NC-FL) recreational harvest of the U.S. based on a 2002-2012 reference period

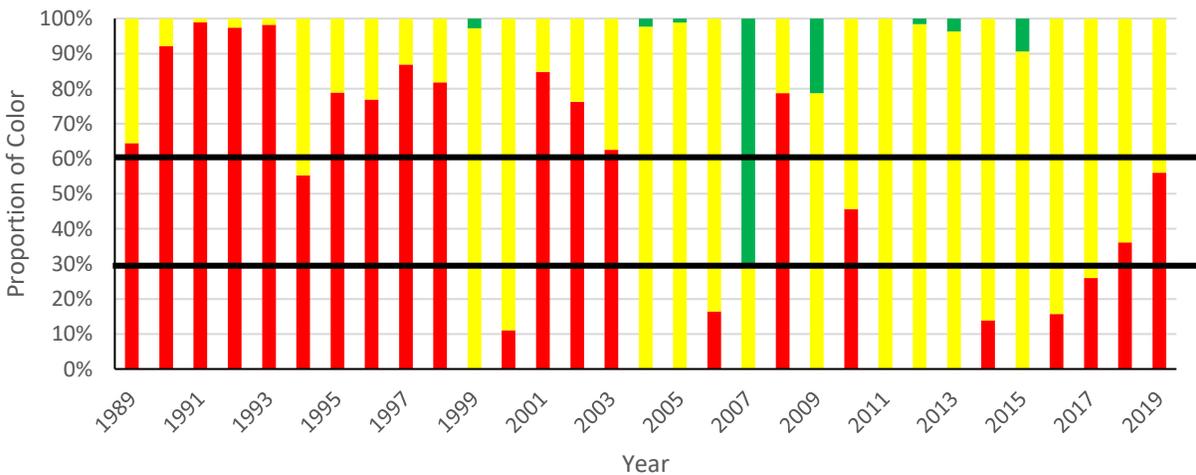


5 TRAFFIC LIGHT ANALYSIS (FISHERY-INDEPENDENT SURVEYS)

5.1 NEFSC Fall Groundfish Survey

- The index value for 2019 was 269.8.0 fish per tow and represented a 31.5% decrease from 2018 (394.0 fish per tow).
- The NEFSC was not carried out in 2017 due to mechanical problems with the RV Bigelow. An imputed index for 2017 was calculated as the mean of 2015-2016 and 2018 (Figure 1010).
- The index has been below the long term mean (452.7 fish per tow) for the past four years.
- The general trend for the index has been declining since the series peak in 2007.
- The red proportion of the TLA has exceeded the 30% threshold for the last two years with the 3 year red proportion average being 39.4%.

Figure 10. Annual TLA color proportions for adult Atlantic croaker from the Mid-Atlantic NEFSC ground-fish trawl survey based on 2002-2012 reference period



5.2 ChesMMAP Survey

- The ChesMMAP survey made major changes to the survey in 2019 (vessel change, gear change, altered protocols, etc.) but maintained the same sampling strata and design. Side-by-side comparison tows were made between the new and old vessels/gears and the survey is in the process of producing conversion factors by species so that historic survey index values can be compared to ongoing survey values in the future. Since the conversion factor determination won't likely be finished until the end of 2020, the ChesMMAP index is only available through 2018 for the adult and juvenile TLA composite characteristics.

- The overall declining trend in catch of Atlantic croaker was evident in both the adult (age 2+) and juvenile (ages 0-1) indices, although the adult index was higher than the juvenile index in the early years of the survey (Figure 11 and Figure 1212). The series peak for juveniles occurred in 2007 and the series peak for adults occurred in 2004. Since 2008 abundances for both age groups have remained relatively low.
- The TLA reflected these trends with high proportions of red since 2008 (Figure 1111 and Figure 1212).
- Proportionately, the decline was slightly greater for juveniles than for adults in recent years.

Figure 11. Mid-Atlantic ChesMMAP survey annual TLA color proportions for juvenile Atlantic croaker ages 0-1 using a 2002-2012 reference period

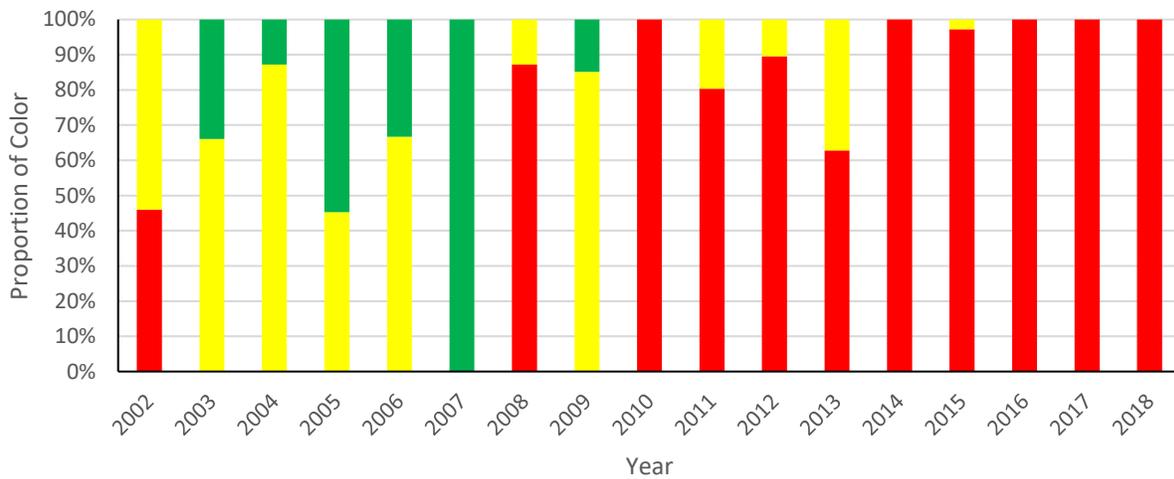
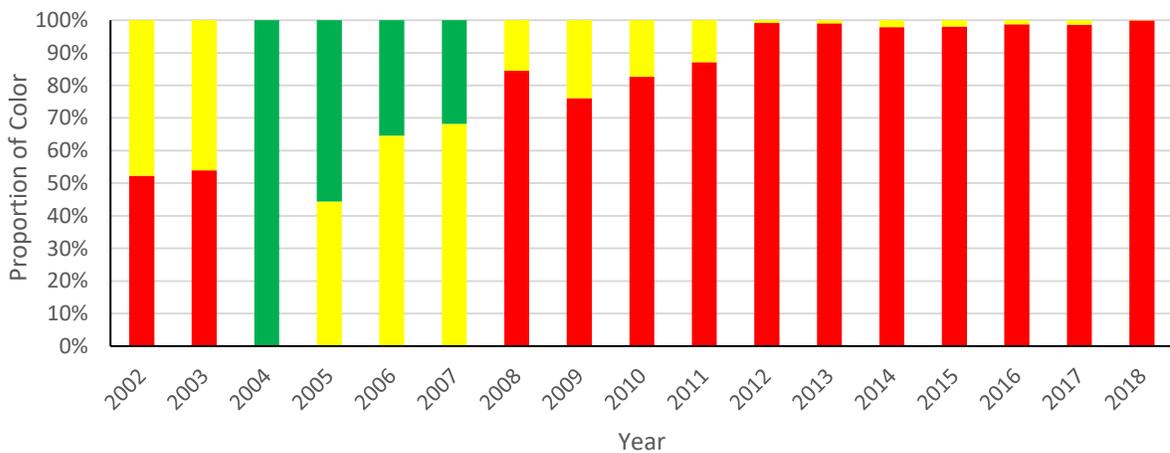


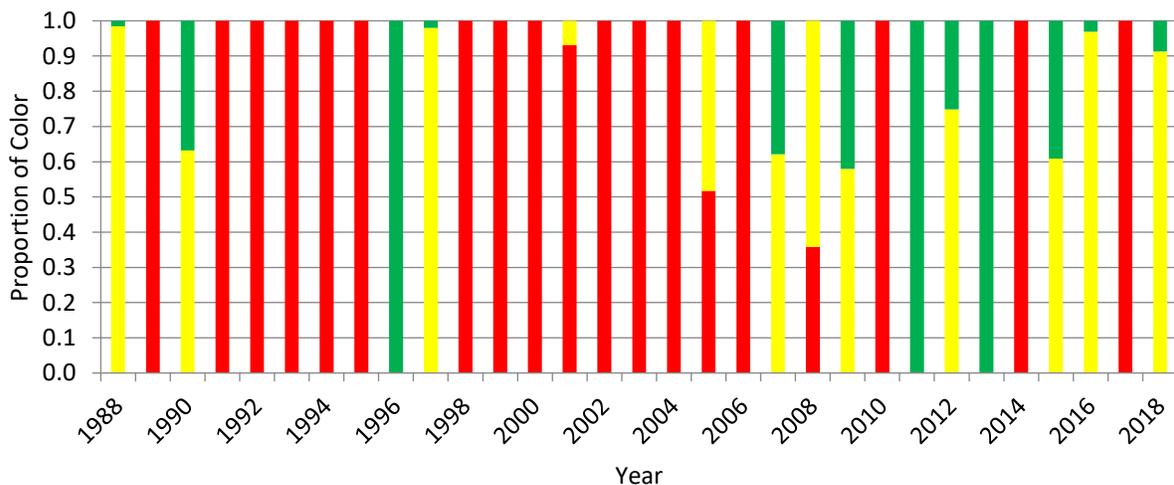
Figure 12. Mid-Atlantic ChesMMAP survey annual TLA color proportions for adult Atlantic croaker ages 2+ using a 2002-2012 reference period



5.3 VIMS Survey

- The inability to do field work in June of 2020 due to work restrictions from the COVID-19 pandemic resulted in no juvenile VIMS index for 2019. The VIMS juvenile trawl survey uses the relative catch levels of 1-year-old juvenile croaker as the proxy for the previous year's recruitment index. The results from the 2018 report were left in this report as a placeholder, although the VIMS index was not used in the composite indices in this report.
- The VIMS index increased significantly (2447%) in 2018 from 2017 going from 0.614 fish per tow in 2017 to 15.64 fish per tow in 2018. High variability in the TLA color proportions was likely due to annual recruitment variations, which would not be uncommon for a juvenile index (Figure 1313).
- The index value was above the long term mean in 2018 with a red proportion of 6.8%.

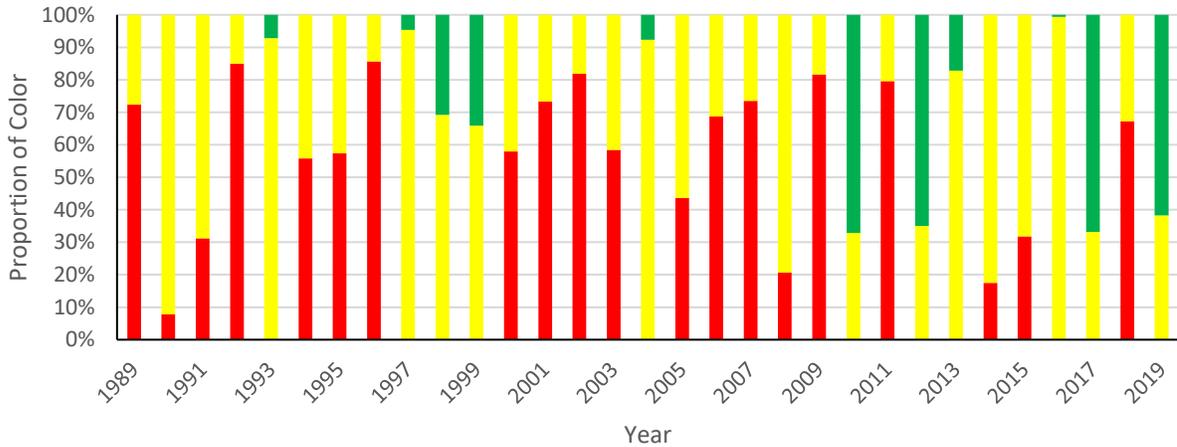
Figure 13. Annual TLA color proportions for juvenile Atlantic croaker ages 0-1 from Mid-Atlantic VIMS spring trawl survey using 2002-2012 reference period



5.4 SEAMAP Survey

- The SEAMAP spring season survey index used was for the spring season when more adult Atlantic croaker (ages 2+) are captured than in the fall season.
- The SEAMAP index increased 12.7% in 2019 (34.7 kg/tow) from 2018 (30.7 kg/tow).
- Index values have remained above the long term mean since 2011 so there was no red in the TLA for 2019 (Figure 14).

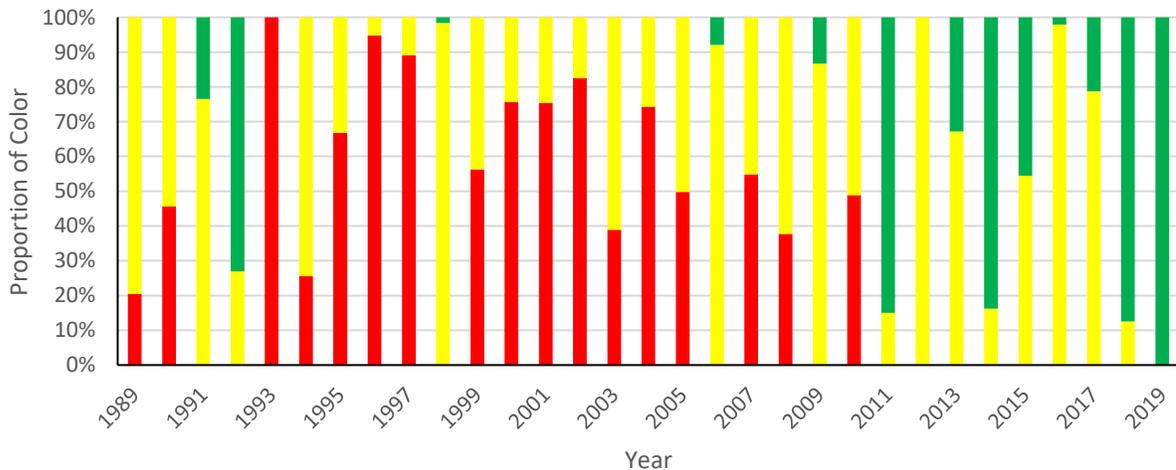
Figure 14. Traffic Light Analysis for South Atlantic SEAMAP catch data by weight in spring for Adult Atlantic croaker using a 2002-2012 reference period



5.5 North Carolina Program 195

- The North Carolina index increased significantly in 2019 (88.1%) to 1,110.8 fish/tow (versus 136.7 fish/tow in 2018) and was well above the long term mean (290.3 fish per tow) resulting in a green proportion of 1.0 in the TLA (Figure 155).
- The increase in CPUE and resulting high green proportion was likely due to a very strong year-class for Atlantic croaker in 2019 in North Carolina.

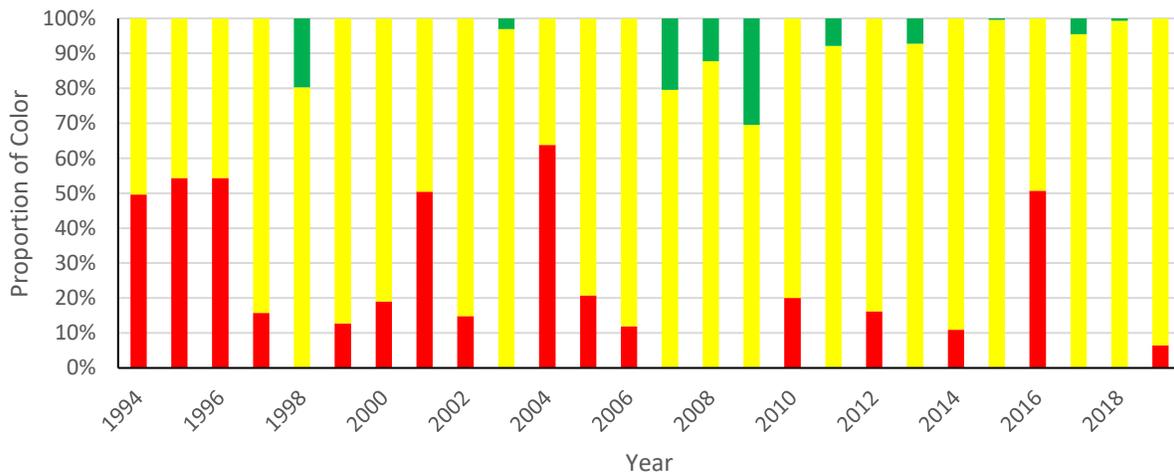
Figure 15. South Atlantic NCDMF Program 195 TLA color proportions for juvenile Atlantic croaker using 2002-2012 reference period



5.6 SCDNR Trammel Net Survey

- The SCDNR trammel index declined 12.7% in 2019 (1.35 fish per set) compared to 2018 (1.54 fish per set). Annual CPUE has been variably above and below the long term mean (1.34 fish per set) since 2009, indicated by annual alterations between red and green proportions in the TLA (Figure 166).
- The 2019 index value was only just below the long term mean.

Figure 16. South Atlantic SCDNR trammel net survey TLA color proportions for adult Atlantic croaker using a 2002-2012 reference period.



5.7 Juvenile Abundance Composites by Region

The juvenile composite index in the Mid-Atlantic was generated from the ChesMMAAP and VIMS surveys because VIMS is a juvenile survey and ChesMMAAP has an age specific index for ages 0-1. There was not a Mid-Atlantic juvenile composite TLA in 2019 owing to the lack of indices for both ChesMMAAP and VIMS. Both of these indices should return to use for the 2020 sampling year, with a 2019 index for ChesMMAAP but not VIMS. The advisory juvenile composite characteristic was above the 60% threshold in the Mid-Atlantic, but not in the South Atlantic.

- The juvenile composite TLA characteristic (Figure 17) in 2018 was above the 60% red threshold using ChesMMAAP and VIMS for the third year. The Mid-Atlantic juvenile composite exceeded the 60% level of concern in 2019 regardless of whether index values had been available since it exceeded the threshold in three of the previous four years.
- The high red proportions in recent years are indicative of continued poor Atlantic croaker recruitment in the Mid-Atlantic region.
- The juvenile index for the South Atlantic TLA has been below the 30% red threshold, and uses only the NC Program 195 index (Figure 18).

Figure 17. Juvenile croaker (ages 0-1) TLA composite characteristic index for the Mid-Atlantic (ChesMMAP and VIMS through 2018)

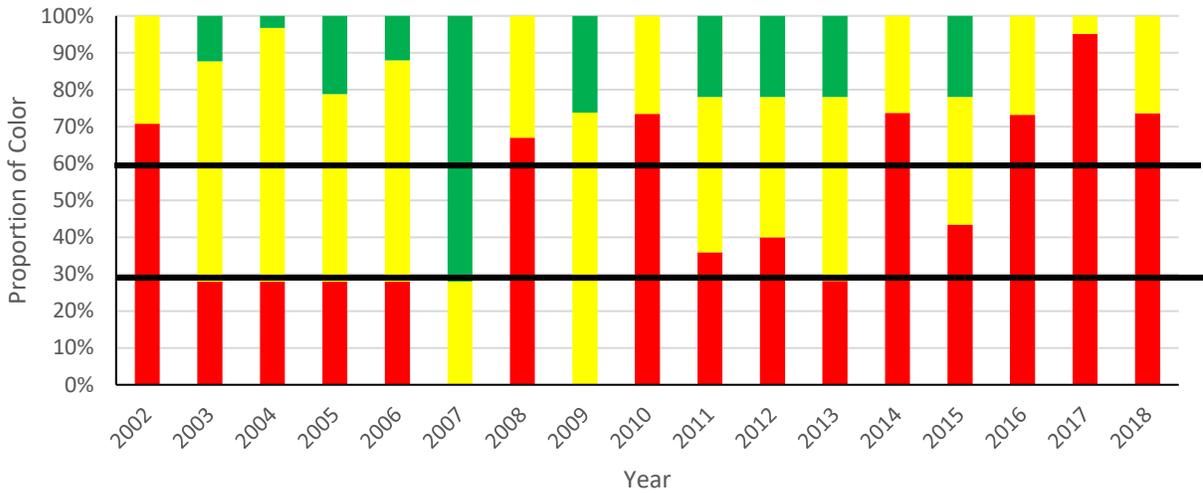
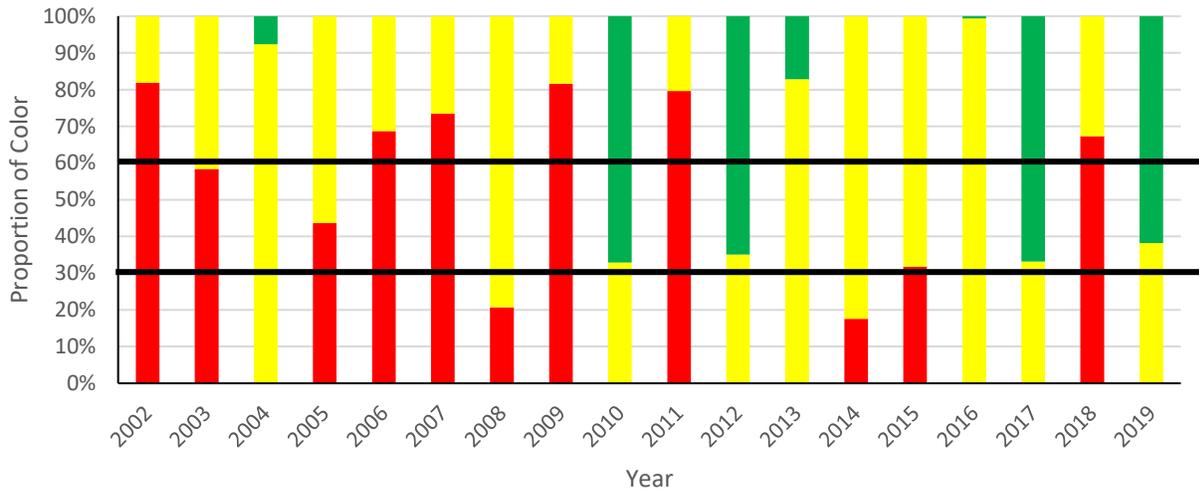


Figure 18. Juvenile (ages 0-1) Atlantic croaker composite characteristic index for the South Atlantic (NC Program 195)

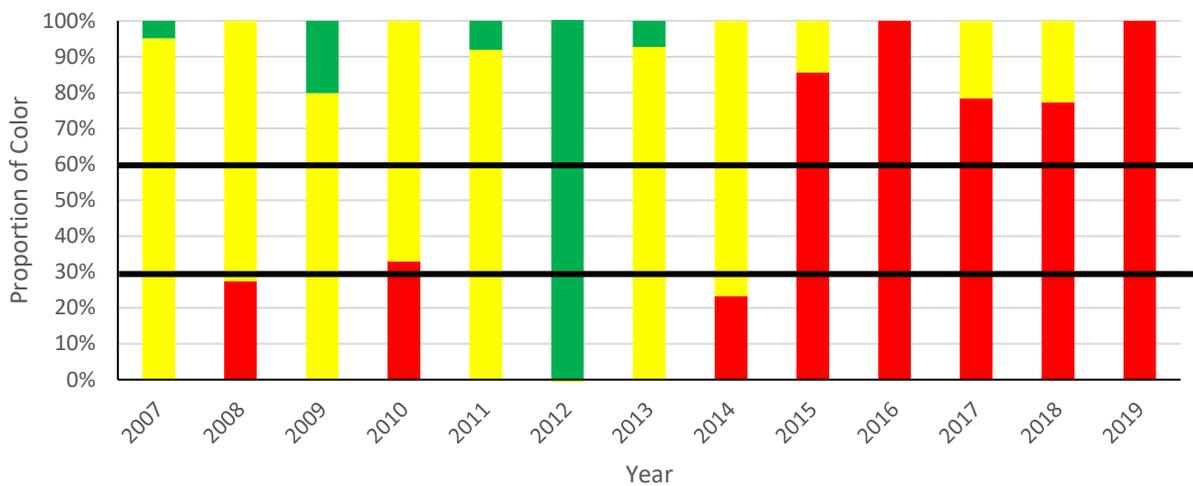


6 SUPPLEMENTAL MATERIAL

6.1 NEAMAP Survey

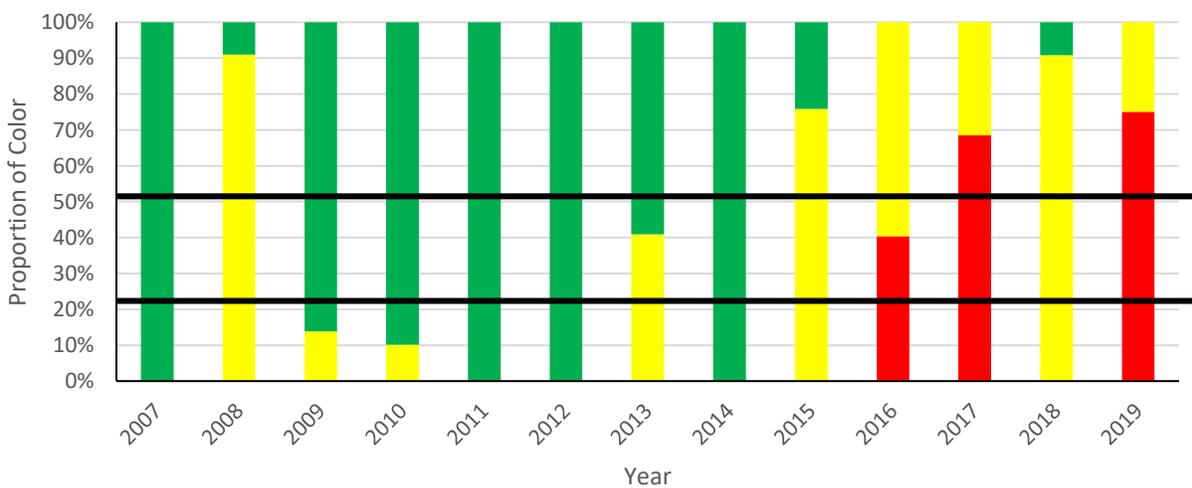
- Juvenile recruitment has been on a declining trend since 2012 as indicated by high red proportions above the 60% threshold for the last five years (Figure 19).
- This corresponds well with the decline seen in the ChesMMAP survey for juveniles in recent years as well.

Figure 19. Juvenile (ages 0-1) TLA color proportions for Atlantic croaker from NEAMAP survey using a 2007-2019 reference period



- The adult Atlantic croaker index for NEAMAP also showed a declining pattern in recent years (Figure 20), although not as much of decline as that seen in the juvenile fish.
- The NEAMAP survey adult TLA had red proportions above the 30% threshold for three of the four previous years (Figure 20). Red proportions in 2017 and 2019 exceeded the 60% threshold as well.

Figure 20. Adult (ages 2+) TLA color proportions for Atlantic croaker from the NEAMAP survey using a 2007-2019 reference period



6.2 Composite TLA Characteristic for Mid-Atlantic including NEAMAP

In order to generate the composite TLA index that included NEAMAP in the Mid-Atlantic, the other Mid-Atlantic indices (NEFSC, ChesMMAP, VIMS) had to be recalculated using the common time period of all three surveys (2007-2019) in order to have a common reference.

- The addition of NEAMAP to the Mid-Atlantic TLA composite characteristic for juvenile Atlantic croaker showed the same general trend of declining recruitment and high levels (> 60%) of red in recent years (Figure 21). While the composite only went through 2018 in order to correspond to data available from the ChesMMAP and VIMS surveys, red proportions were still above 60% for just the NEAMAP survey (Figure 21).
- The adult Atlantic croaker composite characteristic for the Mid-Atlantic with NEAMAP included also showed increasing proportions of red and would have triggered in 2019 at the 30% threshold (0).

Figure 21. Juvenile Atlantic croaker (ages 0-1) TLA composite characteristic index for the Mid-Atlantic through 2018 using NEAMAP, ChesMMAP, and VIMS with a 2007-2018 reference period

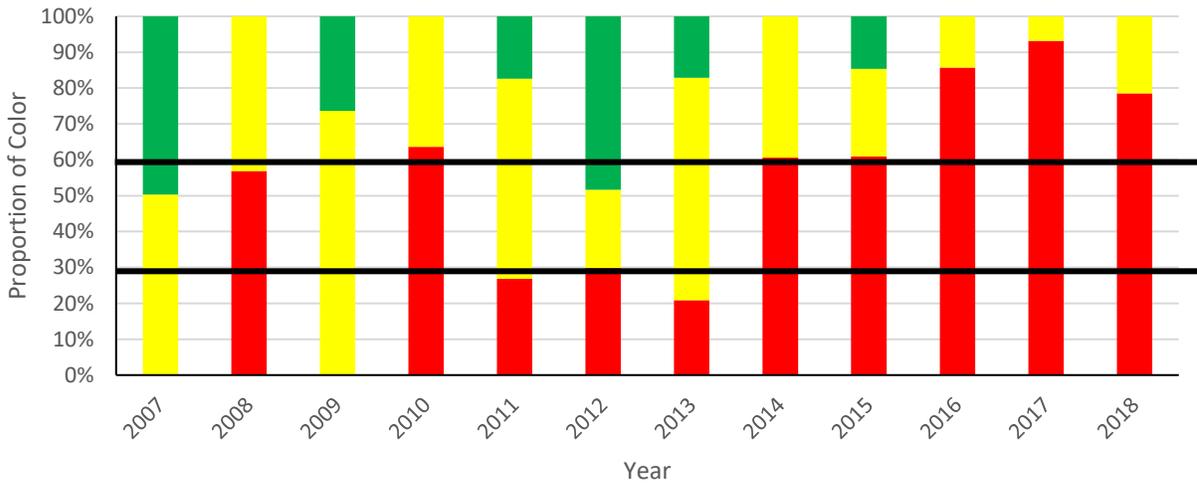
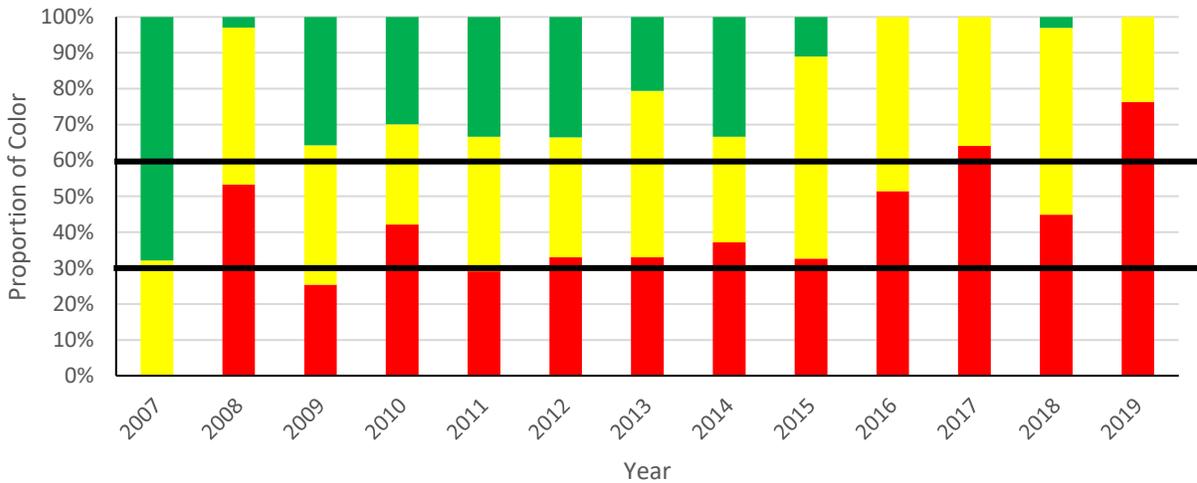


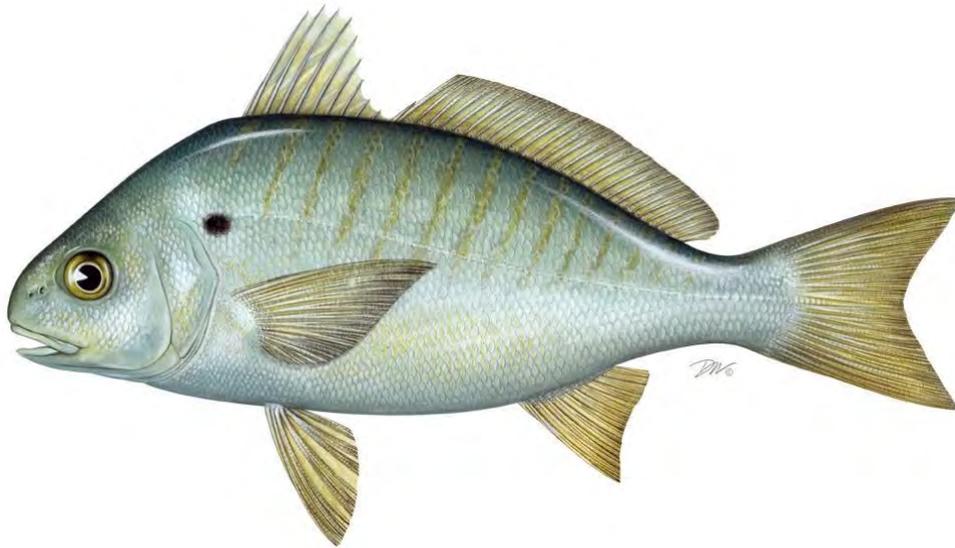
Figure 22. Adult Atlantic croaker (ages 2+) TLA composite characteristic index for the Mid-Atlantic (NJ-VA) through 2018 using NEFSC, NEAMAP and ChesMMAP with a 2007-2019 reference period



The addition of the NEAMAP survey to the Mid-Atlantic composite characteristics supports trends seen with the other indices used in the composite characteristic. The only limitation on the NEAMAP survey is a more limited time frame compared to the other surveys. The NEAMAP survey may be added to the TLA data sets after either the next benchmark assessment for Atlantic croaker (currently scheduled for completion in 2024) or after it has 15 years or more of index values.

**2020 Traffic Light Analysis of Spot (*Leiostomus xanthurus*) for the Atlantic States
Marine Fisheries Commission Fishery Management Plan Review.**

2019 Fishing Year



Spot Technical Committee

*Chris McDonough, South Carolina Dept. of Natural Resources
Harry Rickabaugh, Maryland Dept. of Natural Resources, Chair
BJ Hilton, Georgia Department of Natural Resources
Michael Greco, Delaware Division of Fish and Wildlife
Morgan Paris, North Carolina Division of Marine Fisheries
Somers Smott, Virginia Marine Resource Commission
Stacy VanMorter, New Jersey Division of Fish and Wildlife

*Prepared analysis and report

1 INTRODUCTION

Spot is managed under the Omnibus Amendment for Spot, Spotted Seatrout, and Spanish Mackerel (2011), Addendum II (2014), and Addendum III (2020). The Omnibus Amendment updates all three species plans with requirements of the Atlantic States Marine Fisheries Commission's (ASMFC) Interstate Fisheries Management Program (ISFMP) Charter. The benchmark stock assessment for spot in 2017 was not recommended for management use due to uncertainty in biomass estimates from conflicting signals among abundance indices and catch time series, as well as sensitivity of model results to assumptions and model inputs.

Previously, in the absence of a coastwide stock assessment, the South Atlantic Board (SAB) approved Addendum II to the Spot Fishery Management Plan (FMP) in 2014. The Addendum established the use of a Traffic Light Analysis (TLA), similar to that used for Atlantic croaker, to evaluate fisheries trends and develop state-specified management actions (e.g., bag limits, size restrictions, time and area closures, and gear restrictions) when harvest and abundance thresholds are exceeded for two consecutive years. The TLA is a statistically-robust way to incorporate multiple data sources (both fishery -independent and -dependent) into a single, easily understood metric for management advice. It is often used for data-poor species, or species which are not assessed on a frequent basis. The name comes from assigning a color (red, yellow, or green) to categorize relative levels of indicators on the condition of the fish population (abundance metric) or fishery (harvest metric). For example, as harvest or abundance increase relative to their long-term mean, the proportion of green in a given year will increase and as harvest or abundance decrease, the amount of red in that year becomes more predominant. The TLA improves the management approach as it illustrates long-term trends in the stock and includes specific management recommendations in response to declines in the stock or fishery. Under Addendum II, state-specific management action would be initiated when the proportion of red exceeds specified thresholds (30% or 60%), for both harvest and abundance, over two consecutive years.

Starting in the late 2000s, there were inconsistent signals in the data used to examine the resource. While strong declines in harvest and reports of poor fishing prompted concern, management action was not triggered through the TLA because similar declines were not observed in abundance indices. These conflicting signals suggested the abundance indices being used in the TLA may not adequately represent coastwide adult abundance and the TLA may not be sensitive enough to trigger management action if declines in the population and fishery occur. Additionally, management lacked specificity in what measures to implement if a trigger did occur and how the fishery should be evaluated following management action. In February 2020, the SAB approved Addendum III to the Spot FMP. Addendum III addressed these issues by modifying the TLA to better reflect stock characteristics and identify achievable management actions based on stock conditions.

Addendum III incorporated the use of a regional approach to better reflect localized fishery trends and changed the TLA to trigger management action if two of the three most recent years of characteristics exceed threshold levels. These changes to management allow the TLA to better detect population and fishery declines. Addendum III also defined management

responses for the recreational and commercial fisheries and a method for evaluating the population's response to TLA-triggered management measures.

The following changes were incorporated into the TLA by Addendum III:

- Incorporation of indices from the Chesapeake Bay Multispecies Monitoring and Assessment Program (ChesMMAP) and the North Carolina Division of Marine Fisheries (NCDMF) Pamlico Sound Survey (Program 195) into the adult composite characteristic index, in addition to the currently used indices from the Northeast Fisheries Science Center (NEFSC) Multispecies Bottom Trawl Survey and the South Atlantic component of the Southeast Area Monitoring and Assessment Program (SEAMAP).
- Use of revised adult abundance indices from the surveys mentioned above, in which age-length keys and length composition information are used to estimate the number of adult (age 1+) individuals caught by each survey.
- Use of regional metrics to characterize the fisheries north and south of the Virginia-North Carolina state border. The ChesMMAP and NEFSC surveys will be used to characterize abundance north of the border, and the NCDMF Program 195 and SEAMAP surveys will be used to characterize abundance south of the border.
- Change/establish the reference time period for all surveys to be 2002-2012.
- Change the triggering mechanism to the following: Management action will be triggered according to the current 30% and 60% red thresholds if both the abundance and harvest thresholds are exceeded in any two of the three terminal years.

Addendum III also established a Spot Technical Committee (TC) with the ability to alter the TLA as needed to best represent trends in spot harvest and abundance, including selection of surveys and methods to analyze and evaluate these data. Such changes may be made without an addendum, but Addendum III was necessary because of the change to the management-triggering mechanism. The TC will evaluate state implementation of management responses triggered through the TLA.

This report includes the harvest and abundance composite indices in Section 2 which are the TLAs that trigger management action. Individual TLAs for commercial and recreational harvest by region, which go into the harvest composite, as well as effort and discards of spot in the South Atlantic Shrimp Trawl Fishery, which are included as supplementary information to be reviewed by the TC and are not included in harvest composite indices, are described in Section 4. TLAs for each fishery-independent index that go into the abundance composite are described in Section 5. Supplemental information with NEAMAP incorporated into the TLAs is provided in Section 6.

2 TRAFFIC LIGHT ANALYSIS (COMPOSITE INDICES)

2.1 Harvest Composite Characteristic Index

- The harvest (recreational and commercial landings) composite characteristic TLA shows the general decline in landings since 2008 in both the Mid-Atlantic and South Atlantic (Figure 1 and Figure 2).
- The composite characteristic for the Mid-Atlantic has exceeded the 30% threshold for four of the last five years (Figure 1) with an average red proportion of 40.4%. The red proportion in 2019 was 34.7%.
- The composite characteristic for the South Atlantic has exceeded the 30% threshold for three of the last four years (Figure 2) with an average proportion of 35.6%. The red proportion in 2019 was 41.6%.
- The declining trend in spot fishery landings continues to occur coastwide.
- The TLA composite index triggered in 2019 at the 30% threshold for both regions.

Figure 1. Annual TLA color proportions for harvest composite (commercial and recreational landings) in the Mid-Atlantic coast (NJ-VA) for spot using a 2002-2012 reference period.

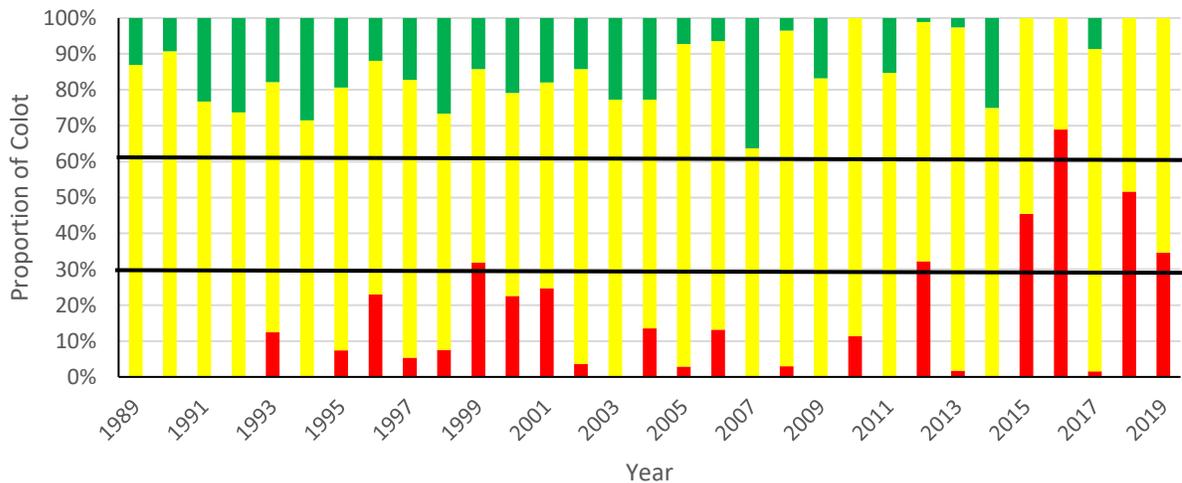
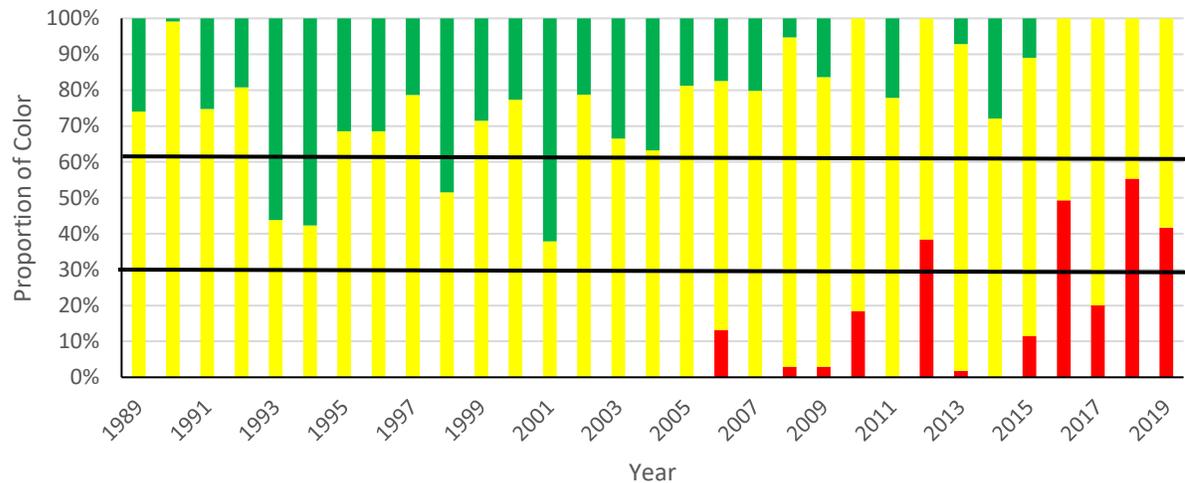


Figure 2. Annual TLA color proportions for harvest composite (commercial and recreational landings) for the South Atlantic coast (NC-FL) for spot using a 2002-2012 reference period.



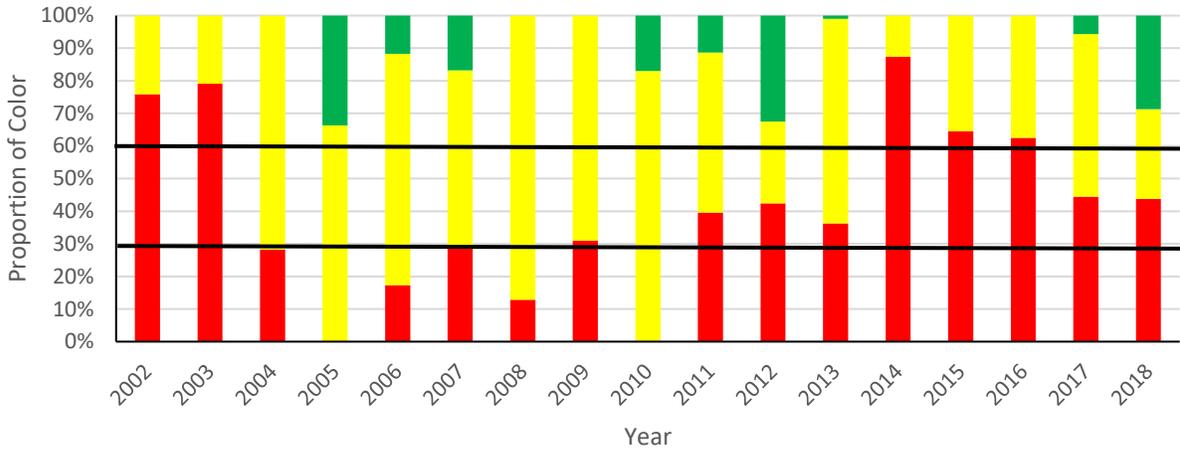
2.2 Abundance Composite Characteristic Index

The abundance composite TLA index was broken into two components based age composition in each region. The adult composite index was generated from the NEFSC and ChesMMAP surveys for the Mid-Atlantic and SEAMAP and NCDMF Program 195 in the South Atlantic since the majority of spot captured in these surveys were ages 1+. The Mid-Atlantic abundance composite TLAs in 2019 could only be estimated using the MD and NEFSC surveys for the juvenile (Section 5.7) and adult TLAs, respectively, owing to the lack of indices from ChesMMAP. ChesMMAP should return to use for the 2020 sampling year, including calibrated indices for 2019. One additional survey that is available in the Mid-Atlantic is the NorthEast Area Monitoring and Assessment Program (NEAMAP) which samples from Block Island Sound south to Cape Hatteras. The NEAMAP survey has been considered for use in the TLA but is currently not utilized due to the shorter time frame (2007-2019) compared to all the other surveys. It is anticipated that this survey will come into use with the TLA once it reaches a 15 year sampling time span. There is a supplemental section at the end of this report that describes the trends in the NEAMAP survey and gives composite characteristics that include NEAMAP for the Mid-Atlantic. Only adult abundance will be used to determine if management action is triggered. Juvenile data is presented as supplementary information.

2.2.1 Mid-Atlantic

- The TLA composite characteristics for spot abundance (NEFSC and ChesMMAP surveys) in the Mid-Atlantic did not have 2019 data points owing to the fact that the ChesMMAP survey indices were not available (Figure 33).
- The adult index still triggered at the 30% threshold because the red proportions in the index have exceed the 30% threshold for the previous five years (Figure 3).

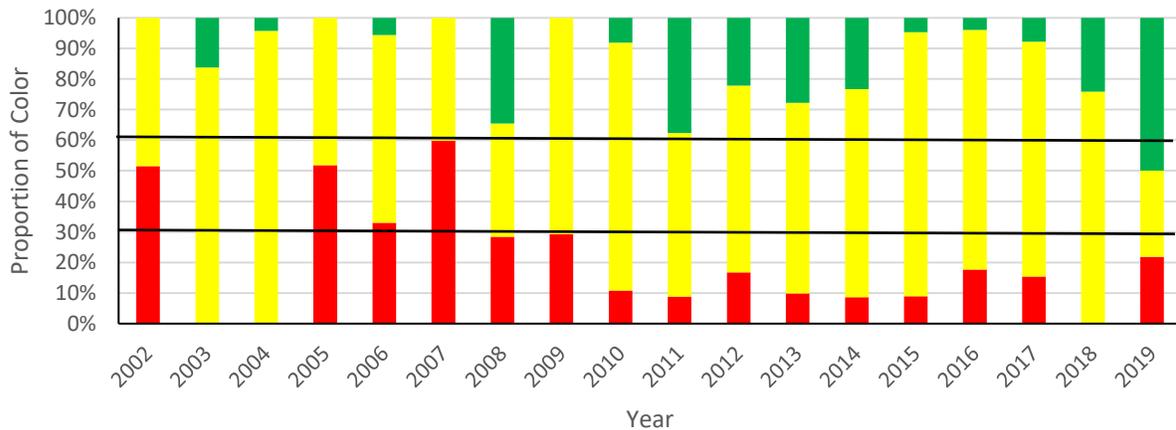
Figure 3. Annual TLA for adult (age 1+) spot for composite characteristic of adult fishery independent surveys in the Mid-Atlantic (NJ-VA) (NEFSC and ChesMMA) using a 2002-2012 reference period.



2.2.2 South Atlantic

- The South Atlantic adult abundance composite characteristic did not trigger in 2019 since none of the red proportions in recent years have exceeded the 30% red threshold (Figure 4). There has been a bit of conflict in the index with both red and green proportions in the same years. This has been due to the NCDMF Program 195 index having higher red proportions and SEAMAP having relatively high green proportions in recent years.

Figure 4. Annual TLA composite characteristic for adult spot (age 1+) in the South Atlantic (SEAMAP and NCDMF Program 195) using a 2002-2012 reference period.



3 SUMMARY

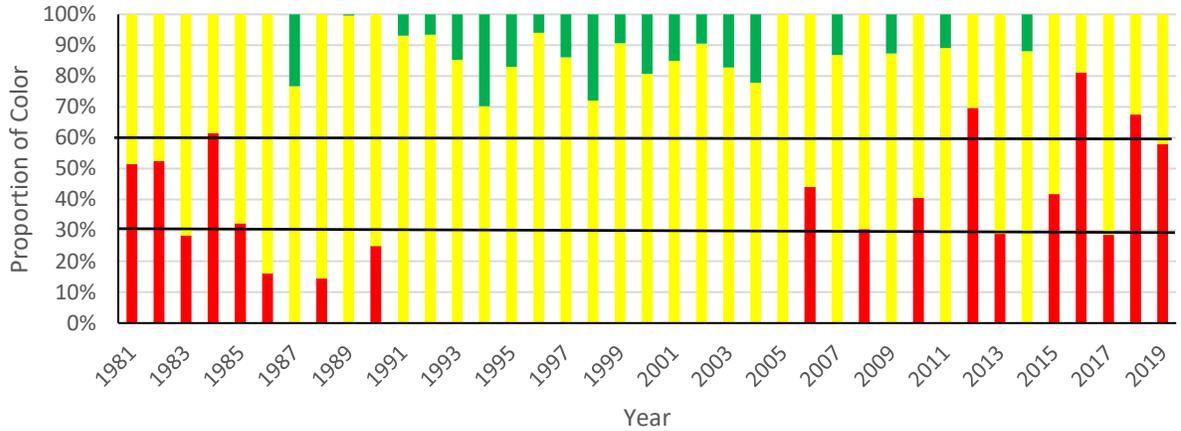
- The harvest composite TLA for spot exceeded the 30% threshold in both regions and triggered in 2019.
- The Mid-Atlantic abundance composite characteristic did not have a 2019 data point, but did trigger the two previous years thus triggering in two of the three terminal years.
- The South Atlantic abundance composite characteristic did not trigger in 2019 for adults with red proportions in the terminal three years either not present or below the 30% threshold of concern.
- With the harvest TLAs triggering at 30% for both regions and the abundance composite TLA triggering at the 30% threshold in the Mid-Atlantic region in 2019, management action outlined in Addendum III has been triggered coastwide for both the commercial and recreational fisheries in 2021.

4 TRAFFIC LIGHT ANALYSIS (FISHERY DEPENDENT)

4.1 Commercial

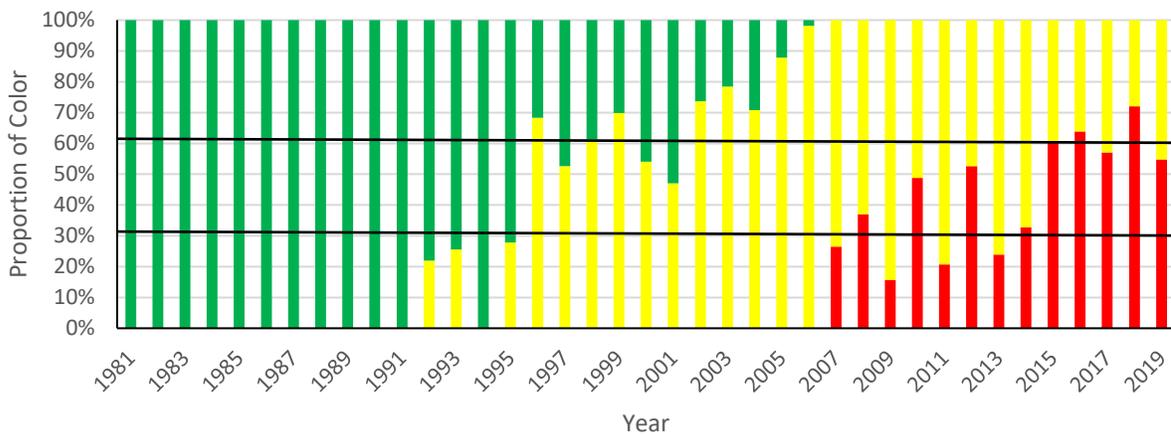
- Commercial landings of spot on the Atlantic coast decreased 59.5% in 2018 from 2017, but increased 44.7% in 2019 from 2018. Landings were still well below the long term mean although they were up from the time series low which occurred in 2016. Long term, there is still a declining trend in commercial landings that has been occurring since 2003. Total annual landings have declined 86.7% from 2004 to 2018 (Figure 5).
- The TLA for commercial landings in the Mid-Atlantic peaked in the 1990s and early 2000s (Figure 55). The general trend has been a decline since 2005, although there is some year-to-year variability between red and green proportions. In the last five years the red proportion has been above the 30% threshold in all but one year.
- The TLA commercial index was above the 30% threshold level in 2019 and represents the fourth year since 2012 where this has happened.

Figure 5. Annual TLA color proportions using 2002-2012 reference period for spot from commercial landings for the Mid-Atlantic (NJ-VA) coast of the US.



- In the South Atlantic, commercial spot landings were high from the 1980s through the mid-2000s (Figure 66). Commercial spot landings began to decline steadily from 2005 onward and red proportion levels have been above the 30% threshold for most years since 2010 and above the 60% threshold three of the last five years.
- The continued decline in commercial landings may be due to changes in effort in some other fisheries (most notably the shrimp trawl fishery) so it is difficult to determine the exact cause of the general decline in commercial landings in the South Atlantic.

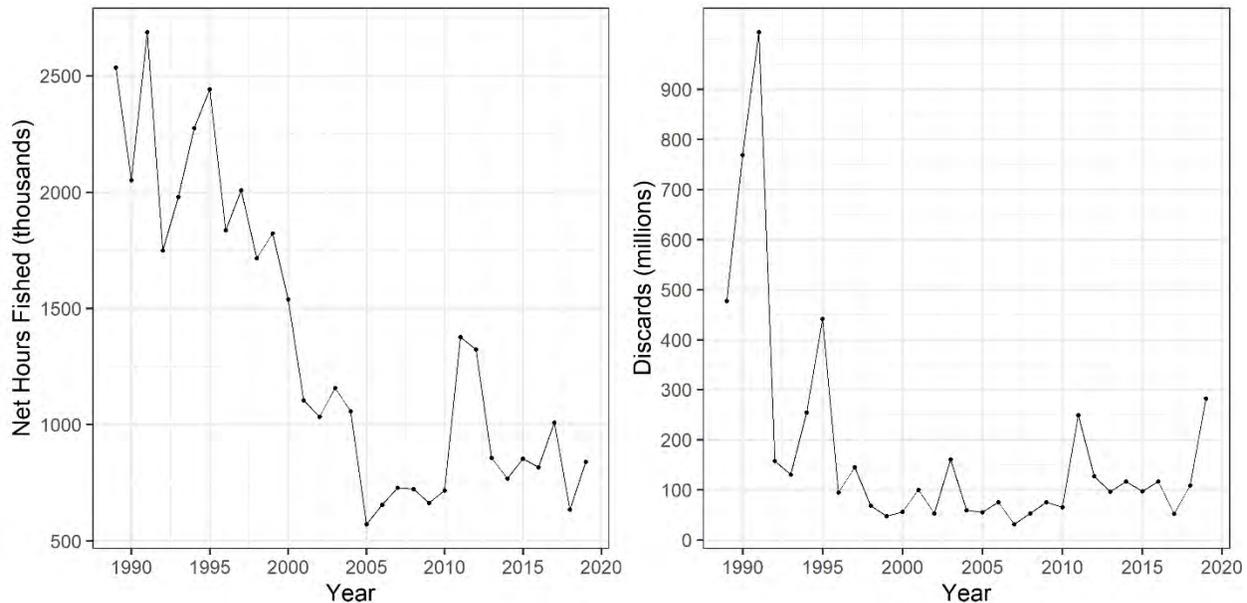
Figure 6. Annual TLA color proportions using a 2002-2012 reference period for spot from commercial landings for the South Atlantic (NC-FL) coast of the US.



- Total effort (net hours) in the South Atlantic Shrimp Trawl Fishery declined from a time series high in 1991 to a time series low in 2005 and varied around an increasing trend through the remainder of the time series (Figure 7; left).

- Total discards of spot in the South Atlantic Shrimp Trawl Fishery were highest during the late 1980s and early 1990s, declined to relatively low levels in the 2000s, and then increased to slightly higher levels in the 2010s (Figure 7; right). Discards increased in the terminal year of 2019 to the highest number since 1995.

Figure 7. Total net hours fished (left) and discards of spot (right) in the South Atlantic Shrimp Trawl Fishery.

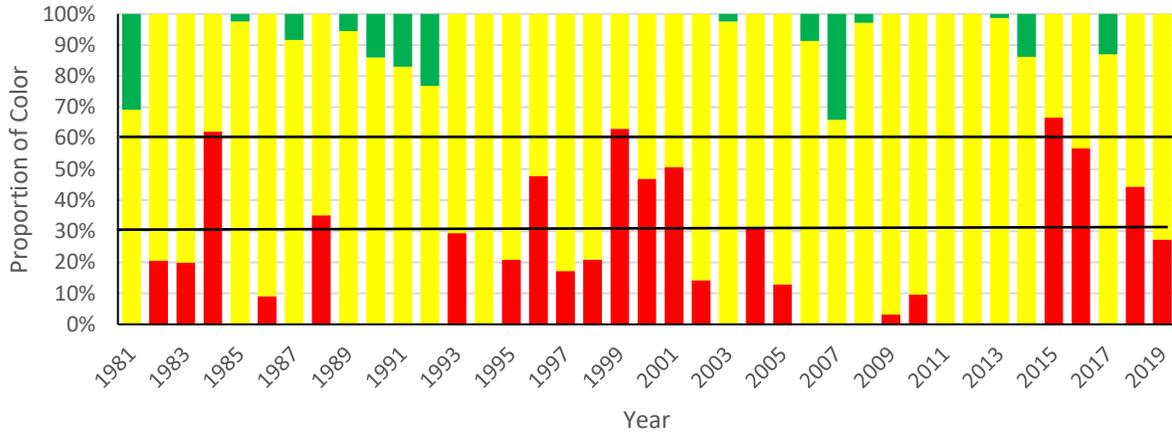


4.2 Recreational

In July 2018, the Marine Recreational Information Program transitioned from the catch estimates based on effort information from the Coastal Household Telephone Survey (CHTS) to effort information from the mail-based Fishing Effort Survey (FES). FES estimates are used in this and future reports, so recreational estimates and analyses may be different from previous years that used CHTS estimates.

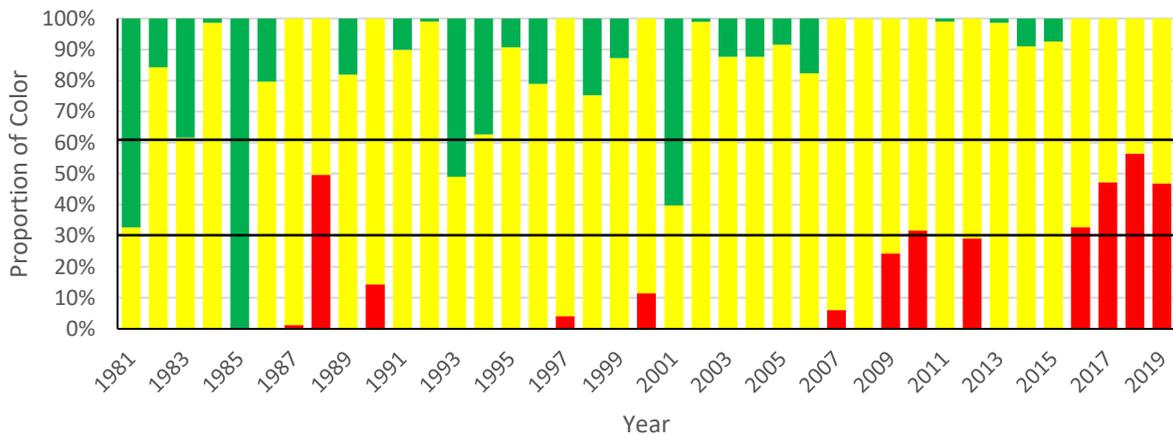
- The recreational harvest of spot on the Mid-Atlantic coast increased 42% in 2019 from 2018, with values of 2,991,200 pounds and 2,105,999 pounds, respectively.
- Annual harvest in the recreational fishery has been below the long term mean (LTM) for the last five years (with the exception of one year, 2017).
- The red proportion of the TLA declined to 27.3% in 2019 compared to 44.3% in 2018. The recreational TLA only exceeded the 30% threshold in one of the last three years (2018; Figure 88).

Figure 8. Annual color proportions for the Mid-Atlantic (NJ-VA) coast of the US for recreationally harvested spot using a 2002-2012 reference period.



- In the South Atlantic, recreational harvest increased 35% in 2019 (1,531,869 lbs) from 2018 (1,132,145 lbs).
- Recreational harvest in 2019 was still below the long term mean with a red proportion of 46.9%. Red proportions have been above the 30% threshold since 2016 (Figure 99).

Figure 9. Annual color proportions for the South Atlantic (NC-FL) coast of the US for recreationally harvested spot using a 2002-2012 reference period.



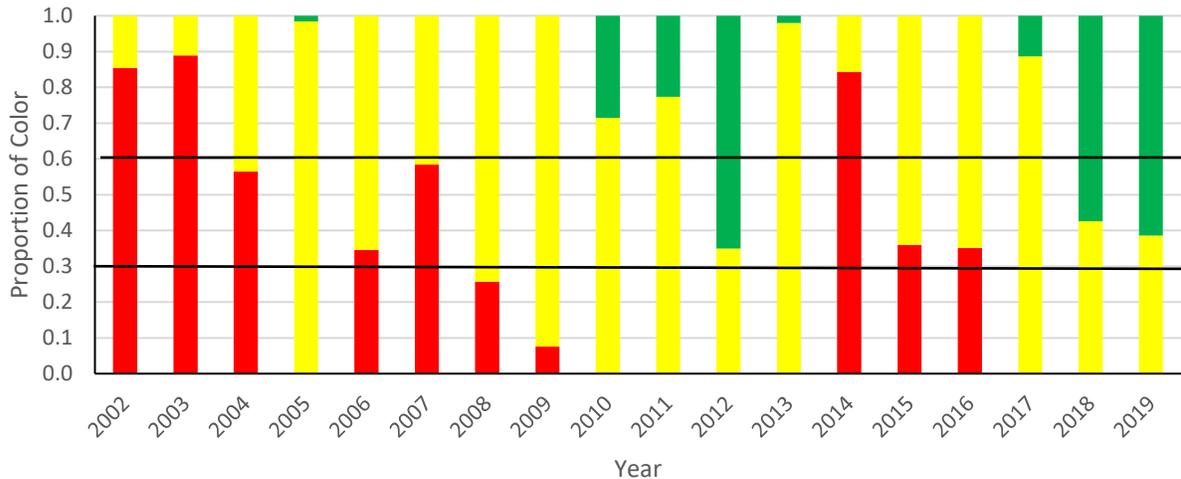
5 TRAFFIC LIGHT ANALYSIS (FISHERY INDEPENDENT)

5.1 NEFSC Fall Groundfish Trawl Survey

- The CPUE for spot in 2019 increased 4.4% from 2018 and was in a similar range to the series peak value seen in 2012.
- There was no red in the TLA index for 2019, so this index did not exceed the 30% threshold (Figure 1011).

- The NEFSC was not carried out in 2017 due to mechanical problems with the RV Bigelow. An imputed index for 2017 was calculated as the mean of 2015-2016 and 2018.

Figure 10. Annual TLA color proportions for adult spot (age 1+) from Mid-Atlantic NEFSC fall groundfish trawl survey using a 2002-2012 reference period.



5.2 ChesMMAP Trawl Survey

- The ChesMMAP survey made major changes to the survey in 2019 (vessel change, gear change, altered protocols, etc.) but maintained the same sampling strata and design. Side-by-side comparison tows were made between the new and old vessels/gears and the survey is in the process of producing conversion factors by species so that historic survey index values can be compared to ongoing survey values in the future. Since the conversion factor determination won't likely be finished until the end of 2020, the ChesMMAP index is only available through 2018 for the adult and juvenile TLA composite characteristics.
- The juvenile spot index showed a declining trend from the late 2000s through the present (Figure 111) with high proportions of red. Red proportions exceeded the 30% threshold for all years since 2011 and exceeded the 60% threshold for six of the last eight years in the data series.
- The adult spot index also showed a similar declining trend during the same time period (2010-2018) with red proportions exceeding the 60% threshold in the terminal four years of the time series (Figure 1212).
- Even with the currently missing values for 2019, the ChesMMAP index would have exceeded the 60% threshold in two of the previous three years for adults, and the 30% threshold for juveniles given the high red proportions in 2017 and 2018 (Figure 11 and Figure 1212).

Figure 11. Annual TLA color proportions for juvenile spot (age 0) from the Mid-Atlantic ChesMMAP survey using a 2002-2012 reference period.

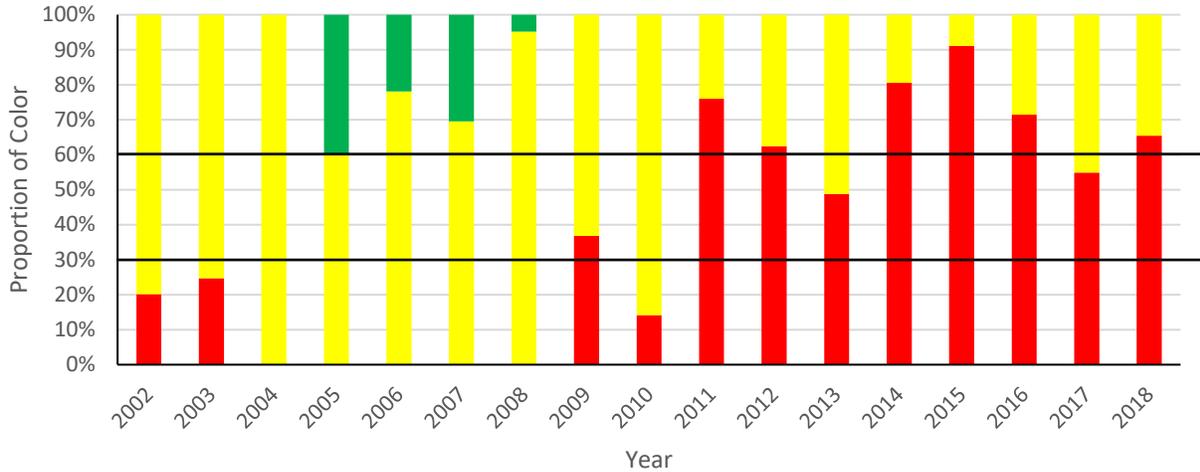
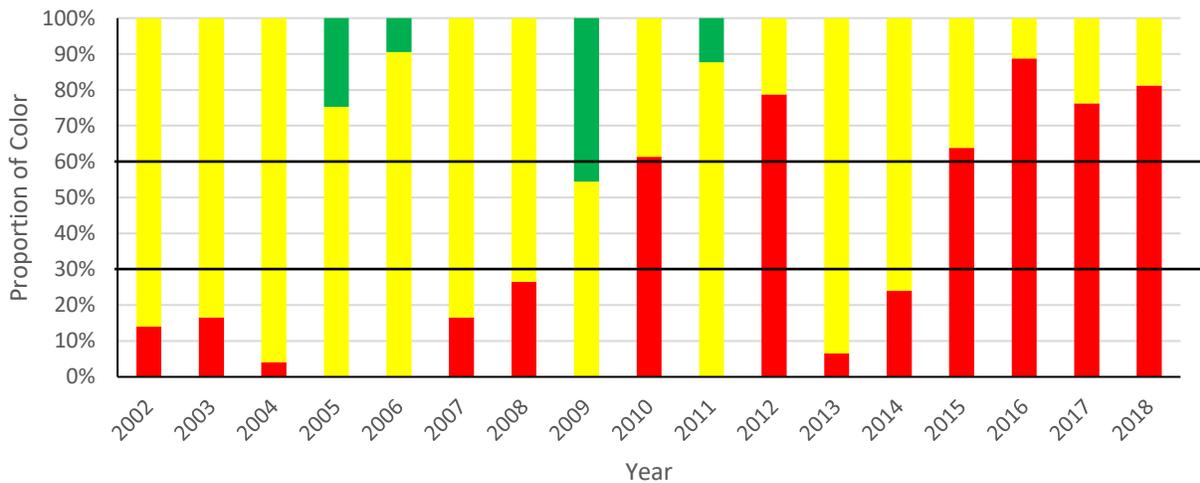


Figure 12. Annual TLA color proportions for adult spot (age 1+) from the Mid-Atlantic ChesMMAP survey using a 2002-2012 reference period.

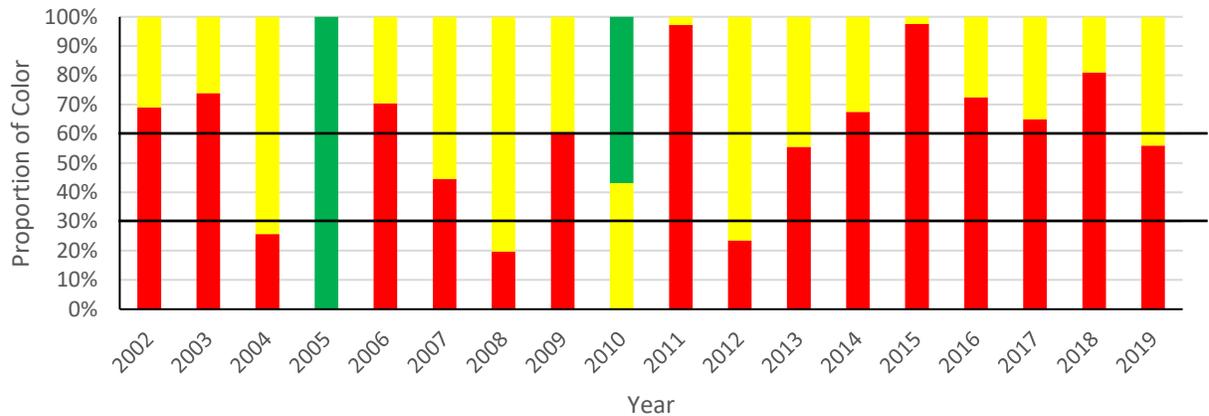


5.3 Maryland Juvenile Fish Seine Survey

- The Maryland CPUE increased 111% in 2019 from 2018 but was still well below the long-term mean.
- CPUE was below the long-term mean for the ninth year in a row, indicating annual recruitment and year-class strength remain poor in the Maryland portion of the Chesapeake Bay.
- The TLA exceeded the 30% threshold for the seventh year in a row with a red proportion of 55.9% in 2019 (Figure 133).

- The index exceeded the 60% threshold level for the 2017-2019 time-period indicating cause for concern as the general decline in this index indicates a decline in spot recruitment has been occurring in Maryland waters.

Figure 13. Annual TLA color proportions for the Mid-Atlantic Maryland seine survey juvenile spot (age 0) index using a 2002-2012 reference period.



5.4 NCDMF Program 195 (Pamlico Sound Survey)

- The NCDMF Program 195 survey saw declines in both juveniles and adults as indicated by declining green proportion (juvenile) (Figure 144) and increasing red proportions (adults) (Figure 156).
- In the juveniles, CPUE was greater than the long term mean with mostly yellow and only a little green proportion (0.30%) in the index (Figure 144). This index has not exceeded any red threshold since 2016. This could indicate increased spot recruitment in recent years in the Pamlico Sound area of North Carolina.
- The adult TLA continued to show a declining trend that has been occurring since 2008, with a red proportion in 2019 of 43.6% (Figure 155). The adult TLA red proportions have exceeded the 30% threshold for three of the last four years.

Figure 14. Annual TLA color proportions for juvenile spot (age 0) from the South Atlantic NCDMF Program 195 Survey using a 2002-2012 reference period.

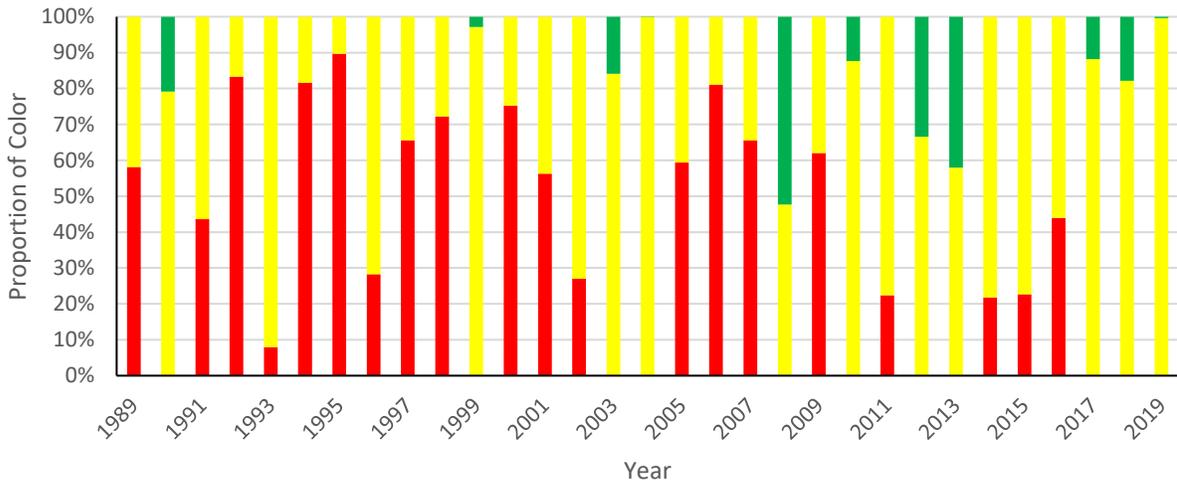
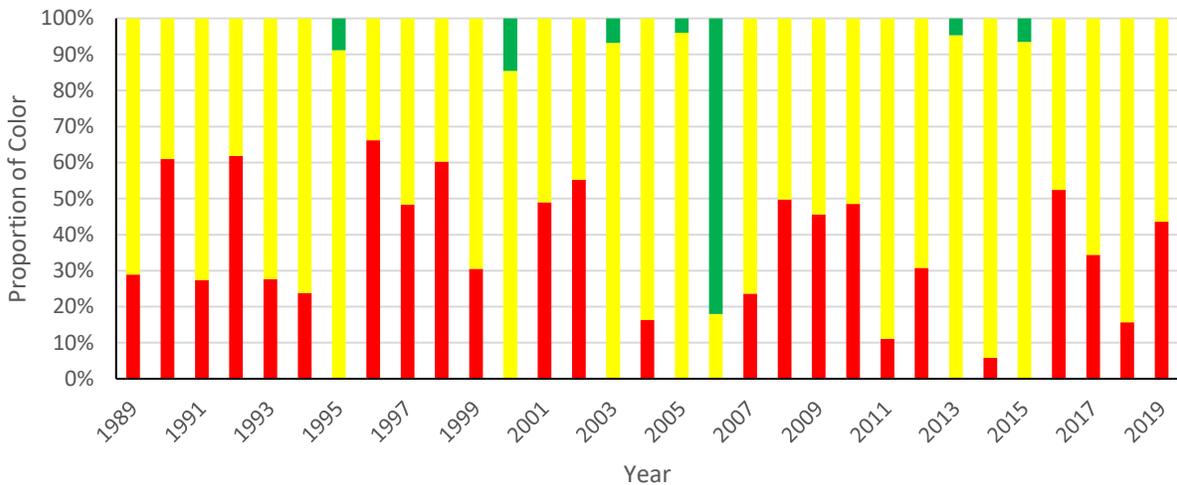


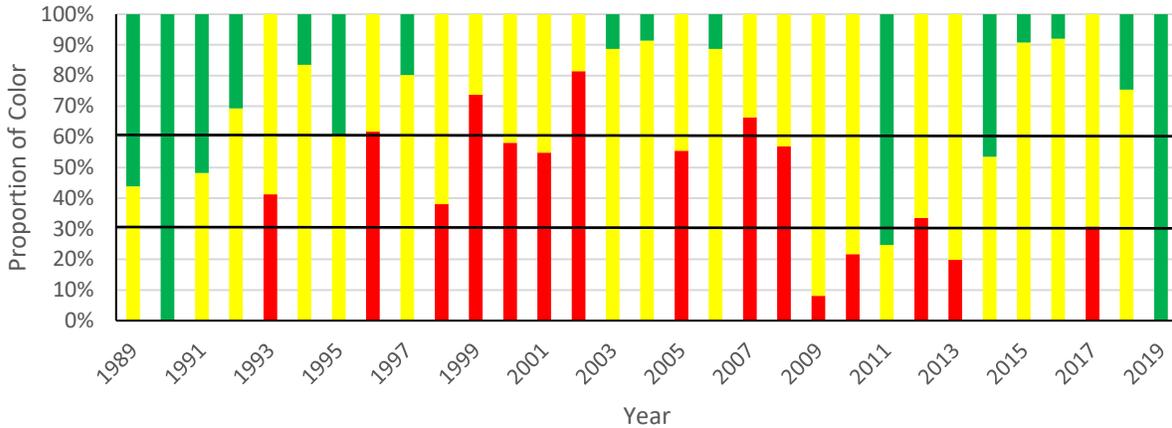
Figure 15. Annual TLA color proportions for adult spot (age 1+) from the South Atlantic NCDMF Program 195 Survey using a 2002-2012 reference period.



5.5 SEAMAP Trawl Survey

- The SEAMAP index used the spring season CPUE because it only catches adult spot (age 1+) during that season.
- The annual CPUE increased 265% in 2019 (48.6 kg/tow) from 2018 (13.3 kg/tow) and was the highest value in the time series.
- The TLA index has only exceeded the 30% threshold once in the past seven years (2017; Figure 166).

Figure 16. Annual color proportions for Adult spot (age 1+) TLA from the fall South Atlantic SEAMAP survey using a 2002-2012 reference period.

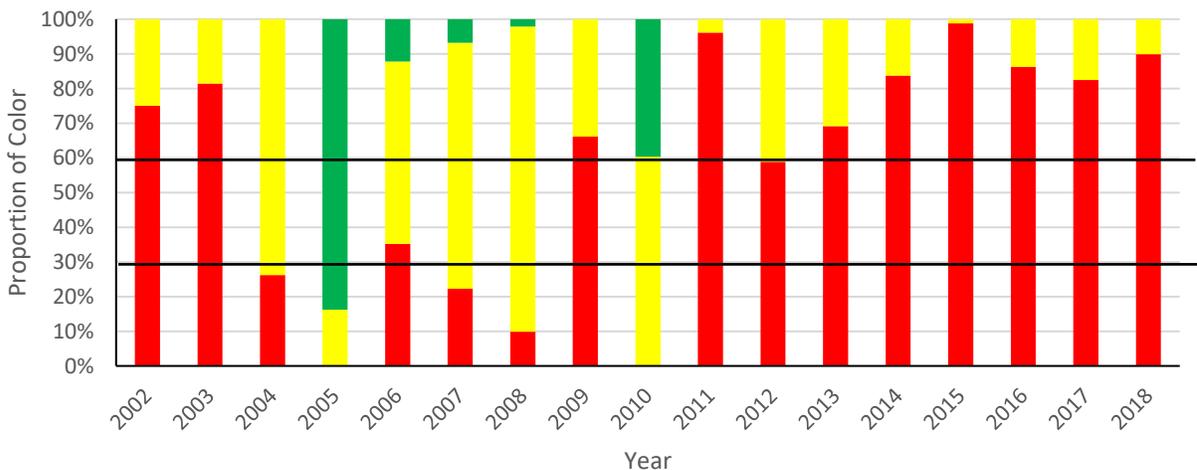


5.6 Juvenile Abundance Composite Indices

The juvenile composite index in the Mid-Atlantic was generated from the ChesMMAAP and the Maryland juvenile fish seine survey. ChesMMAAP has an age specific index for ages 0 which allowed its use as a juvenile index.

- The juvenile spot TLA for the Mid-Atlantic (MD survey and ChesMMAAP) also showed a general decline in recruitment with very high red proportions for the last 8 years (Figure 17).
- The juvenile composite index was above the 30% threshold in two of the three terminal years (Figure 17).

Figure 17. Annual TLA for juvenile (age 0) spot for composite characteristic of fishery independent surveys in the Mid-Atlantic (NJ-VA) (MD seine survey and ChesMMAAP) using a 2002-2012 reference period.



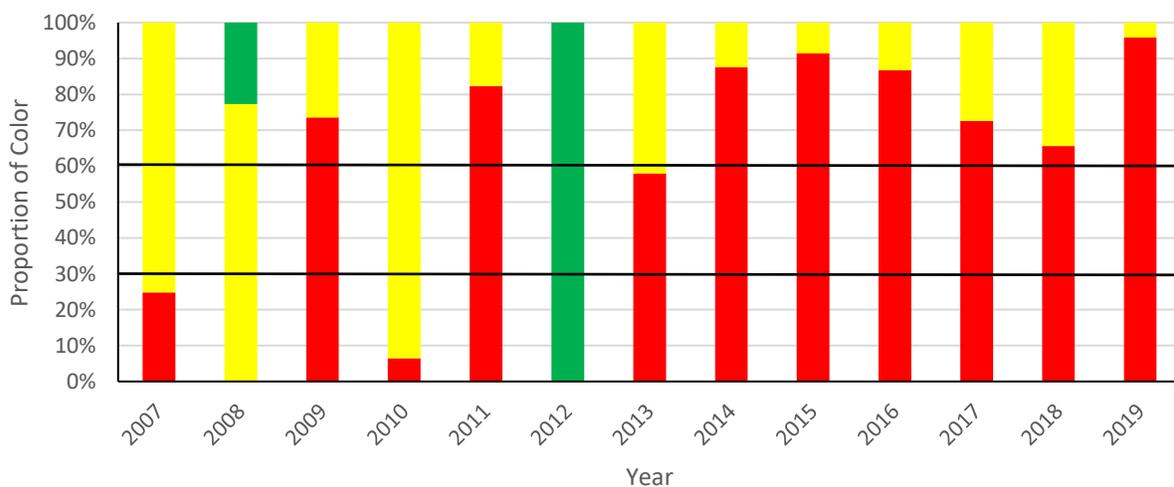
- The South Atlantic juvenile spot index (NCDMF Program 195) has not had any red proportion greater than 30% in the last three years (Figure 14) and has not had a red proportion exceeding the 30% threshold since 2016.

6 SUPPLEMENTAL MATERIALS

6.1 NEAMAP Survey

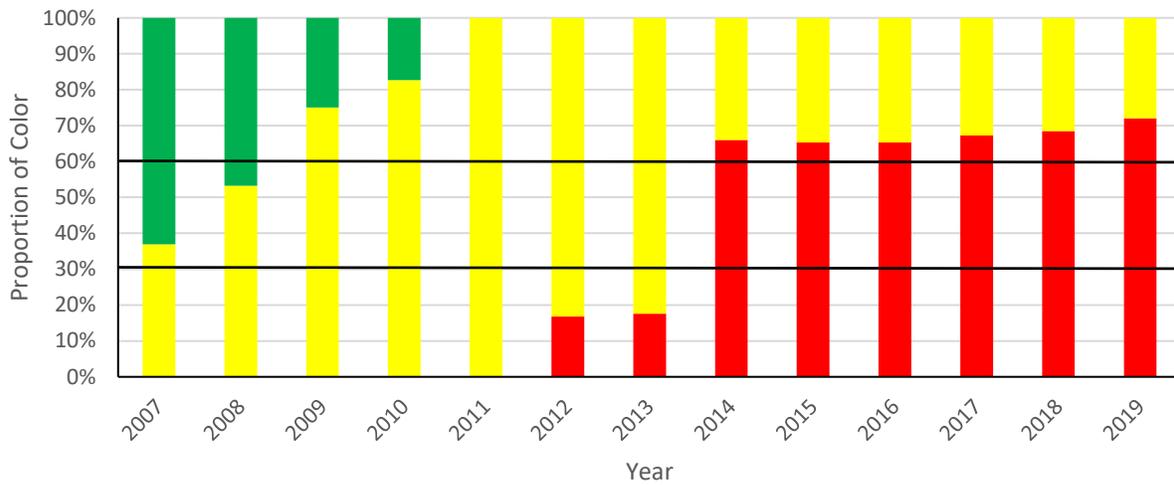
- The juvenile spot TLA index shows the evidence of low recruitment across all years except 2008 and 2012. This is similar to the declining trends seen in the MD seine survey and the ChesMMAP survey across the same years.
- Red proportions have exceeded the 60% threshold across all years since 2014 (Figure 18).

Figure 18. Annual color proportions from TLA for juvenile (age 0) spot from the Mid-Atlantic NEAMAP survey using a 2007-2019 reference period.



- The adult spot TLA index supports the general declining trend that has occurred since 2010 with red proportions exceeding the 60% threshold for the last six years of the survey (Figure 19).
- The trend in higher red proportions was very similar to the trends seen in the ChesMMAP survey across years where the surveys overlapped, but did not correlate with the NEFSC survey in terms of general trends.
- Both the juvenile and adult spot TLA indices exceeded the high level of concern threshold for the last several years.

Figure 19. Annual color proportion from TLA for adult (age 1+) spot from the Mid-Atlantic NEAMAP survey using a 2007-2019 reference period.



6.2 Composite TLA Characteristic for Mid-Atlantic including NEAMAP

In order to generate the composite TLA index that included NEAMAP in the Mid-Atlantic, the other Mid-Atlantic indices (NEFSC, ChesMMAP, and MD Seine Survey) had to be recalculated using the common time period of all three surveys (2007-2019) in order to have a common reference. The figures give the TLA composite characteristics through 2019 with no 2019 ChesMMAP data, but it was thought useful to still provide the composite index through 2019 with the indexes that were available.

- The juvenile spot composite characteristic (Figure 20) supported the general decline in recruitment in the Mid-Atlantic region with red proportions in excess of the 60% threshold in nine of the thirteen years common to all the separate indices.
- The adult spot composite characteristic (Figure 21) showed a similar declining trend, although the adult composite characteristic did not exceed the 60% threshold except in 2017. It did, however, exceed the 30% threshold every year since 2014. The one contrasting trend in the adult composite characteristic was between NEFSC and the other surveys, where the NEFSC survey contributed the green proportions seen in 2018 and 2019 due to the significant increase in catch levels seen in the NEFSC survey.

Figure 20. Juvenile spot (age 0) TLA composite characteristic index for the Mid-Atlantic (NJ-VA) using NEAMAP, ChesMMAP, and MD Seine surveys with a 2007-2019 reference period.

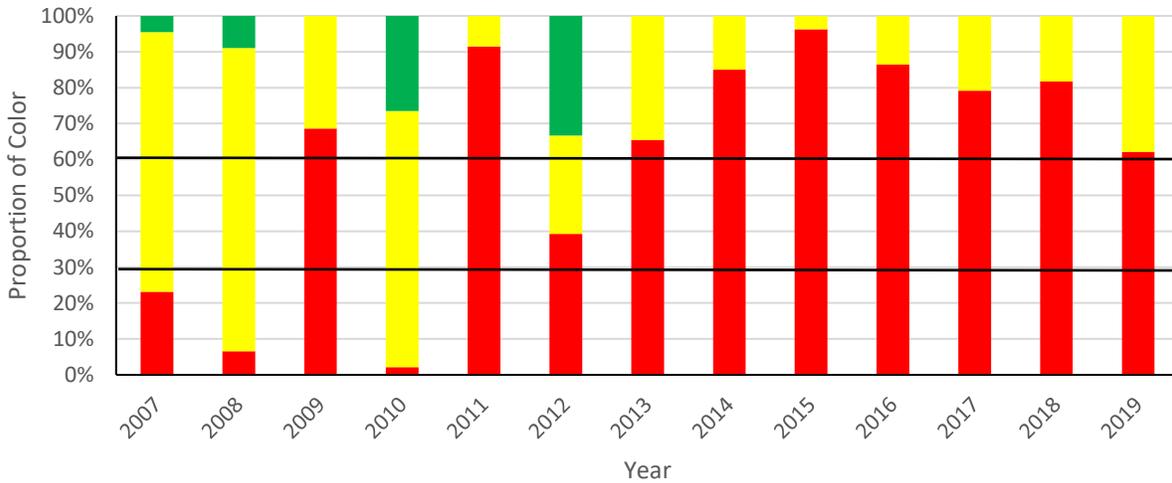
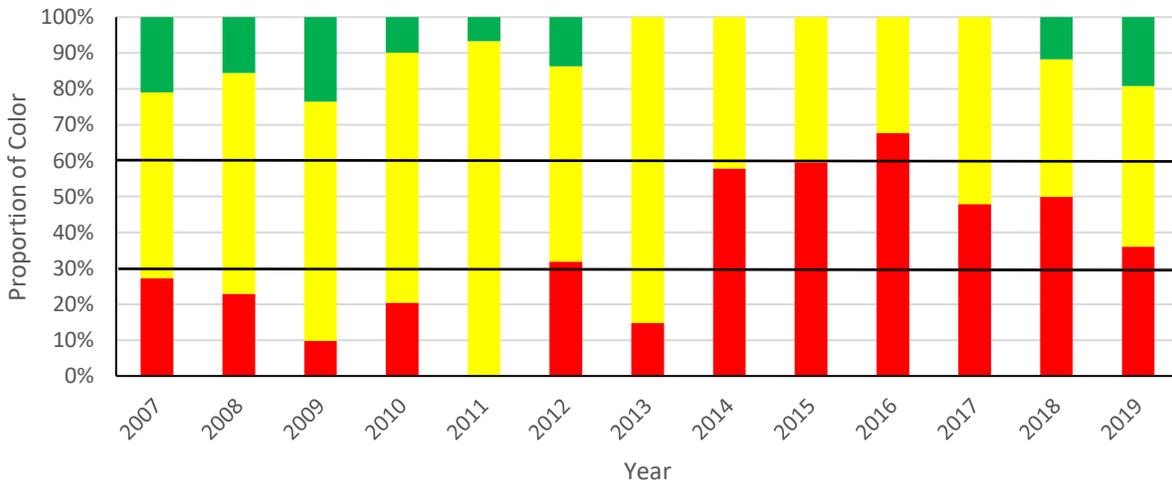


Figure 21. Adult spot (age 1+) TLA composite characteristic index for Mid-Atlantic (NJ-VA) using NEFSC, ChesMMAP, and NEAMAP surveys with a 2007-2019 reference period.



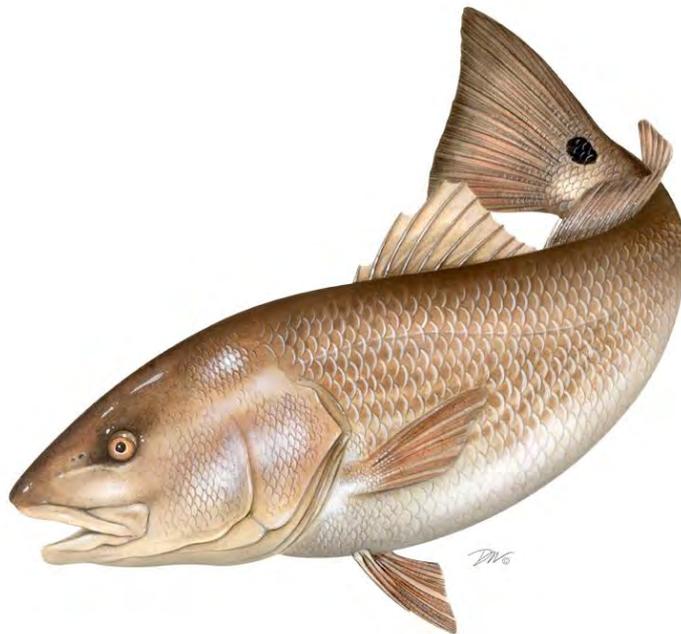
6.3 Summary

The addition of the NEAMAP survey generally supported the declining trends in recent years seen in the harvest composite characteristic as well as the fishery-independent surveys (with the exception of the NEFSC survey). The TC might consider adding the NEAMAP survey to the Traffic Light Analysis for the 2020 sampling year and re-evaluate the use of the NEFSC survey for use in the TLA. This could be done for next year’s report or after the next benchmark assessment (currently scheduled for completion in 2024).

**DRAFT 2020 REVIEW OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
FISHERY MANAGEMENT PLAN FOR**

**RED DRUM
(*Sciaenops ocellatus*)**

2019 FISHING YEAR



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October 2020

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I. Status of the Fishery Management Plan

| | |
|----------------------------------|--|
| <u>Date of FMP Approval:</u> | Original FMP – October 1984 |
| <u>Amendments:</u> | Amendment 1 – October 1991 Amendment 2 – June 2002 Addendum 1 – August 2013 |
| <u>Management Areas:</u> | The Atlantic coast distribution of the resource from New Jersey through Florida Northern: New Jersey through North Carolina Southern: South Carolina through the east coast of Florida |
| <u>Active Boards/Committees:</u> | South Atlantic State/Federal Fisheries Management Board, Red Drum Technical Committee, Stock Assessment Subcommittee, Plan Development Team, Plan Review Team, South Atlantic Species Advisory Panel |

The Atlantic States Marine Fisheries Commission (ASMFC) adopted an Interstate Fishery Management Plan (FMP) for Red Drum in 1984. The original management unit included the states from Maryland to Florida. In 1988, the Interstate Fisheries Management Program (ISFMP) Policy Board requested that all Atlantic coastal states from Maine to Florida implement the plan's recommended management regulations to prevent development of northern markets for southern fish. The states of New Jersey through Florida are now required to follow the FMP, while Maine through New York (including Pennsylvania) are encouraged to implement consistent provisions to protect the red drum spawning stock.

In 1990, the South Atlantic Fishery Management Council (Council) adopted a FMP for red drum that defined overfishing and optimum yield (OY) consistent with the Magnuson Fishery Conservation and Management Act of 1976. Adoption of this plan prohibited the harvest of red drum in the exclusive economic zone (EEZ), a moratorium that remains in effect today. Recognizing that all harvest would take place in state waters, the Council FMP recommended that states implement measures necessary to achieve the target level of at least 30% escapement.

Consequently, ASMFC initiated Amendment 1 in 1991, which included the goal to attain optimum yield from the fishery over time. Optimum yield was defined as the amount of harvest that could be taken while maintaining the level of spawning stock biomass per recruit (SSBR) at or above 30% of the level which would result if fishing mortality was zero. However, a lack of information on adult stock status resulted in the use of a 30% escapement rate of sub-adult red drum to the off-shore adult spawning stock.

Substantial reductions in fishing mortality were necessary to achieve the escapement rate; however, the lack of data on the status of adult red drum along the Atlantic coast led to the adoption of a phase-in approach with a 10% SSBR goal. In 1991, states implemented or maintained harvest controls necessary to attain the goal.

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As hoped, these management measures led to increased escapement rates of juvenile red drum. Escapement estimates for the northern region of New Jersey through North Carolina (18%) and the southern region of South Carolina through Florida (17%) were estimated to be above the 10% phase-in goal, yet still below the ultimate goal of 30% (Vaughan and Carmichael 2000). North Carolina, South Carolina, and Georgia implemented substantive changes to their regulations from 1998-2001 that further restricted harvest.

The Council adopted new definitions of OY and overfishing for red drum in 1998. Optimum yield was redefined as the harvest associated with a 40% static spawning potential ratio (sSPR), overfishing as an sSPR less than 30%, and an overfishing threshold as 10% sSPR. In 1999, the Council recommended that management authority for red drum be transferred to the states through the Commission's Interstate Fishery Management Program (ISFMP) process. This was recommended, in part, due to the inability to accurately determine an overfished status, and therefore stock rebuilding targets and schedules, as required under the revised Sustainable Fisheries Act of 1996. The transfer necessitated the development of an amendment to the interstate FMP in order to include the provisions of the Atlantic Coastal Fisheries Cooperative Management Act.

ASMFC adopted Amendment 2 to the Red Drum FMP in June 2002 (ASMFC 2002), which serves as the current management plan. The goal of Amendment 2 is to achieve and maintain the OY for the Atlantic coast red drum fishery as the amount of harvest that can be taken by U.S. fishermen while maintaining the sSPR at or above 40%. There are four plan objectives:

- Achieve and maintain an escapement rate sufficient to prevent recruitment failure and achieve an sSPR at or above 40%.
- Provide a flexible management system to address incompatibility and inconsistency among state and federal regulations which minimizes regulatory delay while retaining substantial ASMFC, Council, and public input into management decisions; and which can adapt to changes in resource abundance, new scientific information, and changes in fishing patterns among user groups or by area.
- Promote cooperative collection of biological, economic, and sociological data required to effectively monitor and assess the status of the red drum resource and evaluate management efforts.
- Restore the age and size structure of the Atlantic coast red drum population.

The management area extends from New Jersey through the east coast of Florida, and is separated into a northern and southern region at the North Carolina/South Carolina border. The sSPR of 40% is considered a target; an sSPR below 30% (threshold level) results in an overfishing determination for red drum. Amendment 2 required all states within the management unit to implement appropriate recreational bag and size limit combinations needed to attain the target sSPR, and to maintain current, or implement more restrictive, commercial fishery regulations. All states were in compliance by January 1, 2003. See Table 1 for state commercial and recreational regulations in 2019.

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Following the approval of Amendment 2 in 2002, the process to transfer management authority to ASMFC began, including an Environmental Assessment and public comment period. The final rule became effective November 5, 2008. It repeals the federal Atlantic Coast Red Drum Fishery Management Plan and transfers management authority of Atlantic red drum in the exclusive economic zone from the South Atlantic Fishery Management Council to the Atlantic States Marine Fisheries Commission.

The Board approved Addendum I to Amendment 2 in August 2013. The Addendum revised the habitat section of Amendment 2 to include current information on red drum spawning habitat and life-stages (egg, larval, juvenile, sub-adult, and adult). It also identified and described the distribution of key habitats and habitats of concern.

II. Status of the Stocks

The 2017 Red Drum Stock Assessment and Peer Review Report indicate overfishing is not occurring for either the northern or southern stock of red drum (ASMFC 2017). The assessment was unable to determine an overfished/not overfished status because population abundance could not be reliably estimated due to limited data for the older fish (ages 4+). In 2020, the next benchmark assessment was initiated and will comprise of a simulation assessment prior to the benchmark assessment.

Northern Region (NJ-NC)

Recruitment (age 1 abundance) has varied annually with a large peak occurring in 2012 (Figure 1). The trend in the three-year average sSPR indicates low sSPR early in the time series with increases during 1991 – 1997 and fluctuations thereafter (Figure 2). The average sSPR has been above the overfishing threshold ($F_{30\%}$) since 1994, and at or above the target ($F_{40\%}$) since 1996, except during one year (2002). Fishing pressure and mortality appear to be stabilized near the target fishing mortality. The average sSPR is also likely above the target benchmark.

Southern Region (SC-FL)

Recruitment (age 1 abundance) has fluctuated without apparent trend since 1991 (Figure 1). A high level of uncertainty exists around the three-year average sSPR estimates for the southern region. While the 3-year average sSPR estimate in 2013 was above both the target ($F_{40\%}$) and the overfishing threshold ($F_{30\%}$), indicating that overfishing is not occurring, the high level of uncertainty around this estimate indicates that this conclusion should be considered with extreme caution (Figure 2).

NOTE: In 2018, the Marine Recreational Information Program transitioned from estimating effort using the Coastal Household Telephone Survey (CHTS) to the mail-based Fishing Effort Survey (FES). The 2017 stock assessment used CHTS data to estimate recreational harvest. However, as red drum is not managed by a quota and to accommodate the transition, recreational harvest estimates based on the FES data or calibration are shown in this report. Due to differing estimation methodologies, these harvest data should not be compared to reference points from the 2017 stock assessment. Harvest estimates based on either effort survey can be compared at: <https://www.st.nmfs.noaa.gov/st1/recreational/queries/>.

III. Status of the Fishery

Total red drum landings from New Jersey through the east coast of Florida in 2019 are estimated at 4.8 million pounds (Tables 2 and 3, Figure 3). This is roughly 3.4 million pounds less than was landed in 2018. 2019 total landings are below the previous ten-year (2009-2018) average of 6.9 million pounds. The commercial and recreational fisheries harvested 1% and 99% of the total, respectively. The southern region includes South Carolina through Florida's east coast, while the northern region includes New Jersey through North Carolina. In 2019, 80% of the total landings came from the southern region where the fishery is exclusively recreational, and 20% from the northern region (Figure 4).

Coastwide commercial landings comprise a small portion of the total harvest. Landings have ranged from approximately 55,000 pounds (2004) to 423,000 pounds (1984) since 1981 (Figure 3). In 2019, red drum were commercially landed only in Maryland, Virginia, and North Carolina (Table 2). Coastwide commercial harvest decreased from 145,349 pounds in 2018 to 58,075 pounds in 2019, with 97% harvested by North Carolina. Historically, North Carolina and Florida shared the majority of commercial harvest, but commercial harvest has been prohibited in Florida under state regulation since January 1988. South Carolina and Georgia designated red drum as a gamefish, banning commercial harvest and sale since 1987 and 2013, respectively.

In North Carolina, a daily commercial trip limit and an annual cap of 250,000 pounds with payback of any overage constrain the commercial harvest. Unique to this state, the red drum fishing year extends from September 1 to August 31. In 2008, the Board approved use of this fishing year to monitor the cap. During the 2009/2010 and the 2013/2014 fishing years, North Carolina had overages of 25,858 pounds and 12,753 pounds, respectively. The commercial harvest for each following fishing year remained well below the adjusted cap allowance, providing sufficient payback.

Recreational harvest of red drum peaked in 1984 at 2.9 million fish (or 10.1 million pounds; Tables 3 and 4). Following this peak and a subsequent decline, the recreational fishery has shown an increasing trend from the late 1980s through the present, both in terms of harvest and catch (Figures 3 and 5). Recreational harvest decreased in number from 2.3 million fish (8.2 million pounds) in 2018 to 1.5 million fish (4.8 million pounds) in 2019. The 2019 harvest is below the previous 10-year average (2009-2018) for recreational harvest in numbers (1.9 million) and pounds (6.9 million). Florida anglers landed the largest share of the coastwide recreational harvest in numbers (40%), followed by South Carolina (22%) and Georgia (18%).

Anglers release far more red drum than they keep; the percent of the catch released has been over 80% during the last decade (Figure 5). Recreational releases show an increasing trend over the time series, due to an increasing trend in catch with roughly stable release proportions for the last 20 years. The proportion of releases in 2019 was 89% (versus 81% in 2018), and the overall number of fish released was 11.6 million in 2019 (Figure 5, Table 5). It is estimated that

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8% of released fish die as a result of being caught, resulting in an estimated 931,263 dead discarded fish in 2019 (Table 5). Recreational removals from the fishery are thus estimated to be 2.4 million fish in 2019 (Figure 6).

IV. Status of Assessment Advice

Current stock status information comes from the 2017 stock assessment (ASMFC 2017) completed by the ASMFC Red Drum Stock Assessment Subcommittee (SAS) and Technical Committee (TC), peer reviewed by an independent panel of experts through ASMFC's desk review process, and approved by the South Atlantic State-Federal Fisheries Management Board for use in management decisions. Previous interstate management decisions were based on the last coastwide assessment, SEDAR 18 (SAFMC 2009), and prior to 2009, decisions were based on regional assessments conducted by Vaughan and Helser (1990), Vaughan (1992, 1993, 1996), and Vaughan and Carmichael (2000) that reflected the current stock structure, two stocks divided at the North Carolina-South Carolina border. Several states have also conducted state-specific assessments (e.g., Murphy and Munyandorero 2009; Takade and Paramore 2007 [update of Vaughan and Carmichael 2000]).

In 2017, a state-specific stock assessment was completed by South Carolina, which indicated that the South Carolina population of red drum was experiencing overfishing (Murphy 2017). This assessment result prompted new state management regulations, which went into effect on July 1, 2018 (Table 1).

The 2017 coastwide stock assessment uses a statistical catch at age (SCAA) model with age-specific data for red drum ages 1 through 7+. This model is similar to that used in the 2009 assessment, with data updated through 2013. Data from 1989-2013 were included from the following sources: commercial and recreational harvest and discard data, fishery-dependent and -independent biological sampling data, tagging data, and fishery-independent survey abundance data.

The Peer Review Panel considered the use of a SCAA model appropriate given the types of data available for red drum. For the northern region, the Review Panel agreed that the model was informative of age 1-3 abundance and exploitation rates, but not for older age groups. The model was also found to be informative of annual trends in sSPR and the 2011-2013 average sSPR. For the southern region, the Review Panel agreed that estimates of age 7+ fish seemed to be more consistent with the population biology, leading to a large fraction of biomass being unavailable to exploitation. For both regions, most of the sSPR is contained within the larger, fully mature, age 7+ fish, thus even a small increase in fishing mortality on older red drum (due to harvest or other factors) could quickly lead to a decrease in sSPR and overfishing.

At the Winter meeting of ASMFC, the Board reviewed a proposal from the SAS that recommended a population simulation model be developed to simulate the full red drum population. The simulated population would be used to test a variety of assessment modeling techniques to determine which model would be the most applicable for the next benchmark stock assessment. Due to the work and modeling expertise needed for the simulation

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assessment, the benchmark assessment has been postponed until 2024. The simulation population modeling is scheduled to be completed in 2022.

V. Status of Research and Monitoring

No monitoring or research programs are annually required of the states except for the submission of a compliance report. The following fishery-dependent (other than catch and effort data) and fishery-independent monitoring programs were reported in the 2019 reports.

Fishery Dependent Monitoring

- Delaware DFW – Commercial monitoring through mandatory logbook reports, supplemented by federal dealer reports (SAFIS). No samples collected in 2019.
- Maryland DNR – Commercial pound nets sampled bi-weekly in the Chesapeake Bay from early summer to late fall (2019, n=6). Only three of the 27 years of sampling exceeded 20 fish, and no red drum were encountered in ten of the survey years. Seafood dealer sampling was conducted in 2019, but no red drum were encountered.
- PRFC – Red drum are harvested incidentally in the commercial pound net and haul seine fisheries. The mandatory commercial harvest daily reporting system, which collects harvest and discards/releases, reported 30 lbs of red drum released alive in 2019
- Virginia MRC – Volunteer anglers have participated since 1995 in the Virginia Game Fish Tagging Program (2019: 2,916 fish tagged, 178 reported recaptures). Carcasses are collected through the Marine Sportfish Collection Project since 2007 (2019, n=2). VMRC collects samples from commercial fish packing operations for length (2019, n=72) and weight (2019, n=72).
- North Carolina DMF – Commercial cap monitored through trip ticket program. Commercially-landed red drum sampled through biological monitoring program since 1982 (2019, n=91 fish measured, primarily gill net). Recreational lengths from MRIP sampling (2019, n=87).
- South Carolina DNR – State finfish survey conducted in January and February (2019, n=325 caught and 34 harvested, mean catch rate: 0.70 red drum/targeted angler hour). Charter Vessel Trip Reporting (2019 caught (targeted and non-targeted): 60,566 red drum; live release rate: 93.3%). SC Marine Game Fish Tagging Program studies movement patterns, growth rates, and release-mortality rates (in 2019 fish tagged: 6,346; recaptured: 1,271). SCDNR Sub-Adult Red Drum Tagging Program tags fish caught by the SCDNR electrofishing and trammel net fishery-independent surveys and other fishery-independent sampling efforts (in 2019 fish tagged: 2,298; recaptured: 604). SCDNR Adult Red Drum Tagging Program tags fish caught by the SCDNR inshore fisheries research section longline fishery-independent survey (in 2019 tagged: 531; recaptured: 9). Tournament and freezer fish programs (2019 n=25).
- Georgia CRD – Age, length, and sex data collected through the Marine Sportfish Carcass Recovery Project (2019, n=805).
- Florida FWC – MRIP CPUE for 2019 showed large fluctuations with overall increasing trends in both regions along the Atlantic coast of Florida.
- NMFS – Length measurements and recreational catch, harvest, release, and effort data are collected via the Marine Recreational Information Program.

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Fishery Independent Monitoring

- New Jersey DFW – Five annual nearshore trawl surveys conducted since 1988, in January/February, April, June, August, and October. Length and weight data, and catch per unit effort (CPUE) in number of fish per tow and biomass per tow recorded for all species. Only two red drum were caught in entire time series (single tow, 2013).
- Delaware DFW – 30-ft bottom trawl survey and 16-ft bottom trawl survey. Neither survey has ever captured red drum.
- North Carolina DMF – Seine survey since 1991 produces age-0 abundance index (2019, n=783; CPUE of 6.53, above long-term average). Gill net survey in Pamlico Sound since 2001 characterizes size and age distribution, produces abundance index, improves bycatch estimates, and studies habitat usage (CPUE of 2.55, near long-term average). Longline survey since 2007 produces adult index of abundance and tags fish (2019, n=133; CPUE of 2.22 well below long-term average). The longline survey was impacted by Hurricane Dorian.
- South Carolina DNR – Estuarine trammel net survey for subadults (2019 CPUE below 10-year average). Electrofishing survey in low salinity estuarine areas for juveniles/subadults (2019 CPUE below 10-year average). Inshore and coastal bottom longline survey for biological data and adult abundance index (531 tagged, 78 sampled for life history in 2019). Genetic sub-sampling and tagging conducted during these three surveys.
- Georgia CRD – Estuarine trammel net survey for subadult biological data and abundance index (2019, both areas n=86). Estuarine gill net survey for young-of-year (YOY) biological data and abundance index (2019, both areas n=383). Bottom longline survey for adult biological data and abundance index (2019, n=31 in GA).
- Florida FWC-FWRI – Seine surveys characterizing young-of-year (YOY) (<40 mm standard length) and sub-adult (>299 mm) abundance along the northeast (NE) and southeast (SE) Florida coasts. 2019 NE YOY index declined from 2018. 2019 NE sub-adult index was similar to 2018. 2019 SE YOY index was similar to that of 2018. 2019 SE sub-adult index was similar to 2019.

VI. Status of Management Measures and Issues

Fishery Management Plan

Amendment 2 was fully implemented by January 1, 2003, providing the management requirements for 2018. Requirements include: recreational regulations designed to achieve at least 40% sSPR, a maximum size limit of 27 inches or less, and current or more stringent commercial regulations. States are also required to have in place law enforcement capabilities adequate to successfully implement their red drum regulations. In August 2013, the Board approved Addendum I to Amendment 2 of the Red Drum FMP. The Addendum revises the habitat section of Amendment 2 to include the most current information on red drum spawning habitat for each life stage (egg, larval, juvenile, sub-adult, and adult). It also identifies the distribution of key habitats and habitats of concern, including potential threats and bottlenecks.

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De Minimis Requests

New Jersey and Delaware requested *de minimis* status through the annual reporting process. While Amendment 2 does not include a specific method to determine whether a state qualifies for *de minimis*, the PRT chose to evaluate an individual state's contribution to the fishery by comparing the two-year average of total landings of the state to that of the management unit. New Jersey and Delaware each harvested zero percent of the two-year average of total landings. *De minimis* status does not exempt either state from any requirement; it may exempt them from future management measures implemented through addenda to Amendment 2, as determined by the Board.

VII. Implementation of FMP Compliance Requirements for 2020

The PRT finds that all states have implemented the requirements of Amendment 2.

VIII. Recommendations of the Plan Review Team

Management and Regulatory Recommendations

- < Consider approval of the *de minimis* requests by New Jersey and Delaware.
- < Support a continued moratorium of red drum fishing in the exclusive economic zone.

Prioritized Research and Monitoring Recommendations (H) = High, (M) = Medium, (L) = Low

Stock Assessment and Population Dynamics

- < Implement surveys (e.g. logbooks, electronic methods, etc.) in each state throughout the management unit to determine the length composition (and age data, if possible) of recreational discards (B2) of red drum. This information has been highlighted as the single largest data gap in previous assessments. (H)
- < Further study is needed to determine discard mortality estimates for the Atlantic coast, both for recreational and commercial gears. Additionally, discard estimates should examine the impact of slot-size limit management and explore regulatory discard impacts due to high-grading. Investigate covariates affecting discard mortality (e.g., depth, size, seasonality), and explore methods of determining *in situ* mortality (as opposed to tank studies) and mitigating mortality (e.g. gear types, handling methods, use of descending devices on adults). (H)
- < Improve catch/effort estimates and biological sampling from recreational and commercial fisheries for red drum, including increased intercepts of night fisheries for red drum. (H)
- < Expand biological sampling based on a statistical analysis to adequately characterize the age/size composition of removals by all statistical strata (gears, states, etc.). (H)
- < Each state should develop an on-going red drum tagging program that can be used to estimate both fishing and natural mortality and movements. This should include concurrent evaluations of tag retention, tagging mortality, and angler tag reporting rates. The importance of each state's tagging data to the assessment should be evaluated, including analysis of historical tagging data to determine if existing and historic recreational data sources (e.g., tagging) can be used to evaluate better B2 selectivity. (H)
- < Establish programs to provide ongoing estimates of commercial and recreational discard mortality using appropriate statistical methods. Discard estimates should examine the

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impact of slot-size limit management and explore regulatory discard impacts due to high-grading. (M)

- < Evaluate the broader survey needs to identify gaps in current activities and provide for potential expansion and/or standardization between/among current surveys. (M)
- < Review all available stock structure data (genetics, tagging, etc.) to determine stock structure and most appropriate management boundaries. (M)

Biological

- < Explore methods to effectively sample the adult population in estuarine, nearshore, and open ocean waters, such as in the ongoing red drum long line survey, and to determine the size, age and sex composition of the adults. (H)
- < Continue genetic analyses (i.e., SC DNR analyses) to evaluate stock structure and mixing and temporal changes in genetic composition of the red drum population and other applications. (H)
- < Refine maturity schedules on a geographic basis. Thoroughly examine the influence of size and age on reproductive function. Investigate the possibility of senescence in female red drum. Archive histological specimens across sizes to look for shifts in maturity schedules and make regional comparisons. Standardize histology reading methods of slides across states conducting such studies. (For reference, see SEDAR 44-DW02). (H)
- < Determine habitat preferences, environmental conditions, growth rates, and food habits of larval and juvenile red drum throughout the species range along the Atlantic coast. Assess the effects of environmental factors on stock density/year class strength. Determine whether natural environmental perturbations affect recruitment and modify relationships with spawning stock size. (H)
- < Continue tagging studies to determine stock identity, inshore/offshore migration patterns of all life stages (i.e. basic life history research). Specific effort should be given to developing a large-scale program for tagging adult red drum. (M)
- < Fully evaluate the effects and effectiveness of using cultured red drum to facilitate higher catch rates along the Atlantic coast. (M)
- < Conduct a tagging study using emerging technologies (i.e., acoustic tagging, satellite tagging, genetic tags) to evaluate stock mixing and identify movement of sub-adult fish transitioning to maturity. (M-L)
- < Otolith microchemistry analysis should be considered for exploring links between sub-adult estuarine habitats and adult stock structure. (L)

Social (Unless otherwise indicated, the collection of sociological and/or economic data, also sometimes collectively described as "socioeconomic data," would be based on Atlantic Coastal Cooperative Statistics Program [ACCSP] standards.)

- < Encourage the NMFS to fund socioeconomic add-on questions to the recreational fisheries survey that are specifically oriented to red drum recreational fishing. (H)
- < States with significant fisheries (over 5,000 pounds) should periodically (e.g. every five years) collect socioeconomic data on red drum fisheries through add-ons to the recreational fisheries survey or by other means. (H)

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- < Using a human dimension analysis perspective, explore Atlantic red drum historical catch-release trends and explanatory factors such as the possible impacts of changes in recreational fishing technology and/or angler behavior on red drum catchability and selectivity over time. (H)
- < Conduct applied research to evaluate the various projected (forecasted) social impacts on red drum fishery stakeholders of possible regulatory options (e.g. changing minimum sizes, etc.). (M)

Economic

- < Using available secondary data and other information, develop models to estimate the local (community), state and regional level economic impacts (e.g. sales, jobs, income, etc.) of recreational red drum fisheries-related activities including the for-hire sector component (e.g. fishing guides). (H)
- < Where appropriate, encourage individual member states to conduct studies to project and evaluate the estimated comparable net economic values associated with current and possible future regulatory regimes that could impact red drum recreational anglers, including those preferring catch and release fishing. (M)
- < Using risk adjusted benefit-cost analysis protocols, project the estimated public sector-oriented net economic values over a time for various cultured red drum stocking scenarios compared to possible changes in other fishery management alternatives. (M)
- < Encourage NOAA Fisheries to periodically conduct special surveys and related data analysis to determine the economic and operational characteristics of the recreational fishing for-hire component targeting red drum, especially fishing guide-oriented businesses in the South Atlantic states. (M)

Habitat

- < Identify spawning areas of red drum in each state from North Carolina to Florida so these areas may be protected from degradation and/or destruction. Explore relationships between spawning activity (e.g. spawning sounds) and environmental parameters (e.g. temperature). (H)
- < Identify changes in freshwater inflow on red drum nursery habitats. Quantify the relationship between freshwater inflows and red drum nursery/sub-adult habitats. (H)
- < Determine the impacts of dredging and beach re-nourishment on red drum spawning and early life history stages. (M)
- < Investigate the concept of estuarine reserves to increase the escapement rate of red drum along the Atlantic coast. (M)
- < Identify impacts of water quality, environmental, and ecosystem changes on red drum stock dynamics for potential incorporation into stock assessment models. (M)
- < Quantify relationships between red drum production and habitat and implications for future management planning. (L)
- < Determine methods for restoring red drum habitat and/or improving existing environmental conditions that adversely affect red drum production. (L)

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IX. References

- Atlantic States Marine Fisheries Commission (ASMFC). 2002. Amendment 2 to the Interstate Fishery Management Plan for Red Drum. ASMFC, Washington, DC, Fishery Management Report No. 38, 141 p.
- ASMFC. 2017. [Red Drum Stock Assessment and Peer Review Report](#). Atlantic States Marine Fisheries Commission, Stock Assessment Report, 126 p.
- Murphy, MD. 2017. An assessment of red drum in South Carolina, 1982-2016. South Carolina Department of Natural Resources Marine Resources Research Institute, In House Report 2017, 46 p.
- Murphy, MD and J. Muniyandorero. 2009. An assessment of the status of red drum in Florida through 2007. Florida Fish and Wildlife Commission Fish and Wildlife Research Institute, St. Petersburg, In-House Report 2008-008, 106 p.
- South Atlantic Fishery management Council (SAFMC). 2009. Southeast Data, Assessment and Review 18, Stock Assessment Report, Atlantic Red Drum. North Charleston, SC. 544 p.
- Takade, H and L Paramore. 2007. Stock Status of the Northern Red Drum Stock. North Carolina Division of Marine Fisheries. In-House Report, 60 p.
- Vaughan, DS. 1992. Status of the red drum stock of the Atlantic coast: Stock assessment report for 1991. NOAA Tech. Mem. NMFS-SEFC-297. 58 p.
- Vaughan, DS. 1993. Status of the red drum stock of the Atlantic coast: Stock assessment report for 1992. NOAA Tech. Mem. NMFS-SEFC-313. 60 p.
- Vaughan, DS. 1996. Status of the red drum stock of the Atlantic coast: Stock assessment report for 1995. NOAA Tech. Mem. NMFS-SEFC-380. 50 p.
- Vaughan, DS and JT Carmichael. 2000. Assessment of Atlantic red drum for 1999: northern and southern regions. NOAA Tech. Mem. NMFS-SEFSC-447, 54 p. + app. U.S. DOC, NOAA, Center for Coastal Fisheries and Habitat Research, Beaufort, NC.
- Vaughan, DS and JT Carmichael. 2001. Bag and size limit analyses for red drum in northern and southern regions of the U.S. South Atlantic. NOAA Tech. Mem. NMFS-SEFSC-454, 37 p. U.S. DOC, NOAA, Center for Coastal Fisheries and Habitat Research, Beaufort, NC.
- Vaughan, DS and TE Helser. 1990. Status of the red drum stock of the Atlantic coast: Stock assessment report for 1989. NOAA Tech. Mem. NMFS-SEFC-263. 117 p.

X. Figures

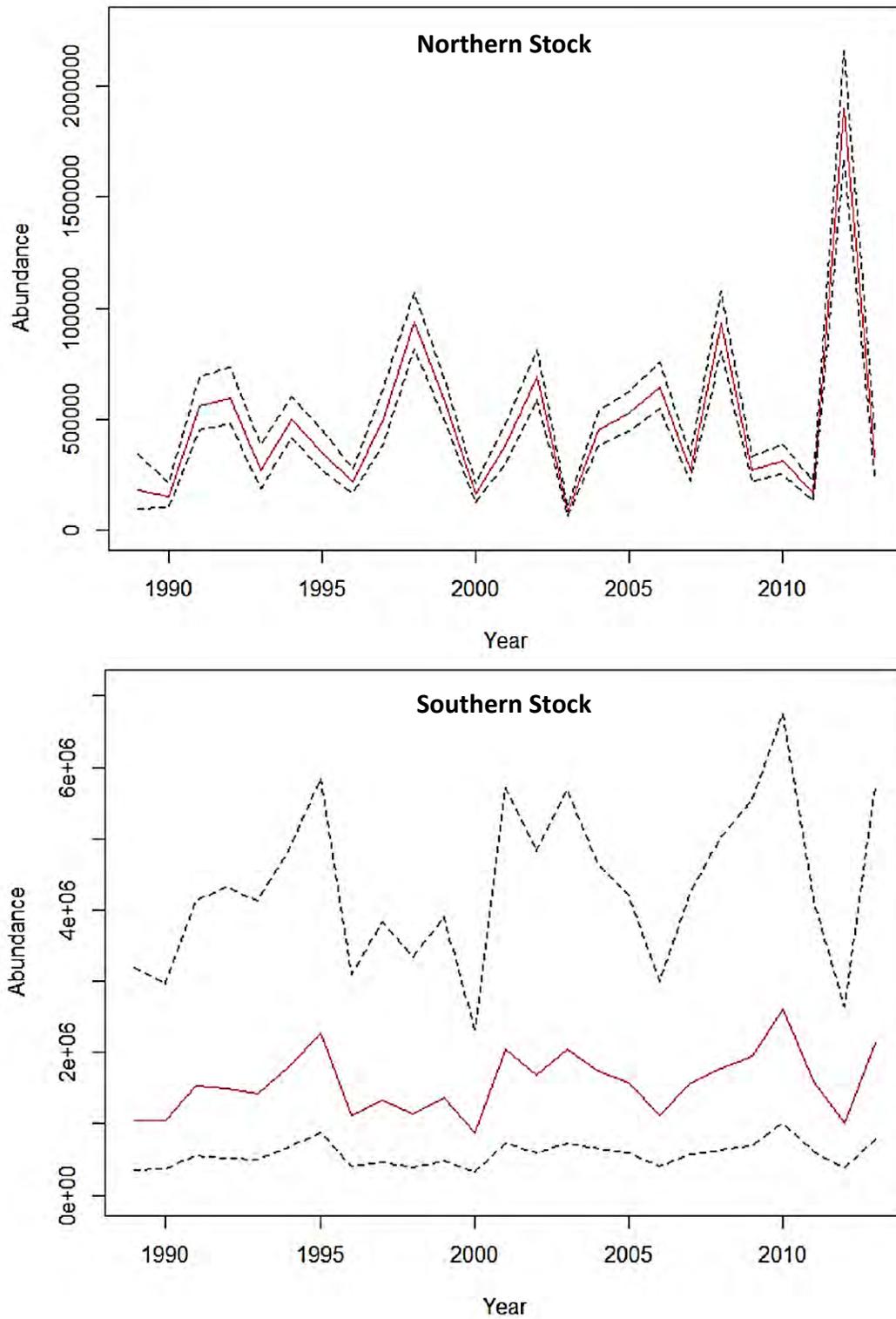


Figure 1. Predicted recruitment (age-1 abundance, red lines) with 95% confidence intervals (dashed black lines) for the northern (top) and southern (bottom) regions (Source: ASMFC 2017).

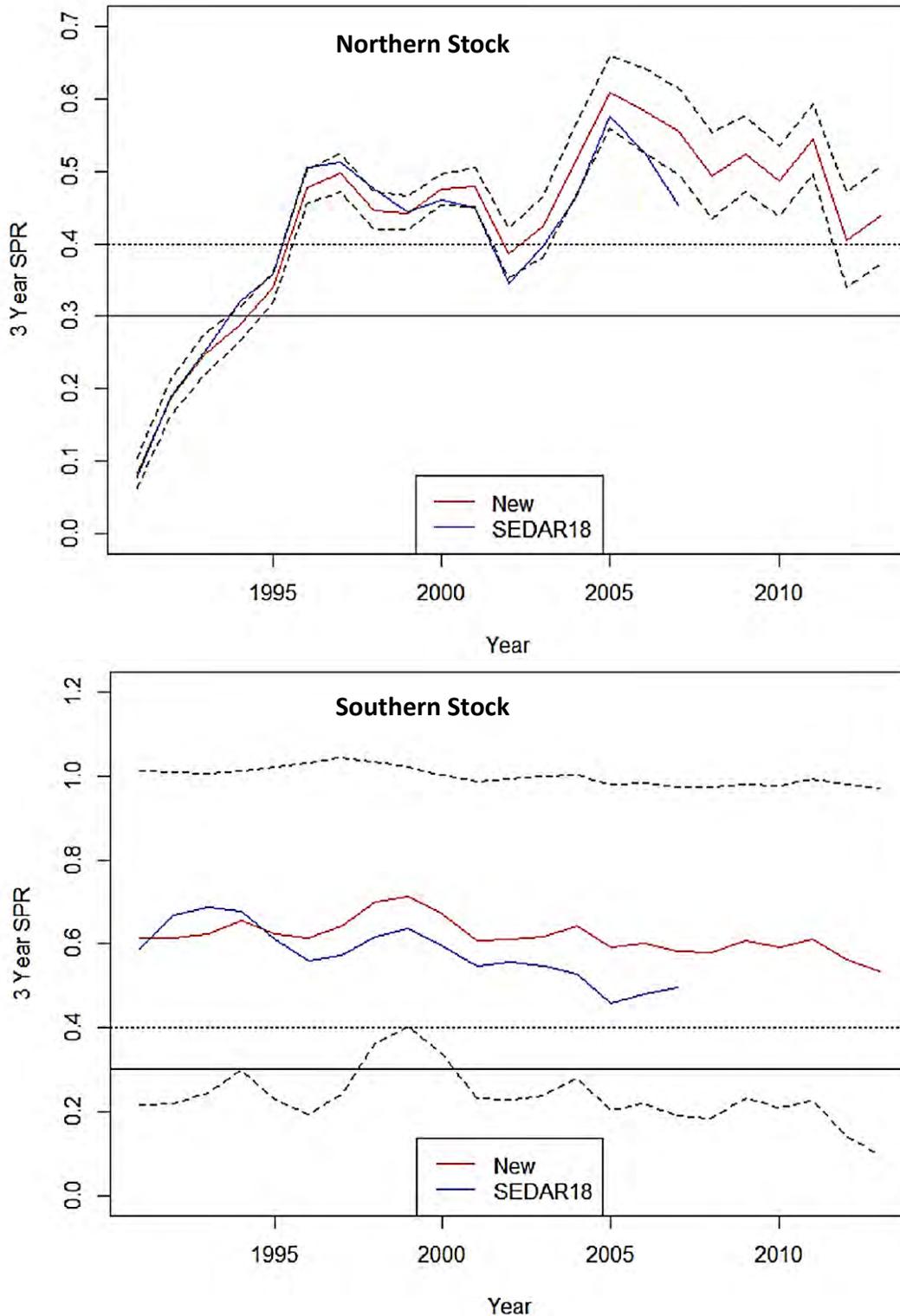


Figure 2. Three year average sSPR (red lines) for the northern (top) and southern (bottom) stocks with 95% confidence intervals (dashed black lines). Point estimates from the previous benchmark assessment (SEDAR18) are included for comparison. The target sSPR (dotted black line) is 40% and the threshold sSPR (solid black line) is 30% (Source: ASMFC 2017).

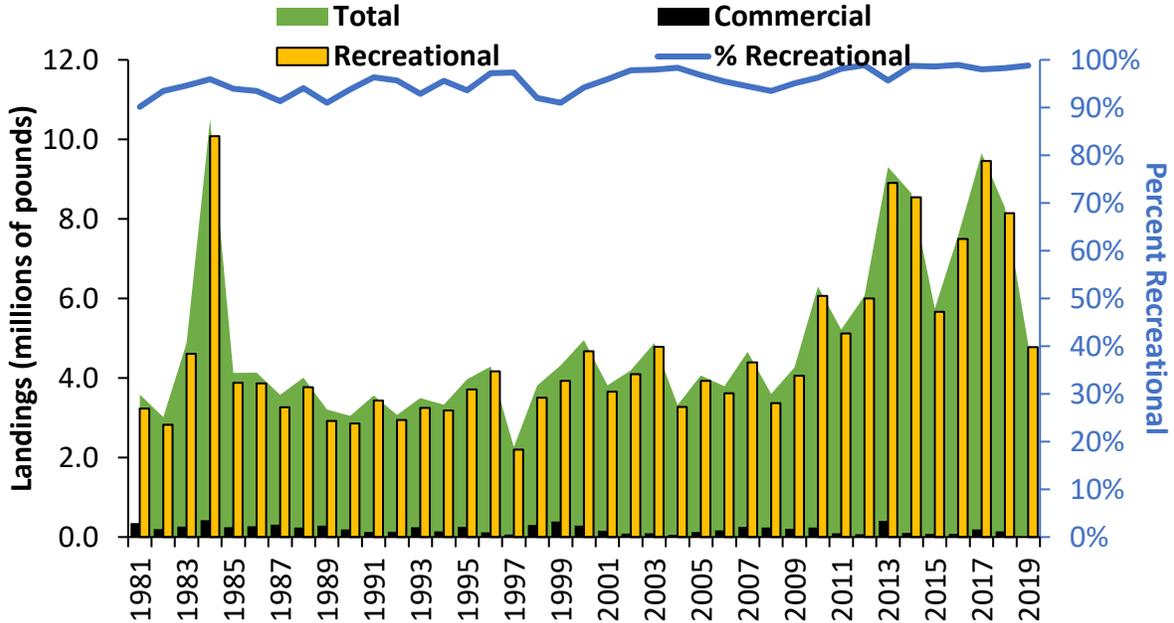


Figure 3. Commercial and recreational landings (pounds) of red drum. See Tables 2 and 3 for values and data sources.

*Recreational weight data for NC-FL in 1988 is unavailable. Recreational harvests in pounds were estimated for these states in this year by multiplying each state’s 1988 harvest in numbers of fish by its time series average weight.

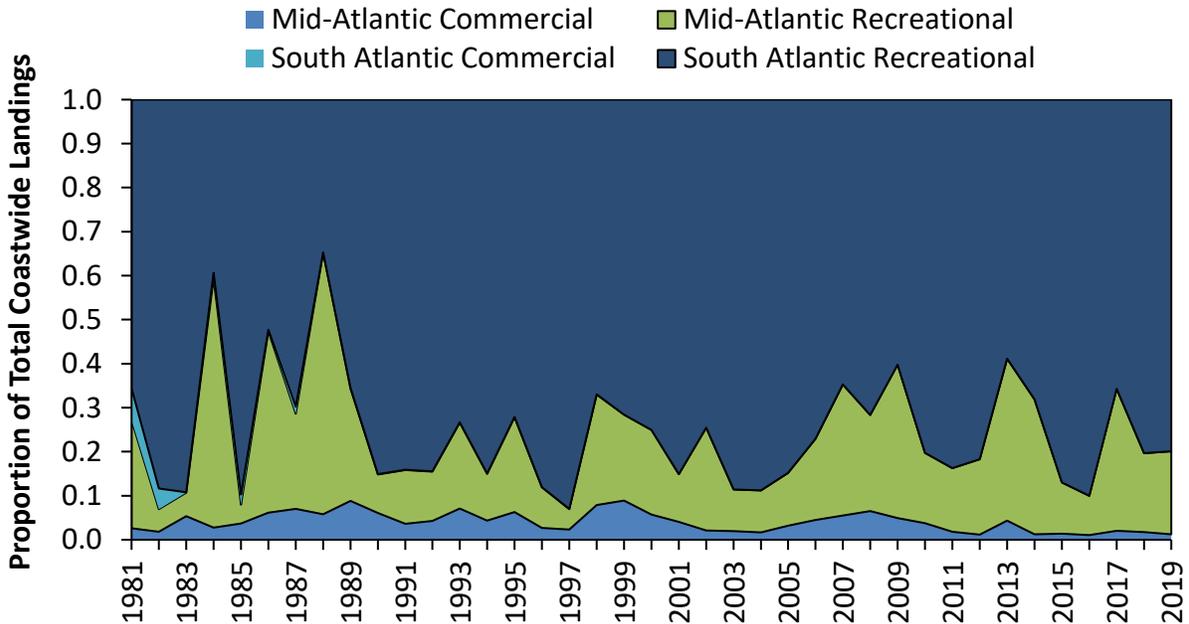


Figure 4. Proportion of regional, sector-specific landings to total coastwide landings (pounds). See Tables 2 and 3 for data sources.

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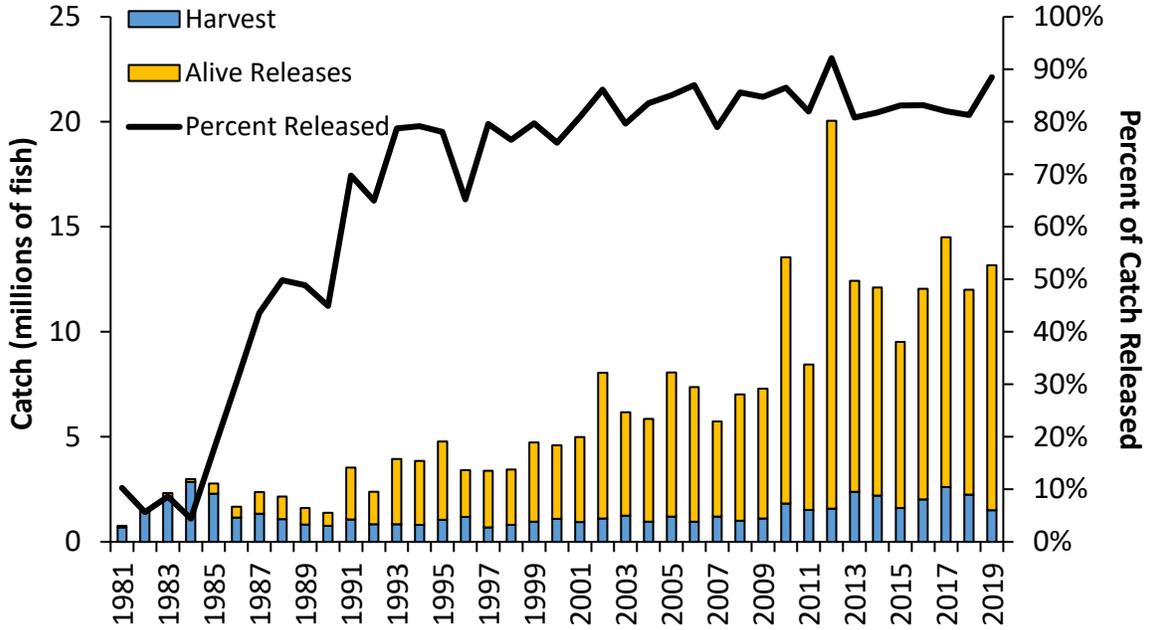


Figure 5. Recreational catch (harvest and alive releases) of red drum (numbers) and the proportion of catch that is released. See Tables 4 and 5 for values and data sources.

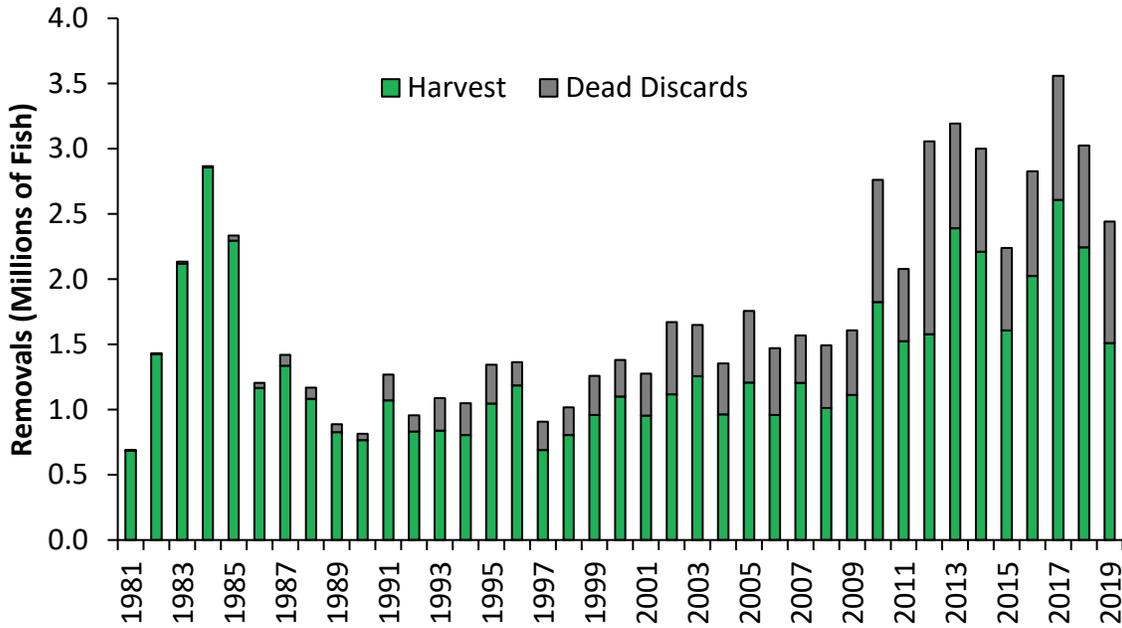


Figure 6. Recreational removals (harvest and dead discards) of red drum (numbers). Dead discards are estimated by applying an 8% discard mortality rate to alive releases. See Tables 4 & 5 for values and data sources.

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XI. Tables

Table 1. Red drum regulations for 2019. The states of New Jersey through Florida are required to meet the requirements in the FMP; states north of New Jersey are encouraged to follow the regulations. All size limits are total length.

| State | Recreational | Commercial |
|--------------|---|--|
| NJ | 18" - 27", 1 fish | 18" - 27", 1 fish |
| DE | 20" - 27", 5 fish | 20" - 27", 5 fish |
| MD | 18" - 27", 1 fish | 18" - 25", 5 fish |
| PRFC | 18" - 25", 5 fish | 18" - 25", 5 fish |
| VA | 18" - 26", 3 fish | 18" - 25", 5 fish |
| NC | 18" - 27", 1 fish | 18" - 27"; 250,000 lb harvest cap with overage payback (150,000 lbs Sept 1- April 30; 100,000 lbs May 1-Aug 31); harvest of red drum allowed with 7 fish daily trip limit; red drum must be less than 50% of catch (lbs); small mesh (<5" stretched mesh) gill nets attendance requirement May 1 - November 30. Fishing year: September 1 – August 31. |
| SC | 15" - 23", 2 fish per person per day bag limit and 6 fish per boat per day boat limit | Gamefish Only |
| GA | 14" - 23", 5 fish | Gamefish Only |
| FL | 18" - 27"; Northern Region – 2 fish per person per day, 8 fish vessel limit, Southern Region – 1 fish per person day bag limit, 8 fish vessel limit | Sale of native fish prohibited |

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Table 2. Commercial landings (pounds) of red drum by state, 2010-2019. (Source: personal communication with ACCSP, Arlington, VA, for years prior to 2019 and state compliance reports for 2019, except as noted below.)

| Year | NJ | DE | MD | PRFC | VA | NC | SC | GA | FL | Total |
|------|----|----|-------|------|--------|---------|----|----|----|---------|
| 2010 | | | C | 22 | 3,966 | 231,828 | | C | | 235,816 |
| 2011 | | | | 3 | 4,397 | 91,980 | | C | | 96,380 |
| 2012 | C | | 334 | 81 | 2,786 | 66,519 | | | | 69,720 |
| 2013 | C | | 2,696 | 268 | 30,137 | 371,949 | | | | 405,050 |
| 2014 | C | | 295 | 3 | 14,733 | 90,647 | | | | 105,677 |
| 2015 | | | C | 0 | 814 | 80,282 | | | | 81,095 |
| 2016 | | | C | 0 | 1,898 | 77,833 | | | | 79,731 |
| 2017 | C | | 626 | 0 | 6,971 | 186,411 | C | | | 194,023 |
| 2018 | | | C | 0 | 885 | 144,464 | | | | 145,349 |
| 2019 | | | C | 0 | 1,650 | 56,393 | | 0 | | 58,043 |

Notes: PRFC landings from agency reporting program; “C” indicates confidential landings.

Table 3. Recreational landings (pounds) of red drum by state, 2010-2019. (Source: personal communication with MRIP for data prior to 2019; state compliance reports for 2019)

| Year | NJ | DE | MD | VA | NC |
|------|--------|--------|---------|-----------|-----------|
| 2010 | | | | 173,622 | 835,143 |
| 2011 | 15,567 | | | | 737,853 |
| 2012 | | 9,948 | 158,313 | 225,732 | 648,342 |
| 2013 | | 13,536 | 12,086 | 1,185,572 | 2,214,045 |
| 2014 | | | | 979,388 | 1,674,595 |
| 2015 | | | | 98,329 | 567,730 |
| 2016 | | | | 45,451 | 633,496 |
| 2017 | | | 6,782 | 1,628,692 | 1,475,852 |
| 2018 | | | | 31,566 | 1,452,358 |
| 2019 | 4,107 | | 2,113 | 470,940 | 436,219 |

| Year | SC | GA | FL | Total |
|------|-----------|-----------|-----------|-----------|
| 2010 | 1,137,142 | 719,068 | 3,196,674 | 6,061,649 |
| 2011 | 1,058,774 | 433,306 | 2,871,989 | 5,117,489 |
| 2012 | 1,007,542 | 221,044 | 3,727,020 | 5,997,941 |
| 2013 | 682,544 | 452,283 | 4,341,545 | 8,901,611 |
| 2014 | 921,971 | 387,367 | 4,582,561 | 8,545,882 |
| 2015 | 656,747 | 394,787 | 3,949,000 | 5,666,593 |
| 2016 | 536,550 | 586,235 | 5,694,370 | 7,496,102 |
| 2017 | 1,048,249 | 826,857 | 4,470,905 | 9,457,337 |
| 2018 | 643,213 | 1,186,306 | 4,829,344 | 8,142,787 |
| 2019 | 862,124 | 630,294 | 2,372,773 | 4,778,570 |

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Table 4. Recreational landings (numbers) of red drum by state, 2010-2019. (Source: personal communication with MRIP for data prior to 2019; state compliance reports for 2019)

| Year | NJ | DE | MD | VA | NC |
|------|-------|-------|--------|---------|---------|
| 2010 | | | | 44,123 | 179,828 |
| 2011 | 5,432 | | | | 156,484 |
| 2012 | | 2,256 | 62,444 | 90,856 | 152,005 |
| 2013 | | 3,734 | 4,766 | 333,590 | 520,758 |
| 2014 | | | | 251,501 | 324,303 |
| 2015 | | | | 22,102 | 143,876 |
| 2016 | | | | 15,866 | 169,195 |
| 2017 | | | 4,943 | 347,145 | 353,716 |
| 2018 | | | | 6,334 | 299,577 |
| 2019 | 1,331 | | 1,258 | 205,824 | 97,186 |

| Year | SC | GA | FL | | Total |
|------|---------|---------|-----------|--|-----------|
| 2010 | 437,219 | 442,578 | 721,011 | | 1,824,759 |
| 2011 | 373,083 | 200,521 | 787,958 | | 1,523,478 |
| 2012 | 296,380 | 96,354 | 877,569 | | 1,577,864 |
| 2013 | 282,688 | 236,760 | 1,007,729 | | 2,390,025 |
| 2014 | 393,424 | 212,193 | 1,027,980 | | 2,209,401 |
| 2015 | 258,493 | 201,049 | 981,685 | | 1,607,205 |
| 2016 | 241,224 | 289,928 | 1,309,505 | | 2,025,718 |
| 2017 | 455,887 | 467,522 | 978,520 | | 2,607,733 |
| 2018 | 262,725 | 606,836 | 1,069,604 | | 2,245,076 |
| 2019 | 333,315 | 271,970 | 599,348 | | 1,510,232 |

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Table 5. Recreational alive releases and dead discards (numbers) of red drum by state, 2010-2019. Dead discards are estimated based on an 8% release mortality rate. (Source: personal communication with MRIP for data prior to 2019; state compliance reports for 2019)

| Year | NJ | DE | MD | VA | NC |
|------|-------|--------|-----------|-----------|-----------|
| 2010 | | | 6,801 | 88,328 | 1,670,693 |
| 2011 | | | | 156,584 | 587,369 |
| 2012 | | 42,738 | 1,250,726 | 8,323,032 | 4,939,534 |
| 2013 | | 1,325 | 7,125 | 576,743 | 1,892,171 |
| 2014 | | 264 | 659 | 1,108,646 | 1,086,967 |
| 2015 | | | 1,456 | 78,590 | 1,308,072 |
| 2016 | | 2,598 | 47,908 | 164,575 | 3,203,452 |
| 2017 | | | 14,148 | 1,722,618 | 2,165,656 |
| 2018 | 4,715 | | 21,384 | 85,338 | 1,729,260 |
| 2019 | | 474 | 5,740 | 865,957 | 2,976,601 |

| Year | SC | GA | FL | Total Releases | Dead Discards |
|------|-----------|-----------|-----------|----------------|---------------|
| 2010 | 2,269,230 | 926,494 | 6,759,301 | 11,720,847 | 937,668 |
| 2011 | 1,617,509 | 370,451 | 4,191,567 | 6,923,480 | 553,878 |
| 2012 | 1,083,096 | 220,312 | 2,614,554 | 18,473,992 | 1,477,919 |
| 2013 | 1,864,510 | 504,759 | 5,196,513 | 10,043,146 | 803,452 |
| 2014 | 1,874,809 | 750,619 | 5,074,602 | 9,896,566 | 791,725 |
| 2015 | 1,432,754 | 961,277 | 4,132,461 | 7,914,610 | 633,169 |
| 2016 | 1,266,931 | 601,153 | 4,734,303 | 10,020,920 | 801,674 |
| 2017 | 2,094,199 | 1,176,524 | 4,727,411 | 11,900,556 | 952,044 |
| 2018 | 1,493,803 | 1,045,570 | 5,375,011 | 9,755,081 | 780,406 |
| 2019 | 2,911,653 | 1,206,707 | 3,673,651 | 11,640,783 | 931,263 |

Atlantic States Marine Fisheries Commission

Executive Committee

October 21, 2020

8:00 – 10:00 a.m.

Webinar

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 (*P. Keliher*)
2. Committee Consent
 - Approval of Agenda
 - Approval of Meeting Summary from August 2020
3. Public Comment
4. Report of the Administrative Oversight Committee (*S. Woodward*)
 - Consider Approval of Fiscal Year 2020 Audit **ACTION**
5. Future Annual Meetings Update (*L. Leach*)
6. Discuss Pennsylvania's Participation on the Atlantic Menhaden Board (*R. Beal*)
7. Discuss Improvements to the Public Comment Process (*R. Beal*)
8. Other Business/Adjourn

**MEETING SUMMARY OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
EXECUTIVE COMMITTEE**

**Virtual via GoToMeeting
Arlington, VA
August 5, 2020**

INDEX OF MOTIONS

- 1. Approval of Agenda by Consent. (Page 2)**
- 2. Approval of Meeting Summary from February 6, 2020 by Consent. (Page 2)**
- 3. "On behalf of the AOC, I move approval of the FY21 Budget as presented." (Mr. Woodward on behalf of the AOC) Motion passed unanimously. (Page 2)**
- 4. "On behalf of the AOC, I move approval of the Contract/Agreement Policy as presented." (Mr. Woodward on behalf of the AOC) Motion passed unanimously. (Page 2)**
- 5. Adjournment by Consent (Page 3)**

ATTENDANCE

Committee Members

Pat Keliher, ME
Cheri Patterson, NH
Dennis Abbott, NH (LA Chair)
Dan McKiernan, MA
Justin Davis, CT
Jason McNamee, RI
Jim Gilmore, NY
Joe Cimino, NJ

John Clark, DE
Roy Miller, DE (GA Chair)
Kris Kuhn, PA
Bill Anderson, MD
Steve Bowman, VA
Steve Murphey, NC
Mel Bell, proxy for Phil Maier, SC
Spud Woodward, GA

Other Commissioners

David Borden, RI (GA)
Lynn Fegley, MD DNR
Tom Fote, NJ (GA)
Doug Haymans, GA (AA)
Raymond Kane, MA (GA)
Mike Luisi, MD DNR
Loren Lustig, PA (GA)

John McMurray, NY (LA Proxy)
Nichola Meserve, MA DMF
Eric Reid, RI (LA Proxy)
Malcolm Rhodes, SC (GA)
Megan Ware, ME DMR
Ritchie White, NH (GA)

Staff

Bob Beal
Laura Leach
Tina Berger
Pat Campfield
Toni Kerns
Geoff White

Max Appelman
Sarah Murray
Kirby Rootes-Murdy
Mike Schmidtke
Deke Tompkins

Others

Karen Abrams, NOAA Fisheries
Chris Batsavage, NC DMF
William Brantley, NC DENR
Jeffrey Brust, NJ DEP
Jessica Daher, NJ DEP
Monty Deihl
Kelly Denit, NOAA Fisheries
John Duane
Paul Eidman
Warren Elliott
Sheila Eyler, USFWS
James Fletcher
Peter Fallon, Maine Strippers
Marty Gary, PRFC
Matt Gates, CT DEP
Pat Geer, VMRC
Sean Gehan, Gehan Law
Zoe Goozner, Pew Trusts
Joseph Gordon, Pew Trusts
Zach Greenberg, Pew Trusts
Bryan Hall, NC DENR
Amalia Harrington, ME
Rusty Hudson
Jeff Kaelan, Lund's Fisheries
Aaron Kornblkuth, Pew Trusts
Adrienne Kotula, Ches Bay
Alexa Kretsch, VMRC
Robert LaFrance, Quinnipac
Thao Le, NOAA

Dee Lupton, NC DMF
Chip Lynch, NOAA Fisheries
Shanna Madsen, VMRC
John Maniscalco, NY DEC
Anne Markwith, NC DENR
Genine McClair, MD DNR
Steve Meyers
Mike Millard, USFWS
Chris Moore, CBF
Allison Murphy, NOAA
Ken Neill
Jeff Nichols, ME DMR
Derek Orner, NOAA Fisheries
Paul Piavis, MD DNR
Olivia Phillips, VMRC
Nicholas Popoff, USFWS
Jill Ramsey, VMRC
Andrew Sinchuk, NY DEC
Brandi Salmon, NC DENR
Eric Schneider, RI DEM
Tara Scott, NOAA
Alexi Sharov, MD DNR
David Stormer, DE
Helen Takade-Heumacher, USFWS
Craig Weedon, MD DNR
Christina Wiegand, SAFMC
Chris Wright, NOAA
Renee Zobel, NHF&G

CALL TO ORDER

The Executive Committee of the Atlantic States Marine Fisheries Commission convened virtually via a GoToMeeting webinar August 5, 2020. The meeting was called to order at 8:03 a.m. by Chair Pat Keliher.

APPROVAL OF AGENDA

The agenda was approved, with the addition of three additional topics: a letter from Tom Fote regarding Commission working groups, conduct of the 79th annual meeting and public hearings.

APPROVAL OF PROCEEDINGS

The summary minutes from the February 6, 2020 meeting were approved as presented.

PUBLIC COMMENT

There was no public comment.

CARES ACT UPDATE

Mr. Beal gave an update on the CARES Act, and Ms. Kelly Denit, NMFS fielded questions from the Executive Committee. The Committee discussed the details and timing of the state spend plan development. Ms. Denit promised to research the questions she was unable to answer and provide answers to Mr. Beal within one week.

REPORT OF THE ADMINISTRATIVE OVERSIGHT COMMITTEE

Mr. Woodward presented the report of the Administrative Oversight Committee (AOC)

who met via conference call in advance of the Summer Meeting. The AOC reviewed the proposed FY21 Budget and forwarded it to the Executive Committee with the following motion: **On behalf of the Administrative Oversight Committee, move approval of the FY21 Budget.** Motion by Spud Woodward. Motion passed unanimously.

The AOC also discussed the proposed Policy on Commission Contracts and forwarded it to the Executive Committee with the following motion: **On behalf of the Administrative Oversight Committee, move approval of the Contract/Agreement Policy as presented.** Motion by Spud Woodward. Motion passed unanimously. This policy describes how unused funds will be handled at the end of a contract or other agreement with the Commission.

MSC RECOMMENDATIONS REGARDING PUBLIC INPUT PROCESS

The Management & Science Committee (MSC) was tasked with recommending better ways to engage stakeholders and capture public input. The Executive Committee received a report on the MSC recommendations regarding AP and the public input process; after much discussion the MSC was asked to continue working on their recommendations, in light of the discussion. Additional options will be provided for discussion at the Annual Meeting in October.

PENNSYLVANIA'S MEMBERSHIP ON NON-DIADROMOUS BOARDS

Mr. Beal gave an update on the status of the Pennsylvania's membership on the Atlantic Menhaden Management Board. The Commission's legal counsel Sean Donahue, is in the process of writing a letter to Pennsylvania with his opinion regarding their participation on the Board. This issue will be discussed at a subsequent Executive Committee meeting and a recommendation will be forwarded to the Policy Board for consideration. the Board.

DIVISION OF SOUTH ATLANTIC STATE/FEDERAL MANAGEMENT BOARD INTO TWO MANAGEMENT BOARDS

The discussion regarding dividing the South Atlantic Board was postponed to a subsequent meeting due to time constraints.

OTHER BUSINESS

TOM FOTE LETTER REGARDING COMMISSION WORKING GROUPS

This issue was postponed to an upcoming Executive Committee weekly webinar.

79TH ANNUAL MEETING

The Chair noted the leadership of the Commission had discussed the conduct of the 79th annual meeting and made the decision to conduct this meeting virtually. The 80th annual meeting of the Commission will be held in New Jersey in the Fall of 2021.

PUBLIC HEARINGS

Due to COVID-19 the Commission is not able to hold in-person public hearings, so guidance was needed on how to conduct hearing until restrictions on travel and public gatherings are lifted. The Executive Committee asked staff to develop options for consideration at a weekly webinar.

ADJOURN

The Executive Committee adjourned at 9:45 a.m. to go into a closed session to conduct the Executive Director's review.

Atlantic States Marine Fisheries Commission

Horseshoe Crab Management Board

October 21, 2020

10:30 – 11:15 a.m.

Webinar

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>J. Cimino</i>) | 10:30 a.m. |
| 2. Board Consent | 10:30 a.m. |
| • Approval of Agenda | |
| • Approval of Proceedings from October 2019 | |
| 3. Public Comment | 10:35 a.m. |
| 4. Set 2021 Harvest Specifications Final Action | 10:40 a.m. |
| • Review Horseshoe Crab and Red Knot Abundance Estimates and 2020 Adaptive Resource Management (ARM) Model Results (<i>J. Sweka</i>) | |
| • Set 2021 Harvest Specifications (<i>J. Cimino</i>) | |
| 5. Progress Update on ARM Revisions (<i>J. Sweka</i>) | 10:55 a.m. |
| 6. Consider Fishery Management Plan Review and State Compliance for the 2019 Fishing Year (<i>C. Starks</i>) Action | 11:05 a.m. |
| 7. Review and Populate Advisory Panel Membership (<i>T. Berger</i>) Action | 11:10 a.m. |
| 8. Other Business/Adjourn | 11:15 a.m. |

MEETING OVERVIEW

Horseshoe Crab Management Board Meeting
Wednesday, October 21, 2020
10:30 – 11:15 a.m.
Webinar

| | | |
|--|--|---|
| Chair: Joe Cimino (NJ) Assumed Chairmanship: 10/19 | Horseshoe Crab Technical Committee Chair: Jeff Brunson (SC) | |
| Vice Chair: VACANT | Horseshoe Crab Advisory Panel Chair: Allen Burgenson (MD) | Law Enforcement Committee Representative: Doug Messeck (DE) |
| Delaware Bay Ecosystem Technical Committee Chair: Wendy Walsh (FWS) | Adaptive Resource Management Subcommittee Chair: Dr. John Sweka (FWS) | Previous Board Meeting: October 29, 2019 |
| 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 October 29, 2019 Board Meeting

3. Public Comment – At the beginning of the meeting public comment will be taken on items not on the agenda. Individuals that wish to speak at this time must sign-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. Set 2021 Harvest Specifications (10:40 - 10:55 a.m.) Final Action

Background

- In September 2020, the DBE TC and Adaptive Resource Management (ARM) Subcommittee met to review results of 2019-2020 horseshoe crab and red knot population abundance surveys in the Delaware Bay region (**Supplemental Materials**).
- The Virginia Tech Trawl Survey was conducted in 2019, so the ARM Subcommittee used population estimates from this survey to estimate horseshoe crab abundance in the Delaware Bay region. A report was also provided on the red knot stopover population estimate for 2020 (**Briefing Materials**).
- The ARM model was run using estimated abundances of horseshoe crabs in fall of 2019 and red knots in spring of 2020 to provide a recommendation for harvest specifications for Delaware Bay states in 2021 (**Briefing Materials**).

Presentations

- Horseshoe Crab and Red Knot Abundance Estimates and 2020 ARM Model Results by J. Sweka

Board actions for consideration at this meeting

- Consider ARM harvest recommendations and set specifications for states in the Delaware Bay region in 2021.

5. Progress Report on ARM Revisions (10:00 - 10:40 a.m.)**Background**

- In October 2019, the Board directed the ARM Subcommittee to begin working on updates to the Adaptive Resource Management (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 the last year, the ARM Subcommittee has been working on incorporating the CMSA model into the ARM, moving the model to a new software platform, improving model structure, and updating the red knot population model.
- The ARM model revision is tentatively scheduled to go to peer review in the summer of 2021 and be brought to the Board at the August or October 2021 meeting.

Presentations

- Progress Report on ARM Revisions by J. Sweka

6. Consider Fishery Management Plan Review and State Compliance for the 2019 Fishing Year (11:05 - 11:10 a.m.) Action**Background**

- State Compliance Reports were due July 1, 2020.
- The Plan Review Team reviewed each state report and compiled the annual FMP Review (**Briefing Materials**).
- The Potomac River Fisheries Commission, South Carolina, Georgia, and Florida have requested and meet the requirements of *de minimis* status.

Presentations

- Overview of the FMP Review by C. Starks

Board actions for consideration at this meeting

- Accept FMP Review and State Compliance Reports for the 2019 Fishing Year.
- Approve *de minimis* requests.

7. Review and Populate Advisory Panel Membership (11:10 - 11:15 a.m.) Action**Background**

- Christina Lecker, a biomedical representative from Virginia, has been nominated to the Horseshoe Crab Advisory Panel (**Briefing Materials**).

Presentations

- Nominations by T. Berger

Board actions for consideration at this meeting

- Approve Horseshoe Crab Advisory Panel nomination

8. Other Business/Adjourn

Horseshoe Crab

Activity level: Medium

Committee Overlap Score: Low (SAS overlaps with BERP)

Committee Task List

- ARM & DBETC – Incorporate Catch Multiple Survey Analysis horseshoe crab population estimates into the ARM model
- TC – Communicate with Kepley Biosystems’ to determine whether trials should be conducted for OrganoBait
- TC – July 1st: 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: Jeff Brunson (SC, TC Chair), Derek Perry (MA), Natalie Ameal (RI, Vice Chair), Deb Pacileo (CT), Catherine Ziegler (NY), Samantha Macquesten (NJ), Jordan Zimmerman (DE), Steve Doctor (MD), Ellen Cosby (PRFC), Adam Kenyon (VA), Jeffrey Dobbs (NC), Eddie Leonard (GA), Claire Crowley (FL), Linda Stehlik (NMFS), Chris Wright (NMFS), Joanna Burger (Rutgers), Gregory Breese (USFWS), Mike Millard (USFWS), Kristen Anstead (ASMFC), Caitlin Starks (ASMFC)

Delaware Bay Ecosystem TC Members: Wendy Walsh (USFWS, Chair), Amanda Dey (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), Greg Breese (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
ATLANTIC STATES MARINE FISHERIES COMMISSION
HORSESHOE CRAB MANAGEMENT BOARD**

Wentworth by the Sea
New Castle, New Hampshire
October 29, 2019

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

Draft Proceedings of the Horseshoe Crab Management Board Meeting
October 2019

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| Consider Re-initiation of Postponed Draft Addendum VIII..... | 8 |
| Set 2020 Harvest Specifications | 9 |
| Review of the Horseshoe Crab and Red Knot Abundance and Harvest Package | 9 |
| Consider Fishery Management Plan Review and State Compliance Reports..... | 11 |
| Other Business | 13 |
| Adjournment..... | 14 |

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INDEX OF MOTIONS

1. **Approval of agenda** by consent (Page 1).
2. **Approval of Proceedings from August 2019** by consent (Page 1).
3. **Move to postpone Draft Addendum VIII indefinitely** (Page 9). Motion by Mike Luisi; second by Chris Wright. Motion carried (Page 9).
4. **Move to select Harvest Package 3 (500,000 male-only crabs) for 2020 horseshoe crab bait harvest in Delaware Bay** (Page 11). Motion by Stewart Michels; second by Mike Millard. Motion carried (Page 11).
5. **Move to approve the 2019 FMP Review, state compliance reports, and *de minimis* status for Potomac River Fisheries Commission, South Carolina, Georgia, and Florida** (Page 13). Motion by Stewart Michels; second by Mel Bell. Motion carried (Page 13).
6. **Move to adopt a July 1st due date for state compliance reports** (Page 14). Motion by Stewart Michels; second by Mel Bell. Motion carried (Page 14).
7. **Move to adjourn** by consent (Page 14).

Draft Proceedings of the Horseshoe Crab Management Board Meeting
October 2019

ATTENDANCE

Board Members

| | |
|--|---|
| Dan McKiernan, MA, proxy for D. Pierce (AA) | Russell Dize, MD (GA) |
| Raymond Kane, MA (GA) | Robert Brown, MD, Governor Appointee proxy |
| Rep. Sarah Peake, MA (LA) | Phil Langley, MD, proxy for Del. Stein (LA) |
| Bob Ballou, RI (Chair) | Bryan Plumlee, VA (GA) |
| Eric Reid, RI, proxy for Sen. Sosnowski (LA) | Pat Geer, VA, proxy for Sen. (LA) |
| Justin Davis, CT (AA) | Steve Murphey, NC (AA) |
| Bill Hyatt, CT (GA) | Jerry Mannen, NC (GA) |
| Sen. Craig Miner, CT (LA) | Mel Bell, SC, proxy for R. Boyles (AA) |
| John McMurray, NY, proxy for Sen. Kaminsky (LA) | Malcolm Rhodes, SC (GA) |
| Maureen Davidson, NY, proxy for J. Gilmore (AA) | Sen. Ronnie Cromer, SC (LA) |
| Emerson Hasbrouck, NY (GA) | Doug Haymans, GA (AA) |
| Joe Cimino, NJ (AA) | Spud Woodward, GA (GA) |
| Tom Fote, NJ (GA) | Jim Estes, FL, proxy for J. McCawley (AA) |
| Adam Nowalsky, NJ, proxy for Sen. Andrzejczak (LA) | Rep. Thad Altman, FL (LA) |
| Stewart Michels, DE, proxy for D. Saveikis (AA) | Marty Gary, PRFC |
| Roy Miller, DE (GA) | Chris Wright, NMFS |
| Mike Luisi, MD, proxy for Bill Anderson (AA) | Mike Millard, USFWS |

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

Ex-Officio Members

| | |
|---|------------------------------------|
| Douglas Messeck, Law Enforcement Representative | John Sweka, ARM Subcommittee Chair |
|---|------------------------------------|

Staff

| | |
|-------------|-----------------|
| Robert Beal | Mike Schmidtke |
| Toni Kerns | Kristen Anstead |

Guests

| | |
|-----------------------------------|---------------------------------------|
| Chris Batsavage, NC DMF | Brett Hoffmeister, Assoc. of Cape Cod |
| Nora Blair, Charles River Labs | Arnold Leo, E. Hampton, NY |
| Robert Brown, MWA | Chip Lynch, NOAA |
| Robert Bruce, MWA | David Pierce, MA (AA) |
| John Clark, DE DFW | Alesia Reed, NOAA |
| Kelly Denit, NOAA | Mike Ruccio, NOAA |
| Philip Forester, Philadelphia, PA | Sam Underwood, Assoc. of Cape Cod |
| Lewis Gillingham, VMRC | Renee Zobel, NH F&G |
| Doug Grout, NH (AA) | |

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Draft Proceedings of the Horseshoe Crab Management Board Meeting
October 2019

The Horseshoe Crab Management Board of the Atlantic States Marine Fisheries Commission convened in the Wentworth Ballroom of the Wentworth by the Sea Hotel, New Castle, New Hampshire; Tuesday, October 29, 2019, and was called to order at 9:45 o'clock a.m. by Chairman Malcolm Rhodes.

CALL TO ORDER

CHAIRMAN MALCOLM RHODES: I'll call the meeting of the Horseshoe Crab Management Board to order. My name is Malcolm Rhodes; I'm up here at the podium with Dr. Mike Schmidtke and Dr. John Sweka, and Doug Messeck of Law Enforcement.

APPROVAL OF AGENDA AND PROCEEDINGS

CHAIRMAN RHODES: You all had previously received the agenda and the proceedings from the August meeting, were there any changes to those? Any objections to accepting them as written? Seeing none we'll move those accepted.

PUBLIC COMMENT

CHAIRMAN RHODES: We had a sign in sheet for public comment on issues not being brought before the Board, and I had no one signed up, but does anyone in the public need to address the management board? All right seeing no one coming up, I'm going to turn the meeting over to Dr. Sweka, it's all yours.

**REVIEW DELAWARE BAY ECOSYSTEM
TECHNICAL COMMITTEE AND
ADAPTIVE RESOURCE MANAGEMENT
SUBCOMMITTEE REPORT**

DR. JOHN SWEKA: Back in September, September 11 and 12, there was a joint meeting between the Delaware Bay Ecosystem Technical Committee and the Adaptive Resource Management Subcommittee, or the ARM. The purpose of this meeting was to develop recommendations to the Horseshoe Crab Management Board for the ARM following the

2019 Horseshoe Crab benchmark stock assessment.

In our two groups we developed six consensus recommendations, which I'll give you some background on each one, and present each one of them today. The first recommendation is kind of a formalization of the process that we have been doing. I just want to get it formalized as to the way we do routine business each year.

The Virginia Tech Survey is conducted in the fall, and red knot abundance is estimated in the spring. Both primiparous and multiparous crabs that survive from the fall to the spring will spawn and represent the total number of crabs that can provide eggs to the shorebirds. A better estimate of the number of crabs producing eggs during the shorebird stopover period would actually decrement the abundance of horseshoe crabs estimated in the fall by half a year's worth of mortality.

**RECOMMENDED UPDATES TO
THE ARM MODEL**

DR. SWEKA: A simple equation there, the crabs that are available in the spring when the birds are stopping over is just your primiparous plus your multiparous crabs decremented by mortality, or half of annual mortality. Our first recommendation then is for annual input into the ARM Framework. We should combine the primiparous and multiparous abundances from the Virginia Tech Trawl Survey with half a year mortality applied to the estimates. This would apply to the ARM Framework immediately. Our second recommendation pertains to the underlying horseshoe crab model, our Population Dynamics Model within the Arm Framework. It's been ten plus years since we developed the underlying horseshoe crab model. It started out from a publication back in 2007 as an age-structured model.

It was then converted into a stage-structured model in 2008, when we were developing the

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ARM, and then the ARM Model was peer reviewed in 2009. The bottom line is we know a lot more now. We have more year's-worth of data, new mortality estimates coming out of our last stock assessment, estimates of dead discards, and we have a peer reviewed and approved stock assessment model., the Catch Multiple Survey Analysis or CMSA.

What we're proposing is to use the underlying model from the CMSA as the revised population dynamics model for horseshoe crabs. It is much simpler than the stage-structured model that we currently use. Here is the equation for it. It's just a function of the number of multiparous and primiparous crabs added together decremented by mortality and catch subtracted.

Again, horseshoe crabs are assessed in the fall by the Virginia Tech Trawl Survey, and will spawn the following spring. The catch would be equal to all removals from all sources. This is bait, biomedical, and dead discards all combined. One caveat with this model is somehow we need to produce the recruits, or the R in the equation there for use in the projection model, which projects the population through time, and helps us then decide what's our best management option today.

What we're proposing to do is come up with an assumed stock-recruitment relationship based on either median recruitment or hockey stick sort of stock recruitment relationship, and this is something that can be refined as we move through time. The advantages of moving to this new underlying horseshoe crab population dynamics model is Number 1, it's empirical.

It's driven by the observed data and has less emphasis on literature values for the various life history parameters. For example, the adult mortality within the current model, and also includes the actual number of removals. We don't have any need to make any assumptions

about abundance of juvenile stages of horseshoe crabs.

The observed data provide an immediate feedback and model adjustment, and another big advantage is that the assessment model that we would use to estimate the abundance of horseshoe crabs, and the projection model are contained within the same modeling framework. This has been a criticism of previous peer reviewers on previous models.

Also we already have a funded USGS position under Dr. Dave Smith at the Leetown Science Center, and his Post-doc will be able to and has the funding and the time to transition the current modeling framework from ASDP that's the advanced casted dynamic programming to MDPSolve, so it's a new software that we would be developing this revised model in.

ASDP is now antiquated software, MDPSolve is newer software, and also a big advantage of moving to MDPSolve is that ASMFC staff will also be able to run the model. Another thing that we may look at in this recommendation is the utility function on female harvest of horseshoe crabs. Currently there is no value to harvesting female horseshoe crabs, unless the female horseshoe crab population estimate has reached 80 percent of the carrying capacity within the Delaware Bay, and that's 11.2 million crabs.

Then, once that threshold is reached females have value. You can see this, it's modeled as this knife-edged function. Into the future if we move forward with this new revised model, the carrying capacity might change, given the new underlying horseshoe crab population dynamics model.

Remember, our estimate of carrying capacity within the Delaware Bay is not an empirical estimate; it's based on theoretical modeling with the age-structured model that we currently use. Another question we might ask

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and explore is some proportion of K a suitable threshold, or should we move to some just absolute number of horseshoe crabs?

These things remain to be further discussed. The second recommendation is to move forward with using the Catch Multiple Survey Analysis Model for estimation and projection as the underlying horseshoe crab population model within the ARM Framework, and to reassess the ARM utility of female horseshoe crab harvest as a function of female abundance.

Recommendation 3 pertains to the red knot portion of the ARM Framework. McGowan et al in 2011, their published paper quantified the relationship between horseshoe crab abundance and red knot mass gain and survival. This paper then used data that was available from 1997 through 2008. Over time we've now doubled the amount of available data for this analysis.

It makes sense that it would be a good idea to go back, reanalyze that data, see if those relationships still hold, or if the parameters have changed. Also, within the ARM Framework we have three models describing the relationship between red knots and horseshoe crabs. The first model is horseshoe crabs do not limit red knots.

The second model is horseshoe crabs limit red knot fecundity, and the third model is horseshoe crabs limit red knot fecundity and survival. Within the ARM Framework we can apply weights to each one of these models; you know which one do we believe in the most? The current weight on each is 0.2, 0.4, and 0.4.

The third recommendation from our groups is to update the red knot survival mass gain model with the most recent data, and also to evaluate the red knot model weights. Recommendation 4 pertains to incorporation of biomedical data. We've been previously tasked by the Board to come up with options on how best to

incorporate biomedical mortality into the current ARM Framework.

By moving to the Catch Multiple Survey Analysis as our assessment model, the biomedical mortality is accounted for in the population estimate, because that is one of the direct inputs of removals of horseshoe crabs. Biomedical mortality can also be modeled in projections of the horseshoe crab population dynamics model, while making optimum bait harvest recommendations on into the future. We can assume an average of the past few recent years, assume that would continue to take place from the biomedical industry, and put that into our projections. The Catch Multiple Survey Analysis use does not alter the harvest packages that could be recommended, so it does not require a new addendum. Recommendation 4 is use of CMSA accounts for biomedical mortality in the ARM Framework, which is a previous Board task, so we can consider that accomplished.

Recommendation 5 pertains to data confidentiality issues, which have been discussed over and over, you know at all levels within horseshoe crab management. Again we have our Rule of 3, and within Delaware Bay there are more than three biomedical companies, but if we disclose the number of biomedically bled crabs within Delaware Bay, then the companies in the northeast and the southeast would then be able to figure out what each other had bled on an annual basis.

The annual population estimates from the Catch Multiple Survey Analysis could be used to back calculate the biomedical mortality in the Delaware Bay. That is where we run into our confidential issue. We're still stuck with a conundrum of a black box assessment with real data versus non-confidential data assessment that is less accurate.

Our recommendation to handle this, and there is quite a few words on this slide, first we would

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request disclosure of confidential biomedical data for use in the base run of the CMSA estimate. If the Board does not agree with making the request or the companies say no to the disclosure, then we should run the CMSA with the confidential biomedical data with 15 percent mortality applied, run it without biomedical data, and run it with non-confidential coastwide biomedical data with 15 percent mortality applied.

The harvest package will be made based on the population estimates from the CMSA that includes confidential data, as it represents the best dataset available. But we would also publish 0 percent biomedical and coastwide biomedical population estimates to represent population balance.

Recommendation 6 pertains to Delaware Bay origin crabs. What is a Delaware Bay Crab? Our working definition for the last several years has been a crab that could spawn within Delaware Bay during some portion of its life. Here is how we like to think about it. We have the map here on the left showing the area that's covered by the Virginia Tech Trawl Survey.

With the VIMS diagram there you can think of the Virginia Tech crabs that are encountered by the Trawl Survey are all crabs that can spawn within Delaware Bay. But some portion of them you have crabs that occur in Maryland waters and crabs that occur in Virginia waters. What proportion of each one of those could spawn in Delaware Bay at some point in their life?

The harvest allocations under Addendum VII were based on genetic information that was available at the time. We now have new genetic information, and we also have new tagging analysis coming out of our 2019 stock assessment that quantifies movement rates from into and out of the Delaware Bay area.

Recommendation 6 is just to more formally reevaluate the definition of Delaware Bay crabs,

and the implications towards the population estimates and harvest allocations that come from the ARM. Just to recap all of our recommendations. The first one is for input into the ARM combined primiparous, multiparous crabs and decrement it by half a year's mortality. The second recommendation was to move forward using the Catch Multiple Survey Analysis model for estimation and projection, and reassess the utility function of female crabs.

The third recommendation is to update red knot survival mass gain, and evaluate red knot model weights. The fourth one is to use the CMSA, because it accounts for biomedical mortality within the ARM Framework. The fifth recommendation outlines a path forward to deal with the confidential data issue.

We can request access and public disclosure of the confidential data, and if not we run the Catch Multiple Survey Model with the real confidential data, but then put bounds on the resulting population estimate based on either 0 biomedical, or the coastwide biomedical harvest. Finally, recommendation 6 was to reevaluate the definition of Delaware Bay crabs and what implications it has towards population estimates and harvest allocations.

Implementation of these recommendations, first we would need a formal charge by the Management Board to the ARM Workgroup to incorporate these recommendations. After that we would have obviously several in-person meetings or webinars, you know maybe not the entire ARM Workgroup, maybe it's just a subset of us that are actually doing the hard computer program coding.

I want to reiterate that we do have a funded USGS Post-doc position for model coding, and we could be fully moving forward by March of 2020, and have this completed by March of 2021 or by the end of 2021. After that we would, you know like any stock assessment

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process, we would present the results to the Delaware Bay Ecosystem Technical Committee. Because this is such a radical change to the ARM modeling framework, it would require an external peer review.

After that a presentation to the Management Board, and approval for management use. In reality from this point, we're probably looking at an approximate two-year timeframe before implementation of all these recommendations could be implemented. Until then the current ARM Framework would continue as is as we've been doing for the past number of years. With that I'll take any questions.

CHAIRMAN RHODES: I want to thank you for the presentation. You hit a lot of points that we've talked at in here over the years, and you clarified them well, and brought them down to those six working points, which was I thought very helpful. I'll turn it over to the Board, any questions, yes, Mr. Hyatt?

MR. BILL HYATT: I've been hearing from a number of people who are expressing the opinion that egg density on spawning beaches can somehow be figured into this assessment over time. Their argument is largely based upon data that they say has accumulated over time showing that the egg densities are nowhere near what they were in the 1990s on many of these beaches. I was wondering if you could just speak to that a little bit. I believe I've seen in some of the materials that that issue has come up at your meetings. I don't know if it's ever been discussed or brought up before this group at all, but I appreciate if you could just lend some insight to that.

DR. SWEKA: We've talked about egg densities and the use of that data in our stock assessment very extensively, you know ever since before the stock assessment in 2009. The problem with the egg density data is that it's highly variable. Methodologies have changed, even the comparison to the egg densities that

were in the literature back in the '80s and '90s, you know methodologies have changed. The data is highly variable.

The state of Delaware a few years ago stopped doing their egg surveys because we weren't using them for any stock assessment purposes, so now it's just New Jersey that's continuing to do the egg density estimation. Also there were differences in methodology between Delaware and New Jersey, just differences in the methods of processing the egg samples.

The egg density information, I mean it is a check. It could be viewed as kind of a qualitative check on abundance, but the Stock Assessment Subcommittee, the ARM Workgroup, overall we've just considered it not reliable enough to use as an index of what is available for horseshoe crabs.

Also at the same time, Conor McGowan's work relating, you know we already showed a direct relationship between red knot mass gain and survival, and abundance of adult female horseshoe crabs. We already have that direct linkage there that we don't have to add another step in there with eggs.

CHAIRMAN RHODES: Roy Miller.

MR. ROY W. MILLER: Dr. Sweka, thank you for the presentation. A question concerning that graph you showed with the knife-edged utilization of female horseshoe crabs. Did you say there has been consideration given to some harvest of females that would not be knife edge, but be gradually phased in to flatten out that particular graph a little bit?

DR. SWEKA: I don't know if we've really discussed how the function might change. But moving forward with this new Population Dynamics Model, where that threshold is at 11.2 million, you know that could change. It is a possibility to have a different utility function. That is something that would have to be

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discussed amongst stakeholders and among the ARM Workgroup members.

Everything is on the table. I mean back after the 2009 stock assessment when the ARM Model was first peer reviewed that was a question even by the peer reviewers. Should it be a knife-edge function like this? Is 11.1 million too few females to have any harvest, but 11.2 million is okay.

MR. MILLER: Yes that is just kind of what I was thinking. I wondered if we ramped up harvest of females at something less than 11.2 coming up to the full utilization that's something beyond 11.2, if that might ease the pressure on New York, for instance, to supply female horseshoe crabs for the industry.

DR. SWEKA: I mean all I can say at this point is the utility function is something that we would look at, and possibly throw out a couple options for that utility function in the revised model.

CHAIRMAN RHODES: Mike Millard.

DR. MIKE MILLARD: Thank you, John for that report. I wonder if we could jump back to that slide that has the three competing models about the relationship between horseshoe crabs and red knots. It's embedded within the ARM. We've been at this I guess since 2013 with the ARM Model. Is there some way that we're able to see, or is there some clarity emerging about which one of these models is doing the best job or best describes the system?

DR. SWEKA: Yes we could, you know through Bayesian model updating, we could look at where we started and where we end up currently. We've seen that female horseshoe crab abundance has increased, and the red knot abundance has kind of stayed steady. Given the empirical data, perhaps we would start to put a little more weight on the first model, and a little less weight on the others.

That might be one option. How these weights were originally developed was through expert opinion. We went around the table among the ARM Workgroup members, and everybody threw out which model they had the most faith in based on expert opinion, so we could also elicit expert opinion once again to update some of these model weights.

CHAIRMAN RHODES: Are there any further questions? Tom Fote.

MR. THOMAS P. FOTE: I really don't have a question coming from me, but I have a question that I was asked about three years ago while I was sitting in a room, and I was at a conference and basically wound up in a room with former Governor Christine Todd Whitman of New Jersey. The first two questions she asked me in this room, now this is 20 years later after her being governor and going to EPA and everything.

She says, how are my horseshoe crabs going and red knots, and how is the glass eel situation? I had to give a 15 minute briefing. I always said, God you never think you get to the governor on issues like this, and here it is 22 years later and she's still worrying how the glass eels and the horseshoe crabs are. It's amazing how important things stick in their minds, so it reaffirmed the job I do representing the governor.

CHAIRMAN RHODES: Chris Wright.

MR. CHRIS WRIGHT: In the review process of this next thing, is it just going to be the Delaware TC that is going to be presented? I would think that we should also do this to the regular Horseshoe Crab TC.

DR. MIKE SCHMIDTKE: With the structure that was put in place related to the TCs when the Delaware Bay TC was formed. That one is kind of on equal footing, so to speak, with the Horseshoe Crab TC. If the Board wants both TCs

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to review this then that is something that may be able to be done, but the structure that is currently in place is the ARM Subcommittee reports to the Delaware Bay TC, Delaware Bay TC reports directly to the Board. The Delaware Bay TC does not report to the Horseshoe Crab TC, so they kind of operate in two different realms there.

MR. WRIGHT: I would prefer that the TC would look at it. I mean it's hard to make judgments on things if we don't get a broad perspective.

CHAIRMAN RHODES: Bill Hyatt.

MR. HYATT: Just going back to the comment you made a few minutes ago relative to not seeing an increase in the red knots relative to the concurrent increase in horseshoe crabs. This would speak back to the question that they asked earlier. The folks that I'm hearing from would argue that simply seeing the increase in the crabs does not mean you're seeing an increase in the eggs on the beaches, which would relate to the impact on the red knots. I think that is largely the thesis behind their desire to at some point in this process have some index of egg density on these important beaches as part of the process, so just a comment.

CHAIRMAN RHODES: Are there any further comments or questions? Stew.

MR. STEWART MICHELS: John, if the Board chooses to move forward with recommending to the group that they follow through on this. Would it also make sense to also charge this group with giving consideration to alternate suite of, perhaps harvest packages at that same time, or do you think it should be get one out of the way first before we initiate looking into a suite of harvest packages?

DR. SWEKA: I guess from a technical standpoint it really doesn't make a lot of difference in the technical modeling. If the management board

would like to choose a different suite of harvest packages, I guess that is up to the management board's discretion to make that recommendation to us, and we could obviously evaluate any number of harvest packages that are put forth.

CHAIRMAN RHODES: Are there any further questions?

DR. SCHMIDTKE: Just one note related to Stew's question, if alternate harvest packages were to be actually approved for implementation that would have to happen through an addendum process. They could be explored through this process simply by Board direction, but any approval or use of alternate harvest packages would have to go through addendum process.

CHAIRMAN RHODES: Mike Millard.

DR. MILLARD: I want to follow up on that a little bit. My understanding is regarding female harvest. If we were to change the packages, and maybe include more opportunities for female harvest that as it stands now, if the threshold for the utility function, females have no value. Until that is met, the model will never pick a package with females in the harvest. Do I have that correct?

DR. SWEKA: Yes that is correct.

DR. MILLARD: Well if I could follow up. Your recommendation Number 2 is going to possibly address that about changing the threshold when females have value.

DR. SWEKA: Yes. We change that threshold; perhaps a different harvest package would be selected.

CHAIRMAN RHODES: That would be at the adoption in two years; hopefully two years from now when everything is prepared and we're looking at specs for the 2022 season would be

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the earliest we would be looking at that I would think. Yes, okay. But at this point what is the Board's desire? Do we want to charge or make a formal recommendation and charge to look at all six of these areas? Do we need to discuss any parts of it? I'm going to turn it over to the Board at this point. Stew.

MR. MICHELS: I would very much be interested in charging the Delaware Bay ARM Working Group and Delaware Bay Ecosystem Technical Committee, is that what it's called, with exploring these recommendations further. Do they have a motion prepared?

CHAIRMAN RHODES: We don't need a motion. All right I'm seeing a lot of heads shaking. Is there any objection to moving forward with these six areas, recognizing that the first one would actually become implemented this year? We would start with that immediately.

DR. SCHMIDTKE: Just one clarification. What has been said, the ARM Subcommittee would be the group that is actually doing the work. It would be subject to review by the Delaware Bay TC, and as the Board has expressed interest in the Horseshoe Crab TC also reviewing this work. Both of those groups could be part of the review, but the ARM Subcommittee would be the group that's actually doing the work and charged with that task.

**CONSIDER RE-INITIATION OF POSTPONED
DRAFT ADDENDUM VIII**

CHAIRMAN RHODES: We'll move on to the next item in the agenda, and this actually ties in to quite a few things of what we talked about. Several meetings ago we started talking about a Draft Addendum VIII, we discussed it at the last meeting, and it's being brought up again. At this point I'm going to turn it over to Mike to do a quick synopsis through it, and I think it may be clear where we move forward from that point, considering what we just did.

DR. SCHMIDTKE: This is just going to give a brief timeline of what happened with Draft Addendum VIII, as far as its development, and then its eventual postponement, bringing us to this meeting today where it's being considered for either reinitiation or not. In August 2016, Draft Addendum VIII was initiated with two main goals of incorporating mortality associated with the biomedical industry into the ARM Model, and then exploring bait harvest packages that would allow female horseshoe crab harvest.

There is an appendix in the ARM Framework Review from 2016, but the basic gist of this is there were additional harvest packages that were proposed that would allow female harvest in a more limited fashion than the five that are currently used. In October 2016, there was a motion approved to postpone development of Draft Addendum VIII until after the benchmark stock assessment was completed.

That was completed earlier this year, but in the meantime October of 2017 the Board was presented with ARM sensitivity runs, or alternative runs that were conducted on two biomedical mortality inclusion options, and these two different options, both when they included showed minimal impact of biomedical mortality on the harvest package selection. The Board also received clarification in October of 2017 that of how the utility function works in the ARM Model for females in that unless horseshoe crab females or red knots exceed their respective threshold, no female harvest would be selected by the model regardless of any alternative or additional harvest packages that would be added to the Framework.

In May of 2019, the benchmark stock assessment was completed, leading to the Board needing to consider Draft Addendum VIII, and whether it would proceed further. In the benchmark stock assessment there were runs conducted with and without biomedical

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mortality in the Delaware Bay for females in that region.

The results showed no significant impact of this mortality on that population. Following this the Board tasked the ARM Subcommittee with incorporating the stock assessment model, which is what John just went through. That brings us to today, where the ARM Subcommittee and Delaware Bay TC have submitted recommendations that would incorporate biomedical mortality, and these recommendations would do so without the need for an addendum.

There are really two courses of action that the Board could take at this point. The Board could direct staff to resume development of Draft Addendum VIII, or if the Board does not desire to resume development of this draft addendum, then there would need to be Board action indicating such.

CHAIRMAN RHODES: Any members of the Board want to discuss this action? Yes, Mike.

MR. MICHAEL LUISI: In thinking back to the interest that I know we had in Maryland when this Addendum was initiated. It was to explore. You know the piece that I remember most vividly was the exploration of harvest packages that could include female harvest, given that we were making a shift in our bait industry from a male/female combined harvest to a male only harvest.

There were a lot of concerns by the industry that that shift to male only was going to impact their markets. Since then the issue has subsided, and I believe that our industry has found some balance with the male only harvested at this point, and they're focused very heavily on that biomedical industry as well.

Personally, I don't think we as in the state of Maryland have the same interest at this time. I think it's been generally accepted that knife-

edge modeling approach to having both red knots and horseshoe crab biomass at a certain point before females can be harvested again. It's kind of a generally accepted term, I think at this point.

I look forward to the work that's going to be done over the next few years. If it were up to me I would say let's not focus any more attention to revisiting this addendum. It would be my opinion that we could probably put it to rest, and allow for staff to work on developing the work that was just presented by Dr. Sweka. That would be my opinion, thank you.

CHAIRMAN RHODES: Mike, if I'm hearing what you are saying, you would like to make a motion to postpone indefinitely the development of Draft Amendment VIII.

MR. LUISI: I can do that, sure.

CHAIRMAN RHODES: I appreciate it, do we have a second? We have a second by Chris Wright. Is there any objection to this motion? Seeing none it is accepted unanimously.

SET 2020 HARVEST SPECIFICATIONS

REVIEW OF THE HORSESHOE CRAB AND RED KNOT ABUNDANCE AND HARVEST PACKAGE

CHAIRMAN RHODES: Dr. Sweka, we move back to you for the Review of the Horseshoe Crab and Red Knot Abundance and Harvest Package.

DR. SWEKA: Okay this is our annual update on the status of both red knots and horseshoe crabs, and to make a harvest recommendation for the next harvest season. Within the adaptive resources management framework, our underlying objective is to manage the harvest of horseshoe crabs in the Delaware Bay to maximize harvest, but also maintain ecosystem integrity, and provide adequate stopover habitat for migrating shore birds.

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We have both red knot and horseshoe crab population thresholds, which describe when the harvest of female horseshoe crabs has value. We have red knot and horseshoe crab abundance estimates each year coming from the Virginia Tech Trawl Survey, which surveys in the fall, and then the red knot population estimate comes from a mark-resight population estimate conducted each spring.

As you know there are five possible harvest packages, and annually we make our harvest recommendations based on the status of red knot and horseshoe crabs. Just to recap and refresh everyone's memory on the five harvest policies or harvest packages that we have. They range from a full moratorium to a maximum harvest of 420,000 males and 210,000 females, including two male-only-harvest options.

Harvest Package 1 is the most conservative, which is a full moratorium on both sexes, and they ramp up to Harvest Package 5, which allows harvest on both males and females. For the past several years since the ARM Framework has been used for management, we've been implementing Harvest Package 3; things haven't changed significantly enough to alter that recommendation.

The population thresholds, female horseshoe crabs have value to harvest, once 80 percent of the theoretical model-based carrying capacity is reached, and that is 11.2 million female crabs. The abundance threshold for red knots is 81,900 birds and that if their population reached that then female horseshoe crabs have value to harvest.

We also want to maintain a spawning beach sex ratio of at least two males to every female, and this is so that we don't harvest so many males that egg fertilization may be compromised by a female dominated sex ratio. If both populations are below the threshold there is no female harvest, and if the sex ratio falls below two to one, there is no horseshoe crab harvest.

For red knot abundance, this graph shows the time series that we have with the population estimates in blue and confidence intervals, and in green are the peak red knot counts from aerial surveys flown over the beach every spring. In 2019 estimates were similar to estimates from 2016 to 2018. In 2019 the estimated stopover duration for birds that arrive at the beach was 12.1 days, which was slightly more than in 2018, which was 9.7 days. In 2019, the estimate was 45,133 red knots stopping in the Delaware Bay, which is obviously below the threshold of 81,900 birds.

For horseshoe crab abundance, again it's based on the Virginia Tech Trawl Survey. The trawl survey wasn't funded every single year. There was a gap between 2013, well actually 2012 and 2015, where we came up with a composite index based on the Delaware 30 foot trawl, New Jersey/Delaware Bay Trawl, and the New Jersey Ocean Trawl, and we found the relationship between that and the Virginia Tech Trawl when there were overlapping years.

In 2018 there was an estimate of 7.9 million females, which that is also under the 11.2 million threshold. But as you can see from 2009, generally from 2009 through 2018 we have a general increasing trend in the abundance of female horseshoe crabs, and also the abundance of males, although the last couple of year's males have declined slightly.

In 2018 there were 7.9 million females, and 16.6 million males. We put these together, our crab abundance and our red knot abundance. You know we see the numbers I just discussed. Ultimately from the ARM Framework the recommended harvest package is once again Package Number 3, which calls for a male-only harvest of 500,000 males. Both red knots and female horseshoe crabs are below the threshold, which would give the harvest of female's value, so therefore no female harvest is recommended.

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When we partition this out among the states, these are each states quotas according to the allocation scheme that was developed in the last addendum. For Delaware Bay origin crabs, and then also the total quota, which accounts for the proportion of Maryland and Virginia's crabs that are not of Delaware Bay origin, and also the two-to-one male-to-female offset that was adopted during the last addendum? I'll take any questions.

CHAIRMAN RHODES: Any questions, Mike Luisi?

MR. LUISI: I may have missed it in the past, but you mentioned John that the spawning beach sex ratio is something that could have an effect to which crabs are able to be harvested, if that sex ratio were to drop below two-to-one. What is the current ratio as we understand it right now?

DR. SWEKA: It is definitely on the beach it is over two, Stew is indicating up around five. Was it 5.2 in our last assessment, you know most recent data? Yes, it's very skewed towards male, despite having a male-only harvest for a number of years now.

CHAIRMAN RHODES: Are there any other questions? All right I'm looking for a motion to accept harvest package from the Board. Stew Michels.

MR. MICHELS: Motion to accept the recommended harvest package for management.

CHAIRMAN RHODES: Second, Mike Millard, any discussion, any objection, all right seeing none that motion passes also.

**CONSIDER FISHERY MANAGEMENT PLAN
REVIEW AND STATE COMPLIANCE REPORTS**

CHAIRMAN RHODES: Mike we'll turn it over to you for the FMP and State Compliance Reports.

DR. SCHMIDTKE: The Horseshoe Crab Plan Review Team conducted the 2019 FMP Review. That report was provided in the supplemental materials for the meeting, and I'll give a brief summary of that right now. The FMP was approved in 1998; there are seven addenda, the most recent of which established the ARM Framework for managing in the Delaware Bay.

Looking at a figure of annual total harvest, we see the coastwide bait harvest decline shortly after the FMP was established, and has remained fairly consistent since about 2004. Coastwide biomedical only collections and the estimated biomedical mortality have also been fairly consistent, going back to about 2010. There was some period of increase in earlier years, but most recently both uses of horseshoe crab have remained fairly consistent.

In 2018 bait harvest was 658,589 crabs, the majority of which came from Massachusetts, Virginia, and New York. This was a 35 percent decrease from bait harvest in 2017, and it accounted for about 41 percent of the coastwide quota. There was one overage that was noted. Delaware had an overage of a reduced quota.

They had an overage in 2017, therefore they adjusted their quota in 2018, and they exceeded their adjusted quota by about 3,000 crabs, so they have reduced their quota again for 2019 as well. Looking at the biomedical use, there were about 464,000 biomedical only crabs collected in 2018. This was a slight decrease from 2017, leading to a mortality estimate of about 71,000 crabs.

The biomedical only mortality estimate, as a reminder it includes the reported number of crabs that were observed dead during the bleeding process, with an addition of 15 percent multiplied by the number of crabs that were bled. The biomedical mortality accounted for 10 percent of the directed removals, directed

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removals being defined as the biomedical use as well as the bait harvest.

The FMP allows for states to request *de minimis* status if they have a combined average for bait landings in numbers of crabs for the last two years. That is less than 1 percent of the coastwide landings for the same period. *De minimis* states are exempt from a required harvest cap. There are four jurisdictions that requested *de minimis*, PRFC, South Carolina, Georgia, and Florida. All of these qualify for *de minimis* status in 2019.

New Jersey did qualify, as they are in a moratorium for horseshoe crab bait harvest, but they did not request this status. The Plan Review Team developed the following recommendations. As the first one that the Board would continue seeking long term funding for the Virginia Tech Trawl Survey.

This is the basis for a lot of work that goes on for horseshoe crabs in the Delaware Bay, as well as for the stock assessment model use in that region. It has been funded through 2020, but the PRT recommends the Board continue seeking that long term funding for this survey. There have been some issues, as far as turning in compliance reports on time. The current due date for those reports are March 1, and for several years now there have been states that have had difficulty meeting this deadline. Most of the time compliance for this species hasn't been reviewed until the summer of the fall meeting anyway, so in a way to try to accommodate the needs of states and their scheduling, as far as when their data is available.

The PRT recommends that the Board would change the due date to July 1. This would allow kind of a similar timeframe for review in either the summer of the fall. The PRT also recommends that the Board encourage and continue to monitor the actions that are being

taken to reverse the negative population trends in the New York region.

The Board gave direction during the last meeting for this population to be monitored, since it has a poor status from the last assessment. There are data included in the FMP review for this region. The most recent data for all of the state surveys that are conducted in that region have shown an increase from the previous year, but the PRT will continue to monitor the progress of this region going forward.

The FMP requires the Board to consider action if the biomedical use and the mortality associated with the biomedical use rather, exceeds the threshold spelled out in the original FMP. The mortality did exceed this threshold. The threshold I believe is 57,500. The use did exceed that threshold, but the PRT would note to the Board that the assessment results do not indicate significant mortality from the current levels of biomedical use.

Additionally, biomedical use has been consistent over the last ten years, and so it doesn't seem to be showing trends of increase associated with that. The PRT also would recommend that the Board continue to have a focus in directing staff and committees to look at the characterization of discard removals. That was a very significant component of mortality indicated from the last stock assessment, and the PRT just wants to kind of keep that as a focal point moving forward for directed efforts.

Discard removals are one thing that can be looked at through the recommended work from the ARM Subcommittee, so that is something that can be looked at moving forward. Finally, the PRT would recommend that the Board approve the 2019 FMP Review, State Compliance Reports, and *de minimis* status for the Potomac River Fisheries Commission, South Carolina, Georgia, and Florida.

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CHAIRMAN RHODES: Great thank you, any questions from the Board? Yes, Joe.

MR. JOE CIMINIO: I'm curious on that last point. If either the TC is going to explore other possible places where they might find information on discards, or if maybe the PRT is suggesting to states to maybe try and find new ways to get out there and estimate discards.

DR. SCHMIDTKE: I think what was discussed within the PRT was one for states to focus on ways to improve the discard estimation, kind of the primary way that we rely on right now for getting that information is through Northeast Fisheries Observer Program. But if there is any way to improve the mortality estimates associated with some of the gears or for states to improve on their end, the estimation of those discards, then that would be encouraged. The other aspect of it that those would be kind of looked at on a more frequent basis. That is something that would be done, at least for the Delaware Bay through the recommended ARM work.

CHAIRMAN RHODES: Yes, Dan.

MR. DANIEL McKIERNAN: Is there a thorough description of where this bycatch is occurring seasonally, temporally, and what the target species is for those trips that are creating bycatch and discards?

DR. KRISTEN ANSTEAD: I can answer that. That was a big comment from our peer review. We just took a stab at the bycatch, and we did it on an annual basis for all of Delaware Bay. That resolution might not be there for seasonal, plus by state, plus by gear, plus by target, but it's certainly something that with this approved, passed forward for the ARM that we would consider looking at. We'll have that resolution in the data, but we're certainly going to give it another try.

CHAIRMAN RHODES: Any other questions? All right I'm looking for a motion, all right Steward Michels.

MR. MICHELS: Okay, motion to accept the PRT Report and Requests for *de minimis* status. There you go, how about this.

CHAIRMAN RHODES: Would you like to read that report?

MR. MICHELS: Move to approve that 2019 Fishery Management Plan Review, State Compliance Reports and *de minimis* status for Potomac River Fisheries Commission, South Carolina, Georgia, and Florida.

CHAIRMAN RHODES: Thank you, second by Mr. Bell. Is there any discussion, any objection? Seeing none, that passes unanimously also.

OTHER BUSINESS

CHAIRMAN RHODES: Is there any other business? Yes, Mr. Miller?

MR. MILLER: It's a very minor thing, Mr. Chairman, but I noticed in one of our handouts the Horseshoe Crab Harvest Recommendation based on Adaptive Resource Management ARM Framework, and most recent monitoring data. I spotted a small typo at the bottom of the page. It probably should be corrected. The last under monitoring data it shows red knot abundance time 1,000. I think there is a decimal point mistake in that so it should come to 45,000 as opposed to 4,500. Thank you.

CHAIRMAN RHODES: Thank you for pointing that out and that will be altered. Any other business, yes Mr. Michels.

MR. MICHELS: Just one more thing. There was a recommendation in that Plan Review Team Report for July 1 report due date. Does this motion adequately address that?

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CHAIRMAN RHODES: If you would make that motion that would give specific direction that would be great.

MR. MICHELS: Okay, therefore I move to adopt a July 1 due date for annual compliance reports for the horseshoe crab fishery management plan.

CHAIRMAN RHODES: Thank you, and a second by Mr. Bell. Is there any discussion, any objection? Seeing none, okay the motion is move to adopt a July 1 due date for the State Compliance Reports for Horseshoe Crab, motion by Mr. Michels, second by Mr. Bell. Again, are there any objections? Seeing none, it passes unanimously. Mr. Luisi.

MR. LUISI: No objection, I just wanted to bring up another one of the recommendations that I thought I heard regarding the stock condition in New York. Mike, was there anything? I listened to you, but if you could just go back to what the Plan Review Team was suggesting, or do we need to take any action to start any work down that path?

DR. SCHMIDTKE: From the previous Horseshoe Crab Board meeting, New York has already started taking some actions on the state level, and I believe Connecticut may be moving down that path as well, so the Board kind of accepted that the states would take responsibility for actions in their state, and that the Plan Review Team would just monitor the progress to this point. If anything were to happen further, then the Board could consider that at a later time.

ADJOURNMENT

CHAIRMAN RHODES: Thank you for the clarification. If there is no other business then this meeting is adjourned.

(Whereupon the meeting adjourned at 10:50 o'clock a.m. on October 29, 2019)

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Horseshoe Crab Harvest Recommendations Based on Adaptive Resource Management (ARM) Framework and Most Recent Monitoring Data

Report to the Delaware Bay Ecosystem Technical Committee by the ARM Subcommittee

September 2020

This report summarizes annual harvest recommendations. Detailed background on the ARM framework and data sources can be found in previous technical reports¹.

Objective statement

Manage harvest of horseshoe crabs in the Delaware Bay to maximize harvest but also to maintain ecosystem integrity and provide adequate stopover habitat for migrating shorebirds.

Alternative harvest packages

These harvest packages were compared to determine which will best meet the above objective given the most recent monitoring data. Harvest is of adult horseshoe crabs of Delaware Bay origin.

| Harvest package | Male harvest (×1,000) | Female harvest (×1,000) |
|-----------------|-----------------------|-------------------------|
| 1 | 0 | 0 |
| 2 | 250 | 0 |
| 3 | 500 | 0 |
| 4 | 280 | 140 |
| 5 | 420 | 210 |

Population models

Population dynamics models that link horseshoe crabs and red knots were used to predict the effect of harvest packages. Three variations in the models represent the amount and type of dependence between horseshoe crabs and red knots. Stochastic dynamic programming was used to create a decision matrix to identify the optimal harvest package given the most recent monitoring data.

Monitoring data

Sources of data for horseshoe crab abundance were a set of trawl surveys conducted by Virginia Tech university.² Red Knot abundance estimates are taken from a mark-resight estimate for red knot abundance³. These data and methods can be evaluated in the respective reports from those studies.

| Horseshoe crab abundance (millions) | | | Red knot abundance | |
|-------------------------------------|------|--------|--------------------|-----------------|
| Year | Male | Female | Year | Male and female |
| 2019 (Fall) | 8.9 | 4.7 | 2020 (Spring) | 40,222 |

Harvest recommendations

Decision matrix was optimized incorporating recommendations on red knot stopover population estimates and associated calibration of red knot threshold⁴. I followed the accepted procedure used in all past years where the empirical abundance estimates did not exactly fit the discretized population size “bins.” For each empirical estimate I use the closest discretized abundance “bin” that was not larger than the estimate, in other words I rounded down to the nearest bin.

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

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

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

References

¹ McGowan, C. P., D. R. Smith, J. D. Nichols, J. Martin, J. A. Sweka, J. E. Lyons, L. J. Niles, K. Kalasz, R. Wong, J. Brust, M. Davis. 2009. A framework for the adaptive management of horseshoe crab harvests in the Delaware Bay constrained by Red Knot conservation. Report to the Atlantic States Marine Fisheries Commission Horseshoe Crab Technical Committee.
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 ASMFC 2009. Terms of Reference and Advisory Report to the Horseshoe Crab Stock Assessment Peer Review. Stock Assessment Report No. 09-02.

² Virginia Tech Trawl Survey report, January 15, 2019

³ Jim Lyons’ 2019 estimate in the 10 September, 2019 Memo

⁴ ARM’s recommendations for improved estimates of red knot stopover population size and associated calibration of red knot threshold

Results of the 2019 Horseshoe Crab Trawl Survey:

Draft Report to the Atlantic States Marine Fisheries Commission Horseshoe Crab and Delaware Bay Ecology Technical Committees

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Abstract

To properly manage the mid-Atlantic horseshoe crab (*Limulus polyphemus*) fishery, a time-series of data on relative abundance of all demographic groups is needed. We conducted a trawl survey in the coastal Delaware Bay area and the lower Delaware Bay, quantifying mean catch per 15-minute tow and comparing relative abundance of demographic groups with results from previous years. Mean catch-per-tow of immature and newly mature horseshoe crabs in the coastal Delaware Bay area have been variable since 2002 with no trend. Mean catch-per-tow of mature females and males are correlated, and both appear to display an increasing trend over time. Mean catches of immature and mature crabs in lower Delaware Bay are generally larger than catches in the coastal area, although usually not statistically significantly so. Mean catch-per-tow and population estimates of newly mature males are correlated with values for newly mature females of the same year-class the following year. Our findings will be used to parameterize the Adaptive Resource Management model used to set annual harvest levels for horseshoe crabs.

Introduction

To properly manage the mid-Atlantic horseshoe crab (*Limulus polyphemus*) fishery, accurate information on relative abundance levels and trends is needed. The Adaptive Resource Management model (McGowan et al. 2011) adopted by the ASMFC

requires annual, fishery-independent indices of newly-mature recruit and adult abundances. The purpose of this project was to conduct a horseshoe crab trawl survey along the Mid-Atlantic coast in order to: (1) determine horseshoe crab relative abundance, (2) describe horseshoe crab population demographics, and (3) track inter-annual changes in horseshoe crab relative abundance and demographics. Here, we report our cumulative results through the fall 2019 trawl survey.

We have provided the Adaptive Resource Management (ARM) Subcommittee relative abundance estimates of horseshoe crabs in the DBA and LDB surveys to inform the ARM model runs. Herein, we present the population estimates through the 2019 survey. Gear catchability has not been evaluated for these estimates, so they should be considered conservative.

Methods

The 2019 horseshoe crab trawl survey was conducted in two areas (Figure 1). The coastal Delaware Bay area (DBA) survey extended in the Atlantic Ocean from shore out to 22.2 km (12 nautical miles), and from 39° 20' N (Atlantic City, NJ) to 37° 40' N (slightly north of Wachapreague, VA). This area was previously sampled from 2002 to 2011, and again from 2016 to 2018. The lower Delaware Bay (LDB) survey area extended from the Bay mouth to a line between Egg Island Point, New Jersey and Kitts Hummock, Delaware. The LDB was previously sampled from 2010 to 2012 and in 2016-2018. Due to frequent and prolonged weather delays, the surveys were conducted over a protracted period from 30 August to 19 October 2019.

The DBA survey area was stratified by distance from shore (0-3 nm, 3-12 nm) and bottom topography (trough, non-trough) as in previous years. The LDB survey area was stratified by bottom topography only, as in previous years. Sampling was conducted aboard a 16.8-m chartered commercial fishing vessel operated out of Ocean City, MD. We used a two-seam flounder trawl with an 18.3-m headrope and 24.4-m footrope, rigged with a Texas Sweep of 13-mm link chain and a tickler chain. The net body consisted of 15.2-cm (6-in) stretched mesh, and the bag consisted of 14.3-cm (5 5/8-in) stretched mesh. Tows were usually 15-minutes bottom time, but were occasionally shorter to avoid fishing gear (e.g., gill nets, crab and whelk pots) or vessel traffic. Start and end

positions of each tow were recorded when the winches were stopped and when retrieval began, respectively. Bottom water temperature was recorded for each tow. We sampled 45 stations in the DBA survey and 8 stations in the LDB. Three planned LDB sites were not completed due to excessive vegetation.

Horseshoe crabs were culled from the catch, and either all individuals or a subsample were examined for prosomal width (PW, millimeters) and identified for sex and maturity. Maturity classifications were: immature, newly mature - those that are capable of spawning but have not yet spawned, and mature - those that are have previously spawned. Newly mature and mature males are morphologically distinct and are believed to be classifiable without error. However, some error is associated with distinguishing newly mature from immature females. All examined females that were not obviously mature (i.e., bearing rub marks) or immature (too small or soft-shelled) were probed with an awl to determine presence or absence of eggs. Females with eggs but without rub marks were considered newly mature. Females with both eggs and rub marks were considered mature. Initial sorting classifications were: presumed adult males (newly mature and mature), presumed adult females, and all immature. Up to 25 adult males, 25 adult females, and 50 immatures were retained for examination. The remainder were counted separately by classification and released. Characteristics of the examined subsamples were then extrapolated to the counted portions of the catch.

In each stratum, the mean catch per 15-minute tow and associated variance were calculated using two methods, i.e., either assuming a normal-distribution model or a lognormal delta-distribution model (Pennington, 1983). Stratum mean and variance estimates were combined using formulas for a stratified random sampling design (Cochran, 1977). The approximate 95% confidence intervals were calculated using the effective degrees of freedom (Cochran, 1977). Annual means were considered significantly different if 95% confidence limits did not overlap. Stratified means calculated using the lognormal delta-distribution model are not additive - i.e., means calculated for each demographic group do not sum to the mean calculated using all crabs. Means calculated using the normal-distribution model are additive, within rounding errors.

Annual size-frequency distributions, in intervals of 10-mm prosomal width, were calculated for each sex/maturity category by pooling size-frequency distributions of all stations (adjusted for tow duration if necessary) in a stratum in a year to calculate the relative proportions for each size interval. Those proportions then were multiplied by the stratum mean catch-per-tow that year to produce a stratum size-frequency distribution. Stratum size-frequency distributions then were multiplied by the stratum weights and added in the same manner as calculating the stratified mean catch per tow. Areas under the distribution curves then would represent the stratified mean catch per tow at each size interval.

The average 15-minute tow in the DBA was 1.17 kilometers at 4.7 KPH. The average 15-minute tow in the LDB was 1.20 km at 4.8 KPH. Valid net-spread measurements were obtained from 46 tows and averaged 10.1 meters. We used the net-spread (S , in meters)/tow speed (C , in KPH) relationship developed from previous trawl surveys to estimate net-spread for collections in which net-spread was invalid or not measured ($S = 13.84 - 0.858 \times C$).

For each tow, catch density (catch/km²) was calculated from the product of tow distance (in km) and estimated net-spread (converted from meters to km) assuming that all fishing was done only by the net, and that there was no herding effect from the ground gear (sweeps):

$$\text{catch/km}^2 = \text{catch}/[\text{tow distance (km)} \times \text{net-spread (km)}].$$

Within each stratum, the mean catch per square-kilometer and associated variance were calculated assuming a normal-distribution model and a lognormal delta-distribution model. Stratum mean densities and variance estimates were combined to produce a stratified mean density (\bar{X}_{st}) using formulas for a stratified random sampling design as with the catch-per-tow estimates described above. Population totals were estimated by multiplying stratified mean density (\bar{X}_{st}) by survey area (DBA = 5127.1 km²; LDB = 528.4 km²):

$$\text{Population total} = \bar{X}_{st} \times (5127.1 \text{ or } 528.4 \text{ km}^2).$$

Results

Delaware Bay area

Stratified mean catches-per-tow for all demographic categories were relatively consistent from 2016 to 2019 (Tables 1 and 2; Figure 2). Stratified mean catches of mature females and males have been variable over the time-series, but are significantly correlated ($r = 0.854$; $T = 5.70$; $p < 0.001$; $n = 14$). Both mature females and males were relatively less abundant in 2019 than in the previous five years. Yearly trends from the delta- and normal-distribution models followed similar patterns for all demographic groups.

Mean catches of newly mature males generally are correlated with mean catches of newly mature females the following year in 2002-2018 ($r = 0.746$; $T = 3.36$; $p = 0.008$, $n = 11$). However, by adding results in 2019, the correlations are not statistically significant any more ($r = 0.393$; $T = 1.35$; $p = 0.206$, $n = 12$), potentially due to low mean catches of newly mature females in 2019.

Lower Delaware Bay

This was the seventh year of sampling within the Delaware Bay. Stratified mean catches of immature female and male crabs and newly mature female crabs in 2019 were the least for the time-series (Tables 3 and 4; Figure 3). Mean catches of mature females were lower than in 2019, although not significantly different based on overlapping confidence limits. Mean catches of mature males are significantly correlated with mean catches of mature females ($r = 0.894$; $T = 4.47$; $p = 0.007$; $n = 7$).

Size distributions

Size-frequency distributions of immature horseshoe crabs in the DBA survey display considerable variability (Figure 4). Modal groups are generally indistinct, except for one large group of both females and males in 2009. However, that modal group, which would presumably be larger in size the following year, becomes indistinct again in 2010. Size-frequency distributions from the lower Delaware Bay do not show that modal group in 2010 either (Figure 5).

We had previously reported that mean prosomal widths of mature and newly mature male and female crabs in the DBA survey displayed slight but detectable decreases over time (Hata and Hallerman 2017, 2019). Those trends appear to continue through the 2019 survey (Table 5; Figure 6). In addition, decreasing trends in mean PW were observed for mature females and males in the lower Delaware Bay survey, but an increasing trend was detected for newly mature males.

Sex ratios

Mature males were typically more than twice as numerous as mature females throughout the survey time-series. Sex ratios (M:F) from mean catch-per-tow in the DBA surveys ranged from 1.72 in 2019 to 3.64 in 2016, averaging 2.38 over all years. The ratio of newly mature males to females was highly variable, ranging from 0.11 in 2003 to 5.60 in 2019, and averaged 1.44. This may reflect sampling effects, temporal variability in recruitment to the newly mature class relative to survey period, or differences in year-class abundance because females are believed to mature a year later than males.

Sex ratios of mature horseshoe crabs were higher within the lower Delaware Bay than on the coast. Sex ratios (M:F) ranged from 2.60 in 2018 to 6.15 in 2016, averaging 3.98. As on the coast, sex ratios of newly mature crabs within the Bay were variable, and ranged from 0.45 in 2010 to 6.10 in 2012, averaging 3.09, with an exception of 2019 in which mean catches of newly mature females were zero. The higher sex ratios within Delaware Bay may reflect a tendency for male horseshoe crabs to remain near the spawning beaches.

Population estimates

Annual population estimates of immature crabs in the DBA survey mirror trends observed in the catch-per-tow estimates, and have been variable over time with a large peak in 2009 (Tables 6 and 7). Similarly, population estimates of newly mature crabs increased from 2002 to 2008, but have remained consistently low since 2009. Estimated numbers of mature males and females have been greater since 2006. Population estimates of mature females are significantly correlated with estimates of mature males (r

= 0.854; $T = 5.68$; $p < 0.001$; $n = 14$), as observed for mean catches per tow above. Population estimates of newly mature females are significantly correlated with estimates of newly mature males ($r = 0.571$; $T = 2.41$; $p = 0.033$; $n = 14$). Population estimates of newly mature females are significantly correlated with estimates of newly mature males the previous year in 2002-2018 ($r = 0.745$; $T = 3.35$; $p = 0.009$; $n = 11$), as observed for mean catches per tow above. Assuming males entering the newly mature category are of the same year-class as females entering that category the following year, annual trends for males may forecast similar trends for females. However, population estimates of newly mature females are not significantly correlated with estimates of newly mature males the previous year when incorporating estimates in 2019 ($r = 0.403$; $T = 1.39$; $p = 0.195$; $n = 12$), as observed for mean catches per tow above.

Population estimates of immature crabs in lower Delaware Bay have been consistent with coastal estimates since the LDB survey began in 2010 (Tables 8 and 9). On average, 29% of the total number of immature females and 33% of immature males occurred within Delaware Bay, although the LDB sampling area composed only 9.3% of the total combined area. In 2019, 13% of immature females and 17% of immature males occurred within the Bay. Considerably fewer newly mature and mature crabs were in the Bay compared to the coast. Over the whole time-series, about 9% of the combined population of newly mature females occurred within the Bay, while 16% of newly mature males were in the Bay. In 2019, 0 and 22% of newly mature females and males, respectively, occurred within Delaware Bay. About 23% of mature females and 31% of mature males occurred within the Bay on average, with 18 and 39%, respectively, occurring within the Bay in 2019. Within the combined survey population, the sex ratio of mature males:females ranged from 2.24 to 4.07, and averaged 3.09, with a ratio of 2.34 in 2019.

Effects of sampling period

The 2019 DBA survey was conducted from late August to late September. The average bottom water temperature in 2019 was the highest in the time series (Table 10; Figure 7). The 2019 lower Delaware Bay survey was conducted in mid-October, nearly a month earlier than in 2018, and later than the DBA survey. As a result, the average LDB

water temperature was 5.6 C° cooler than the average DBA temperature. Horseshoe crabs that were within the Bay during most of the DBA survey because of the warm temperature, and not enumerated, may have moved out of the Bay by the time the LDB survey was conducted, and again not enumerated. This may have resulted in underestimates of horseshoe crabs in both survey areas and contributed to the apparent decrease in mature M:F ratios in both survey areas since 2016.

When comparing survey time-frames and water temperatures, it appears that the DBA mean catches of immature crabs are correlated with mean sampling dates but not with water temperature; in contrast, mean catches of mature crabs were correlated with mean water temperatures (Table 11). Within the lower Delaware Bay, mean catches were not correlated with mean water temperatures or sampling dates.

Key findings

1. Mean catch-per-tow of immature male and female horseshoe crabs in the coastal Delaware Bay area have been variable since 2002 with no trend, and remain below the peak of 2009.
2. Mean catch-per-tow of newly mature crabs in the coastal Delaware Bay area have remained below peaks in 2006 (males) or 2008 (females) and show no long-term trend.
3. Mean catch-per-tow of mature males and females in the coastal Delaware Bay area have been variable throughout the time-series, but show increasing trends since 2002.
4. Mean catch-per-tow of immature horseshoe crabs in the coastal Delaware Bay area may be related to sampling date. Mean catch-per-tow of mature horseshoe crabs may be related to water temperature.
5. Annual mean prosomal widths of newly mature and mature horseshoe crabs in the coastal Delaware Bay area show decreasing trends.

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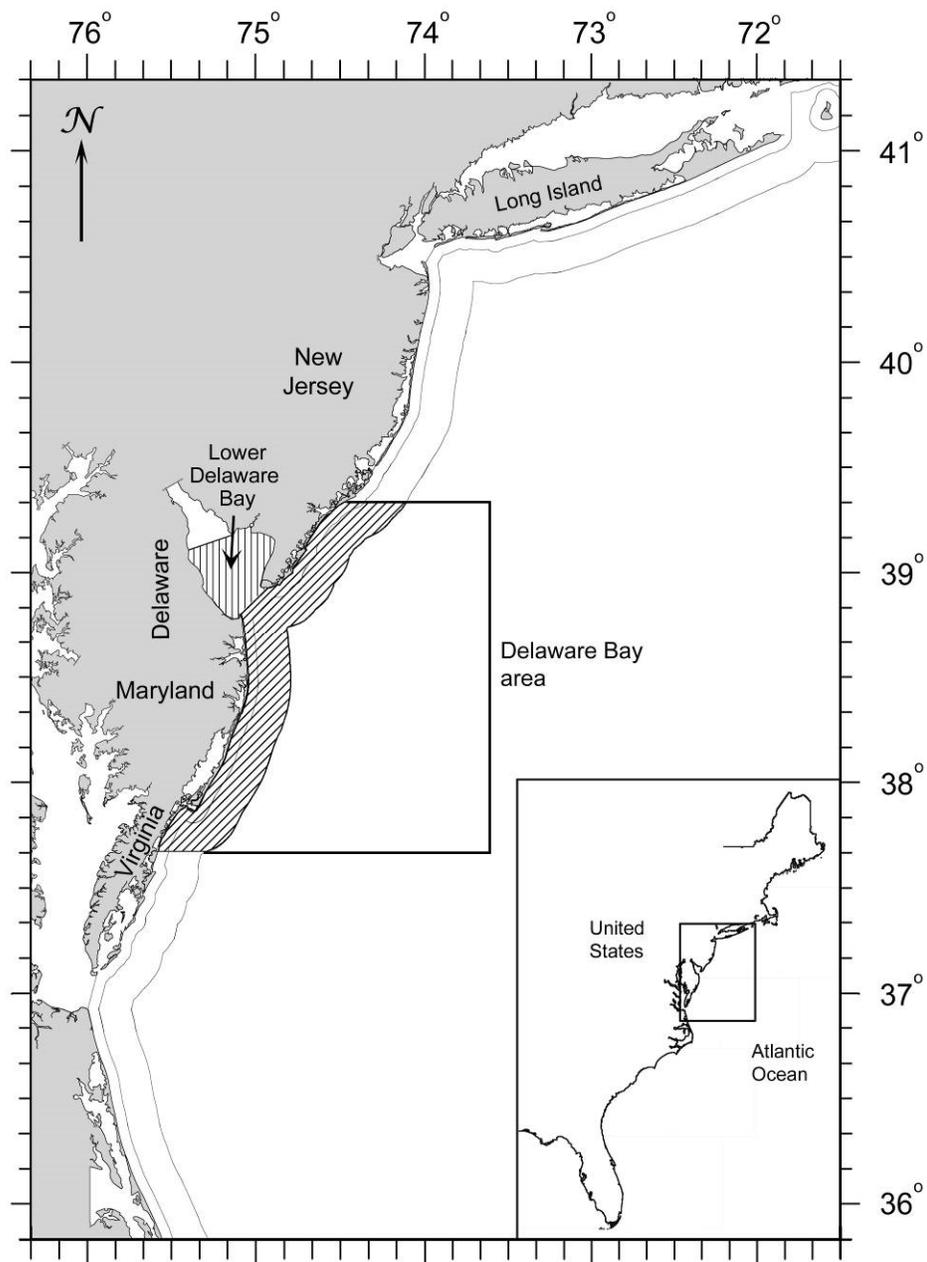


Figure 1. Fall 2019 horseshoe crab trawl survey sampling area. The coastal Delaware Bay area (DBA) and Lower Delaware Bay (LDB) survey areas are indicated. Mean catches among years were compared using stations within the shaded portions of the survey areas.

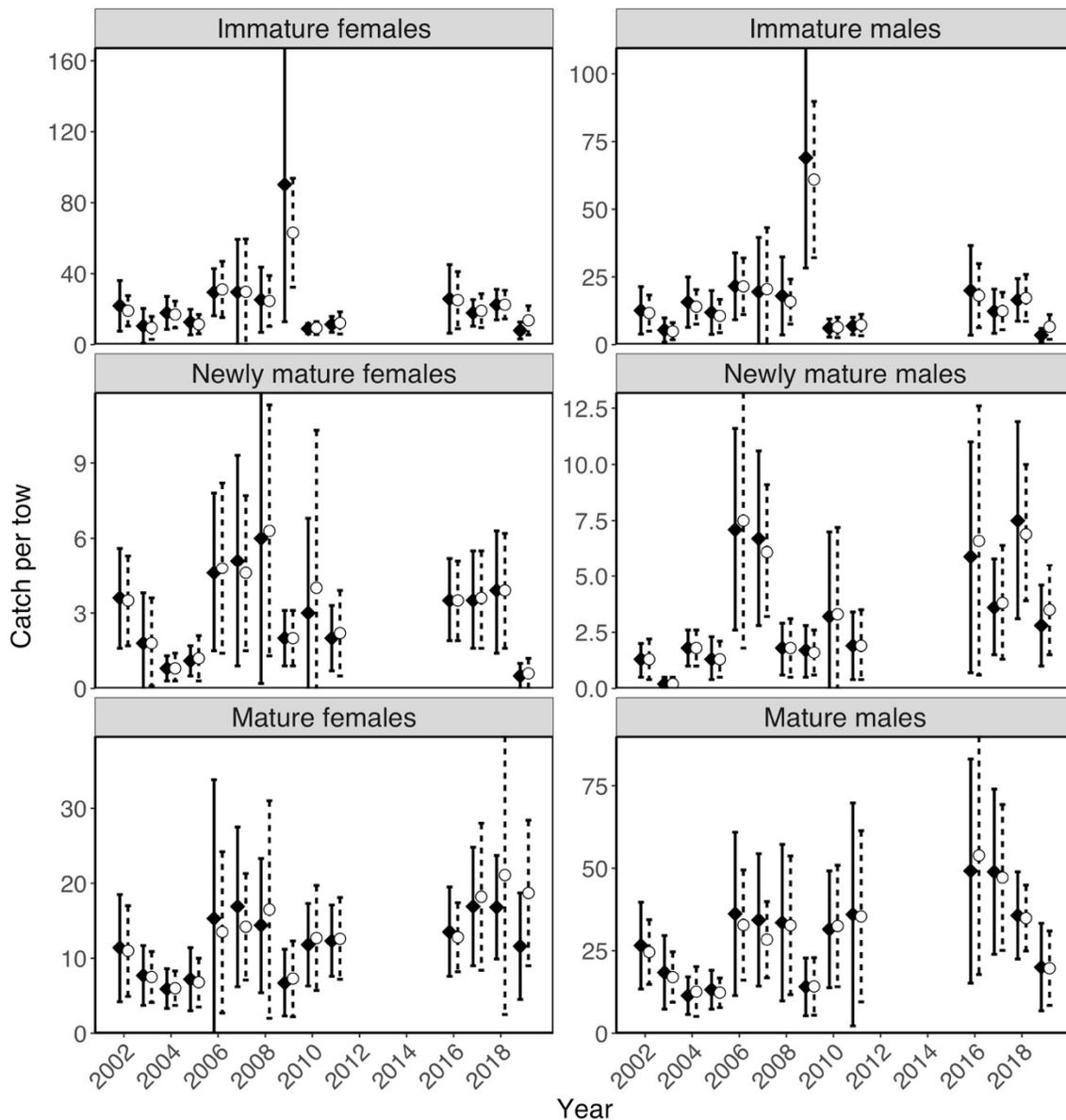


Figure 2. Plots of stratified mean catches per 15-minute tow of horseshoe crabs in the coastal **Delaware Bay area** survey by demographic group. Vertical lines indicate 95% confidence limits. Solid symbols and lines indicate the **delta distribution** model. Open symbols and dashed lines indicate the **normal distribution** model. Data are from Tables 1 and 2. Note differences in y-axis scales.

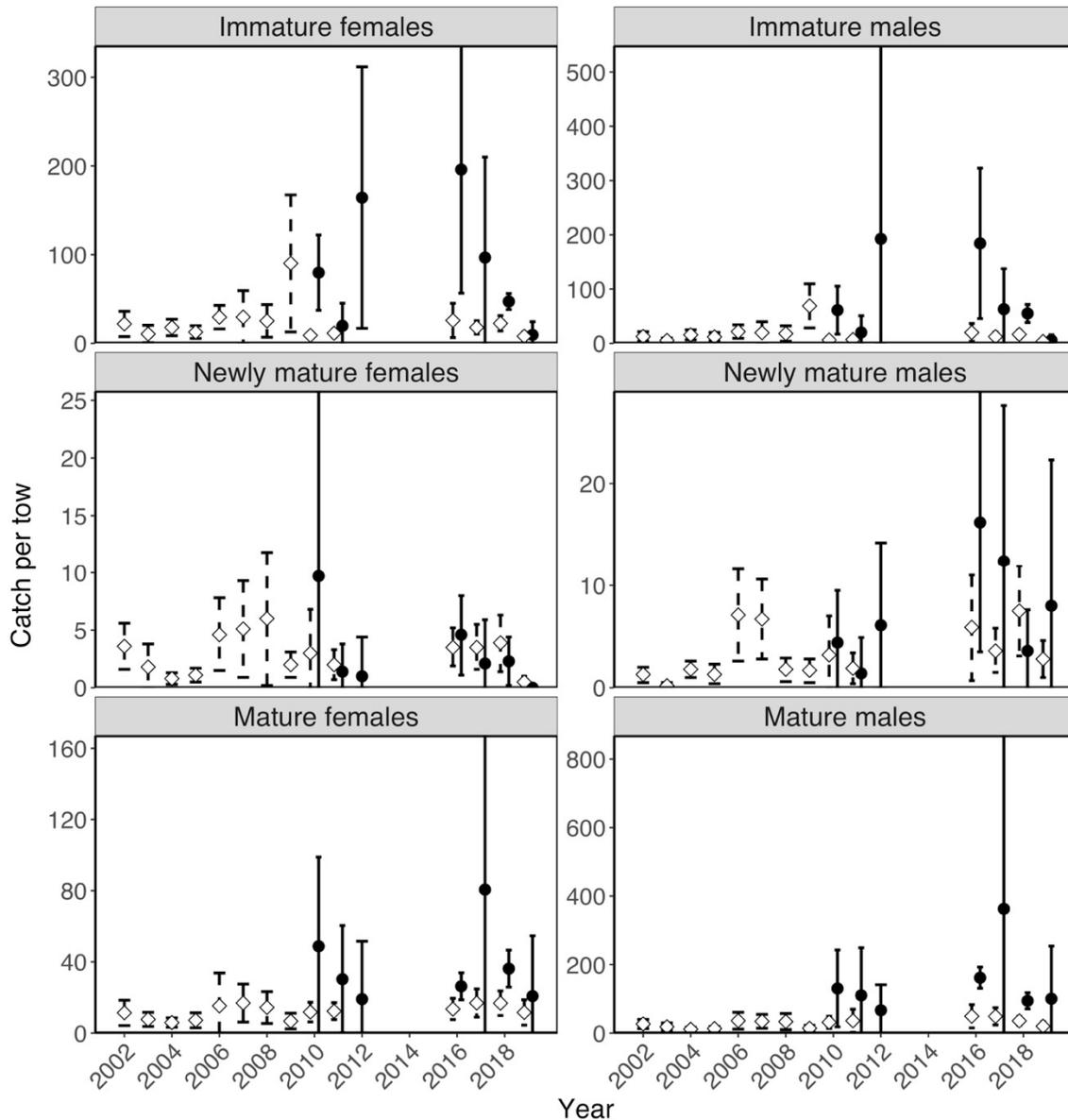


Figure 3. Plots of stratified mean catches per 15-minute tow of horseshoe crabs in the **lower Delaware Bay** survey by demographic group, with coastal **Delaware Bay** area survey means for comparison. Vertical lines indicate 95% confidence limits. Only the **delta distribution** model means are presented for clarity. Solid symbols and lines indicate the **lower Delaware Bay** survey. Open symbols and dashed lines indicate the coastal **Delaware Bay** area survey. Note differences in y-axis scales.

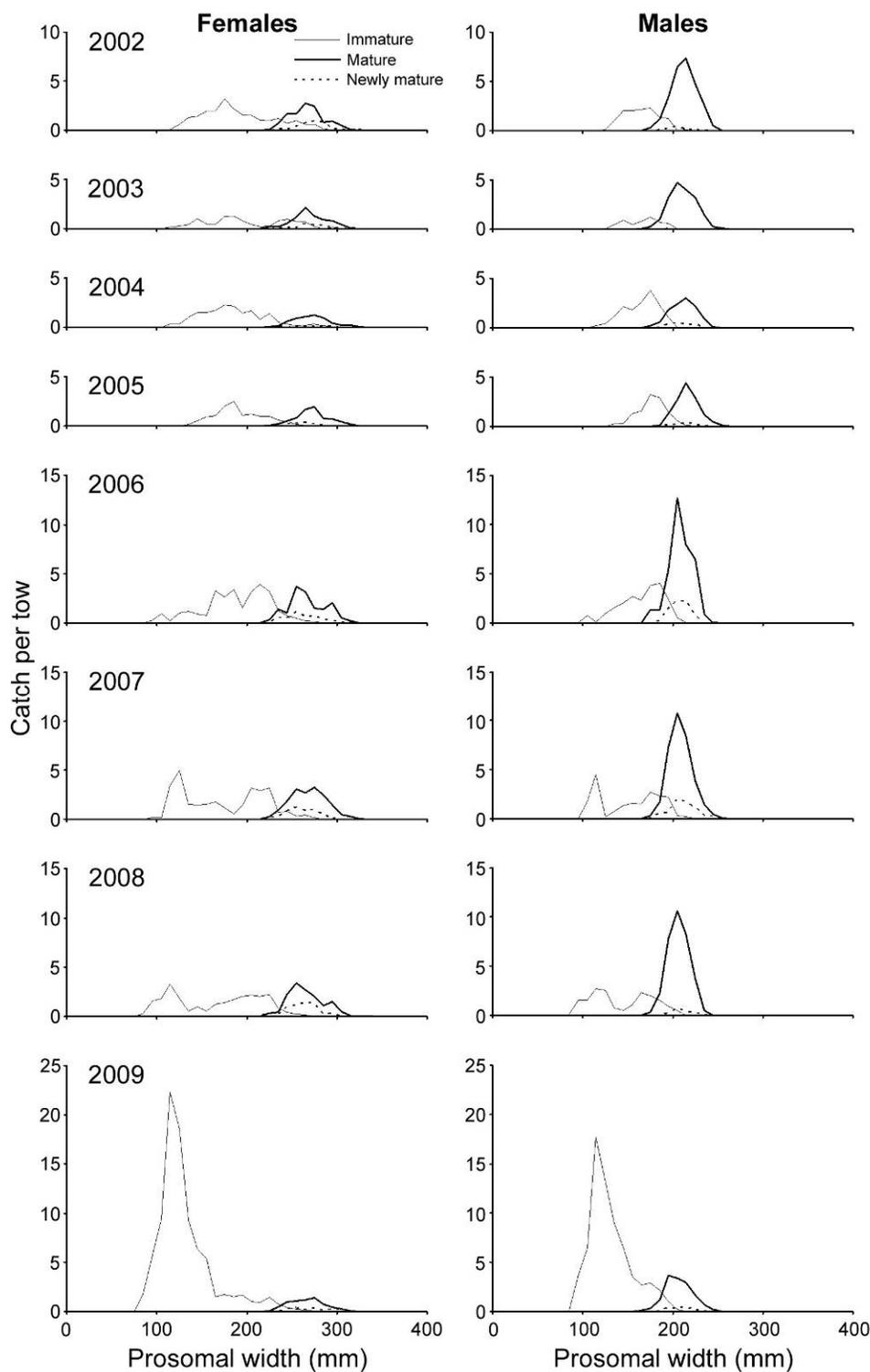


Figure 4. Relative size-frequency distributions of horseshoe crabs, by demographic group and year, in the coastal **Delaware Bay area** trawl survey. Relative frequencies are scaled to represent stratified mean catches in Table 1.

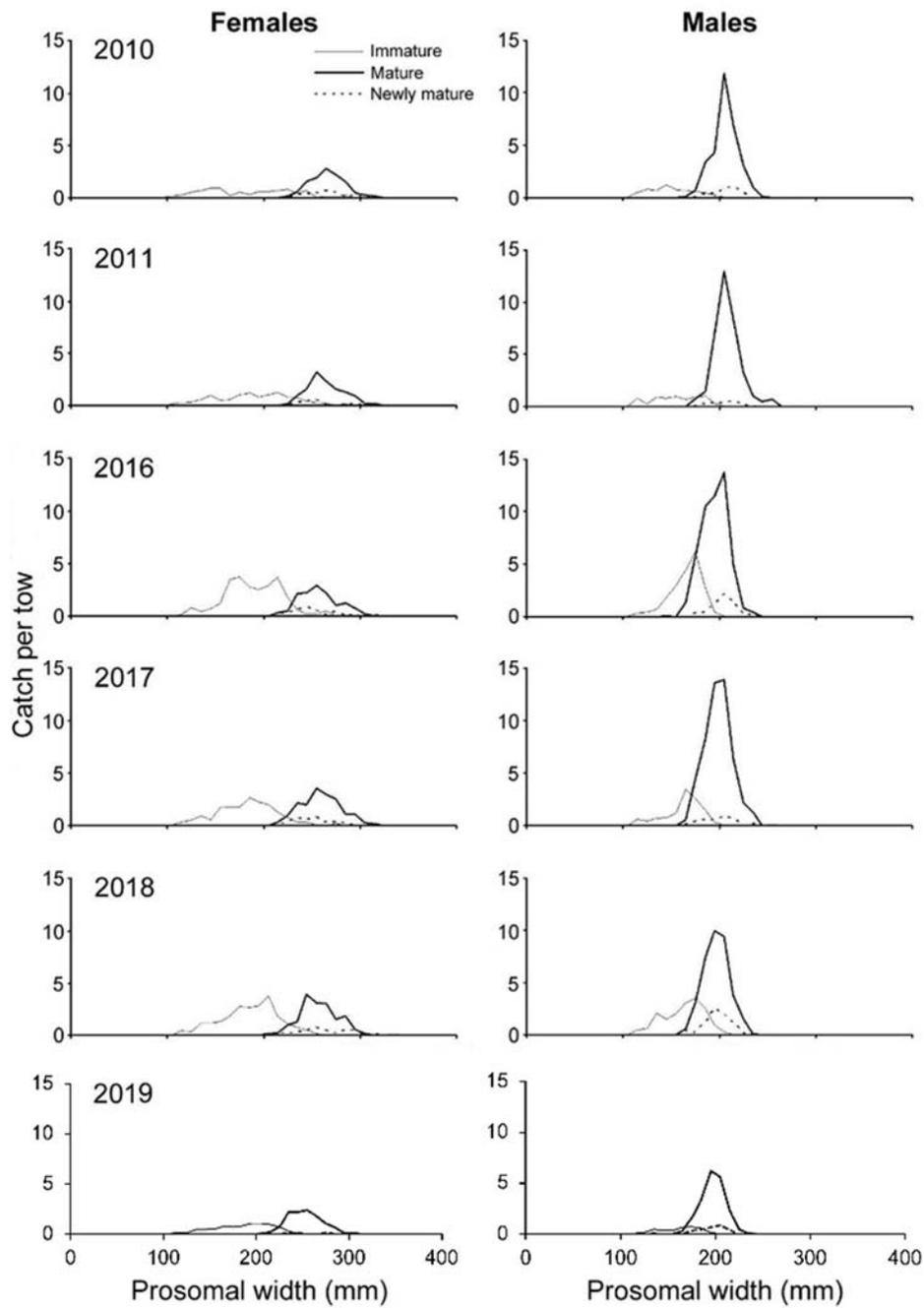


Figure 4. (continued).

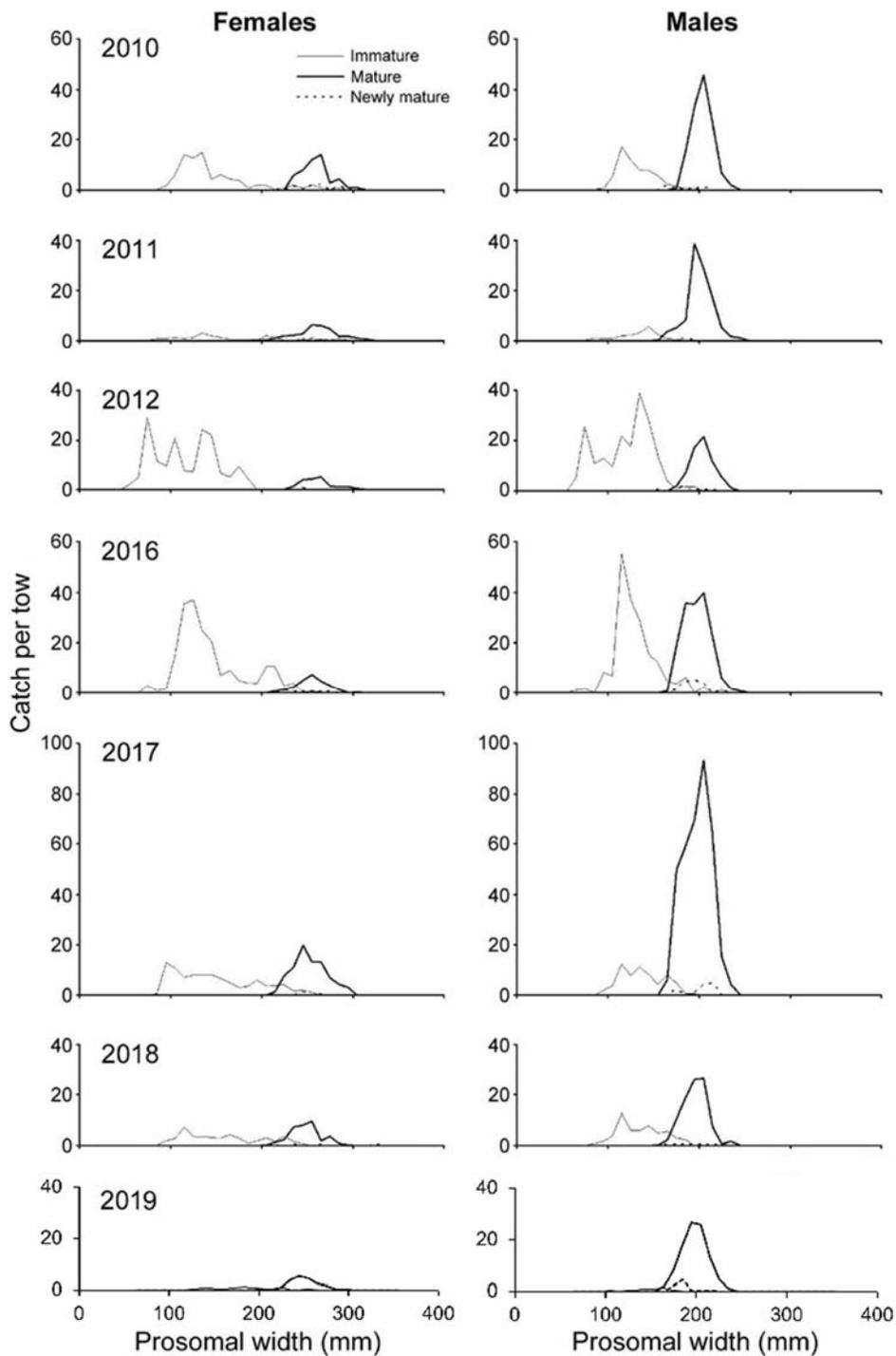


Figure 5. Relative size-frequency distributions of horseshoe crabs, by demographic group and year, in the **lower Delaware Bay** trawl survey. Relative frequencies are scaled to represent stratified mean catches in Table 3.

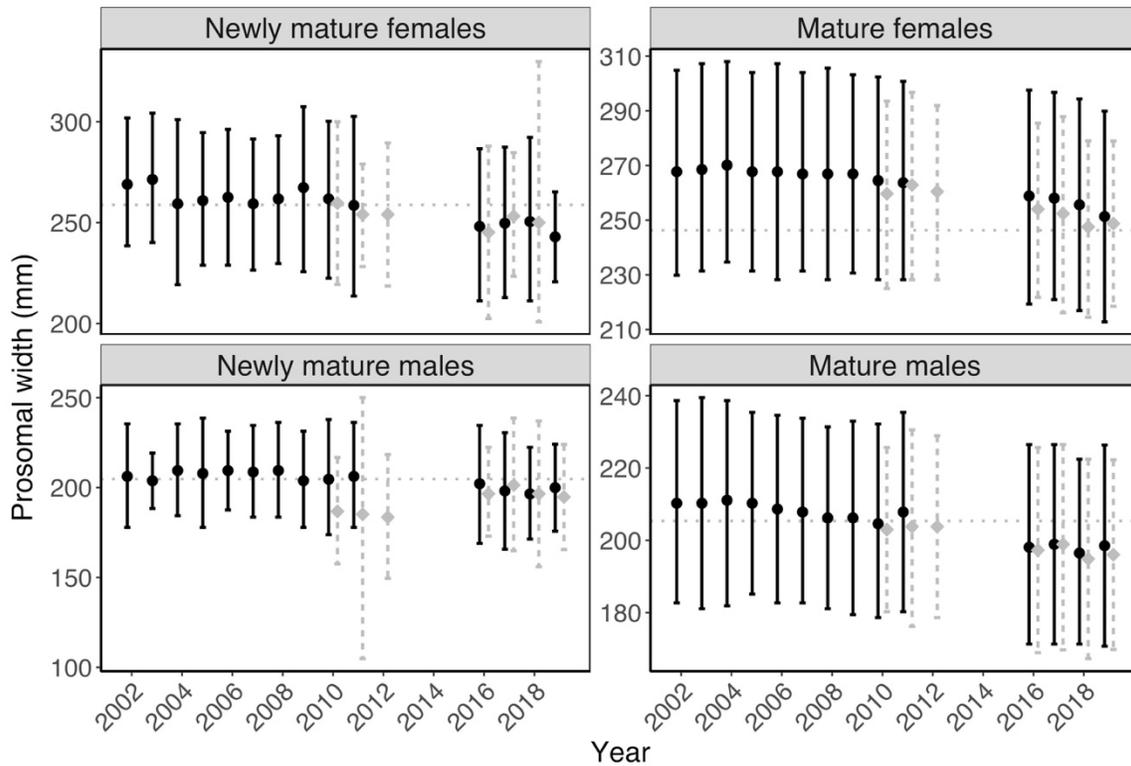


Figure 6. Mean prosomal widths (mm) (\pm 2 standard deviations) of mature and newly mature female and male horseshoe crabs in the Delaware Bay area (solid symbols and lines) and lower Delaware Bay (grey symbols and lines) surveys. Horizontal lines indicate overall means for all horseshoe crabs in the Delaware Bay area survey.

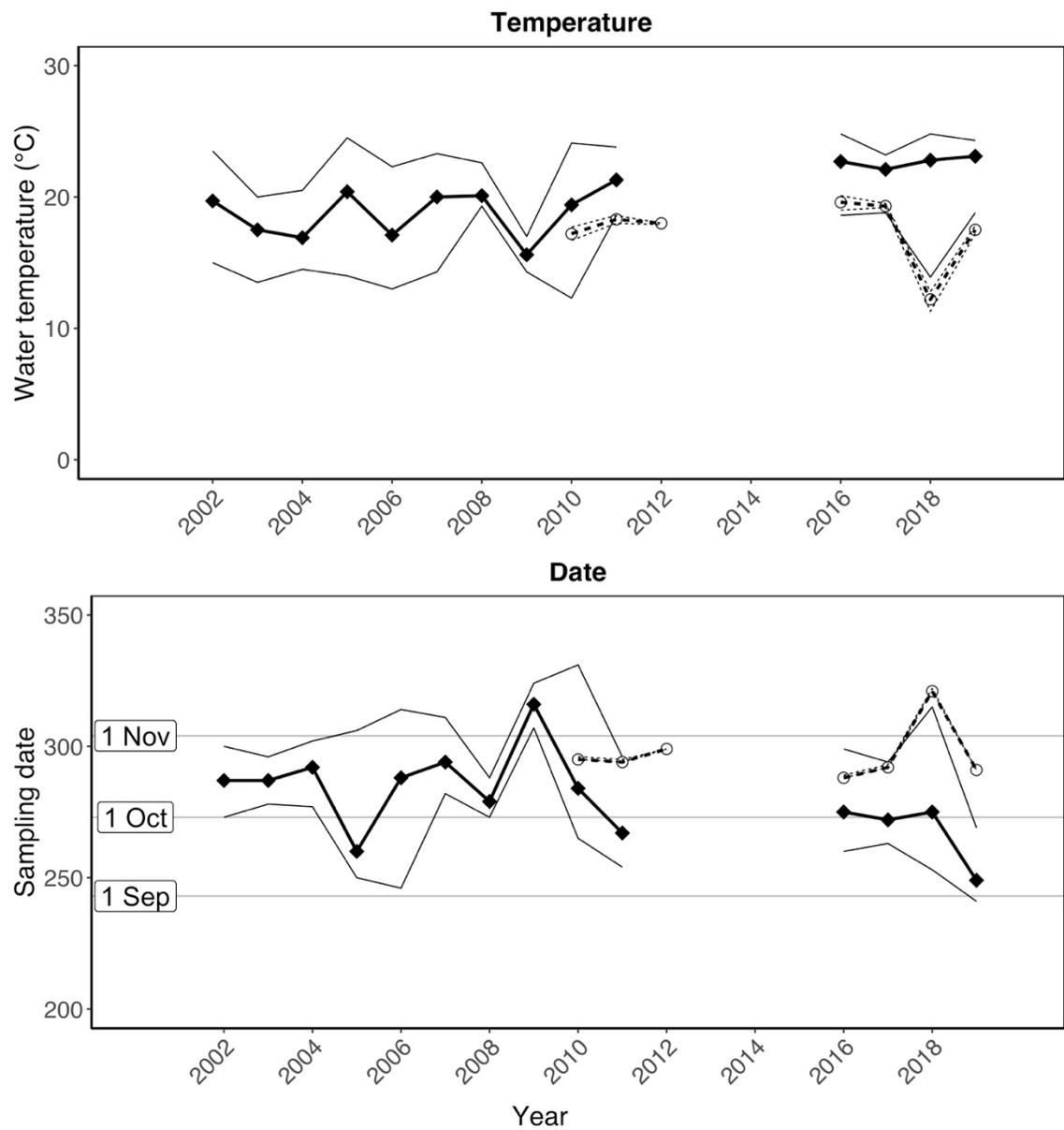


Figure 7. Plots of bottom water temperatures and ordinal sampling dates (days since 1 January) in the coastal Delaware Bay area and lower Delaware Bay trawl surveys. Solid symbols and lines indicate coastal Delaware Bay area. Open symbols and dashed lines indicate lower Delaware Bay. Points indicate mean values. Thinner lines indicate maximum and minimum values. Approximate calendar dates are indicated by gray horizontal lines for reference (ordinal dates are shifted by one day for leap years).

Table 1. Stratified mean catch-per-tow of horseshoe crabs in the coastal **Delaware Bay area** survey, 2002-2019, with standard deviation (sd) and coefficient of variation (CV), calculated using the **delta distribution** model, by demographic group. Also included are the estimated upper and lower 95% confidence limits (UCL, LCL).

| | mean | UCL | LCL | CV | sd | | mean | UCL | LCL | CV | sd |
|----------------------|------|-------|------|------|------|--------------------|------|-------|------|------|------|
| Immature females | | | | | | Immature males | | | | | |
| 2002 | 21.9 | 36.1 | 7.6 | 0.31 | 6.8 | 2002 | 12.6 | 21.4 | 3.9 | 0.33 | 4.2 |
| 2003 | 10.5 | 20.4 | 0.7 | 0.43 | 4.6 | 2003 | 5.4 | 9.9 | 0.9 | 0.39 | 2.1 |
| 2004 | 17.9 | 27.2 | 8.6 | 0.25 | 4.5 | 2004 | 15.7 | 25.0 | 6.4 | 0.29 | 4.5 |
| 2005 | 12.7 | 19.9 | 5.5 | 0.28 | 3.5 | 2005 | 11.9 | 20.0 | 3.8 | 0.33 | 3.9 |
| 2006 | 29.5 | 42.8 | 16.3 | 0.21 | 6.3 | 2006 | 21.6 | 33.9 | 9.2 | 0.25 | 5.4 |
| 2007 | 29.6 | 59.4 | -0.2 | 0.41 | 12.2 | 2007 | 19.5 | 39.6 | -0.6 | 0.42 | 8.2 |
| 2008 | 25.3 | 43.7 | 6.9 | 0.33 | 8.3 | 2008 | 18.0 | 32.4 | 3.6 | 0.35 | 6.3 |
| 2009 | 90.2 | 167.4 | 12.9 | 0.39 | 35.5 | 2009 | 69.0 | 109.7 | 28.3 | 0.29 | 19.8 |
| 2010 | 9.0 | 11.9 | 6.1 | 0.16 | 1.4 | 2010 | 6.1 | 9.5 | 2.8 | 0.27 | 1.6 |
| 2011 | 11.4 | 15.9 | 6.9 | 0.19 | 2.2 | 2011 | 6.9 | 10.1 | 3.7 | 0.23 | 1.6 |
| 2016 | 25.8 | 45.1 | 6.5 | 0.36 | 9.2 | 2016 | 20.0 | 36.6 | 3.5 | 0.39 | 7.9 |
| 2017 | 17.9 | 25.4 | 10.4 | 0.19 | 3.4 | 2017 | 12.3 | 20.5 | 4.2 | 0.27 | 3.3 |
| 2018 | 22.5 | 31.2 | 13.9 | 0.18 | 4.1 | 2018 | 16.5 | 24.4 | 8.7 | 0.22 | 3.7 |
| 2019 | 8.0 | 12.7 | 3.2 | 0.30 | 2.4 | 2019 | 3.5 | 6.0 | 1.0 | 0.35 | 1.2 |
| Mature females | | | | | | Mature males | | | | | |
| 2002 | 11.4 | 18.5 | 4.2 | 0.30 | 3.4 | 2002 | 26.6 | 39.7 | 13.4 | 0.24 | 6.3 |
| 2003 | 7.7 | 11.7 | 3.7 | 0.25 | 1.9 | 2003 | 18.4 | 29.6 | 7.3 | 0.28 | 5.2 |
| 2004 | 5.9 | 8.6 | 3.3 | 0.21 | 1.3 | 2004 | 11.4 | 17.1 | 5.7 | 0.24 | 2.8 |
| 2005 | 7.2 | 11.4 | 3.0 | 0.27 | 2.0 | 2005 | 13.2 | 19.1 | 7.3 | 0.21 | 2.8 |
| 2006 | 15.3 | 33.8 | -3.2 | 0.44 | 6.7 | 2006 | 36.2 | 60.9 | 11.4 | 0.28 | 10.1 |
| 2007 | 16.9 | 27.5 | 6.2 | 0.30 | 5.1 | 2007 | 34.3 | 54.4 | 14.3 | 0.28 | 9.7 |
| 2008 | 14.4 | 23.3 | 5.4 | 0.29 | 4.2 | 2008 | 33.5 | 57.2 | 9.8 | 0.33 | 11.2 |
| 2009 | 6.7 | 11.2 | 2.3 | 0.32 | 2.1 | 2009 | 14.1 | 22.8 | 5.3 | 0.30 | 4.2 |
| 2010 | 11.8 | 17.3 | 6.3 | 0.22 | 2.6 | 2010 | 31.5 | 49.2 | 13.8 | 0.27 | 8.6 |
| 2011 | 12.3 | 17.1 | 7.6 | 0.18 | 2.2 | 2011 | 36.0 | 69.8 | 2.2 | 0.41 | 14.7 |
| 2016 | 13.5 | 19.5 | 7.6 | 0.21 | 2.9 | 2016 | 49.2 | 83.1 | 15.2 | 0.29 | 14.3 |
| 2017 | 16.9 | 24.8 | 9.0 | 0.23 | 3.9 | 2017 | 48.9 | 74.0 | 23.9 | 0.25 | 12.2 |
| 2018 | 16.8 | 23.7 | 9.9 | 0.20 | 3.3 | 2018 | 35.7 | 48.9 | 22.5 | 0.17 | 6.2 |
| 2019 | 11.6 | 18.7 | 4.5 | 0.30 | 3.5 | 2019 | 20.0 | 33.3 | 6.8 | 0.33 | 6.6 |
| Newly mature females | | | | | | Newly mature males | | | | | |
| 2002 | 3.6 | 5.6 | 1.6 | 0.26 | 0.9 | 2002 | 1.3 | 2.0 | 0.5 | 0.28 | 0.4 |
| 2003 | 1.8 | 3.8 | -0.1 | 0.49 | 0.9 | 2003 | 0.2 | 0.5 | -0.1 | 0.84 | 0.2 |
| 2004 | 0.8 | 1.3 | 0.3 | 0.30 | 0.2 | 2004 | 1.8 | 2.6 | 1.0 | 0.21 | 0.4 |
| 2005 | 1.1 | 1.7 | 0.5 | 0.28 | 0.3 | 2005 | 1.3 | 2.3 | 0.4 | 0.33 | 0.4 |
| 2006 | 4.6 | 7.8 | 1.5 | 0.30 | 1.4 | 2006 | 7.1 | 11.6 | 2.6 | 0.36 | 2.7 |
| 2007 | 5.1 | 9.3 | 0.9 | 0.39 | 2.0 | 2007 | 6.7 | 10.6 | 2.8 | 0.28 | 1.9 |
| 2008 | 6.0 | 11.8 | 0.2 | 0.44 | 2.7 | 2008 | 1.8 | 2.9 | 0.6 | 0.32 | 0.6 |
| 2009 | 2.0 | 3.1 | 0.9 | 0.26 | 0.5 | 2009 | 1.7 | 2.8 | 0.5 | 0.34 | 0.6 |
| 2010 | 3.0 | 6.8 | -0.7 | 0.59 | 1.8 | 2010 | 3.2 | 7.0 | -0.5 | 0.55 | 1.8 |
| 2011 | 2.0 | 3.3 | 0.7 | 0.31 | 0.6 | 2011 | 1.9 | 3.4 | 0.4 | 0.37 | 0.7 |
| 2016 | 3.5 | 5.2 | 1.9 | 0.23 | 0.8 | 2016 | 5.9 | 11.0 | 0.7 | 0.42 | 2.5 |
| 2017 | 3.5 | 5.5 | 1.6 | 0.27 | 0.9 | 2017 | 3.6 | 5.8 | 1.5 | 0.29 | 1.0 |
| 2018 | 3.9 | 6.3 | 1.4 | 0.30 | 1.2 | 2018 | 7.5 | 11.9 | 3.1 | 0.27 | 2.1 |
| 2019 | 0.5 | 1.0 | 0.0 | 0.46 | 0.2 | 2019 | 2.8 | 4.6 | 1.0 | 0.32 | 0.9 |

Table 2. Stratified mean catch-per-tow of horseshoe crabs in the coastal **Delaware Bay area** survey, 2002-2019, with standard deviation (sd) and coefficient of variation (CV), calculated using the **normal distribution** model, by demographic group. Also included are the estimated upper and lower 95% confidence limits (UCL, LCL).

| | mean | UCL | LCL | CV | sd | | mean | UCL | LCL | CV | sd |
|----------------------|------|------|------|------|------|--------------------|------|------|------|------|------|
| Immature females | | | | | | Immature males | | | | | |
| 2002 | 19.1 | 27.6 | 10.5 | 0.22 | 4.1 | 2002 | 11.7 | 18.3 | 5.0 | 0.27 | 3.2 |
| 2003 | 9.5 | 15.9 | 3.0 | 0.32 | 3.1 | 2003 | 4.9 | 8.1 | 1.8 | 0.30 | 1.5 |
| 2004 | 17.0 | 24.5 | 9.5 | 0.21 | 3.6 | 2004 | 14.0 | 20.3 | 7.6 | 0.22 | 3.1 |
| 2005 | 11.5 | 17.0 | 6.1 | 0.23 | 2.6 | 2005 | 10.6 | 16.7 | 4.4 | 0.28 | 2.9 |
| 2006 | 31.1 | 46.9 | 15.3 | 0.24 | 7.5 | 2006 | 21.5 | 32.0 | 11.1 | 0.23 | 5.0 |
| 2007 | 29.8 | 59.6 | 0.0 | 0.41 | 12.2 | 2007 | 20.5 | 43.2 | -2.3 | 0.45 | 9.3 |
| 2008 | 24.6 | 38.9 | 10.3 | 0.27 | 6.6 | 2008 | 15.9 | 24.2 | 7.6 | 0.24 | 3.8 |
| 2009 | 63.1 | 93.8 | 32.4 | 0.24 | 14.9 | 2009 | 61.0 | 89.8 | 32.1 | 0.23 | 14.0 |
| 2010 | 9.4 | 13.0 | 5.7 | 0.19 | 1.8 | 2010 | 6.4 | 10.1 | 2.6 | 0.29 | 1.8 |
| 2011 | 12.2 | 18.5 | 6.0 | 0.25 | 3.0 | 2011 | 7.3 | 11.2 | 3.3 | 0.26 | 1.9 |
| 2016 | 25.1 | 41.1 | 9.0 | 0.31 | 7.7 | 2016 | 18.1 | 29.9 | 6.3 | 0.31 | 5.7 |
| 2017 | 19.1 | 28.7 | 9.6 | 0.24 | 4.6 | 2017 | 12.4 | 19.3 | 5.5 | 0.26 | 3.3 |
| 2018 | 22.5 | 30.6 | 14.5 | 0.17 | 3.8 | 2018 | 17.2 | 25.9 | 8.6 | 0.24 | 4.1 |
| 2019 | 13.7 | 21.9 | 5.5 | 0.30 | 4.1 | 2019 | 6.6 | 11.1 | 2.0 | 0.34 | 2.2 |
| Mature females | | | | | | Mature males | | | | | |
| 2002 | 11.0 | 17.0 | 4.9 | 0.26 | 2.8 | 2002 | 24.6 | 34.4 | 14.8 | 0.19 | 4.7 |
| 2003 | 7.5 | 10.9 | 4.1 | 0.22 | 1.6 | 2003 | 17.0 | 24.7 | 9.4 | 0.21 | 3.6 |
| 2004 | 6.0 | 8.3 | 3.7 | 0.19 | 1.1 | 2004 | 12.6 | 20.2 | 5.1 | 0.29 | 3.6 |
| 2005 | 6.8 | 10.0 | 3.5 | 0.22 | 1.5 | 2005 | 12.3 | 16.7 | 7.8 | 0.17 | 2.1 |
| 2006 | 13.5 | 24.2 | 2.7 | 0.31 | 4.2 | 2006 | 32.8 | 49.5 | 16.1 | 0.22 | 7.4 |
| 2007 | 14.2 | 21.3 | 7.1 | 0.24 | 3.4 | 2007 | 28.4 | 39.9 | 16.8 | 0.20 | 5.6 |
| 2008 | 16.5 | 31.0 | 2.0 | 0.41 | 6.8 | 2008 | 32.7 | 53.7 | 11.7 | 0.31 | 10.0 |
| 2009 | 7.3 | 12.3 | 2.2 | 0.33 | 2.4 | 2009 | 14.2 | 22.9 | 5.5 | 0.29 | 4.1 |
| 2010 | 12.7 | 19.7 | 5.7 | 0.26 | 3.3 | 2010 | 32.5 | 50.9 | 14.1 | 0.27 | 8.8 |
| 2011 | 12.6 | 18.1 | 7.2 | 0.20 | 2.6 | 2011 | 35.4 | 61.4 | 9.5 | 0.32 | 11.5 |
| 2016 | 12.8 | 17.4 | 8.2 | 0.17 | 2.2 | 2016 | 53.9 | 90.0 | 17.8 | 0.30 | 16.2 |
| 2017 | 18.2 | 28.0 | 8.4 | 0.26 | 4.8 | 2017 | 47.2 | 69.3 | 25.1 | 0.23 | 10.8 |
| 2018 | 21.1 | 39.6 | 2.5 | 0.41 | 8.7 | 2018 | 34.9 | 44.9 | 24.9 | 0.14 | 4.8 |
| 2019 | 18.7 | 28.4 | 9.0 | 0.26 | 4.8 | 2019 | 19.7 | 31.0 | 8.4 | 0.28 | 5.6 |
| Newly mature females | | | | | | Newly mature males | | | | | |
| 2002 | 3.5 | 5.3 | 1.7 | 0.24 | 0.9 | 2002 | 1.3 | 2.2 | 0.4 | 0.31 | 0.4 |
| 2003 | 1.8 | 3.6 | 0.1 | 0.45 | 0.8 | 2003 | 0.2 | 0.5 | -0.2 | 0.84 | 0.2 |
| 2004 | 0.8 | 1.4 | 0.3 | 0.33 | 0.3 | 2004 | 1.8 | 2.6 | 1.0 | 0.21 | 0.4 |
| 2005 | 1.2 | 2.1 | 0.3 | 0.35 | 0.4 | 2005 | 1.3 | 2.1 | 0.5 | 0.29 | 0.4 |
| 2006 | 4.8 | 8.2 | 1.4 | 0.33 | 1.6 | 2006 | 7.5 | 13.2 | 1.8 | 0.36 | 2.7 |
| 2007 | 4.6 | 7.7 | 1.5 | 0.32 | 1.5 | 2007 | 6.1 | 9.1 | 3.2 | 0.23 | 1.4 |
| 2008 | 6.3 | 11.3 | 1.3 | 0.37 | 2.3 | 2008 | 1.8 | 3.1 | 0.5 | 0.34 | 0.6 |
| 2009 | 2.0 | 3.1 | 0.9 | 0.26 | 0.5 | 2009 | 1.6 | 2.6 | 0.6 | 0.30 | 0.5 |
| 2010 | 4.0 | 10.3 | -2.3 | 0.74 | 3.0 | 2010 | 3.3 | 7.2 | -0.6 | 0.56 | 1.9 |
| 2011 | 2.2 | 3.9 | 0.5 | 0.38 | 0.8 | 2011 | 1.9 | 3.5 | 0.4 | 0.38 | 0.7 |
| 2016 | 3.5 | 5.1 | 1.9 | 0.22 | 0.8 | 2016 | 6.6 | 12.6 | 0.6 | 0.43 | 2.9 |
| 2017 | 3.6 | 5.5 | 1.6 | 0.27 | 1.0 | 2017 | 3.8 | 6.4 | 1.3 | 0.32 | 1.2 |
| 2018 | 3.9 | 6.2 | 1.6 | 0.28 | 1.1 | 2018 | 6.9 | 10.0 | 3.9 | 0.21 | 1.5 |
| 2019 | 0.6 | 1.2 | 0.0 | 0.48 | 0.3 | 2019 | 3.5 | 5.5 | 1.5 | 0.29 | 1.0 |

Table 3. Stratified mean catch-per-tow of horseshoe crabs in the **lower Delaware Bay** survey area in 2010-2019, with standard deviation (sd) and coefficient of variation (CV), calculated using the **delta distribution** model, by demographic group. Also included are the estimated upper and lower 95% confidence limits (UCL, LCL).

| | mean | UCL | LCL | CV | sd | | mean | UCL | LCL | CV | sd |
|----------------------|-------|-------|-------|------|------|--------------------|-------|-------|--------|------|-------|
| Immature females | | | | | | Immature males | | | | | |
| 2010 | 79.7 | 122.2 | 37.3 | 0.21 | 16.5 | 2010 | 61.2 | 105.5 | 16.9 | 0.30 | 18.1 |
| 2011 | 19.7 | 45.2 | -5.9 | 0.47 | 9.2 | 2011 | 20.2 | 50.7 | -10.4 | 0.55 | 11.0 |
| 2012 | 164.3 | 311.8 | 16.9 | 0.32 | 53.1 | 2012 | 192.6 | 548.4 | -163.3 | 0.43 | 82.7 |
| 2016 | 196.0 | 335.5 | 56.6 | 0.29 | 57.0 | 2016 | 184.2 | 322.9 | 45.5 | 0.32 | 58.7 |
| 2017 | 96.7 | 210.0 | -16.7 | 0.46 | 44.1 | 2017 | 62.9 | 137.6 | -11.7 | 0.46 | 29.0 |
| 2018 | 47.2 | 56.2 | 38.1 | 0.08 | 3.8 | 2018 | 55.1 | 71.8 | 38.4 | 0.12 | 6.8 |
| 2019 | 9.5 | 24.3 | -5.3 | 0.60 | 5.7 | 2019 | 5.7 | 15.8 | -4.5 | 0.70 | 4.0 |
| Mature females | | | | | | Mature males | | | | | |
| 2010 | 48.8 | 98.9 | -1.2 | 0.40 | 19.5 | 2010 | 130.3 | 242.6 | 18.1 | 0.34 | 43.7 |
| 2011 | 30.3 | 60.4 | 0.2 | 0.36 | 10.8 | 2011 | 110.2 | 249.0 | -28.6 | 0.45 | 50.0 |
| 2012 | 19.1 | 51.6 | -13.4 | 0.40 | 7.6 | 2012 | 66.8 | 141.1 | -7.4 | 0.35 | 23.3 |
| 2016 | 26.3 | 33.9 | 18.7 | 0.12 | 3.2 | 2016 | 161.7 | 192.5 | 131.0 | 0.08 | 13.3 |
| 2017 | 80.6 | 167.1 | -5.8 | 0.39 | 31.1 | 2017 | 362.7 | 868.5 | -143.2 | 0.50 | 182.2 |
| 2018 | 36.2 | 46.6 | 25.8 | 0.12 | 4.3 | 2018 | 94.3 | 117.9 | 70.7 | 0.11 | 10.0 |
| 2019 | 20.8 | 54.7 | -13.0 | 0.63 | 13.2 | 2019 | 100.4 | 254.0 | -53.2 | 0.59 | 59.7 |
| Newly mature females | | | | | | Newly mature males | | | | | |
| 2010 | 9.7 | 25.8 | -6.3 | 0.64 | 6.2 | 2010 | 4.4 | 9.5 | -0.8 | 0.46 | 2.0 |
| 2011 | 1.4 | 3.8 | -0.9 | 0.58 | 0.8 | 2011 | 1.4 | 4.9 | -2.2 | 0.94 | 1.3 |
| 2012 | 1.0 | 4.4 | -2.3 | 0.76 | 0.8 | 2012 | 6.1 | 14.2 | -2.0 | 0.48 | 2.9 |
| 2016 | 4.6 | 8.0 | 1.1 | 0.31 | 1.4 | 2016 | 16.2 | 29.0 | 3.5 | 0.30 | 5.0 |
| 2017 | 2.1 | 5.9 | -1.7 | 0.65 | 1.4 | 2017 | 12.4 | 27.6 | -2.7 | 0.44 | 5.4 |
| 2018 | 2.3 | 4.4 | 0.2 | 0.35 | 0.8 | 2018 | 3.6 | 7.6 | -0.5 | 0.44 | 1.6 |
| 2019 | 0.0 | 0.0 | 0.0 | NA | 0.0 | 2019 | 8.0 | 22.3 | -6.4 | 0.70 | 5.6 |

Table 4. Stratified mean catch-per-tow of horseshoe crabs in the **lower Delaware Bay** survey area in 2010-2019, with standard deviation (sd) and coefficient of variation (CV), calculated using the **normal distribution** model, by demographic group. Also included are the estimated upper and lower 95% confidence limits (UCL, LCL).

| | mean | UCL | LCL | CV | sd | | mean | UCL | LCL | CV | sd |
|----------------------|-------|-------|-------|------|------|--------------------|-------|-------|-------|------|------|
| Immature females | | | | | | Immature males | | | | | |
| 2010 | 79.5 | 116.5 | 42.6 | 0.19 | 15.1 | 2010 | 60.4 | 95.7 | 25.1 | 0.25 | 15.3 |
| 2011 | 21.3 | 54.2 | -11.5 | 0.55 | 11.8 | 2011 | 21.5 | 57.2 | -14.3 | 0.60 | 12.9 |
| 2012 | 165.5 | 287.6 | 43.4 | 0.30 | 49.9 | 2012 | 183.9 | 360.1 | 7.8 | 0.34 | 63.4 |
| 2016 | 186.5 | 284.7 | 88.3 | 0.22 | 40.1 | 2016 | 167.9 | 249.7 | 86.0 | 0.21 | 34.6 |
| 2017 | 90.8 | 176.0 | 5.6 | 0.37 | 33.2 | 2017 | 58.2 | 109.0 | 7.5 | 0.36 | 20.7 |
| 2018 | 47.1 | 55.6 | 38.6 | 0.08 | 3.6 | 2018 | 54.9 | 69.6 | 40.2 | 0.11 | 6.2 |
| 2019 | 16.0 | 30.4 | 1.5 | 0.35 | 5.6 | 2019 | 10.7 | 21.7 | -0.4 | 0.40 | 4.3 |
| Mature females | | | | | | Mature males | | | | | |
| 2010 | 49.1 | 99.8 | -1.7 | 0.40 | 19.7 | 2010 | 128.0 | 227.9 | 28.2 | 0.30 | 38.9 |
| 2011 | 28.6 | 49.9 | 7.4 | 0.27 | 7.7 | 2011 | 100.3 | 187.7 | 13.0 | 0.31 | 31.5 |
| 2012 | 18.7 | 46.2 | -8.9 | 0.34 | 6.4 | 2012 | 65.3 | 111.7 | 18.8 | 0.28 | 18.1 |
| 2016 | 26.2 | 33.4 | 19.0 | 0.11 | 3.0 | 2016 | 161.8 | 192.4 | 131.1 | 0.08 | 13.3 |
| 2017 | 80.5 | 165.0 | -4.0 | 0.38 | 30.4 | 2017 | 303.4 | 531.7 | 75.2 | 0.27 | 82.2 |
| 2018 | 36.2 | 47.2 | 25.1 | 0.12 | 4.3 | 2018 | 94.7 | 120.3 | 69.0 | 0.11 | 10.8 |
| 2019 | 29.3 | 54.8 | 3.8 | 0.34 | 9.9 | 2019 | 49.9 | 90.0 | 9.9 | 0.31 | 15.6 |
| Newly mature females | | | | | | Newly mature males | | | | | |
| 2010 | 9.6 | 24.9 | -5.7 | 0.62 | 5.9 | 2010 | 4.3 | 9.1 | -0.5 | 0.43 | 1.9 |
| 2011 | 1.4 | 3.8 | -0.9 | 0.58 | 0.8 | 2011 | 1.4 | 4.9 | -2.2 | 0.94 | 1.3 |
| 2012 | 1.0 | 4.4 | -2.3 | 0.76 | 0.8 | 2012 | 6.1 | 14.1 | -1.9 | 0.47 | 2.9 |
| 2016 | 4.5 | 8.0 | 1.1 | 0.30 | 1.3 | 2016 | 16.0 | 27.2 | 4.9 | 0.27 | 4.3 |
| 2017 | 2.1 | 5.9 | -1.7 | 0.65 | 1.4 | 2017 | 12.4 | 25.7 | -1.0 | 0.42 | 5.2 |
| 2018 | 2.3 | 4.3 | 0.3 | 0.34 | 0.8 | 2018 | 3.6 | 7.6 | -0.5 | 0.44 | 1.6 |
| 2019 | 0.0 | 0.0 | 0.0 | NA | 0.0 | 2019 | 8.5 | 22.9 | -5.9 | 0.66 | 5.6 |

Table 5. Results of correlation analyses of mean prosomal width (mm) and survey year for newly mature and mature males and females from the Delaware Bay area and lower Delaware Bay surveys. Statistics presented are number of years included, n ; T -score; probability, p ; and correlation coefficient, r . A negative correlation coefficient indicates a decreasing regression slope.

| <u>Maturity group</u> | <u>n</u> | <u>T</u> | <u>p</u> | <u>r</u> |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Delaware Bay area | | | | |
| 2002-2019 | | | | |
| Mature females | 14 | -10.39 | <0.001 | -0.949 |
| Newly mature females | 14 | -6.72 | <0.001 | -0.889 |
| Mature males | 14 | -12.10 | <0.001 | -0.961 |
| Newly mature males | 14 | -4.62 | <0.001 | -0.800 |
| Lower Delaware Bay | | | | |
| 2010-2019 | | | | |
| Mature females | 7 | -6.89 | 0.001 | -0.951 |
| Newly mature females | 7 | -2.05 | 0.110 | -0.716 |
| Mature males | 7 | -6.10 | 0.002 | -0.939 |
| Newly mature males | 7 | 3.58 | 0.016 | 0.848 |

Table 6. Estimated population (in thousands) of horseshoe crabs in the coastal **Delaware Bay area** survey, 2002-2019, with standard deviation (sd) and coefficient of variation (CV), calculated using the **delta distribution** model, by demographic group. Also included are the estimated upper and lower 95% confidence limits (UCL, LCL).

| | mean | UCL | LCL | CV | sd | | mean | UCL | LCL | CV | sd |
|----------------------|--------|--------|--------|------|-------|--------------------|--------|--------|--------|------|-------|
| Immature females | | | | | | Immature males | | | | | |
| 2002 | 9,470 | 15,665 | 3,275 | 0.31 | 581 | 2002 | 5,483 | 9,284 | 1,683 | 0.33 | 357 |
| 2003 | 4,585 | 8,848 | 321 | 0.43 | 388 | 2003 | 2,303 | 4,217 | 390 | 0.39 | 174 |
| 2004 | 7,774 | 11,770 | 3,778 | 0.25 | 379 | 2004 | 6,810 | 10,895 | 2,725 | 0.29 | 387 |
| 2005 | 5,630 | 8,856 | 2,404 | 0.28 | 306 | 2005 | 5,260 | 8,839 | 1,681 | 0.33 | 337 |
| 2006 | 12,928 | 18,691 | 7,164 | 0.21 | 533 | 2006 | 9,327 | 14,554 | 4,100 | 0.24 | 442 |
| 2007 | 13,684 | 27,486 | -118 | 0.41 | 1,100 | 2007 | 8,966 | 18,246 | -314 | 0.42 | 740 |
| 2008 | 10,933 | 18,650 | 3,216 | 0.32 | 684 | 2008 | 7,841 | 13,917 | 1,766 | 0.35 | 532 |
| 2009 | 39,032 | 72,868 | 5,197 | 0.39 | 2,998 | 2009 | 29,864 | 47,269 | 12,460 | 0.28 | 1,654 |
| 2010 | 3,954 | 5,220 | 2,688 | 0.16 | 120 | 2010 | 2,686 | 4,144 | 1,229 | 0.26 | 139 |
| 2011 | 4,965 | 6,945 | 2,985 | 0.20 | 189 | 2011 | 3,092 | 4,547 | 1,637 | 0.23 | 139 |
| 2016 | 11,699 | 20,462 | 2,935 | 0.36 | 817 | 2016 | 9,102 | 16,649 | 1,555 | 0.39 | 701 |
| 2017 | 7,505 | 10,708 | 4,302 | 0.19 | 276 | 2017 | 5,091 | 8,465 | 1,717 | 0.27 | 269 |
| 2018 | 10,173 | 14,285 | 6,061 | 0.19 | 378 | 2018 | 7,507 | 11,173 | 3,842 | 0.23 | 333 |
| 2019 | 3,397 | 5,516 | 1,279 | 0.31 | 1,048 | 2019 | 1,487 | 2,614 | 360 | 0.38 | 558 |
| Mature females | | | | | | Mature males | | | | | |
| 2002 | 4,959 | 8,084 | 1,834 | 0.30 | 289 | 2002 | 11,584 | 17,335 | 5,834 | 0.24 | 539 |
| 2003 | 3,379 | 5,160 | 1,599 | 0.25 | 167 | 2003 | 8,069 | 13,029 | 3,110 | 0.29 | 454 |
| 2004 | 2,735 | 4,043 | 1,426 | 0.23 | 122 | 2004 | 5,150 | 7,788 | 2,511 | 0.25 | 251 |
| 2005 | 3,138 | 4,942 | 1,333 | 0.27 | 164 | 2005 | 5,844 | 8,461 | 3,228 | 0.22 | 245 |
| 2006 | 6,611 | 14,330 | -1,108 | 0.42 | 542 | 2006 | 15,825 | 26,060 | 5,589 | 0.27 | 844 |
| 2007 | 7,746 | 12,704 | 2,789 | 0.31 | 462 | 2007 | 15,795 | 25,104 | 6,487 | 0.28 | 873 |
| 2008 | 6,311 | 10,202 | 2,419 | 0.29 | 360 | 2008 | 14,647 | 24,995 | 4,299 | 0.33 | 952 |
| 2009 | 2,975 | 4,971 | 979 | 0.32 | 186 | 2009 | 6,240 | 10,197 | 2,283 | 0.30 | 369 |
| 2010 | 5,178 | 7,616 | 2,740 | 0.23 | 228 | 2010 | 13,963 | 21,910 | 6,015 | 0.28 | 749 |
| 2011 | 5,290 | 7,282 | 3,297 | 0.18 | 182 | 2011 | 15,060 | 29,000 | 1,120 | 0.40 | 1,179 |
| 2016 | 6,024 | 8,635 | 3,413 | 0.21 | 245 | 2016 | 21,941 | 37,216 | 6,665 | 0.29 | 1,260 |
| 2017 | 7,185 | 10,525 | 3,844 | 0.23 | 319 | 2017 | 20,664 | 31,208 | 10,119 | 0.25 | 1,001 |
| 2018 | 7,326 | 10,520 | 4,131 | 0.21 | 298 | 2018 | 15,749 | 21,880 | 9,619 | 0.18 | 564 |
| 2019 | 5,110 | 8,454 | 1,767 | 0.32 | 1,655 | 2019 | 8,924 | 15,202 | 2,646 | 0.35 | 3,108 |
| Newly mature females | | | | | | Newly mature males | | | | | |
| 2002 | 1,537 | 2,400 | 675 | 0.26 | 79 | 2002 | 548 | 869 | 227 | 0.28 | 30 |
| 2003 | 794 | 1,633 | -45 | 0.49 | 76 | 2003 | 78 | 221 | -65 | 0.84 | 13 |
| 2004 | 358 | 575 | 141 | 0.29 | 20 | 2004 | 789 | 1,127 | 451 | 0.21 | 32 |
| 2005 | 479 | 753 | 206 | 0.27 | 25 | 2005 | 597 | 1,002 | 191 | 0.33 | 39 |
| 2006 | 2,051 | 3,509 | 594 | 0.31 | 123 | 2006 | 3,113 | 5,113 | 1,113 | 0.31 | 188 |
| 2007 | 2,373 | 4,339 | 408 | 0.40 | 183 | 2007 | 3,129 | 4,972 | 1,287 | 0.28 | 171 |
| 2008 | 2,571 | 4,984 | 158 | 0.43 | 218 | 2008 | 757 | 1,254 | 261 | 0.31 | 46 |
| 2009 | 885 | 1,361 | 410 | 0.26 | 45 | 2009 | 725 | 1,240 | 210 | 0.34 | 48 |
| 2010 | 1,338 | 2,990 | -314 | 0.59 | 153 | 2010 | 1,422 | 3,070 | -226 | 0.55 | 153 |
| 2011 | 845 | 1,360 | 331 | 0.30 | 49 | 2011 | 749 | 1,335 | 164 | 0.36 | 53 |
| 2016 | 1,608 | 2,357 | 860 | 0.23 | 71 | 2016 | 2,608 | 4,884 | 331 | 0.42 | 212 |
| 2017 | 1,480 | 2,274 | 687 | 0.26 | 76 | 2017 | 1,523 | 2,392 | 654 | 0.28 | 83 |
| 2018 | 1,773 | 2,923 | 622 | 0.31 | 108 | 2018 | 3,341 | 5,367 | 1,316 | 0.29 | 186 |
| 2019 | 242 | 472 | 12 | 0.47 | 114 | 2019 | 1,271 | 2,154 | 389 | 0.34 | 437 |

Table 7. Estimated population (in thousands) of horseshoe crabs in the coastal **Delaware Bay area** survey, 2002-2019, with standard deviation (sd) and coefficient of variation (CV), calculated using the **normal distribution** model, by demographic group. Also included are the estimated upper and lower 95% confidence limits (UCL, LCL).

| | mean | UCL | LCL | CV | sd | | mean | UCL | LCL | CV | sd |
|----------------------|--------|--------|--------|------|-------|--------------------|--------|--------|--------|------|-------|
| Immature females | | | | | | Immature males | | | | | |
| 2002 | 8,222 | 11,875 | 4,568 | 0.21 | 344 | 2002 | 5,076 | 7,998 | 2,155 | 0.28 | 273 |
| 2003 | 4,089 | 6,860 | 1,317 | 0.32 | 255 | 2003 | 2,114 | 3,462 | 766 | 0.30 | 123 |
| 2004 | 7,376 | 10,616 | 4,135 | 0.21 | 305 | 2004 | 6,033 | 8,786 | 3,281 | 0.22 | 260 |
| 2005 | 5,104 | 7,521 | 2,687 | 0.23 | 227 | 2005 | 4,673 | 7,414 | 1,932 | 0.28 | 255 |
| 2006 | 13,714 | 20,988 | 6,439 | 0.25 | 672 | 2006 | 9,378 | 13,971 | 4,786 | 0.23 | 428 |
| 2007 | 13,692 | 27,335 | 48 | 0.41 | 1,088 | 2007 | 9,350 | 19,735 | -1,035 | 0.45 | 828 |
| 2008 | 10,595 | 16,578 | 4,612 | 0.26 | 544 | 2008 | 6,897 | 10,443 | 3,350 | 0.23 | 314 |
| 2009 | 27,375 | 40,519 | 14,232 | 0.23 | 1,242 | 2009 | 26,435 | 38,730 | 14,140 | 0.23 | 1,162 |
| 2010 | 4,102 | 5,706 | 2,497 | 0.19 | 152 | 2010 | 2,781 | 4,423 | 1,139 | 0.29 | 156 |
| 2011 | 5,426 | 8,433 | 2,420 | 0.27 | 284 | 2011 | 3,301 | 5,219 | 1,382 | 0.28 | 182 |
| 2016 | 11,292 | 18,441 | 4,144 | 0.30 | 668 | 2016 | 8,185 | 13,512 | 2,858 | 0.31 | 498 |
| 2017 | 7,948 | 11,818 | 4,077 | 0.23 | 364 | 2017 | 5,082 | 7,829 | 2,335 | 0.26 | 257 |
| 2018 | 10,115 | 13,839 | 6,391 | 0.18 | 346 | 2018 | 7,768 | 11,653 | 3,882 | 0.24 | 358 |
| 2019 | 14,855 | 15,027 | 14,682 | 0.01 | 85 | 2019 | 66 | 236 | -104 | 1.27 | 84 |
| Mature females | | | | | | Mature males | | | | | |
| 2002 | 4,779 | 7,431 | 2,128 | 0.26 | 243 | 2002 | 10,711 | 14,972 | 6,450 | 0.19 | 400 |
| 2003 | 3,308 | 4,851 | 1,764 | 0.22 | 144 | 2003 | 7,454 | 10,827 | 4,082 | 0.21 | 312 |
| 2004 | 2,767 | 3,919 | 1,615 | 0.20 | 109 | 2004 | 5,586 | 8,875 | 2,297 | 0.28 | 308 |
| 2005 | 2,957 | 4,323 | 1,592 | 0.22 | 124 | 2005 | 5,408 | 7,322 | 3,494 | 0.17 | 181 |
| 2006 | 5,867 | 10,517 | 1,218 | 0.31 | 353 | 2006 | 14,461 | 21,734 | 7,188 | 0.23 | 637 |
| 2007 | 6,553 | 9,864 | 3,243 | 0.25 | 313 | 2007 | 13,100 | 18,506 | 7,694 | 0.20 | 514 |
| 2008 | 7,172 | 13,336 | 1,008 | 0.40 | 561 | 2008 | 14,244 | 23,240 | 5,247 | 0.30 | 838 |
| 2009 | 3,230 | 5,523 | 936 | 0.33 | 211 | 2009 | 6,319 | 10,255 | 2,383 | 0.29 | 360 |
| 2010 | 5,588 | 8,698 | 2,478 | 0.26 | 289 | 2010 | 14,396 | 22,600 | 6,192 | 0.27 | 765 |
| 2011 | 5,388 | 7,629 | 3,147 | 0.20 | 205 | 2011 | 14,858 | 25,890 | 3,825 | 0.33 | 951 |
| 2016 | 5,735 | 7,770 | 3,700 | 0.17 | 193 | 2016 | 24,017 | 40,197 | 7,837 | 0.30 | 1,416 |
| 2017 | 7,785 | 12,033 | 3,537 | 0.27 | 403 | 2017 | 19,985 | 29,245 | 10,724 | 0.23 | 884 |
| 2018 | 9,463 | 18,463 | 464 | 0.44 | 818 | 2018 | 15,264 | 19,849 | 10,680 | 0.15 | 433 |
| 2019 | 6,420 | 6,506 | 6,334 | 0.01 | 43 | 2019 | 11,660 | 11,824 | 11,497 | 0.01 | 81 |
| Newly mature females | | | | | | Newly mature males | | | | | |
| 2002 | 1,509 | 2,278 | 741 | 0.24 | 72 | 2002 | 561 | 925 | 196 | 0.31 | 33 |
| 2003 | 787 | 1,547 | 26 | 0.45 | 69 | 2003 | 78 | 222 | -66 | 0.84 | 13 |
| 2004 | 367 | 613 | 120 | 0.32 | 23 | 2004 | 786 | 1,120 | 452 | 0.20 | 31 |
| 2005 | 531 | 908 | 154 | 0.34 | 36 | 2005 | 580 | 927 | 233 | 0.29 | 33 |
| 2006 | 2,122 | 3,705 | 540 | 0.33 | 139 | 2006 | 3,377 | 6,076 | 678 | 0.38 | 251 |
| 2007 | 2,129 | 3,584 | 674 | 0.33 | 135 | 2007 | 2,841 | 4,214 | 1,468 | 0.23 | 129 |
| 2008 | 2,697 | 4,780 | 613 | 0.36 | 192 | 2008 | 776 | 1,315 | 237 | 0.33 | 50 |
| 2009 | 883 | 1,366 | 399 | 0.26 | 45 | 2009 | 708 | 1,157 | 259 | 0.31 | 43 |
| 2010 | 1,770 | 4,532 | -992 | 0.74 | 255 | 2010 | 1,464 | 3,180 | -252 | 0.56 | 159 |
| 2011 | 882 | 1,495 | 269 | 0.34 | 58 | 2011 | 766 | 1,343 | 190 | 0.36 | 54 |
| 2016 | 1,583 | 2,304 | 863 | 0.22 | 68 | 2016 | 2,939 | 5,588 | 290 | 0.43 | 248 |
| 2017 | 1,502 | 2,323 | 680 | 0.27 | 79 | 2017 | 1,590 | 2,623 | 557 | 0.32 | 98 |
| 2018 | 1,780 | 2,866 | 695 | 0.29 | 101 | 2018 | 3,064 | 4,466 | 1,663 | 0.22 | 131 |
| 2019 | 77 | 225 | -70 | 0.94 | 73 | 2019 | 112 | 267 | -43 | 0.68 | 77 |

Table 8. Estimated population (in thousands) of horseshoe crabs in the **lower Delaware Bay** survey area in 2010-2019, with standard deviation (sd) and coefficient of variation (CV), calculated using the **delta distribution** model, by demographic group. Also included are the estimated upper and lower 95% confidence limits (UCL, LCL).

| | mean | UCL | LCL | CV | sd | | mean | UCL | LCL | CV | sd |
|----------------------|-------|--------|-------|------|-------|--------------------|--------|--------|--------|------|--------|
| Immature females | | | | | | Immature males | | | | | |
| 2010 | 3,510 | 5,199 | 1,822 | 0.20 | 1,306 | 2010 | 2,632 | 4,476 | 788 | 0.29 | 1,426 |
| 2011 | 870 | 1,931 | -191 | 0.44 | 723 | 2011 | 881 | 2,160 | -397 | 0.52 | 871 |
| 2012 | 8,021 | 15,084 | 958 | 0.32 | 4,814 | 2012 | 9,381 | 21,965 | -3,204 | 0.42 | 7,484 |
| 2016 | 9,046 | 15,558 | 2,534 | 0.29 | 5,037 | 2016 | 8,429 | 14,813 | 2,044 | 0.32 | 5,110 |
| 2017 | 4,536 | 10,029 | -956 | 0.47 | 4,044 | 2017 | 2,920 | 6,458 | -618 | 0.47 | 2,605 |
| 2018 | 2,211 | 2,803 | 1,619 | 0.10 | 436 | 2018 | 2,597 | 3,516 | 1,678 | 0.15 | 735 |
| 2019 | 525 | 1,278 | -229 | 0.56 | 293 | 2019 | 308 | 816 | -201 | 0.64 | 198 |
| Mature females | | | | | | Mature males | | | | | |
| 2010 | 2,117 | 4,260 | -25 | 0.39 | 1,578 | 2010 | 5,657 | 10,247 | 1,067 | 0.32 | 3,379 |
| 2011 | 1,348 | 2,599 | 96 | 0.33 | 853 | 2011 | 4,829 | 10,570 | -912 | 0.43 | 3,913 |
| 2012 | 938 | 2,522 | -646 | 0.39 | 697 | 2012 | 3,263 | 6,864 | -338 | 0.35 | 2,142 |
| 2016 | 1,274 | 1,710 | 837 | 0.15 | 358 | 2016 | 7,735 | 9,709 | 5,761 | 0.10 | 1,527 |
| 2017 | 3,674 | 7,501 | -153 | 0.38 | 2,609 | 2017 | 16,794 | 40,517 | -6,929 | 0.51 | 16,170 |
| 2018 | 1,771 | 2,588 | 953 | 0.18 | 602 | 2018 | 4,616 | 6,600 | 2,631 | 0.18 | 1,535 |
| 2019 | 1,148 | 3,011 | -715 | 0.63 | 725 | 2019 | 5,746 | 14,583 | -3,092 | 0.60 | 3,438 |
| Newly mature females | | | | | | Newly mature males | | | | | |
| 2010 | 414 | 1,087 | -260 | 0.63 | 496 | 2010 | 187 | 409 | -35 | 0.46 | 163 |
| 2011 | 65 | 170 | -40 | 0.58 | 72 | 2011 | 58 | 208 | -93 | 0.94 | 103 |
| 2012 | 50 | 214 | -114 | 0.76 | 72 | 2012 | 301 | 710 | -109 | 0.49 | 279 |
| 2016 | 206 | 357 | 55 | 0.30 | 117 | 2016 | 727 | 1,268 | 186 | 0.29 | 398 |
| 2017 | 88 | 249 | -73 | 0.66 | 110 | 2017 | 542 | 1,100 | -16 | 0.40 | 411 |
| 2018 | 115 | 220 | 9 | 0.36 | 78 | 2018 | 148 | 290 | 7 | 0.40 | 113 |
| 2019 | 0 | 0 | 0 | NA | 0 | 2019 | 361 | 1,022 | -299 | 0.71 | 257 |

Table 9. Estimated population (in thousands) of horseshoe crabs in the **lower Delaware Bay** survey area in 2010-2019, with standard deviation (sd) and coefficient of variation (CV), calculated using the **normal distribution** model, by demographic group. Also included are the estimated upper and lower 95% confidence limits (UCL, LCL).

| | mean | UCL | LCL | CV | sd | | mean | UCL | LCL | CV | sd |
|----------------------|-------|--------|-------|------|-------|--------------------|--------|--------|-------|------|-------|
| Immature females | | | | | | Immature males | | | | | |
| 2010 | 3,503 | 5,155 | 1,851 | 0.18 | 1,216 | 2010 | 2,588 | 4,056 | 1,120 | 0.24 | 1,175 |
| 2011 | 938 | 2,311 | -435 | 0.53 | 936 | 2011 | 935 | 2,437 | -567 | 0.58 | 1,024 |
| 2012 | 8,125 | 14,222 | 2,027 | 0.31 | 4,716 | 2012 | 9,023 | 17,690 | 356 | 0.35 | 5,907 |
| 2016 | 8,618 | 13,190 | 4,046 | 0.22 | 3,536 | 2016 | 7,725 | 11,638 | 3,812 | 0.21 | 3,027 |
| 2017 | 4,325 | 8,829 | -178 | 0.41 | 3,316 | 2017 | 2,731 | 5,408 | 53 | 0.38 | 1,971 |
| 2018 | 2,209 | 2,780 | 1,638 | 0.10 | 420 | 2018 | 2,595 | 3,529 | 1,661 | 0.15 | 722 |
| 2019 | 852 | 868 | 836 | 0.01 | 6 | 2019 | 566 | 566 | 566 | 0.00 | 0.02 |
| Mature females | | | | | | Mature males | | | | | |
| 2010 | 2,124 | 4,340 | -91 | 0.41 | 1,631 | 2010 | 5,600 | 9,916 | 1,285 | 0.30 | 3,177 |
| 2011 | 1,290 | 2,239 | 340 | 0.27 | 647 | 2011 | 4,479 | 8,332 | 625 | 0.31 | 2,627 |
| 2012 | 915 | 2,242 | -412 | 0.34 | 584 | 2012 | 3,188 | 5,456 | 921 | 0.28 | 1,669 |
| 2016 | 1,264 | 1,647 | 880 | 0.13 | 315 | 2016 | 7,727 | 9,570 | 5,883 | 0.10 | 1,475 |
| 2017 | 3,654 | 7,307 | 2 | 0.36 | 2,490 | 2017 | 13,805 | 23,702 | 3,908 | 0.26 | 6,746 |
| 2018 | 1,782 | 2,666 | 898 | 0.19 | 651 | 2018 | 4,647 | 6,901 | 2,393 | 0.19 | 1,659 |
| 2019 | 1,932 | 1,948 | 1,916 | 0.00 | 6 | 2019 | 8,356 | 8,356 | 8,356 | 0.00 | 0.02 |
| Newly mature females | | | | | | Newly mature males | | | | | |
| 2010 | 418 | 1,097 | -260 | 0.63 | 500 | 2010 | 185 | 391 | -22 | 0.43 | 152 |
| 2011 | 65 | 170 | -40 | 0.58 | 72 | 2011 | 58 | 208 | -93 | 0.94 | 103 |
| 2012 | 50 | 214 | -114 | 0.76 | 72 | 2012 | 302 | 719 | -114 | 0.50 | 284 |
| 2016 | 205 | 355 | 55 | 0.28 | 110 | 2016 | 716 | 1,176 | 256 | 0.25 | 339 |
| 2017 | 88 | 249 | -73 | 0.66 | 110 | 2017 | 541 | 1,090 | -9 | 0.40 | 405 |
| 2018 | 114 | 226 | 3 | 0.35 | 76 | 2018 | 149 | 296 | 1 | 0.41 | 114 |
| 2019 | 0 | 0 | 0 | NA | 0 | 2019 | 401 | 408 | 394 | 0.00 | 3 |

Table 10. Mean, minimum (min) and maximum (max) bottom water temperature (C°) and ordinal sampling date (numerical calendar date from 1 January) for survey collections in the Delaware Bay area and Lower Delaware Bay. For reference, 1 September is ordinal date 243 in non-leap years.

| | Water temperature | | | Ordinal date | | |
|--------------------|-------------------|------|------|--------------|-----|-----|
| | mean | max | min | mean | max | min |
| Delaware Bay area | | | | | | |
| 2002 | 19.7 | 23.5 | 15.0 | 287 | 300 | 273 |
| 2003 | 17.5 | 20.0 | 13.5 | 287 | 296 | 278 |
| 2004 | 16.9 | 20.5 | 14.5 | 292 | 302 | 277 |
| 2005 | 20.4 | 24.5 | 14.0 | 260 | 306 | 250 |
| 2006 | 17.1 | 22.3 | 13.0 | 288 | 314 | 246 |
| 2007 | 20.0 | 23.3 | 14.3 | 294 | 311 | 282 |
| 2008 | 20.1 | 22.6 | 19.3 | 279 | 288 | 273 |
| 2009 | 15.6 | 17.0 | 14.3 | 316 | 324 | 307 |
| 2010 | 19.4 | 24.1 | 12.3 | 284 | 331 | 265 |
| 2011 | 21.3 | 23.8 | 18.6 | 267 | 296 | 254 |
| 2016 | 22.7 | 24.8 | 18.6 | 275 | 299 | 260 |
| 2017 | 22.1 | 23.2 | 18.8 | 272 | 294 | 263 |
| 2018 | 22.8 | 24.8 | 13.9 | 275 | 315 | 253 |
| 2019 | 23.1 | 24.3 | 18.8 | 249 | 269 | 241 |
| Lower Delaware Bay | | | | | | |
| 2010 | 17.2 | 17.7 | 16.7 | 295 | 296 | 295 |
| 2011 | 18.3 | 18.6 | 18.0 | 294 | 295 | 294 |
| 2012 | 18.0 | 18.0 | 17.9 | 299 | 299 | 299 |
| 2016 | 19.6 | 20.1 | 19.0 | 288 | 289 | 288 |
| 2017 | 19.3 | 19.5 | 19.2 | 292 | 293 | 292 |
| 2018 | 12.2 | 12.8 | 11.3 | 321 | 322 | 321 |
| 2019 | 17.5 | 17.8 | 17.2 | 291 | 291 | 291 |

Table 11. Correlations between annual mean catches-per-tow of horseshoe crabs with mean bottom water temperature and ordinal sampling date in the Delaware Bay area survey and the lower Delaware Bay survey, by demographic group. The Delaware Bay area surveys included 14 years, and the lower Delaware Bay surveys included 7 years. Statistics presented include correlation coefficient, r ; T -score; and probability, p . Data are from Tables 1, 3, and 10.

| | Water temperature | | | Ordinal date | | |
|----------------------|-------------------|-------|-------|--------------|-------|-------|
| | r | T | p | r | T | p |
| Delaware Bay area | | | | | | |
| Immature females | -0.511 | -2.06 | 0.062 | 0.734 | 3.75 | 0.003 |
| Immature males | -0.521 | -2.12 | 0.056 | 0.720 | 3.59 | 0.004 |
| Mature females | 0.567 | 2.39 | 0.034 | -0.209 | -0.74 | 0.473 |
| Mature males | 0.559 | 2.34 | 0.038 | -0.188 | -0.66 | 0.520 |
| Newly mature females | 0.092 | 0.32 | 0.755 | 0.257 | 0.92 | 0.375 |
| Newly mature males | 0.318 | 1.16 | 0.268 | 0.009 | 0.03 | 0.974 |
| Lower Delaware Bay | | | | | | |
| Immature females | 0.423 | 1.04 | 0.345 | -0.244 | -0.56 | 0.598 |
| Immature males | 0.301 | 0.71 | 0.511 | -0.113 | -0.26 | 0.809 |
| Mature females | 0.133 | 0.30 | 0.776 | -0.058 | -0.13 | 0.901 |
| Mature males | 0.428 | 1.06 | 0.338 | -0.334 | -0.79 | 0.464 |
| Newly mature females | 0.024 | 0.05 | 0.959 | -0.098 | -0.22 | 0.834 |
| Newly mature males | 0.556 | 1.49 | 0.195 | -0.512 | -1.33 | 0.240 |

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MEMO

To: Delaware Bay ARM Working Group
From: Jim Lyons, USGS Patuxent Wildlife Research Center, Laurel, MD
Re: Red Knot Stopover Population Estimate for 2020
Date: 23 September 2020

1 Acknowledgments

We thank the many volunteers in Delaware and New Jersey who collected mark-resight data in 2020. We are grateful to Henrietta Bellman (Delaware DFW) and Amanda Dey (New Jersey ENSP), and numerous volunteers in Delaware and New Jersey for data entry and data management, and Lena Usyk (bandedbirds.org) for data management.

2 Methods

Red knots have been individually marked at Delaware Bay and other locations with engraved leg flags for many years; each leg flag is engraved with a unique 3-character alphanumeric code (Clark et al. 2005). Mark-resight data (sight records of individually-marked birds and counts of marked and unmarked birds) were collected on the Delaware and New Jersey shores of Delaware Bay according to the methods for mark-resight investigations of Red Knots in Delaware Bay (Lyons 2016).

Surveys to locate leg-flagged birds were conducted on each beach every three days according to the sampling plan (Table 1). During these resighting surveys, agency staff and volunteers surveyed the entire beach and recorded as many alphanumeric combinations as possible.

As in previous years, all flag resightings were validated with physical capture and banding data available in the data repository at <http://www.bandedbirds.org/>. Resightings without a corresponding record of physical capture and banding (i.e., “misread” errors) were not included in the analysis. However, banding data from Argentina are not available in [bandedbirds.org](http://www.bandedbirds.org/); therefore, all resightings of orange engraved flags were included in the analysis without validation using banding data. We also omitted resightings of 21 flagged individuals whose flag codes were accidentally deployed in both New Jersey and South Carolina (A. Dey, pers. comm.) because it is not possible to confirm individual identity in this case.

While searching for birds marked with engraved leg flags, observers also periodically used a scan sampling technique to count marked and unmarked birds in randomly selected portions of Red Knot flocks (Lyons 2016).

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| Table 1. Dates for mark-resight survey periods (3-day sampling occasion) in Delaware Bay. | | | |
|---|-----------|---------------|-----------|
| Survey period | Dates | Survey period | Dates |
| 1 | ≤10 May | 6 | 23-25 May |
| 2 | 11-13 May | 7 | 26-28 May |
| 3 | 14-16 May | 8 | 29-31 May |
| 4 | 17-19 May | 9 | 1-3 June |
| 5 | 20-22 May | 10 | 4-6 June |

To estimate stopover population size, we used the methods of Lyons et al. (2016) to analyze 1) the mark-resight data (flag codes), and 2) data from the scan samples of the marked-ratio. In this “superpopulation” approach, passage population size is estimated using the Jolly-Seber model for open populations, which accounts for the flow-through nature of migration areas and probability of detection during surveys.

In our analyses for Delaware Bay, the days of the migration season were aggregated into 3-day sampling periods (a total of 10 sample periods possible each season, Table 1). Data were aggregated to 3-day periods because this is the amount of time necessary to complete mark-resight surveys on all beaches in the study (a mark-resight data summary is provided in Appendix 1).

With the mark-resight superpopulation approach, we estimated the number of birds that were carrying leg flags, and then adjusted this number to account for unmarked birds using the estimated proportion of the population with flags. The estimated proportion with leg flags is thus an important statistic. We used the scan sample data (i.e., the counts of marked birds and the number checked for marks) and a binomial model to estimate the proportion of the population that is marked. To account for the random nature of arrival of marked birds in the bay and the addition of new marks during the season, we implemented the binomial model as a generalized linear mixed model with a random effect for the sampling period. More detailed methods are provided in Lyons et al. (2016) and Appendix 2.

3 Summary of Mark-resight and Count Data Collected in 2020

Survey effort was limited in early May 2020 due to health and safety concerns during the novel coronavirus pandemic.

Mark-resight encounter data.—With birds from six countries reported, the 2020 Red Knot mark-resight database included a total of 1,587 individual birds recorded at least once by observers in Delaware Bay (Table 2).

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Because little or no survey effort was conducted during period 10 at the end of the season (4-6 June) in 2020, our analyses were restricted to periods 1-9, during which a total of 1,551 individual birds were recorded at least once in Delaware Bay. The number of marked birds detected and available for analysis in 2020 was approximately 50% lower than the number in the 2019 analysis ($n = 3,072$) and 60% lower than the number detected and used for analysis in 2018 ($n = 3,820$ birds).

One assumption of the mark-resight approach is that individual identity of marked birds is recorded without error (see Lyons 2016 for discussion of all model assumptions). As noted above, some field-recording errors are evident when sight records are compared to physical capture records available from bandedbirds.org; any engraved flag reported by observers that does not have a corresponding record of physical capture is omitted. Field observers submitted 3,364 resightings in 2020; 100 were not valid (i.e., no corresponding banding data), for an overall misread rate of 2.9%. These invalid resightings were removed before analysis, but a second type of “false positive” is still possible, i.e., false positive detection of flags that were deployed prior to 2020 but were not in fact present in Delaware Bay in 2020. It is not possible to identify this second type of false positive by cross-referencing to physical captures (banding data) or other QA/QC methods.

Marked-ratio data.—In 2020, 734 marked-ratio scan samples were collected: 376 scan samples in Delaware and 358 in New Jersey (Appendix 3).

Aerial and ground count data.—Ground surveys were conducted on 24 and 26 May 2020 (Table 3; data provided by A. Dey, New Jersey Division of Fish and Wildlife, Endangered and Nongame Species Program).

4 Summary of 2020 Migration

The pattern of arrivals at Delaware Bay in 2020 suggests early arrival by approximately 55% of the passage population. During the first resighting survey period of the year (between 8 and 10 May), observers detected 257 marked individuals. Resighting data suggest that many of these early arrivals did not remain at Delaware Bay long (see below). Another wave, approximately 30% of the stopover population, arrived at Delaware Bay during sampling periods 4 and 5, i.e., between 17 and 22 May (Fig. 1a).

Stopover persistence is the probability that a bird present in the bay during sampling period i is present in the bay at sampling period $i + 1$. Estimated stopover persistence was low in the first sampling period; many of the birds present at the beginning of the season were not seen again and likely departed the stopover shortly after arriving (Fig. 1b and Appendix 1). From 13 to 18 May (periods 2-4), stopover persistence was relatively high. Around 21 and 24 May, stopover persistence declined and many birds departed the stopover. After 24 May, stopover persistence was very low; most birds had departed the

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study area by the end of May. Following Lyons et al. (2016), we used the Jolly-Seber model to estimate stopover duration. In 2020, estimated average stopover duration was 10.7 days (95% credible interval 9.9 – 11.7 days), a shorter stopover duration than in 2019 (12.1 days).

Probability of resighting in 2020 was lower than in recent years. Resighting probability was approximately 10-30% for much of the season, before increasing to about 60% around 27 May and remaining high for the remainder of the season (Fig. 1c).

The estimated proportion of the 2020 stopover population with marks (leg flags) was 0.096 (95% CI 0.088–0.103, Fig. 2)

5 Stopover Population Estimation

The passage population size in 2020 was estimated at 40,444 (95% credible interval: 33,627–49,966). This superpopulation estimate accounts for turnover in the population and probability of detection. The 2020 estimate is slightly lower than estimated population size in 2018 and 2019 (Table 4) and the confidence interval is wider. The uncertainty in the population estimate is due in part to the low probability of resighting in 2020 compared to other years, likely due to limited sampling effort that was possible during the coronavirus pandemic. Probability of detection was especially low at the beginning of the season (Fig. 1c) due in part to restrictions on activity in public spaces in early May due to the pandemic.

The time-specific stopover population estimates in 2020 started off high in sampling period 1 (23,640) based on evidence of early arrivals, then declined to less than 10,000 in period 2 (Fig. 1d). Following period 2, there was a steady increase in the population until period 5 (21 May) as birds arrived and remained in the study area. Population size peaked again at approximately 17,700 near 21 May. The stopover population then declined steadily until nearly all birds had departed the study area in early June (Fig. 1d).

6 References

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| Table 2. Number of flags detected in 2020 by banding location (flag color). | | |
|---|---|-------------|
| <i>Banding location (flag color)</i> | <i>No. flagged individuals detected</i> | |
| | <i>2019</i> | <i>2020</i> |
| U.S. (lime green) | 2,368 | 1255 |
| U.S. (dark green) | 351 | 161 |
| Argentina (orange) | 216 | 89 |
| Canada (white) | 156 | 52 |
| Brazil (dark blue) | 35 | 21 |
| Chile (red) | 10 | 9 |
| Total | 3,136 | 1,587 |

Table 3. Number of Red Knots detected during aerial and ground surveys of Delaware Bay in 2020. Data provided by A. Dey, New Jersey Division of Fish and Wildlife, Nongame and Endangered Species Program.

| | Delaware | New Jersey | Total |
|-----------------------|----------|------------|--------|
| Aerial Surveys | | | |
| None in 2020 | | | |
| Ground Surveys | | | |
| 24 May 2020 | 1,293 | 18,104 | 19,397 |
| 26 May 2020 | 632 | 5441 | 6,073 |

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Table 4. Stopover (passage) population estimate using mark-resight methods compared to peak-count index using aerial- or ground-survey methods. The mark-resight estimate of stopover (passage) population accounts for population turnover during migration; peak-count index, a single count on a single day, does not account for turnover.

| Year | Stopover population ^a (mark-resight N^*) | 95% CI Stopover pop- ulation N^* | Peak-count index [aerial (A) or ground (G)] |
|------|---|--|---|
| 2011 | 43,570 | (40,880 – 46,570) | 12,804 (A) ^b |
| 2012 | 44,100 | (41,860 – 46,790) | 25,458 (G) ^c |
| 2013 | 48,955 | (39,119 – 63,130) | 25,596 (A) ^d |
| 2014 | 44,010 | (41,900 – 46,310) | 24,980 (A) ^c |
| 2015 | 60,727 | (55,568 – 68,732) | 24,890 (A) ^c |
| 2016 | 47,254 | (44,873 – 50,574) | 21,128 (A) ^b |
| 2017 | 49,405 ^e | (46,368 – 53,109) | 17,969 (A) ^f |
| 2018 | 45,221 | (42,568 – 49,508) | 32,930 (A) ^b |
| 2019 | 45,133 | (42,269 – 48,393) | 30,880 (A) ^g |
| 2020 | 40,444 | (33,627 – 49,966) | 19,397 (G) ^c |

^a passage population estimate for entire season, including population turnover

^b 23 May

^c 24 May

^d 28 May

^e Data management procedures to reduce bias from recording errors in the field; data from observers with greater than average misread rate were not included in the analysis

^f 26 May

^g 22 May

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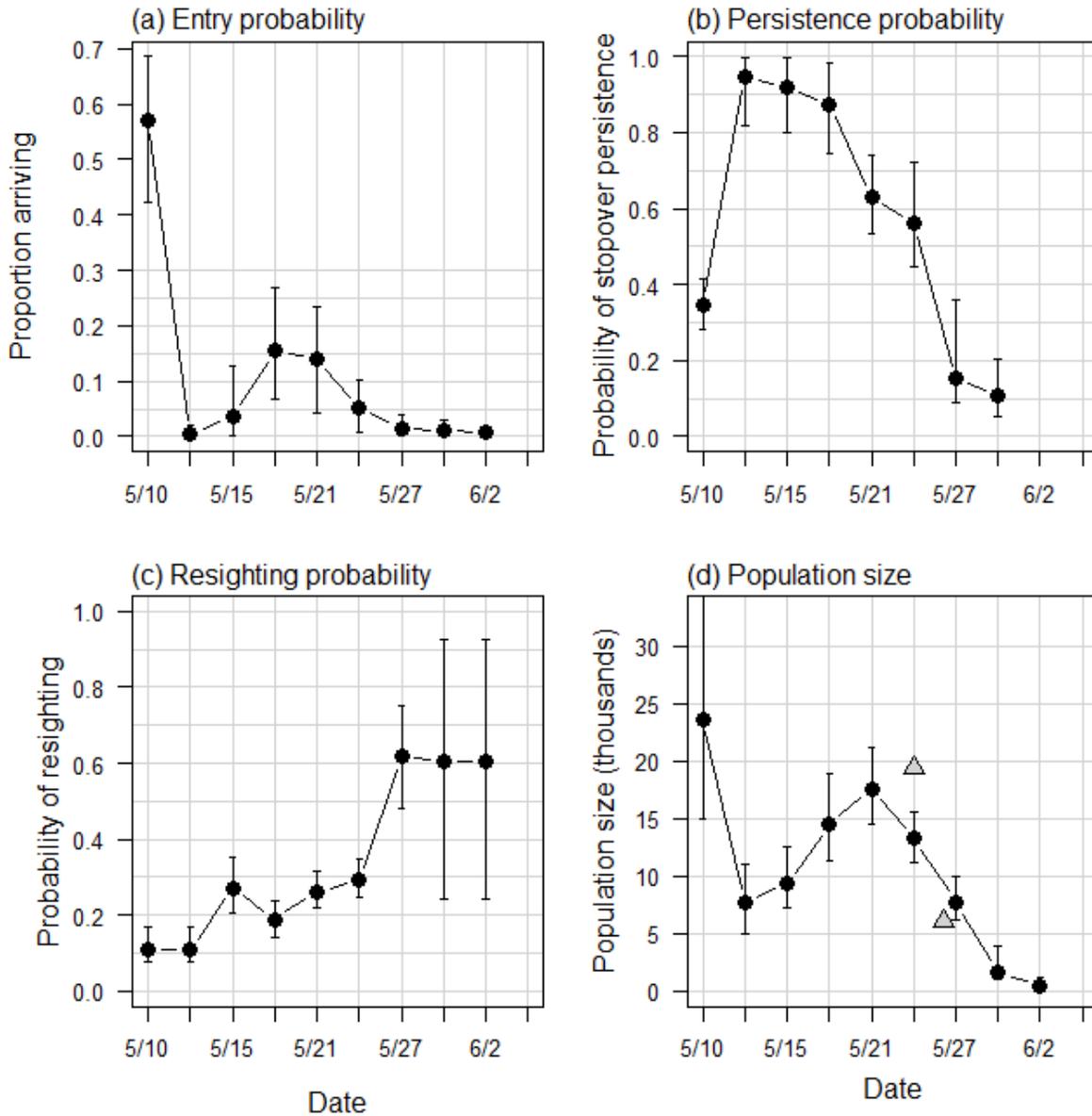


Figure 1. Estimated Jolly-Seber (JS) model parameters from a mark-resight study of Red Knots in Delaware Bay in 2020: (a) proportion of stopover population arriving at Delaware Bay, (b) stopover persistence, (c) probability of resighting, and (d) time-specific stopover population size. Dates on the x-axis represent sampling occasions (3-day survey periods). Triangles in (d) are total ground counts conducted on 24 and 26 May 2020 (no aerial survey in 2020).

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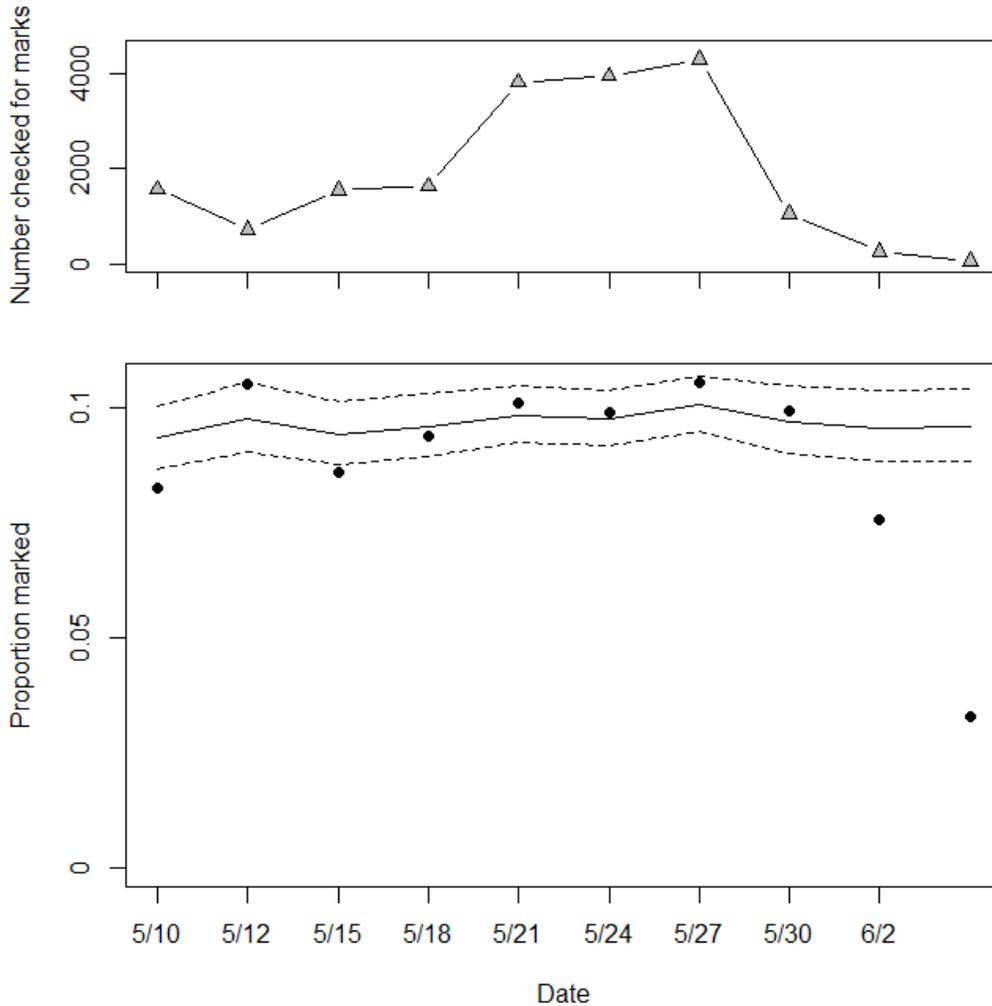


Figure 2. Estimated proportion of the Delaware Bay stopover population carrying leg flags in 2020. The marked proportion was estimated from marked-ratio scan samples for each 3-day sampling period. The dates for the sampling periods are shown in Table 1. Sample size (number scanned, i.e., checked for marks) for each sample period is shown in the upper panel. The estimated proportion marked at each sample occasion (bottom panel) was estimated with the generalized linear mixed model described in Appendix 2. Solid and dashed lines are estimated median proportion marked and 95% credible interval; filled circles show (number with marks/number scanned).

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Appendix 1. Summary of 2020 mark-resight data (“m-array”). NR = never resighted.

| Sample | Dates | Resighted | Next resighted at sample | | | | | | | | NR |
|--------|-----------|-----------|--------------------------|----|----|----|----|-----|----|---|-----|
| | | | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| 1 | 8-10 May | 257 | 10 | 26 | 8 | 19 | 10 | 7 | 0 | 0 | 177 |
| 2 | 11-13 May | 56 | | 16 | 4 | 0 | 3 | 4 | 1 | 0 | 28 |
| 3 | 14-16 May | 235 | | | 47 | 31 | 20 | 18 | 2 | 0 | 117 |
| 4 | 17-19 May | 259 | | | | 67 | 22 | 26 | 1 | 0 | 143 |
| 5 | 20-22 May | 455 | | | | | 87 | 67 | 4 | 0 | 297 |
| 6 | 23-25 May | 377 | | | | | | 133 | 6 | 0 | 238 |
| 7 | 26-28 May | 483 | | | | | | | 45 | 1 | 437 |
| 8 | 29-31 May | 96 | | | | | | | | 7 | 89 |
| 9 | 1-3 June | | | | | | | | | | |

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Appendix 2. Statistical Methods to Estimate Stopover Population Size Using Mark-Resight Data and Counts of Marked Birds

We converted the observations of marked birds into encounter histories, one for each bird, and analyzed the encounter histories with a Jolly-Seber (JS) model (Jolly 1965, Seber 1965, Crosbie and Manly 1985, Schwarz and Arnason 1996). The JS model includes parameters for recruitment (β), survival (ϕ), and capture (p) probabilities; in the context of a mark-resight study at a migration stopover site, these parameters are interpreted as probability of arrival to the study area, stopover persistence, and resighting, respectively. Stopover persistence is defined as the probability that a bird present at time t remains at the study area until time $t + 1$. The Crosbie and Manly (1985) and Schwarz and Arnason (1996) formulation of the JS model also includes a parameter for superpopulation size, which in our approach to mark-resight inferences for stopover populations is an estimate of the marked (leg-flagged) population size.

We chose to use 3-day periods rather than days as the sampling interval for the JS model given logistical constraints on complete sampling of the study area; multiple observations of the same individual in a given 3-day period were combined for analysis. A summary (m-array) of the mark-resight data is presented in an appendix.

We made inference from a fully-time dependent model; arrival, persistence, and resight probabilities were allowed to vary with sampling period [$\beta_t \phi_t p_t$]. In this model, we set $p_1 = p_2$ and $p_{K-1} = p_K$ (where K is the number of samples) because not all parameters are estimable in the fully-time dependent model (Jolly 1965, Seber 1965, Crosbie and Manly 1985, Schwarz and Arnason 1996).

We followed the methods of Royle and Dorazio (2008) and Kéry and Schaub (2012, Chapter 10) to fit the JS model using the restricted occupancy formulation. Royle and Dorazio (2008) use a state-space formulation of the JS model with parameter-expanded data augmentation. For parameter-expanded data augmentation, we augmented the observed encounter histories with all-zero encounter histories ($n = 2000$) representing potential recruits that were not detected (Royle and Dorazio 2012). We followed Lyons et al. (2016) to combine the JS model with a binomial model for the counts of marked and unmarked birds in an integrated Bayesian analysis. Briefly, the counts of marked birds (m_s) in the scan samples are modeled as a binomial random variable:

$$m_s \sim \text{Bin}(C_s, \pi), \quad (1)$$

where m_s is the number of marked birds in scan sample s , C_s is the number of birds checked for marks in scan sample s , and π is the proportion of the population that is marked. Total stopover population size \widehat{N}^* is estimated by

$$\widehat{N}^* = \widehat{M}^* / \widehat{\pi} \quad (2)$$

where \widehat{M}^* is the estimate of marked birds from the J-S model and $\widehat{\pi}$ is the proportion of the population that is marked (from Eq. 1). Estimates of marked subpopulation sizes at each resighting occasion t (\widehat{M}_t^*) are available as derived parameters in the analysis. We calculated an estimate of population size at each mark-resight sampling occasion \widehat{N}_t^* using \widehat{M}_t^* and $\widehat{\pi}$ as in equation 2.

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To better account for the random nature of the arrival of marked birds and addition of new marks during the season, we used a time-specific model for proportion with marks in place of equation 1 above:

$$\begin{aligned}
 m_{s,t} &\sim \text{Binomial}(C_{s,t}, \pi_t) & (3) \\
 \text{for } s &\text{ in } 1, \dots, n_{\text{samples}} \text{ and } t \text{ in } 1, \dots, n_{\text{occasions}} \\
 \text{logit}(\pi_t) &= \alpha + \delta_t \\
 \delta_t &\sim \text{Normal}(0, \sigma_{\text{occasions}}^2)
 \end{aligned}$$

where m_s is the number of marked birds in scan sample s , C_s is the number of birds checked for marks in scan sample s , δ_t is a random effect time of sample s , and π_t is the time-specific proportion of the population that is marked. Total stopover population size \widehat{N}^* was estimated by summing time-specific arrivals of marked birds to the stopover (B_t) and expanding to include unmarked birds using estimates of proportion marked:

$$\widehat{N}^* = \sum \widehat{B}_t / \pi_t$$

Time-specific arrivals of marked birds are estimated from the Jolly-Seber model using $\widehat{B}_t = \widehat{\beta}_t \widehat{M}^*$ where \widehat{M}^* is the estimate of the number of marked birds and $\widehat{\beta}_t$ is the fraction of the population arriving at time t .

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Appendix 3. Number of marked-ratio scan samples.

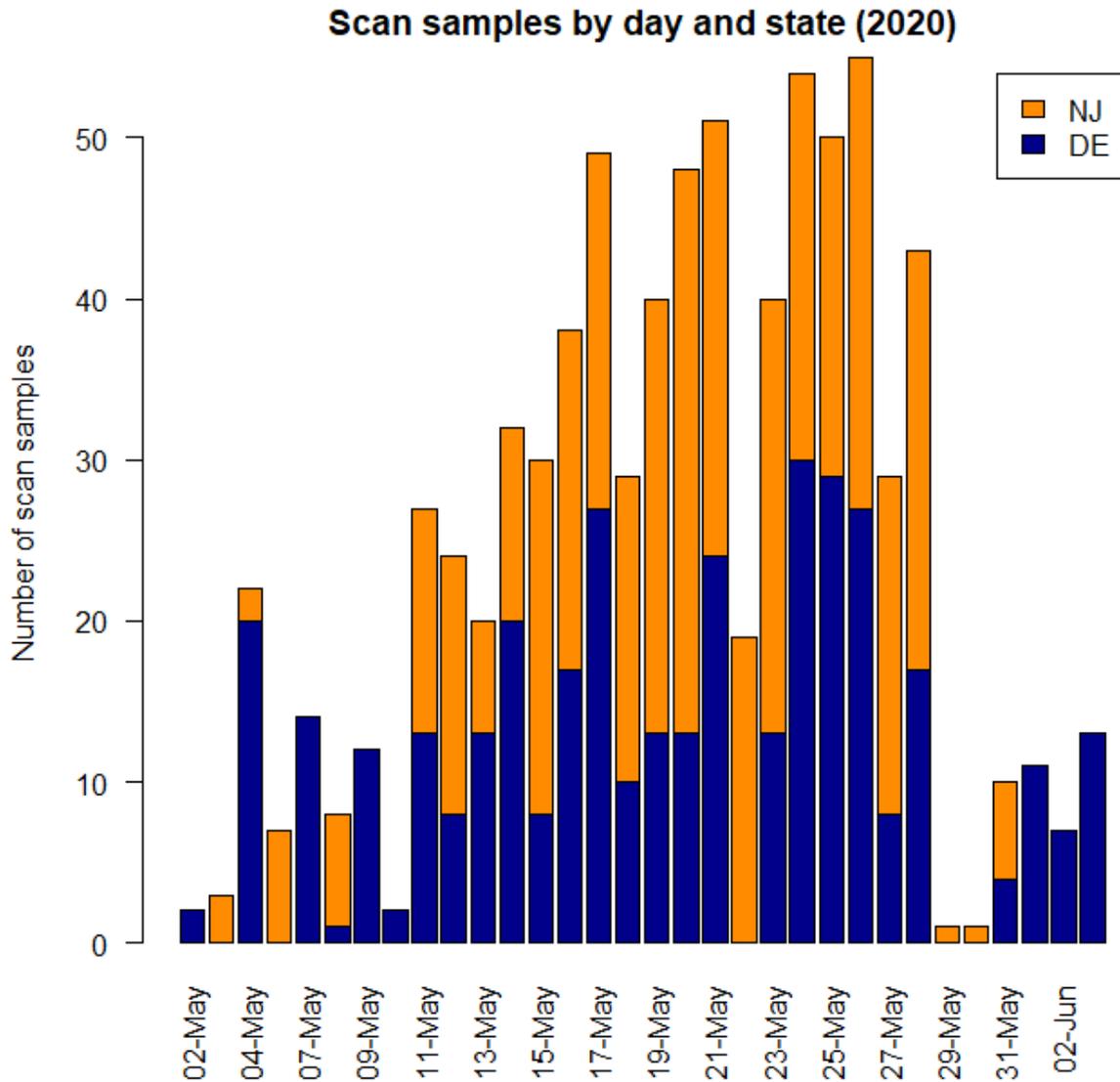


Figure A3.1. Number of marked-ratio scan samples (n = 734) collected in Delaware Bay in 2020 by field crews in Delaware (blue) and New Jersey (orange) and date. In 2020, observers in Delaware and New Jersey collected 376 and 358 scan samples, respectively.

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ATLANTIC STATES MARINE FISHERIES COMMISSION

REVIEW OF THE INTERSTATE FISHERY MANAGEMENT PLAN

HORSESHOE CRAB
(Limulus polyphemus)

2019 Fishing Year



Prepared by the Plan Review Team

October 2020



Sustainable and Cooperative Management of Atlantic Coastal Fisheries

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I. Status of the Fishery Management Plan

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

Goals and Objectives

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

2.0. Goals and Objectives

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

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

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

- (a) prevent overfishing and establish a sustainable population;*
- (b) achieve compatible and equitable management measures among jurisdictions throughout the fishery management unit;*

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- (c) establish the appropriate target mortality rates that prevent overfishing and maintain adequate spawning stocks to supply the needs of migratory shorebirds;*
- (d) coordinate and promote cooperative interstate research, monitoring, and law enforcement;*
- (e) identify and protect, to the extent practicable, critical habitats and environmental factors that limit long-term productivity of horseshoe crabs;*
- (f) adopt and promote standards of environmental quality necessary for the long-term maintenance and productivity of horseshoe crabs throughout their range; and,*
- (g) establish standards and procedures for implementing the Plan and criteria for determining compliance with Plan provisions.*

Fishery Management Plan Summary

The framework for managing horseshoe crabs along the Atlantic coast was approved in October 1998 with the adoption of the Interstate Fishery Management Plan (FMP) for Horseshoe Crabs. The goal of this plan is to conserve and protect the horseshoe crab resource to maintain sustainable levels of spawning stock biomass to ensure its continued role in the ecology of coastal ecosystems while providing for continued use over time.

In 2000, the Horseshoe Crab Management Board approved Addendum I to the FMP. Addendum I established a state-by-state cap on horseshoe crab bait landings at 25 percent below the reference period landings (RPL's), and *de minimis* criteria for those states with a limited horseshoe crab fishery. Those states with more restrictive harvest levels (Maryland and New Jersey) were encouraged to maintain those restrictions to provide further protection to the Delaware Bay horseshoe crab population, recognizing its importance to migratory shorebirds. Addendum I also recommended that the National Marine Fisheries Service (NMFS) prohibit the harvest of horseshoe crabs in federal waters (3-200 miles offshore) within a 30 nautical mile radius of the mouth of Delaware Bay, as well as prohibit the transfer of horseshoe crabs in federal waters. A horseshoe crab reserve was established on March 7, 2001 by NMFS in the area recommended by ASMFC. This area is now known as the Carl N. Shuster Jr. Horseshoe Crab Reserve.

In 2001, the Horseshoe Crab Management Board approved Addendum II to the FMP. The purpose of Addendum II was to provide for the voluntary transfer of harvest quotas between states to alleviate concerns over potential bait shortages on a biologically responsible basis. Voluntary quota transfers require Technical Committee review and Management Board approval.

In 2004, the Board approved Addendum III to the FMP. The addendum sought to further the conservation of horseshoe crab and migratory shorebird populations in and around the Delaware Bay. It reduced harvest quotas and implemented seasonal bait harvest closures in New Jersey, Delaware, and Maryland, and revised monitoring components for all jurisdictions.

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Addendum IV was approved in 2006. It further limited bait harvest in New Jersey and Delaware to 100,000 crabs (male only) and required a delayed harvest in Maryland and Virginia. Addendum V, adopted in 2008, extended the provisions of Addendum IV through October 31, 2010.

In early 2010, the Board initiated Draft Addendum VI to consider management options that would follow expiration of Addendum V. The Board voted in August 2010 to extend the Addendum V provisions, via Addendum VI, through April 30, 2013. The Board also chose to include language allowing them to replace Addendum VI with another Addendum during that time, in anticipation of implementing an Adaptive Resource Management (ARM) Framework.

The Board approved Addendum VII in February 2012. This addendum implemented an ARM framework for use during the 2013 fishing season and beyond. The framework considers the abundance levels of horseshoe crabs and shorebirds in determining the optimized bait harvest level for the Delaware Bay states of New Jersey, Delaware, Maryland, and Virginia (east of the COLREGS).

II. Status of the Stock and Assessment Advice

A benchmark stock assessment was completed and approved for management use in 2019. The assessment report is available at:

http://www.asmfc.org/uploads/file/5cd5d6f1HSCAssessment_PeerReviewReport_May2019.pdf

This assessment was the first to successfully apply a stock assessment model to a component of the horseshoe crab stock. A Catch Multiple Survey Analysis (CMSA) model, a stage-based model that tracks progression of crab abundances from pre-recruits to full recruits to the fishery, was applied to female crabs in the Delaware (DE) Bay region (New Jersey-Virginia). This model estimated regional female crab abundance using relative abundance information from the Virginia Tech Benthic Trawl Survey, New Jersey Ocean Trawl Survey, and Delaware Adult Trawl Survey, and estimates of mortality including natural mortality, commercial bait harvest, commercial discard mortality, and mortality associated with biomedical use. While reference points were not approved to determine stock status, the CMSA population estimates were recommended as the best estimates for female horseshoe crab abundance in the DE Bay region.

The base CMSA model population estimates show an increase in the number of female crabs in the DE Bay region since 2012, when the ARM Framework was established via Addendum VII. This increasing trend is supported by positive trends in regional fishery-independent surveys during this time period. Population estimates from the base model are not publicly available due to the inclusion of confidential biomedical data. However, a sensitivity run assuming no biomedical mortality is publicly viewable, and these estimates are not significantly different from the base model results. Estimates of discard mortality from the Northeast Fisheries Observer Program (NEFOP) were also included in the base CMSA model and indicate that

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discard mortality could be significant, of similar or greater magnitude than mortality due to bait harvest. Population estimates from the CMSA are currently being considered for incorporation into the ARM Framework, which is applied annually to specify bait harvest quotas for the DE Bay region.

Autoregressive Integrated Moving Average (ARIMA) models, similar to those used in previous assessments, were applied to all regions. ARIMA models were fit to fishery-independent survey indices trends of abundance in each of the regional horseshoe crab populations: Northeast (Massachusetts-Rhode Island), New York (Connecticut-New York), DE Bay, and Southeast (North Carolina-Florida). No definitions for overfishing or overfished status have been adopted by the Management Board. However, the assessment characterized the status of each regional and the coastwide population based on the percentage of surveys within a region (or coastwide) having a >50% probability of the terminal year being below the ARIMA reference point. The ARIMA reference point was the 1998 index for each survey. “Poor” status was defined as >66% of surveys meeting this criterion, “Good” status was defined as <33% of surveys, and “Neutral” status was defined as 34–65% of surveys. Based on these criteria, stock status was neutral for the Northeast region, poor for the New York region, neutral for the Delaware Bay region, and good for the Southeast region. Coastwide, abundance has fluctuated through time with many surveys decreasing after 1998 but increasing in recent years. The coastwide status includes surveys from all regions and indicates a neutral trend, likely due to a combination of positive and negative trends.

III. Status of the Fishery

Bait Fishery

For most states, the bait fishery is open year round. However, because of seasonal horseshoe crab movements (to the beaches in the spring; deeper waters and offshore in the winter), the fishery operates at different times along the coast. New Jersey has prohibited commercial harvest of horseshoe crabs in state waters since 2006. State waters of Delaware are closed to horseshoe crab harvest and landing from January 1st through June 7th each year, and other state horseshoe crab fisheries are regulated with various season/area closures.

Reported coastwide bait landings in 2019 remained well below the coastwide quota (Table 1, Figure 1). Bait landings in 2019 totaled 660,091, excluding unreported landings from Massachusetts and confidential landings from Rhode Island. This total represents a slight decrease from 2018, however, it is likely that actual 2019 landings are greater than 2018 due to the missing data from Massachusetts. Landings increased in all states except Connecticut, with the most significant increases occurring in Maryland (119% increase from 2018) and Delaware (30% increase from 2018). Delaware harvested 5,014 crabs above their adjusted quota in 2019, and reduced their quota for 2020 from their allocated 162,136 male crabs to 157,122 male crabs.

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Reported coastwide landings since 1998 show more male than female horseshoe crabs were harvested annually. Several states presently have sex-specific restrictions in place which limit or ban the harvest of females. The American eel pot fishery prefers egg-laden female horseshoe crabs as bait, while the whelk (conch) pot fishery is less dependent on females. States with greater than 5% of coastal landings are required to report sex for at least a portion of their bait harvest, and within these states, 5.3% of reported landings were unclassified in 2019.

The hand, trawl, and dredge fisheries typically account for the majority of reported commercial horseshoe crab bait landings. Other gears that account for the remainder of the harvest include rakes, hoes, and tongs, fixed nets, and gill nets.

Table 1. Reported commercial horseshoe crab bait landings by jurisdiction. Note: Landings from 2017 and earlier were updated to numbers validated by all jurisdictions for use in the 2019 benchmark stock assessment.

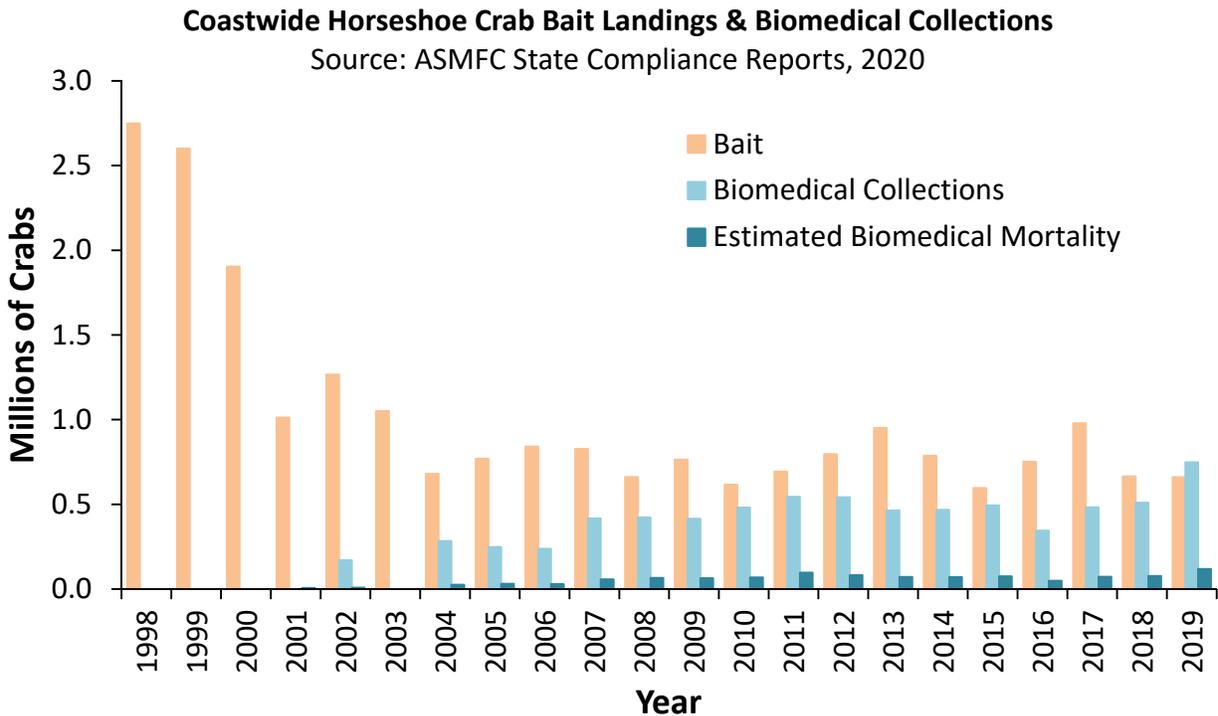
| Jurisdiction | ASMFC Quota 2019 | State Quota 2019 | 2019 | 2018 | 2017 | 2016 | 2015 |
|--------------|------------------|------------------|----------------|----------------|----------------|----------------|----------------|
| MA | 330,377 | 165,000 | *** | 159,002 | 134,707 | 110,399 | 117,611 |
| RI | 26,053 | 8,398 | C | 1,889 | 3,415 | 20,676 | 7,867 |
| CT | 48,689 | 48,689 | 17,588 | 21,870 | 19,944 | 21,945 | 19,632 |
| NY | 366,272 | 150,000 | 167,181 | 138,223 | 195,717 | 176,632 | 145,324 |
| NJ* | 162,136 | 0 | 0 | 0 | 0 | 0 | 0 |
| DE* | 162,136 | 159,211 | 164,225 | 126,065 | 201,132 | 109,836 | 151,262 |
| MD* | 255,980 | 255,980 | 145,907 | 66,647 | 237,146 | 157,013 | 27,494 |
| PRFC | 0 | - | 0 | 0 | 0 | 0 | 0 |
| VA** | 172,828 | 172,828 | 151,727 | 140,584 | 160,331 | 128,848 | 102,235 |
| NC | 24,036 | 24,036 | 13,463 | 10,998 | 25,161 | 25,197 | 24,839 |
| SC | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| GA | 29,312 | 29,312 | 0 | 0 | 0 | 0 | 0 |
| FL | 9,455 | 9,455 | 0 | C | 1,394 | 689 | 264 |
| TOTAL | 1,587,274 | 1,022,909 | 660,091 | 665,278 | 978,947 | 751,235 | 596,528 |

*Male-only harvest

**Virginia harvest east of the COLREGS line is limited to 81,331 male-only crabs under the ARM harvest package #3. Virginia data shown are preliminary. Virginia harvest east of the COLREGS in 2019 was 65,113 crabs. The total above represents harvest on both sides of the COLREGS line.

***2019 bait landings from Massachusetts are unavailable.

Figure 1. Number of horseshoe crabs harvested for bait and collected for biomedical purposes, 1998-2019.



* Biomedical collection numbers, which are annually reported to the Commission, include all horseshoe crabs brought to bleeding facilities except those that were harvested as bait and counted against state quotas.

* Most of the biomedical crabs collected are returned to the water after bleeding; a 15% mortality rate is assumed for all bled crabs that are released. This number plus observed mortality reported annually by bleeding facilities via state compliance reports is noted in the above graph as 'Estimated Biomedical Mortality.'

Biomedical Use

The horseshoe crab is an important resource for research and manufacture of materials used for human health. There are five companies along the Atlantic Coast that process horseshoe crab blood for use in manufacturing Limulus Amebocyte Lysate (LAL): Associates of Cape Cod, Massachusetts; Lonza (formerly Cambrex Bioscience), Limuli Laboratories, New Jersey; Wako Chemicals, Virginia; and Charles River Endosafe, South Carolina. Addendum III requires states where horseshoe crabs are collected for biomedical bleeding to collect and report total collection numbers, crabs rejected, crabs bled (by sex) and to characterize mortality.

The Plan Review Team (PRT) annually calculates total coastwide collections and estimates mortality associated with biomedical use. In 2019, 748,376 crabs coastwide were collected for biomedical for bleeding (Table 2). This does not include bait crabs that were counted against state quotas and bled. This represents a 46% increase from 2018. Males accounted for 39% of total biomedical collections and females comprised 61%. Some crabs were rejected prior to bleeding due to mortality, injuries, slow movement, and size (mortality observed while crabs

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were going through the biomedical process is included under ‘Observed Mortality’ in Table 2). Approximately 2% of crabs collected solely for biomedical purposes were observed and reported as dead from the time of collection up to the point of bleeding.

During the 2019 benchmark stock assessment, literature estimates were analyzed to estimate post-bleeding mortality. Although many of these studies did not implement biomedical best practices, these values are the only available estimates of mortality experienced after bleeding. Post-bleeding mortality was estimated at 15%. Tagging data was used in the assessment to compare survivorship between crabs that were and were not bled. These results indicated some decrease in short-term survivorship, but greater long-term survivorship for bled crabs. These results are likely attributable to the culling process used by biomedical facilities to select healthy crabs for bleeding.

Post-bleeding mortality, calculated as 15% of the number of bled biomedical-only crabs (not sold for bait), for 2019 was estimated as 102,758 crabs. Total mortality (observed mortality plus post-bleeding mortality) of biomedical crabs for 2019 was estimated as 118,411 crabs. This represents approximately 15% of the 2019 total directed use mortality (778,502 crabs), which includes both total biomedical mortality and removals for bait.

The 1998 FMP establishes a biomedical mortality threshold of 57,500 crabs that, if exceeded, requires the Board to consider management action. Based on an estimated total mortality of 118,411 crabs, this threshold was exceeded in 2019, as it has been for 12 of the last 13 years. Estimated mortality from biomedical use in 2019 represents the highest value in the time series both in numbers of crabs (a 53% increase from 2018) and as a percentage of total directed use mortality. Results of the 2019 Benchmark Stock Assessment indicate that levels of biomedical mortality prior to 2017 (the terminal year of data used in the assessment), which were relatively consistent between 2013-2018 (with the exception of 2016), did not have a significant effect on horseshoe crab population estimates or fishing mortality in the Delaware Bay region.

Table 2. Numbers of horseshoe crabs collected, bled, and estimated mortality for the biomedical industry. Numbers shown are for crabs collected solely for biomedical use. Mortality of bled crabs that later enter the bait industry is included in bait harvest.

| Year | Crabs Collected | Crabs Bled | Post-Bleeding Mortality | Observed Mortality | Total Mortality |
|-------|-----------------|------------|-------------------------|--------------------|-----------------|
| 2010 | 480,914 | 412,781 | 61,917 | 6,829 | 68,746 |
| 2011 | 545,164 | 486,850 | 73,028 | 24,139 | 97,166 |
| 2012 | 541,956 | 497,956 | 74,693 | 7,370 | 82,063 |
| 2013 | 464,657 | 440,402 | 66,060 | 5,447 | 71,507 |
| 2014 | 467,897 | 432,340 | 64,851 | 5,658 | 70,509 |
| 2015 | 494,123 | 464,506 | 69,676 | 5,362 | 75,038 |
| 2016* | 344,495 | 318,523 | 47,778 | 1,004 | 48,782 |
| 2017 | 483,245 | 444,115 | 66,617 | 6,056 | 72,674 |
| 2018 | 510,407 | 479,142 | 71,871 | 5,588 | 77,459 |
| 2019 | 748,376 | 685,052 | 102,758 | 15,653 | 118,411 |

*Some biomedical collections were reduced in 2016 due to temporary changes in production.

IV. Status of Research and Monitoring

The Horseshoe Crab FMP set forth an ambitious research and monitoring strategy in 1999 and again in 2004 to inform future management decisions. Despite limited time and funding there are many accomplishments since 1999. These accomplishments were largely made possible by forming partnerships between state, federal and private organizations, and the support of hundreds of public volunteers.

Addendum III Monitoring Program

Addendum III requires affected states to carry out three monitoring components:

All states who do not qualify for *de minimis* status report monthly harvest numbers and subsample a portion of the catch for sex and harvest method. In addition, those states with annual landings above 5% of the coastwide harvest report all landings by sex and harvest method. Although states with annual landings less than 5% of annual coastwide harvest are not required to report landings by sex, the PRT recommends all states require sex-specific reporting for horseshoe crab harvest.

States with biomedical collections are required to monitor and report collection numbers and mortality associated with the transportation and bleeding of the crabs.

States must identify spawning and nursery habitat along their coasts. All states have completed this requirement, and a few continue active monitoring programs.

Virginia Tech Research Projects

The Virginia Tech Horseshoe Crab Trawl Survey (VT Survey) was not conducted in 2013-2015, due to a lack of funding, but was conducted in 2016-2019, and is in progress for 2020. The 2019 survey results indicate decreases from 2018 across all demographic groups (immature, newly mature, and mature females and males) in the coastal Delaware Bay area (DBA). It is noted that the 2019 Delaware Bay spawning survey was conducted from late August to late September. The average bottom water temperature in 2019 was the highest in the time series. The 2019 lower Delaware Bay (LDB) survey was conducted in mid-October, nearly a month earlier than in 2018, and later than the DBA survey. As a result, the average LDB water temperature was 5.6 °C cooler than the average DBA temperature. Horseshoe crabs that were within the Bay during most of the DBA survey because of the warm temperature, and not enumerated, may have moved out of the Bay by the time the LDB survey was conducted, and again not enumerated. This may have resulted in underestimates of horseshoe crabs in both survey areas and contributed to the apparent decrease in mature M:F ratios in both survey areas since 2016. Mean catch-per-tow of mature males and females in the coastal Delaware Bay area have shown increasing trends since 2002.

The Adaptive Resource Management (ARM) Working Group will use the indices from this survey to estimate horseshoe crab abundance for the ARM model, which specifies harvest limits for the upcoming year. The VT Survey for 2020 is currently in progress and is funded for 2021. Funding sources beyond 2021 continue to be explored.

Spawning Surveys

The redesigned Delaware Bay spawning survey was completed for the 21st year in 2019. Baywide female spawning activity over the past 21 years showed no significant trend; though, the slope was slightly negative. Baywide male spawning activity showed a significant increasing trend. At the state level, trends in male spawning exhibited a significant positive slope in both states. The trend from the index of female spawning activity exhibited a slightly negative slope in Delaware, and a slightly positive slope in New Jersey. Neither was statistically significant. Female spawning activity in 2019 peaked during the third lunar period sampled (June 1 – June 5). The annual baywide sex ratio was 5.5:1 (Male: Female) the second highest ratio in the time series. The range of annual observed sex ratios on the Delaware Bay spawning beaches over the time series has ranged from 3.1:1 to 5.6:1.

Tagging Studies

The USFWS continues to maintain a toll-free telephone number and a website for reporting horseshoe crab tag returns and assists interested parties in obtaining tags. Tagging work continues to be conducted by biomedical companies, research organizations, and other parties involved in outreach and spawning surveys. Beginning with the 2013 tagging season, additional efforts were implemented to ensure that current tagging programs are providing data that benefits the management of the coastwide horseshoe crab population. All existing and new tagging efforts are required to submit an annual application to be considered for the USFWS tagging program and all participants must submit an annual report along with their tagging and resighting data to indicate how their tagging program addresses at least one of the following objectives: determine horseshoe crab sub-population structure, estimate horseshoe crab movement and migration rates, and/or estimate survival and mortality of horseshoe crabs. The PRT recommends all tagging programs approved by the states coordinate with the USFWS tagging program, in order to ensure a consistent coastwide program to support management.

Since 1999, over 360,000 crabs have been tagged and released through the USFWS tagging program along the Atlantic coast. Crabs have been tagged and released from every state on the Atlantic Coast from Florida to New Hampshire. In the early years of the program, tagging was centered around Delaware Bay; however, in recent years, tagging has expanded and increased in Long Island Sound and the Southeast. Tagging information from this database has been used in the 2019 Benchmark Stock Assessment to define stock structure, estimate total mortality, and characterize impacts of biomedical use on crab mortality.

New York Region Monitoring

Following the 2019 Benchmark Stock Assessment, which characterized the status of the horseshoe crab population in the New York region as “Poor”, the Board directed the PRT to monitor fishery-independent surveys in this area to track progress of state management actions toward improving this regional population. During the assessment, five surveys were included in the ARIMA model to characterize this population. One of these, the Northeast Area Monitoring and Assessment Program (NEAMAP), includes sample areas outside of the New York region, making it too data-intensive to specify the regional index on an annual basis. The most recent information from the state-conducted surveys used in the assessment is summarized

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below, but can be viewed in greater detail in the Connecticut and New York state compliance reports. The Western Long Island (WLI) Little Neck Bay and Manhasset Bay seine surveys were combined in the assessment to form a single index, but are shown below separately. Figures 2-5 show the annual index for each survey over the time series.

Connecticut

- Long Island Sound Trawl (Fall) – 2019 index = 0.82 kg/tow, decrease from 2018

New York

- Peconic Trawl – 2019 index = 0.2 (delta distribution average catch per unit effort [CPUE]), slight increase from 2018, below 2010-19 average (0.23)
- WLI Jamaica Bay Seine (all horseshoe crabs) – 2019 index = 0.23 (geometric mean), decrease from 2018, below 2010-19 average (0.32)
- WLI Little Neck Bay Seine (all) – 2019 index = 0.88 (geometric mean), decrease from 2018, below 2010-19 average (1.16)
- WLI Manhasset Bay Seine (all) – 2019 index = 0.68 (geometric mean), decrease from 2018, below 2010-19 average (0.65)

Figure 2. LISTS Horseshoe Crab Indices, 1992-2019.

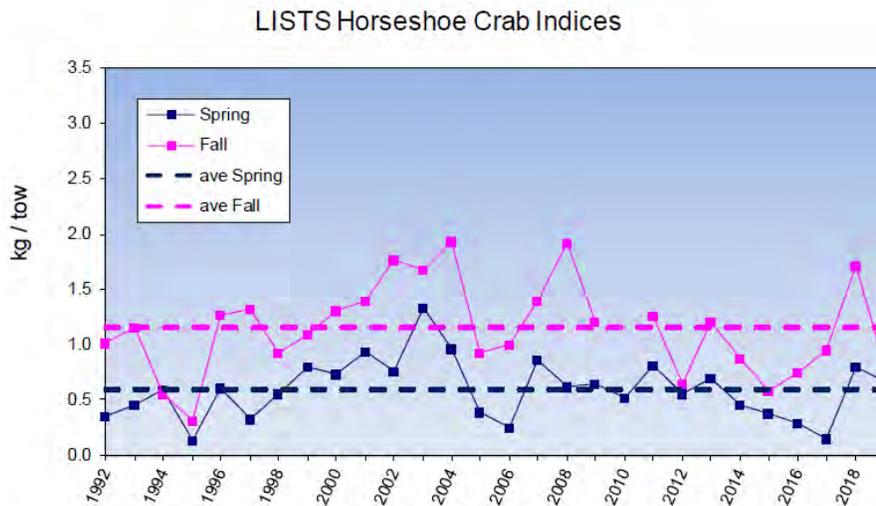


Figure 3. Peconic Bay Trawl Survey: May through July, 1987-2019.

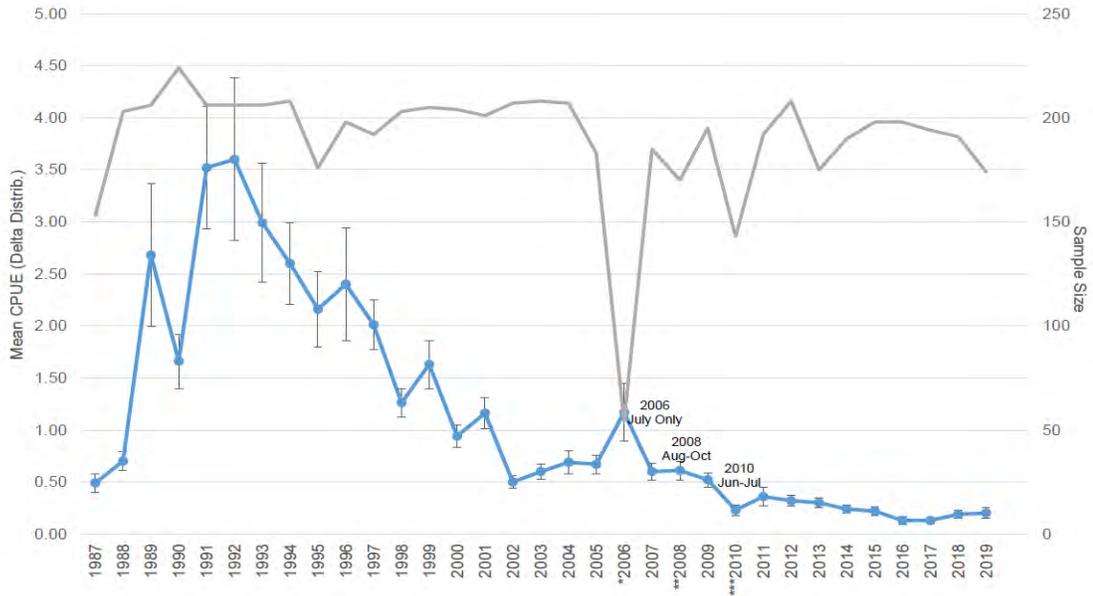


Figure 4. NYSDEC WLI Beach Seine Survey All Horseshoe Crab GM Index, 1987-2019.

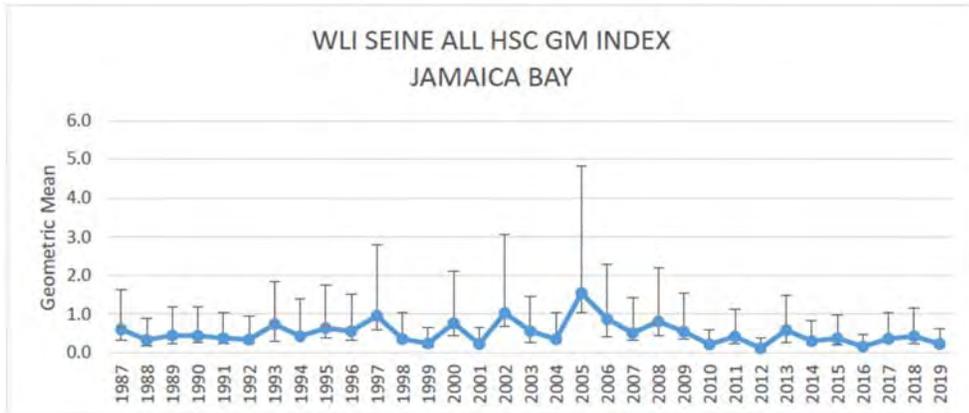


Figure 5. Little Neck Bay Seine Survey All Horseshoe Crab GM Index, 1987-2019.

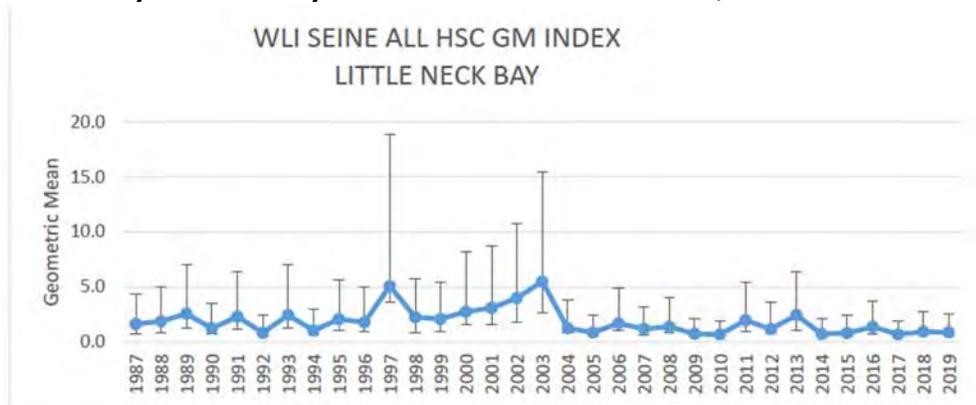
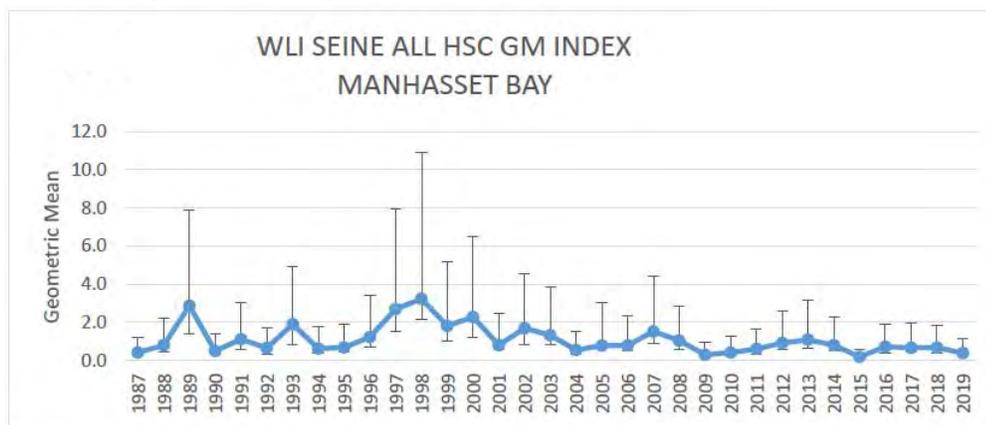


Figure 6. Manhasset Bay Seine Survey All Horseshoe Crab GM Index, 1987-2019.



V. Status of Management Measures and Issues

ASMFC

Initial state harvest quotas were established through Addendum I. Addendum III outlined the monitoring requirements and recommendations for the states. Addendum IV set harvest closures and quotas, and other restrictions for New Jersey, Delaware, Maryland, and Virginia, which were continued in Addendums V and VI.

The Board approved Addendum VII, implementation of the ARM Framework, in February 2012 for implementation in 2013. Addendum VII includes an allocation mechanism to divide the Delaware Bay optimized harvest output from the ARM Framework among the four Delaware Bay states (New Jersey, Delaware, Maryland, and Virginia east of the COLREGS). Season closures and restrictions, present within Addendum VI, remain in effect as part of Addendum VII.

State-specific charts outlining compliance and monitoring measures are included in Section VII. The PRT finds that all jurisdictions appear to be in compliance with the FMP and subsequent Addenda in 2019.

Alternative Baits

Trials testing effectiveness of alternative baits to horseshoe crab for the American eel and whelk fisheries have previously been conducted. Additionally, a survey of current bait usage in the eel and whelk fisheries was conducted in 2017. This survey is available at: http://www.asmfc.org/uploads/file/5a04b785HSC_BaitSurveyTCReport_Oct2017.pdf. The Horseshoe Crab TC is currently determining whether any additional alternative bait products will be tested in the near future.

Shorebird

The USFWS received petitions in 2004 and 2005 to emergency list the red knot under the Endangered Species Act. In fall 2005, it determined that emergency listing was not warranted at

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the time. As part of a court settlement, the USFWS agreed to initiate proposed listings of over 200 species, including the red knot. In fall 2013, the USFWS released a proposal for listing the red knot as threatened. In January 2015 the USFWS designated the red knot as threatened under the Endangered Species Act.

The red knot remains listed as an endangered species in the state of New Jersey (since 2012).

VI. PRT Recommendations and Research Needs

De Minimis

States may apply for *de minimis* status if, for the last two years, their combined average horseshoe crab bait landings (by numbers) constitute less than one percent of coastwide horseshoe crab bait landings for the same two-year period. States may petition the Board at any time for *de minimis* status, if their fishery falls below the threshold level. Once *de minimis* status is granted, designated States must submit annual reports to the Board justifying the continuance of *de minimis* status.

States that qualify for *de minimis* status are not required to implement any horseshoe crab harvest restriction measures, but are required to implement components A, B, E and F of the monitoring program (Section 3.5 of the FMP; further modified by Addendum III). Since *de minimis* states are exempt from a harvest cap, there is potential for horseshoe crab landings to shift to *de minimis* states and become substantial, before adequate action can be taken. To control shifts in horseshoe crab landings, *de minimis* states are encouraged to implement one of the following management measures:

1. Close their respective horseshoe crab bait fishery when landings exceed the *de minimis* threshold;
2. Establish a state horseshoe crab landing permit, making it only available to individuals with a history of landing horseshoe crabs in that state; or
3. Establish a maximum daily harvest limit of up to 25 horseshoe crabs per person per day. States which implement this measure can be relieved of mandatory monthly reporting, but must report all horseshoe crabs harvests on an annual basis.

The following states have been removed from the Management Board in recent years: Pennsylvania (2007), Maine (2011), and New Hampshire (2014). The Potomac River Fisheries Commission, South Carolina, Georgia, and Florida are requesting *de minimis* status for the 2019 fishing season based on the 2018-19 season landings and meet the FMP requirements for being granted this status (Table 1). The PRT recommends granting these jurisdictions *de minimis* status.

Biomedical Threshold

In 2019, total biomedical mortality was more than double the FMP's mortality threshold of 57,500 crabs, which requires the Board to consider management action. This threshold has

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been exceeded in 12 of the last 13 years. The PRT has noted previously that the results of the 2019 Benchmark Stock Assessment indicated recent levels of biomedical use did not result in mortalities that would significantly alter population status. However, biomedical mortality in 2019 was 61% higher than the average biomedical mortality between 2009 and 2018.

Funding for Research and Monitoring Activities

The PRT strongly recommends the funding and continuation of the VT benthic trawl survey. This effort provides a statistically reliable estimate of horseshoe crab relative abundance that is essential to continued ARM implementation and use of the CMSA stock assessment model.

Discard Mortality Estimation

Results of the 2019 Benchmark Stock Assessment indicate that discard mortality may be significant, of similar or greater magnitude than bait harvest. The Review Panel's report indicated that these estimates could be further refined to reduce their uncertainty and more precisely characterize this mortality source. The PRT recommends the Board take steps to increase access to and use of data from the NEFOP, allowing for improved monitoring and estimation of discard mortality.

Improvement of the New York Regional Population

Results of the 2019 Benchmark Stock Assessment indicate a "Poor" status for the New York regional population, due to negative trends in regional abundance indices. New York and Connecticut have indicated that they will take actions within their states to improve this population. The PRT recommends that the Board encourage such actions to continue so that this population's status may improve. The PRT notes that bait harvest from New York increased by 25% from 2018 to 2019.

The PRT has begun and will continue to annually report regional indices of abundance so that progress of management actions may be tracked through the annual FMP Reviews. The PRT notes that indices of abundance from the Fall CT Long Island Sound Trawl Survey, Jamaica Bay Seine Survey, Little Neck Bay Seine Survey, and the Manhasset Bay Seine Survey all decreased from 2018; there was a slight increase from 2018 in the Peconic Bay Small Mesh Trawl Survey index.

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VII. State Compliance and Monitoring Measures

| MASSACHUSETTS | | |
|--|--|---|
| | 2019 Compliance | 2020 Management Proposal |
| <i>De minimis</i> status | Did not qualify for <i>de minimis</i> | Does not qualify for <i>de minimis</i> |
| Bait Harvest Restrictions and Landings | | |
| - ASMFC Quota (Voluntary State Quota) | 330,377 (165,000) | 330,377 (165,000) |
| - Other Restrictions | Bait: 300 crab daily limit year round; limited entry; Biomedical: 1,000 crab daily limit; Conch pot and eel fishermen: no possession limit All: May and June 5-day lunar closures; No mobile gear harvest Fri-Sat during summer flounder season; 7" PW minimum size; Pleasant Bay Closed Area | Bait: 300 crab daily limit year round; Biomedical: 1,000 crab daily limit; Conch pot and eel fishermen: no possession limit All: May and June 5-day lunar closures; No mobile gear harvest Fri-Sat during summer flounder season; 7" PW minimum size; Pleasant Bay Closed Area |
| - Landings | Not Provided | -- |
| Monitoring Component A₁ | | |
| - Mandatory monthly reporting | Yes, plus weekly dealer reporting through SAFIS | Yes, plus weekly dealer reporting through SAFIS |
| - Characterize commercial bait fishery | Yes | Yes |
| Monitoring Component A₂ | | |
| - Biomedical reporting | Yes | Yes |
| - Required information for biomedical use of crabs | Yes | Yes |
| Monitoring Component A₃ Identify spawning and nursery habitat | Yes | Yes |
| Monitoring Component B₁ Coastwide benthic trawl survey | Yes, VT Trawl Survey was conducted in 2019 | Yes, VT Trawl Survey will be conducted in 2020 & 2021; future years and spatial scope unknown at this time |
| Monitoring Component B₂ Continue existing benthic sampling programs | Yes | Yes |
| Monitoring Component B₃ Implement spawning survey | Yes | Yes |
| Monitoring Component B₄ Tagging program | Yes – w/NPS and USFWS; Pleasant Bay, Monomy NWR, Waquoit Bay | Yes – w/NPS and USFWS; Pleasant Bay, Monomy NWR, Waquoit Bay |

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| RHODE ISLAND | | |
|--|---|---|
| | 2019 Compliance | 2020 Management Proposal |
| <i>De minimis</i> status | Did not qualify for <i>de minimis</i> | Does not qualify for <i>de minimis</i> |
| Bait Harvest Restrictions and Landings | | |
| - ASMFC Quota (Voluntary State Quota) | 26,053 (8,398) | 26,053 (8,398) |
| - Other Restrictions | State Restrictions: - Daily possession limit: 60 crabs per permit - Bait Fishery Closure: May 1- May 31 - Biomedical Fishery Closure: 48 hours prior to and 48 hours following new and full moons during May | State Restrictions: - Daily possession limit: 60 crabs per permit - Bait Fishery Closure: May 1- May 31 - Biomedical Fishery Closure: 48 hours prior to and 48 hours following new and full moons during May |
| - Landings | Confidential | -- |
| Monitoring Component A₁ | | |
| - Mandatory monthly reporting | Yes, weekly call in and monthly on paper | Yes, weekly call in and monthly on paper |
| - Characterize commercial bait fishery | Yes | Yes |
| Monitoring Component A₂ | | |
| - Biomedical reporting | Yes | Yes |
| - Required information for biomedical use of crabs | Yes, details within Massachusetts' reports | Captured in Massachusetts' reports |
| Monitoring Component A₃ Identify spawning and nursery habitat | Yes | Yes |
| Monitoring Component B₁ Coastwide benthic trawl survey | Yes, VT Trawl Survey was conducted in 2019 | Yes, VT Trawl Survey will be conducted in 2020 & 2021; future years and spatial scope unknown at this time |
| Monitoring Component B₂ Continue existing benthic sampling programs | Yes | Yes |
| Monitoring Component B₃ Implement spawning survey | Yes, since 2000 (methods unspecified) | Yes |
| Monitoring Component B₄ Tagging program | RI DEM 2001-2004 only, No current state program | State Wildlife Grant for 2020-2021 tagging program in collaboration with URI. Status unknown beyond 2021. |

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| CONNECTICUT | | |
|--|--|--|
| | 2019 Compliance | 2020 Management Proposal |
| <i>De minimis</i> status | Did not qualify for <i>de minimis</i> | Does not qualify for <i>de minimis</i> |
| Bait Harvest Restrictions and Landings | | |
| - ASMFC Quota | 48,689 | 48,689 |
| - Other Restrictions | Limited entry program, possession limits, and seasonal and area closures | Limited entry program, possession limits, and seasonal and area closures |
| - Landings | 17,588 | -- |
| Monitoring Component A₁ | | |
| - Mandatory monthly reporting | Yes | Yes |
| - Characterize commercial bait fishery | No – exempt under Addendum III because landings are < 5% of coastwide total | No – exempt under Addendum III because landings are < 5% of coastwide total |
| Monitoring Component A₂ | | |
| - Biomedical reporting | Not Applicable | Not Applicable |
| - Required information for biomedical use of crabs | Not Applicable | Not Applicable |
| Monitoring Component A₃ Identify spawning and nursery habitat | Yes | Yes |
| Monitoring Component B₁ Coastwide benthic trawl survey | Yes, VT Trawl Survey was conducted in 2019 | Yes, VT Trawl Survey will be conducted in 2020 & 2021; future years and spatial scope unknown at this time |
| Monitoring Component B₂ Continue existing benthic sampling programs | Yes | Yes |
| Monitoring Component B₃ Implement spawning survey | Yes, since 1999 (methods differ from DE Bay survey) | Yes |
| Monitoring Component B₄ Tagging program | Yes, in collaboration with local universities (Sacred Heart University since 2015) | Yes |

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| NEW YORK | | |
|---|---|---|
| | 2019 Compliance | 2020 Management Proposal |
| <i>De minimis</i> status | Did not qualify for <i>de minimis</i> | Does not qualify for <i>de minimis</i> |
| Bait Harvest Restrictions and Landings | | |
| - ASMFC Quota (Voluntary State Quota) | 366,272 (150,000) | 366,272 (150,000) |
| - Other Restrictions | Ability to close areas to harvest; seasonal quotas and daily harvest limits | Ability to close areas to harvest; seasonal quotas and daily harvest limits |
| - Landings | 167,181 | -- |
| Monitoring Component A₁ | | |
| - Mandatory monthly reporting | Yes | Yes |
| - Characterize commercial bait fishery | Yes | Yes |
| Monitoring Component A₂ | | |
| - Biomedical reporting | Not Applicable | Not Applicable |
| - Required information for biomedical use of crabs | Not Applicable | Not Applicable |
| Monitoring Component A₃ Identify spawning and nursery habitat | Yes | Yes |
| Monitoring Component B₁ Coastwide benthic trawl survey | Yes, VT Trawl Survey was conducted in 2019 | Yes, VT Trawl Survey will be conducted in 2020 & 2021; future years and spatial scope unknown at this time |
| Monitoring Component B₂ Continue existing benthic sampling programs | Yes | Yes |
| Monitoring Component B₃ Implement spawning survey | Yes – adapted from DE Bay survey | Yes |
| Monitoring Component B₄ Tagging program | Yes | Yes |

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| NEW JERSEY | | |
|--|--|--|
| | 2019 Compliance | 2020 Management Proposal |
| <i>De minimis</i> status | Qualified for <i>de minimis</i> | Qualifies but not requesting <i>de minimis</i> |
| Bait Harvest Restrictions and Landings | | |
| - ASMFC Quota (Voluntary state quota) | 162,136 [male only] (0) | 162,136 [male only] (0) |
| - Other Restrictions | Bait harvest moratorium | Bait harvest moratorium |
| - Landings | 0 | -- |
| Monitoring Component A₁ | | |
| - Mandatory monthly reporting | N/A | N/A |
| - Characterize commercial bait fishery | N/A | N/A |
| Monitoring Component A₂ | | |
| - Biomedical reporting | Yes | Yes |
| - Required information for biomedical use of crabs | Yes | Yes |
| Monitoring Component A₃ Identify spawning and nursery habitat | Yes | Yes |
| Monitoring Component B₁ Coastwide benthic trawl survey | Yes, VT Trawl Survey was conducted in 2019 | Yes, VT Trawl Survey will be conducted in 2020 & 2021; future years and spatial scope unknown at this time |
| Monitoring Component B₂ Continue existing benthic sampling programs | Yes | Yes |
| Monitoring Component B₃ Implement spawning survey | Yes | Yes |
| Monitoring Component B₄ Tagging program | Outside, independent groups currently | No |
| Monitoring Component B₅ Egg abundance survey | Yes, but removed as a mandatory component | Yes |
| Monitoring Component B₆ Shorebird monitoring program | Yes | Yes |

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| DELAWARE | | |
|--|--|--|
| | 2019 Compliance | 2020 Management Proposal |
| <i>De minimis</i> status | Did not qualify for <i>de minimis</i> | Does not qualify for <i>de minimis</i> |
| Bait Harvest Restrictions and Landings | | |
| - ASMFC Quota (Adjusted Quota from Overage) | 162,136 [male only] 159,211 [male only] | 162,136 [male only] 157,122 [male only] |
| - Other Restrictions | Closed season (January 1 – June 7); season closed early on June 16 | Closed season (January 1 – June 7) |
| - Landings | 164,225 males | -- |
| Monitoring Component A₁ | | |
| - Mandatory monthly reporting | Yes (daily call-in reports & monthly logbooks) | Yes |
| - Characterize commercial bait fishery | Yes | Yes |
| Monitoring Component A₂ | | |
| - Biomedical reporting | Not Applicable | Not Applicable |
| - Required information for biomedical use of crabs | Not Applicable | Not Applicable |
| Monitoring Component A₃ Identify spawning and nursery habitat | Yes – updates once every 5 years or as needed | Yes – updates once every 5 years or as needed |
| Monitoring Component B₁ Coastwide benthic trawl survey | Yes, VT Trawl Survey was conducted in 2019 | Yes, VT Trawl Survey will be conducted in 2020 & 2021; future years and spatial scope unknown at this time |
| Monitoring Component B₂ Continue existing benthic sampling programs | Yes | Yes |
| Monitoring Component B₃ Implement spawning survey | Yes | Yes |
| Monitoring Component B₄ Tagging program | No state program but has assisted in the past with various Delaware Bay horseshoe crab tagging initiatives | No |
| Monitoring Component B₅ Egg abundance survey | Removed as component | Removed as component |
| Monitoring Component B₆ Shorebird monitoring program | Yes | Yes |

Note: The egg abundance survey has been discontinued as a mandatory monitoring element. Delaware will include information on the survey if it continues, but is no longer required to perform the survey.

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| MARYLAND | | |
|--|---|--|
| | 2019 Compliance | 2020 Management Proposal |
| <i>De minimis status</i> | Did not qualify for <i>de minimis</i> | Does not qualify for <i>de minimis</i> |
| Bait Harvest Restrictions and Landings | | |
| - ASMFC Quota | 255,980 (male only) | 255,980 (male only) |
| - Other Restrictions | Delayed harvest and closed season/area combinations | Delayed harvest and closed season/area combinations |
| - Landings | 145,907 males | -- |
| Monitoring Component A₁ | | |
| - Mandatory monthly reporting | Yes (weekly reports for permit holders; monthly for non-permit holders) | Yes (weekly reports for permit holders; monthly for non-permit holders) |
| - Characterize commercial bait fishery | Yes | Yes |
| Monitoring Component A₂ | | |
| - Biomedical reporting | Yes | Yes |
| - Required information for biomedical use of crabs | Yes | Yes |
| Monitoring Component A₃ Identify spawning and nursery habitat | Yes | Yes |
| Monitoring Component B₁ Coastwide benthic trawl survey | Yes, VT Trawl Survey was conducted in 2019 | Yes, VT Trawl Survey will be conducted in 2020 & 2021; future years and spatial scope unknown at this time |
| Monitoring Component B₂ Continue existing benthic sampling programs | Yes | Yes |
| Monitoring Component B₃ Implement spawning survey | Yes | Yes |
| Monitoring Component B₄ Tagging program | Yes – through biomedical use | Yes – through biomedical use |

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| POTOMAC RIVER FISHERIES COMMISSION | | |
|--|--|--|
| | 2019 Compliance | 2020 Management Proposal |
| <i>De minimis</i> status | <i>De minimis</i> status granted in 2019. | <i>De minimis</i> requested and meets criteria. |
| - Ability to close fishery if <i>de minimis</i> threshold is reached | No horseshoe crab fishery | No horseshoe crab fishery |
| - Daily possession limit <25 for <i>de minimis</i> state | | |
| - HSC landing permit | | |
| Bait Harvest Restrictions and Landings | | |
| - ASMFC Quota | 0 | 0 |
| - Other Restrictions | None | None |
| - Landings | 0 | 0 |
| Monitoring Component A₁ | | |
| - Mandatory monthly reporting | Yes - weekly | Yes - weekly |
| - Characterize commercial bait fishery | Not Applicable | Not Applicable |
| Monitoring Component A₂ | | |
| - Biomedical reporting | Not Applicable | Not Applicable |
| - Required information for biomedical use of crabs | Not Applicable | Not Applicable |
| Monitoring Component A₃ Identify spawning and nursery habitat | Not Applicable | Not Applicable |
| Monitoring Component B₁ Coastwide benthic trawl survey | Yes, VT Trawl Survey was conducted in 2019 | Yes, VT Trawl Survey will be conducted in 2020 & 2021; future years and spatial scope unknown at this time |
| Monitoring Component B₂ Continue existing benthic sampling programs | Not Applicable | Not Applicable |
| Monitoring Component B₃ Implement spawning survey | Not Applicable | Not Applicable |
| Monitoring Component B₄ Tagging program | Not Applicable | Not Applicable |

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| VIRGINIA | | |
|--|--|--|
| | 2019 Compliance | 2020 Management Proposal |
| <i>De minimis status</i> | Did not qualify for <i>de minimis</i> | Does not qualify for <i>de minimis</i> |
| Bait Harvest Restrictions and Landings | | |
| - ASMFC Quota | 172,828 (81,331 male-only east of COLREGS line) | 172,828 (81,331 male-only east of COLREGS line) |
| - Other Restrictions | Closed season (January 1 – June 7) for federal waters. Effective January 1, 2013 harvest of horseshoe crabs, from east of the COLREGS line, is limited to trawl gear and dredge gear only. | Closed season (January 1 – June 7) for federal waters. Effective January 1, 2013 harvest of horseshoe crabs, from east of the COLREGS line, is limited to trawl gear and dredge gear only. |
| - Landings | 151,727 (100,609 males) | -- |
| Monitoring Component A₁ | | |
| - Mandatory monthly reporting | Yes – new permit system; limited entry to fishery and individual quotas established | Yes |
| - Characterize commercial bait fishery | Yes | Yes |
| Monitoring Component A₂ | | |
| - Biomedical reporting | Yes | Yes |
| - Required information for biomedical use of crabs | Yes | Yes |
| Monitoring Component A₃ Identify spawning and nursery habitat | Yes – completed | No |
| Monitoring Component B₁ Coastwide benthic trawl survey | Yes, VT Trawl Survey was conducted in 2019 | Yes, VT Trawl Survey will be conducted in 2020 & 2021; future years and spatial scope unknown at this time |
| Monitoring Component B₂ Continue existing benthic sampling programs | No | No |
| Monitoring Component B₃ Implement spawning survey | No | No |
| Monitoring Component B₄ Tagging program | No | No |

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| NORTH CAROLINA | | |
|---|--|---|
| | 2019 Compliance | 2020 Management Proposal |
| <i>De minimis</i> status | Did not qualify for <i>de minimis</i> | Does not qualify for <i>de minimis</i> |
| Bait Harvest Restrictions and Landings | | |
| - ASMFC Quota | 24,036 | 24,036 |
| - Other Restrictions | Trip limit of 50 crabs; Proclamation authority to adjust trip limits, seasons, etc. | Trip limit of 50 crabs; Proclamation authority to adjust trip limits, seasons, etc. |
| - Landings | 13,463 | -- |
| Monitoring Component A₁ | | |
| - Mandatory monthly reporting | Yes – trip level reporting each month | Yes – trip level reporting each month |
| - Characterize commercial bait fishery | Yes | Yes |
| Monitoring Component A₂ | | |
| - Biomedical reporting | Not Applicable | Not Applicable |
| - Required information for biomedical use of crabs | Not Applicable | Not Applicable |
| Monitoring Component A₃ Identify spawning and nursery habitat | Little information available; Survey discontinued after 2002 and 2003 due to low levels of crabs recorded | Not specified |
| Monitoring Component B₁ Coastwide benthic trawl survey | Yes, VT Trawl Survey was conducted in 2019 | Yes, VT Trawl Survey will be conducted in 2020 & 2021; future years and spatial scope unknown at this time |
| Monitoring Component B₂ Continue existing benthic sampling programs | Yes | Yes |
| Monitoring Component B₃ Implement spawning survey | No | No |
| Monitoring Component B₄ Tagging program | No | No |

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| SOUTH CAROLINA | | |
|--|--|--|
| | 2019 Compliance | 2020 Management Proposal |
| <i>De minimis</i> status | <i>De minimis</i> status granted in 2019. | <i>De minimis</i> requested for 2020 and meets criteria. |
| - Ability to close fishery if <i>de minimis</i> threshold is reached | No horseshoe crab bait fishery | No horseshoe crab bait fishery |
| - Daily possession limit <25 for <i>de minimis</i> state | | |
| - HSC landing permit | | |
| Bait Harvest Restrictions and Landings | | |
| - ASMFC Quota | 0 | 0 |
| - Other Restrictions | None | None |
| - Landings | 0 | -- |
| Monitoring Component A₁ | | |
| - Mandatory monthly reporting | Yes (Biomedical) | Yes (Biomedical) |
| - Characterize commercial bait fishery | Not Applicable | Not Applicable |
| Monitoring Component A₂ | | |
| - Biomedical reporting | Yes | Yes |
| - Required information for biomedical use of crabs | Yes | Yes |
| Monitoring Component A₃ Identify spawning and nursery habitat | Completed | No |
| Monitoring Component B₁ Coastwide benthic trawl survey | Yes, VT Trawl Survey was conducted in 2019 | Yes, VT Trawl Survey will be conducted in 2020 & 2021; future years and spatial scope unknown at this time |
| Monitoring Component B₂ Continue existing benthic sampling programs | Yes | Yes |
| Monitoring Component B₃ Implement spawning survey | Yes | Yes |
| Monitoring Component B₄ Tagging program | Yes | Yes |

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| GEORGIA | | |
|--|--|--|
| | 2019 Compliance | 2020 Management Proposal |
| <i>De minimis</i> status | <i>De minimis</i> status granted in 2019. | <i>De minimis</i> requested for 2020 and meets criteria. |
| - Ability to close fishery if <i>de minimis</i> threshold is reached | Yes | Yes |
| - Daily possession limit <25 for <i>de minimis</i> state | 25/person; 75/vessel with 3 licensees | 25/person; 75/vessel with 3 licensees |
| - HSC landing permit | Must have commercial shrimp, crab, or whelk license; LOA permit required | Must have commercial shrimp, crab, or whelk license; LOA permit required |
| Bait Harvest Restrictions and Landings | | |
| - ASMFC Quota | 29,312 | 29,312 |
| (State Quota) | 29,312 | 29,312 |
| - Other Restrictions | None | None |
| - Landings | 0 | -- |
| Monitoring Component A₁ | | |
| - Mandatory monthly reporting | Yes | Yes |
| - Characterize commercial bait fishery | No bait landings | Yes |
| Monitoring Component A₂ | | |
| - Biomedical reporting | Not Applicable | Not Applicable |
| - Required information for biomedical use of crabs | Not Applicable | Not Applicable |
| Monitoring Component A₃ Identify spawning and nursery habitat | Completed | Not Applicable |
| Monitoring Component B₁ Coastwide benthic trawl survey | Yes, VT Trawl Survey was conducted in 2019 | Yes, VT Trawl Survey will be conducted in 2020 & 2021; future years and spatial scope unknown at this time |
| Monitoring Component B₂ Continue existing benthic sampling programs | Yes | Yes |
| Monitoring Component B₃ Implement spawning survey | No | No |
| Monitoring Component B₄ Tagging program | No | No |

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| FLORIDA | | |
|--|--|--|
| | 2019 Compliance | 2020 Management Proposal |
| <i>De minimis</i> status | <i>De minimis</i> status granted in 2018. | <i>De minimis</i> requested for 2019 and meets criteria. |
| - Ability to close fishery if <i>de minimis</i> threshold is reached | Yes | Yes |
| - Daily possession limit <25 for <i>de minimis</i> state | 25/person w/ valid saltwater products license; 100/person with marine life endorsement | 25/person w/ valid saltwater products license; 100/person with marine life endorsement |
| - HSC landing permit | See above | See above |
| Bait Harvest Restrictions and Landings | | |
| - ASMFC Quota | 9,455 | 9,455 |
| - Other Restrictions | None | None |
| - Landings | 0 | -- |
| Monitoring Component A₁ | | |
| - Mandatory monthly reporting | Yes | Yes |
| - Characterize commercial bait fishery | No | Yes |
| Monitoring Component A₂ | | |
| - Biomedical reporting | Not Applicable | Not Applicable |
| - Required information for biomedical use of crabs | Not Applicable | Not Applicable |
| Monitoring Component A₃ Identify spawning and nursery habitat | Yes | Yes |
| Monitoring Component B₁ Coastwide benthic trawl survey | Yes, VT Trawl Survey was conducted in 2019 | Yes, VT Trawl Survey will be conducted in 2020 & 2021; future years and spatial scope unknown at this time |
| Monitoring Component B₂ Continue existing benthic sampling programs | No | No |
| Monitoring Component B₃ Implement spawning survey | Yes | Yes |
| Monitoring Component B₄ Tagging program | No | No |



Atlantic States Marine Fisheries Commission

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MEMORANDUM

October 5, 2020

To: Horseshoe Crab Management Board
From: Tina Berger, Director of Communications
RE: Advisory Panel Nomination

Please find attached a new nomination to the Horseshoe Crab Advisory Panel – Christina Lecker, a biomedical representative from Virginia. 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.

Enc.

cc: Caitlin Starks

M20-110

Horseshoe Crab Advisory Panel

Bolded names await Board approval

Massachusetts

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Appt. Reconfirmed 10/02; 10/06; 5/10; 8/18

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Appt Confirmed 2/3/16
Appt. Reconfirmed 8/18

Rhode Island

Vacancy (comm/otter trawl)

New York

John L. Turner (conservation)
10 Clark Bouelvard
Massapequa, NY 11762
Phone (day): 631.451.6455
Phone (eve): 516.797.9786
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
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
Appt. Confirmed 8/5/10

Delaware

Lawrence Voss (comm./pot)
3215 Big Oak Road
Smyrna, DE 19977
Phone: (302)359-0951
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
Appt. Confirmed 5/16

Jeffrey Eutsler (comm/trawl)
11933 Gray's Corner Road
Berlin, MD 21811
Phone: 443.497.3078
jeffeutsler@me.com
Appt. Confirmed 2/4/98
Appt. Reconfirmed 10/02
Appt. Reconfirmed 10/06
Appt Reconfirmed 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
Appt. Reconfirmed 10/06
Appt Reconfirmed 5/10

Participation: Inactive; attended last meeting in 1998

Chair – Allen L. Burgenson (biomedical)

Horseshoe Crab Advisory Panel

Bolded names await Board approval

8875 Hawbottom Road
Middletown, MD 21769
Phone: 301.378.1263
allen.burgenson@lonza.com
Appt. Confirmed 8/21/08

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
Appt. Confirmed: 2/9/00
Appt. Reconfirmed 1/2/06
Appt Reconfirmed 5/10

Christina M. Lecker

FUJIFILM Wako Chemicals U.S.A. Corporation,
LAL Division
Plant Manager - Cape Charles Facility
301 Patrick Henry Avenue
Cape Charles, VA 23310
Phone: 757-331-4240, 757-331-2026
FAX: 757-331-2046
christina.lecker@fujifilm.com

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
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
Appt. Confirmed 8/5/10

**Participation: Inactive; never attended
meeting since appt in 2010**

Nontraditional Stakeholders

Jeff Shenot
7741 market Street, Unit D
Wilmington, NC 28411-9444
Phone (day): 910.686.7527
Phone (eve): 910.619.6244
wgolder@audubon.org
Appt. Confirmed 8/2018



COMMONWEALTH of VIRGINIA

Marine Resources Commission

Building 96
380 Fenwick Road
Fort Monroe, VA 23651

Steven G. Bowman
Commissioner

Matthew J. Strickler
Secretary of Natural Resources

October 5, 2020

Tina Berger
Director of Communications
Atlantic States Marine Fisheries Commission
1050 N. Highland Street, Suite 200 A-N
Arlington, VA 22201

Tina,

I would like to nominate Christine Lecker of FujiFilm Wako Chemicals USA Corp to the Horseshoe Crab Advisory Panel. She is the plant manager of their Cape Charles, Virginia facility and has been bleeding crabs for LAL production since 2002 (previously under Wako Chemicals USA Inc.). From my discussions with her she will provide excellent representation to the panel with a Virginia/Maryland perspective on the biomedical industry. Please contact me if you have any questions or if there is anything else I need to do for this nomination. Thank-you.

Her contact information is:

Christina M. Lecker
FUJIFILM Wako Chemicals U.S.A. Corporation, LAL Division
Plant Manager - Cape Charles Facility
301 Patrick Henry Avenue
Cape Charles, VA 23310
P: 757-331-4240, 757-331-2026
F: 757-331-2046
Email: christina.lecker@fujifilm.com

Sincerely,

A handwritten signature in blue ink, appearing to read 'Patrick J. Geer'.

Patrick J. Geer
Chief of Fisheries Management

cc: Commissioner Steven Bowman

An Agency of the Natural Resources Secretariat

www.mrc.virginia.gov

Telephone (757) 247-2200 (757) 247-2292 V/TDD Information and Emergency Hotline 1-800-541-4646 V/TDD



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: Patrick Geer State: VA
(your name)

Name of Nominee: Christina M. Lecker

Address: 301 Patrick Henry Avenue

City, State, Zip: Cape Charles, VA 23310

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

Phone (day): 757-331-4240, 757-331-2026

Phone (evening): _____

FAX: _____

Email: christina.lecker@fujifilm.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
2. _____
3. _____
4. _____

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

yes _____ no X

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

yes _____ no X

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

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

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

If "yes," please explain.

FOR SEAFOOD PROCESSORS & DEALERS:

1. How long has the nominee been employed in the business of seafood processing/dealing? _____ years
2. Is the nominee employed only in the business of seafood processing/dealing?
yes _____ no _____ If "no," please list other type(s) of business(es) and/or occupation(s):

3. How many years has the nominee lived in the home port community? _____ years
If less than five years, please indicate the nominee's previous home port community.

FOR OTHER INTERESTED PARTIES:

1. How long has the nominee been interested in fishing and/or fisheries management? ¹⁸ _____ years
2. Is the nominee employed in the fishing business or the field of fisheries management?
yes _____ no _____

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

FOR ALL NOMINEES:

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

Christina Lecker of FujiFilm Wako Chemicals USA Corp has been the plant manager of their Cape Charles, Virginia facility and has been bleeding crabs for LAL production since 2002 (previously under Wako Chemicals USA Inc.). From my discussions with her she will provide excellent representation to the panel with a Virginia/Maryland perspective on the biomedical industry.

Nominee Signature:  _____

Date: 10/6/2020

Name: **Christina Lecker**

(please print)

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



Patrick J Geer 10/5/2020
for Steven G. Bowman

State Director

State Legislator

Governor's Appointee

Atlantic States Marine Fisheries Commission

Spiny Dogfish Management Board

*October 21, 2020
11:30 a.m. – 12:15 p.m.
Webinar*

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>C. Batsavage</i>) | 11:30 a.m. |
| 2. Board Consent | 11:30 a.m. |
| • Approval of Agenda | |
| • Approval of Proceedings from October 2019 | |
| 3. Public Comment | 11:35 a.m. |
| 4. Consider Revised Specifications for the 2021 and 2022 Fishing Seasons (<i>J. Didden</i>) Final Action | 11:45 a.m. |
| 5. Elect Vice-Chair (<i>C. Batsavage</i>) Action | 12:00 p.m. |
| 6. Other Business/Adjourn | 12:15 p.m. |

MEETING OVERVIEW

Spiny Dogfish Management Board Webinar

October 21, 2020

11:30 a.m. - 12:30 p.m.

| | | |
|---|---|---|
| Chair: Chris Batsavage (NC) Assumed Chairmanship: 10/19 | Technical Committee Chair: Scott Newlin (DE) | Law Enforcement Committee Representative: Moran (NJ) |
| Vice-Chair: VACANT | Advisory Panel Chair: VACANT | Previous Board Meeting: October 2019 |
| Voting Members: ME,NH, MA, RI, CT, NY, NJ, DE, MD, VA, NC, NMFS, USFWS (13 votes) | | |

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from October 2019

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 Revised Specifications for the 2021 and 2022 Fishing Seasons (11:45 a.m.-12:00 p.m.) Final Action |
| <p>Background</p> <ul style="list-style-type: none"> • The Mid-Atlantic Fishery Management Council (Council) Scientific and Statistical Committee (SSC) recently revised their risk policy for 2021. Based on changes to the risk policy the Spiny Dogfish commercial quota could increase up to 27% from the current 2020 fishing year. • Earlier this month the Council met to review and consider changes to specifications based on the SSC’s recommendations. |
| <p>Presentations</p> <ul style="list-style-type: none"> • Review of Council October Meeting on Spiny Dogfish Specification by J. Didden |
| <p>Board Actions for consideration</p> <ul style="list-style-type: none"> • Revise 2021 and set 2022 Specifications |

6. Elect Vice-Chair

7. Other Business/Adjourn

Spiny Dogfish

Activity level: Low

Committee Overlap Score: low (some overlaps with Coastal Sharks)

Committee Task List

- TC – July 1st: Annual compliance reports due

TC Members: Scott Newlin (DE, TC Chair), Tobey Curtis (NOAA), Jason Didden (MAFMC), Lewis Gillingham (VA), Greg Skomal (MA), Mike Frisk (NY), Lee Paramore (NC), Conor McManus (RI), Greg Hinks (NJ), Angel Willey (MD), Matt Gates (CT), Kathy Sosobee (NOAA), Michael Frisk (NY), Matt Cieri (ME), Kirby Rootes-Murdy (ASMFC)

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

**Wentworth by the Sea
New Castle, New Hampshire
October 29, 2019**

These minutes are draft and subject to approval by the Spiny Dogfish 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 Spiny Dogfish 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 from August 2019** by consent (Page 1).
3. **Move to adopt Draft Addendum VI to the Spiny Dogfish Management Plan with Option 2: Allow Quota Transfers between all states and regions effective immediately** (Page 3). Motion by David Pierce; second by Ritchie White. Motion carried (Page 4).
4. **Move to accept the FMP Review and State Compliance Reports for Spiny Dogfish and *de minimis* requests from New York and Delaware** (Page 9). Motion by Sen. Miramant; second by Emerson Hasbrouck. Motion carried (Page 9).
5. **Motion to adjourn** by consent (Page 9).

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

ATTENDANCE

Board Members

| | |
|---|--|
| Megan Ware, ME, proxy for P. Keliher (AA) | Emerson Hasbrouck, NY (GA) |
| Steve Train, ME (GA) | Joe Cimino, NJ (AA) |
| Sen. David Miramant, ME (LA) | Tom Fote, NJ (GA) |
| Kevin Sullivan, NH, proxy for D. Grout (AA) | Adam Nowalsky, NJ, proxy for Sen. Andrzejczak (LA) |
| G. Ritchie White, NH (GA) | Stewart Michels, DE, proxy for D. Saveikis (AA) |
| Dennis Abbott, NH, proxy for Sen. Watters (LA) | Roy Miller, DE (GA) |
| David Pierce, MA (AA) | Mike Luisi, MD, proxy for B. Anderson (AA) |
| Raymond Kane, MA (GA) | Russell Dize, MD (GA) |
| Rep. Sarah Peake, MA (LA) | Phil Langley, MD, proxy for Del. Stein (LA) |
| Jason McNamee, RI (AA) | Pat Geer, proxy for S. Bowman (AA) |
| David Borden, RI (GA) | Chris Batsavage, NC, proxy for S. Murphey (AA) |
| Eric Reid, RI, proxy for Sen. Sosnowski (LA) | Jerry Mannen, NC (GA) |
| Justin Davis, CT (AA) | Michael Blanton, NC, proxy for Rep. Steinburg (LA) |
| Bill Hyatt, CT (GA) | Peter Burns, NMFS |
| Maureen Davidson, NY, proxy for J. Gilmore (AA) | |

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

ExOfficio Members

Staff

| | |
|--------------------|----------------|
| Robert Beal | Caitlin Starks |
| Toni Kerns | Maya Drzewicki |
| Kirby Rootes-Murdy | |

Guests (Sign-In not distributed)

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

Draft Proceedings of the Spiny Dogfish Management Board Meeting
October 2019

The Spiny Dogfish Management Board of the Atlantic States Marine Fisheries Commission convened in the Wentworth Ballroom of the Wentworth by the Sea Hotel, New Castle, New Hampshire; Tuesday, October 29, 2019, and was called to order at 8:00 o'clock a.m. by Chairman Chris Batsavage.

CALL TO ORDER

CHAIRMAN CHRIS BATSAVAGE: I would like to welcome everyone to the Spiny Dogfish Management Board. My name is Chris Batsavage; I have the honor of serving as Chair. I'm from North Carolina.

APPROVAL OF AGENDA

CHAIRMAN BATSAVAGE: Start off by approval of the agenda, are there any changes to the agenda or can we approve that by consent? Seeing no changes it's approved.

APPROVAL OF PROCEEDINGS

CHAIRMAN BATSAVAGE: The next item is approval of proceedings from our August, 2019 meeting. Are there any changes or modifications to those minutes? Seeing none, those are approved.

PUBLIC COMMENT

CHAIRMAN BATSAVAGE: Next up is public comment. Is there anyone from the public that would like to speak on issues that are not on the agenda today? No one signed up, so seeing no interest I'm moving right along.

**CONSIDER ADDENDUM VI FOR
FINAL APPROVAL**

CHAIRMAN BATSAVAGE: Next is Consider Addendum VI for Final Approval. With that I'll hand it over to Kirby Rootes-Murdy.

MR. KIRBY ROOTES-MURDY: I have a presentation I'll go through now, just an outline. I'll give you guys a little bit of an overview of this document development; the

statement of the problems, some background information. We'll go through the management options, and then the public comment summary, followed by the Board action for you all to consider today.

As you probably are all aware, at the ISFMP Policy Board in May there was a motion to initiate a Draft Addendum, to try to address transfers between the northern regions to the states south of that. New York through North Carolina currently can have state-by-state transfers; the northern region does not have the ability to take part in that. This addendum was initiated to address that.

**REVIEW OPTIONS AND PUBLIC COMMENT
SUMMARY**

MR. ROOTES-MURDY: The Board considered a draft version of the Addendum in August for public comment. It was approved and went out for public comment between August and September, and today you all will be taking final action on this document. As mentioned, in terms of the statement of the problem. Currently the FMP only allows quota transfers between states with an individual state quota. The regions cannot currently transfer quota.

Full utilization of the coastwide quota may not be possible this year, in 2019, due to quota transfer limitations without Board action. The quota for this year has been reduced by approximately 46 percent in response to the 2018 stock assessment update. Some states may end up having to close their fishery early, while other states have quota that could be transferred, but due to this provision would not be able to do so. In terms of background, for the spiny dogfish fishery this operates on a fishing year of May 1 through April 30. The Commission has a complementary FMP to the federal joint FMP, between the Mid-Atlantic Council and the New England Council. In Addendum III to the Commission's FMP established a northern region of Maine through Connecticut, and state-specific allocations of

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The Board will review the minutes during its next meeting.

Draft Proceedings of the Spiny Dogfish Management Board Meeting
October 2019

the coastwide quota. Those are up on the screen for you to look at.

In terms of how this fishery has played out over the last 20 years or so, total commercial landings have tracked the coastwide quota for most of the first 12 years of quota management, after which landings plateaued while the quota continued to increase. Landings during fishing year 2012 through 2018 averaged about 20.93 million pounds, while the coastwide quota averaged about 42 million pounds.

For fishing year 2019, which is what we're currently in, the coastwide quota has been reduced to 20.5 million pounds, to avoid overfishing the stock amidst declining biomass based on the stock assessment update last year. Over the last three years less than half of the cumulative coastwide quota has been landed, though similar landings in 2019 would achieve nearly 100 percent of the newly reduced quota level.

Next I'm going to go through the management options, it's a little easy on this Addendum, because there are only two, and there is a scoping question that was also included regarding the federal trip limit. The first, as you all are aware, is status quo. This would keep the FMP as is, so there would be no ability for the northern region to participate in the transfer of quota. Option 2 would allow all states and regions to participate in quota transferring.

Basically how it would work is there would have to be mutual agreement for those states in the northern region, and any future region, to sign off on a transfer. What would happen is the Administrative Commissioner from each of those states would have to send a written agreement to the Commission stating their approval of the transfer, and the same transfer rules would apply that we have for our current transfer policy for the spiny dogfish fishery.

Transfers don't permanently affect allocation, and quota management and accountability based on transfer adjusted quota would still be in place. You are held to that year's quota as it's been adjusted, any overages you still have to account for the following year. The other thing that this Addendum Option 2 offers is that all transfers could occur up to 45 days after the fishing year ends.

That is to allow for the accounting of landings data, maybe that came in after the fact that indicated that a state or region might have gone over the quota. Those were the two management options. There was also a scoping question as part of this Addendum, and that was should the Commission recommend the federal commercial trip limit be eliminated and replaced by the state-by-state trip limits where they exist, New York through North Carolina, and a regional trip limit for the northern region.

As you all are aware, NOAA Fisheries annually establishes the federal commercial trip limit as a requirement for vessels with federal spiny dogfish permits. As part of the annual federal specification process the Councils make recommendations to NOAA Fisheries on what the federal commercial trip limit should be. As part of the Commission's process, the states of New York through North Carolina annually establish commercial trip limits for state permit holders, and the Commission's Spiny Dogfish Board establishes a regional trip limit as we've discussed at previous meetings. For vessels fishing with both, state and federal permits the more restrictive trip limit must be followed regardless of where they are fishing. As part of the FMP, states set commercial trip limits to achieve their annual state and regional quota.

The Commission does not establish the federal trip limit, but can make a recommendation to the Councils on how that is set annually. Now I'll go through public comment. We didn't receive a lot of comments on this Addendum, just to put it clearly. There were three public hearings held, one in New Hampshire, one in

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The Board will review the minutes during its next meeting.

Draft Proceedings of the Spiny Dogfish Management Board Meeting
October 2019

Rhode Island, and a virtual one. A total of seven written comments were received.

A few of the comments that were offered were specific to the options included in the Addendum, and the scoping question. In total three were in favor of Option 2, allowing quota transfer between the states and regions. One was in favor of maintaining the status quo. In terms of the scoping question, we had one person who indicated their preference for it to be eliminated, another in favor of it remaining in place, and then the third comment that actually started the question why this process was playing out.

The New England Council expressed a number of concerns regarding the Commission's public comment scoping process. They listed concerns regarding the number of public hearings that were held, the fact that there was not in the document a stated issue that was to be addressed through this scoping question, and felt that this was something best handled by the Mid-Atlantic and New England Fishery Management Council.

In terms of other comments that were offered, it was noted that there is high abundance around Block Island, and that there should be an effort to try to maximize harvest of this biomass. There were also comments that said that there shouldn't be full utilization of the quota, instead that quota should be reduced by about 50 percent in all regions. There was one individual who took issue with the Northeast Fisheries Science Center's Trawl Survey.

They indicated that it's missing much of the biomass, based on the type of gear and how it's set, additionally that there should be import data regarding how much spiny dogfish is imported into the U.S., and expressed the need for spiny dogfish to be renamed to help with marketing to help increase market demand for spiny dogfish domestically.

Last, it was noted by one individual that the Commission is not currently complying with Article 1, Section 1 of the Commission's Compact to prevent physical waste of the resource. That is a summary of the public comments we received. In terms of Board action today on this document, the Board needs to select the management option, confirm the implementation date.

I just want to note that the document does state that if approved the measures would be effective immediately. That is just something to keep in mind, unless this Board wants to change that. Consider approval of the document and then separate as part of the scoping question, this Board can consider whether or not to send a letter to the Councils and NOAA Fisheries regarding the federal trip limit. With that I will take any questions, thank you.

CHAIRMAN BATSAVAGE: Any questions for Kirby on the Addendum and his presentation? Basically we're at a decision point on the options that were presented. Let's look for a motion. Dr. Pierce.

DR. DAVID PIERCE: First of all I would like to thank Kirby, as well as Nichola Meserve of my staff who worked quite hard on this document to get it where it is right now. I think it's very well done. It does address the motion that was made by the Policy Board back in May. Thank you very much for all of that work, especially you Kirby, who got us to this particular point.

I am going to make a motion that we, I haven't provided it so it's going to have to be, it's a simple motion so don't worry. **I would move that we approve Draft Addendum VI to the spiny dogfish interstate fishery management plan with state transfer quota Option Number 2, allowing quota transfers between all states and regions. With Option 2 allowing quota transfers between all states and regions.**

CHAIRMAN BATSAVAGE: Is the motion up on the board the way you want it? Okay. Second,

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The Board will review the minutes during its next meeting.

Draft Proceedings of the Spiny Dogfish Management Board Meeting
October 2019

Ritchie White, discussion on the motion, yes Ritchie.

MR. G. RITCHIE WHITE: I just wanted to have the honor of seconding Dr. Pierce's probably last motion in Spiny Dogfish, so thank you, David.

CHAIRMAN BATSAVAGE: Is there any other discussion on the motion? I guess just a question with the motion the way it's written. It looks like it's adopting Option 2 and the Plan, do we still need to do a separate motion to adopt the Plan or is this all in one? All in one okay, I guess the next question is, since the final action is wrapped in here, would this be a roll call vote at the same time? Toni.

MS. TONI KERNS: The only other thing that we would need in there is the implementation date. I believe it's effective immediately if I recall correctly, but it would be good to throw it in there, and yes Chris, it would be roll call. You can see if anyone objects if you want.

CHAIRMAN BATSAVAGE: Is there any objection for including the implementation date becoming immediately in the motion? Is there any objection or abstentions for this motion? Jay McNamee.

MR. JASON McNAMEE: No objection, a question. This one I thought had, so it may be there and it's implicit in the motion. But there was a piece about per the agreement of the states involved. I'm not sure if I'm being clear, but there needed to be, so in the northern region it's multiple states. I recall that there needed to be agreement between the states before the transfer could occur, and so is that implicit in this motion?

CHAIRMAN BATSAVAGE: Kirby.

MR. ROOTES-MURDY: Yes, it is outlined in Option 2 that all the states have to agree on a transfer who are in that region. The Administrative Commissioners have to sign off

on that indicate that to staff, and then we would process it based off of that.

MR. McNAMEE: Thank you for the clarification.

CHAIRMAN BATSAVAGE: Okay so if there are no objections, abstentions or null votes, I think we can approve this motion by consent. Okay actually what I'll do now is in Kirby's presentation he mentioned the federal waters trip limit question that was a part of the Addendum. I want to tee that up right now. As you saw in Kirby's presentation there wasn't much comment received in general, and it was mixed on this question.

Some of the things we heard about it is the marketing challenges appear to be the bigger issue at the moment, when it comes to the fishery. I also represent my agency on the Mid-Atlantic Fishery Management Council, and this time of year the Mid-Atlantic Council goes through their priorities for 2020.

Those will be finalized in December, but with discussion at the Executive Committee it doesn't appear that the federal waters trip limit issue is among their list of priorities. It probably won't rise to the top. I just wanted to at least make this Board aware of that at the Mid-Atlantic Council level. With that I'll ask any Board members on how they want to proceed regarding this topic. David Borden.

MR. DAVID V. BORDEN: You know since we had mixed reviews, we did have some I thought useful written comments submitted, but at least in the case of Rhode Island we had poor attendance at the meeting, at the Public Hearing, namely because it's a wind meeting about every five minutes in our area, and people are just getting burned out going to regulatory hearings.

These are just personal comments. The impediment to making (microphone stopped working) progress on this I think is us, the Commission process. We have an advisory role

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in this. All we can do is to advise both the Service and the New England Council and Mid-Atlantic Council of our preferences on it. But we haven't had like a caucus among the states.

I mean we have states represented around the Council that have spoken in favor of this. Rhode Island has spoken in favor of the concept. I think Maryland has done the same thing. There have been some positive comments, even from some of the fishermen out of Chatham on the concept, in addition to some North Carolina fishermen.

What I would suggest is like a two-step process. I don't think we need to start an addendum or do anything like that. I think what we need is a dialogue. To me the first step would be, between now and the next meeting arrange a conference call of the New England states, and basically try to get the dialogue going among the New England states of is this a desirable thing to do and how. How would you do it?

More importantly, what will the Commission do to take action to put something in place that would replace the federal trip limit? I can't envision either one of the Councils or the federal government removing the federal trip limit, unless they had some assurance that the Commission was going to take some action to support a controlled harvest in federal waters. I think the onus is on us, and I think the first step is basically to have a dialogue of the New England states for a report at the next meeting, and then based on that report we could decide on whether or not there is a next step and what the next step is. That is my suggestion on how to move this issue forward.

CHAIRMAN BATSAVAGE: Just a question on that. Are you thinking of the Commissioners from the New England states, or would you also include folks in the industry such as the Advisors for spiny dogfish in those states too for this conference call? Just trying to get an understanding of who will be involved, as far as trying to get to what you're hoping.

MR. BORDEN: I was just thinking of the state agencies themselves first, and then if they could flesh out at least a range of options. Then I think they can broaden the discussion with the industry advisors. But right now we're kind of starting at ground zero on this. There isn't a proposal for a substitute set of regulations.

I think it would just benefit the states to get together and discuss it. Then if they can reach some kind of consensus, by all means I think they should seek the input of the industry. I have no objections to an industry listening and participating in the conference call. It's simpler if you have five people talking instead of 20.

CHAIRMAN BATSAVAGE: Thanks for the clarification. I would like to hear from other folks, particularly some of the New England states regarding David Borden's idea for a continuing dialogue on the federal waters trip limit issue. Ritchie White.

MR. WHITE: I agree with David. I think we've got to proceed with this, and I think that's a good starting point.

CHAIRMAN BATSAVAGE: Is there any objection, oh, David Pierce.

DR. PIERCE: No, I have no objection to that approach, I won't be around anyways, so the next Director will embrace it I'm sure.

CHAIRMAN BATSAVAGE: Okay fair enough. Kirby, I guess this would be something that the Commission would facilitate a conference call, and based on. Oh, Eric Reid.

MR. ERIC REID: You can continue that conversation if you want. My question is just about what is the timing of this going to look like? You know there is a letter in our packet from Tom Nies of the New England Council. He had several reasons why he didn't want to deal with it. You can all read those, I won't repeat them here.

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But, I would assume that whatever this discussion may be, we're going to have to have it before our combined meeting in December in Annapolis with the Mid, and then bring it up in front of everybody. Maybe by then we'll know what the priorities are in the Mid-Atlantic. It might die an instant death right there, Mr. Chairman. I don't want to go through a lot of effort and end up with zero in December, and I don't want to drag it out past December either.

CHAIRMAN BATSAVAGE: I'll let Kirby speak to the timing of that because yes, there are some challenges with this, so Kirby.

MR. ROOTES-MURDY: As Chris mentioned before, it's been communicated to us that the Mid-Atlantic Council is not taking up an action on spiny dogfish federal trip limit in 2020. The plan right now is that in their draft priorities they don't have that. We have staff from the Mid-Atlantic Council here today.

They can speak to how likely it would be that if you had a conference call between now and that joint meeting, whether that would change anything. I have a sense of how that might go, but they could probably speak to it better. You can sit at the table now. Yes, Jason Didden would like to provide some comments as Council staff.

MR. JASON T. DIDDEN: Thank you. This was in our potential additions in the 2019 Implementation Plan, and the way the Council handled it is we tried to talk the issue up a bit for our AP meeting, kind of highlighted that that issue would come up during the AP meeting. Again, didn't get a lot of participation. What we did get was mixed.

The same thing the Council reviewed the comments you guys solicited on this issue as kind of that scoping question. Given the minimal comments that were received and their mixed nature, the Council at this point has decided not to include it in the 2020 Implementation Plan. Now it is draft, it can

change in December, but based on the Council's evaluation of both the input coming in from our AP, and your scoping process, it's not on the list of priorities for 2020 at this time.

CHAIRMAN BATSAVAGE: Thanks Jason, actually next I had Mike Luisi, oh Mike you're good, anyone else? Okay so Kirby, I guess we can work to try to schedule a conference call. I'm just trying to figure out where it would go next, because I think at some point it would have to come back to the Board, and I'm not sure when the Board will meet again. Kirby if you could just give some thoughts on that. Then I'll go to David.

MR. ROOTES-MURDY: Maybe as additional background, there have been calls organized earlier this year for the Mid-Atlantic States Commissioners to talk about this issue, and get their feedback on how the federal trip limit either should be adjusted or eliminated. We have that call summary that we could pull together, and then we can do another call for the New England states, and report out both of those calls to this body.

But I think it might be helpful just to be clear that that would be basically you all getting on calls to summarize how you feel about it, and then me summarizing that for you at a meeting here. I'm not entirely sure kind of what the timetable is that you would want to deal with this in, if it's not for action in 2020.

We could schedule these calls in 2020 for a 2021 action if that's of interest. But I think it's important to keep in mind kind of where the Councils have indicated their priorities are, at least for the upcoming year, and consider that with when these calls need to happen and what the goal of them should be.

CHAIRMAN BATSAVAGE: David.

MR. BORDEN: I don't see this as an action item. (Microphone glitch) It's something to do with my voice. I don't see it as an action item for

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2020. I think if the assembly here basically agrees to a conference call, we do the conference call and we report back to this group, the full group at the winter meeting, which will be the next meeting.

Then we decide at that point on the next step. To me the logical next step would be to expand the dialogue with the Mid-Atlantic States. If the New England States come to some kind of agreement on it, then the next step would be to discuss it with a broader group here, and see if the broader group is in agreement. Then we decide when and how to submit a written recommendation to the Councils on the issue. That would put it on a 2021 timeframe.

CHAIRMAN BATSAVAGE: Mike Luisi.

MR. MICHEAL LUISI: David, I'm glad you made your last point about bringing it back to the broader group and including the Mid-Atlantic States. You know some would see that in Maryland we have a state waters trip limit of 10,000 pounds, which is larger than the federal waters limit.

Some would say well then all of your fishermen would prefer perhaps having that higher trip limit in federal waters, and that is not necessarily always the case. We often get a split decision on this issue when we bring it before our permit holders in Maryland. As long as the discussion from New England is going to fold back to the southern states, I think that will be a good thing.

In the meantime I think I'll certainly work with my staff to try to get any additional feedback that we can draw out of our permit holders, to be able to inform that discussion, and if you would like just for consideration, Kirby and David. As the Council Chair I wouldn't mind participating as a silent partner in the conference call, just to keep my head wrapped around the discussion, because again if this comes before the Council. You know the more

information that I can have at those meetings is helpful for me.

CHAIRMAN BATSAVAGE: I'll go to Jason Didden then David Pierce, Jason.

MR. DIDDEN: Just one other thing to consider, in terms of timing. Right now multiyear specs are set through April of 2022. There is a benchmark assessment scheduled, I think for review in early 2022. The Council, based on the results of that action will be probably looking to do some kind of interim measure that is effective May 1, 2022.

Then spinning up a specifications action to take in the results of that 2022 benchmark, and then adjust specs for the remainder of 2022, and then going forward probably for several years, so 2022 is likely to have some kind of spiny dogfish action going on to set specifications. Just in terms of timing of when things might be happening, I just thought I would relay that.

CHAIRMAN BATSAVAGE: Thanks Jason, I appreciate that. David Pierce.

DR. PIERCE: This Board has discussed the trip limit aspect to the spiny dogfish in New England at previous meetings. Rhode Island has had a perspective that they shared with us, and it did not prevail at the time if I recall correctly. In preparation for whatever conference call is held, it would be useful to know what Rhode Island's end game is, in other words what does Rhode Island attempt to achieve by doing away with the federal commercial trip limit? That will be helpful, because it will give all Board members advanced notice as to what eventually will come before this Board.

It's not clear to me yet what Rhode Island is trying to achieve by getting rid of the federal trip limit. Perhaps Rhode Island will want a 10,000 pound trip limit as opposed to a lower Massachusetts trip limit, so it puts the states at a disadvantage in terms of competition for the quota. We've discussed this issue already, and

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it will come up again I'm sure. Anyways, it will be important to know what eventually will come before this Board as a motion from Rhode Island to deal with trip limits, if we get rid of the federal trip limit.

CHAIRMAN BATSAVAGE: Are there any other comments on this? Kirby, so we've got I guess a plan as far as having a conference call of the New England states, where Mike Luisi would like to listen in as Mid-Atlantic Council Chair. I will probably join the call too, to listen in and to report back in February. But I guess a question for Kirby or Toni, were we planning on having a Spiny Dogfish Board meeting at the winter meeting?

MS. KERNS: We haven't planned out the winter board meeting yet, so we could. We'll have a pretty full winter meeting; I'm pretty sure with menhaden assessments being released.

CHAIRMAN BATSAVAGE: Okay so I guess it's possible we could shoehorn that in from a timing standpoint. I guess other considerations. I guess based on that Toni, it's possible we could shoehorn in a board meeting at the February meeting and it will work out.

MS. KERNS: Oh yes.

CHAIRMAN BATSAVAGE: Anything else on the federal waters trip limit issue? I think we have a plan to keep this moving forward for now. I guess we'll just be in touch as far as when to schedule a conference call.

**REVIEW AND REVISE THE 2020/2021
SPINY DOGFISH SPECIFICATIONS**

CHAIRMAN BATSAVAGE: If nothing else, we'll move on to the next item, which is Review and Revise if necessary the 2020/2021 Spiny Dogfish specifications. I'll pass it over to Kirby again.

MR. ROOTES-MURDY: This is a very quick presentation. Basically the Mid-Atlantic Council met earlier this month to consider whether to

modify any of the specifications for the 2020 fishing year. They decided not to take any action, so they're leaving the three-year specifications that they approved last year in place.

Today if this Board wants, you all could choose to modify the northern region trip limit for 2020. Keep in mind that you did specify it for three years last year, but it's at your prerogative if you wish to change that. That would really be the one item, if you all wish to take action today on. I'll take any questions if you have any, thanks.

CHAIRMAN BATSAVAGE: Any questions for Kirby? Okay any interest in changing the northern regions state waters trip limit? Since there is no interest we'll, I guess specifications will stand from our end. Thanks that was easy.

**CONSIDER APPROVAL OF THE
2019 FMP REVIEW AND STATE COMPLIANCE**

CHAIRMAN BATSAVAGE: Next is Consider Approval of the 2019 FMP Review and State Compliance, Kirby again on that one.

MR. ROOTES-MURDY: I'll quickly go through the spiny dogfish FMP Review and State Compliance. Just an overview, I'll remind you all what the status of the stock is based on the 2018 stock assessment update, what the commercial quota and landings were, and then state compliance and *de minimis* requests.

Based on that assessment update last year, female spawning stock biomass was estimated at 106,000 metric tons approximately in 2018. Again that's a projected biomass. In 2017 the F rate on female biomass was estimated to be at 0.2 and has remained below the target level since 2005. In terms of the commercial quota and landings, as I talked about in the Addendum VI presentation, the fishing year ran from May 1, 2018 to April 30 of this year.

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The quota was 38 million pounds, the trip limit was 6,000 pounds for the northern region states, and commercial landings in total were approximately 16.74 million pounds. That's about a 14 percent increase from fishing year 2017, and dead discards decreased by about 16 percent down to 8.5 million pounds.

Recreational landings and dead discards decreased, and landings were approximately 77,162 pounds, which is about a 73 percent decrease. The dead discards were estimated to be about 1.6 million pounds, which is a 4 percent increase. In terms of state compliance and *de minimis*, the Plan Review Team reviewed all state compliance reports.

All regions and states harvested within their quota, and all states implemented the regulations consistent with the requirements of the FMP. New York and Delaware have both requested *de minimis* status. They harvested less than 1 percent of the total landings, and therefore they meet the requirements of *de minimis* for 2018. With that I'll take any questions.

CHAIRMAN BATSAVAGE: Any questions for Kirby? **We'll see if we can get a motion to approve the FMP review and state compliance and *de minimis* requests. Motion by Senator Miramant; get a second, Emerson Hasbrouck.** Is there any discussion on the motion, any opposition to the motion or abstentions? We'll get it up on screen first.

I'll read it into the record too. **Move to accept the FMP Review and state Compliance Reports for Spiny Dogfish and *de minimis* requests from New York and Delaware. Are there any objections or abstentions to the motion? Okay it's approved by consent.** The next item we could cover now or when we meet in February is to elect a Vice-Chair.

ELECTION OF VICE-CHAIR

CHAIRMAN BATSAVAGE: The next item we could cover now or when we meet in February is to elect a Vice-Chair

I didn't know if anyone was interested in serving as Vice-Chair. If not we can cover that in February, I guess. But I'll open it up for now. Maybe too early in the morning to volunteer themselves, we'll take care of it in February, easy enough.

ADJOURNMENT

CHAIRMAN BATSAVAGE: Is there any other business to come before the Spiny Dogfish Management Board? Seeing none, we're adjourned. Thanks everyone.

(Whereupon the meeting adjourned at 8:45 o'clock a.m. on October 29, 2019)



Mid-Atlantic Fishery Management Council
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Michael P. Luisi, Chairman | P. Weston Townsend, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: September 23, 2020
To: Council
From: Jason Didden, staff
Subject: Spiny Dogfish Monitoring Committee (SDMC) Summary and 2021-2022 Specifications Recommendations¹

The SDMC met on September 14, 2020. SDMC members present included Jason Didden, Chris Kellogg, Conor McManus, Cynthia Ferrio, Nichola Meserve, Angel Willey, Kathy Sosebee, David Behringer, and Scott MacDonald (ex officio). Other participants included Kirby Rootes-Murdy, June Lewis, Jim Fletcher, Allison Ferreira, Janice Plante, David Stormer, Sonny Gwin, Greg DiDomenico, Scott Curatolo-Wagemann, and John Whiteside.

Given the Scientific and Statistical Committee's Acceptable Biological Catch (ABC) recommendation, the SDMC recommends using the new ABC to formulate 2021/2022 fishing year quotas using updated information where applicable (see Table 1 below). This would increase the commercial quota by 27% from 2020 to 2021 (under the originally adopted 2021 specifications, the quota would have increased 18% from 2020).

Related to its task to recommend measures necessary to avoid exceeding the Annual Catch Limit, the SDMC concluded that changes to the current 6,000 pound trip limit do not appear necessary. The SDMC noted that as long as the states are adhering to their quotas based on the overall ABC/ACL, different trip limits should not affect stock size. Major changes, such as removing the federal trip limit or removing the complete closure once 100% of the quota is caught, are more appropriate for frameworks or amendments where more analysis and public comment can be evaluated. If there were no federal trip limits then vessels would be governed by state limits when in state waters. The interplay of trip limits and prices may make it difficult to predict fishery responses to modified trip limits. J. Didden noted that due to workload constraints (no spiny dogfish action was planned for 2020), MAFMC staff would likely not be able to complete an Environmental Assessment (EA) needed to consider substantial trip limit changes. An abbreviated NEPA document can be used however to change just the specifications/quota. NMFS staff noted that potentially New England Fishery Management Council (NEFMC) staff could develop such

¹ Other related materials included in the briefing book: SSC Report (see Committee Reports Tab); Staff ABC Memo; AP Fishery Performance Report; and Fishery Information Document.

an EA if the NEFMC deemed trip limits to be a high priority. The Councils could consider trip limit changes via a separate future action if desired/prioritized.

Follow-up by NMFS-GARFO staff indicated that it might be possible from a NEPA perspective to consider a trip-limit change up to 7,000-8,000 pounds via the abbreviated document **if** the case could be made that there have been no significant changes in the fishery/environment, and that the previous analyses addressed the likely impacts. However, given the previous document examining trip limits (the 2016-2018 Specifications EA) only included data through 2014 and acknowledged the uncertainty about price effects from additional trip limit changes, Council staff recommends that further trip limit changes be considered via a separate action that could more fully use recent data to consider socio-economic impacts. A separate action would also facilitate public awareness and participation – given the fishery is in the middle of multi-year specifications, fishery participants may not be expecting consideration of trip limit changes. Staff also notes that some advisors supported reconsidering trip limits and some advisors opposed any changes at this time.

Table 1. Spiny Dogfish Specifications

| Specifications | Basis for Original 2019-2021 Specifications | 2019 (pounds) | 2019 (mt) | 2020 (pounds) | 2020 (mt) | 2021 Original (pounds) | 2021 Original (mt) | 2021 Revised/2022 (pounds) | 2021 Revised/2022 (mt) | Basis for Revised 2021 (and 2022) Specifications |
|--------------------|---|---------------|-----------|---------------|-----------|------------------------|--------------------|----------------------------|------------------------|--|
| OFL (from SSC) | Projected Catch at Fmsy | 47,507,413 | 21,549 | na | na | na | na | na | na | na |
| ABC (from SSC) | Council Risk Policy | 28,470,497 | 12,914 | 31,142,499 | 14,126 | 35,368,761 | 16,043 | 38,576,487 | 17,498 | SSC, Revised Council Risk Policy |
| Canadian Landings | = 2017 estimate | 108,027 | 49 | 108,027 | 49 | 108,027 | 49 | 99,208 | 45 | = 2018 estimate |
| Domestic ABC | = ABC – Canadian Landings | 28,362,470 | 12,865 | 31,034,473 | 14,077 | 35,260,734 | 15,994 | 38,477,279 | 17,453 | = ABC – Canadian Landings |
| ACL | = Domestic ABC | 28,362,470 | 12,865 | 31,034,473 | 14,077 | 35,260,734 | 15,994 | 38,477,279 | 17,453 | = Domestic ABC |
| Mgmt Uncert Buffer | Ave pct overage since 2011 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Ave pct overage since 2011 |
| ACT | = ACL - mgmt uncert buffer | 28,362,470 | 12,865 | 31,034,473 | 14,077 | 35,260,734 | 15,994 | 38,477,279 | 17,453 | = ACL - mgmt uncert buffer |
| U.S. Discards | = 3 year average 2015-16-17 | 7,661,064 | 3,475 | 7,661,064 | 3,475 | 7,661,064 | 3,475 | 8,800,854 | 3,992 | = 3 year average 2016-17-18 |
| TAL | ACT – Discards | 20,701,406 | 9,390 | 23,373,409 | 10,602 | 27,599,671 | 12,519 | 29,676,425 | 13,461 | ACT – Discards |
| U.S. Rec Landings | = 2017 estimate | 178,574 | 81 | 178,574 | 81 | 178,574 | 81 | 116,845 | 53 | = 2019 estimate |
| Comm Quota | TAL – Rec Landings | 20,522,832 | 9,309 | 23,194,835 | 10,521 | 27,421,096 | 12,438 | 29,559,580 | 13,408 | TAL – Rec Landings |

The 2021/2022 Specifications recommended by the SDMC





Mid-Atlantic Fishery Management Council

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Michael P. Luisi, Chairman | P. Weston Townsend, Vice Chairman

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

MEMORANDUM

Date: August 26, 2020
To: Chris Moore
From: Jason Didden
Subject: Spiny Dogfish Acceptable Biological Catch (ABC)

Spiny Dogfish is in multi-year specifications for 2019-2021. The Council's Scientific and Statistical Committee (SSC) is scheduled to review the 2021 dogfish ABC (year 3 of 3) during its September 2020 meeting. The Dogfish ABC is scheduled to increase from 14,126 MT (31.1 million (mil) pounds (lbs)) in 2020 to 16,043 MT (35.4 mil lbs) in 2021, per earlier recommendations.

Given the cancelation of the spring trawl survey, there is no separate document from NMFS with a data update. Updated landings data are available in the fishery information document, which has been posted to the SSC meeting page, along with the Advisory Panel's Fishery Performance Report. A total of 91% (18.6 mil lbs) of the 2019 quota (20.5 mil lbs) was landed.

Staff does not perceive any substantial change in this fishery since it was last reviewed by the SSC. The Council did pass an updated risk policy, which tolerates a slightly higher risk of overfishing and generates higher ABCs. Using the updated risk policy with the projections previously conducted would result in a revised 2021 ABC of 17,498 MT (38.6 mil lbs). The presumed 2021 overfishing level given previous projections and ABCs (assuming the ABCs were caught) would be 25,077 MT (55.3 million pounds). The original P*s for 2019-2021 were 0.269, 0.274, and 0.296. The revised P* for 2021 would be 0.333. Projections have not been fully redone since dead discard information is not available – the revised ABC is just a result of the new risk policy.

Staff recommends updating the 2021 ABC to 17,498 MT (38.6 mil lbs) per the Council's revised risk policy. Staff also recommends that the same ABC recommendation be considered for the 2022 fishing year. We are expecting a research track assessment in 2022, and there could be substantial administrative efficiencies by setting specifications now for both 2021 and 2022.



Spiny Dogfish AP Fishery Performance Report August 2020

The Mid-Atlantic Fishery Management Council's (Council) Spiny Dogfish Advisory Panel (AP) met via webinar on August 19, 2020 to review the Spiny Dogfish Fishery Information Document and develop the following Fishery Performance Report. The primary purpose of this report is to contextualize catch histories for the Scientific and Statistical Committee (SSC) by providing information about fishing effort, market trends, environmental changes, and other factors. Trigger questions (see below) were posed to the AP to generate discussion of observations in the spiny dogfish fishery. Advisor comments described below are not necessarily consensus or majority statements.

Advisory Panel members attending: Bonnie Brady, Scott Curatolo-Wagemann, Jim Fletcher, Sonja Fordham, Scott MacDonald, John Whiteside, Jr., and Douglas Zemeckis. **Others attending:** Jason Didden, Ron Larsen, Kirby Rootes-Murdy, Chris Batsavage, Stephanie Sykes, Nichola Meserve, Paul Rago, Allison Ferreira, Angel Willey, Yan Jiao, and Cynthia Ferrio.

Trigger questions:

The AP was presented with the following trigger questions:

1. What factors have influenced recent catch (markets/economy, environment, regulations, other factors)?
2. Are the current fishery regulations appropriate? How could they be improved?
3. What would you recommend as research priorities?
4. What else is important for the Council to know?

Market/Economic Conditions

COVID-19 has not had a large impact to date. Similar market issues persist as with previous years – demand has been low but stable recently.

Changing the name to Chip Fish would help with marketing/exports.

There are no Southern processors – they were “burnt” by previous management and won’t get back in without quota stability on a decadal timeframe. They would need to know that the quota won’t go down for 5-10 years.

Not having a processor also depresses NY landings. NY would like some opportunity for trawlers: a bi-monthly larger landing or something similar. Developing other markets, be it fertilizer or processed export, requires a higher trip limit for trawlers, for example a 30,000-pound trip limit 2-3 times per month.

Regarding the fin market – there are self-imposed bans by cargo lines than prohibit fin

transport even from sustainable sources (i.e. this is beyond our control).

Environmental Conditions

Environmental conditions are always a factor. Ongoing mild winter weather in VA has increased VA landings.

Further north in 2020, dogfish have been offshore and vessels have had trouble landing the trip limit, leading to less participation and less landings so far in 2020.

Management Issues

Regulations (especially the trip limit) do not allow a male fishery. State regulations do not allow new fishermen to participate. The current regulations are geared to keep price up and production limited and do not allow industrial production.

Other Issues

Given the lack of an off-shelf survey and vertical water column usage by dogfish, we don't really know the population size.

Allowing dogfish populations to increase has hurt all other fish populations. We need calculations regarding consumption by dogfish of other fish.

With the recent executive order, we need to look at opening way up beyond any recent proposals.

Research Priorities

To add fishery value, we should research the value and production of squalamine in spiny dogfish livers for medical use.

The assessment needs to account for the continual pup production observed in females, which is primarily affected by food availability/consumption.

We should conduct research into the purposes of the horn/spine – is it offensive (weakening potential prey), or defensive?



Spiny Dogfish Fishery Information Document

August 2020

This Fishery Information Document provides a brief overview of the biology, stock condition, management system, and fishery performance for spiny dogfish (*Squalus acanthias*) with an emphasis on recent data. Data sources for Fishery Information Documents are generally from unpublished National Marine Fisheries Service (NMFS) survey, dealer, vessel trip report (VTR), permit, and Marine Recreational Information Program (MRIP) databases and should be considered preliminary. For more resources, including previous Fishery Information Documents, please visit <http://www.mafmc.org/dogfish>.

Key Facts

- 2019 fishing year landings were about 18.6 million pounds; 2018 fishing year landings were about 17.6 million pounds.
- The current 2020 fishing year quota is 23.2 million pounds.
- The 2021 quota would increase to 27.4 million pounds under previously-adopted multi-year specifications if no changes are recommended by the Scientific and Statistical Committee (SSC) or the Council. If projections are amended and accepted by the SSC just based on the Council's new risk policy, the 2021 quota could approximately increase by another 3 million pounds to around 30 million pounds.
- Due to the cancelation of the Spring NMFS trawl survey, there is not much data to update so there is not a separate data update document from NMFS. 2019 calendar year landings (calendar year is used in the assessment but not management) were 17.4 million pounds. The previous data update is available at https://www.mafmc.org/s/3_2019-Data-Update-for-spiny-dogfish.pdf.

Basic Biology

Spiny dogfish is a coastal shark with populations on the continental shelves of northern and southern temperate zones throughout the world. It is the most abundant shark in the western north Atlantic and ranges from Labrador to Florida, but is most abundant from Nova Scotia to Cape Hatteras, North Carolina. Its major migrations on the northwest Atlantic shelf are north and south, but it also migrates inshore and offshore seasonally in response to changes in water temperature. Spiny dogfish have a long life, late maturation, a long gestation period, and relatively low fecundity, making them generally vulnerable to depletion. Fish, squid, and ctenophores dominate the stomach contents of spiny dogfish collected during the Northeast Fisheries Science Center (NEFSC) bottom trawl surveys, but spiny dogfish are opportunistic and

have been found to consume a wide variety of prey. More detailed life history information can be found in the essential fish habitat (EFH) source document for spiny dogfish at: <https://www.fisheries.noaa.gov/region/new-england-mid-atlantic#science>.¹

Status of the Stock

Based on the current biomass reference point and an assessment update considering data through spring of 2018 (available at <http://www.mafmc.org/ssc-meetings/2018/sept-11>), the spiny dogfish stock is not overfished or experiencing overfishing. The 2018 biomass was 67% of the target. Fishing mortality in 2017, the most recent year available, was 83% of the overfishing threshold. A benchmark assessment is scheduled for 2022. The spiny dogfish spawning stock biomass estimate timeseries is provided in Figure 1.²

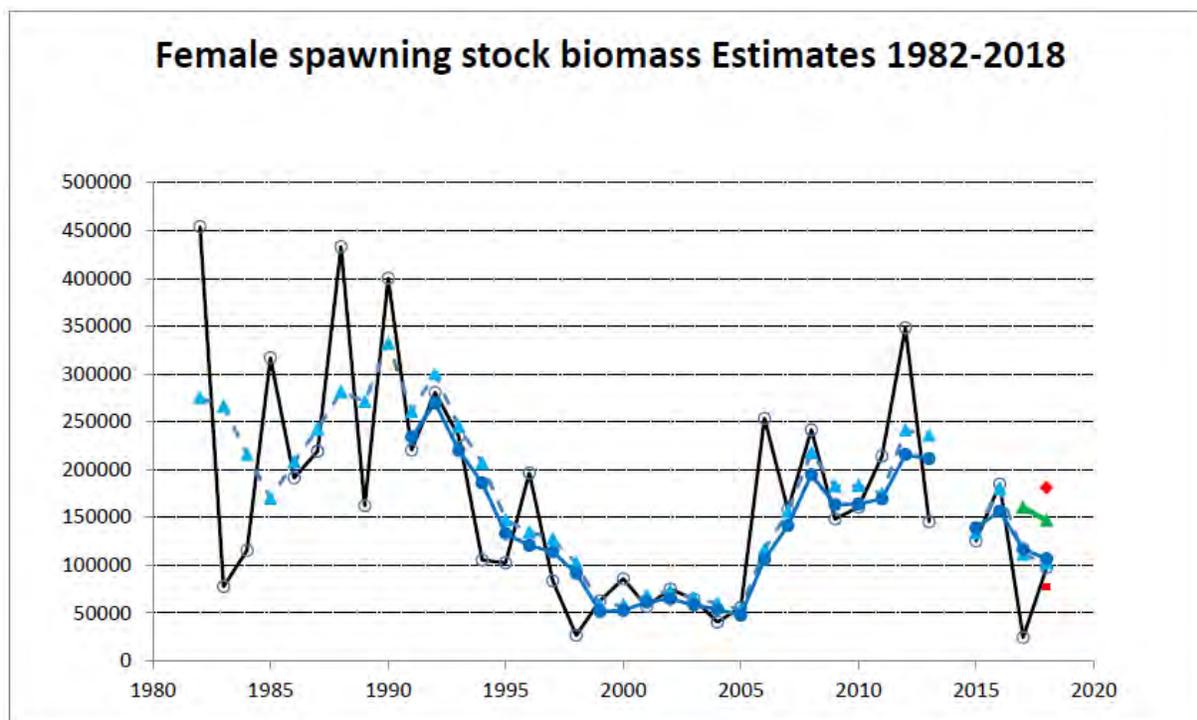


Figure 1. Stochastic SSB estimates for 1991 to 2018. Year refers to the terminal year in the three point moving average. The open circles are the yearly swept area SSB estimates, the blue triangles are the 3-year moving average of the swept area estimates, and the **closed blue circles are the stochastic SSB estimates**. The green triangles are the stochastic estimates not including 2017 and not adjusted with a Kalman filter, and the red diamond (no 2017) and square (with 2017) are the stochastic estimates adjusted with a Kalman filter (not used in last update).²

Management System and Fishery Performance

Management

The Council established management of spiny dogfish in 2000 and the management unit includes all federal East Coast waters.

Access to the fishery is not limited, but a federal permit must be obtained to fish in federal waters and there are various permit conditions (e.g. trip limit and reporting). There is a federal trip limit of 6,000 pounds. Some states mirror the federal trip limit, but states can set their own

trip limits. The annual quota has been allocated to state shares through the Atlantic States Marine Fisheries Commission (<http://www.asafc.org/species/spiny-dogfish>).

Spiny Dogfish three-year specifications were adopted by the Council in October 2018 for May 1, 2019 through April 30, 2022 (the 2019-2021 fishing years). Quotas for these fishing years are 20.5 million pounds (2019), 23.2 million pounds (2020), and 27.4 million pounds (2021). If projections are amended and accepted by the Scientific and Statistical Committee SSC just based on the Council's new risk policy, the 2021 quota could approximately increase by another 3 million pounds to around 30 million pounds.

Recreational landings are a minimal component of fishing mortality, and dead recreational discards comprise a relatively low portion of discard mortality.

Commercial Fishery

Figure 2 and Table 1 illustrate spiny dogfish landings for the 2000-2019 fishing years relative to the quotas in those years. Additional years' landings are available in the 2019 NMFS Science Center data update. The Advisory Panel has previously noted that the fishery is subject to strong market constraints given weak demand.

Figure 3 provides inflation-adjusted spiny dogfish ex-vessel prices in "real" 2019 dollars.

Figure 4 illustrates preliminary landings from the 2020 and 2019 fishing years relative to the current quota. The last 2020/blue data point is typically the most incomplete.

Tables 2-4 provide information on landings in the 2017-2019 fishing years by state, month, and gear type.

Table 5 provides information on the numbers of participating vessels that have at least one federal permit. State-only vessels are not included, but the table should still illustrate trends in participation.

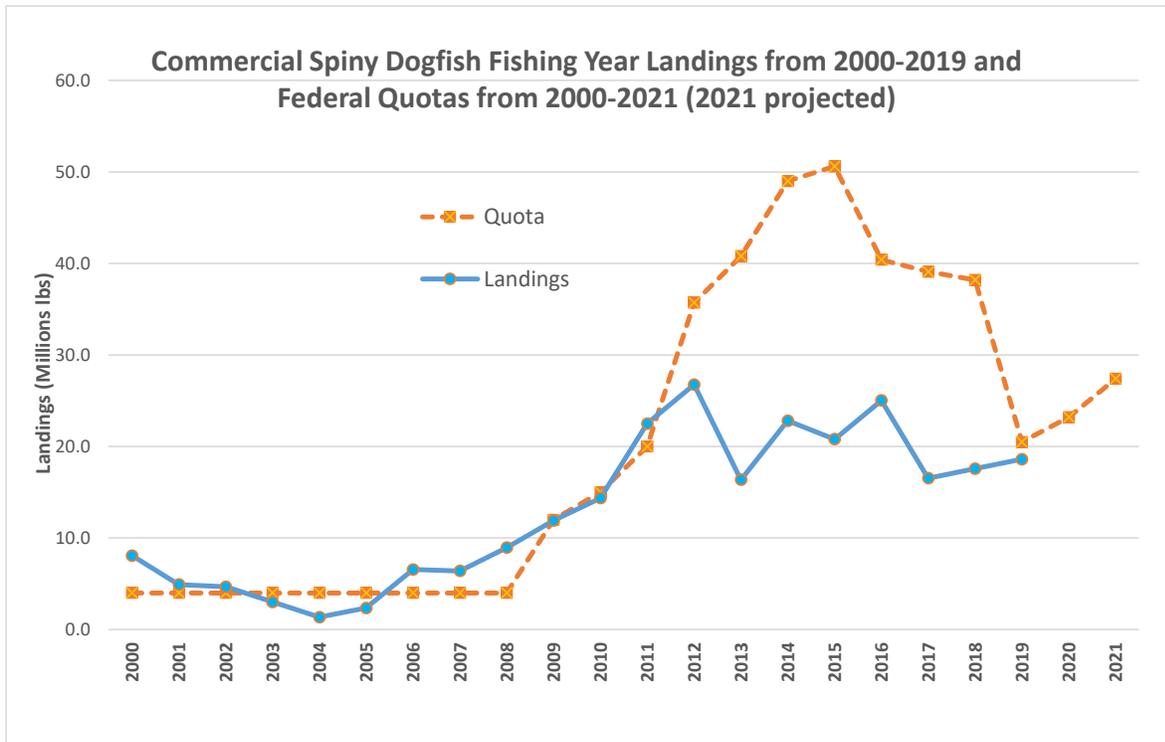


Figure 2. Annual spiny dogfish landings and federal quotas since 2000. ⁴

Table 1. Commercial spiny dogfish fishing year landings from 2000-2019 and federal quotas from 2000-2021 (2020-2021 Proposed)⁴

| Fishing year | Fed Quota (M lb) | Landings (M lb) |
|--------------|------------------|-----------------|
| 2000 | 4.0 | 8.1 |
| 2001 | 4.0 | 4.9 |
| 2002 | 4.0 | 4.7 |
| 2003 | 4.0 | 3.0 |
| 2004 | 4.0 | 1.3 |
| 2005 | 4.0 | 2.3 |
| 2006 | 4.0 | 6.6 |
| 2007 | 4.0 | 6.4 |
| 2008 | 4.0 | 8.9 |
| 2009 | 12.0 | 11.9 |
| 2010 | 15.0 | 14.4 |
| 2011 | 20.0 | 22.5 |
| 2012 | 35.7 | 26.8 |
| 2013 | 40.8 | 16.4 |
| 2014 | 49.0 | 22.8 |
| 2015 | 50.6 | 20.8 |
| 2016 | 40.4 | 25.0 |
| 2017 | 39.1 | 16.5 |
| 2018 | 38.2 | 17.6 |
| 2019 | 20.5 | 18.6 |
| 2020 | 23.2 | |
| 2021 | 27.4 | |

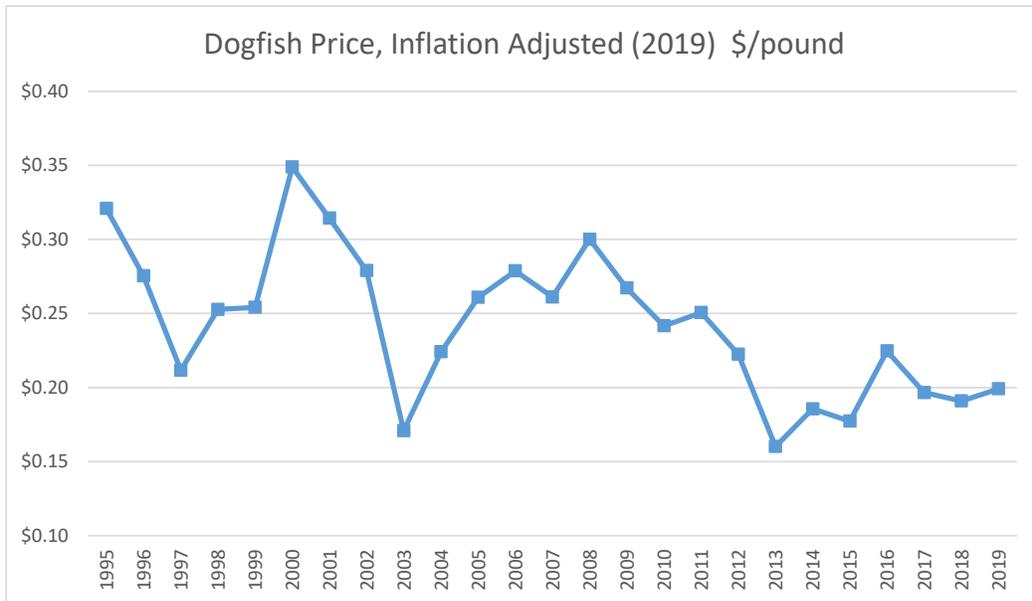


Figure 3. Price of spiny dogfish (\$/live pound) (adjusted to 2019 “real” dollars using the GDP deflator, 1995-2019 fishing years. Given the difference between fishing year and the calendar year used for inflation adjusting, adjusted prices are approximate. Source: NMFS unpublished dealer data.⁴

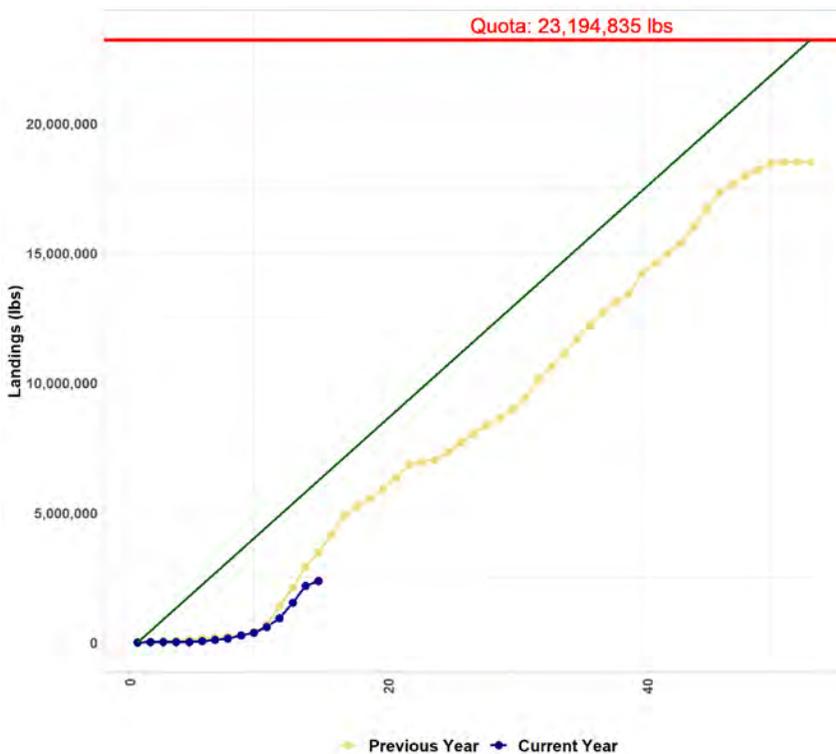


Figure 4. Preliminary Spiny dogfish landings; the 2020 fishing year is in blue through August 12, 2020, and the 2019 fishing year is in yellow-orange. Source: <https://www.fisheries.noaa.gov/new-england-mid-atlantic/commercial-fishing/quota-monitoring-greater-atlantic-region> .⁴

Table 2. Commercial Spiny Dogfish landings (live weight – millions of pounds) by state for 2017-2019 fishing years. Source: NMFS unpublished dealer data. ⁴

| fishyear | MA | VA | NJ | NC | NH | MD | RI | Other | Total |
|-----------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--------------|--------------|
| 2017 | 9.6 | 2.5 | 1.9 | 0.7 | 0.8 | 0.6 | 0.3 | 0.1 | 16.5 |
| 2018 | 7.7 | 5.5 | 1.3 | 1.4 | 0.5 | 0.9 | 0.2 | 0.1 | 17.6 |
| 2019 | 6.6 | 7.0 | 1.9 | 1.6 | 0.7 | 0.4 | 0.3 | 0.1 | 18.6 |

Table 3. Commercial Spiny Dogfish landings (live weight – millions of pounds) by month for 2017-2019 fishing years. Source: NMFS unpublished dealer data. ⁴

| fishyear | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | Total |
|-----------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|--------------|
| 2017 | 0.2 | 0.4 | 3.7 | 3.3 | 1.5 | 1.6 | 1.0 | 1.7 | 0.7 | 0.9 | 0.9 | 0.5 | 16.5 |
| 2018 | 0.0 | 0.1 | 2.3 | 2.7 | 1.8 | 1.5 | 1.3 | 2.5 | 1.6 | 1.8 | 1.2 | 0.8 | 17.6 |
| 2019 | 0.1 | 0.2 | 2.3 | 2.7 | 1.6 | 1.0 | 1.6 | 2.5 | 2.2 | 1.9 | 2.2 | 0.3 | 18.6 |

Table 4. Commercial Spiny Dogfish landings (live weight – millions of pounds) by gear for 2017-2019 fishing years. Source: NMFS unpublished dealer data. ⁴

| fishyear | GILL_NET_SINK_OTHER | UNKNO WN | HAND_LINE_OTHER | GILL_NET_SET_STAKE_SEA_BASS | TRAWL_OTTER_BOTTOM_FISH | LONGLINE_BOTTOM | Other | Total |
|-----------------|----------------------------|-----------------|------------------------|------------------------------------|--------------------------------|------------------------|--------------|--------------|
| 2017 | 8.7 | 4.1 | 1.9 | 0.7 | 0.8 | 0.0 | 0.3 | 16.5 |
| 2018 | 10.0 | 3.2 | 1.8 | 1.3 | 0.4 | 0.5 | 0.4 | 17.6 |
| 2019 | 11.8 | 2.7 | 0.5 | 1.5 | 0.5 | 1.3 | 0.3 | 18.6 |

Table 5. Participation by fishing year of federally-permitted vessels. State-only vessels are not included. ⁴

| YEAR | Vessels 200,000+ | Vessels 100,000 - 199,999 | Vessels 50,000 - 99,999 | Vessels 10,000 - 49,999 | Total with at least 10,000 pounds landings |
|-------------|-----------------------------|--|--|--|---|
| 2000 | 16 | 10 | 8 | 43 | 77 |
| 2001 | 4 | 12 | 10 | 33 | 59 |
| 2002 | 2 | 14 | 8 | 31 | 55 |
| 2003 | 4 | 5 | 3 | 17 | 29 |
| 2004 | 0 | 0 | 0 | 42 | 42 |
| 2005 | 0 | 0 | 1 | 67 | 68 |
| 2006 | 0 | 4 | 11 | 114 | 129 |
| 2007 | 1 | 2 | 21 | 72 | 96 |
| 2008 | 0 | 5 | 20 | 119 | 144 |
| 2009 | 0 | 11 | 42 | 166 | 219 |
| 2010 | 0 | 26 | 54 | 124 | 204 |
| 2011 | 1 | 48 | 73 | 135 | 257 |
| 2012 | 25 | 55 | 56 | 146 | 282 |
| 2013 | 10 | 27 | 45 | 87 | 169 |
| 2014 | 27 | 38 | 38 | 81 | 184 |
| 2015 | 31 | 33 | 36 | 59 | 159 |
| 2016 | 52 | 26 | 14 | 45 | 137 |
| 2017 | 28 | 27 | 24 | 32 | 111 |
| 2018 | 28 | 26 | 20 | 35 | 109 |
| 2019 | 29 | 25 | 21 | 29 | 104 |

Staff received a request about participation in May-July 2020 (i.e. most recent year to date) versus May-July 2019. GARFO staff was able to look at recent data, and noted the following. In 2020 so far through July, numbers of federal permits landing any spiny dogfish dropped from 90 to 64; numbers of federal permits landing at least 25,000 pounds dropped from 34 to 24; numbers of federal permits landing at least 50,000 pounds dropped from 24 to 18.

References

¹ Stehlik, Linda. 2007. Essential Fish Habitat source document: Spiny Dogfish, *Squalus acanthias*, Life History and Habitat Characteristics. NOAA Technical Memorandum NMFS-NE-203; 52 p.

² NEFSC 2018. Spiny Dogfish Assessment Update. Available at <http://www.mafmc.org/ssc-meetings/2018/sept-11>.

³ NEFSC 2019. Spiny Dogfish Data Update. Available at <http://www.mafmc.org/ssc-meetings/2019/september-9-11>.

⁴ Unpublished NMFS dealer and/or Vessel Trip Report data.

Atlantic States Marine Fisheries Commission

Atlantic Striped Bass Management Board

October 21, 2020

1:30 – 4:30 p.m.

Webinar

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>D. Borden</i>) | 1:30 p.m. |
| 2. Board Consent | 1:30 p.m. |
| • Approval of Agenda | |
| • Approval of Proceedings from August 2020 | |
| 3. Public Comment | 1:35 p.m. |
| 4. Consider Approval of State Implementation Plans for Addendum VI Mandatory Circle Hook Requirements (<i>M. Appelman</i>) Final Action | 1:45 p.m. |
| 5. Review Technical Committee Report on Factors Limiting Recreational Release Mortality Estimates (<i>K. Sullivan</i>) | 2:15 p.m. |
| 6. Consider Draft Amendment 7 Public Information Document for Public Comment (<i>M. Appelman</i>) Action | 2:45 p.m. |
| 7. Other Business/Adjourn | 4:30 p.m. |

MEETING OVERVIEW

Atlantic Striped Bass Management Board Webinar

October 21, 2020

1:30 – 4:30 p.m.

Webinar

| | | |
|---|---|---|
| Chair: David Borden (RI) Assumed Chairmanship: 02/20 | Technical Committee Chair: Kevin Sullivan (NH) | Law Enforcement Committee Rep: Kurt Blanchard (RI) |
| Vice Chair: Martin Gary (PRFC) | Advisory Panel Chair: Louis Bassano (NJ) | Previous Board Meeting: August 3 and 4, 2020 |
| 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 August 2020

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 Approval of State Implementation Plans for Addendum VI Mandatory Circle Hook Requirements (1:45 – 2:15 p.m.) Final Action

Background

- Addendum VI requires the mandatory use of circle hooks when fishing for striped bass with bait to reduce discard mortality in recreational striped bass fisheries.
- States must implement mandatory circle hook requirements by January 1, 2021
- States submitted implementation plans for Addendum VI circle hook requirements August 15

Briefing Materials

- The Striped Bass Plan Review Team (PRT) met September 8 to review state circle hook plans and develop comments for Board consideration **Briefing Materials**

Presentations

- PRT report by M. Appelman

Board Actions for Consideration

- Consider approving state implementation plans for circle hook requirements

5. Review Technical Committee Report of Factors Limiting Recreational Release Mortality Estimates (2:15 – 2:45 p.m.)

Background

- The Technical Committee (TC) estimates that 9% of all recreationally caught striped bass that are released alive die as a result of that fishing interaction, commonly referred to as release mortality or discard mortality.
- Recreational release mortality constitutes a significant portion of total striped bass mortality because the fishery is predominately recreational, and the majority of striped bass catch is released alive (90% annually since 1990).
- The Board tasked the TC to review factors limiting recreational release mortality estimates to improve understanding and inform possible actions to address or reduce discard mortality in the fishery **Briefing Materials**.

Presentations

- TC report by K. Sullivan

6. Consider Draft Amendment 7 Public Information Document for Public Comment (2:45-4:30 p.m.) Action

Background

- The status and understanding of the striped bass stock and fishery has changed considerably since implementation of Amendment 6 in 2003, which has raised concerns that the existing management program may no longer reflect current fishery needs and priorities.
- Accordingly, the Board initiated development of Draft Amendment 7 to consider addressing a number of important issues that have been facing striped bass management for a long time.
- The Plan Development Team developed the Draft Amendment 7 Public Information Document (PID) which is a broad scoping document intended to focus public input and inform development of the Draft Amendment (**Supplemental Materials**)

Presentations

- Draft Amendment 7 Public Information Document by M. Appelman

Board Actions for Consideration

- Consider approving the PID for public comment

7. Other Business/Adjourn (4:30 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

- PDT – develop all documentation for the development of Draft Amendment 7
- SAS/TC – various taskings in response to the 2018 benchmark assessment and relating to development of Draft Amendment 7
- TC – June 15th: Annual compliance reports due

TC Members: Kevin Sullivan (NH, chair), Jason Boucher (DE, vice chair), Nicole Lengyel Costa (RI), Olivia Phillips (VA), Alexei Sharov (MD), Carol Hoffman (NY), Charlton Godwin (NC), Ellen Cosby (PRFC), Gail Wippelhauser (ME), Gary Nelson (MA), Brendan Harrison (NJ), Jeremy McCargo (NC), Kurt Gottschall (CT), Luke Lyon (DC), Bryan Chikotas (PA), Peter Schuhmann (UNCW), Gary Shepherd (NMFS), Steve Minkkinen (USFWS), John Ellis (USFWS), Katie Drew (ASMFC), Max Appelman (ASMFC)

SAS Members: Gary Nelson (MA), Alexei Sharov (MD), Hank Liao (ODU), Justin Davis (CT), Michael Celestino (NJ, Chair), John Sweka (USFWS), Gary Shepherd (NMFS), Katie Drew (ASMFC), Max Appelman (ASMFC)

PDT Members: Nichola Meserve (MA), Nicole Lengyel Costa (RI), Brendan Harrison (NJ), Olivia Phillips (VA), Simon Brown (MD), Jason Boucher (DE), Derek Orner (NMFS), Greg Wojcik (CT)

Tagging Subcommittee (TSC) Members: Stuart Welsh (WVU, Chair), Heather Corbett (NJ, Vice Chair), Angela Giuliano (MD), Beth Versak (MD), Chris Bonzak (VIMS), Gary Nelson (MA), Ian Park (DE), Jessica Best (NY), Carol Hoffman (NY), Gary Shepherd (NMFS), Josh Newhard (USFWS), Wilson Laney (USFWS), Katie Drew (ASMFC), Max Appelman (ASMFC)

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

**Webinar
August 3 and 4, 2020**

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August 4, 2020

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INDEX OF MOTIONS

1. **Approval of agenda** by consent (Page 1).
2. **Move to approve proceedings from May 20, 2020** by consent (Page 1).
3. **Move to approve the 2020 Fishery Management Plan Review and state compliance reports for Atlantic striped bass** (Page 5). Motion by Emerson Hasbrouck; second by Cheri Patterson. Motion carried (Page 5).

Postponed Motions from April 2019

Main Motion

Move to initiate an Amendment to the Atlantic Striped Bass Fishery Management Plan to address the needed consideration for change on the issues of fishery goals and objectives, empirical/biological/spatial reference points, management triggers, rebuilding biomass, and area-specific management. Work on this amendment will begin upon the completion of the previously discussed addendum to the management. Motion postponed indefinitely.

4. **Move to postpone indefinitely the motions made during the April 2019 meeting of the Board** (Page 25) . Motion by Mike Luisi; second by Justin Davis. Motion carried (Page 25).
5. **Move to initiate an Amendment to the Atlantic Striped Bass Fishery Management Plan focused on the following management topics: (1) fishery goals and objectives; (2) stock rebuilding/timeframe; (3) management triggers; (4) biological reference points; (5) regional management (recreational measures, coastal and producer areas, regional reference points); (6) recreational discard mortality; (7) conservation equivalency; (8) recreational accountability; and (9) coastal commercial quota allocation. Each of these topics will be presented in a Public Information Document in order to solicit 5 stakeholder comment focused on prioritizing the importance of each topic for continued development and inclusion in the Amendment** (Page 25). Motion by Mike Luisi; second by Megan Ware. Motion carried (Page 31).

Motion to Amend

Move to amend to remove part 9: coastal commercial quota allocation from the initial motion (Page 27). Motion by Emerson Hasbrouck; second by Justin Davis. Motion failed (Page 31).

6. **Move to task the Plan Development Team/Technical Committee to begin developing methods to better understand discards in the fishery** (Page 33). Motion by Eric Reid; second by Marty Gary. Motion carried (Page 39).
7. **Move to elect Marty Gary as Vice chair of the Atlantic Striped Bass Management Board** (Page 39). Motion by Megan Ware; second by Roy Miller. Motion carried (Page 39).

INDEX OF MOTIONS (continued)

Postponed Motion from February 2020

Move to task the Plan Review team to review state reductions in the fishery Management Plan Review of the 2020 fishing year. If a state is below their predicted target reduction, the Board may direct a state to modify he Board may direct a state to modify measures for the following fishing year to achieve the target reduction .

8. **Move to postpone indefinitely with the intention to address accountability in the initiated amendment** (Page 41). Motion by Megan Ware; second by Justin Davis. Motion carried (Page 43).
9. **Adjourn** by consent (Page 45).

Draft Proceedings of the Atlantic Striped Bass Management Board Meeting Webinar
August 2020

ATTENDANCE

Board Members

| | |
|---|--|
| Patrick Keliher, ME (AA) | Heather Corbett, NJ, Administrative proxy |
| Megan Ware, ME, Administrative proxy | Tom Fote, NJ (GA) |
| Sen. David Miramant, ME (LA) | Adam Nowalsky, NJ, proxy for Asm. Houghtaling (LA) |
| Cheri Patterson, NH (AA) | Kris Kuhn, PA, Administrative proxy |
| Ritchie White, NH (GA) | Loren Lustig, PA (GA) |
| Dennis Abbott, NH, proxy for Sen. Watters (LA) | G. Warren Elliott, PA (LA) |
| Dan McKiernan, MA (AA) | John Clark, DE, proxy for D. Saveikis (AA) |
| Mike Armstrong, MA, Administrative proxy | Roy Miller, DE (GA) |
| Raymond Kane, MA (GA) | Craig Pugh, DE, proxy for Rep. Carson (LA) |
| Rep. Sarah Peake, MA (LA) | Bill Anderson, MD (AA) |
| Jason McNamee, RI (AA) | Mike Luisi, MD, Administrative proxy |
| David Borden, RI (GA) | Robert Brown, MD, proxy for R. Dize (GA) |
| Eric Reid, RI, proxy for Sen. Sosnowski (LA) | Phil Langley, MD, proxy for Del. Stein (LA) |
| Justin Davis, CT (AA) | Pat Geer, VA, proxy for S. Bowman (AA) |
| Bill Hyatt, CT (GA) | Sen. Monty Mason, VA (LA) |
| Robert LaFrance, CT, Governor Appointee proxy | Steve Murphey, NC (AA) |
| Matt Gates, CT, proxy for Sen. Miner (LA) | Chris Batsavage, NC, Administrative proxy |
| Jim Gilmore, NY (AA) | Jerry Mannen, NC (GA) |
| Maureen Davidson, NY, Administrative proxy | Daniel Ryan, DC, proxy for B. King |
| Emerson Hasbrouck, NY (GA) | Marty Gary, PRFC |
| John McMurray, NY, proxy for Sen. Kaminsky (LA) | Derek Orner, NMFS |
| Joe Cimino, NJ (AA) | Mike Millard, USFWS |

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

Ex-Officio Members

| | |
|---|--|
| Kevin Sullivan, Technical Committee Chair | Kurt Blanchard, Law Enforcement Representative |
| Mike Celestino, SAS Chair | |

Staff

| | |
|-----------------|--------------------|
| Robert Beal | Chris Jacobs |
| Toni Kerns | Jeff Kipp |
| Max Appelman | Kirby Rootes-Murdy |
| Kristen Anstead | Sarah Murray |
| Tina Berger | Joe Myers |
| Pat Campfield | Mike Rinaldi |
| Katie Drew | Mike Schmidtke |
| Maya Drzewicki | Caitlin starts |
| Kristen Anstead | Deke Tompkins |
| Lisa Havel | Geoff White |
| Sarah Hylton | |

Guests

| | | |
|---------------------------|---------------------------------|-----------------------|
| Karen Abrams | Matt Ayer, MA DMF | Jessica Best, NYS DEC |
| Rep. Thad Altman, FL (LA) | Joey Ballenger, SC DNR | Alan Bianchi, NC DNR |
| Pat Augustine, Coram, NY | John Bello | Ellen Bolen, VMRC |
| Michael Auriemma, NJ DEP | Peter Benoit, Ofc. Sen King, ME | Jason Boucher, DE DFW |

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.

Draft Proceedings of the Atlantic Striped Bass Management Board Meeting Webinar
August 2020

Guests (continued)

| | | |
|------------------------------|--------------------------------|-------------------------------|
| William Brantley, NC DENR | Peter Himchak | Olivia Phillips, VMRC |
| Delayne Brown, NH F&G | Kyle Hoffman, SC DNR | Kelly Place |
| Jeff Brust, NJ DEP | Carol Hoffman, NYS DEC | Nicholas Popoff, US FWS |
| Mike Celestino, NJ DEP | Asm. Eric Houghtaling, NJ (LA) | Dominick Pucci |
| Matt Cieri, ME DMR | Rusty Hudson, DSF | Michael Quinan |
| Joe Cimino, NJ DEP | Bob Humphrey, Pownal, ME | Jill Ramsey, VMRC |
| Germain Cloutier | George Jackman | Harry Rickabaugh, MD DNR |
| Allison Colden, CBF | Stephen Jackson, USFWS | Matt Rogers, VMRC |
| Catlyn Craig | Jeff Kaelin, Lund's Fisheries | Mike Ruccio, NOAA |
| Jane Crowther, Omega Protein | Desmond Kahn | Eric Schneider, RI DEM |
| Jeff Deem | Adam Kenyon, VMRC | Tara Scott, NOAA |
| Patrick Denno | Adrienne Kotula, CBF | Alexei Sharov, MD DNR |
| Russell Dize, MD (GA) | Toby Lapinski | Andy Shiels, PA F&B |
| John Duane | Tom Little, NJ Legislature | Davie Sikorski |
| Paul Eidman | Carl LoBue, TNC | Melissa Smith, ME DMR |
| Peter Fallon | Dee Lupton, NC DENR | Gregory Sorg, SC DNR |
| Catherine Fede, NYS DEC | Chip Lynch, NOAA | Ross Squire |
| Lynn Fegley, MD DNR | Pam Lyons Gromen | David Stormer, DE DFW |
| Corrin Flora, NC DENR | Shanna Madsen, VMRC | Helen T-Heumacher, US FWS |
| Jared Flowers, GA DNR | John Maniscalco, NYS DEC | Howard Townsend, NOAA |
| Julien Frank | Steve Minkkinen, US FWS | Taylor Vavra |
| Tony Friedrich, SGA | Frank Misel | Beth Versak, MD DNR |
| Matt Gates, CT DEEP | Nichola Meserve, MA DMF | Mike Waine, ASA |
| Lewis Gillingham, VMRC | Steve Meyers | Hannah Welch |
| Angela Giuliano, MD DNR | Chris Moore, CBF | Craig Weedon, MD DNR |
| Lee Goldberg | Brandon Muffley, MAFMC | Catlyn Wells, SC DNR |
| Willy Goldsmith, SGA | David Mussina | Angel Willey, MD DNR |
| Kurt Gottschall, CT DMF | Ken Neill | Charles Witek, W. Babylon, NY |
| Shepherd Grimes, NOAA | George O'Donnell, MD DNR | Chris Wright, NOAA |
| Jake Hardy | Tyler O'Neill | Spud Woodward, GA (GA) |
| Brendan Harrison, NJ DEP | Travis O'Neal | Erik Zlokovitz, MD DNR |
| William Harward | Patrick Paquette, MA SBA | Renee Zobel, NH FGD |
| Doug Haymans, GA (AA) | Rich Pendleton, NYS, DEC | |

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.

Draft Proceedings of the Atlantic Striped Bass Management Board Meeting Webinar
August 2020

The Atlantic Striped Bass Management Board of the Atlantic States Marine Fisheries Commission convened via webinar; Monday, August 3, 2020, and was called to order at 9:00 a.m. by Chairman David V. Borden.

CALL TO ORDER

CHAIRMAN DAVID V. BORDEN: Welcome all. The first meeting of the week is the Atlantic Striped Bass Management Board. For the record, my name is David Borden. I'll be chairing the meeting. Welcome you all.

APPROVAL OF AGENDA

CHAIRMAN BORDEN: We'll proceed with the agenda the way it was published. In terms of Board Consent, do we have any objections to approving the agenda as submitted? Toni, are there any hands up?

MS. TONI KERNS: Mike Luisi has his hand up.

CHAIRMAN BORDEN: Mike.

MR. MICHAEL LUISI: No objections, Mr. Chairman. I just was wondering if we could potentially at the end of the meeting, once we get through the agenda, maybe under new business. I just wanted to put it on your radar if you thought it would be appropriate. As you know, states are going through the process right now to implement circle hook requirements as part of the provisions of Addendum VI.

I was hoping that, at the conclusion of our agenda under new business, that we might be able to spend a few minutes to go around the table to just get a sense as to what people are thinking about regarding the coastal circle hook requirements. I know our implementation plans are due in a few weeks, but it would be helpful to me, and I'm sure others, to spend a few minutes at the end of the meeting talking about that. I just wanted to see if you thought that that would be appropriate, maybe

tomorrow afternoon after we get through the agenda.

CHAIRMAN BORDEN: Yes, I have no objection to that as long as we have time, everyone recognizes we have a very limited amount of time to go over these issues, so if we can accommodate that we will start the discussion.

MS. KERNS: David, Jim Gilmore has his hand up as well.

CHAIRMAN BORDEN: Excuse me.

MS. KERNS: Jim Gilmore has his hand up.

CHAIRMAN BORDEN: Go ahead.

MR. JAMES J. GILMORE: It was the same request, Mr. Chairman. Mike beat me to it, but yes there is a lot of stuff that we could talk about on that. I think it's a good thing to do, if we can squeeze it in a few minutes at least.

CHAIRMAN BORDEN: Okay, we'll add that to the agenda if the time allows, or at least have a short discussion on it. The agenda is approved as submitted.

APPROVAL OF PROCEEDINGS

CHAIRMAN BORDEN: The next item of business is approval of the proceedings from May 20. Normally we handle this by consensus. Is there any objection to approving the proceedings as submitted? Toni, any hands up?

MS. KERNS: No objections.

CHAIRMAN BORDEN: No objections, so the proceedings stand approved without objection.

PUBLIC COMMENT

CHAIRMAN BORDEN: We always afford the public an opportunity to comment at these. The comment period is limited to items which are not on the agenda, and we limit the amount of time that is

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.

available for the public. Are there any members of the public that want to comment on issues that are not on the agenda? Toni.

MS. KERNS: I don't see any members of the public with their hands raised, and if there was a member of the public that wants to speak, and you can't figure out the hand raise, you can always send us a question of a chat and let us know.

CONSIDERATION OF THE FISHERY MANAGEMENT PLAN REVIEW AND STATE COMPLIANCE

CHAIRMAN BORDEN: Okay, we have no questions, so we'll proceed with Agenda Item 4, Consideration of the FMP Review and State Compliance. I just simply note as an introductory comment that there are no problems that have been noted as part of this. I would hope for the approval to proceed on that. Max, do you want to offer a comment?

MR. MAX APPELMAN: We'll just get the presentation up on the screen. Maya, that link didn't work for me. Maybe if you could just pull it up on your end.

MS. KERNS: David, don't forget to mute your microphone when you're not talking, because I think we get a little feedback from you.

MS. MAYA DRZEWICKI: Max, do you want me to make myself the presenter again?

MR. APPELMAN: Yes, it's not working on my end, if you could just show it on yours and flip through it for me. Excellent, thanks Maya. Sorry about that guys. This is the 2020 FMP Review for striped bass. It focuses on the 2019 fishing season. The Plan Review Team reviewed State Compliance reports back in July, and the draft report is included in supplemental meeting materials, hopefully you have it in front of you.

Like Dave said, we don't have that much time this morning, so I'm going to move through this pretty quickly, and just hit the high points. As a reminder, this is an action item. You do have a motion typed up and ready to go. We'll just need someone to make that motion, and a second of course. Quick overview of the sections in the report. There is a summary for the status of the stock, status of the management plan, status of the fishery and fishery performance in 2019, status of management measures and compliance, and then of course Plan Review Team comments and recommendations. For stock status, we're still using the results of the 2018 benchmark stock assessment, which found the stock overfished and experiencing overfishing in 2017. That is the terminal year of that assessment. A reminder that the 2018 benchmark does use the new MRIP estimates, so cannot be directly compared to previous assessments.

Then in the table, looking at the 2017 spawning stock biomass estimates relative to their target and thresholds. This is a figure from that report, a lot going on here, but in the blue shaded area in the back that is female spawning stock biomass over time. The trajectory is very similar to previous assessments, but the scale is different, and the declines and the peaks are a little steeper compared to previous reports, especially in the more recent part of the time series.

You can see the solid line and the dash lines at the top in black. Those are the SSB targets and thresholds. The gold bars at the foreground that is recruitment estimates through time. They are somewhat variable, there was a period of low recruitment at the early part of the time series, followed by a period of higher recruitment in the middle, and more recently a period of lower recruitment.

However, there are three notable, strong recruitment events in 2012, 2015, and 2016. The dashed orange line that is the average recruitment across the time series. Then briefly, this is the fishing mortality rate, a figure from the assessment. You can see that ACT has been above the target for

a number of years, dating back to the mid-1990s, and has been above the threshold in 13 of the last 15 years.

In 2019, Amendment 6 and its Addenda I through IV set the regulatory and monitoring programs for striped bass. Recall that Addendum VI was approved in October of 2019, but final measures weren't implemented until April of this year. It was not in place for the 2019 reporting period. Of course, the Board is considering postponed motions later today and tomorrow, which are consider initiating an amendment to address a suite of different management issues.

Moving to status of the fishery. This is a look at fishery performance over time by sector. At the bottom in blue is commercial harvest, and discards in red, which are relatively stable through time. The commercial sector is managed by a quota system, and a static quota system at bass since 2015. Again, most of the removals here are coming from the recreational sector. You have harvest in green, and discards in the purple color.

The recreational estimates are much more variable through time. There are peaks in the 2000s, and you can see how they tail off a little bit in recent years. Now we're zooming in on the 2019 fishing season. This is sort of a broad view of fishery performance. Typically, for striped bass, we talk about catch and harvest in terms of numbers of fish, and the percentages in the parentheses here are the relative change to the previous year, so relative to 2018.

Overall, total removal of that being commercial and recreational harvest plus dead discard from both sectors was estimated at 5.47 million fish, and that is a 5 percent decrease relative to 2018. On the commercial side there was a 4 percent increase, in terms of numbers of fish, but a 12 percent decrease by weight, indicating more fish harvested but smaller average fish size, which is corroborated by reports from the

ocean commercial fishery reporting a lot of high catch of sublegal size fish, particularly off of New York. Chesapeake Bay accounted for 66 percent of the harvest by weight, and discards were accounted for at less than 2 percent of total removals in 2019. On the recreational side, harvest was estimated at 2.15 million fish. That is a 4 percent decrease relative to 2018. Releases also came down by 8 percent.

Dead discards were estimated 2.6 million fish, and that accounted for 47 percent of total removals in 2019. Lastly, the Plan Review Team did discuss fishery performance by region as well, specifically Chesapeake Bay versus the ocean fishery. I'm not going to go into detail here, but there is some dialogue in the report on Pages 6 and 7, I believe that highlights those differences, and the different fishing conditions that were experienced in most of the regions.

Quickly here, reviewing the first proportion of recreational catch that is thrown back. These are the total catch estimates in the blue bars, which are quite variable. But the proportion of fish that are released alive remains relatively high. That's the red line at the top of the figure. About 90 percent per year, going back to the early '90s are thrown back, and that proportion has been above 90 percent the last few years, and in 2019.

This table is showing commercial quota monitoring. You have commercial quota then harvest for 2019 in those first two columns, and then the final 2020 quotas are presented on the right side, and they do account for approved conservation equivalency programs, as well as any overages. There was one overage by Maryland in Chesapeake Bay.

You can see that at the bottom of the table, and that will be deducted from its 2020 quota. Again, all those quotas on the right-hand side are final, and reflect overages and season programs. These figures show the 2020 Juvenile Abundance Index Analysis for this year. The Review Team looked at the 2017, 2018, and 2019 index values, and no management action is triggered at this time.

Of note though, North Carolina's index value was below its respective threshold in 2018 and 2019, so that is definitely something to pay attention to next year. Also, Maine and New York values were below their threshold in 2019. Virginia and New Jersey's values were above average for the time series, I'm sorry were about average for the time series, and Maryland's was above its threshold, but well below average. You can see these figures much clearer in the report.

Wrapping up with Review Team comments and recommendations. In 2019, the Plan Review Team determined that all states implemented a regulatory and monitoring program consistent with the requirements of the FMP. There are tables in the back of the report that summarize state regulations by sector, also a table for fishery independent and dependent monitoring requirements and compliance, as well as the commercial harvest tagging program.

Those are summarized by state as well. As far as *de minimis* requests, there weren't any requests for 2019. The last bullet here is the Plan Review Team did note two inconsistencies in state regulations for 2020. New York and Delaware's recreational measures permit harvest of fish less than and equal to the maximum size limit, as opposed to just less than the maximum size limit to reflect the Addendum VI measures and the approved implementation plans. But I'll note that this was already flagged. The Board reviewed updated projections that in May you'll recall, and at that time these items were flagged, those projections were based on final 2020 state measures. This has been brought up before, nothing new there. Yes, that's it for me, Mr. Chair. I'm happy to take questions if there are any, but otherwise as mentioned, this is an action item. We do have a motion drafted and prepared. We can bring that up on the screen, and if someone is willing to make that motion, we'll be looking for approval.

CHAIRMAN BORDEN: All right, questions for Max.

MS. KERNS: You have John McMurray and then John Clark.

CHAIRMAN BORDEN: Okay, John McMurray.

MR. JOHN G. McMURRAY: I had a question about the Juvenile Abundance Indices. Can we put that slide up again that showed all the different charts of different watersheds? Generally, we pay close attention to the Maryland JAI, and you don't hear much about the Virginia one. But just looking at these two, they seem very different in their results. I think that is odd, given that it is the same watershed. Is there any explanation of that? Why do we focus on the Maryland survey more than the Virginia survey, and why do you think they are so different?

MR. APPELMAN: It's a good question. You know these two surveys are surveying different parts of the Bay. I would have to look back into the management plan to find which specific rivers they're surveying. We review each of these indices every year, and if some members are focused more on the Maryland Bay, it is more predictive of what is going to be happening out on the water that is fine. But we do review each of these independently.

MR. McMURRAY: Okay thanks, I was just more curious than anything else.

CHAIRMAN BORDEN: John Clark.

MR. JOHN CLARK: Yes, just quickly. I just wanted to point out that Delaware is now in compliance. Our regulation change goes into effect August 11. That will have us at less than 35 inches as the maximum size, so we are in compliance on that now.

CHAIRMAN BORDEN: Any other hands up, Toni?

MS. KERNS: No, you're all set.

CHAIRMAN BORDEN: That motion Max, could you put that up on the board, please? Can I have someone to make it, please?

MR. APPELMAN: Maya is going to pull that up really quick.

MS. KERNS: We have Emerson Hasbrouck.

CHAIRMAN BORDEN: Emerson, make your motion to approve the 2020 Fishery Management Plan Review and state compliance reports for the Atlantic striped bass. Is there a second to that motion?

MS. KERNS: Cheri Patterson.

CHAIRMAN BORDEN: Sounds great. Cheri, is the seconder, thank you. Do we have any objections to the motion? Any hands up?

MS. KERNS: I see no objections.

CHAIRMAN BORDEN: Okay, motion stands approved without objection.

DISCUSS WORK GROUP REPORT ON ISSUES TO BE CONSIDERED IN THE NEXT MANAGEMENT DOCUMENT

CHAIRMAN BORDEN: The next item on the agenda is the Work Group Report, and just as a quick introduction. The last time the Board met we agreed to put together a small work group, which has met I think four times, and done a lot of excellent work on the pros and cons of various strategies. We're going to get two reports. I ended up appointing two different co-chairs, and I think we're going to start off with Megan, and then we'll move to Marty, who are both giving reports. Megan.

MS. MEGAN WARE: This is Megan, good morning everyone. Marty and I were co-chairs of this Workgroup, so we're going to be splitting up the presentation today of our report. As the Board Chair mentioned, the Workgroup met four times between this Board meeting and the

last Board meeting. The Workgroup spent over ten hours discussing these topics.

Distilling all of that conversation into a 15-minute presentation is a little difficult, and I definitely recommend reading through the Workgroup report, if you haven't done so already, to get a better flavor of what we talked about. As a reminder, the Workgroup was tasked with discussing issues related to concerns of current management of striped bass, and specifically we talked about potential issues that could be included in a future management document.

The Workgroup was confident that we are not a Plan Development Team, so we are not the group charged with developing specific alternatives. Instead, the Workgroup focused on identifying challenges or concerns with the current FMP, areas of improvement. We talked about pros and cons of different strategies.

Then we also developed some questions for the Board for areas of feedback from the public. We're going to start the Workgroup presentation with kind of a broader view of some of the overarching discussion of the workgroup, and the themes which emerge. Throughout the four calls, the Workgroup noted several management challenges, which have emerged for striped bass.

I think the first one that we talked a fair bit about was the 2018 benchmark stock assessment, and how this has changed our understanding of stock status. This is really due to the change in MRIP estimates. We now have higher recreational catch and harvest estimates than we previously thought, and this has resulted in higher fishing mortality estimates throughout the time period. But there are also other challenges. This fishery is extremely complex. We have fish from the Hudson River, the Delaware Bay, the Chesapeake Bay. They are all merging in a mixed-stock fishery along the Atlantic Coast. Unfortunately, this complexity is not requested in the modeling with the stock, so this limits the Board's ability to implement measures which reflect this complexity. We have a

geographically diverse fishery, and this can often result in differing goals and objectives. We also have regional fisheries, which look very different from one another, so that can depend on the sizes of fish, or the availability of fish, and also this regional practices in culture.

We have F rates which are variable from year to year, even under a single management program. This can make it hard to project catch and effort. Then we also have challenges with MRIP. Even though this is our best available data for the recreational sector, particularly when you get at finer-scale estimates, like the state level for entry level.

There is going to be high levels of uncertainty and variability, and this limits the Board's ability to have a flexible management program, while also maintaining accountability. Through our four calls on the Workgroup, there were three themes which emerged. They were management stability, flexibility and consistency.

The Workgroup acknowledged that there are some elements of these which are in conflict with one another, and there are others that probably work well together. But using the analogy of a Venn diagram, the Workgroup commented that there is a sweet spot between balancing these different ideas, and it's the degree of overlap between these different ideas, which means they are either easy or challenging to find that point of balance.

These themes were also commented on being central to striped bass management, and they could be guiding principles, if the Board decides to initiate action. Now I'm going to talk about some of the specific issues the Workgroup discussed. There are 10 of them, and we'll go one-by-one. Our first was stock rebuilding.

As a reminder, the Board is required to take action to rebuild SSB to the target in ten years or less. Our most recent projection suggests

that in 2029, we will be at 97 percent of the SSB target. The Workgroup began its discussion with an acknowledgement that that first bullet point on the slide is a projection.

How do we incorporate the uncertainty around these projections into our management decisions, as well as our definition of success? There were comments that many striped bass management decisions are rooted in stock projections, and sometimes the results of these are taken at face value. I think there was an acknowledgement by the Workgroup that this has resulted in some criticism from the public.

In terms of the ten-year rebuilding timeframe, the Workgroup commented that it's long, but it is likely appropriate, given the biology of striped bass. Then there was also a note that stock rebuilding is closely tied to management triggers and reference points, and we will talk about those next.

Our second issue was management triggers. As a reminder, Amendment 6 includes five management triggers that are tied to fishing mortality, SSB, and recruitment. Overall, there was strong support from the Workgroup to revisit these management triggers. Once it's noted that the triggers are requiring different change on different timeframes. For example, there is a one-year window for looking at exceeding the F threshold. Other triggers are based on two consecutive years of SSB estimates. We have a three-year timeframe for recruitment, and all of these different timeframes mean action is being required at different times to address different concerns, and that this is in conflict with the theme of management facility.

Further, there were some Workgroup members who noted that while the triggers can require frequent change, there needs to be an acknowledgement that F can be variable from year to year under the same management measures. The Workgroup also discussed the one-year requirement to get back to the F target.

There were some who noted that stakeholders support this requirement, while others believed it promotes more of a knee jerk reaction that isn't always necessary. Several Workgroup members commented that management triggers should be developed which strike a balance between management stability and accountability.

Then finally, the Workgroup kind of posed a question. I think this is not a unique question for striped bass, and we certainly didn't answer it. But how could the Board balance the magnitude of change in an action versus the time to get to our target, and how do we think about some of the communities in our decision?

Our third topic was reference points. Currently our reference points are based on historical stock performance in 1995, and they are applied coastwide. The Workgroup began its discussion with talking about the current assessment, and how it really fails to capture the complexities of our stock structure, and it has uncertainty to aspects of stripe bass management.

There was very strong support from the Workgroup to continue to develop that 2-stock model. There was also support from several Workgroup members to revisit reference points now, even if we don't have that 2-stock model. Some Workgroup members questioned if 1995 is still appropriate for a reference year, given we had improved data and advanced modeling, which has changed our understanding of historical stock performance.

Some pointed to the fact that our 2018 stock assessment indicates that the SSB target has never been achieved. But I think kind of in the same breath, the Workgroup also acknowledged that F has been above the F threshold for some time, so that may be contributing to that SSB trends routine.

The Workgroup also talked about regional reference points that can be pursued under our current assessment framework. In the current model we have removals that are separated into two fleets, a Chesapeake Bay fleet, and an ocean fleet. These fleets could be used to explore regional reference points.

However, the Workgroup noted that a challenge with this is how to apportion the coastwide F reference points between those two regions. Our fourth topic was FMP goals and objectives. I think there was an acknowledgement from the Workgroup that goals and objectives are going to vary, depending on where you are and how an angler is interacting with the resource. The Workgroup did not suggest eliminating any of the existing goals and objectives. I think many Workgroup members highlighted that some of the objectives are still quite relevant, so things like management stability, balancing flexibility with consistency to sustain essential habitat. All of those are still quite relevant.

But the Workgroup did jot down some ideas of objectives which may be missing from the current FMP. Reflecting stock complexity in the assessment science, consistent management and monitoring, recognizing impacts of climate change, improving catch accounting for the recreational sector, and then promoting "responsible fishing." This was getting at the idea of circle hooks, which were implemented in Addendum VI.

Our fifth topic was commercial allocations. As a reminder, Amendment 6 restored commercial allocations to 100 percent of average catch from 1972 to 1979, except for Delaware, who has kept it at 2002 level. Since then there have been many management changes, and conservation equivalencies. I think it's a little muddier than just that simple explanation.

Some Workgroup members expressed concern that the commercial allocations are a poundage, and they are not a percentage. As a result, they are not inherently linked to the status of the stock. This

means that to change commercial allocations you have to go through an addendum or an amendment.

In contrast, we think that something like the menhaden FMP, their commercial quotas are a percentage of a total allowable catch, and that means allocations are scaling as either biomass increases or decreases. There were also comments that different states are subject to different timeframes for quota.

As I mentioned, Delaware was capped at its 2002 level in Amendment 6. I think there were also questions about the accuracy of the data between 1972 and 1979, particularly that far back there were questions about the accuracy of harvester reports during that time, and if that timeframe is still relevant.

There were also discussions on the potential influence of climate change on the stocks, so some Workgroup members noted that not all states are meeting their quotas, and is that indicative of climate change? Finally, there was a comment that the commercial fishery is accounting for about 10 percent of removals, and this potentially speaks to the ability to control catch and effort in the striped bass fishery. That is my half. Marty, I will pass it off to you.

MR. MARTIN GARY: Good morning everyone, and as Megan mentioned, she has taken you through the first five issues the Workgroup addressed, and there is another five, and I'll walk you through those. Then there will be an opportunity for the Board to ask questions. Our next topic is conservation equivalency.

The Workgroup reflected on the recent Addendum VI conservation equivalency process. We looked at pros and cons specific to that. Pros included flexibility of management, and the ability for a single FMP to consider regional differences in a fishery. Cons listed included reduced consistency between the

states, greater imprecision in the data used to craft measures, and the potential to fall short of the overall target. Then we discussed could we better define the purpose of conservation equivalency, and how can it be applied? Including potential restrictions during periods of stock rebuilding, greater guidelines on the measures that can be used, and to limit the number of conservation equivalency proposals submitted for review.

Then we went into regional management, and we discussed producer versus coastal regions in a larger theme breakout, and unique considerations of the producer areas due to the development of smaller fish throughout the season. The producer versus coastal area management leaves distinct reference points as a goal for this species.

As Megan had mentioned that is still something the Workgroup members felt strong about. Then this overlapped with discussions with CE and CE proposals that create disparate measures in our region, and the Chesapeake is sort of an example of that right now, where typically we have relatively good regulatory consistency.

Now you have a situation where four Chesapeake jurisdictions, none of the regulations are consistent. Perhaps there is a place for regional management and conservation equivalency, again that overlap in the themes that we mentioned. The recreational accountability, and the Workgroup discussed the harvest and the catch varying due to the availability of the fish, and then high level of variability year to year.

The managers are unable to predict effort, and effort tends to increase exponentially with availability. The Workgroup discussed whether there should be thought carefully to the challenges associated with MRIP. Accountability to what, and at what scale? We discussed how MRIP estimates are generally less accurate at finer scales, and concerns with the accountability based on MRIP point estimates.

Recreational dead discards, more than one of the Workgroup members commented this may be the most important issue. These recreational dead discards accounted for 48 percent of the overall mortality in the terminal year through 2017 of the most recent benchmark stock assessment. During that discussion of recreational dead discards, the Workgroup commented that again this may be one of the most important issues.

Dead discards correlate with the availability and effort, so this can vary widely year to year, as we saw with Max with the FMP update, it dropped in the most recent year, in 2019. We discussed ways to address dead discards, which may include regulatory change. The requirements that we're discussing now we'll hopefully discuss tomorrow, and angler education.

Continued efforts to improve the science, when release mortality rates for assessment purposes have a strong theme in our discussions in the Workgroup. The geographic scope makes addressing dead discards a daunting challenge, but we all agreed that the efforts were worthy of the time to put into that.

In the future management documents should raise awareness of this issue. This was a very, very important issue the Workgroup discussed. Finally, Number 10, protection of larger, older fish. This was not part of the original list of issues, but the Workgroup did agree it was worthy of discussion. The larger fish are more fecund and produce more recruits, as an importance there biologically. Addendum VI implemented maximum sizes in many states, but it also created slot limits, so sort of by default we moved in a direction where we are affording protection. There may be question of continuity of protection for larger fish.

There was a discussion on broad age structure versus protecting older fish. It's all about the fishing effort on a cohort. In this particular

situation one of the goals and objectives of Amendment 6 was to provide a broad age structure, not necessarily protection of the older fish. But in this particular situation under Addendum VI, we've shifted, at least along many of the states along the coast to a slot limit.

We are now affording protection to those larger fish, and concentrating effort on specific cohorts as they move through, so we had a discussion about that. Then finally, general agreement from the Workgroup to bring this up before the Board for further discussion. We created a prioritization survey.

It was anonymous, so there were seven Workgroup members and they submitted answers to various questions, in terms of the priority of these various topics, and the scope of the issues discussed by the Workgroup proved to be very formidable, and a challenge to address comprehensively in one single document.

As a result, the Workgroup discussed prioritizing the issues and providing the Board with a sense of what issues may be combined or addressed by a different process. We made an attempt to pull that together, and I believe the next slide, Maya should have the results of that survey, and this is a small sample size just the seven Workgroup members.

The histogram up top is showing the value, the importance of recreational dead discards, and then the chart below telling the number of Workgroup members, again there are just seven folks in this Workgroup. But you can at least get a sense of where priorities fell out. I will say that something like goals and objectives, it's kind of skewed over, so it's either lower to the right-hand side, the less important side.

We had a pretty vigorous discussion in our last meeting that that is imperative, even though it sort of ranked down the list that we really need to capture this effectively. Again, this just gives you a kind of a snapshot of how these fell out in importance for the various Workgroup members.

This is a time and opportunity for the Board to ask questions about the Workgroup's efforts. The Workgroup was made up of Mike Armstrong from Massachusetts, Mike Luisi from Maryland, Ritchie White, with Dennis Abbot as his proxy for New Hampshire, Joe Cimino from New Jersey, myself and Megan Ware from Maine.

Normally, I think we would all be around a table, and we would be seated up by myself, Megan, Max, and our Board Chair, David Borden. I'll turn it back, Max I guess to you, to see how we want to handle the processing of the questions. Hope that gets us through those issues, and I know we have a little bit more to talk about beyond the question component of this meeting.

CHAIRMAN BORDEN: Thank you, Marty and Megan. Recognizing the fact that we have all of 12 minutes for questions, if we're going to stay on a schedule. Let's take a few questions. Let me just ask, questions for we'll say two questions from Megan, and two questions for Marty, and then see where we go from there. Does anyone care to ask Megan a question on the points that she raised?

MS. KERNS: We have a question from John McMurray, and then Bill Hyatt.

CHAIRMAN BORDEN: Okay, so John then Bill. John.

MR. McMURRAY: I have a question for Megan about themes that emerged. One of them was management stability, and regulatory consistency was the last one, but the two kind of go together, I think. I'm a little confused about where management has been unstable. I think we've had two management changes in the last 17 years were triggered.

One was when the stock was clearly headed downhill, and the other one was when it became overfished. That doesn't seem

excessive, it doesn't seem to be knee-jerk to me. I'm wondering if you could articulate what the Board meant by knee-jerk reactions. Why do we need that flexibility to make things more stable and more consistent, because to me it looks like it is already pretty consistent?

MS. WARE: Thank you for the question, John. This is a diverse Workgroup, so there are lots of different opinions expressed. I think when we talked about management stability that was stability over time, and that consistency was over space, so regulatory consistency for state-to-state, and then also in time. I don't believe the Workgroup, or I don't recall the Workgroup necessarily looking at the history of the actions that have come to date.

But I think the discussion on management stability stems from that trigger discussion, where we were looking at the different triggers and seeing the different timeframes that could be initiated for a change. Commenting that it may be nice, or prudent to have a more cohesive approach to the triggers that wouldn't be triggering something one year, and then something different the second year, and then something different the third year.

MR. McMURRAY: Okay that is helpful to understand. I have a quick follow up about the flexibility portion of the policy. That was listed as a theme, but there wasn't really much discussion of it in the report, as far as I can tell. What does that mean, flexibility to disregard clear science and to allow overfishing, or to change things based on political pressure?

In my view that's pretty clear, and we've certainly heard from stakeholders that that is exactly what they don't want. I'm wondering if preventing overfishing and rebuilding has emerged as a theme at all. You know it's discussed almost cursory in the report. To me, and I think to most stakeholders that would be the top thing in all of this. Maybe you can explain some of that for me, and clarify.

MS. WARE: Sure, for management flexibility that discussion I think stemmed from the recognition that we have a pretty complex fishery. You know different regions have different attributes or fisheries that are in them. Even though we are looking for the stability and consistency of space and time, we also need to acknowledge that regional fisheries are different. There may be different ways to approach or manage those regional differences. I think it was an acknowledgement of that. I can't remember if there was a second part to your question there, John.

MR. McMURRAY: Yes, I'm just wondering where preventing overfishing and rebuilding fall into the discussion, because it's not really talked about much in the report. I was wondering if there was a significant discussion or if this was kind of passed over.

MS. WARE: The very first issue that we did talk about was stock rebuilding, so it was one of the three issues that we talked about in our first webinar. I think our rebuilding folk's discussion really focused on the projection that I referenced, and the fact that this is a projection, and there is lots of uncertainty around this. How is the Board supposed to grapple or move forward with this type of information?

How do we incorporate and acknowledge that uncertainty into our featured management of the stock? The Workgroup is not a decisional body, so we did not make any decisions on the stock rebuilding. But I do believe, I'll quickly look back at the survey. I think stock rebuilding was the third highest ranked topic, so there were clearly some Workgroup members who felt like that was an important topic.

MR. McMURRAY: Okay that has helped.

CHAIRMAN BORDEN: John, we're going to have to move on to Bill, and then take questions from Marty, so Bill.

MR. WILLIAM HYATT: My question has to do with something that is mentioned under the conservation equivalency portion of the report. In that there is a suggestion made that a biological benefit should be demonstrated in a conservation equivalency proposal. I don't think this was included in your summary report, and it doesn't go into a lot of detail in the report itself. I kind of interpreted that as a suggestion that conservation equivalency proposals should include a sort of built in conservation buffer.

I think this probably came about because of the issue that arose recently wherein on a coastwide basis, after all the conservation equivalency proposals were figured in, the overall conservation of benefit came out, or reduction provision came out less than was originally trying for, less than the 18 percent you were intending to achieve. I found this suggestion to be intriguing, and I'm wondering if somebody, yourself or someone on the Workgroup could expand upon it a little bit, maybe provide some detail as to what you were getting at with that comment.

MS. WARE: Sure, Marty feel free to jump in, because I think this is actually on your slide. As a Workgroup member who felt or commented that the purpose of conservation equivalency should be better defined, and there to be kind of a clear goal and objective in using conservation equivalency. Their recommendation was that there be some sort of biological benefit. This would in essence be a bar that a state would have to meet or show when submitting a conservation equivalency proposal. As I mentioned, it's hard to put all of the conservation of the Workgroup on these slides, so I apologize that there wasn't a specific nod for that comment on this slide, but I definitely encourage people to read the Workgroup Report, which has [\[more information on these issues\]](#).

CHAIRMAN BORDEN: All right we're going to move on, a couple of questions for Marty. Toni.

MS. KERNS: It's Tom Fote.

CHAIRMAN BORDEN: Tom.

MR. THOMAS P. FOTE: Yes, I have two questions. One, when we look at the catch rates, did any of you discuss the fact that in Virginia and North Carolina, from basically 2012 to the present, we really do not have a fishery? Not even when the stocks were healthy, they haven't been since 2012. Does that basically relate to water temperature?

That was my first question. Did anybody even think of that when they looked at the figures of participation and basically do it. The second is, I've been dealing with striped bass a long time, and the science has never proved that big fish have more viable eggs, as a matter of fact they don't show up to the spawning grounds as often.

What scientific fact did you look that say smaller, 34, 33, 32-inch females are not more productive or more viable eggs than the larger fish? I mean that is the battle that has been going on, and nobody seems to have a question for the last 30 years that I've been dealing with this.

CHAIRMAN BORDEN: Marty, if you would like to take a stab at that. If you're not comfortable with that for some reason, perhaps somebody else will.

MR. GARY: No, I think I can take a stab I think, David. Tom, thanks for your question, and feel free other Workgroup members to chip in. I guess the first part of your question. You know we did touch upon; I think you're talking about I guess distribution and availability shift in those fish, Tom.

I know we touched on essences of that and discussed for instance, some of the shift northward, especially in the wintering time for those fish that used to be off North Carolina have moved up. That discussion sort of drifted

into different elements of how that would play out, in terms of allocation and things like that.

But we didn't really get deep into the weeds on it. There were nuances of discussion of distribution and changes over time with those fish. The second part of your question, you're talking about the fecundity, I think, and value of those larger fish. Again, that kind of fed into the addition of bringing that last topic into play during the last meeting, the value of the older fish. But we really didn't do a deep dive into the science behind that. It was more a cursory discussion, given the fact that one of the main goals and objectives in Amendment 6 was to provide a broad age structure. Now, we've kind of shifted here under Addendum VI, where we are affording protection to those larger fish, and we're shifting effort into a slot. You know it would kind of go into this discussion, this organic discussion of are we in conflict with the goals and objectives because we did that, and asked Katie a few technical questions. But I don't think we got quite to the level of scientific detail that you're asking in your question. If any of the Workgroup members saw that differently, please correct me.

CHAIRMAN BORDEN: We've got time for; I'll say two comments for Marty. Does somebody else have a question for Marty?

MS. KERNS: You have both Dennis Abbot and Craig Pugh with their hand up.

CHAIRMAN BORDEN: Okay, Dennis you get the last bite of the apple.

MR. DENNIS ABBOTT: I feel compelled to comment about my participation on your Working Group, albeit briefer than I had intended, as I've written out several pages of comments.

CHAIRMAN BORDEN: Dennis, can I interrupt you, and I apologize for interrupting you. Tom, I probably should have announced. Tom Fote had raised some questions about process on the Working Group, and I discussed the situation with Pat Keliher this morning, and suggested to him that

that issue be referred to either the Executive Committee or the Policy Board for a detailed discussion.

What I would like to do is to hold any comments on that issue until the last time. If you've got a specific question on some of the detailed recommendations from the Work Group then please ask, and if not, I would just ask you to hold off on that other aspect of the discussion.

MR. ABBOTT: Thank you, Mr. Chair. I have to make this comment that I was terribly troubled to be personally attacked by your three Commissioners from the state of New Jersey, saying that I participated in this with an agenda. I participated in this because I was asked to do it, because my friend, Ritchie White was recovering from heart surgery. I didn't volunteer for this, and I take great umbrage that my character was attacked in this letter from the state of New Jersey.

CHAIRMAN BORDEN: Okay thank you, Dennis. One other question for Marty and then I'm going to move on and kind of frame where I think we need to go during the second session of the first half meeting, since we're already behind schedule. Another question, who was on the list, Toni?

MS. KERNS: The last person that had their hand raised was Craig Pugh.

CHAIRMAN BORDEN: Craig, go ahead.

MR. CRAIG D. PUGH: My question, I guess it's to Gary, we had a discussion, and I appreciate the availability of him to allow us to talk about this a little bit. My concern is with the prioritization in the last part of the synopsis. As I see in the five-year strategic goal plan, under Number 1, it states in the middle of the paragraph, fishery management plans will also address the fair allocation of fishery resources among the states.

Understanding changing ocean conditions and their impact on fishery productivity and distribution is an elevated priority. My concern is that that would be a more elevated priority as according to what we've stated on our five-year plan. Unless we intend on recognizing this work as just work. Well if this actually has some meaning, then I would like that addressed.

MR. GARY: Mr. Chairman, I think it was more of a comment. I'm not sure I got a question there. But I would just say that the commercial allocation discussion, even though it shows up in prioritization by the Workgroup has fairly low rank, and again I think you have to take that a little bit with a grain of salt.

We did, we were careful in our deliberations and discussions to say, this is a small work group, that all these items are important. Craig, I don't know if it was a reference to whether or not you thought the Workgroup didn't particularly have strong feelings about commercial allocation. I thought we had a good discussion that particular meeting day, even though it ranked well, all these items are very important.

MR. PUGH: I do believe that you and I did have a great discussion there. I am a little onboard with Tom Fote, as far as representation. I'm a little slighted here, I thought John Clark would have been a great addition to the Working Group myself, could have added a lot to that. I have mixed emotions here. It just seems to me it's a wonderment of why we worked so hard on a five-year goal plan. I didn't see any of that mentioned in this that's all.

CHAIRMAN BORDEN: Where do we go from here? I think everybody recognizes there is a very limited amount of time for us to deal with this. This Working Group has done an excellent job of kind of fleshing out the pros and cons of different strategies, and they've offered up some prioritization.

But as you can see from the last comments that some members of the Board had a big issue with

some of those strategies. I think what you've got here, this warrants a great deal more discussion, as we go forward. But it has to be framed. The staff broke up the meeting intentionally, so that it would be completed in two parts.

The first part would basically be the report, the second part would be taking up a whole series of motions, tabled motions that have been offered as our entire meeting. Obviously, the Workgroup Report has direct bearing on where we go from here. The other aspect is this that I think we need to reflect on for the second aspect of the meeting, is when the next benchmark stock assessment is going to be complete.

Obviously, if we want to take major action on any of these priorities, I think we have to factor in the benchmark stock assessment. I could see a logical progression of viewing an amendment on a couple of priority issues that the Board thinks are important. Get the next stock assessment update, so we have the most current information. Then follow that if need be with an Addendum, which meets the actual restrictions. In preparation for the second segment of the meeting, which will be to take up these two motions, and basically decide where we go from here in terms of the work priority.

I would like people to reflect on the fact that almost in both cases that kind of the cleanest way to move forward with those postponed motions is we could make a motion to postpone them indefinitely. That would kind of clear the deck, so to speak, and we could consider prioritizing some of these suggestions that the Work Committee or other Board members want to offer.

That to me is kind of the cleanest way to go. The reason I'm stating this is that the staff broke the meeting into two pieces so that the Commissioners will have the ability to caucus

between now and the second session, and figure out their collective strategy on how they would like to move forward, and what the priorities are to move forward on, and also afford the Commissioners the opportunity to caucus among different states.

Between now and the second session of the meeting, I would ask all of you to caucus among your own delegation, and talk to other delegations. Hopefully for the second session we can come in and actually have a consensus on how to move forward. Unless there are additional questions, what I would like to do is to end this segment of the meeting, and we'll reconvene the second session with the postponed motions, and decide what kind of work priorities will be open. Are there any process questions from any of the members?

MS. KERNS: Dennis Abbott.

CHAIRMAN BORDEN: Dennis.

MR. ABBOTT: No, I don't have anything. My hand is probably in the wrong place.

CHAIRMAN BORDEN: Anyone else? If not, then I guess we're going to recess until the second segment of the meeting.

MS. KERNS: You have no other hands raised.

CHAIRMAN BORDEN: Thank you all, and before we leave, let me just thank all the members of the Workgroup, particularly Megan and Marty. I think you guys collectively did an excellent job of questioning out some of the pros and cons, without getting into the politics of the discussions, and I think you'll make the work for the Board easier because of the fine work that you guys took on. Thank you one and all.

(Whereupon the meeting adjourned at 10:07 a.m.
on August 3, 2020)

RECESS

**ATLANTIC STATES MARINE FISHERIES
COMMISSION
ATLANTIC STRIPED BASS MANAGEMENT
BOARD**

**TUESDAY AUGUST 4, 2020
AFTERNOON SESSION**

The Atlantic Striped Bass Management Board of the Atlantic States Marine Fisheries Commission reconvened via webinar; Tuesday, August 4, 2020, and was called to order at 3:00 p.m. by Chairman David V. Borden.

CALL TO ORDER

CHAIRMAN DAVID V. BORDEN: Welcome to the second sitting of the Striped Bass Board. My name is David Borden from Rhode Island; and I'm Chairman of the Board. The purpose of the session today is to deal with two tabled motions, and to decide on a course of action in a future action.

For those of you that did not listen to the first session, we intentionally broke the meeting into two parts, to allow Commissioners to caucus and discuss issues with their constituents if necessary. We also have been requested by Mike Luisi to allow a limited discussion of circle hooks under Other Business, so we'll bring that up if time allows, and hopefully it will.

Before we discuss the motions, what I would like to do is I would like to start with a discussion, and a very brief presentation by Max to provide an update on a few aspects of the issue that I believe are pertinent to the subject matter and the stock assessment. Then what we're going to do is we're going to move right into the tabled motions. Without further introduction, Max, would you please put up your presentation.

MR. MAX APELMAN: Yes, absolutely. Just a few slides here to focus on next steps and hopefully get ahead of some questions. There are two postponed motions coming back to the Board

today. This is the first motion, which was made back in April of 2019, after the Board reviewed the results of the 2018 benchmark assessment and initiated Addendum VI, which addresses overfishing status.

This motion considers initiating an amendment to revisit or address a suite of management issues, and it has two parts, a main motion and a motion to amend. This is the second motion, which will come back to the Board today. This motion was made in February of this year, after the Board reviewed and approved state implementation plans and CE measures with Addendum VI.

This motion considers accountability for states that do not achieve their predicted target reduction in 2020. In light of recent workgroup discussions, a number of members of the Board and other stakeholders have reached out to me and asked, you know which of these issues that are being discussed can be done during addendum, and which would require an amendment. I'll say generally speaking, if significant changes through a management program are needed, an amendment is typically developed to replace the existing FMP, to consolidate previous amendments and addenda.

But also, an amendment is sometimes pursued when the issues being considered are especially complex or controversial. The amendment process is a little bit longer, it provides for more opportunities for public input. There is an initial round of scoping for issues to include in an amendment. There is more opportunity for back and forth between the Board and the Development Team to flesh out that document.

That being said, up on the screen here are the measures that are subject to change under adaptive management per Amendment VI. Then in the blue text are the issues that were discussed, or topics I should say that were discussed by the workgroup. You can see where they sort of fall under the various issues of measures that could change through an addendum.

The only one that is not up here in blue is that of goals and objectives. If the Board does wish to consider changes in the fishery goals and objectives that would require an amendment. Talking about an amendment timeline and the types of actions involved there. Generally speaking, the shortest timeline for an amendment is one year.

That being from initial initiation to final action. However, what I have up on the screen here is more of a conservative timeline, considering the list of issues that has been discussed so far. If the Board were to initiate an amendment today, then it could consider approving a PID for public comment in October, and public hearings would then be conducted in the fall.

Now when the Board gets to the draft amendment phase, depending on which issues are moved forward for further development in a draft amendment, and depending on how much time the Plan Development Team needs to explore or develop alternative strategies, it could take a few meetings before the Board is comfortable approving a draft document for public comment.

All that considered, I think a fair timeline for final action on an amendment would be early 2022, or possibly later that summer. Of course, there is potential for final action to occur earlier, but also later, so just keep that in mind. I also want to highlight that an assessment update is currently scheduled for 2021, and certainly projections from that update could help inform whether further changes to regulations are needed to achieve existing or new rebuilding targets.

However, given the terminal year of that assessment would be 2020, there may be reasons to reschedule the timeline for the assessment, due to data issues in 2020 as a result of COVID. There would likely be a higher degree of uncertainty in those results and projections. But also considering where the

assessment would line up with this potential amendment process, considering that the TC may have a full plate helping out with the amendment.

It could also lead to further delays in your final action. Also, in that vein, the update would likely be reviewed by the Board in October of that year, so potentially near the end of amendment process, again lining up in your final action. But again, I just wanted to flag this right now, it's something to think about. The Board doesn't need to act on this at this meeting. The Board could certainly consider tasking the TC at a future meeting to perhaps comment on some of the pros and cons of the timing of the next update from a data perspective, but for right now just focusing on the postponed motions.

Just wrapping up here, some thoughts for Board considerations. You know depending on the actions the Board takes today, it would be helpful to think about any concerns or issues the Board might have with the workgroup report, you know anything wrong or missing. Assuming the Board is as comfortable with the information in that report, hopefully the PDT can use that conversation or discussion to provide background information in a draft PID or a draft addendum if that is the route the Board goes.

Also, consider which issues to include in this next management document, speaking to the discussion on prioritization that took place among the workgroup, and lastly just thinking about what kind of feedback to solicit from the public. If there are any specific questions that might be overlooked, now would be a great time to get that guidance from the Board. That is all from me, Mr. Chair.

CHAIRMAN BORDEN: Any questions for Max? We'll take one or two if you've got any questions. If not, we'll move on with the agenda. Are there any hands up, Toni?

MS. TONI KERNS: You've got John McMurray.

CHAIRMAN BORDEN: John.

MR. JOHN G. McMURRAY: A very quick question. Max, you mentioned the 2021 assessment update. We also have a benchmark coming soon too also, right? What is the year? When can we expect that?

MR. APPELMAN: It's a good question, John. I believe it's 2023. Katie is on the line. She can correct me if I'm wrong there.

MS. KATIE DREW: Yes, 2023 would be the trigger, the five-year trigger, but we don't have it formally scheduled, and I think we would probably want to get some updates from the Board about, you know how important is it to continue work on this 2-stock model, et cetera, in terms of do we need extra time or not, in order to work on this benchmark assessment. But like I said, sort of the tentative date is 2023, but there is flexibility around that.

MR. McMURRAY: Okay great, thank you.

CHAIRMAN BORDEN: Toni, do you have any other hands up?

MS. KERNS: No, there are not.

CHAIRMAN BORDEN: Okay, so we're going to move forward. As I indicated before, I plan to deal with the first tabled motion, in regards to the amendment and its related motion to amend, and then we'll deal with the second one, obviously to complete that. As you all know, there has been a considerable period of time has lapsed since we tabled the original motion. To some extent it has been rendered in my view stale by our suggestions of the Working Group. The Working Group did a splendid job of identifying comprehensive lists of topics that they think warrant closer evaluation of the Board.

Just so everyone is very clear on this, it's the exclusive purview of the Board what goes into an amendment, not a working group, so in large our decision. The issues that are contained in

the Work Group Report, contain most of the elements of the original motion, plus some additional aspects of the issues that we have not discussed by the Board.

At least in my view, it is more comprehensive. With that said, I think the cleanest way for us to move forward is for the Board to adopt a motion to postpone indefinitely the original motion, and then the related motion to amend, and then craft a new motion to basically take its place. One of the difficulties with that suggestion is that some of you might be reluctant to agree to do that not knowing what might follow.

Prior to the meeting I had a discussion with Mike Luisi about a course of action that will kind of eliminate that uncertainty. What I would like to do is to give him a few moments to describe what he would like to propose for our amendment, without making a motion, just put the idea on the floor.

Then I will come back to the issue of the tabled motion, and at that point any Board member is free to make any motions that they see fit, including to postpone indefinitely, or other some course of action. Mike, would you please describe what you would like the Board to consider as a course of action, please?

MR. MICHAEL LUISI: Yes, thank you, Mr. Chairman. I wasn't sure when this opportunity would come up, so I appreciate you giving me just a minute or two. I'll be brief. I spoke with David over the break during lunch, and we talked about the fact that the motion that was made back in April, 2019, which I believe I made and we discussed briefly at the time.

The intent there was to make sure that we and the Board wouldn't lose focus, and didn't lose sight of a longer-term plan for addressing striped bass in Amendment 8. At the time the main topics that we were focused on were listed out as part of this motion with a caveat that work would not begin until after the Addendum that we finished; Number VI was complete.

Over the 16 months of time that have passed, we as a Board, we as a Working Group, came to determine that there were additional elements that would likely need some further discussion. The Working Group had an opportunity over the course of the summer to meet four times. As a member of the Working Group I appreciated the discussions that we had around the table.

One of the common threads in all of the Working Group's discussion for each topic, was that we as a group were interested in hearing more from the public about what the public felt, what the pros and cons were for each of the topics, and whether or not there was enough interest by the public for considering changes to the different topics with an amendment process. Mr. Chairman, I do agree with you. I believe that the wording here is stale, and that it is 16 months old. We have new terms that were referring to the different topics for consideration paths, and so I know that you want to get some feedback from others. But I did draft a motion this morning, and I passed it along to staff and you as well, Mr. Chairman, that I would be happy to make if the Board would like to postpone this indefinitely.

The motion that I would make would be very comprehensive to the Working Group topics, with the idea that we would take those topics to the public in a PID for their prioritization and discussion as to whether or not the topics will need to be formalized in an amendment, in a draft amendment. Whenever you're ready, Mr. Chairman, I would be happy to make that motion. You may want to get additional feedback as to whether or not this motion needs to be postponed or not. But that's all I have at this point, Mr. Chairman, thank you.

CHAIRMAN BORDEN: Mike, one correction from the Chair. If you follow that course of action you have outlined, it's your intent that we number one start an amendment, we take

all of the elements of the Work Group out for public hearing, and then following the solicitation of the public input. At that point we would cull down the issues to whatever we determine will be the priorities. Is that what you intend?

MR. LUISI: Yes, I think the length would be that that would be up to the Board as to whether or not to cull down the topics. Based on that timeline, essentially my motion would establish a time period between now and October for the development of a public information document, which includes all nine of the topics that the Work Group has done.

My hope would be that staff and the Plan Development Team would be able to use the Striped Bass as a working group, a smaller working group that convene this summer. We could use that report as a basis for developing that public information document. The Board would then see the document at the October meeting, and have the opportunity to add, subtract, delete.

You know add to the discussion into the document prior to it going out to the public, for which you would get a report back in February as to public comment, during the first round of public comment. At that point the Board would have an opportunity to consider whether or not to whittle down the topics in the Amendment, or to continue as is with all nine.

I think there are differing opinions around the table about what topics to include. But yes, I am not sure today is the day to whittle things down. I personally would really like to hear from the public. That is what my motion that was the substitute to what we have in front of us here today would address.

CHAIRMAN BORDEN: With that I ask the Board, you've heard my schedule, which was somewhat similar to Mike's. What is the pleasure of the Board on this issue? Toni, any hands up?

MS. KERNS: You have Eric Reid and then Mike Armstrong, and then Craig Pugh.

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August 2020

CHAIRMAN BORDEN: Okay, Eric then Mike.

MR. ERIC REID: Can't we just make a motion to substitute? I mean, I like Mike's idea. I think this is stale, but it might be a lot less work if you just move to substitute. But I am not a parliamentarian, I don't think anyways. If that would work, I would prefer to go down that road, see the motion and get it over with. I'm in full support of the WG group, the Ware/Gary group and their efforts, and I would like to have that motion so I could vote on it. Thank you.

CHAIRMAN BORDEN: Bob Beal, do you want to comment on Eric's question?

MR. ROBERT E. BEAL: It gets a little bit tricky to substitute, since there are two motions in play as a Board right now. You have a motion to amend and the main motion. If you made a motion to substitute right now, it would really be just substituting the motion to amend, and then you would have to take another vote to have that substitution then replace the main motion.

It can be done if Eric's point of if people want to see what Mike has in mind, a motion to substitute might be. We can make that work. I understand. Really, ultimately with all these different wrangling's of motions to postpone indefinitely or substitute, the idea is to make sure whatever you end up with reflects the will of the Board.

I think there probably are a lot of folks listening now that agree that these motions that are in play right now are a little bit stale. I think all the ideas that are included in both of these motions, the main motion, the motion to amend, are included in Mr. Luisi's motion that he said he intends to make.

CHAIRMAN BORDEN: Emerson. Toni, was it Emerson who was next on the list?

MS. KERNS: Mike Armstrong, I think and Craig Pugh.

CHAIRMAN BORDEN: Excuse me, they look very similar.

DR. MICHAEL ARMSTRONG: A stunning resemblance.

CHAIRMAN BORDEN: Dr. Armstrong.

DR. ARMSTRONG: I've got to tell you, I'm torn about this, and the reason is what we're going through right now. We have a lot to talk about, particularly reference points and rebuilding, and all that. We need an enormous amount of public input. I'm looking at us having two to three Board meetings, one to two public hearings, through this kind of venue.

Having recently gone through it at home, here for the public hearing, I wouldn't call it a success. It is very, very difficult to present a serious subject and get feedback. I do think this Amendment needs to be postponed. I think we need one, and we move forward, because we need public input.

Whether we could do it with an Addendum or not, I think we need the Amendment. We talked to that at the Working Group. Boy, I think it is irresponsible for us to try and get public input while under this condition. We're looking at maybe next May meeting in person, maybe. I would say the better bet is a year from now. I would vote to postpone this indefinitely, and not do any serious work, in terms of public hearing. What I could support, an addendum to pick away at some of the things. Let me step back. None of these things are terribly time sensitive, because we are reducing F, in theory we are rebuilding.

Under the current F we'll rebuild in ten years. That is a whole other thing. I think we ought to get a look at what is going on with the assessment next year, before we really move forward with an amendment. We're flying blind at this point, and

we're flying without appropriate public input, in my mind.

What I would support an addendum to pick away at some things that are of real concern, one of which is the mortality of discard from the recreational fishery. We are running out of ways to manage the fishery. This is one I think we could bring to public hearing, because it is a single issue, and maybe throw in conservation equivalency.

But to me that is a much smaller goal than all the things you're pulling up there right now. That would be very difficult to do, even a PID hearing. I support delaying the amendment. I would throw out, I am not going to make a motion right now that maybe we start an addendum, just to keep this Board busy, and do something effective over the next nine months, and we wait until we have an assessment and we are out of this COVID business, before we get to the serious work. That's what I got.

CHAIRMAN BORDEN: Craig.

MR. CRAIG PUGH: I disagree with Mr. Armstrong, sorry to say. We do need the amendment. It's been 30 years of degradation for the city of Delaware and its allocation position with the Striped Bass Board. For me and the others it's well, well overdue to answer these questions. I do have a question for Mr. Luisi on how this would be affected by the five-year strategic plan, especially in the allocation part.

It states in the allocation part, states will need to seek innovative ways to reallocate the species, so that collectively all states feel their needs are met. I can tell you flatly, plainly and frankly, our needs have not been met for over 30 years. At this point in this junction, we have the opportunity to answer that for the state of Delaware.

I would love to see that happen as part of this. The rest of that statement will be required to successfully navigate these discussions and decisions is the commitment of the states to work through the issues with honesty, integrity, and fairness, seeking outcomes that balance the needs of the state and the stakeholders, with ever-changing realities of shifting resource abundance and availability.

I don't find much balance in the way our quotas are structured. I could name out a state and compare them to what we have. It doesn't take real long to figure out that the inequities are there. We are treated differently. That is not fair. That is inequitable. It would be a great thing for our state to accomplish this. It is very, very important as part of the amendment. I agree that the other parts of the amendment, such as reference points, management triggers, should also be addressed. But it is time for this amendment. We don't need to sit back on our laurels, we need to get home and go to work. That is what we're here for. At any rate that is my stance on this. I do, I would support Mr. Luisi's inclusion, as long as some sort of mention can be brought in that we will be following the five-year strategic plan in this. I like what it says. It has meaning and it has value. Hopefully it's just not boiler plate, as I said yesterday.

CHAIRMAN BORDEN: Toni, who else do you have on the list?

MS. KERNS: I have Justin Davis, John McMurray, Dennis Abbott, Tom Fote, and Emerson Hasbrouck.

CHAIRMAN BORDEN: The third person was who?

MS. KERNS: Justin Davis, John McMurray, Dennis Abbott, Tom Fote, Emerson Hasbrouck.

CHAIRMAN BORDEN: Justin.

DR. JUSTIN DAVIS: At a little bit of a disadvantage here, because I lost power right when Mike Luisi started talking a while back, and I just got back in now. I came back in a little bit ago, right when Mike

Armstrong was talking. I've missed a bit of the discussion here, and I'm not clear on exactly what Mike was proposing. That being said, I just wanted to speak up and say that I generally agree with what Mike Armstrong was saying.

I support postponing this motion indefinitely, and delaying work on a new management action until we're in a better place, and have the ability to get public input. I just don't think, given our current environment, that it really facilitates getting public input. I think that is really important for any action we take, but particularly for this species, where we just came out of a very contentious management action, where it was clear there were folks from the public who have very strong opinions about striped bass management.

I also just sort of feel like, again with what Mike said. I don't feel an urgency to act on any one of these things. I do think they are all important. If we had to undertake something, I would prefer an addendum of limited scope to address one or two items here that are of the most importance.

I also just think we're in a place right now where our understanding of stock dynamics changed dramatically with the benchmark assessment, incorporation of the new MRIP numbers, and the realization that fishing mortality was much higher than we thought. Given the current status of the stock that it's overfished, and we've just taken some action to try to correct that. I would prefer to see where we're at after the next stock assessment update, before we take any subsequent management action.

CHAIRMAN BORDEN: John McMurray.

MR. McMURRAY: I'm in favor of postponing also. I think moving on an amendment, even if it's just putting issues out to the public before we know what a 2021, or perhaps 2022 assessment update is going to tell us, or even a

benchmark for that matter seems like a mistake. Do we really want to put something like reference points out to the public, when we don't know whether or not they are going to change drastically with the benchmark? I mean it makes sense to wait for the development of that 2-stock model. Plus, what nobody seems to be talking about here is we still have a stock that is overfished.

Any data showing us what the results are of the management action we took this year, moving forward with what could potentially be a major management implication probably is not a good idea right now, the timing is just really bad. Lastly, I'm not sure how public hearings would work with the COVID thing going on. Dr. Armstrong explained the difficulty of the public input process, and this would complicate it greatly, I think.

CHAIRMAN BORDEN: Dennis Abbott.

MR. DENNIS ABBOTT: I have some agreements and some disagreements, as normal. I agree with Mike Luisi that we really need to get the public involved, and I'm not sure if it's possible to do that. But it should be possible to do that without initiating an amendment at this time, and as Mike Armstrong said, this is not the time to be looking for person to person meetings, trying to gain the public's input, and we do need that public input.

I was a part time participant in the Working Group, and I recall Mike Armstrong, Dr. Armstrong, making the point that we're at one-fish, we're in a narrow slot. What are we going to do next? You know there are probably some people on one side that would like to see a liberalization of regulations. Well, those that are looking for a tightening up of regulations, as Mike Armstrong said, where are we going to go below one fish?

Another thing that the Working Group probably was remiss, though they did a wonderful job, is that I don't think we probably considered the sentiments just mentioned by Craig Pugh from Delaware. We didn't talk, if I recall in the couple of meetings that I was involved in. That we really talked about the

commercial side of things. I don't know what we could have said, but when we prioritized the nine items, commercial came way down at the bottom.

I bet Craig Pugh probably came off his chair when he saw that. I think in the long run, we should take a longer look at this. We should figure out a way to get public input. We should hear from the public input in helping us decide where we go. Further, we just adopted Addendum VI. We don't know how that is working. We're in a COVID year. I think we need time to see how Addendum VI is working. I think that proceeding slowly is the best thing. Though an amendment may be needed, I'm not sure we have to rush into that today.

CHAIRMAN BORDEN: Toni, how many more names do you have on the list? If you could give me an indication, please?

MS. KERNS: We have Tom Fote, Emerson Hasbrouck, and then I need to add Megan Ware, Cheri Patterson, and then Mike Armstrong, Justin Davis, and Emerson Hasbrouck still have their hands up. But I don't know if those are on purpose, and they have all gone down except for Emerson, so Tom, Megan, Cheri, and Emerson. I'm not sure Emerson is in the right order.

CHAIRMAN BORDEN: Okay, Tom Fote.

MR. THOMAS P. FOTE: It's an interesting situation, because I agree with Dr. Armstrong, I agree with John McMurray, and I agree with Dennis Abbot, and I tried to get a star just at that point. I basically looking at this meeting coming up. I'm going through the charts that basically looked at the recreational catch by all the states, from '95 to 2019.

What I did was take New Jersey's last seven years, and averaged it out, started figuring what the average is on supporting numbers, and then saw what 2019 was compared to a reduction of that seven-year average. In 2019, we caught 67

percent of what the average was. That's almost a 33 percent reduction over that period of time.

I think we've got to see what's going on, unless we basically get some real figures, and we can't get our figures of 2020. Public hearings, trying to do this virtually. I mean I'm on a lot of virtual meetings, whether it's for organizations, clearwater action, things like that. It's very difficult without being person to person to actually work things out sitting over a table.

I also think the strain of the virus has put a strain on all of us. I haven't left the house to go more than about five miles in the last, since March. I mean I haven't visited with anybody or even fished. All that stress is basically getting to all of us over time. I think the public will be the same way. I think we have to calm down. I agree with what everybody just said about waiting on the process.

CHAIRMAN BORDEN: I've got Emerson next.

MS. KERNS: Then can you add to the bottom of that list John Clark and then Adam Nowalsky.

CHAIRMAN BORDEN: Okay, Emerson, you're next.

MR. EMERSON C. HASBROUCK: I put my hand up when you said that Mike and I look so similar that you get us confused. Since we haven't all met together since February, I'm wondering if Mike has grown a white beard in the interim. That is my first question. Then secondly, I think there is an urgency to address rebuilding biomass, all right, and to reduce recreational discard mortality. I want to go on the record agreeing with John McMurray that we need to start to address a rebuilding plan.

I think we need to go forward with that as quickly as we can, and maybe some of these other issues will come along with that and maybe not. We'll find that out as we go forward in our discussion. Then also, in terms of moving forward with rebuilding. I think that including commercial reallocation at this point, we're just going to sidetrack and slow down

rebuilding effort as part of the same management action.

CHAIRMAN BORDEN: Megan Ware.

MS. MEGAN WARE: This is an interesting conversation to listen to. You know being on the Workgroup, I think one of my biggest takeaways from that experience was that we've got a lot of issues in the striped bass fishery, and how we manage it. I think this Board has kind of danced around some of these issues for a long time, and I think they are kind of all coming to fruition now. I can see a lot of reasons to, there is always a reason to delay, whether it's an upcoming assessments, or a benchmark, or something else.

But I kind of thing the Board just needs to buck up and initiate the amendment at this point. I would be in support of initiating an amendment today. In terms of public comment, you know I think that's a fair question of how the Commission wants to handle public hearings in the time of COVID. I would suggest that maybe that is an appropriate discussion for the Executive Committee or the Policy Board to be having, because I think that is going to impact multiple species boards.

That is something that could be talked about between now and the annual meeting, when you would potentially see a PID. You know certainly the councils have already addressed this issue, so I think there is precedent here for ways that we can include public comment. We just need to figure out what that looks like to the Commission.

CHAIRMAN BORDEN: John Clark.

MR. JOHN CLARK: I think Megan said it well. I think *carpe diem*, let's get moving on this, we've waited for years. As Craig pointed out, there have been inequities in this plan that go back decades. The last amendment was in

2003. I think the public input aspect, yes that is an issue right now.

But as we've heard previous meetings, there are a lot of people in the public that actually prefer to make their opinions heard through these virtual methods, because it is less intimidating than being at a big public hearing, where you might have a group of people that are all voting in a block, and can be intimidating.

You know if this Board was like a sleek cheetah that was picking off these addendums like they were sickly gazelles that would be one thing, but we know we don't move that way. This is a very slow-moving operation anyhow. I think, you know let's get moving here. Let's get this amendment started, because by the time the process goes along, we'll have plenty of time to get public input virtually, and I'm sure we'll be back to the public hearings in person while this thing is still working its way through the process.

CHAIRMAN BORDEN: Adam's next.

MR. ADAM NOWALSKY: I will also speak in favor of the motion that is not yet a motion, but is likely to soon be a motion, I suspect. The last couple of speakers hit on a lot of the points I was intending to make, including the fact that we've got a lot of these topics. Get them out for public comment.

At that time after we have that public comment, we would know what things to whittle down to ultimately include in an amendment for consideration, after we get a public information document out. I agree with the statement that was made with regards to the numbers of the public, including a lot of fishermen that have been in support of the virtual process. We've conducted a lot of business virtually. We as managers have learned a lot fast, and the public has become very comfortable with that process. I would agree with the statement that by the time we get to a public draft amendment going out, I would certainly hope we would be able to conduct those hearings in person.

The one piece of new information that we haven't touched on in a couple minutes, remains the issue about use of (muffled) most recent management actions based on the new MRIP data, but still using the old reference points. As the new MRIP data has come out, many of the other species that we have worked with, including most of the ones that have a large recreational component, bluefish, summer flounder, sea bass, scup, cobia with this Commission. We've taken action on all of these species to deal with the implications of the new MRIP data.

To continue now managing with the new MRIP data but continuing to use old reference points that information to date is what is the most stale out of everything. We ought not be managing that way. Until we change those reference points that is the only way to do it is going to be through an amendment, then we have to get that process going, so I would support that motion when it comes to the floor.

**CONSIDER POSTPONED MOTIONS FROM
APRIL 2019**

MR. BORDEN: Toni, in the interest of time, why don't you just suggest that we've got a two-step process. You need to deal with the postponed motion and the motion to amend. Once that is dispensed with in one form or another, we'll try it on the second step, which potentially could be no actions, or it could be to initiate a draft amendment with a PDT PID. Let's deal with the postponed motion. I had originally suggested that someone make a motion to postpone indefinitely the original motion, and a related motion to amend. Would someone like to make that as a motion?

MS. KERNS: Mr. Chairman, you have both Cheri Patterson, Mike Luisi, Emerson, Tom, and Adam and Ritchie White with their hands up. Cheri had her hand up from before, you skipped her.

MR. NOWALSKY: My hand is now back down.

MR. HASBROUCK: My hand should be down as well.

CHAIRMAN BORDEN: Okay, I'll tell you where it's a good point I should call on Cheri, and anyone else on the list who have not spoken. Ritchie has not spoken. Then I'm going to go back to what I asked for. I'm going to look for a motion, rather than give individuals a second bit of the apple. All right, so Cheri.

MS. CHERI PATTERSON: I think that we need to slow down on this. I don't mind it moving forward as a main motion. However, I don't think we should put this on a fast track. If we've made some management decisions, we need to see how those work out with the next stock assessment. I think that we really need to be cautious as to what the data is going to be telling us from this year, considering the interruption of data collection, especially the recreational component. I think we just need to be cautious and move forward slowly.

CHAIRMAN BORDEN: Ritchie White.

MR. G. RITCHIE WHITE: I agree with Cheri. I'm willing to support beginning an amendment. But the time period that Mike Luisi was suggesting is way too fast for me. These are really complicated situations. I'm going to want to, or I think we need that two bites at a PID before it goes to the public.

I think the idea that we get a PID in October, send it to the public, and then it comes back to us in February is way too fast. I think we get a PID in October, then I think we rework the PID, send it back to the Plan Development Team, then it comes back to us again before we send it out to the public. I'm in favor of starting an amendment, but I think it has to be slow and careful, and we have to really go out of our way to make sure there is plenty of public input.

CHAIRMAN BORDEN: Is there anyone on the list, anyone else on the list, Toni, that hasn't had one opportunity to speak.

MS. KERNS: Your list is done; you just have Mike Luisi now.

CHAIRMAN BORDEN: Okay, I think I'm going to go back to the original question. Would someone care to make a motion to postpone indefinitely the original motion and the related motion, and if that passes, we'll discuss what the appropriate step is next. The floor is open, would someone care to make a motion? Toni, any hands up?

MS. KERNS: You have Mike Luisi, Mike Armstrong, and Emerson Hasbrouck.

CHAIRMAN BORDEN: Mike Luisi.

MR. LUISI: You know, with your guidance and in the interest of time, I think in order to put before us a motion that I spoke to at the beginning of the meeting. I think it's appropriate at this time to move to postpone indefinitely the motions made during the April, 2019 meeting of the Board. If I get a second on this and it passes, the intent would be to follow up that vote with a motion that I spoke to earlier, so that we can focus our discussion on next steps.

CHAIRMAN BORDEN: Is there a second?

MS. KERNS: Justin Davis.

CHAIRMAN BORDEN: Okay, motion by Mr. Luisi, seconded by Dr. Davis. The motion is to postpone indefinitely the motion made during the April, 2019 meeting of the Board. Discussion, any discussion? Hands up, Toni?

MS. KERNS: You have Mike Luisi to speak to his motion, I believe.

CHAIRMAN BORDEN: You were broken up, Toni, if you could say that again, please.

MS. KERNS: I believe Mike Luisi wants to speak to his motion, but his hand came back down, so

maybe not. Emerson Hasbrouck also has his hand up.

CHAIRMAN BORDEN: Emerson.

MR. HASBROUCK: I thought my hand went back down again. My hand was up to second the motion.

MS. KERNS: Just for reference, Emerson, your hand is up right now, so if you click on it, it will go back down. There you go. I do not see any hands raised to speak to this motion.

CHAIRMAN BORDEN: If there are no hands up, let me just explain the process, and Toni can correct me if I misspeak. I'm going to ask if there are any objections to this motion. If there are no objections, I'm going to state that it is adopted by consent. If anyone objects, then we have to vote individually, state by state on this, so reflect that in your thinking. Are there any objections to this motion? Any hands up, Toni?

MS. KERNS: I do not see any hands.

CHAIRMAN BORDEN: All right, there are no hands up and no objections to the motion. The motion is adopted by consensus. Okay folks, now let's deal with the second aspect of the motion, which is to potentially move forward with an amendment. I just state that I think there is a common view here to slow things down, because of the COVID situation, and our ability to get public comments.

I would make the comment that there is one thing that the process does quite well, which is slow down. I think that as we move forward, if we pass a motion to initiate an amendment, and at least start with a PID, the Board always has the right to take action to slow down the process if they find it unacceptably fast, so if someone here just make a motion on the amendment issue, any hands up?

MS. KERNS: You have Dennis Abbott and then Mike Luisi.

CHAIRMAN BORDEN: Before Mike Luisi makes his motion, and with those of us that are concerned about doing this too fast. Would it be possible, well I'll ask Mike Luisi if it's possible that we would insert into his motion, even before he puts it up that we would plan to have an amendment adopted for the 2023 fishing season. That is just my suggestion to probably help sway some of the folks who have concerns about moving this down the tracks a little fast. I think that would put maybe some time certain on things if that is possible. Just a suggestion.

CHAIRMAN BORDEN: Dennis, thank you for the comment. Mike Luisi.

MR. LUISI: To Dennis' point. I'll just state before we put my motion up, and maybe since this one has cleared and now it's postponed, maybe staff can work to get the motion that I sent them up on the screen, and I can read that in at the end of my comments. To address the concerns from Board members that there is an intent here to move quickly. I just want to say that there is nothing in the motion. I had no intent that this would be any type of fast-tracked amendment process. I think that the Board is ultimately in control of just how fast an amendment goes through the process to completion. The Board is in full control as to how quickly things move. To Ritchie's point, if we get a look at the Public Information Document in October, and the Board is not comfortable with it.

If you want to spend time over the winter modifying it, preparing it for a review again in February before it goes to the public that is fine. If that is the Board's wish that is the Board's intent in how to move forward. You know, I think right now time is something that we have on our side. We have some issues, obviously. We wouldn't be initiating an amendment or considering initiating an amendment if we didn't have concerns in the fishery.

But we don't have any bright barrels burning right now, whereas I feel like if we wait for another assessment update, and all of a sudden fires begin to burn, and we have management triggers that we have as Working Group determined that it has a lot of perceived problems with them, as far as priming of action.

We're going to find ourselves in the position again if we delay and we wait, where we're going to have another fire to put out, and we're not going to be able to initiate the amendment. Just like last time, when an amendment was considered after the benchmark, but we had to deal with Addendum VI first.

You know Dennis, to your point. I don't think time speed, it's not in my intent at all to make this happen quickly. It's to develop a process for as much public opportunity to comment as possible, and to make the best and most informed decisions that we can during this long, drawn out process. I think Max's timeline put us at most likely a 2023 implementation date anyway.

If that is a massive timeline along the lines of what we're talking about, I think kind of addresses your concern. At this point I think what I would like to do is I'm going to make the motion. If I get a second, if there are other questions, I can certainly address them. I think I've spoken to the motion enough already, so I'll leave it there. Mr. Chairman if you're okay, I would like to read the motion, and then see if I can get a second on this motion.

CHAIRMAN BORDEN: Please do.

MR. LUISI: I move to initiate an Amendment to the Atlantic Striped Bass Fishery Management Plan focused on the following management topics (1) fishery goals and objectives; (2) stock rebuilding/timeframe; (3) management triggers; (4) biological reference points; (5) regional management (recreational measures, coastal and producer areas, regional reference points); (6)recreational discard mortality; (7) conservation

equivalency; (8) recreational accountability; and (9) coastal commercial quota allocation.

Each of these topics will be presented in a Public Information Document in order to solicit stakeholder comment focused on prioritizing the importance of each topic for continued development and inclusion in the amendment.

MS. KERNS: We have a second by Megan Ware.

CHAIRMAN BORDEN: Okay, so we have a valid motion and a second. Thank you, Mike and Megan. Comments on the motion. I would point out we have already had a lot of comments on this. I would ask individuals to try to try to identify points that have not been made. Toni, who have you got on the list?

MS. KERNS: We have Megan Ware as your seconder, Joe Cimino, Roy Miller, and Emerson Hasbrouck.

CHAIRMAN BORDEN: Megan.

MS. WARE: Yes, just to respond to a couple of the things I've heard about slowing the process. I mean I think this is going to be a pretty complicated, complex and controversial amendment, and so I think it's naturally going to be a slow process. Looking at these topics, I mean this is akin to Amendment 3, and I think most people lived through that. That was not a quick process, and we did have multiple looks at the draft document. I think that this will naturally take some time.

I'm also a little concerned. You know I've heard people talk about delaying initiating this until we have a better understanding of COVID, or what the future looks like. I'm a little hesitant to do that as I've said, because I think COVID is a very uncertain future right now. We don't know when that's going to end or what is going to happen. I think it is prudent for this Board to continue to work on the tasks at hand, and make progress as we can.

CHAIRMAN BORDEN: Joe Cimino.

MR. JOE CIMINO: I support this motion for a lot of the reasons that have been discussed. I would be curious to ask staff. If we didn't start this now, would there be any other way to pass a PDT? You know the Technical Committee was starting to look at exactly what new reference points mean. I know there was a lot of work done on that. But I think that's going to be a long, important process that can get started now.

I know in New Jersey, as Adam has mentioned, you know we've seen very good attendance at virtual public hearings. Instead of having a meeting in the middle of the state, where everyone needs to get off of work and drive for two hours or an hour and a half to get there, they can get home and be on the meeting. That really isn't a concern for me, as much as we don't do anything for a considerable amount of time. I would much rather get started.

CHAIRMAN BORDEN: Toni, who are the next two names on the list, please?

MS. KERNS: We had Emerson Hasbrouck, Tom Fote, and John McMurray is on there. Just to answer Joe's question. You can task the TC at any point in time for work on an issue, you need to be clear what their task is, and what you're looking for them.

CHAIRMAN BORDEN: Emerson.

MR. HASBROUCK: I have a motion to amend. I move to amend to remove part 9: coastal commercial quota allocation from the initial motion, or whatever the proper wording is to do that.

CHAIRMAN BORDEN: All right, so we have a motion to amend the main motion by Emerson Hasbrouck, is there a second to the amendment?

MR. HASBROUCK: Yes, if I get a second, I'll give my reason why.

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MS. KERNS: I see Roy Miller and John McMurray's hand up.

CHAIRMAN BORDEN: Roy, are you seconding this motion?

MR. ROY W. MILLER: No, I am not.

CHAIRMAN BORDEN: John McMurray are you seconding this motion?

MS. KERNS: He cannot as a member of the same state.

CHAIRMAN BORDEN: We don't have a second, is that correct?

MS. KERNS: Justin Davis now has his hand up.

CHAIRMAN BORDEN: Justin Davis is the seconder, so Justin, would you like to speak to this one?

DR. DAVIS: Sure, although I would defer to the maker of the motion, if he wanted to speak first on it.

CHAIRMAN BORDEN: Emerson, and then Justin.

MR. HASBROUCK: As I said in my earlier comment, whenever it was, 15 minutes or so ago. I think that adding in this component is going to make this amendment take forever, and it's really going to slow down our process, in terms of rebuilding. I mean look what we just went through the last year and the year before last with summer flounder. It took us five years to get through that process of reallocation of commercial quota. I don't want that to happen here, and really throw a wrench in the works, in terms of us rebuilding this resource.

CHAIRMAN BORDEN: Justin, would you like to comment?

DR. DAVIS: I agree with Emerson. I kind of feel like this particular topic is kind of incongruous

with the rest of the topics in the amendment, who were more focused on conservation and the way we are going to manage the striped bass stock. That this reallocation issues seemed a little bit different thematically. I also have the worries that Emerson has that it will lead to delays in the amendment. That being said, I am not completely opposed to including it if it is very important to other states. Obviously, you know speaking from a Connecticut standpoint. We don't have a commercial fishery, but I do tend to agree with Emerson about inclusion of this in the amendment.

CHAIRMAN BORDEN: Other comments on the motion to amend?

MS. KERNS: Yes, we have Roy Miller, John McMurray, Chris Batsavage, Dennis Abbott, and Tom Fote and Craig Pugh.

CHAIRMAN BORDEN: Roy Miller.

MR. MILLER: I'm going to oppose this amendment. We've had the same scenario for commercial allocation since the 1980s, it is long since time to deal with this particular topic. I acknowledge it's a difficult topic. I acknowledge it will be controversial. But if we don't start on it now, when would we start on it? You know we haven't had a new amendment for 17 years. That is a long time to be operating under Amendment 6. We need to get on with this, and we need to deal with the controversial and difficult topics, and the sooner we start the better, in my view.

CHAIRMAN BORDEN: John McMurray.

MR. McMURRAY: I agree with Emerson. I don't think we have any business doing allocation in this amendment. It's going to make things even more contentious than this amendment already will. In fact, I don't think we should be addressing anything right now other than overfishing or rebuilding.

We've got a stock that is overfished and it's not just on paper. There is a definitive lack of availability on the water. That is what we need to address first,

before we address any of these. I don't think it's appropriate to address any of this right now until we take care of that. It's kind of put me in a weird situation, where I support Emerson's motion, but I don't support Mike's motion.

CHAIRMAN BORDEN: Toni, who else is on the list?

MS. KERNS: Chris Batsavage, and then Craig Pugh, Tom Fote, Dennis Abbott and Eric Reid. I apologize if these are not in the same order as before, the names moved.

CHAIRMAN BORDEN: Chris.

MR. CHRIS BATSAVAGE: I cannot support the amended motion. I understand Emerson and John's concerns, but jut the controversial nature of reallocation, and how it may not match with what else is in the amendment. But I think what Mike Luisi is proposing, you know if you get public input on what is important.

We may not address all nine of these when it is all said and done. We may end up going out to certain issues to deal with as an addendum, and then this might be one of them. But I think it is really hard, reallocation issues are hard, we've got several going on right now. It's going on forever for the stocks such as bluefish. I think other folks have stated that these have been longstanding issues with striped bass, much like it had been with other species we addressed. I think we need to at least include this with the other suite of issues so the public can do the comment on it.

CHAIRMAN BORDEN: Next I've got Dennis and then Tom Fote. Dennis Abbott, please.

MR. ABBOTT: Am I being recognized, Dennis Abbott? Okay, it was cutting out. I can't support this. I think it is patently unfair, going out with a public information document not to put in something that even the Working Group had considered one of the nine points. What

we do following it being in the public information document, is a lot different than what is finally going to appear in a proposed amendment.

I'm reminded of last year, when I just asked to insert into the striped bass addendum that we go out to the public and ask about conservation equivalency, and it wasn't allowed. I think it's a grave injustice to the commercial side, of which I have no skin in that game whatsoever. But it seems very unfair not to give them an opportunity to express their positions in a PID.

CHAIRMAN BORDEN: Tom Fote.

MR. FOTE: Yes, I was waiting to hear what Chris said, because my concern here is how will we handle North Carolina? We are basically, because we will not rise a fish we need to jig. We are basically not allowed the quota commute for years. That is my concern here. We tried to stop reallocating their quotas.

Because it is not based on not being the vulnerability of fish, but the availability that we're not letting the fish in North Carolina where the fish are. We're doing the same thing recreationally in Virginia in the coastal waters. That's not me making all that noise. I don't know who is doing that? That's my concern here, but if Chris is okay with it then I am fine with it too.

CHAIRMAN BORDEN: Okay Toni, who else do you have on the list?

MS. KERNS: We have Eric Reid.

CHAIRMAN BORDEN: Okay. Anyone else who hasn't spoken? Eric Reid.

MR. REID: I oppose the motion to amend. It's not fair, and since it's a laundry list of nine things, it should be in the game. I'm trying to figure out how this conversation is going to fit with two days next week that I'm going to spend talking about allocation.

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My second point is, whatever it is going to take to start the analysis of recreational dead discards, which cannot wait until 2023. I intend to make that motion as soon as I can figure out what it is, when this is over, because that attracts me. I don't think the resource or the public is going to put up with waiting until 2023 to start figuring that out. That is my position, thank you, Mr. Chair.

CHAIRMAN BORDEN: Is there anyone else who hasn't spoken at this point? Toni, any hands up?

MS. KERNS: No other hands up.

CHAIRMAN BORDEN: Okay, so where we are; we've got a motion to amend. The motion is to amend to remove part 9; coastal commercial quota allocation from the initial motion. I think we're ready to vote. Once again, if we have a consensus then fine, we don't need to have individual votes. If we don't have a consensus then we're going to have to go through the roll.

MR. ABBOTT: I think we need a roll call.

MS. KERNS: David, people can just raise their hands as well. I can count hands.

CHAIRMAN BORDEN: You can count hands then, Toni? Is that acceptable, in terms of this phase?

MS. KERNS: Unless Dennis is asking for a roll call specifically.

CHAIRMAN BORDEN: Okay, so everyone in favor of the motion to amend, please raise your hand.

MS. KERNS: Before you do that. We do need clarity from Dennis, to find out if he is asking for us to do a roll call. There might need to be caucusing.

MR. ABBOTT: Yes, the hands work as long as we need a recorded type vote, we have to know what the numbers are.

CHAIRMAN BORDEN: All right, does anyone need a time for a caucus? Any hands up, Toni?

MS. KERNS: I don't see any. There is one hand up for a caucus.

CHAIRMAN BORDEN: Everybody can have a one-minute caucus.

MR. MILLER: Mr. Chairman.

CHAIRMAN BORDEN: Yes.

MR. MILLER: Can you hear me?

CHAIRMAN BORDEN: Yes.

MR. MILLER: May I vote for John Clark, since he doesn't have computer access?

MS. KERNS: Yes, please, Roy.

MR. MILLER: Thank you.

MR. NOWALSKY: For the record, Adam Nowalsky will be voting for New Jersey. Joe Cimino just indicated he lost connection due to the internet power problem in the area.

MS. KERNS: Thank you, Adam.

MR. HASBROUCK: Yes, Emerson is going to vote for New York.

MS. KERNS: Thank you, Emerson.

CHAIRMAN BORDEN: One minute is up. We have a motion to amend to remove part 9; coastal commercial quota allocation from the initial motion. **All those in favor of the motion to amend, raise your hand. Then if you would Toni, please provide me with that.**

MS. KERNS: Will do. Just to confirm, so that folks understand. Right now, there are no hands raised, so if someone is intending to vote in favor.

MR. MAX APPELMAN: Toni, I'm seeing two hands raised right now. Click the hand raise button again, so they all go through the very top.

MS. KERNS: There we go. We have two in favor.

CHAIRMAN BORDEN: All those opposed. The individuals who raised their hand to vote in favor would now disconnect. All those opposed, please raise your hand.

MS. KERNS: I have 12 in favor.

MS. TINA BERGER: Twelve opposed.

MS. KERNS: Opposed, I apologize, thank you, Tina.

CHAIRMAN BORDEN: Okay, any abstention, any null votes?

MS. KERNS: If we could slow down for the abstentions, please? Right now, Adam and Roy your hands are still up. We have two abstentions.

CHAIRMAN BORDEN: Any null votes?

MS. KERNS: With no null votes.

CHAIRMAN BORDEN: Okay, motion fails, and we're back to the main motion. We've had a lot of discussion on the subject. Does anyone care to raise a point that has not been raised before? If not, I'm going to ask the same question I've asked before. If we have a consensus, we don't need to vote. Do I have any objection to approving this motion as submitted? Does anyone object? If somebody objects, we've got to vote.

MS. KERNS: We have one objection.

CHAIRMAN BORDEN: Okay we have one objection, so we're going to have to vote on this. All those in favor of the motion, please raise your hand. Then Toni, please provide me with a count.

MR. HASBROUCK: Caucus, please.

MS. KERNS: David, could they have a minute to caucus?

CHAIRMAN BORDEN: Okay, we'll go back. One-minute caucus. All right, we had our one-minute caucus. All those in favor of the motion, please signify then I ask Toni to provide me with the count, please.

MS. KERNS: I've got 15 in favor.

CHAIRMAN BORDEN: All right, no votes, please raise your hand.

MS. KERNS: One no vote.

CHAIRMAN BORDEN: One no vote, any abstentions?

MS. KERNS: I do not see any abstentions.

CHAIRMAN BORDEN: Any null votes?

MS. KERNS: Dennis Abbott, are you voting n-u-l-l?

MR. ABBOTT: No, I have a point to make following the vote.

MS. KERNS: Okay, I don't see any null votes.

CHAIRMAN BORDEN: All right, so the motion passes 15, 1, 0, 0. Dennis.

MR. ABBOTT: This is an expedient way of doing things, but if we were sitting around a table, we would know who voted yes and no. I think we should know who is voting yes or no, because we just want to know. I know that I do, so roll call

might be an easier way to go. It doesn't take a whole lot more time, but I want to know who is voting yay and nay on these issues.

CHAIRMAN BORDEN: Okay, thank you. I'm going to move on to the next motion. Is there anything else on this aspect of the proceedings? If not, let's pick up the second postponed motion.

MS. KERNS: You have Ritchie White, Eric Reid, and Mike Armstrong.

CHAIRMAN BORDEN: Okay, Ritchie.

MR. WHITE: A question for the Plan Development Team. Is between now and October enough time for them to come up, and the Technical Committee, come up with this document? There is a lot of stuff in there, and a lot of options on each of those items. I want to make sure that we're not tasking them with too much work to provide us something in October that may make more sense to get in February.

MR. APPELMAN: Mr. Chair, would you like me to respond to that?

CHAIRMAN BORDEN: Go ahead.

MR. APPELMAN: Yes, thanks. I appreciate the question, Ritchie. It is my understanding being that the intent here is that all of these issues would be included in the PID, in an effort to solicit feedback from the public on which topics. You know I'm synthesizing very briefly here which topics to move forward with, which topics are the highest priority among the public.

In that vein, it would be my intent as a member of the PDT, as the Chair of the PDT, to really crutch on the Work Group Report to fill in the background material for a PID. If the Board is comfortable with the information that is in there, certainly I feel it is a quick turnaround, but we could definitely get a draft PID in front of the Board in October.

If, speaking to the conversation that has sort of evolved, if more feedback is needed at that time, we can certainly go back to the drawing board and tweak things as necessary. But I don't see much, as far as developing alternatives at this stage, which would probably be the bigger lift.

MR. WHITE: Follow up, Mr. Chair?

CHAIRMAN BORDEN: Go ahead, Ritchie.

MR. WHITE: Well I think for the public to comment, they are going to have to see some ideas on what these mean. I mean just to throw out fisheries goals and objectives. I mean, I think they need to see what we had in the past, what changes could be made, the same thing with rebuilding timeframe. What does that mean?

Okay, here is what we presently have, you know here is what you could go to, and then talk about changes. You know would then require management actions. I mean I think for us to get information that helps us from the public, I think this has to be an extremely detailed document. That would be my sense.

MR. APPELMAN: Just a follow up. I believe we're on the same page here. If you look back at the Work Group Report, it is 15 pages of in-depth discussion elaborating on what all these issues are, the concerns relating to striped bass management, and a discussion around what alternatives might look like.

I mean nothing specific is in there. That was not the task of the Work Group. But what could change with the management triggers. That's in there. Other potential goals and objectives that is in the Work Group Report as well. I think we're on the same page here. There is a lot of meat in that report that could be used and provide a robust picture of what the concerns are, and possible road maps around those concerns for the public to weigh in on.

CHAIRMAN BORDEN: Eric Reid.

MR. REID: We went from not being in a very big hurry to having something ready for October, so I don't get that. But anyway, I said I was going to make a motion, and I'm not exactly sure. Maybe Max will help me out with it. **But I would like to move to task the PDT/TC to begin developing methods to better analyze and understand discards in the fishery.**

CHAIRMAN BORDEN: Could we have the motion please, typed out? All right, is there a second to the motion?

MS. KERNS: I think Marty Gary is seconding it. There are a bunch of hands. Marty, was that for a second?

MR. MARTIN GARY: Correct, Toni.

CHAIRMAN BORDEN: All right, motion by Eric Reid, seconded by Marty Gary. Discussion on the motion.

MS. KERNS: You have Mike Armstrong and John McMurray, Tom Fote, Roy Miller.

CHAIRMAN BORDEN: The first three, let's not go beyond three.

MS. KERNS: Yes, Mike Armstrong, John McMurray, and I think I said Tom Fote next, and then I'll give you two more names later.

CHAIRMAN BORDEN: Okay, Mike Armstrong, please.

DR. ARMSTRONG: My hand was actually up before this went up, but by coincidence it walked right into the crosshairs. You know I opposed, but begrudgingly voted for the main motion. I do think we're rushing it. Because we identified some problems through the last process and last assessment that I think need to be addressed before two and a half years.

One is the recreational discard. I am not sure I understand exactly what Eric means by this, so I

look forward to him explaining it a little better. But I 100 percent support this, and I hope it leads to an addendum that we could put in quickly to address recreational discards. It is a thing we identified out of the last assessment, and it is stunning and crushing, it is 50 percent of mortality.

I don't think we can wait two and a half years to address it, particularly if the next assessment says we are above the target F. Then I'm left with what do we do now? I think I will support this. I look forward to Eric's comments on that. I do have one question. I don't know when I should ask it, maybe for Toni. We can do a simultaneous addendum, right, while we're working on a massive amendment?

MS. KERNS: If it is the will of the Board, and we can figure out a way to make that work with staff time, yes.

DR. ARMSTRONG: I heard that Toni.

MS. KERNS: I was just caught, because the same people who would work on the amendment would be the same people working on the addendum, so a little tricky.

DR. ARMSTRONG: Which to be honest was my angst with moving the amendment forward. Something to think about, if we have buyer's remorse when people go home.

CHAIRMAN BORDEN: Move on, I have John McMurray and then Tom Fote.

MR. McMURRAY: I don't oppose the motion, but I think there is a real disconnect between the Board and what they think the real dynamics of this fishery are. I mean it's primarily a sport fishery, 90 percent of it is a sports fishery, and then if I'm understanding correctly, 90 percent of it is catch and release. It's like the Board doesn't want to acknowledge that this is a sport fishery.

The fact that 90 percent of them get released is a good thing. If they weren't being released that

would be way higher. We should probably take a look at tarpon or bonefish down south, and how folks manage those. Managers accept that sort of discard mortality as part of the fishery, with the understanding that if it was a kill fishery it would be much higher. But I look forward to having this discussion as it evolves, and I'm not opposed to the motion.

CHAIRMAN BORDEN: Max, as soon as you get clarification on the motion, then I'm going to go to Tom Fote. Max.

MR. APPELMAN: I was just hoping the maker and perhaps the seconder could just elaborate a little bit more on what this task is hoping to get from the TC. What are we hoping to hear from the TC, how could they weigh in on this topic more than they and others already have? Just trying to get a better understanding of what is being proposed here.

CHAIRMAN BORDEN: Eric.

MR. REID: Honestly, to Mr. McMurray's point. If it is a 90 percent release fishery, and we're only using 9 percent as a death rate. Maybe that's right. Maybe it's wrong. You know they could do some data mining. There was a study in Massachusetts that showed that the survival rate was really poor, and that data is available.

But it would be my guess is that we don't really have a good understanding of what happens. You know the difference between the fish being caught in Chesapeake Bay, when it's 85 degrees, and off the coast of Massachusetts in cool water might be one thing. But if there is no data that is any good, in my mind, or it's not useable data.

Then the product would be look, we need to develop data, and we would like to look at this type of data. That is really all we have. We're going on data. It is my feeling that the data we have is outdated, it is incorrect, and we're not using some data that is available to us. But they

have to tell us how we are going to better understand this. Whether it means we have to do more studies, or we have to do something else than what we're doing now. Then that is the advice I expect to get, and then it's going to be up to us as a Commission to get that done.

If we wait a couple of years anyway to get this thing moving, then we're going to be a couple more years figuring it out after that. This is a huge component of our fishery, and we don't really have a good grasp on what it really means, and I think that we need to do that. Max, if I'm not giving you enough help now, you've got to help me. But it's got to be done, because it's not done now.

MR. APPELMAN: I appreciate going into that a little bit more. Just to sort of temper expectations on if this motion were to pass. I believe, and Katie can jump in if she feels I'm going down the wrong road here. But the TC could certainly summarize how dead discards are currently estimated in the assessment, and provide an overview, a literature overview, essentially, of all the different studies that are reviewed each iteration of the benchmark that comes to help inform which release mortality rate is used in the end.

But beyond that developing methods to better understand discards, I think that is going to be a big challenge, based on the data that is available. There could be recommendations coming from the TC on where data gaps might be, and perhaps other ways to collect better data. But beyond that I don't think we'll see methods developed at this time, until the next benchmark comes around where they really have a chance to grapple with producing these dead discard estimates.

MR. REID: If I might, Mr. Chairman.

CHAIRMAN BORDEN: Go ahead, Eric.

MR. REID: Okay, Max, I can't ask for any more than that. I'm only asking for a beginning. If we don't get started on this project that is going to be a mistake. If you open the door for us a little bit then

we can do our homework, and figure out how to get this, not under control, but understand it so we know what we're dealing with, because I don't think we understand it now. I appreciate it, and thanks for the help.

CHAIRMAN BORDEN: Back on the list. Tom Fote.

MR. FOTE: Yes, I guess I'm to the point where I'm not going to be agreeing with everybody. I look at this fishery as not just a catch and release fishery for the recreational sector. I look at it as a catch and harvest. People like to take striped bass home to eat, they should be able to do that. What you have done is probably increasing, so the guys in New York have released 100 fish, instead of 50 fish in a day.

You have now forced a person who just wants to go out and have a fish to bring home to eat, basically to keep catch and releasing, because you are raising the size limit to basically handle the hook and release mortality. That is a real problem. This is not a tarpon, where people don't want to eat it or fish that we built upon that people want to eat. Besides, we miss a lot of people. I was hoping you were talking about how a virtual meeting works with people, you have good results. What is going to happen is good results with people that are very familiar with how to use the computer, very familiar how to basically use this. Maybe there is a different type of person out there. The people that I look at, I mean I spend a lot of time teaching people how to use Zoom, and they still can't figure out how to do it.

They just don't get on and they get disgusted. You're losing all those people that would be at those public hearings when you do that, and it might not be the same way you lose school kids, because they're not familiar with the computer. Now we're losing people, because maybe they don't have access to all these computers at

home. Maybe they don't have high state internet access. We're limiting who will do it.

There is a lot of population out there that fishes that is basically in that category, and looking at fish to take home to eat, not just to do catch and release. There is a reason there is a place for both of those fisheries together. But when one starts impacting both the commercial and the recreational sector, and watch it do that. I guess for their ability to go out and just catch and release fishing, and you basically don't care about the numbers they're doing, and don't care about the mortality. That is a real problem.

CHAIRMAN BORDEN: Toni, do I have any other hands up?

MS. KERNS: Do you have other hands up. You have Dennis, Roy Miller, Megan Ware, Adam Nowalsky.

CHAIRMAN BORDEN: Stop. You have Roy, who else?

MS. KERNS: Megan.

CHAIRMAN BORDEN: Dennis.

MR. ABBOTT: As usual, you're running a very brief meeting, keeping to the time schedule as you always do. However, before I get to my main point. Max says that he could probably get something back to us in October. I appreciate Max is, I'll use the term an eager beaver, and he's a good hard worker, but we don't want any fast product.

We just had moments ago realized, not realized determined that we wanted to go about this slowly and carefully, and already we're maybe rushing things a bit. I hope that Max can do a thorough job by October, but I would prefer it by the springtime, whenever. The issue of dead discards. That is such a big issue.

If you tell the average person that you're killing 50 percent of the fish when you throw them back into the water, and you want to ignore it. We're not

doing our job. I don't know how much we can correct it. I asked Katie Drew what would happen if we decreased dead discards by 50 percent, and maybe she can make a comment after I finish. However, we need to start someplace, and one of the places we need to start is to make the public aware of what the heck is going on with dead discards. I don't think that a lot of fishermen, recreational fishermen, realize how many fish they are killing. For that reason, that is why I support Eric's motion here that we've got to get off the ground, not only to understand discards, but to do something about it. Maybe that starts with public awareness through something through the media, through the sports fishermen's organizations, to do some articles on whatever to make people aware that we're killing too many striped bass throwing them back in the water. You can't help it, but you can help it. There are a lot of ways that you can improve. You never get rid of it, but you surely should be seeking ways to diminish what we're doing.

CHAIRMAN BORDEN: Katie, do you want to comment? I'll give you an opportunity, otherwise I plan to move on to Roy and Megan. Katie.

DR. KATIE DREW: I would just say, you know we talked about this in the Workgroup, and absolutely reducing dead discards by 50 percent or by a significant amount would benefit the stock the same way by reducing directed harvest would benefit the stock. It's just a matter of reducing those total removals to help it rebuild. But I think the tricky part is, how do you get those removals to stop in either way, when really it is driven by effort rather than specific regulations that can be controlled by a size limit or a bag limit?

CHAIRMAN BORDEN: Thank you, Dr. Drew. I've got Roy Miller and then Megan.

MR. MILLER: I think then my arguments in favor of this particular tasking have been well stated.

I support the idea of tasking the PDT/TC to begin developing these methods. I think it could be important if it should not get in the way of initiating the amendment, but it is well worth doing.

CHAIRMAN BORDEN: Megan.

MS. WARE: I actually have a question for the maker of the motion. My recollection is that our recent stock assessment kind of went through all of the different studies on dead discards, and looked at them and evaluated them, and that is how they reaffirmed that 9 percent. I am just trying to understand how this is different from what was done in the assessment, taking it to the next step where they are putting forward some sort of study? I think that is where I'm getting a little lost.

CHAIRMAN BORDEN: Eric, do you want to follow up?

MR. REID: Well, Megan. The way I see it is I know there are other studies that talk about dead discards. There was one done in Massachusetts, and it was done with discards and what happened to them over time. It wasn't 9 percent. I think the 9 percent is a joke. That has to be looked at. Just going over the same old methodology over and over again doesn't work for me.

We have to look at a way to figure it out, and I don't know if it's a bag limit or a size limit or circle hooks, or what. But it is a massive component in a fishery that we don't really understand. If we just want to keep using the same old number that's fine, but it is not fine for me. That is why I made the motion.

CHAIRMAN BORDEN: Megan, do you want to follow up?

MS. WARE: Yes, I guess I'm generally supportive of this idea, I'm just trying to understand what we're doing. I guess now I'm a little more confused. Is this about tasking the PDT and the TC to evaluate the science behind the discard mortality percentage, or is this about identifying some management tools that reduce discard mortality?

MR. REID: I mean basically right now, Megan, all we really have is science. I don't expect them to come up with a solution. I just want to know where our gaps are, and how we can get a better grasp on how to solve this issue. I think it is a travesty that we let it happen, and I don't care if it's a sport fishery in a 100 percent release fishery.

There is dead striped bass floating all over the place once the recreational fishery leaves an area, and that's not right, and that is not 9 percent. If we start by analyzing the data we have and the science behind what we have, maybe we can figure out a way to better understand what happens, because right now I don't think we have any idea what happens.

CHAIRMAN BORDEN: Toni, do we have anybody else on the list that hasn't spoken?

MS. KERNS: Yes. That hasn't spoken on this issue, yes. We have Adam, Mike Luisi, Ritchie White, and I still have more names after them.

CHAIRMAN BORDEN: Okay Adam.

MR. NOWALSKY: I'll build on a number of the last comments that I've heard. I will be speaking in support of the motion. I understand there are concerns specifically about what happens with smaller fish in warmer waters, with regards to recreational anglers leaving an area with piles of dead striped bass floating behind them.

I have never seen that in a fall/winter fishery. I certainly haven't pursued the fishery in the Chesapeake Bay, but I have the ocean. I do think that while discards are the problem, I think that characterization may be a little extreme. But specifically, with respect to Megan's question. I had a very similar question, and to Tom's point. I'm supporting this motion because it says, methods to better understand discards in the fishery.

This motion doesn't say methods to reduce discards in the fishery. I know ultimately that is where we want to get to. But I think it's really important that we're able to understand what is causing these discards in the fishery. The point about the fishery being a catch and release fishery, that may be true by the data.

But the question remains, is it a catch and release fishery, because nobody wants to take a fish home, because they don't provide any table value. I have never heard that from anyone I've spoken to. I think the fishery in the Chesapeake Bay clearly demonstrates that this is a highly prized fish for its food value. The comments that we heard during the COVID crisis of allowing for-hire fishermen to continue operating because of the food value, clearly suggests that this is not only a catch and release fishery, because they don't provide value once harvested.

I agree entirely with the comment that it's our regulatory process that has driven the percentage of discards up, and I would hope that the PDT and TC, in beginning to develop methods to better understand discards in the fishery that that is one of the things that they would do. If they can't do it by October, if they come up with some information to give us to put into the PID, to generate some questions to take out to the public to better understand it.

Once we understand why they are occurring, then we're best in a position to develop those methods. I hope that furthers the intent on the record here of the maker of the motion is to give the PDT/TC the latitude to do the work to try to understand that, to give us some direction about what we could put in a PID to get in that information.

If we don't have this analysis done in October, if it takes until the winter meeting or whatever the timeline is to do it right, I hope that we give that group the flexibility and the time in order to do it, so we can determine how best to proceed, and basically that would address the concerns of a lot of different speakers over the last 15 minutes during this discussion.

CHAIRMAN BORDEN: We're almost a half hour behind schedule, so I'm going to take the last two that I have on the list, we'll have a one-minute caucus, and then call the vote on the subject. Mike Luisi and Ritchie White.

MR. LUISI: I absolutely agree with everything that Adam said, and I fully support the motion. The way I see this developing, I could see it becoming part of the PID in our discussions as the PID developed. Even though, well discard mortality is part of what was approved as moving forward in this PID.

But I could see that there would be concern that discard mortality may carry along with the amendment, to the point where this may take a couple years, which is what we talked about moving slowly. I think the Board would have the opportunity, once we hear from the public and we get a chance to review what goes into the Amendment.

We could consider peeling away the discard mortality and doing what I think Mike Armstrong recommended, which might be taking a more fast-track action on an addendum during the time the Amendment developed. Nine percent across the board is not a responsible way to continue for the future.

You know that that mortality is greater during times when the conditions are not conducive to the survival of fish when they're released, and I think we need to address that and we need to take a new step forward in our understanding of discard mortality. I'm fully supportive, and I hope to see this develop under the PID umbrella.

CHAIRMAN BORDEN: Ritchie White, you get the last word, and then we're going to move on to caucus.

MR. WHITE: I think that if you put this to the public, I don't believe there are two types of fisheries, catch and release and people that

harvest. I think people go out to stripe bass fish, and they enjoy striped bass fishing. Some of them may decide that they want to harvest a fish, or that is their goal, and some of them may decide that they don't want to harvest a fish. But I've had a lot of charter boats up and down the east coast, and I've never been on a charter boat that you catch your limit in the first half hour and you go home. Charter a boat for six hours, you fish for six hours. I believe that is what the anglers want to do. They want to go out and experience striped bass fishing, and bringing a fish home is important to some people, to some people it's not.

But what is important to all of them is to be out there experiencing striped bass fishing, and doing it as much as they can. I think the only solution to this, beyond education, is we clearly need to do a much better job on education. It's going to be to take people off the water. That is the only way you're going to lower discard mortality is to have seasons, and I don't think the public is going to go for that at all.

CHAIRMAN BORDEN: You get a one-minute caucus. I would just note why the open line is. The storm has arrived and will pass in Rhode Island. My electricity and lights are beginning to flash. I'll raise the question. All those in favor of the motion. Let me read the motion. Move to task the PDT/TC to begin developing methods to better understand discards in the fishery. Motion by Mr. Reid, seconded by Marty Gary. All those in favor of the motion, signify by raising your hand.

MS. KERNS: Hold on, Mr. Chairman, I think I just had one more vote.

CHAIRMAN BORDEN: Toni, you were broken up. Could you state that again?

MS. KERNS: I have 14 in favor.

CHAIRMAN BORDEN: No votes, please raise your hand.

MS. KERNS: I have 2 no votes. I apologize, I have 3 no votes.

CHAIRMAN BORDEN: Does anyone abstain?

MR. APPELMAN: I'm sorry, Toni. That is too many votes. There are only 16 votes on this Board.

CHAIRMAN BORDEN: Let's go back and clear the slate and we're going to revote. All those in favor of this motion voting yes.

MS. KERNS: Emerson Hasbrouck has a question, Mr. Chairman, I believe.

CHAIRMAN BORDEN: Emerson, is it on the motion, because we're past the point where I wanted to be. Emerson, do you have a process question?

MR. HASBROUCK: No, we were still in caucus, so I missed the first vote, so I just want to make sure that New York vote is counted here in the second go around. If you had too many votes the first time, and that was even without New York voting.

CHAIRMAN BORDEN: This is a whole new vote.

MR. JAMES J. GILMORE: It's Jim, I did vote, so I will vote again.

MR. HASBROUCK: Okay, sorry, Jim. We were caucusing without you, we had Maureen on.

CHAIRMAN BORDEN: All in favor of the motion as I read, please signify by raising your hand.

MS. KERNS: I have 15 in favor.

CHAIRMAN BORDEN: Any opposed?

MS. KERNS: All the opposed hands, please raise your hand.

CHAIRMAN BORDEN: Any abstentions?

MS. KERNS: I don't see any abstentions.

CHAIRMAN BORDEN: Any null votes?

MS. KERNS: I don't have any null votes. I didn't have any opposed votes either.

CHAIRMAN BORDEN: Okay, so the final vote is 15, 0, 0, 0. The motion passes. That dispenses with that.

ELECT VICE-CHAIRMAN

CHAIRMAN BORDEN: We've got two more items that should be fairly quick items on the agenda. We need to elect a Vice-Chairman. My understanding is Megan Ware would like to make a motion.

MS. WARE: Sure, I can do that now if we are at that point in the agenda. Due to his leadership and poise on the Workgroup, I would like to nominate Marty Gary as Vice-Chair of the Striped Bass Board.

CHAIRMAN BORDEN: Do I have a second?

MS. KERNS: Yes, Roy Miller.

CHAIRMAN BORDEN: Seconded by Roy Miller, any objections to the motion? Any hands up, Toni?

MS. KERNS: No objections.

CHAIRMAN BORDEN: No objections, I suggest the record reflect Mr. Gary is now the Vice-Chairman of the Committee by the acclamation of the Board.

OTHER BUSINESS

DISCUSS STATE PLANS FOR IMPLEMENTATION OF CIRCLE HOOKS COASTWIDE

CHAIRMAN BORDEN: The last issue under Other Business is Mike Luisi asked for a brief period of time to talk about circle hooks.

MR. LUISI: I don't know if it was discussed. I was disconnected for a few minutes. Wasn't there another motion that we needed to consider, as a

postponed motion today, before we get to Other Business, or did I miss something?

MR. APPELMAN: Yes.

MR. LUISI: We could go to Other Business if that is the wish of the Chair. I had asked whether or not this would be an opportunity. I know we're late in the day. But this would be an opportunity to talk a little bit about some of the states and what their plans are for implementing circle hooks coastwide.

I think it would be problematic if we all find ourselves coming up with different rules and regulations for how those circle hooks would be applied. The Addendum VI language is pretty clear, in that if we're addressing or if we're targeting striped bass with bait, a circle hook is required.

I just was curious as to whether or not states are finding problems in that, whether it be enforcement or with stakeholder concern, and were planning to modify their proposal. If we don't have the time, I get it, Mr. Chairman. Certainly, it is up to you if you want to spend time on that. But it might help some of the states, as we're all probably in the process right now of getting those regulations done.

**CONSIDER POSTPONED MOTION FROM
FEBRUARY 2020**

CHAIRMAN BORDEN: We still need to take action on this postponed motion from February. We did have discussion on that. Does anyone want to make a motion on the subject? The options here I think are fairly clear, just postpone it to another meeting. We could postpone it indefinitely, which would in effect kill it.

You could vote the question and vote it up or down, and if it failed it would stop. Those are kind of the options. Maybe someone else can think of another option, but those ones just

come quickly to mind. Would someone care to make a motion on this issue?

MS. KERNS: You have Megan Ware.

CHAIRMAN BORDEN: Megan.

MS. WARE: Yes, this motion has given me a little bit of pause, because I think we all agree that 2020 MRIP estimates are going to have a bit of uncertainty, and might be a little wonky. I'm not sure if that is now the best year to be choosing in the motion. That said, I certainly heard from a lot of anglers over the past week, and they are still interested in looking for assurances of accountability with Addendum VI.

I had some thought about waiting until the 2021 FMP review, but I think that means we wouldn't actually see any information until August of 2022, which I think is kind of when we would be considering final action on the Amendment we just initiated. I'm thinking that the easiest way to address this is, you know we just initiated an amendment, which is looking at overhauling or considering changes to conservation equivalency, and we've included recreational accountability. I'm wondering if there is a way, we can just say that this is being looked at in that amendment, and process a question in the PID to address this topic of accountability. If there needs to be a motion to make that happen, I can kind of do that. I would just need some help from the staff with wording.

CHAIRMAN BORDEN: Max.

MR. APPELMAN: We're looking for a motion to find agreement that the action that just occurred with the amendment is making ground on accountability and things like that. Correct?

MS. WARE: Yes, I mean it seems to me that we just initiated an amendment that is looking at CE and accountability, and I think that actually might be a quicker route to addressing those topics, than waiting until this 2021 FMP Review. I don't know if that required a motion or not to make that

acknowledgement. If you have a suggestion on how best to do that, I'm all ears.

MR. APPELMAN: I'm sort of with you on that and Toni could jump in if I'm lost. But I don't think a motion is needed to convey that intent. I think what the Board needs to do is to deal with this motion, and if it is voted down or postponed indefinitely, or however it's dealt with. As long as that intent, Megan that you have made is clear. I think we're all good. I don't think we need a motion for that.

MS. KERNS: Megan, if it is your intention to dispense of this motion, then you could say it is postponed indefinitely with the intention that through the amendment this accountability process will take place.

MS. WARE: That sounds great, Toni. I'll make that motion.

CHAIRMAN BORDEN: All right, so Megan you're **making a motion to postpone indefinitely, with the intent that accountability will be factored into any future amendment. Is that correct?**

MS. WARE: Yes, if we could just have the motion read that acknowledging that our amendment was just initiated is addressing CE and accountability that would be helpful.

MS. KERNS: Justin Davis is seconding this motion, and Maya for language to help you out, if you could put after indefinitely a new sentence, or in parentheses, I guess. Motion to postpone indefinitely is sort of an infinitive. There is usually nothing else that goes with it. With the intention to address accountability in the initiated amendment.

CHAIRMAN BORDEN: Megan, is that your motion?

MS. WARE: Yes, please.

CHAIRMAN BORDEN: Okay, Megan Ware has made a motion, Dr. Davis has seconded. Move to postpone indefinitely, with the intention to address accountability in the initiated amendment. We have a motion on the table, discussion. Does anyone care to discuss the issue? If so, please raise your hand. Toni.

MS. KERNS: I have John McMurray and Joe Cimino.

MR. McMURRAY: Okay, John McMurray and then Joe.

MR. McMURRAY: I don't support postponing. This is specific to Addendum VI, and it is not gratuitous. It is pretty clear at this point that some states are using CE to liberalize regulations, and the overages are not theoretical, they are real, as we saw in 2015. I don't think this is draconian. I understand well that availability drives catch up in some states.

But there is no requirement here for a state to change to require a change in the regulations. It would be up to the state if that had the overage, to make a case of why the reduction wasn't achieved, and then the Board would consider that, and make a determination, which I think we could do anyway even without this. This just seems like a commonsense requirement here, and frankly I don't think we could push this off any more, the public is demanding it. That's it.

CHAIRMAN BORDEN: Joe.

MR. JOE CIMINO: Well, unfortunately this motion doesn't really address missing reductions. Most states don't even know what their reduction target was, those tables were not really used. This is punitive to states that legitimately use the process for conservation equivalency to do something else. Unless you're saying every state that didn't take conservation equivalency is going to be held to an 18 percent reduction, and if they aren't then they need to do something.

In a stock that needs help, only holding a few states to a reduction doesn't make any sense in my mind.

I completely disagree that it's for the stock. I think its people that are angry at the process. You know a new amendment is going to look at that, and I fully support looking at conservation equivalency. I think this is punitive and not helpful. I support the motion.

MS. KERNS: You also have Justin Davis, Cheri Patterson, and Mike Luisi.

CHAIRMAN BORDEN: Justin.

DR. DAVIS: I do support the motion. I do want to acknowledge though the dynamic that John McMurray brought up that there was sort of broad, public support for the idea of recreational accountability, and that that is where this motion came from, directly out of the Addendum VI process.

I'm not necessarily opposed to the idea, but I have concern, and Megan did a good job outlining some of them. I just don't know how we're going to use 2020 MRIP data, when a number of states suspended intercept surveys during the early portion of the year while a lot of striped bass fishing was happening.

It's not clear how we're going to generate catch and harvest estimates. I just don't see how we're going to use 2020 MRIP data to assess whether states met the target and reduction from Addendum VI. I also think there is more general concerns about using MRIP data on a state-by-state level, which everyone acknowledges that is not what the MRIP Survey is built for, even though we use it for that to use as a basis for accountability. Also, just MRIP estimates in general are highly variable. I think we need to consider about what is the sort of level at which an overage has actually occurred? Does it go 2 percent over, 5 percent over? How does that relate to the inherent uncertainty in the MRIP numbers? All this is just to say that I think there are a lot of things to pick through here, and think through.

That's why I would rather see it considered more deliberately in the amendment process. It's going to touch upon the recreational accountability topic in the amendment. It's also going to touch upon conservation equivalency, I think, because I think that was the motivation for this. I just wanted to be clear that I understand the public's interest in this. I'm not necessarily opposed to the idea, but this specific motion I think the best move right now is to postpone this indefinitely.

CHAIRMAN BORDEN: Cheri.

MS. PATTERSON: I'm sorry, did you call on me?

CHAIRMAN BORDEN: Yes, I did. It could be my connection.

MS. PATTERSON: I actually support Megan's motion. For what Justin pretty much just said also. I think that you need to be very careful and cautious how we are going to be evaluating the 2020 fishing year, based on MRIP information. I understand the frustration of not being able to really delve into any sort of state reductions that did not come to pass through the CE process.

But we have to be very, very, very careful what we're going to be looking at and making decisions on data, based on this fishing year. I think the best move forward at this point in time, is to look at it through this amendment that we are moving forward.

CHAIRMAN BORDEN: Make it short, I've got Mike Luisi next.

MR. LUISI: I'll be very brief. I do want to say that I support the motion, for the reasons that Joe Cimino and Justin Davis mentioned, and I won't go back into that. I just wanted to add that I think keeping your approach in the motion for consideration, gets us much more closely aligned with how we've been managing summer flounder, black sea bass, and other federally managed species, which I don't think anybody around the table thinks it has been a good exercise.

Just on Thursday, we're going to be talking about ways to try to get out from under the arm of federal management, to try to provide for better recreational tools in moving forward. This takes us backwards into that world, the way I see it. I'm going to support the motion to postpone, with the intent that we address this accountability through the amendment.

CHAIRMAN BORDEN: Toni, do you have anyone else?

MS. KERNS: That's everybody.

CHAIRMAN BORDEN: Okay, so one-minute caucus, and I'll call the question.

MR. NOWALSKY: Toni, did you say Joe Cimino raised his hand last time, because I haven't gotten in touch with him in text recently, so I'm not sure who is voting for us in New Jersey.

MS. KERNS: He did have his hand up before, let me make sure he's still on the webinar. I still see him on the webinar, Adam.

MR. CIMINO: I'm here. Adam, I could cover this one, sorry.

MS. KERNS: I try to like make sure there is not a double-state voting as well, which is one of the reasons why I'm a little slow on my counting.

MR. LUISI: Hey Toni, just really quick, and sorry for jumping in, Mr. Chairman. I wanted to get into Dennis Abbott's question earlier about roll call. I mean is there a possibility that you could just call out names, you know call out the states that are voting, so when we raise our hands we could just say yes votes from, and just state a state just so we know who is voting each way?

MS. KERNS: I certainly can do that.

CHAIRMAN BORDEN: Are you ready for the motion? All those in favor signify by saying yes, raise your hand.

MS. KERNS: I need everybody to have their hand up so the names stop moving, and then I can give you your count. Connecticut, U.S. Fish and Wildlife Service, Rhode Island, Delaware, Maryland, Maine, Virginia, Pennsylvania, Massachusetts, North Carolina, New Jersey, and PRFC. That is 12.

CHAIRMAN BORDEN: All right, no votes, please signify.

MS. KERNS: Before you say that I'm just going to take everybody's hand down. Now, if you're going to vote now, please raise your hand. I don't have any no votes, one no vote from New York.

CHAIRMAN BORDEN: New York, any abstentions?

MS. KERNS: One abstention from NOAA Fisheries.

CHAIRMAN BORDEN: Any null votes?

MS. KERNS: One null vote from New Hampshire.

CHAIRMAN BORDEN: The motion passes. All right, is there any other business to come before the Board?

MS. KERNS: Adam Nowalsky has his hand up.

CHAIRMAN BORDEN: Adam.

ISSUE TO COME BEFORE THE EXECUTIVE COMMITTEE AND POLICY BOARD

MR. NOWALSKY: All right Mr. Chairman, I can continue. I didn't raise this under Other Business at the beginning of the meeting yesterday, because I wasn't aware it was going to be the issue it became. But there were some comments made during yesterday's portion of the Board meeting that a letter had been sent to a large number of the Board.

It has come to my attention that it wasn't everybody on this Board that came from the entire New Jersey delegation. I just wanted to make it clear to everybody on this call that that letter did not come from the entirety of the delegation.

Perhaps you can just give the extender 30 seconds to briefly just speak to the fact that it didn't come from the delegation.

I don't want to take up the issues that were in the letter. It is my understanding they will come before the Executive Board and the Policy Board. But I do think it is important for this Board to hear, especially those people who heard that the entire delegation from New Jersey sent something with regards to specific other commissioners. That that was not in fact the case, and I think it's very important that that be made clear on the record.

CHAIRMAN BORDEN: Thank you, Adam. I don't know whether Pat Keliher is on the call. Bob, you know what is going on. Is one of those gentlemen still on it? Could you tell the group when that issue will be discussed?

EXECUTIVE DIRECTOR ROBERT E. BEAL: David, this is Bob Beal. I'll go ahead and jump in, if we don't hear Pat.

CHAIRMAN BORDEN: Sure, that's fine.

EXECUTIVE DIRECTOR BEAL: Okay. Adam is right. The Executive Committee is going to bring it up tomorrow to talk about it. The Executive Committee has a really full agenda in the morning, so I don't think they're going to put a whole lot of time into it, other than to acknowledge that the letter is received, and mostly focusing on the notion of, do any changes need to be made to the Working Group procedures that were approved by the Policy Board, I don't know six months or eight months ago.

You know the question will be focusing on reviewing how the Working Group for Striped Bass operated, then moving forward. Probably better to have it introduced at the Executive Committee, and then maybe since the Executive Committee is meeting almost weekly now, they can talk about it at subsequent meeting if there

isn't much time to talk about it tomorrow during the two-hour Executive Committee session.

CHAIRMAN BORDEN: Thank you, Bob. Is there any other business before us?

MS. KERNS: It's Jim Gilmore.

OTHER BUSINESS CIRCLE HOOKS (CONTINUED)

MR.. GILMORE: I was just actually going back to Mike's thing, and I suggested it also about the circle hook thing. I don't want to spend a lot of time, but I thought this was going to be very simple that we were just going to adopt the circle hook provision. We had our Council meeting a couple weeks ago, and now there was some of the folks in our state are looking for exemptions for surf casting. I understand other states are looking for exemptions for that. My only concern is like Mike's concern.

If we wait until the October meeting, and then we have a January 1 implementation deadline. We're not going to have enough time. One suggestion I have is maybe at least if the states could send the staff or Max, whatever, what their proposal is, and if we've got a lot of variability. We need maybe to address it before the October meeting. Maybe Mike has more to add on.

CHAIRMAN BORDEN: Thanks Jim, for the suggestion. That was aborted, I would point out giving your protracted discussion at this point has come to (muffled). Any objection to doing what Jim suggested?

MR. LUISI: This is Mike, I think what Jim is suggesting might be a good idea. I think the implementation plan begins at the middle of this month, and if not we could always, if there is a lot of variation between the plans, I think we could probably call a meeting of the administrative people from the state to go over it, in between now and the October meeting.

I would be fine with that. I just don't want to get too far along and be in October, and all of a sudden

now our timeline is off, and we're not going to be able to meet our deadline, if adjustments can be made. But I think Jim's suggestion is a good one.

CHAIRMAN BORDEN: Let me just suggest that we defer this to the staff, particularly Toni and Bob, to send out written guidance to the Board as to how this discussion is going to take place, whether it's administrative commissioners and what the timeframe is, and then they handle it in that manner. It seems like there is a frequency to address this. Rather than have us try to fine tune the methodology at this point, just let the staff send out a letter and say what the methodology is. Are there any objections to doing that? Are there any hands up?

MR. APPELMAN: Dave, could I jump in really quick, this is Max?

CHAIRMAN BORDEN: Yes.

MR. APPELMAN: Just a quick reminder that implementation plans, Mike was on the money, they are due a week from tomorrow. Assuming that all states hit that deadline, I could of course give a thumb through, and see if anything stands out. As far as guidance from Addendum VI itself. You know there is a definition of what a circle hook is.

The regulations require a non-offset circle hook that is defined in the Addendum. But besides from that states have flexibility to put in regulatory language that addresses the nuances or differences in those fisheries, and the PRT doesn't have sort of a threshold of when intent of that provision is compromised.

To that point, the PRT plans to provide a report back to the Board in October, commenting on the intent of that provision, which is why we asked for any quantitative information for these exemptions to be included in the implementation plan, so the PRT has some idea of how much effort, or how many anglers may

not be restricted by this provision. Without that it is very difficult to provide any comment on whether these rules are undermining the intent of the provision.

CHAIRMAN BORDEN: Any further comment on this?

MS. KERNS: I don't see any hands, but I will tell you that Dennis Abbott has had his hand up. I don't think it's about this though.

CHAIRMAN BORDEN: Dennis Abbott.

MS. KERNS: He has now taken his hand back down.

CHAIRMAN BORDEN: Is it clear to everyone how this is going to be handled?

MS. KERNS: Yes.

ADJOURNMENT

CHAIRMAN BORDEN: All right, so any objections to moving on and adjourning the meeting? The meeting stands adjourned.

(Whereupon the meeting adjourned at 5:30 p.m. on
May 4, 2020)



Atlantic States Marine Fisheries Commission

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MEMORANDUM

September 29, 2020

To: Atlantic Striped Bass Management Board
From: Atlantic Striped Bass Plan Review Team
RE: Review of State Implementation Plans with Addendum VI Mandatory Circle Hook Requirements

The Striped Bass Plan Review Team (PRT) met via webinar on September 8, 2020, to review state submitted implementation plans for Addendum VI mandatory circle hook requirements, and to develop recommendations for consideration by the Striped Bass Management Board (Board). The following provides background information and a summary of the PRT's review. Current and proposed circle hook regulations by state are provided in Table 1.

Background

Approved in October 2019, Addendum VI to Amendment 6 to the Atlantic Striped Bass Interstate Fishery Management Plan (FMP) implements coastwide harvest reductions, and also requires the mandatory use of circle hooks when fishing with bait to reduce release mortality in recreational striped bass fisheries. States are required to implement circle hook requirements by January 1, 2021, and all other measures were implemented by April 1, 2020.

Addendum VI defines a 'circle hook' as a non-offset hook where the point is pointed perpendicularly back towards the shank. The term 'non-offset' means the point and barb are in the same plane as the shank (e.g., when the hook is laying on a flat surface, the entire hook and barb also lay flat). The Addendum provides states flexibility to further specify details of the regulation to address specific needs of the state fishery.

The Striped Bass Technical Committee (TC) reviewed state implementation plans for Addendum VI in December 2019, however, most states were unable to provide sufficient information regarding proposed circle hook requirements at that time (e.g., draft regulatory language). Therefore, the TC recommended states resubmit implementation plans for circle hook requirements later in the year to allow time for scoping and other state regulatory processes to play out. As a result, the Board established August 15, 2020 as the new submission deadline for circle hook implementation plans, with Board approval occurring at the Annual Meeting 2020.

States were asked to include the following elements in their implementation plans: (1) a copy of final (or proposed) regulatory language, including a definition of 'circle hook' comparable to that cited in Addendum VI, and an effective implementation date no later than January 1, 2021;

M20-107

(2) quantitative justification for any proposed exemptions using 2016 and 2017 recreational catch or effort data; and (3) a detailed description of public education and outreach efforts to garner support and compliance with mandatory circle hook requirements.

The PRT's objective was to verify the proposed measures addressed the intent of the provision, which is to reduce striped bass discard mortality in the recreational fishery. However, some states provided exemptions to reduce the impact of the circle hook regulations. While Addendum VI provides states flexibility to specify details of the regulation to address specific needs of the state fishery, there is no guidance (or metric) to the PRT on what an acceptable level of flexibility is. Therefore, the PRT cannot make a definitive recommendation to the Board regarding proposed exemptions to mandatory circle hook requirements.

Plan Review Team Comments and Recommendations

Note: some state circle hook regulations are still being scoped or are pending final review and approval. If a state considers changing proposed or adopted circle hook regulations or exemptions in the future, the PRT recommends the state submit an updated implementation plan for PRT review and Board approval.

Regulatory Language

The PRT noted that all state proposed regulatory language requires, at a minimum, anglers to use circle hooks when using bait to target striped bass. All proposed regulations included a definition of 'circle hook' comparable to that cited in Addendum VI. The PRT noted that not all states used the same regulatory language or definition for circle hook. While some states used the circle hook definition provided in the Addendum, others used preexisting regulatory language for other state fisheries (e.g., for coastal sharks). In a memo dated September 24, 2019, the Law Enforcement Committee (LEC) stressed the importance of all jurisdictions agreeing on standardized regulatory language, especially where states share common borders and fishing areas. PRT members also noted that states requiring the use of corrodible hooks (New Hampshire and Virginia) may be inadvertently limiting the availability and size of hooks that can be used in the fishery (e.g., some tackle companies don't necessarily manufacture corrodible hooks for all hook types and sizes).

Proposed Exemptions

Three states and jurisdictions are proposing exemptions to mandatory circle hook requirements:

- Maine – mandatory use of circle hooks when fishing for striped bass with bait has been required since 2013. The use of rubber or latex tube rigs are exempt from mandatory circle hook requirement as long as they conform to the following: the lure must consist of a minimum of 8" of latex or rubber tubing with a single hook protruding from the end (use of treble hooks prohibited).

- Massachusetts – anglers fishing aboard for-hire vessels, and anglers (all sectors) using any artificial lure designed to be trolled, cast and retrieved, or vertically jigged with natural bait attached, will be exempt from mandatory circle hook requirements. According to MRIP, the for-hire sector accounted for <2% of total striped bass releases in the state in 2016 and 2017 (63,791 and 251,866 fish respectively).
- Potomac River Fisheries Commission – the use of circle hooks is not required prior to May 1 during the catch and release season for striped bass; the use of barbless hooks has been required during the closed season since 1998 (*note: PRFC has since proposed to extend mandatory circle hook requirements to the catch and release season; implementation is expected before January 1, 2021*).

In general, the PRT discussed potential challenges with enforcement and compliance due to inconsistent regulations between states, particularly in shared waterbodies, and between modes within a state. In a memo dated January 23, 2020, the LEC commented that compliance in closely adjoining states is enhanced through regulatory consistency, and is particularly important for enforcement in shared water bodies like the Gulf of Maine or Chesapeake Bay. The LEC also stressed that the more divided recreational fishing modes are (for-hire vs. private), the more difficult it is to adequately enforce restrictions. Lastly, LEC members noted that it is difficult for field officers on land to distinguish between private and for-hire boats offshore, and at the docks where the two types of anglers are likely to co-mingle.

The PRT also discussed that while proposed exemptions may account for a small proportion of effort or total releases in the state, the proportion is not trivial in terms of numbers of fish. For example, according to MRIP, the for-hire sector in Massachusetts is estimated to have released approximately the same number of striped bass as all sectors in the state of Delaware in 2017 (251,866 fish compared to 254,050 fish, respectively).

Public Education and Outreach

While some states are doing more than others, the PRT commented that all states have put forth effort to garner support and compliance with mandatory circle hook regulations. Most states indicated they are developing web content specific to circle hooks and safe fish handling techniques; distributing materials at trade shows, docks, bait and tackle shops; email blasting angling communities; providing education materials to law enforcement officers; partnering with non-profits like the American Sportfishing Association to develop state-specific web content and other outreach materials; taking out ads in local newspapers, magazines, and so on. While some public education and outreach efforts were delayed or reduced due to COVID-19 in 2020, states expressed intent to ramp up efforts in 2021 upon the adoption of final circle hook regulations.

Table 1. Current and proposed circle hook regulations and circle hook definitions by state.

| State | Effective Date | Current/Proposed Regulatory Language | Circle Hook Definition |
|-------|---|--|---|
| ME | Jan 2013 | It is unlawful to use any hook other than a circle hook when using bait [for striped bass]. | Non-offset hook with a point that points 90 degrees back toward the shaft of the hook. |
| NH | Jan 29, 2020 | Any person taking striped bass with bait from the waters of the state by angling shall only use corrodible non-offset circle hooks. | Hook used for angling with bait where the point and barb are turned perpendicularly back to the shank to form a circular shape. If this hook is laid on a flat surface, all parts of the hook lie flat on the surface, rather than the point and barb being angled away from the shank in either direction. |
| MA | May 1, 2020 | Recreational fishermen fishing from shore or private vessels shall use circle hooks when fishing for striped bass with whole or cut natural baits. This shall not apply to any artificial lure designed to be trolled, cast and retrieved, or vertically jigged with natural bait attached. | Fishing hook designed and manufactured so that the barb of the hook is not offset from the plane of the shank and bend and is turned perpendicularly back towards the shank to form a circular or oval shape. |
| RI | Jan 1, 2021 (expected) | The use of circle hooks is required by any vessel or person while fishing recreationally with bait for striped bass. | Non-offset hook where the point is pointed perpendicularly back towards the shank. |
| CT | Jan 1, 2021 (expected) | All persons fishing for striped bass with whole, cut, or live natural baits shall use an in-line circle hook. | Fishing hook on which the point and barb of the hook are not offset from the plane of the shank and bend, and the point is turned perpendicularly back towards the shank. |
| NY | Jan 1, 2021 (expected) | Recreational fishermen are required to use an in-line circle hook when fishing for striped bass with whole, cut, or live baits. | Fishing hook designed and manufactured so that the point and barb of the hook are not offset from the plane of the shank and bend, and the point is turned perpendicularly back towards the shank to form a circular or oval shape |
| NJ | Current: Dec 17, 2001 (upper Del. River); April 1, 2002 (lower Del. River) Proposed: Jan 1, 2021 (expected) | Current: hook and line fishermen are hereby restricted to the use of non-offset circle hooks while fishing with any natural bait [<i>within the Delaware River or its tributaries from April 1 through May 31 of each year. This restriction shall apply only to hooks of size two and larger and shall not apply to hooks of smaller sizes (such as those normally used for white perch fishing)</i>]. Proposal: bracketed language to be removed from regulation. | Non-offset hook where the point is pointed perpendicularly back towards the shank. Non-offset means that the point and barb are in the same plane as the shank |
| PA | April 1, 2020 (temporary); Jan 1, 2021 (permanent, expected) | It is unlawful to fish with bait for any species of fish in the tidal Delaware Estuary, including tributaries from the mouths of the tributaries upstream to the limit of tidal influence using any hook type other than non-offset (in-line) circle hooks. | Hook where the point is pointed perpendicularly back towards the shank. The term 'non-offset' means the point and barb are in the same plane as the shank. |

Table 1 continued.

| State | Effective Date | Current/Proposed Regulatory Language | Circle Hook Definition |
|-------|---|---|---|
| DE | Jan 1, 2021 (expected) | It is unlawful for any person to fish for striped bass with natural bait using any hook other than a non-offset circle hook. | Non-offset hook where the point is pointed perpendicularly back towards the shank. "Non-offset" means the point and barb being in the same plane as the shank. |
| MD | Current: since 2019 Proposed: Jan 1, 2021 (expected) | Current: when chumming or live-lining, a person recreationally angling in the Chesapeake Bay and its tidal tributaries during the period May 16 through December 15 shall only use a circle hook. Proposed: regulations being scoped would expand existing regulation so they apply year round and also require all targeted striped bass trips using bait to use circle hooks in the ocean and in Chesapeake Bay. | Non-offset hook with the point turned perpendicularly back to the shank. 'Off-set' hook means a hook with the point and barb not in the same plane with the shank. |
| PRFC | Jan 1, 2021 (expected) | Non-offset (inline) circle hooks are required to be used when using cut or whole natural bait. | Non-offset or inline hook where the point is pointed perpendicularly back towards the shank. The term 'non-offset' or 'inline' means the point and barb are in the same plane as the shank (e.g., when the hook is laying on a flat surface, the entire hook and barb also lay flat). |
| DC | Jan 1, 2021 (expected) | The mandatory use of non-offset circle hooks will be required when fishing for striped bass with bait. In addition to anglers targeting striped bass, a non-offset circle hook will be required regardless of the targeted species when recreationally fishing with bait of any kind (e.g., fish, worms, shrimp, chicken livers, corn, dough balls) and using a hook size of number two (#2) or greater. | Hook where the point is pointed perpendicularly back toward the shank. 'Non-offset' means the point and barb are in the same plane as the shank (e.g., when the hook is laying on a flat surface, the entire hook and barb also lay flat). |
| VA | Aug 1, 2020 | Any person fishing recreationally shall use non-offset, corrodible, non-stainless steel circle hooks when fishing with bait, live or chunk. | Non-offset, non-stainless steel hook with the point turned sharply and straight back toward the shank. |
| NC | Jan 1, 2021 (expected) | It is unlawful to fish for or possess striped bass from the Atlantic Ocean for recreational purposes using hook and line gear with natural bait unless using a non-stainless steel, non-offset (inline) circle hook, regardless of tackle or lure configuration. | Hook with the point pointed perpendicularly back towards the shank and the point and barb are in the same plane as the shank. |

Maine Department of Marine Resources

Implementation Plan for Addendum VI Circle Hook Requirement

1. Regulations

Since January 1, 2013, Maine has required the use of circle hooks when fishing for striped bass with bait. The regulations define a circle hook to be “a non-offset hook with a point that points 90° back toward the shaft of the hook.” Regulations pertinent to the use of circle hooks in the striped bass fishery are below. As a note, Maine also requires the use of circle hooks when fishing for bluefish with bait. A full copy of Maine’s striped bass regulations can be found [here](#).

42.01 Statewide Striped Bass Size Restrictions, Harvest Methods

1. Method of Taking.

- A. It is unlawful to fish for or take striped bass in territorial waters, except by hook and line. It is unlawful to use a gaff to land any striped bass.
- B. It is unlawful to use multiple (more than two) barbed or barbless treble hooks on any artificial lure or flies while fishing for striped bass in territorial waters.
- C. It is unlawful to use treble hooks when using bait.
The following becomes effective January 1, 2013:
It is unlawful to use any hook other than a circle hook when using bait. For purposes of this chapter the definition of circle hook means “a non-offset hook with a point that points 90° back toward the shaft of the hook”.

Exception: Rubber or latex tube rigs will be exempt from the circle hook restriction as long as they conform with the following: the lure must consist of a minimum of 8” of latex or rubber tubing with a single hook protruding from the end portion of the tubing where bait may be attached. Use of treble hooks is not allowed with these rigs.

2. Public Education

When Maine first adopted the circle hook requirement in 2013, public education of the new regulation occurred via email, web, and newspaper. Notice of the rule-making was sent to interested parties via email distribution lists. The Maine Department of Marine Resources (ME DMR) also developed a [webpage](#) providing information on what a circle hook is, how it is different from other hooks, how to use a circle hook, and the benefits of a circle hook in reducing recreational release mortality. Recreational [saltwater fishing reports](#) were also published weekly in the Portland Press Herald by ME DMR staff and this platform was used to remind anglers of the circle hook requirements.

As states along the Atlantic coast work to adopt a circle hook requirement, Maine continues to focus on public outreach and education. ME DMR still maintains a [webpage](#) dedicated to the use and benefits of circle hooks in the striped bass fishery. Ahead of

the 2020 season, ME DMR staff also developed a flyer outlining the requirements of circle hooks in Maine. While it was initially intended that these flyers would be distributed at sportfishing trade shows (which have been canceled due to Covid-19), ME DMR is now providing the flyers to field staff so they can be safely distributed at docks. Further, on [June 3](#), ME DMR contacted recreational anglers and interested parties via an email list-serve to remind them of the requirement to use circle hooks when fishing for striped bass with bait. The email included links to ME DMR's webpage on circle hooks as well as the ASMFC Striped Bass Addendum VI.

ME DMR is also working to re-schedule a meeting with stakeholders from the recreational fishing sector which was postponed due to Covid-19. The purpose of the meeting was to engage with the recreational fishing sector, provide scientific updates on important recreational fisheries, and review regulatory changes via ASMFC. This meeting also provided a great opportunity to review circle hook requirements with key members of Maine's recreational sector. While this meeting was originally scheduled to be an in-person meeting in early May, the meeting had to be postponed due to Covid-19. ME DMR staff are currently assessing the best way to engage with the recreational sector during this time, either by moving the meeting to a webinar format or delaying the meeting until state guidance allows for larger gatherings of people.

For questions or additional information, please contact Megan Ware at megan.ware@maine.gov or 207-624-6563

Max Appelman

From: Patterson, Cheri <Cheri.Patterson@wildlife.nh.gov>
Sent: Wednesday, July 15, 2020 3:18 PM
To: Max Appelman
Cc: Rebecca Heuss; KEVIN SULLIVAN
Subject: [External] Re: Striped Bass and Bluefish rules

Max,

I emailed you the link to the rule at 10:55 am today. After I sent that email out, I had forwarded you the February email chain as I remembered informing ASMFC earlier this year on the rule changes.

The outreach and education that we have conducted is:

- * Posted rules on the Coastal Focus webpage (<https://www.wildlife.state.nh.us/marine/index.html>), New Rules in Effect for Striped Bass and Bluefish Anglers<<https://nhfishgame.com/2020/04/08/new-rules-in-effect-for-striped-bass-and-bluefish-anglers/>>.

Coastal NH - Marine Resources | New Hampshire Fish and Game Department<<https://www.wildlife.state.nh.us/marine/index.html>>
www.wildlife.state.nh.us

NH Fish and Game Department, guardian of the state's fish, wildlife, and marine resources.

- * Press release in early April before Striped Bass fishing season in NH (<https://nhfishgame.com/2020/04/08/new-rules-in-effect-for-striped-bass-and-bluefish-anglers/>)
- * 3 postings on NH F&G Facebook site.
 - * April 13th - 127,413 reach/8,342 engagements
 - * June 3rd - 20,312 reach/1,610 engagements
 - * April 14th - posted on NH F&G Law Enforcement Facebook page.
- * Law Enforcement has been informing the striped bass fishing public during enforcement activities.
- * APAIS survey staff have circle hook pamphlets and a packet of hooks (three circle hooks/packet) to hand out to the fishing public during surveys.
- * Addressing public phone calls, emails, etc. on the striped bass rule changes.

Let me know if you have further questions. Thank you.

Cheri Patterson

Chief, Marine Division

NH Fish and Game Department

225 Main Street

Durham, NH 03824

(603)868-1095 – office

(603)868-3305 – fax

Did you know? New Hampshire Fish and Game is the steward for New Hampshire's marine resources, from lobsters and clams to stripers and bluefish, and also manages the Great Bay National Estuarine Research Reserve.

From: Max Appelman <mappelman@asmfc.org>
Sent: Wednesday, July 15, 2020 1:33:18 PM
To: Patterson, Cheri
Subject: RE: Striped Bass and Bluefish rules

EXTERNAL: Do not open attachments or click on links unless you recognize and trust the sender.

I forgot about this email. Sorry about that. Can you point me to the final rule? I'll PDF it and submit to the PDT. As long as it's the same as the proposed rule, that should be good for the regulatory component, but any information you can pass along about plans for outreach and education would be helpful.

Max

-----Original Message-----

From: Patterson, Cheri [mailto:Cheri.Patterson@wildlife.nh.gov]
Sent: Wednesday, July 15, 2020 12:07 PM
To: Max Appelman <mappelman@asmfc.org>
Subject: [External] Fw: Striped Bass and Bluefish rules

Here is the email chain from back in February that made me think I had already notified ASMFC that we had instituted the striped bass rules.

Cheri Patterson
Chief, Marine Division
NH Fish and Game Department
225 Main Street
Durham, NH 03824
(603)868-1095 - office
(603)868-3305 - fax

Did you know? New Hampshire Fish and Game is the steward for New Hampshire's marine resources, from lobsters and clams to stripers and bluefish, and also manages the Great Bay National Estuarine Research Reserve.

From: Max Appelman <mappelman@asmfc.org>
Sent: Wednesday, February 19, 2020 8:36 AM

To: Patterson, Cheri; Dustin C. Leaning
Subject: RE: Striped Bass and Bluefish rules

EXTERNAL: Do not open attachments or click on links unless you recognize and trust the sender.

Thanks! -Max

-----Original Message-----

From: Patterson, Cheri [mailto:Cheri.Patterson@wildlife.nh.gov]
Sent: Tuesday, February 18, 2020 7:53 PM
To: Dustin C. Leaning <DLeaning@asmfc.org>; Max Appelman <mappelman@asmfc.org>
Subject: [External] RE: Striped Bass and Bluefish rules

Try this link

[https://urldefense.com/v3/__https://www.wildlife.state.nh.us/legislative/documents/601-041-stripped-bass-bluefish-fta.pdf__;!!Oai6dtTQULp8Sw!AjwK3eq388J0PJK_hxuAfGeTvmO42yRbeClQbH115YbqN47JHyKgBp9q4mXpvPGBstrsyQWy xWw\\$](https://urldefense.com/v3/__https://www.wildlife.state.nh.us/legislative/documents/601-041-stripped-bass-bluefish-fta.pdf__;!!Oai6dtTQULp8Sw!AjwK3eq388J0PJK_hxuAfGeTvmO42yRbeClQbH115YbqN47JHyKgBp9q4mXpvPGBstrsyQWy xWw$)

If not, then go to the hearing notice below and click on the document link of proposed changes. Nothing changed from the proposed rules.

[https://urldefense.com/v3/__https://nhfishgame.com/2020/01/07/public-hearing-on-stripped-bass-and-bluefish-proposed-rule-changes-january-13-2020/__;!!Oai6dtTQULp8Sw!AjwK3eq388J0PJK_hxuAfGeTvmO42yRbeClQbH115YbqN47JHyKgBp9q4mXpvPGBstrsTD7Ua w0\\$](https://urldefense.com/v3/__https://nhfishgame.com/2020/01/07/public-hearing-on-stripped-bass-and-bluefish-proposed-rule-changes-january-13-2020/__;!!Oai6dtTQULp8Sw!AjwK3eq388J0PJK_hxuAfGeTvmO42yRbeClQbH115YbqN47JHyKgBp9q4mXpvPGBstrsTD7Ua w0$)

Cheri Patterson
Acting Chief, Marine Fisheries Division
NH Fish and Game Department
225 Main Street
Durham, NH 03824
(603)868-1095 - office
(603)868-3305 - fax

"NH Fish and Game Department: Connecting you to life outdoors"

Did you know? New Hampshire Fish and Game protects, conserves and manages more than 500 species of wildlife, including 63 mammals, 18 reptiles, 22 amphibians, 313 birds and 122 kinds of fish as well as thousands of invertebrates!

-----Original Message-----

From: Dustin C. Leaning <DLeaning@asmfc.org>
Sent: Tuesday, February 18, 2020 7:14 PM
To: Patterson, Cheri <Cheri.Patterson@wildlife.nh.gov>; Max Appelman <mappelman@asmfc.org>
Subject: RE: Striped Bass and Bluefish rules

EXTERNAL: Do not open attachments or click on links unless you recognize and trust the sender.

Hi Cheri,

Thank you for notifying us. I can't seem to open the link. I get a 404 Not Found error. Has the link changed?

Best,
Dustin

-----Original Message-----

From: Patterson, Cheri [mailto:Cheri.Patterson@wildlife.nh.gov]

Sent: Tuesday, February 18, 2020 4:54 PM

To: Max Appelman <mappelman@asmfc.org>; Dustin C. Leaning <DLeaning@asmfc.org>

Subject: [External] Striped Bass and Bluefish rules

Kirby and Max,

The rules that we have adopted to comply with Addendum VI for striped bass and ASMFC/MAFMC approved bluefish change were effective January 29, 2020 with document #12984. The adopted wording can be seen on the link below.

#12984 EXEMPT - Readopt w/Amend Fis 603.08, 603.15 Striped Bass and Bluefish (eff 1-29-20)

[https://urldefense.com/v3/__https://www.wildlife.state.nh.us/legislative/documents/601-04__;!!Oai6dtTQULp8Sw!AISdFwhj8gKHM-bXbygmUPWsaSYUxBZKZrqvfUyg0biTWggCZq6_3NwL5sN99reClsORjg_uByl\\$](https://urldefense.com/v3/__https://www.wildlife.state.nh.us/legislative/documents/601-04__;!!Oai6dtTQULp8Sw!AISdFwhj8gKHM-bXbygmUPWsaSYUxBZKZrqvfUyg0biTWggCZq6_3NwL5sN99reClsORjg_uByl$)

Let me know if you have any questions.

Have a nice day.

Cheri Patterson
Acting Chief, Marine Fisheries Division
NH Fish and Game Department
225 Main Street
Durham, NH 03824
(603)868-1095 - office
(603)868-3305 - fax

Did you know? New Hampshire Fish and Game is the steward for New Hampshire's marine resources, from lobsters and clams to stripers and bluefish, and also manages the Great Bay National Estuarine Research Reserve.

PART Fis 603 RULES FOR CERTAIN FIN FISH SPECIES

Readopt with amendment Fis 603.08, eff 11-1-18 (Doc #12655, EXEMPT) to read as follows:

Fis 603.08 Striped Bass.

(a) No person shall take, possess, or transport striped bass unless the fish is at least 28 inches in total length and less than 35 inches in total length. Striped bass shall have head and tail intact while on or leaving the waters or shores of the state except as follows:

- (1) A person may possess up to 2 striped bass fillets so long as they also possess the fish rack that the fillets came from with the head and tail intact and the rack measures at least 28 inches in total length;
 - (2) Any striped bass fillet shall have the skin still attached for the purpose of identification of the fillet as striped bass.
- (b) No person shall possess more than the daily creel limit of 1 fish.
- (c) There shall be no closed season for the taking of striped bass.
- (d) The sale of striped bass shall be prohibited regardless of origin.
- (e) The taking of striped bass shall be prohibited by netting in any form except that striped bass may be landed by the use of a hand held dip net.
- (f) The taking of striped bass by gaffing shall be prohibited.
- (g) No person shall cull any striped bass taken from or while on the waters under the jurisdiction of the state.
- (h) Any person taking striped bass with bait from the waters of the state by angling shall only use corrodible non-offset circle hooks.

Readopt with amendment Fis 603.15, eff. 4-1-05 (Doc #8303) EXEMPT, to read as follows:

Fis 603.15 Bluefish.

- (a) No person shall take by angling from the waters of the state, or possess while on or leaving the waters of the state, more than 3 bluefish in one day, provided that a person angling from a licensed saltwater for hire vessel may take or possess 5 bluefish per day.
- (b) From October 1 through June 30 no person shall take by any method from the waters of the state, or possess while on or leaving the waters of the state, bluefish for the purpose of sale.
- (c) Any person taking bluefish with bait from the waters of the state by angling shall only use corrodible non-offset circle hooks.



The Commonwealth of Massachusetts

Division of Marine Fisheries

251 Causeway Street, Suite 400, Boston, MA 02114
p: (617) 626-1520 | f: (617) 626-1509
www.mass.gov/marinefisheries



CHARLES D. BAKER
Governor

KARYN E. POLITO
Lt. Governor

KATHLEEN A. THEOHARIDES
Secretary

RONALD S. AMIDON
Commissioner

DANIEL J. MCKIERNAN
Director

MEMORANDUM

TO: Max Appelman, ASMFC Striped Bass Plan Coordinator
FROM: Daniel McKiernan, Director
DATE: August 14, 2020
SUBJECT: MA Implementation Plan for Striped Bass Addendum VI Circle Hook Requirement

This memorandum serves to provide the Atlantic States Marine Fisheries Commission with the Division of Marine Fisheries' plan for compliance with the circle hook provisions of Addendum VI to Amendment 6 of the Interstate Fishery Management Plan for Atlantic Striped Bass.

1) Regulations

Massachusetts has adopted regulations that mandate the use of circle hooks in the recreational striped bass fishery. The following regulation was effective May 1, 2020¹:

322 CMR 6.07: Striped Bass Fishery (*Morone Saxatilis*)

(2) Definitions. For purposes of 322 CMR 6.07, the following words shall have the following meanings:

Circle Hook is defined as a fishing hook designed and manufactured so that the barb of the hook is not offset from the plane of the shank and bend and is turned perpendicularly back towards the shank to form a circular or oval shape.

(5) Recreational Management Measures. For purposes of conservation and management of the resource, the following measures shall apply to recreational fishermen who harvest, catch, take or possess or attempt to harvest, catch, take or possession any striped bass:

(f) Mandatory Use of Circle Hooks. Recreational fishermen fishing from shore or private vessels shall use circle hooks when fishing for striped bass with whole or cut natural baits. This shall not apply to any artificial lure designed to be trolled, cast and retrieved, or vertically jigged with natural bait attached.

The definition of circle hook is consistent with Addendum VI. However, our requirement provides certain, limited exceptions for anglers according to their fishing mode or terminal tackle. Per the language of Addendum VI granting states "flexibility to further specify details of the regulation to address specific needs of the state fishery," DMF requests approval to maintain these exemptions. If

¹ Relevant language included; full text available at: <https://www.mass.gov/doc/322-cmr-6-regulation-of-catches/download>

not approved, DMF will strike these exemptions from the regulations prior to the 2021 striped bass fishing season beginning in Massachusetts.

The exception for anglers fishing aboard for-hire vessels reflects their minimal contribution to the total live releases (B2s) of striped bass in Massachusetts. Using 2016/2017 MRIP data (see Table 1), less than 2% of striped bass live releases would not be subject to a circle hook requirement under this exemption (1.01% using 2016 data and 1.95% using 2017 data). Regardless of a mandate, some amount of these B2s would be caught with circle hooks based on the public comment collected during our rulemaking that a number of charter captains choose to use circle hooks while targeting striped bass, either exclusively or after an angler has retained his/her one-fish limit. Charter captains also requested this exemption on the basis of their expertise to assist anglers in conducting best management practices to minimize catch and release mortality. They also spoke to the lower release rate of striped bass from their vessels, which is backed up in the data; the release rate from for-hire vessels was 79% as averaged across 2016/2017, compared to 97% from shore and private/rental vessels combined.

The gear exemption in our regulations is intended to maintain allowances for fishing techniques like tube and worm, which while commonly used, generally do not result in gut-hooked striped bass, per DMF observations and public comment. Specific data as to the prevalence of these fishing techniques or their release mortality rate are not currently available; however, DMF has initiated a striped bass terminal tackle study this spring to compare release mortality rates between baited circle hooks vs J-hooks, with the intention of adding additional treatments (e.g., artificial lures) in the future.

2) Public Education & Outreach

DMF promotes responsible angling techniques, including the use of circle hooks, in print and online media, including our annual saltwater fishing guide², DMF website³, and educational pamphlets⁴ and posters (see enclosure). Our fishing clinics use circle hooks exclusively and each participant takes home a mini tackle kit which includes circle hooks. Educational materials are distributed at various trade shows, seasonal fairs, and fishing clinics⁵ throughout the year. A new striped bass circle hook card promotion began in 2019 in which size 8.0 Offshore Angler hooks were attached to informational cards and distributed at these types of public events (see enclosure).

² See page 9-10 at: <http://www.eregulations.com/wp-content/uploads/2020/01/20MASW-NonShow-LR.pdf>

³ <https://www.mass.gov/service-details/responsible-angler-techniques-for-saltwater-fishing>

⁴ <https://www.mass.gov/doc/circle-hooks-brochure/download> and <https://www.mass.gov/doc/responsible-angler-brochure/download>

⁵ <https://www.mass.gov/service-details/saltwater-angler-education-program>

Table 1. Massachusetts Striped Bass Recreational Catch (in number of fish), by Mode and Catch Type, 2016–2017. Data with PSE above 50 are in red. Source: MRIP, Queried 8/13/20.

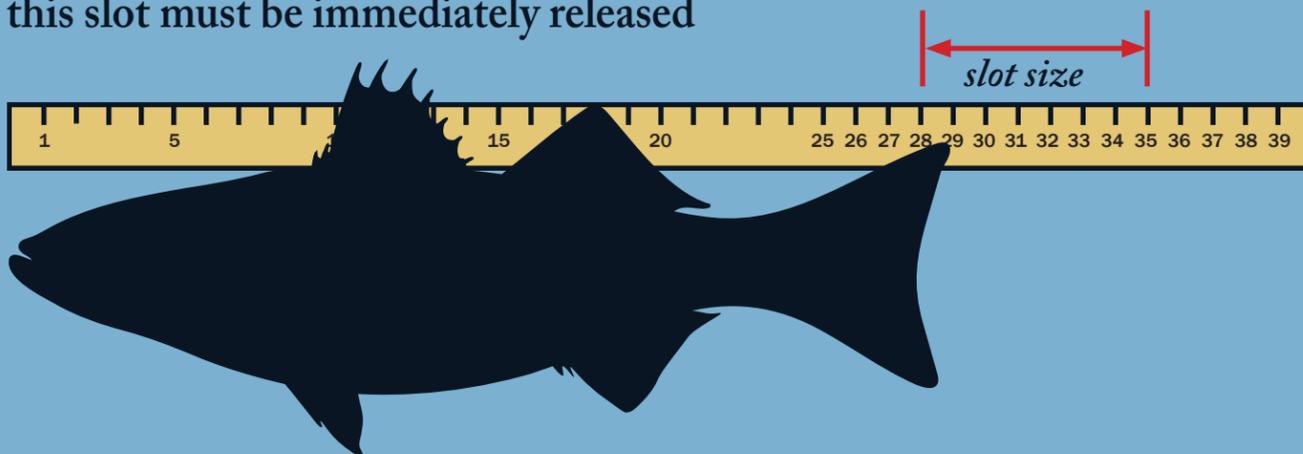
| Year | Fishing Mode | Observed Harvest (A) | Reported Harvest (B1) | Released Alive (B2) | Total Catch |
|------|---------------------|----------------------|-----------------------|---------------------|-------------|
| 2016 | SHORE | 6,523 | 0 | 3,256,242 | 3,262,764 |
| 2016 | PARTY BOAT | 21 | 0 | 29 | 51 |
| 2016 | CHARTER BOAT | 5,204 | 13,695 | 63,762 | 82,661 |
| 2016 | PRIVATE/RENTAL BOAT | 94,899 | 109,728 | 2,979,182 | 3,183,809 |
| 2017 | SHORE | 6,083 | 18,565 | 4,154,889 | 4,179,538 |
| 2017 | PARTY BOAT | 0 | 46 | 99 | 146 |
| 2017 | CHARTER BOAT | 22,885 | 38,546 | 251,767 | 313,198 |
| 2017 | PRIVATE/RENTAL BOAT | 178,844 | 127,326 | 8,458,794 | 8,764,964 |

MASSACHUSETTS RECREATIONAL STRIPED BASS

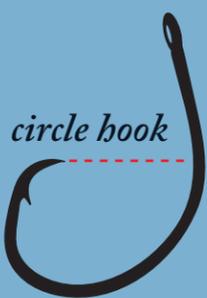


The following regulations have been introduced to support the conservation of striped bass

1 A slot size of 28" to less than 35" total length has been implemented. Striped bass are measured from the tip of the snout or jaw (mouth closed) to the farthest extremity of the tail. Any fish measuring outside of this slot must be immediately released



2 Recreational anglers are now required to use in-line circle hooks when fishing whole (live or dead) or cut natural bait.



circle hook

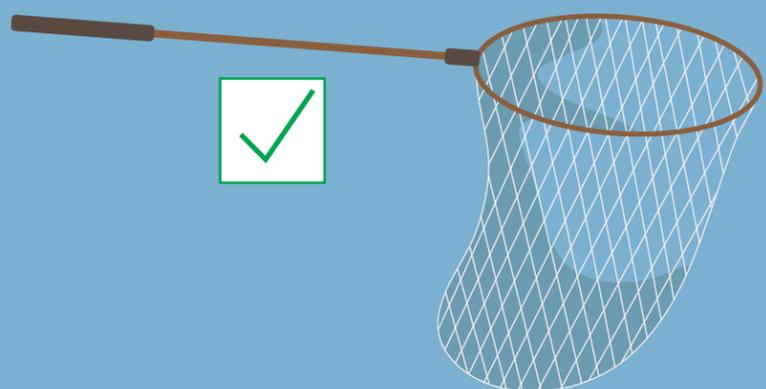
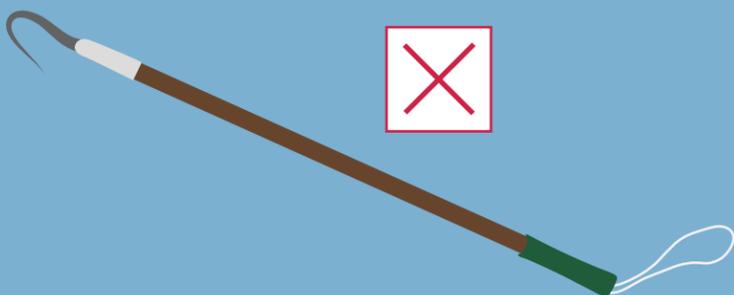


Offset circle hooks are more likely to gut-hook your fish



In-line circle hooks will lay perfectly flat on a table

3 Recreational anglers are required to remove striped bass from the water using non-lethal devices (e.g., dip nets) and are prohibited from using any device that may pierce, puncture, or otherwise cause invasive damage to the fish (e.g., gaffs)



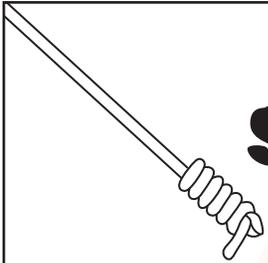
Using your phone camera, take a picture or hover over the QR code on the left to visit our webpage for frequently asked questions regarding changes to recreational striped bass limits

Full regulations can be found on:

www.mass.gov/service-details/recreational-saltwater-fishing-regulations



CIRCLE HOOKS SAVE STRIPED BASS!



Each year recreational anglers in Massachusetts release 13 million striped bass into the water. Of those, nearly **1 MILLION** do not survive.

Circle hooks help protect stripers so they can swim another day!

USING CIRCLE HOOKS TO FISH FOR STRIPED BASS:

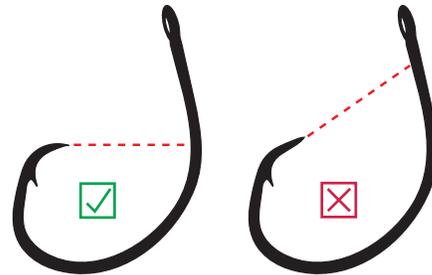
- A 7/0–9/0 sized in-line circle hook is great for fishing striped bass



Offset circle hooks are more likely to gut-hook your fish.



In-line hooks will lay perfectly flat on a table.



On a true circle hook, the tip of the hook points back toward the shank of the hook. If it points toward the eye, it is not a circle hook, no matter what it says on the package!

- Mackerel, menhaden, and eel are common bait choices
- Keep the hook point clear—a barb hidden with bait it is less likely to catch on the corner of the mouth
- Finally, the hooking is automatic, so no need to set!



The hook provided is an 8/0 Offshore Angler in-line circle hook.



Produced by the Massachusetts Division of Marine Fisheries - 2019



RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

DIVISION OF MARINE FISHERIES
Three Fort Wetherill Road
Jamestown, Rhode Island 02835

TO: Max Appelman, Fishery Management Plan Coordinator, ASMFC

FROM: Nicole Lengyel Costa, RI DEM, Striped Bass TC Member

DATE: August 13, 2020

SUBJECT: Striped Bass Circle Hook Implementation Plan

Please find a copy of Rhode Island's striped bass circle hook implementation plan attached to this memo. If you have any questions, you may contact me directly at 401.423.1940.

cc: J. McNamee

RI IMPLEMENTATION PLAN FOR ADDENDUM VI CIRCLE HOOK REQUIREMENTS

Addendum VI to Amendment 6 of the Atlantic Striped Bass Interstate Fishery Management Plan requires the mandatory use of circle hooks when fishing with bait to reduce release mortality in recreational striped bass fisheries. States must implement mandatory circle hook requirements by January 1, 2021.

Per Addendum VI, a 'circle hook' is defined as a non-offset hook where the point is pointed perpendicularly back towards the shank. The term 'non-offset' means the point and barb are in the same plane as the shank (e.g. when the hook is laying on a flat surface, the entire hook and barb also lay flat).

Please include the following elements, at a minimum, in state implementation plans for review by the Striped Bass Plan Review Team (PRT). The PRT will review all state implementation plans and recommend appropriate action to the Striped Bass Management Board:

- A copy of final regulations, or proposed regulatory language.

Regulations already in effect (effective date: 5/14/20) from RIDEM Marine Fisheries Regulations [Part 1 – Definitions and General Provisions](#):

“Circle hook” means a non-offset hook where the point is pointed perpendicularly back towards the shank.

Regulations to be proposed at RI DEM Marine Fisheries (DMF) Public Hearing in November 2020 that would be effective 1/1/21:

3.9 Striped Bass

3.9.1 Recreational

F. The use of circle hooks is required by any vessel or person while fishing recreationally with bait for striped bass.

Regulations should:

- a. Demonstrate intent to reduce recreational release mortality in striped bass fisheries;

It is not standard practice to provide background information or intent in regulatory language. It is however part of the RIDEM regulatory process to hold a public workshop prior to any public hearing on proposed regulatory language where the full intent and purpose of the proposed regulatory language is explained to stakeholders and their feedback is solicited. Additionally, DMF has an extensive outreach plan that will aid in communicating the purpose of the proposed regulatory language (see below).

- b. Include a definition of 'circle hook' comparable to that cited above;

Done, see language above.

- c. Include an effective implementation date; and

Effective dates are included at the end of all regulations once finalized.

- d. Specify any exemptions to mandatory circle hook requirements.

At this time DMF has no plans for any exemptions to the proposed regulatory language and has not had any proposed by the public. Any exemptions that may be proposed by stakeholders during the DMF regulatory process would be carefully examined and analyzed before consideration. If any exemptions were implemented, a thorough justification and analysis of impact would be provided to ASMFC in an updated implementation plan.

- Detailed description of public education materials and outreach campaigns that the state is developing to garner support and compliance with mandatory circle hook requirements. Please also highlight any outreach materials or programs that focus on safe practices when handling and releasing fish, or other fishing considerations that could benefit striped bass populations (e.g., using barbless hooks, or avoiding fishing in warm waters).
 - DMF is in the process of finalizing an outreach flyer to promote the use of circle hooks while fishing recreationally for striped bass. The flyer contains information on what a circle hook is and why you should use one as well as how to properly set a circle hook. These flyers will be sent out on the DMF email listserve, put out on DMF social media, posted in some of the DEM offices, and at some of the most popular boat ramps.
 - Information on the required use of circle hooks will be included in the DMF 2021 recreational fishing magazine and regulatory abstract.
 - DMF will be developing training videos on how to properly set a circle hook while fishing and how to safely remove a circle hook and release your striped bass back into the water. Links to these videos will be posted on the DMF website.
 - Once the regulation is finalized, DMF will work to manufacture permanent signage to be put up at several popular boat ramps throughout the state.
 - DMF has a large number of circle hooks that have been stuffed into envelopes and will be handed out to anglers and stakeholders at various events throughout the course of next year.
 - APAIS samplers will distribute educational material while conducting intercepts.

CT Implementation Plan for Striped Bass Addendum VI Circle Hook Requirements

- I. Proposed Regulation
 - a. Text of Rule: “All persons fishing for striped bass with whole, cut, or live natural baits shall use an in-line circle hook, defined as a fishing hook on which the point and barb of the hook are not offset from the plane of the shank and bend, and the point is turned perpendicularly back towards the shank”
 - b. Demonstrate intent to reduce recreational release mortality in striped bass fisheries: Supporting documents promulgated during the CT rule-making process will make it clear that the intent of this rule is to reduce striped bass recreational release mortality. CT DEEP will also ensure that this message is conveyed to the public in any and all official notices concerning the new rule.
 - c. Effective implementation date: The effective date of the rule is expected to be Jan 1, 2021, barring unforeseen complications in the rulemaking process.
 - d. Exemptions from mandatory circle hook requirements: CT is not proposing any exemptions from the mandatory circle hook requirement.
- II. Description of public education and outreach materials concerning circle hooks and reduction of catch & release mortality
 - a. In 2019, CT DEEP Marine Fisheries Program (MFP) staff distributed free circle hooks, along with a small “business card” promoting circle hook use, in a variety of venues (fishing shows, during fieldwork activities at boat launches, etc.). MFP staff also developed a brochure detailing best practices for reducing catch & release mortality, including use of circle hooks, and distributed it through a variety of venues. Distribution of these materials continued through winter 2019-20, but has been largely discontinued due to the COVID-19 pandemic.
 - b. In 2019-20, MFP staff also used DEEP social media outlets (Facebook, Twitter) to distribute messages promoting best practices for reducing catch & release mortality.
 - c. Going forward, MFP plans to increase outreach efforts in support of the adoption of the circle hook requirement for the 2021 fishing season. These efforts will use same methods described above, and will also take advantage of promotional materials developed by the American Sportfishing Association.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Marine Resources

205 North Belle Mead Road, Suite 1, East Setauket, NY 11733

P: (631) 444-0430 | F: (631) 444-0434 | FW.Marine@dec.ny.gov

www.dec.ny.gov

NY Implementation Plan for Addendum VI Circle Hook Requirements

I. Proposed Regulation:

- Text of Rule: “Recreational fishermen are required to use an in-line circle hook when fishing for striped bass with whole, cut, or live baits. An in-line circle hook is defined as a fishing hook designed and manufactured so that the point and barb of the hook are not offset from the plane of the shank and bend, and the point is turned perpendicularly back towards the shank to form a circular or oval shape.”
- Demonstrate intent to reduce recreational release mortality in striped bass fisheries: All regulatory amendments to Title 6 of NY Codes, Rules, and Regulations are required by the State Administrative Procedures Act to have supporting documentation published in the NY State Register as part of the amendment proposal, including a Regulatory Impact Statement (RIS). The RIS will include a statement that “the intent of the regulation is to reduce release mortality in the striped bass recreational fishery, as a requirement of Addendum VI to Amendment 6 of the ASMFC Striped Bass Fishery Management Plan (FMP).”
- Include an effective implementation date : The implementation date is dependent on approval from the NY DEC and the NY State Executive Chamber, as well as the application filing date with the Department of State. The effective date of the rule is expected to be January 1, 2021.
- Specify any exemptions to mandatory circle hook requirements: NY is not proposing any exemptions to the mandatory circle hook requirement.

II. Public Education:

- Detailed description of public education materials and outreach campaigns that the state is developing to garner support and compliance with mandatory circle hook requirements. Please also highlight any outreach materials or programs that focus on safe practices when handling and releasing fish, or other fishing considerations that could benefit striped bass populations (e.g., using barbless hooks, or avoiding fishing in warm waters).

1. From Our DEC July 6, 2020 Newsletter:

Wanted: Striped Bass Cooperative Anglers

Did you know striped bass (*Morone saxatilis*) are the official saltwater fish of New York? If you fish for striped bass and want to help conserve this popular and admired species, becoming a [Striped Bass Cooperative Angler](#) may be for you! DEC provides volunteer anglers with logbooks to record fishing trip information, envelopes to take scale samples from striped bass, and instructions on how to properly collect required data.

When **catch and release** fishing, it's important to practice safe and ethical fish handling to help release your fish unharmed.



Follow the tips below to help ensure your fish's survival:

- **Consider environmental conditions.** Fighting a fish in warmer water can cause greater stress, and the fish will exhaust itself more quickly. Anglers should use tackle appropriate to the size of the fish you are targeting to avoid long fight times.
- **Avoid treble hooks, barbs, and gaffs.** Crush or file off barbs on hooks to reduce de-hooking time and damage to the fish. Do not gaff a fish unless it is legal size and you intend to keep it. Circle hooks are encouraged when fishing with bait.
- **Be prepared.** Have all the necessary tools on hand before landing a fish to help reduce the time it's out of the water during the de-hooking process. If a fish becomes gut-hooked, cut the leader as closely as possible to the hook and leave the hook in place; it will rust out after a short time.
- **Minimize the fish's exposure to air.** Keep fish in the water at all times or as much as possible. If you must handle a fish, make sure your hands are wet, hold it horizontally and firmly, and support its weight under the belly. Never hold a fish by its eyes or gills. If using a landing net, use a "knotless" net to reduce removing slime and scales from the fish.
- **Proper release.** While in control of the fish, orient it headfirst into the current, then gently move the fish in a side-to-side pattern so that water flows through the mouth and over the gills. Do not let the fish go until it is able to swim strongly out of your grasp.

DEC recommends using **non-offset circle hooks** when fishing with bait for striped bass. Circle hooks are designed to hook the corner of a fish's mouth, which will make it easier to release the fish, reduce deep hooking casualties, and increase survival rates of released fish. Circle hooks will be mandatory when fishing for striped bass with bait starting in 2021.



Photo credits: Top image, Finalist of DEC's #WomenHuntFishNY Photo Contest. Bottom image, Maryland Department of Natural Resources

2. From the NY DEC Freshwater Fishing Guide for the Hudson and Delaware River regulations:

"The Atlantic States Marine Fisheries Commission (ASMFC) has mandated that circle hooks be used when recreationally fishing for striped bass using bait starting January 1, 2021. NY Regulations are currently being developed to comply with Interstate Fishery Management Plan changes. Up to date regulations can be found at <http://www.dec.ny.gov/outdoor/7917.html> or (845) 256-3009"

3. Prior to the COVID outbreak, DEC staff attended the NY Boat Show in January 2020, and a local saltwater fishing expo in early March 2020. They distributed free packets of circle hooks and public education best striped bass handling practices materials.
4. NY DEC held a Marine Resources Advisory Council (MRAC) virtual meeting on July 14 to discuss the 2021 circle hook regulation. There are additional MRAC meetings scheduled for September and November. DEC will also be discussing the circle hook requirement at a Hudson River Estuary Management Advisory Council Meeting (HREMAC) this fall.
5. Cornell Cooperative Extension initiated a recreational striped bass outreach and education program. Education materials can be found on their website:

<http://ccesuffolk.org/marine/fisheries/recreational-striped-bass-outreach-and-education>

6. Mike Waine, Atlantic Fisheries Policy Director for the American Sportfishing Association, provided NY with education and outreach pdfs for circle hook use and best handling practices. The American Sportfishing Association also produced two YouTube videos, in partnership with On the Water:
 - Circle Hook Use Video: <https://www.youtube.com/watch?v=g1EolnyZwM0>
 - Best Handling Practices Video: <https://youtu.be/deGKz7LdEkQ>

NEW JERSEY IMPLEMENTATION PLAN FOR ADDENDUM VI CIRCLE HOOK REQUIREMENTS

Addendum VI to Amendment 6 of the Atlantic Striped Bass Interstate Fishery Management Plan requires the mandatory use of circle hooks when fishing with bait to reduce release mortality in recreational striped bass fisheries. States must implement mandatory circle hook requirements by January 1, 2021.

Per Addendum VI, a 'circle hook' is defined as a non-offset hook where the point is pointed perpendicularly back towards the shank. The term 'non-offset' means the point and barb are in the same plane as the shank (e.g. when the hook is laying on a flat surface, the entire hook and barb also lay flat).

Please include the following elements, at a minimum, in state implementation plans for review by the Striped Bass Plan Review Team (PRT). The PRT will review all state implementation plans and recommend appropriate action to the Striped Bass Management Board:

- A copy of final regulations, or proposed regulatory language. Regulations should:
 - a. Demonstrate intent to reduce recreational release mortality in striped bass fisheries;
 - b. Include a definition of 'circle hook' comparable to that cited above;
 - c. Include an effective implementation date; and
 - d. Specify any exemptions to mandatory circle hook requirements.

Note: circle hook requirements should apply to as many recreational trips as possible that could interact with striped bass. However, states have flexibility to exempt certain fishing methods or angler groups to address specific needs of the state's fisheries. If allowing for certain exemptions, please provide sufficient justification including quantitative analysis (e.g., an estimate of the proportion (%) of striped bass live releases (B2s) that would not be subject to mandatory circle hook requirements). Please use 2016/2017 catch data for reference, which is consistent with bag and size limit analyses used in Addendum VI.

New Jersey has submitted proposed regulatory language that is expected to be approved for implementation by January 1, 2021. No exemptions are being included at this time. Please see Appendix 1 for a copy of the proposed regulatory language.

- Detailed description of public education materials and outreach campaigns that the state is developing to garner support and compliance with mandatory circle hook requirements. Please also highlight any outreach materials or programs that focus on safe practices when handling and releasing fish, or other fishing considerations that could benefit striped bass populations (e.g., using barbless hooks, or avoiding fishing in warm waters).

New Jersey is developing public education materials and an outreach campaign to garner support and compliance with the mandatory circle hook requirements. New Jersey is considering (but not limited to) implementing the following options through the public education campaign:

- Distribute brochures/hand-outs and posters that include information on the circle hook requirement and best practices for safely handling and releasing fish.
- Develop a webpage on the NJ Division of Fish & Wildlife (Division)'s website with information on the circle hook requirement and best practices for safely handling and releasing fish.
- Send emails to NJ Marine Fisheries/Wildlife email lists. Emails will include notifications to anglers regarding the circle hook requirement and information about best practices for safely handling and releasing fish, including a link to the webpage
- Develop an outreach presentation regarding the circle hook requirement and best practices for safely handling and releasing fish. Target audiences will include fishing clubs, fishing tournament Captain's meetings, fishing seminars, Division outreach events, for-hire organizations (if in-person meetings are not held due to COVID-19, virtual settings will be targeted in the interim).
- Use the Division's social media platforms (Instagram, Facebook, YouTube) to raise awareness of the circle hook requirement and best practices for safely handling and releasing fish.
- Information on the circle hook requirement and best practices for safely handling and releasing fish will be included in the 2021 NJ Marine Digest
- Expand on NJ's summer flounder initiative, "If you can't keep it, save it."
<https://www.nj.gov/dep/fgw/fluke.htm>

Appendix 1. Proposed regulatory language for requiring the use of circle hooks when fishing with bait for striped bass

Please note, bracketed language below indicates language that will be removed from regulation.

SUBCHAPTER 18. SIZE, SEASON, AND POSSESSION LIMITS

7:25-18.1 Size, season and possession limits

(a) – (g) (No change.)

(h) The following provisions are applicable to the recreational harvest of striped bass and striped bass hybrids:

1.-3 (No change)

4. Hook and line fishermen are hereby restricted to the use of non-offset circle hooks while fishing with any natural bait [within the Delaware River or its tributaries from April 1 through May 31 of each year. This restriction shall apply only to hooks of size two and larger and shall not apply to hooks of smaller sizes (such as those normally used for white perch fishing)]. A circle hook is a non-offset hook where the point is pointed perpendicularly back towards the shank. Non-offset means that the point and barb are in the same plane as the shank.

Provisions applicable to the recreational harvest of striped bass

The Department is proposing to amend the provisions applicable to the recreational harvest of striped bass at N.J.A.C. 7:25-18.1(h) to require the use of non-offset circle hooks while recreationally fishing for striped bass with natural bait to maintain compliance with the effective Striped Bass Interstate Fishery Management Plan. Addendum VI of Amendment VI of the Striped Bass Interstate Fishery Management Plan, approved in October of 2019, mandates the use of circle hooks when recreationally fishing for striped bass with natural bait starting in January of 2021. Catch and release practices contribute significantly to the overall fishing mortality. The latest assessment assumes nine percent of fish that are released alive die as a result of being caught. In 2019, release mortality was estimated to account for 47 percent of total striped bass removals. The intent of the requirement is to reduce striped bass discard mortality in the recreational fishery. Circle hooks can reduce rates of “gut-hooking” and lower the likelihood of puncturing internal organs if the hook is swallowed.

The Department is proposing to remove “within the Delaware River or its tributaries from April 1 through May 31 of each year” at 18.1(h)4, to meet the requirement that a non-offset circle hook is mandatory while fishing for striped bass with natural bait in all water bodies year round. Additionally, the Department is proposing to add the fishery management plan definition of “circle hook,” which is defined as “a non-offset hook where the point is pointed perpendicularly back towards the shank,” as well as the definition of “non-offset,” defined as “the point and barb are in the same plane as the shank.” These amendments must become effective prior to January 1, 2021, otherwise, New Jersey may be found out of compliance, which can result in the closure of the striped bass fishery.

Social Impact

The proposed amendments at N.J.A.C. 7:25-18.1(h) implement the 2019 Atlantic Striped Bass Interstate Fishery Management Plan’s mandate requiring the use of non-offset circle hooks while recreationally fishing for striped bass with natural bait. The intent of the requirement is to reduce striped bass discard mortality in the recreational fishery. The existing rule requires non-offset circle hooks to be used while fishing in the Delaware Bay and its tributaries during April 1 through May 31. The proposed amendments will result in a positive social impact by simplifying the rules at 18.1(h) to require the year-round use of non-offset circle hooks in all State waters while fishing for striped bass. During the development of Addendum VI, the majority of public comment received by the Department was in favor

of implementing the circle hook requirement. Additionally, projected stock recovery will result in subsequent catch increases in successive years.

Economic Impact

The proposed amendments at N.J.A.C. 7:25-18.1(h) requiring the use of non-offset circle hooks while recreationally fishing for striped bass with natural bait will create minimal short-term negative economic impact for anglers, while conversely generating a long-term positive impact for the recreational fishing industry stemming from stock recovery and subsequent catch. Although it is unknown how many anglers currently use circle hooks when fishing for striped bass, during the Addendum VI public comment period, many fishermen noted they already use circle hooks when fishing for striped bass with natural bait. Therefore, this new rule will require anglers targeting striped bass with conventional hooks in the Atlantic Ocean to purchase non-offset circle hooks. According to 2019 estimates from the Marine Recreational Information Program (MRIP), New Jersey anglers caught 3,121,728 striped bass, and took over 3.5 million fishing trips targeting striped bass (primary or secondary target). Additionally, a report by Southwick Associates estimates New Jersey anglers spent over \$124 million on striped bass fishing tackle in 2016.

Environmental Impact

The proposed amendments at N.J.A.C. 7:25-18.1(h) requiring the use of non-offset circle hooks while recreationally fishing for striped bass with natural bait will have positive environmental impacts by reducing the striped bass discard mortality in the recreational fishery. In 2019, discard mortality accounted for 47 percent of total removals in the Atlantic striped bass fishery. According to 2019 MRIP estimates, New Jersey anglers caught 3,121,798 striped bass, of which 2,708,866 were released. The latest assessment assumes nine percent of fish that are released alive die as a result of being caught. As a result, it is estimated that 243,798 striped bass died from being caught and released by New Jersey anglers in 2019.

The use of circle hooks by anglers targeting striped bass with natural bait has been identified as a method to reduce the discard mortality of striped bass in recreational fisheries. When a circle hook begins to exit the mouth of a fish, the shape causes the shaft to rotate towards the point of resistance and the barb is more likely to embed in the jaw or corner of the fish's mouth. Circle hooks can reduce rates of "gut-hooking" and lower the likelihood of puncturing internal organs if the hook is swallowed.

Max Appelman

From: Kuhn, Kristopher <kkuhn@pa.gov>
Sent: Friday, August 14, 2020 1:31 PM
To: Max Appelman
Cc: Andrew Shiels; Grabowski, Tyler; BRYAN CHIKOTAS; Porta, Michael
Subject: RE: [External] Implementation Plans for Addendum VI Circle Hook Requirements due August 15
Attachments: 1-PA Striped Bass regulation change_Temporary Change to Fishing Regulations_PA Bulletin_20200314.pdf; 2-PA circle hook implementation outreach summary.pdf; 3-PA DelawareEstuaryStripedBass_Biologist Report_2019.pdf; 4-PA Striped Bass regulation change_Proposed Rulemaking_Commission meeting minutes_20200427.pdf; 5-PA Striped Bass regulation change_Proposed Rulemaking_PA Bulletin_20200801.pdf

Max,

Striped Bass regulations, including the mandatory use of circle hooks, were implemented in the PA waters of the Delaware Estuary and Delaware River on April 1, 2020. Given that these regulations are currently in place in PA, I provide the attached documents which details the actions taken, timeline, and detailed account of education materials and outreach campaign. Notable steps in this process are summarized below.

- 1) The Pennsylvania Fish and Boat Commission (PFBC) enacted a temporary change to fishing regulations as detailed in our conservation equivalency proposal submitted to and approved by the ASMFC. A notice was posted in the *Pennsylvania Bulletin* on March 14, 2020 (<http://www.pacodeandbulletin.gov/Display/pabull?file=/secure/pabulletin/data/vol50/50-11/394.html#>; attachment 1) and this change became effective April 1, 2020.
- 2) PFBC's educational and outreach campaign began in earnest during March 2020 and is detailed in the attached reports (attachments 2; <https://www.fishandboat.com/Fish/Fisheries/BiologistReports/Documents/Bio2020/6x03-05-DelawareEstuaryStripedBass.pdf>, attachment 3).
- 3) To finalize and make permanent the temporary change to fishing regulations enacted on April 1, 2020, the PFBC Board of Commission approved the publication of a notice of proposed rulemaking in the *Pennsylvania Bulletin* on April 27, 2020 at the quarterly Commission meeting. (<https://www.fishandboat.com/AboutUs/MinutesAgendas/Documents/minutesDocs/2020-04min.pdf>; attachment 4).
- 4) The notice of proposed rulemaking was published in the *Pennsylvania Bulletin* on August 1, 2020 (<http://www.pacodeandbulletin.gov/Display/pabull?file=/secure/pabulletin/data/vol50/50-31/1032.html#>; attachment 5) and the PFBC will accept public comment regarding the proposal for a period of 30 days (<https://www.fishandboat.com/Regulations/Pages/ProposedRecentRegulations.aspx>).
- 5) At PFBC's quarterly Commission meeting in October 2020, the Commission will consider the proposed action for final rulemaking. If approved on final rulemaking, the amendment will go into effect upon publication in the *Pennsylvania Bulletin* which would be anticipated to occur before January 1, 2021.

Please let me know if you require anything further.

Thanks,

Kris

Kristopher M. Kuhn | Director
Bureau of Fisheries
Pennsylvania Fish and Boat Commission
595 E. Rolling Ridge Dr. | Bellefonte, PA 16823
Office Phone: 814-359-5115 | Mobile: 814-571-4872

Email: kkuhn@pa.gov

From: Max Appelman <mappelman@asmfc.org>
Sent: Wednesday, May 20, 2020 8:41 AM
Cc: Toni Kerns <Tkerns@asmfc.org>
Subject: [External] Implementation Plans for Addendum VI Circle Hook Requirements due August 15

***ATTENTION:** This email message is from an external sender. Do not open links or attachments from unknown sources. To report suspicious email, forward the message as an attachment to CWOPA_SPAM@pa.gov.*

Hello Striped Bass Board Administrative Commissioners and Proxies –

Cc: Striped Bass Technical Committee and Plan Review Team

Please see attached memo regarding the due date for implementation plans for Striped Bass Addendum VI mandatory circle hook requirements. Implementation plans are due no later than August 15, 2020. An implementation plan outline is enclosed.

Please don't hesitate to reach out with questions.

Regards,
Max

Max H. Appelman
Fishery Management Plan Coordinator
Atlantic States Marine Fisheries Commission
1050 N. Highland Street, Suite 200A-N
Arlington, VA 22201
mappelman@asmfc.org
Phone: (703) 842-0740

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NOTICES

FISH AND BOAT COMMISSION

Temporary Change to Fishing Regulations; Delaware River, West Branch Delaware River and River Estuary

[50 Pa.B. 1625]

[Saturday, March 14, 2020]

The Executive Director of the Fish and Boat Commission (Commission), acting under the authority of 58 Pa. Code § 65.25 (relating to temporary changes to fishing regulations), has taken immediate action to amend 58 Pa. Code § 61.2 (relating to Delaware River, West Branch Delaware River and River Estuary). Specifically, the Executive Director has amended this section to change the minimum size limit for striped bass to a 28 to less than 35 inch slot limit in the Delaware Estuary (from the Pennsylvania line upstream to the Calhoun Street Bridge) and Delaware River (from the Calhoun Street Bridge upstream) during the periods January 1 through March 31 and June 1 through December 31 (one fish daily limit), and to change the slot limit during the period April 1 through May 31 to 21 to less than 24 inches (two fish daily limit). The Executive Director also has amended the section to require the use of nonoffset (inline) circle hooks when fishing with bait for any species of fish in the tidal Delaware Estuary, including tributaries from the mouths of the tributaries upstream to the limit of tidal influence. These actions are being taken to meet the requirements of the Atlantic States Marine Fisheries Commission (ASMFC).

The ASMFC's management plan for striped bass calls for management actions when the coast-wide spawning stock biomass (SSB) or fishing mortality rates reach thresholds set within the management plan. The SSB threshold is 201 million pounds and the current SSB is below this at 151 million pounds. At the current fishing mortality rates, there is concern that the SSB will fall further below the threshold in the future under current management and fishing pressure. Also, because catch and release practices contribute substantially to overall fishing mortality, states are also required to implement mandatory circle hook requirements when fishing with bait to reduce release mortality in recreational striped bass fisheries. The ASFMC Striped Bass Management Board, which includes the Commonwealth as a member, has directed all coastal states to reduce fishing mortality rates by 18% beginning in 2020 and require circle hooks by 2021. The Commonwealth is taking proactive measures to implement the circle hook requirement beginning in 2020 to inform anglers and facilitate compliance with this important conservation measure ahead of the ASMFC mandate for implementation beginning in 2021. The amendments to 58 Pa. Code § 61.2 are designed to meet this objective.

To address the coast-wide regulation directed by the ASMFC, the Commission's Executive Director has taken immediate action to make the following modifications to fishing regulations:

§ 61.2. Delaware River, West Branch Delaware River and River Estuary.

* * * * *

(d) It is unlawful to fish with bait for any species of fish in the tidal Delaware Estuary, including tributaries from the mouths of the tributaries upstream to the limit of tidal influence using any hook type other than non-offset (in-line) circle hooks. The definition of a non-offset (in-line) circle hook is a non-offset hook where the point is pointed perpendicularly back towards the shank. The term "non-offset" means the point and the barb are in the same plane as the shank.

[(d)] (e) The following seasons, sizes and creel limits apply to the Delaware River, West Branch Delaware River and Delaware River tributaries, from the mouths of the tributaries upstream to the limit of the tidal influence and the Lehigh River from its mouth upstream to the first dam in Easton, Pennsylvania:

| SPECIES | SEASONS | MINIMUM SIZE | DAILY LIMIT |
|--------------------------------------|---|--|-------------|
| | | | |
| STRIPED BASS and HYBRID STRIPED BASS | From Pennsylvania line upstream to Calhoun Street Bridge: January 1 until March 31 and June 1 until December 31 | [28] 28 to less than 35 inches | 1 2 |
| | April 1 through May 31 | 21 to [25] less than 24 inches | 1 |
| | From Calhoun Street Bridge upstream: open year-round | [28] 28 to less than 35 inches | |
| | * * * * * | | |

The Executive Director has found that this action is necessary and appropriate for the management of fish and to conserve and preserve fishing opportunities. The temporary modifications will go into effect on April 1, 2020, and will remain in effect until the Commission, by appropriate action, amends 58 Pa. Code § 61.2. At its meeting on April 27, 2020, the Commission will consider the publication of a notice of proposed rulemaking containing the proposed amendments and soliciting public comments for a period of 30 days.

TIMOTHY D. SCHAEFFER,
Executive Director

[Pa.B. Doc. No. 20-394. Filed for public inspection March 13, 2020, 9:00 a.m.]

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Bottom

Pennsylvania Fish and Boat Commission (PFBC) promotion of new circle hook and Striped Bass regulations were as follows:

- The PFBC press release was sent on 3/29/2020: <https://www.media.pa.gov/Pages/fish-and-Boat-Commission-Details.aspx?newsid=315>
- Circle Hook messaging was listed prominently on the PFBC website homepage as one of our four main message sliders on March 30, 2020 and remained there until May 31, 2020. Following May 31, the information was made available on the PFBC website in the featured column on the homepage.
- Circle hook information was included in our PFBC Email Blast on April 17, 2020. These email blasts are sent to approximately 371,000 recipients.
- Circle hook advertisement was placed in the May/June Pennsylvania Angler and Boater magazine (page 58). Estimated print readership is 9,400 people and total average e-zine subscribers is 67,489 people.
- Informational content was posted on PFBC social media on March 29 and 31, 2020 and April 1, 2020 (see following pages for screenshots of posts).
- Media coverage: <https://www.mychesco.com/a/lifestyle/outdoor-recreation/pa-fish-and-boat-commission-amends-atlantic-stripped-bass-regulations-announces-mandatory-circle-hook-requirement/>
- Circle hook posters were created for the posting at by PFBC Bureau of Law Enforcement (BLE) and PFBC fishing license retailers (200 copies).
- The PFBC ordered 243 packs of circle hooks in various sizes from Cabela's for Waterways Conservation Officers (WCOs) to hand out to constituents (along with an informational card explaining the new regs and where to find more information) to increase our educational messaging. The total order cost for the items ordered through both vendors was \$977.41.
 - 6,700 business card-sized informational documents were created and printed for the WCOs to use to educate anglers they interacted with. Front and back of card, below. Images not to correct scale.

CIRCLE HOOKS

Beginning April 1, 2020, when fishing with bait for any species of fish in the Pennsylvania portion of the Tidal Delaware River Estuary, the use of a non-offset (inline) circle hook is required.

The seasons, sizes, and creel limits for Striped Bass have changed. Check www.fishandboat.com for the most updated regulations.



○ Questions? SE Region BLE Office: 717-626-0228

Non-offset (inline) circle hooks are easier to unhook from fish, result in less injuries compared to j-hook and treble hook styles, and are important in reducing fish mortality.



Circle hook



J-hook



Treble hook

To promote the new regulations and circle hook requirement, we placed advertisements and sent promotions in the following categories:

- Ads placed in On the Water magazine (861,752 total subscribers):
 - April's print publication for NY.
 - April 16 and 23, 2020 Fishing Forecast emails (reaches 19k opt-in subscribers each).
 - Both the Rhode Island and the New Jersey shows were cancelled due to COVID-19, so we used our funding that was slated for those print publications to pay for digital ads in the On the Water Fishing Forecast email blasts.
 - Print ad in the May issues for NY, NJ, and New England.
- Ad placed in the Outdoor News newspaper (37,000+ paid subscribers per issue. Approximately three sportsmen read each copy, placing readership at 110,000+ per issue): March 27, 2020 and April 10, 2020.
- Ad placed in Mansi Media newspaper markets in NY (estimated readership of 4,467,995 people): March 23, 2020; April 6, 2020; and April 13, 2020.
- Ad placed in April issue of Fisherman Magazine for NY (10,824 subscribers) and NJ markets (13,738 subscribers).

On the Water Ad (8.03" x 5.03"):



Image above is not scaled to correct ad size

Outdoor News Ad (3.9" x 5"):

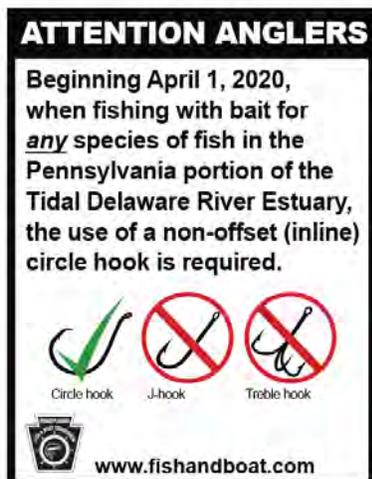


Image above is not scaled to correct ad size

Mansi Media Ad (2" x 4" and 3.5" x 4")

Note: Black and white newspaper ads is all they offer.

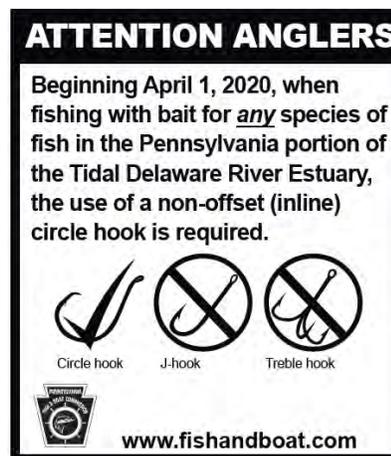
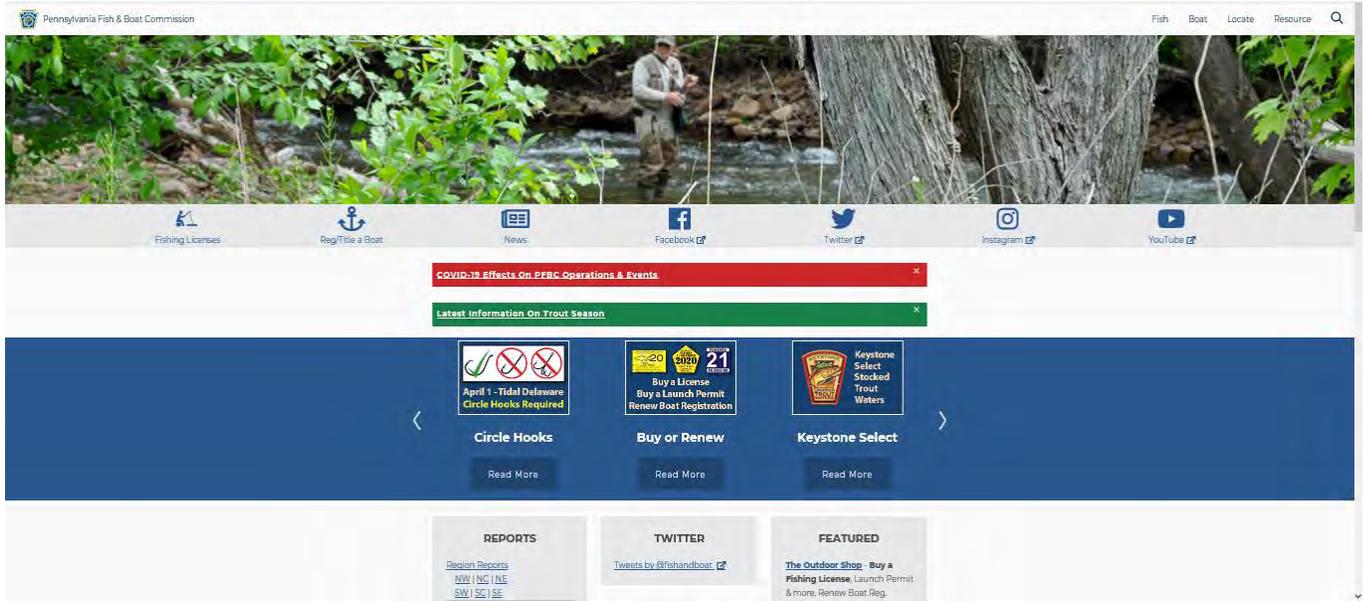
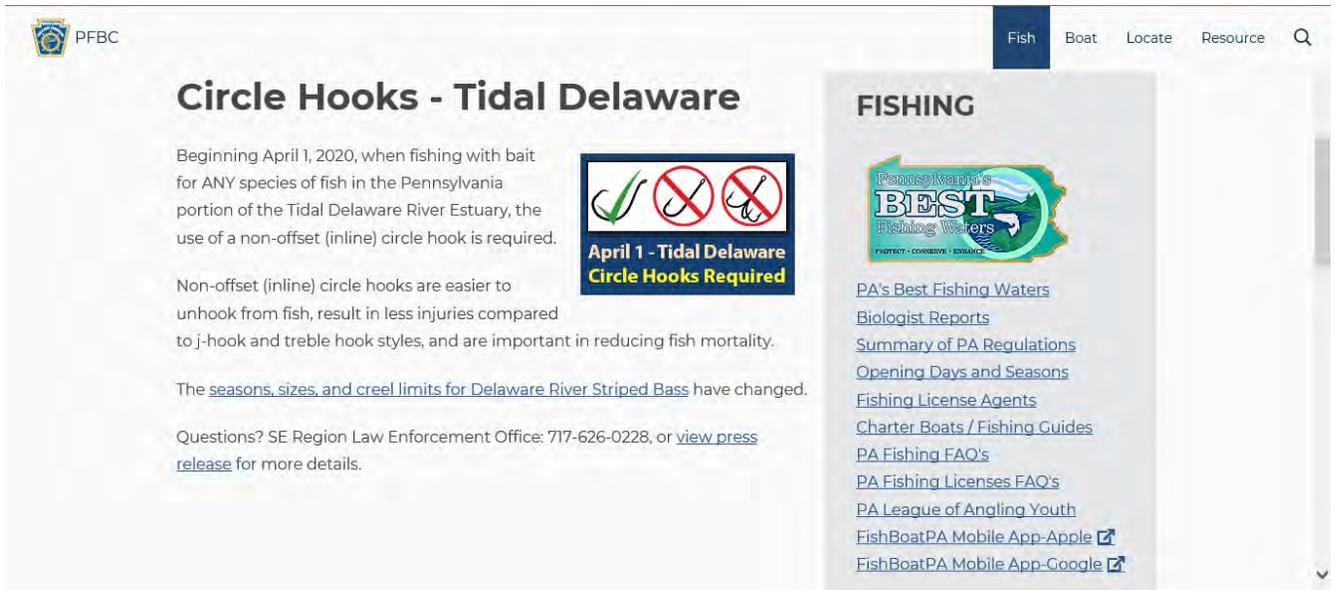


Image above is not scaled to correct ad size

Fishandboat.com homepage: Circle hook message listed prominently on the PFBC website homepage from March 30, 2020 until May 31, 2020. It was then moved to the featured column on the homepage.



When you click “read more” on the homepage slider above, it takes you to the below page:



When you click “seasons, sizes, and creel limits for Delaware River Striped Bass” it takes you to the below page:

SUMMARY BOOK
2020 Pennsylvania Fishing Laws & Regulations

Regulations by Location

DELAWARE RIVER AND ESTUARY

Related page: [Saltwater Angler Registry Program](#)

The following seasons, sizes and creel limits apply to the Delaware River, West Branch Delaware River and Delaware River tributaries, from the mouths of the tributaries upstream to the limit of the tidal influence and the Lehigh River from its mouth upstream to the first dam in Easton, Pennsylvania. The [Delaware River estuary waters](#) are listed below. [Delaware River Blue Crab](#) regulations are also listed on [this page](#), below.

| Species | Seasons | Minimum Size | Daily Limit |
|--|--|--|-----------------------|
| Trout | April 18 at 8 a.m. through Oct. 15 | North of I-84: 14 inches | 1 (combined species) |
| | | South of I-84: No minimum | 5 (combined species) |
| | | West Branch Delaware River* 12 inches | 2 (combined species) |
| Bass Largemouth Smallmouth | Jan. 1 through April 17 and June 13 through Dec. 31 | 12 inches | 5 (combined species) |
| | April 18 through June 12 | NO HARVEST - catch and immediate release only | |
| Muskellunge and Tiger Muskellunge (Hybrids) | Open year-round | 40 inches | 1 |
| Northern Pike | Open year-round | 24 inches | 2 |
| Pickereel | Open year-round | 12 inches | 5 |
| Walleye | The portion of the Delaware River between New Jersey and Pennsylvania - open year-round | 18 inches | 3 |
| | The portion of the Delaware River between New York and Pennsylvania - Jan. 1 through March 14 and May 4 through Dec. 31 | | |
| American Shad** | Open year-round | No minimum | 3 |
| American Eel | Open year-round | 9 inches | 25 |
| Striped Bass and Hybrid Striped Bass*** | (Tidal) From the Pennsylvania state line upstream to Calhoun Street Bridge: - Jan. 1 through March 31 and - June 1 through Dec. 31 | Harvestable Slot: 28 to less than 35 inches | 1 |
| | (Tidal) From the Pennsylvania state line upstream to Calhoun Street Bridge: - April 1 through May 31 | Harvestable Slot: 21 to less than 24 inches | 2 |
| | (Non-Tidal) From Calhoun Street Bridge upstream: - Open year-round | Harvestable Slot: 28 to less than 35 inches | 1 |
| Baitfish / Fishbait**** (see Bait page for definitions) | Open year-round | No minimum | 50 (combined species) |
| River Herring***** | | CLOSED YEAR-ROUND | |
| Hickory Shad, Sturgeon and other threatened and endangered species | | CLOSED YEAR-ROUND | |
| Mussels / Clams | | CLOSED YEAR-ROUND | |
| Other Species | Inland seasons, size and creel limits apply except for waters under special regulations. | | |

* A special no-kill season with the use of artificial lures only has been established on the West Branch of the Delaware River.

** American Shad is catch and release in the Schuylkill River from I-95 upstream including all tributaries and three (3) American Shad in all other Delaware River tributaries, including those above tide. *** See [fish consumption advisories](#) for Delaware River estuary Striped Bass over 28".

**** For all **crayfish species**, the head must be immediately removed behind the eyes upon capture unless used as bait in the water from which taken.

***** River Herring (Alewife and Blueback Herring) has a closed year-round season with zero daily limit applied to Susquehanna River and tributaries, Lehigh River and tributaries, Schuylkill River and tributaries, West Branch Delaware River, Delaware River, Delaware estuary, and Delaware River tributaries upstream to the limit of the tidal influence.

DELAWARE RIVER ESTUARY

(including tributaries to limits of tidal influence)

The Delaware River estuary consists of the water areas listed below to their upper tidal limits.

| Water Area | Upper Tidal Limit |
|-------------------|--|
| Chester Creek | Kerlin Street (Chester-city) |
| Crum Creek | U.S. Route 13 (Eddystone) |
| Darby Creek | Pine Street (Darby-borough) |
| Delaware River | From the PA state line upstream to the U.S. Route 1 bridge |
| Frankford Creek | U.S. Route 13 (Frankford Avenue) |
| Marcus Hook Creek | U.S. Route 13 (Marcus Hook-borough) |
| Neshaminy Creek | Hulmeville Falls |
| Pennypack Creek | U.S. Route 13 (Frankford Avenue) |
| Poquessing Creek | State Road |
| Ridley Creek | MacDade Boulevard (Chester-city) |
| Schuylkill River | Fairmount Dam |

DELAWARE RIVER BLUE CRABS

Harvesting blue crabs from the Delaware River and its estuary waters is permitted pursuant to the regulations below.

| Seasons | Minimum Size | Daily Limit |
|---------------------------|--------------------------|--|
| Open year-round | 4 inches* (hard shell) | One (1) bushel |
| | 3.5 inches* (soft shell) | (combined - hard shell and soft shell) |
| * measured point to point | | |

FEMALE BLUE CRABS bearing eggs or from which the egg pouch or bunion has been removed may not be possessed.

CRAB POTS are limited to no more than two pots per person when taking crabs. In addition, two handlines may be used.

UNATTENDED CRAB POTS must be labeled with the name and address of the owner or user.

DISTURBING UNATTENDED CRAB POTS is unlawful, except by the owner, user or members of the immediate family, and officers or representatives of the Pennsylvania Fish & Boat Commission.

HORSESHOE CRABS are unlawful to sell, offer for sale, or purchase any horseshoe crabs. It is unlawful to import into or transport in this Commonwealth horseshoe crabs for the purpose of sale.

PFBC email sent to approximately 371,000 recipients:

From: ra-fboutreach@pa.gov <ra-fboutreach@pa.gov> on behalf of Fish & Boat <ra-fboutreach@PA.GOV>

Sent: Friday, April 17, 2020 5:00 PM

To: FBOUTREACH@LISTSERV.PA.GOV <FBOUTREACH@LISTSERV.PA.GOV>

Subject: News from the Pennsylvania Fish & Boat Commission



Best Fishing Practices

Social Distancing and Fishing

Remember, practice social distancing when fishing by keeping at least 6 feet (the length of a standard fishing rod) between you and the nearest angler, avoid crowds, keep your children from wandering close to others, don't share fishing gear, refrain from carpooling, and buy your fishing license [online](#). Continue to follow [CDC guidelines](#), which include washing your hands or using hand sanitizer frequently, and not touching your face. If you do not feel well, stay home. Fishing is an inherently self-policing activity, and we are asking all Pennsylvania anglers to add social distancing as an essential element of their ethical behavior. Thank you in advance for doing your part to protect the health and safety of yourself and those around you while fishing and boating.



View a [video message](#) from PFBC Executive Director, Tim Schaeffer, thanking Pennsylvania's anglers for their cooperation and understanding during the 2020 trout season.



Purchase Your Fishing License Online

To reduce unnecessary travel and social contact amid health concerns, anglers and boaters are able to buy their fishing license, launch permit, or boat registration renewal online at www.fishandboat.com and display it digitally on a phone or other mobile device as proof of possession.

Upon purchase of a fishing license, a .pdf file containing an image of your license is provided and can be saved to a mobile device or computer. Similarly, with each boating related transaction, customers will receive a digital receipt that serves as a temporary permit or registration valid for immediate use.

If approached by a Waterways Conservation Officer in the field, the angler or boater only has to produce the digital image of the license, permit, or registration on their phone or mobile device. A digital copy of the .pdf, photo, or screenshot of your fishing license, launch permit, or boat registration on your phone or mobile device will all be accepted as proof of possession.

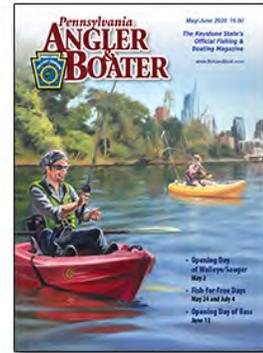


Cold Water Kills

Wear your life jacket. Remember, boaters are required by law to wear a life jacket on boats less than 16 feet in length or any canoe or kayak during the cold weather months from November 1 through April 30. Life jackets save lives year-round. In addition to this regulation, the Commission strongly encourages all boaters to wear their life jackets at all times during the other months of the year. [Read more.](#)

May/June PA Angler & Boater Digital Magazine

The digital [May/June Pennsylvania Angler & Boater](#) magazine is now available for multi-year license holders who have included their e-mail address as part of their license account. As each bi-monthly edition becomes available, digital subscribers will receive an e-mail notice of when the latest issue is available.



Inside this issue:

- [The Quiet Paddler](#)
- [Flashy Flatware Still Finding Fish—Hopkins Lures](#)
- [Summer Multi-Species Creek Fishing](#)
- [Partnering for a Healthier Watershed](#)
- [New Striped Bass Fishing Regulations for the Delaware River and Estuary](#)
- And More!

As a reminder, your free subscription to this digital magazine is good for the full term of your multiple-year fishing license. To log-in, remember that in addition to typing in your e-mail address, your last name is your password.

To subscribe to the print version of *Pennsylvania Angler & Boater* magazine, click [here](#).

Circle Hooks

Attention Anglers

Harvest and delayed mortality of caught and released Striped Bass have reduced the coastal population below levels needed to sustain high-quality recreational angling experiences. As of April 1, 2020, when fishing with bait for any species of fish in the Pennsylvania portion of the Tidal Delaware River Estuary, the use of a non-offset (inline) circle hook is required. The seasons, sizes, and creel limits for Striped



Bass have changed. Visit www.fishandboat.com for the most updated regulations. Non-offset (inline) circle hooks are easier to unhook from fish, result in less injuries compared to j-hook and treble hook styles, and are important in reducing fish mortality.

Keep Pennsylvania Beautiful



Earth Day is April 22

Celebrate the 50th anniversary of Earth Day on April 22 by enjoying our local outdoor environments in person safely or by choosing a digital celebration! If you choose to venture out, please follow the social distancing guidelines outlined above and give plenty of room to those around you. To find a digital celebration for Earth Day, [click here](#). This year's Earth Day theme is "Climate Action". Climate change broadly affects

fish and wildlife further confounding our understanding of specific threats to species.

No Littering

Anglers are reminded to [Keep Pennsylvania Beautiful](#). Pack it in; pack it out. Leave it better than when you found it.



TO BUY FISHING LICENSES AND GIFT VOUCHERS, VISIT:

www.fishandboat.com

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You received this email because you are subscribed to the Fish & Boat Outreach (FBOUTREACH) mailing list. If you would like to unsubscribe from this list, simply send an email to FBOUTREACH-UNSUBSCRIBE-REQUEST@LISTSERV.PA.GOV.

Circle hook information was posted on PFBC social media on March 29 and 31, 2020 and April 1, 2020.

Facebook:

Pennsylvania Fish and Boat Commission
March 29 · 🌐

News Release 📄 **PFBC AMENDS ATLANTIC STRIPED BASS REGULATIONS, ANNOUNCES MANDATORY CIRCLE HOOK REQUIREMENT** 📄 The Pennsylvania Fish and Boat Commission (PFBC) today announced changes to Striped Bass fishing regulations within the Delaware Estuary, Delaware River, and West Branch Delaware River.

Harvest and delayed mortality of caught and released Striped Bass have reduced the coastal population below levels needed to sustain high-quality recreational angling experiences. Due to the negative impact on the fishery, harvest and terminal tackle restrictions are needed to help rebuild the coastal stock.

In accordance with a fisheries management plan adopted by the Atlantic States Marine Fisheries Commission's (ASMFC) Striped Bass Management Board intended to reduce fishing mortality by 18%, the PFBC will change minimum size requirements and slot limits for harvesting Striped Bass in the Delaware Estuary, Delaware River, and West Branch Delaware River, and enact a mandatory circle hook requirement for anglers using bait while fishing for all species within the Delaware Estuary. These changes are effective beginning April 1, 2020.

Learn more here: <http://ow.ly/rW9Y50yZ0NF>

CIRCLE HOOKS REQUIRED



Circle hook



J-hook



Treble hook

© Pennsylvania Fish and Boat Commission

👍👍👍 You and 331 others

🗨️ 130 Comments 372 Shares



Pennsylvania Fish and Boat Commission

March 31 · 🌐



Attention: Tidal Delaware River Estuary Anglers!

The ASMFC Striped Bass Management Board, which includes the Commonwealth as a member, has directed all coastal states to reduce Striped Bass fishing mortality rates by 18% beginning in 2020 and require circle hooks by 2021. Catch and release practices for Striped Bass contribute substantially to overall fishing mortality. Non-offset (inline) circle hooks are easier to unhook from fish, result in fewer injuries compared to j-hook and treble hook styles, and are important in reducing fish mortality.

The PFBC supports ASMFC's management requirements to change Striped Bass fishing regulations for the Delaware River and Delaware Estuary. Therefore, Pennsylvania is implementing new Striped Bass fishing regulations for the non-tidal and tidal reaches of the Delaware River Estuary in 2020. The PFBC is taking proactive measures to implement its circle hook requirement in 2020 to inform anglers and facilitate compliance with this important conservation measure ahead of ASMFC mandate for implementation by January 2021.

Beginning April 1, 2020, when fishing with bait for any species of fish in the Pennsylvania portion of the Tidal Delaware River Estuary, the use of a non-offset (inline) circle hook is required. The seasons, sizes, and creel limits for Striped Bass have also changed.

Check www.fishandboat.com for the most updated regulations, and read the full News Release about the changes, here: bit.ly/CircleHookNewsRelease



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**Pennsylvania Fish & Boat Commission -
Homepage**

Learn More

👍❤️👎 935

85 Comments 159 Shares



Pennsylvania Fish and Boat Commission

April 1 · 🌐

...

It may be #AprilFoolsDay, but we're not foolin' around!

The ASFMC Striped Bass Management Board, which includes the Commonwealth as a member, has directed all coastal states to reduce Striped Bass fishing mortality rates by 18% beginning in 2020 and require circle hooks by 2021. Catch and release practices for Striped Bass contribute substantially to overall fishing mortality. Non-offset (inline) circle hooks are easier to unhook from fish, result in fewer injuries compared to j-hook and treble hook styles, and are important in reducing fish mortality.

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Beginning April 1, 2020, when fishing with bait for any species of fish in the Pennsylvania portion of the Tidal Delaware River Estuary, the use of a non-offset (inline) circle hook is required. The seasons, sizes, and creel limits for Striped Bass have also changed. Check our website for the most updated regulations.

<http://ow.ly/TyAL50yZ1pl>

#nofooling #circlehooks #stripedbass

No foolin'
You Need a CIRCLE HOOK

Circle hook

J-hook

Treble hook

👍 You and 82 others

38 Comments 31 Shares

Instagram:



pafishandboat



248 likes

pafishandboat It may be #AprilFoolsDay, but we're not foolin' around!

The ASMFC Striped Bass Management Board, which includes the Commonwealth as a member, has directed all coastal states to reduce Striped Bass fishing mortality rates by 18% beginning in 2020 and require circle hooks by 2021. Catch and release practices for Striped Bass contribute substantially to overall fishing mortality. Non-offset (inline) circle hooks are easier to unhook from fish, result in fewer injuries compared to j-hook and treble hook styles, and are important in reducing fish mortality.

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Beginning April 1, 2020, when fishing with bait for any species of fish in the Pennsylvania portion of the Tidal Delaware River Estuary, the use of a non-offset (inline) circle hook is required. The seasons, sizes, and creel limits for Striped Bass have also changed. Check our website (link in profile) for the most updated regulations.

#nofooling #circlehooks #stripedbass

View all 9 comments

APRIL 1





pafishandboat



CIRCLE HOOKS REQUIRED



300 likes

pafishandboat News Release [PFBC AMENDS ATLANTIC STRIPED BASS REGULATIONS, ANNOUNCES MANDATORY CIRCLE HOOK REQUIREMENT](#) The Pennsylvania Fish and Boat Commission (PFBC) today announced changes to Striped Bass fishing regulations within the Delaware Estuary, Delaware River, and West Branch Delaware River.

Harvest and delayed mortality of caught and released Striped Bass have reduced the coastal population below levels needed to sustain high-quality recreational angling experiences. Due to the negative impact on the fishery, harvest and terminal tackle restrictions are needed to help rebuild the coastal stock.

In accordance with a fisheries management plan adopted by the Atlantic States Marine Fisheries Commission's (ASMFC) Striped Bass Management Board intended to reduce fishing mortality by 18%, the PFBC will change minimum size requirements and slot limits for harvesting Striped Bass in the Delaware Estuary, Delaware River, and West Branch Delaware River, and enact a mandatory circle hook requirement for anglers using bait while fishing for all species within the Delaware Estuary. These changes are effective beginning April 1, 2020.

To learn more, please visit the News Page on our website (link in profile).

[View all 12 comments](#)

MARCH 28



Twitter:

 **fishandboat** @fishandboat · Apr 1

It may be #AprilFoolsDay, but we're not foolin'! Beginning today, when fishing with bait for any fish in the PA portion of the #TidalDelawareRiverEstuary, the use of a non-offset circle hook is required. Learn more, here: media.pa.gov/Pages/fish-and...



  5  10

 **fishandboat** @fishandboat · Mar 31

Attention: Tidal Delaware River Estuary Anglers! Beginning April 1, 2020, when fishing with bait for any species of fish in the PA portion of the Tidal Delaware River Estuary, the use of a non-offset (inline) circle hook is required. Learn more here: bit.ly/CircleHookNews...



  1  5



fishandboat @fishandboat · Mar 29

News Release PFBC AMENDS ATLANTIC STRIPED BASS REGULATIONS, ANNOUNCES MANDATORY CIRCLE HOOK REQUIREMENT Learn more here: ow.ly/9Avj50yZ0NE



5 11

Delaware Estuary

Bucks, Delaware, and Philadelphia Counties

2019 Striped Bass Survey

The Pennsylvania Fish and Boat Commission (PFBC) assessed the Striped Bass spawning stock in the Delaware Estuary between May 13 and June 9, 2019. The survey was conducted at 21 index sites ranging from the mouth of Rancocas Creek, NJ (river mile [RM] 109) downriver to the mouth of Raccoon Creek, NJ (RM 80). Each index site was sampled twice using an electrofishing boat. Additional electrofishing took place at Trenton Falls near the head-of-tide targeting individuals greater than or equal to (\geq) 16 inches in total length (TL) to increase the sample of tagged fish to further contribute to movement and mortality estimation.

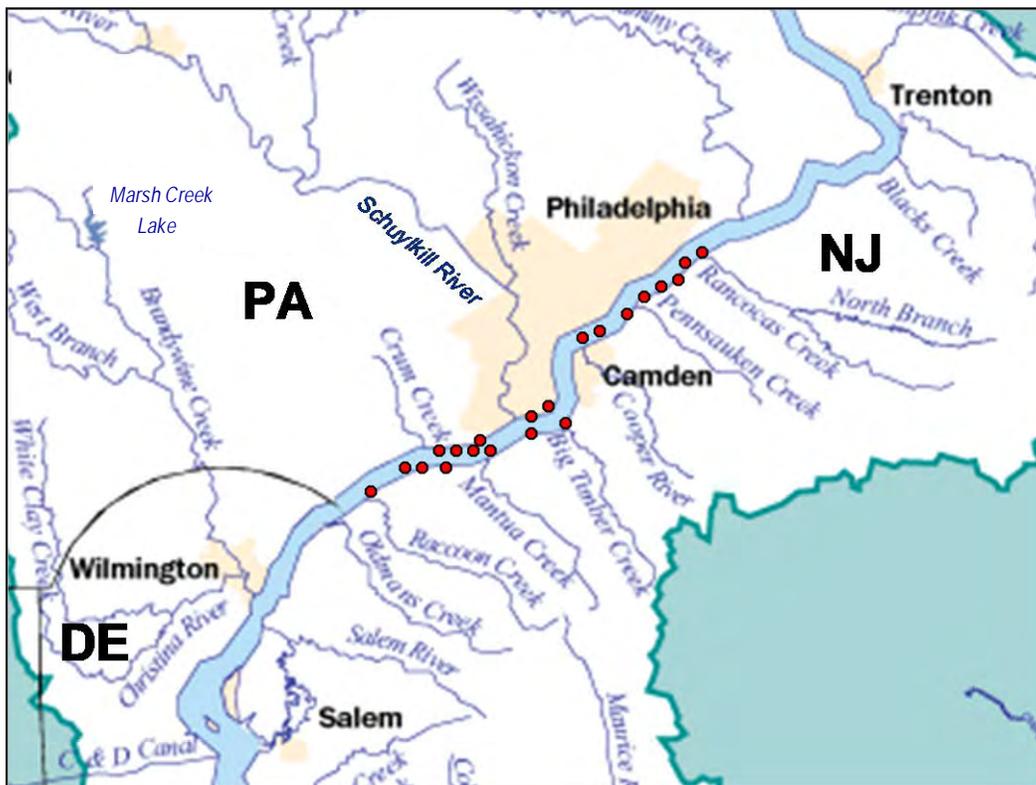


Figure 1. Map of the 21 index sites sampled between Rancocas Creek (RM 109.76) and Raccoon Creek (RM 80.66) on the Delaware Estuary between May 13 and 28, 2019. Base map adapted from the Delaware River Basin Commission.

Pennsylvania Fish & Boat Commission Biologist Report

A total of 267 fish were captured at 21 index sites in 2019. Males accounted for 77% of the total catch and ranged from 7 to 38 inches in TL, while females accounted for 10% of the total catch and ranged from 19 to 48 inches in TL. Sex could not be determined for the remaining 13% of fish primarily because they were small, sexually immature juveniles or larger individuals lacking “ripe and running” sex determinants at the time of capture. Those fish ranged from 5 to 27 inches in TL.

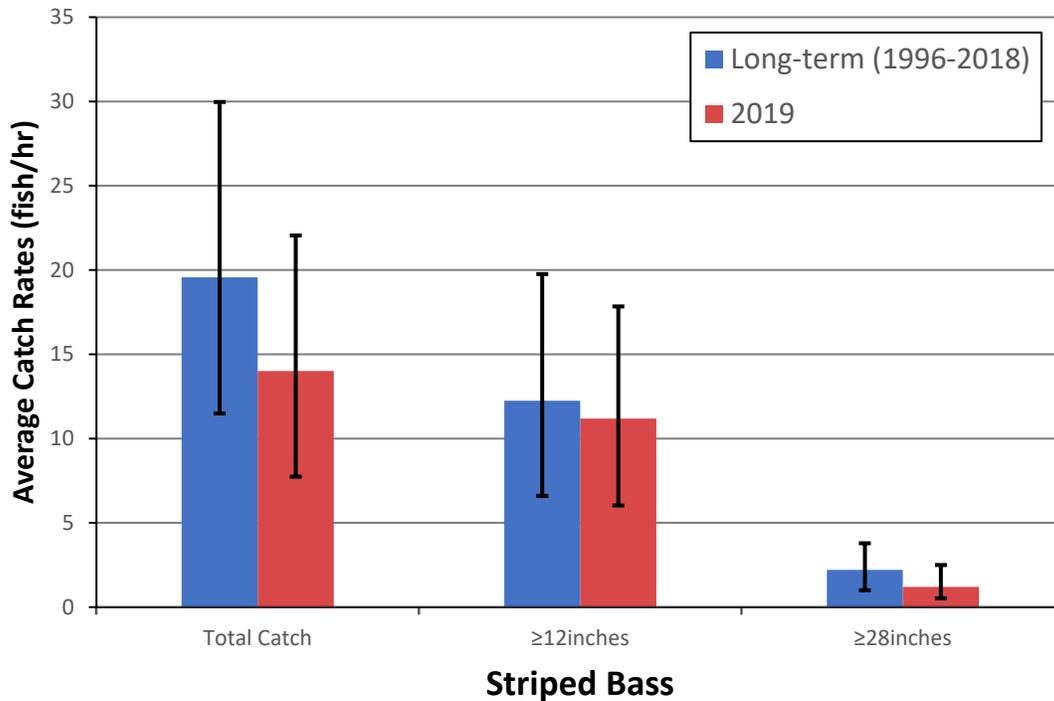


Figure 2. Electrofishing catch rates for Striped Bass captured in the Delaware Estuary between May 13 and 28, 2019 compared to corresponding long-term averages (1996 to 2018). Vertical black bars depict the 95% confidence intervals.

The total catch rate (14.0 fish/hr), catch rate of fish ≥ 12 inches in TL (11.2 fish/hr), and catch rate of fish ≥ 28 inches in TL (1.2 fish/hr) were all lower than the long-term averages (Figure 2). The total catch rate and catch rate of fish ≥ 28 inches in TL were the fifth and third lowest catch rates recorded, respectively, since long-term monitoring began in 1996. However, a large proportion (53%) of the total catch was comprised of fish from 15 to 19 inches in TL (Figure 3). These fish were representative of strong year classes from 2014 and 2015 and are projected to enter the “new” spring slot limit as 21 to less than 24-inch fish in 2020.

Pennsylvania Fish & Boat Commission Biologist Report

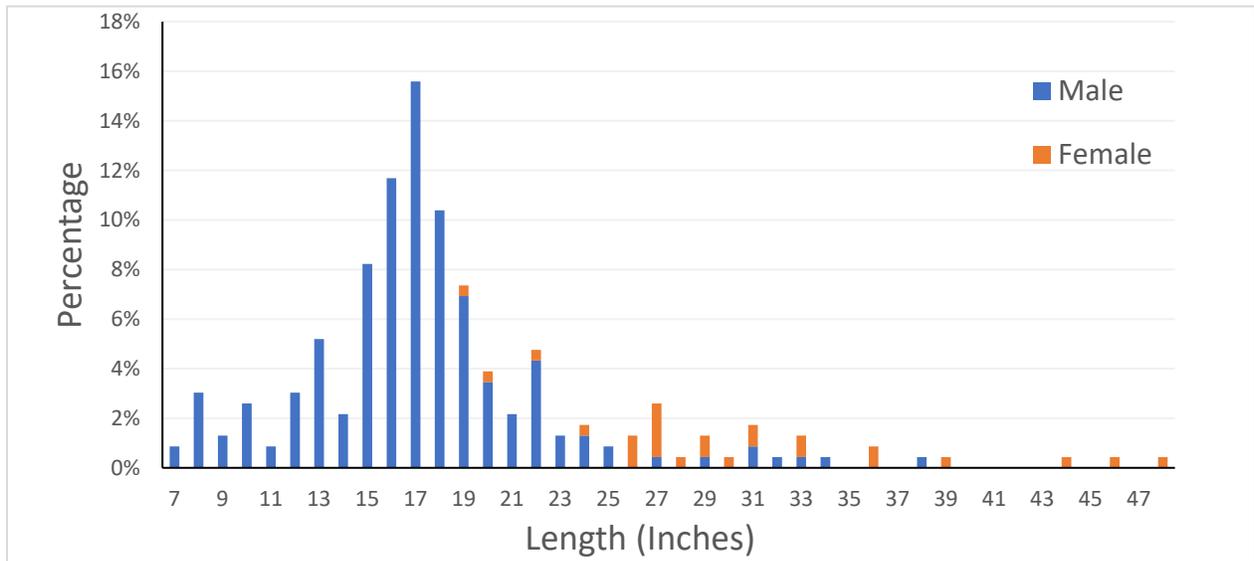
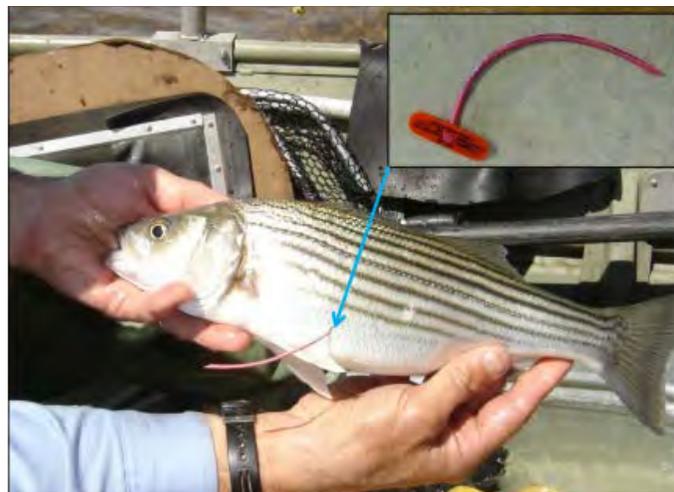


Figure 3. Length-Frequency distribution of Striped Bass captured during the 2019 Striped Bass spawning stock survey by sex.

A total of 185 Striped Bass ≥ 16 inches in TL were tagged with a pink colored U.S. Fish and Wildlife Service reward tag in 2019 (see photo), as part of a multi-state, coastwide effort. Information gathered from tagging programs is dependent on angler reports. Tag reports allow fisheries biologists to monitor coastal movement patterns, determine where fish are harvested, estimate annual fishing mortality, and document angler release rates.



Note the three-inch, pink, spaghetti-like tag near the tip of the left pectoral fin. Please report reward tags to the U.S. Fish and Wildlife Service by calling 1-800-448-8322

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Between 1995 and 2019, the PFBC tagged a total of 5,474 Striped Bass in the Delaware Estuary. As of January 9, 2020, 16% of the 5,474 tagged fish were reported to be caught. Recreational and commercial fishermen accounted for 89% and 7% of the tagged fish caught, respectively, while 4% were credited to other collectors such as scientific researchers. These tagged fish were caught from Maine to North Carolina, with a large proportion of them caught by anglers within the Delaware Bay and its tributaries and off the New Jersey coast in the Atlantic Ocean (Figure 4). Fishers report that 51% of the tagged fish caught were released; 47% were harvested; and 2% were found dead, dying, or were used for scientific research. Recreational and commercial fishermen harvested 47% and 77% of their Striped Bass catches, respectively. The ratio of female to male Striped Bass in the harvest was 1.5 to 1, indicating substantially more harvest pressure on the female segment of the population. This ratio was likely influenced by the large number of tagged males that were smaller than legal length in many fisheries along the Atlantic Coast which prohibited their harvest.

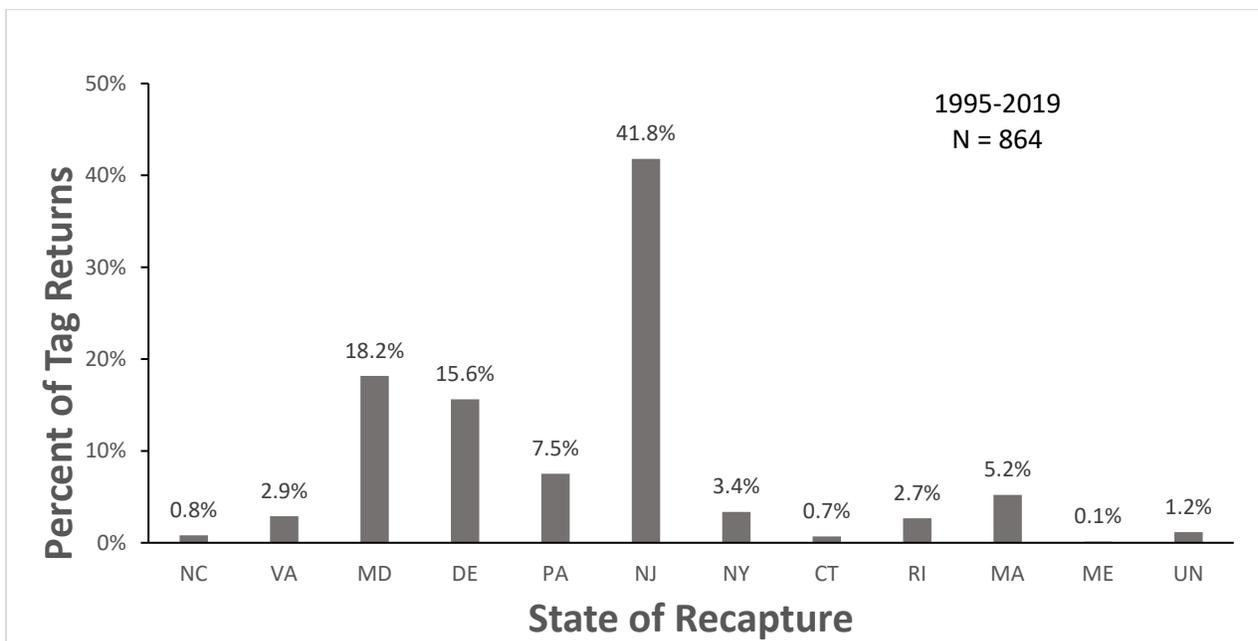


Figure 4. Percent of tag returns by state of recapture for Striped Bass tagged by the Pennsylvania Fish and Boat Commission in the Delaware Estuary between 1995 and 2019. UN = unknown recapture location.

Furthermore, there was no measurable increase in the number of tag returns from Pennsylvania since implementation of Pennsylvania's slot limit regulation in the Delaware Estuary in 2009. Catch and harvest of slot-sized fish when regulated under our previous slot size (21-25 inches) showed that between the period of April and May, Pennsylvania anglers released 68% of tagged fish whereas Chesapeake Bay (MD, VA, DC) anglers harvested 65% of tagged fish (Figure 5).

Pennsylvania Fish & Boat Commission Biologist Report

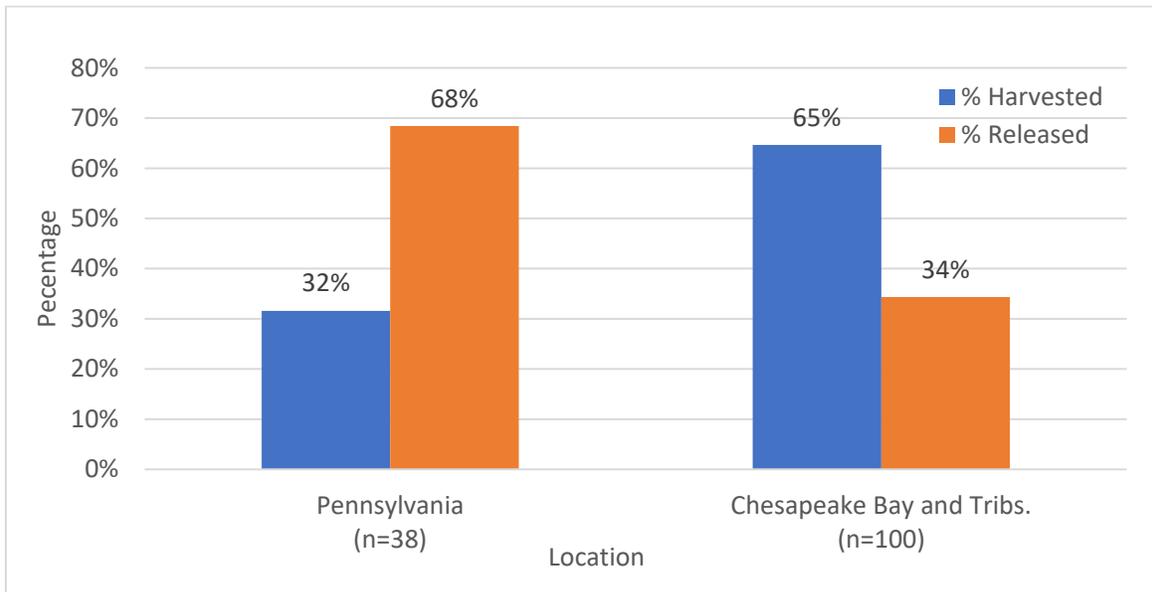


Figure 5. Disposition of slot-size Striped Bass, tagged by any state, during the months of April and May between 2009 and 2019 for either Pennsylvania anglers or Chesapeake Bay and its tributaries' anglers (n=number of tag fish reports).

Additionally, the disposition of fish ≥ 28 inches in TL coastwide was analyzed for fish tagged from Pennsylvania waters. Although the data are limited, preliminary results suggest that Pennsylvania anglers were the only group to release more fish than were harvested (Figure 6).

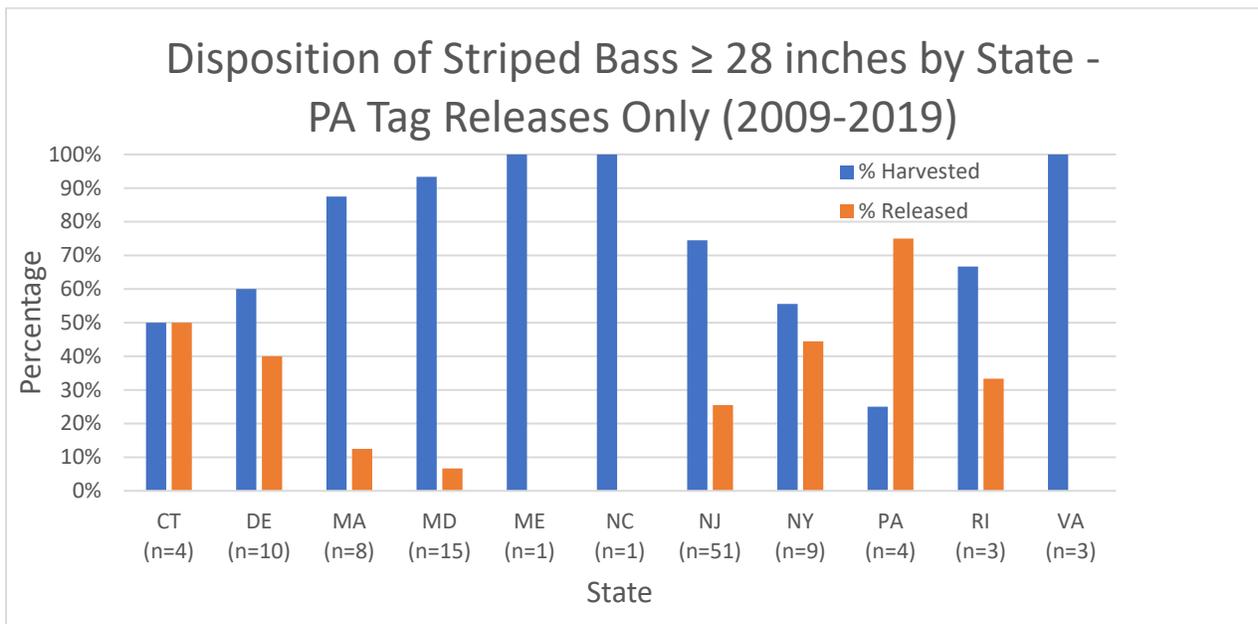


Figure 6. Disposition by State (n=number of fish) of Striped Bass ≥ 28 inches in TL tagged by the Pennsylvania Fish and Boat Commission between 2009 and 2019.

NEW STRIPED BASS FISHING REGULATIONS FOR 2020

Striped Bass are governed by the Atlantic States Marine Fisheries Commission (ASMFC), a deliberative body of the Atlantic coastal states responsible for coordinating the conservation and management of nearshore fishery resources. At its October 2019 meeting the [Striped Bass Management Board approved Addendum VI to Amendment 6 of the Interstate Fisheries Management Plan for Atlantic Striped Bass](#). Addendum VI was initiated in response to the 2018 Benchmark Stock Assessment, which indicates the resource is overfished and experiencing overfishing. The Addendum’s measures are designed to reduce harvest, end overfishing, and bring fishing mortality to the target level in 2020. As a member state, Pennsylvania complies with ASMFC’s management requirements to change Striped Bass fishing regulations for the Delaware River and Delaware Estuary as required. Therefore, beginning April 1, 2020, Pennsylvania will implement new Striped Bass fishing regulations for the Delaware River (non-tidal) and Delaware Estuary, including tidal portions of tributaries which are shown in Table 1. These regulatory changes were approved by ASFMC’s Striped Bass Management Board at its February 2020 meeting following technical review and acceptance of proposed changes based on achieving at least an 18% reduction in fishing mortality. At ASMFC’s first public meeting held in Pennsylvania and hosted by the Delaware River Fishermen’s Association in Bristol, Pennsylvania last August, area anglers supported more conservative fishing regulations for the Delaware River, Delaware Estuary, and along the coast to address the decline in the fishery.

Table 1. Regulations for the Striped Bass fishery in the Delaware River and Estuary to begin April 1, 2020, including tributaries from the mouth upstream to the limit of tidal influence. Note the upper slot limits of 24 and 35 inches are not inclusive, meaning it is illegal to harvest fish ≥ 24 or ≥ 35 inches for each respective slot length limit.

| Location | Length Limit | Bag Limits | Other | Open Season |
|--|----------------------|-------------------|--|----------------------------|
| Pennsylvania Delaware Estuary <i>PA/DE state line upriver to Calhoun St. Bridge at Morrisville, PA (56 river-miles)</i> | 21” to less than 24” | 2 | In-line (non-offset) circle hooks <u>required</u> when fishing with bait | 4/1 - 5/31 |
| | 28” to less than 35” | 1 | In-line (non-offset) circle hooks <u>required</u> when fishing with bait | 1/1 - 3/31, 6/1 - 12/31 |
| Pennsylvania Delaware River (non-tidal) <i>Calhoun St. Bridge upriver (196 river-miles)</i> | 28” to less than 35” | 1 | In-line (non-offset) circle hooks <u>recommended</u> when fishing with bait | 1/1-12/31 |

Pennsylvania Fish & Boat Commission Biologist Report

Additionally, Figure 7 illustrates the legal In-line (i.e. non-offset) circle hook design required when fishing with bait. The ASMFC defines circle hooks as a non-offset hook where the point is pointed perpendicularly back towards the shank. The term “non-offset” means the point and the barb are in the same plane as the shank. Hook manufacturers typically sell them labeled and packaged as “Circle In-Line” and/or “Circle Non-Offset.” Since these new regulations were not approved in time for publishing in the [2020 Summary Fishing Regulations and Laws](#), the Pennsylvania Fish and Boat Commission will publicize them through various media sources employing outreach and education efforts to inform and facilitate compliance with this important conservation measure in as timely a manner as possible for the upcoming season. Since catch and release practices contribute substantially to overall fishing mortality, the circle hook requirement is a management strategy intended to reduce release mortality in recreational Striped Bass fisheries coastwide. The use of in-line (non-offset) circle hooks is preferred over offset design (far right picture below) because of their proven ability to hook fish in the mouth, simplify hook removal, and reduce injury to the released fish. Therefore, to address targeted and non-targeted Striped Bass release mortality, the in-line circle hook requirement will apply to anglers targeting any sportfish species with bait in the tidal Delaware Estuary. This measure offers added protection to adult Striped Bass on the spawning grounds during spring and year-round protections to resident juveniles caught by anglers targeting other species in the tidal reach. For the non-tidal Delaware River, circle hooks are strongly recommended when anglers target any species with bait.

Anglers unfamiliar with how to use circle hooks should understand their design requires the angler let the fish hook itself. This requires a different fishing technique to hook and catch fish effectively than what some anglers may be accustomed to. When using a circle hook simply hold the rod or leave it in a holder, wait for the fish to swim off when a strike occurs, then pull the rod tip down, begin reeling in line to complete the hooking process, and reel the fish in normally. It is important to not set the hook by jerking or pulling the rod tip up and back to set the hook like when using the more common “J” hook design. This technique could result in fewer “hook ups” after a strike occurs.

Pennsylvania Fish & Boat Commission Biologist Report

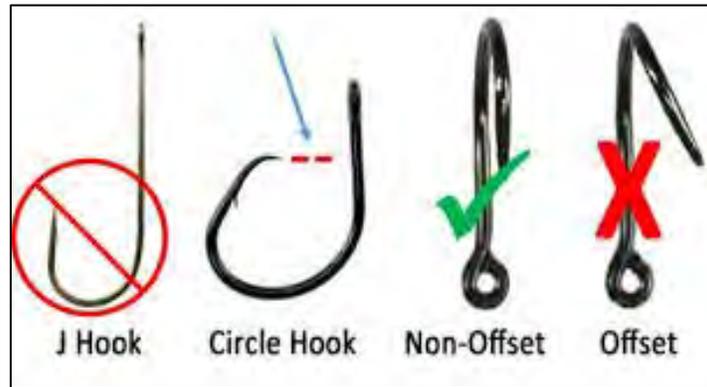


Figure 7. Approved in-line (Non-offset) hook type for use in the Delaware Estuary

*Image courtesy of the Virginia Marine Resources Commission

Furthermore, be advised that New Jersey regulations apply if you cross the PA/NJ boundary line, which is delineated as the approximate middle of the channel. Also, in addition to possessing a valid Pennsylvania fishing license, anglers targeting Striped Bass in the Delaware River and Estuary below Trenton Falls are required to register through the [PFBC's free on-line Saltwater Angler Registry](#). Likewise, if fishing across the state line in New Jersey, Pennsylvania anglers must also register in the free [New Jersey Saltwater Recreational Registry Program](#).

Anglers wishing to consume Striped Bass are advised to consult the [fish consumption advisory information](#) provided in the [Pennsylvania Fishing Summary Booklet](#). There is currently a one meal per month advisory for Striped Bass 28 inches to less than 35 inches in TL. Slot-size Striped Bass (21 to less than 24 inches in length) are now covered by the general statewide advisory for recreationally caught sportfish of one meal per week.

*Tyler Grabowski
Fisheries Biologist
Area 6 – Southeastern Pennsylvania
and
Bryan Chikotas
Area Fisheries Manager
Area 7 – Southcentral Pennsylvania*

FISHERIES PROPOSED RULEMAKING

A. Amendment to Section 61.2 (Delaware River, West Branch Delaware River, and River Estuary) to address the Striped Bass fishery.

Commentary:

The Atlantic States Marine Fisheries Commission's (ASMFC) management plan for Striped Bass calls for management actions when the coast-wide spawning stock biomass (SSB) or fishing mortality rates reach thresholds set within the management plan. The SSB threshold is 201 million pounds, and the current SSB is 151 million pounds. At the current fishing mortality rates, there is concern that the SSB will fall further below the threshold. Also, because catch and release practices contribute substantially to overall fishing mortality, states are also required to implement mandatory circle hook requirements when fishing with bait to reduce release mortality in recreational Striped Bass fisheries. The ASFMC Striped Bass Management Board, which includes the Commonwealth as a member, has directed all coastal states to reduce fishing mortality rates by 18% beginning in 2020 and require circle hooks by 2021. This Commonwealth is taking proactive measures to implement circle hook requirements beginning in 2020 to inform anglers and facilitate compliance with this important conservation measure ahead of the ASMFC mandate for implementation beginning in 2021. The amendments to 58 Pa. Code § 61.2 are designed to meet this objective.

ASMFC has directed that the reduction in harvest be implemented no later than April 1, 2020. To meet this deadline, the Executive Director of the Fish and Boat Commission (Commission), acting under the authority of 58 Pa. Code § 65.25 (relating to temporary changes to fishing regulations), has taken immediate action to amend 58 Pa. Code § 61.2 (relating to Delaware River, West Branch Delaware River and River Estuary). Specifically, the Executive Director has amended this section to change the minimum size limit for Striped Bass to a 28 inches to less than 35 inches slot limit in the Delaware Estuary (from the Pennsylvania line upstream to Calhoun Street Bridge) and Delaware River (from the Calhoun Street Bridge upstream) during the periods January 1 through March 31 and June 1 through December 31 (one fish daily limit), and to change the slot limit during the period April 1 through May 31 to 21 inches to less than 24 inches (two fish daily limit). The Executive Director also has amended the section to require the use of non-offset (in-line) circle hooks when fishing with bait for any species of fish in the tidal Delaware Estuary, including tributaries from the mouths of the tributaries upstream to the limit of tidal influence. These actions were taken to meet the requirements of the ASMFC and a notice of a Temporary Change to Fishing Regulations appeared in the *Pennsylvania Bulletin* at 50 Pa.B. 1625 (March 14, 2020). The temporary changes went into effect on April 1, 2020 and will remain in effect until the Commission, by appropriate action, amends 58 Pa. Code § 61.2.

Staff propose that 58 Pa. Code § 61.2 be amended as follows:

§ 61.2. Delaware River, West Branch Delaware River, and River Estuary.

* * * * *

(d) It is unlawful to fish with bait for any species of fish in the tidal Delaware Estuary, including tributaries from the mouths of the tributaries upstream to the limit of tidal influence using any hook type other than non-offset (in-line) circle hooks. The definition of a non-offset (in-line) circle hook is a non-offset hook where the point is pointed perpendicularly back towards the shank. The term “non-offset” means the point and the barb are in the same plane as the shank.

[(d)] (e) The following seasons, sizes, and creel limits apply to the Delaware River, West Branch Delaware River, and Delaware Estuary and tributaries, from the mouths of the tributaries upstream to the limit of the tidal influence and the Lehigh River from its mouth upstream to the first dam in Easton, Pennsylvania:

| <i>SPECIES</i> | <i>SEASONS</i> | <i>MINIMUM SIZE</i> | <i>DAILY LIMIT</i> |
|--------------------------------------|--|--|--------------------|
| * * * * * | | | |
| STRIPED BASS and HYBRID STRIPED BASS | From Pennsylvania line upstream to Calhoun Street Bridge: January 1 until March 31 and June 1 until December 31. | <u>[28] 28 to less than 35 inches</u> | 1 |
| | April 1 through May 31 | 21 to <u>[25] less than 24 inches</u> | 2 |
| | From Calhoun Street Bridge upstream: open year-round | <u>[28] 28 to less than 35 inches</u> | 1 |
| * * * * * | | | |

Briefer:

Andrew L. Shiels, Deputy Director of Field Operations

Recommendation:

Staff recommend the Commission approve the publication of a notice of proposed rulemaking containing the amendment described in the Commentary. If approved on final rulemaking, the amendment will go into effect upon publication in the *Pennsylvania Bulletin*.

Action:

A motion was made by Commissioner Kauffman and seconded by Commissioner Gibney to approve the publication of a notice of proposed rulemaking containing the amendment described in the Commentary. If approved on final rulemaking, the amendment will go into effect upon publication in the *Pennsylvania Bulletin*. Motion carried.

Close Window

PROPOSED RULEMAKING

FISH AND BOAT COMMISSION

[58 PA. CODE CH. 61]

Fishing; Seasons, Sizes and Creel Limits

[50 Pa.B. 3895]

[Saturday, August 1, 2020]

The Fish and Boat Commission (Commission) proposes to amend Chapter 61 (relating to seasons, sizes and creel limits). The Commission is publishing this proposed rulemaking under the authority of 30 Pa.C.S. (relating to Fish and Boat Code) (code). The proposed amendments update the Commission's regulations concerning Striped Bass fishing in the Delaware River and Estuary.

A. *Effective Date*

This proposed rulemaking, if approved on final-form rulemaking, will go into effect upon publication in the *Pennsylvania Bulletin*.

B. *Contact Person*

For further information on this proposed rulemaking, contact Wayne Melnick, Esq., P.O. Box 67000, Harrisburg, PA 17106-7000, (717) 705-7810. This proposed rulemaking is available on the Commission's web site at www.fishandboat.com.

C. *Statutory Authority*

The proposed amendments to § 61.2 (relating to Delaware River, West Branch Delaware River and River Estuary) are published under the statutory authority of 2102(b) of the code (relating to rules and regulations).

D. *Purpose and Background*

The specific purpose and background of the proposed amendments is described in more detail under the summary of proposal.

E. *Summary of Proposal*

The Atlantic States Marine Fisheries Commission's (ASMFC) management plan for Striped Bass calls for management actions when the coast-wide spawning stock biomass (SSB) or fishing mortality rates reach thresholds set within the management plan. The SSB threshold is 201 million pounds, and the current SSB is 151 million pounds. At the

current fishing mortality rates, there is concern that the SSB will fall further below the threshold. Also, because catch and release practices contribute substantially to overall fishing mortality, states are also required to implement mandatory circle hook requirements when fishing with bait to reduce release mortality in recreational Striped Bass fisheries. The ASMFC Striped Bass Management Board, which includes the Commonwealth as a member, has directed all coastal states to reduce fishing mortality rates by 18% beginning in 2020 and require circle hooks by 2021. This Commonwealth is taking proactive measures to implement circle hook requirements beginning in 2020 to inform anglers and facilitate compliance with this important conservation measure ahead of the ASMFC mandate for implementation beginning in 2021. The amendments to § 61.2 are designed to meet this objective.

The ASMFC has directed that the reduction in harvest be implemented no later than April 1, 2020. To meet this deadline, the Commission's Executive Director, acting under the authority of § 65.25 (relating to temporary changes to fishing regulations), has taken immediate action to amend § 61.2. Specifically, the Executive Director has amended this section to change the minimum size limit for Striped Bass to a 28 inches to less than 35 inches slot limit in the Delaware Estuary (from the Pennsylvania line upstream to Calhoun Street Bridge) and Delaware River (from the Calhoun Street Bridge upstream) during the periods January 1 through March 31 and June 1 through December 31 (one fish daily limit), and to change the slot limit during the period April 1 through May 31 to 21 inches to less than 24 inches (two fish daily limit). The Executive Director also has amended the section to require the use of non-offset (in-line) circle hooks when fishing with bait for any species of fish in the tidal Delaware Estuary, including tributaries from the mouths of the tributaries upstream to the limit of tidal influence. These actions were taken to meet the requirements of the ASMFC and a notice of a Temporary Change to Fishing Regulations appeared in the *Pennsylvania Bulletin* at 50 Pa.B. 1625 (March 14, 2020). The temporary changes went into effect on April 1, 2020, and will remain in effect until the Commission, by appropriate action, amends § 61.2.

The Commission proposes that § 61.2 be amended to read as set forth in Annex A.

F. *Paperwork*

This proposed rulemaking will not increase paperwork and will not create new paperwork requirements.

G. *Fiscal Impact*

This proposed rulemaking will have no adverse fiscal impact on the Commonwealth or its political subdivisions.

H. *Public Comments*

Interested persons are invited to submit written comments, objections or suggestions about this proposed rulemaking to the Executive Director, Fish and Boat Commission, P.O. Box 67000, Harrisburg, PA 17106-7000, within 30 days after publication of this notice in the *Pennsylvania Bulletin*. Comments submitted by facsimile will not be accepted.

Comments also may be submitted electronically by completing the form at www.fishandboat.com/regcomments. If an acknowledgment of electronic comments is not received by the sender within 2 working days, the comments should be retransmitted to ensure receipt. Electronic comments submitted in any other manner will not be accepted.

TIMOTHY D. SCHAEFFER,
Executive Director

Fiscal Note: 48A-299. No fiscal impact; (8) recommends adoption.

Annex A

TITLE 58. RECREATION

PART II. FISH AND BOAT COMMISSION

Subpart B. FISHING

**CHAPTER 61. SEASONS, SIZES
AND CREEL LIMITS**

§ 61.2. Delaware River, West Branch Delaware Riv- er and River Estuary.

* _ * * * *

(c) It is unlawful to take, catch or kill more than 1 day's limit of any species of fish as specified in the following chart during 1 calendar day. It is unlawful to possess more than 1 day's limit of any species of fish as specified in the following chart except under the following circumstances:

* * * * *

(5) Fish may be given to another person, but the fish shall be counted in the donor's creel limit and neither the donor nor the recipient may kill or possess (while in the act of fishing) more than the limit allowed.

(d) It is unlawful to fish with bait for any species of fish in the tidal Delaware Estuary, including tributaries from the mouths of the tributaries upstream to the limit of tidal influence using any hook type other than non-offset (in-line) circle hooks. The definition of a non-offset (in-line) circle hook is a non-offset hook where the point is pointed perpendicularly back towards the shank. The term "non-offset" means the point and the barb are in the same plane as the shank.

[(d)] (e) The following seasons, sizes, and creel limits apply to the Delaware River, West Branch Delaware River and Delaware River tributaries, from the mouths of the

tributaries upstream to the limit of the tidal influence and the Lehigh River from its mouth upstream to the first dam in Easton, Pennsylvania:

| SPECIES | SEASONS | MINIMUM SIZE | DAILY LIMIT |
|--------------------------------------|---|---------------------------------------|-------------|
| STRIPED BASS and HYBRID STRIPED BASS | * * * * * From Pennsylvania line upstream to Calhoun Street Bridge: January 1 until March 31 and June 1 until December 31. | 28 <u>to less than</u> 35 inches | 1 |
| | April 1 through May 31 | 21 to [25] <u>less than</u> 24 inches | 2 |
| | From Calhoun Street Bridge upstream: open year-round | 28 <u>to less than</u> 35 inches | 1 |
| | * * * * * | | |

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Bottom



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ENVIRONMENTAL CONTROL**

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Delaware Implementation Plan for Atlantic Striped Bass Addendum VI Circle Hook Requirements

I. Delaware's Proposed Circle Hook Regulation

The new text that will be added to the current Striped Bass regulation includes:

1.0 Definitions

The following words and terms, when used in this regulation, have the following meaning unless the context clearly indicates otherwise:

"Circle hook" means a non-offset hook where the point is pointed perpendicularly back towards the shank.

"Non-offset" means the point and barb being in the same plane as the shank.

7.0 It is unlawful for any person to fish for striped bass with natural bait using any hook other than a non-offset circle hook.

The regulation will be implemented through Delaware's fisheries-specific regulatory process that allows Delaware to put regulations mandated by a FMP into effect 48 hours after issuance of a Secretary's Order by public notice of the order on its web site. The regulation will be in place by January 1, 2021.

II. Delaware's Outreach and Education Effort

Delaware is developing circle hook and safe Striped Bass handling outreach material. Delaware is currently working with Mike Waine of the American Sportfishing Association (ASA) to incorporate Delaware's information into the ASA circle hook and safe handling material. Delaware will expand the circle hook information already included in its Fishing Guide and add information on safely handling Striped Bass for its 2021 issue. The circle hook and safe handling material, plus links to circle hook and safe handling informational videos will be put on the Delaware Division of Fish & Wildlife web site.

ATLANTIC STATES MARINE FISHERIES COMMISSION

IMPLEMENTATION PLAN TEMPLATE FOR ADDENDUM VI CIRCLE HOOK REQUIREMENTS

Addendum VI to Amendment 6 of the Atlantic Striped Bass Interstate Fishery Management Plan requires the mandatory use of circle hooks when fishing with bait to reduce release mortality in recreational striped bass fisheries. States must implement mandatory circle hook requirements by January 1, 2021.

Per Addendum VI, a 'circle hook' is defined as a non-offset hook where the point is pointed perpendicularly back towards the shank. The term 'non-offset' means the point and barb are in the same plane as the shank (e.g. when the hook is laying on a flat surface, the entire hook and barb also lay flat).

Please include the following elements, at a minimum, in state implementation plans for review by the Striped Bass Plan Review Team (PRT). The PRT will review all state implementation plans and recommend appropriate action to the Striped Bass Management Board:

1. A copy of final regulations, or proposed regulatory language. Regulations should:
 - a. Demonstrate intent to reduce recreational release mortality in striped bass fisheries;
 - b. Include a definition of 'circle hook' comparable to that cited above;
 - c. Include an effective implementation date; and
 - d. Specify any exemptions to mandatory circle hook requirements.

Note: circle hook requirements should apply to as many recreational trips as possible that could interact with striped bass. However, states have flexibility to exempt certain fishing methods or angler groups to address specific needs of the state's fisheries. If allowing for certain exemptions, please provide sufficient justification including quantitative analysis (e.g., an estimate of the proportion (%) of striped bass live releases (B2s) that would not be subject to mandatory circle hook requirements). Please use 2016/2017 catch data for reference, which is consistent with bag and size limit analyses used in Addendum VI.
2. Detailed description of public education materials and outreach campaigns that the state is developing to garner support and compliance with mandatory circle hook requirements. Please also highlight any outreach materials or programs that focus on safe practices when handling and releasing fish, or other fishing

considerations that could benefit striped bass populations (e.g., using barbless hooks, or avoiding fishing in warm waters).

Maryland's Proposed Circle Hook Regulations and Analysis

Maryland currently has regulations in place that require non-offset circle hooks to be used when live-lining or chumming in Chesapeake Bay from May 16-December 15, no matter the target species. As these are some of the more popular methods to fish for striped bass in Maryland in the summer, these regulations were put in place to reduce striped bass discard mortality in 2018. These regulations initially sunset on December 15, 2019 but were put into permanent regulation in 2020 ([COMAR 08.02.25.03A\(7\)](#)). In order to comply with Addendum VI, Maryland is going through the regulatory process to additionally implement non-offset circle hook regulations that would apply to all anglers fishing with bait who target striped bass in tidal and coastal state waters throughout the year. Scoping documents were presented to our commercial and recreational advisory committees at their July meetings and posted [online](#) following the meetings for public comment. Public comment on the scoping documents closed on August 12, 2020 and after considering comments, proposed regulations will be written. Following the state's normal procedures, described in more detail in the scoping document linked above, the expected implementation date is January 1, 2021. The status of Maryland's circle hook regulatory process can be followed [online](#).

A circle hook is already defined in [COMAR 08.02.25.01B\(6\)](#) as “a non-offset hook with the point turned perpendicularly back to the shank.” Bait is defined in regulation ([COMAR 08.02.20.02](#)) as “an attractant to catch fish which includes: (1) the living or dead, whole body or part of body of an animal or (2) a processed product from an animal or vegetative source.” This is further clarified in the scoping documents as applying to anglers when they are using fish, crabs, or worms as bait or using processed baits.

For the Atlantic Ocean and coastal bays, the regulation being considered would require the use of a non-offset circle hook when targeting striped bass and using bait year round. While no exemptions will be allowed when targeting striped bass and using bait in the scoped regulations, anglers fishing with bait for other species may interact with striped bass. Little data is available on striped bass releases in Maryland's coastal bays and Atlantic Ocean waters. Between 2016-2017, only 32 Marine Recreational Information Program (MRIP) intercepts released striped bass in either ocean waters or inland coastal waters (e.g. inland intercepts not from the Chesapeake Bay (Area = “F”)). Targeted trips in the MRIP data were defined as those trips with striped bass named as either the primary or secondary target by the angler during the MRIP interview. Without other knowledge on gear usage in the coastal bays and Atlantic Ocean, we assumed all

releases were caught using bait though we acknowledge some fish could be caught on artificial lures. We also assumed 96% compliance with circle hook usage, based on the circle hook compliance estimated when anglers were chumming and live-lining in Chesapeake Bay from our self-reported angler interviews. Combining these assumptions with the targeted striped bass trip information, it's estimated that Maryland's proposed circle hook regulations would apply to 60% of striped bass releases on the coast (59% in 2016, 65% in 2017). This estimate is highly uncertain given the low number of MRIP intercepts and a lack of data on fishing methods used in coastal areas (i.e. bait usage vs. other fishing methods such as using artificial lures). However, striped bass releases from Maryland's Atlantic coast are a very small component of Maryland's overall striped bass releases. Releases from the ocean and coastal inland waters in 2016-2017 are estimated to be 0.85% of all striped bass released in Maryland in those years (1.00% in 2016 and 0.58% in 2017).

Within Chesapeake Bay and its tidal tributaries, circle hook regulations are already in place when anglers are live-lining or chumming, no matter what species is being targeted, from May 16 - December 15 annually. When using cut bait, crabs, worms, or other types of bait, a non-offset circle hook or a J hook must be used (no treble hooks) from March 1 - April 30 and May 16 - December 15. The regulations being scoped would expand the existing regulations so they apply year round and also require all targeted striped bass trips using bait to use circle hooks. As in the coastal areas, no exemptions are included in the scoped regulations when using bait to target striped bass however, anglers fishing with bait and targeting other species have the potential to interact with striped bass.

The best information available on current fishing methods used in the Chesapeake Bay come from the additional questions Maryland had our Access Point Angler Intercept Survey (APAIS) field interviewers ask anglers (as they had time) in May - December of 2018 and 2019. Private and shore based hook and line anglers, regardless of what species they were targeting, were asked whether they were primarily chumming, live-lining, or fishing with bait on their trip. If they were engaging in any of those three activities, they were additionally asked if they were using a circle hook. Of interviews conducted in Chesapeake Bay with known fishing methods, a total of 1,113 anglers were interviewed over 2018-2019. Most of the interviews were conducted in 2018 (78%) and 61% of the interviews over the two years were conducted in June, July, and November. These interviews suggest that 47.9% of anglers did not use bait, 8.4% were either chumming or live-lining, and 43.8% used a baited hook. Assuming these fishing methods are representative of the Chesapeake Bay fleet, the total number of striped bass released in the Chesapeake Bay (Area = "F") in 2016-2017 were partitioned, resulting in an estimate of the number of fish released by each fishing method. Fish estimated to be released by bait fishermen were further partitioned into those caught on

targeted and non-targeted trips. The proportion of striped bass released on a targeted trip was estimated using MRIP data where targeted trips were defined as those where the angler said his primary or secondary target species was striped bass. Compliance of circle hook usage for chumming and live-lining, based on anglers' self-reported answers, was estimated at 96%. In calculations to estimate compliance with circle hook usage when fishing for striped bass with bait, the same compliance level was assumed.

Using these methods, under the proposed circle hook regulations, we estimate that 78% of the striped bass released and subject to bait fishing (chumming, live-lining, and baited hooks) will be caught with a circle hook. Given the popularity of fishing without bait (i.e. trolling, using artificial lures, etc.) within the Chesapeake Bay, we estimate that 40.6% of all striped bass releases will be subject to circle hooks.

Public Education and Outreach Campaigns

Maryland is planning to continue the public education and outreach campaigns regarding circle hooks that we previously conducted in 2018 and 2019, in order to garner support for circle hook usage and ensure compliance with the expanded circle hook regulations. This includes printed materials for outreach events and for APAIS field interviewers to hand out, public presentations at sportfishing shows and to fishing clubs, posts to our Facebook page, and continuing to distribute circle hooks to anglers (as available). In addition, circle hook usage and new regulations regarding their use were mentioned in our weekly fishing reports and on a weekly radio show the department participates in. While some of these activities have been reduced due to COVID-19 in 2020, we hope that most, if not all, of these methods will be available to us in 2021.

Regarding outreach specific to safe fish handling practices and other considerations that could improve striped bass discard mortality, Maryland has also developed websites describing the [use of circle hooks](#), [circle hook frequently asked questions](#), and best fish handling practices when [catch and release fishing](#). An important component of the new catch and release outreach has been the [development of our striped bass fishing advisory forecast](#). Depending on air temperatures throughout the summer months (mid-June through Labor Day), a green-yellow-red designation is used to highlight, respectively, whether conditions are normal for striped bass catch and release, if additional care should be used when catch and releasing striped bass, and when anglers should try to finish fishing for striped bass before 10 am and/or target other species. In addition to posting the advisory on the website and MD DNR Fishing and Boating Services Facebook page starting in 2020, flags of these colors will also be flown at state parks with boating access to notify anglers of current catch and release conditions.

08.02.25.01

.01 Gear Definitions.

A. In this subtitle, the following terms have the meanings indicated.

B. Terms Defined.

(1) "Archery equipment" means a vertical bow or a crossbow.

(2) "Bank pole" means a line and hook dangling into a river, stream, or lake that has the other end attached to a pole which is stuck into the ground.

(3) "Bush-bob" means a line and hook dangling into a river, stream, or lake that has the other end attached to an overhead tree or bush limb.

(4) "Cast net" means a circular monofilament or multi-ply net with weights distributed around its edge that is cast or thrown by hand in such a manner that it spreads out on the water and sinks.

(5) "Chumming" means placing fish, parts of fish, or other natural or manmade attractants upon which fish might feed, in the water, not attached to a hook, for the purpose of attracting fish to a particular area so that they might be caught.

(6) "Circle hook" means a non-offset hook with the point turned perpendicularly back to the shank.

(7) "Dip net" means a mesh bag of netting which is suspended from a circular, oval, or a rectangular frame attached to a long handle or rope.

(8) "Eel pot" means an enclosure constructed of wire having:

(a) A square mesh size not less than 1/2 inch; or

(b) If the mesh is smaller than 1/2 inch by 1/2 inch, an escape panel installed in an exterior wall of the retention chamber measuring at least 16 square inches made of 1/2 inch by 1/2 inch mesh.

(9) "Finfish trotline" means a length of rope or line, buoyed at both ends with one or more anchors, which is baited with hooks set at intervals for the purpose of catching finfish.

(10) "Fish pot" means a single, finfish entrapment net device, without associated wings or leads, consisting of:

(a) An enclosure of various shapes covered with mesh webbing of not less than 1-1/2 inch mesh size;

(b) One or more conical entrance funnels; and

(c) One or more unobstructed escape vents, in the holding chamber, of at least 2-1/2 inches in diameter, if circular, or 2-1/2 inches mesh size if square.

(11) "Fyke net" means a stationary finfish entrapment net device, without a pound or crib, consisting of:

(a) A series of hoops covered by mesh webbing of #12, or larger, twine of not less than 1-1/2 inch mesh size;

(b) No more than one set of wings;

(c) A leader or hedging not longer than 250 feet consisting of #12, or larger, twine and with a minimum mesh size of 3 inches;

(d) In nets with a mesh size less than 2-1/2 inches, a cull panel at least 1 foot by 1 foot with unobstructed escape meshes when set with a minimum mesh size of 2-1/2 inches;

(e) A single entrance funnel; and

(f) One or more internal funnel shaped throats.

(12) "Gig" means an implement with a shaft and three-pronged barbed point which is either thrust or thrown by hand.

(13) "Gill net" means a net which:

(a) Is maintained in a vertical position in the water with sinkers, floats, or stakes, or a combination of sinkers, floats, and stakes; and

(b) Captures fish by means of a mesh too small to permit passage of the body of the fish or withdrawal of the head once the posterior margin of the gill covers has passed through the mesh.

(14) "Gill net, anchored" means a gill net that is stationary in the water and secured to the bottom by weights on either end or along the bottom line which prevent the gill net from drifting freely with the tide or current.

(15) "Gill net, attended" means the licensee remains in the boat within 2 miles of the gill net while it is in waters of the Chesapeake Bay, or within 1 mile when the gill net is in waters of the Atlantic Ocean, its coastal bays and their tributaries, or a tributary of the Chesapeake Bay.

(16) "Gill net, drift" means a gill net not secured to or anchored to the bottom, designed to drift with the natural or prevailing tidal current, including a gill net rigged with up to 20 pounds of weight at each end, in addition to that weight required to achieve negative buoyancy.

(17) "Gill net, stake" means a gill net hung from or supported by stakes which are set in a row and driven into the bottom.

(18) "Hand" means a method of fishing whereby an individual uses their own hand to physically capture the fish.

(19) "Handline" means a fishing line attended primarily by hand.

(20) "Haul seine" means an encircling type of net with wings, brail lines and poles, and a bunt or pocket, and with the following characteristics:

(a) Made of at least #12 twine;

(b) Wings not greater than 15 feet in width at the attachment with the brail poles or brail line;

(c) A width or depth not exceeding 22 feet at the bunt or back; and

(d) A width of the bunt or back not greater than 100 feet.

(21) "Hook and line" means a line free of mechanical devices except for reels attached to a pole or rod or held in hand and attended in a manner that the fish is caught by the hook.

(22) "Hook unit" means a lure with multiple hooks.

(23) "Hoop net" means a single finfish entrapment net device consisting of:

(a) An enclosure formed by a series of hoops covered by mesh webbing of #12, or larger, twine, of not less than 1-1/2 inch mesh size;

(b) One or more internal funnel-shaped throats;

(c) A single entrance funnel;

(d) No wings and leader; and

(e) In nets with a mesh size less than 2-1/2 inches, a cull panel at least 1 foot by 1 foot with unobstructed escape meshes when set having a minimum mesh size of 2-1/2 inches.

(24) "J hook" means a hook having a point parallel to the hook shank.

(25) "Jug" means a method of fishing that uses lines suspended from floating containers or devices.

(26) "Landing net" means a mesh bag which is suspended from a circular, oval, or rectangular frame attached to a short handle which is operated by hand to capture a fish which is being caught by other means.

(27) "Live-lining" means using a live finfish on a hook for the purpose of catching other fish with:

(a) Hook and line;

(b) Rod and reel; or

(c) Handlines.

(28) "Lure" means an artificial bait used for catching fish.

(29) "Net" means a mesh webbing panel or multiple panels, whether continuous or discontinuous, which may be joined in various configurations for the capture of fish.

(30) "Noodling" means a method of catching fish using one's hands or feet while in the water.

(31) "Number 12 twine" means tightly twisted or braided nylon fibers, which are between 0.043 and 0.048 inches in diameter when compressed.

(32) "Offset hook" means a hook with the point and barb not in the same plane with the shank.

(33) "Pound net" means a fixed finfish entrapment net device consisting of:

(a) One or more pounds or cribs each measuring at least 16 feet long by 16 feet wide at the surface of the water with a netting floor and open top;

(b) Mesh webbing with a twine size of #12 or larger;

(c) At least one heart leading into the crib;

(d) A leader or hedging consisting of #12 twine or larger and with a minimum mesh size of 3 inches; and

(e) No other type of fishing device, netting, or wire within the pound or crib.

(34) "Rod" means a pole, cane, or stick to which a line can be attached directly.

(35) "Rod and reel" means a pole with a line and usually a line winding mechanism, attached at the bottom of the pole, and is turned by a crank so that the line is wound around a barrel.

(36) "Seine" means an encircling type of net with mesh.

(37) "Slat basket" means a wooden box that funnels fish down into a holding area that is usually baited.

(38) "Snagging" means actively fishing with a hook that intentionally foul-hooks the fish outside the mouth.

(39) "Spear" means a shaft with one sharp point and/or a barb for capturing a fish by piercing its body.

(40) "Spear gun" means any type of device used for propelling a spear under water by any means other than manual in order to catch fish.

(41) "Stinger hook" means any hook which trails another hook or hook unit, either by direct physical attachment to the lead hook or hook unit, or by a connective device such as a line, swivel or chain, and is part of the same bait or lure.

(42) "Tip up" means a device used in ice fishing in which a signal flag is raised when a fish takes the bait.

(43) "Trap" means a single, bait finfish entrapment device, without associated wings or leads, and consisting of:

(a) An enclosure of various shapes covered with mesh of not greater than 1/2-inch square mesh size for tidal waters and 1/4-inch square mesh for nontidal waters;

(b) One or more entrances with an opening not more than 2 inches in diameter in tidal waters or not more than 1 inch in diameter in nontidal waters; and

(c) No dimension greater than 24 inches in any direction.

(44) "Trip" means the duration which begins with departure of the fishing vessel from a shore-based location and which terminates with return to a shore-based location.

(45) "Trolling" means the method of angling during which fish are attracted to a lure or bait being trailed from a boat which is moving forward or backward by mechanical, manual, or wind power.

08.02.25.03

.03 Recreational Gear — Tidal Waters.

A. Recreational Gear.

(1) Recreational gear for catching clams, crabs and oysters is regulated elsewhere in Natural Resources Article, Title 4, Annotated Code of Maryland and COMAR 08.02 and is excluded from this regulation.

(2) An individual may only use the gear specified in this regulation to catch fish for recreational purposes from tidal waters.

(3) An individual using gear in accordance with this chapter shall comply with all seasons, creel limits, size limits, and other species-specific rules as specified under this subtitle and Natural Resources Article, Title 4, Annotated Code of Maryland.

(4) Chesapeake Bay and Its Tidal Tributaries — March 1 through April 30. A person recreationally angling in the Chesapeake Bay and its tidal tributaries during the period March 1 through April 30:

(a) When using fish, crabs, or worms as bait, or processed bait, shall only use a:

(i) Circle hook; or

(ii) “J” hook with a gap of less than or equal to 1/2 inch between the point and the shank; and

(b) May not use stinger hooks;

(5) Chesapeake Bay and Its Tidal Tributaries — March 1 through March 31. During the period March 1 through March 31:

(a) A person recreationally angling shall only use barbless hooks while trolling; and

(b) No more than six lines, regardless of the number of people on board a vessel, may be used for recreationally angling from a boat when trolling.

(6) Chesapeake Bay and Its Tidal Tributaries — April 1 through April 30. A person recreationally angling in the Chesapeake Bay and its tidal tributaries during the period April 1 through April 30 may not attempt to catch fish by trolling.

(7) Chesapeake Bay and Its Tidal Tributaries — May 16 through December 15.

(a) Except for chumming or live-lining, when using fish, crabs, or worms as bait, or processed bait, a person recreationally angling in the Chesapeake Bay and its tidal tributaries during the period May 16 through December 15 shall only use a:

(i) Circle hook; or

(ii) “J” hook.

(b) When chumming or live-lining, a person recreationally angling in the Chesapeake Bay and its tidal tributaries during the period May 16 through December 15 shall only use a circle hook.

B. Traps.

(1) An individual may not use more than one trap.

(2) A trap shall be:

(a) Marked with the individual’s DNRid number; and

(b) Checked daily.

(3) A trap shall be set:

(a) Within 100 feet of the shore, and:

(i) Attached by a line to the property, pier or dock; or

(ii) Marked by a buoy or pole and sign; or

(b) By attaching the trap to a boat that is not docked.

(4) If a trap is set on private property, the trap owner shall obtain the landowner's permission prior to setting the trap.

(5) If a trap is set on public property, the trap shall be set within 100 feet of the owner.

C. Active Line Fishing Gear.

(1) Individuals catching fish in tidal waters may only use the following active line fishing gear:

(a) Hook and line;

(b) Rod and reel; and

(c) Handline.

(2) The gear listed in §C(1) of this regulation shall be used in a manner in which the individual is handling the gear or actively in control of the gear.

(3) No more than two hook units per line may be used on the gear listed under §C(1) of this regulation.

(4) Snagging is not legal in State waters.

(5) Additional restrictions on active line fishing gear may be found at COMAR 08.02.05.02.

D. Nonactive Line Fishing Gear.

(1) The only nonactive line fishing gear that an individual may use to catch fish in tidal waters is a jug.

(2) An individual may use up to 10 jugs.

(3) Jugs:

(a) Shall have no more than 2 hooks per line and no more than one line per jug;

(b) May only be used in tidal tributaries of the Chesapeake Bay;

(c) May only be used from July 1 through the last day of February;

(d) Shall be marked with the individual's DNRid number;

(e) Shall be attended between the hours of sunset and sunrise; and

(f) May be used to take any fish except for the following species:

(i) Largemouth and smallmouth bass;

(ii) Striped bass;

(iii) All shark species;

(iv) Snapping turtles; or

(v) Any species listed as threatened or endangered under COMAR 08.03.08.

E. Nets.

(1) Individuals catching fish in tidal waters may only use the following nets:

(a) Cast nets;

(b) Seines;

(c) Dip nets; and

(d) Landing nets.

- (2) Cast nets shall have a radius not exceeding 10 feet.
- (3) Seines in tidal waters:
 - (a) Shall have mesh no greater than 1/4 inch;
 - (b) May not exceed 50 feet in width and 5 feet in height;
 - (c) Shall only be used to catch minnows and other bait fish;
 - (d) May not be emptied from a boat; and
 - (e) May not be emptied on the shore or in water less than 12 inches deep.
- (4) An individual may use a landing net to land a fish which is being caught by other means.
- (5) A person may not bait a net.

F. Projectile Gear.

- (1) Individuals catching fish in tidal waters may only use the following projectile gear:
 - (a) Archery equipment;
 - (b) Gig;
 - (c) Spear; and
 - (d) Spear gun.
- (2) Except for a gig, projectile gear shall have a retrieval line attached to it.
- (3) A gig may only be propelled by hand.
- (4) An individual may use projectile gear to take any fish except for the following species:
 - (a) All trout species;
 - (b) Walleye;
 - (c) Striped bass;
 - (d) Striped bass hybrids;
 - (e) Northern pike;
 - (f) Muskellunge;
 - (g) Muskellunge hybrids, including tiger musky;
 - (h) Largemouth and smallmouth bass;
 - (i) Snapping turtles;
 - (j) All shark species;
 - (k) American lobster; and
 - (l) Any species listed as threatened or endangered under COMAR 08.03.08.
- (5) Additional Restrictions.
 - (a) Except as provided in §F(5)(b) of this regulation, a person may not shoot projectile gear within 100 yards of any:
 - (i) Human being;

(ii) Private or public swimming area;

(iii) International diving flag;

(iv) Occupied duck blind; or

(v) Vessel other than the vessel occupied by the individual using the projectile gear.

(b) The distance restriction in §F(5)(a) of this regulation does not apply:

(i) To the use of gigs; or

(ii) If the person using the projectile gear receives permission from all affected parties within that area prior to engaging in fishing activities.

G. Hand Gear. Individuals catching fish in tidal waters may only use the following hand gear:

(1) Hand; and

(2) Noodling.

District of Columbia Atlantic Striped Bass Circle Hook Implementation Plan

DOEE is implementing new circle hook requirements in accordance with Atlantic States Marine Fisheries Commission (ASMFC) guidelines. This protective measure will decrease the amount of release mortality in our jurisdiction and improve the long-term health and sustainability of striped bass.

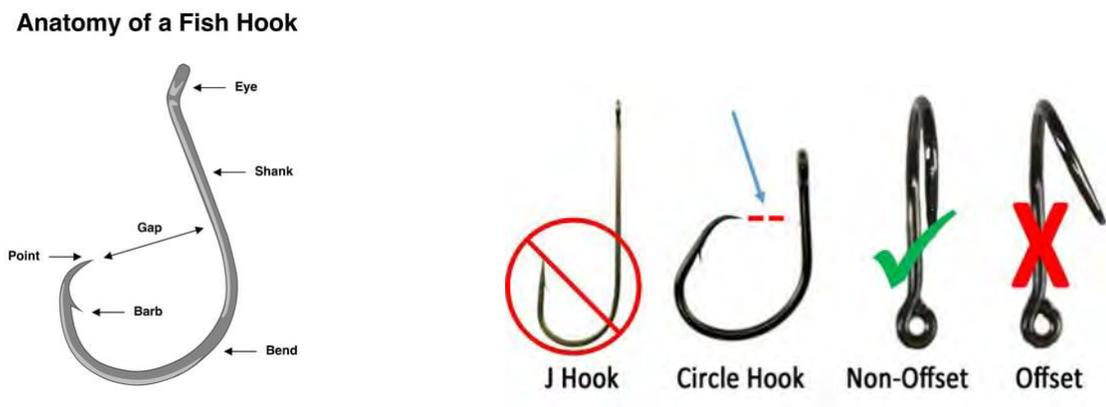
The New Circle Hook Requirement

- The mandatory use of non-offset circle hooks will be required when fishing for striped bass with bait to reduce release mortality in recreational fisheries (*Addendum VI to Amendment 6 of the Atlantic Striped Bass Interstate Fishery Management Plan*).
- In addition to anglers targeting striped bass, a non-offset circle hook will be required regardless of the targeted species when recreationally fishing with bait of any kind (e.g., fish, worms, shrimp, chicken livers, corn, dough balls) and using a hook size of number two (#2) or greater.
- These mandatory circle hook requirements will take effect on January 1, 2021.

Definitions

Bait – does not include artificial lures (bucktails, crankbaits, rigged soft plastics, etc.), but does include any other fresh, frozen, live, cut, scented moldable offering used to attract fish.

Circle Hook – is defined as a non-offset hook where the point is pointed perpendicularly back toward the shank. The word “non-offset” means the point and barb are in the same plane as the shank (e.g., when the hook is laying on a flat surface, the entire hook and barb also lay flat). See figures below:



Public Education and Outreach

The District is disseminating the new circle hook regulations through several different platforms. The above information is posted on the District's website with all other fishing regulations (<https://doee.dc.gov/service/regulated-fishing-activities>). In addition to posting the information on the

District of Columbia Atlantic Striped Bass Circle Hook Implementation Plan

website, the District created an informational handout to be given out to many different user groups. The handout will be given out at fishing license vendors, the District Aquatic Resource Education Center (where thousands of school children as well as adult groups receive educational programs and fishing clinics on the District's aquatic resources), during angler creel surveys, and by law enforcement. Due to the global pandemic and the District's mandatory telework policy several of these outreach opportunities have not taken place as of the writing of this plan. Currently, the circle hook information is posted on the website and the handout is available at the Aquatic Resource Education Center.

FISHING IN THE DISTRICT



NEW CIRCLE HOOK REQUIREMENTS WILL REDUCE FISH MORTALITY

DOEE is implementing new circle hook requirements in accordance with Atlantic States Marine Fisheries Commission (ASMFC) guidelines. The 2019 (ASMFC) Fishery Management Plan for Striped Bass estimates that 2.8 million striped bass were lost due to recreational hook and line release mortality in 2018, more than the number landed by the recreational fishery during that year. This protective measure will decrease the amount of release mortality in our jurisdiction and improve the long-term health and sustainability of striped bass.

BENEFITS OF CIRCLE HOOKS

- Reduce the likelihood that a fish will be “gut hooked” or “deep hooked” (fish swallowing the hook); removing a hook in these situations could puncture vital organs, resulting in mortality.
- Designed to hook the fish in the corner of the mouth, making it easier to release while increasing the chances of fish survival.
- Have been used successfully with dead and live baits for many species.

THE NEW CIRCLE HOOK REQUIREMENT

- The mandatory use of non-offset circle hooks will be required when fishing for striped bass with bait to reduce release mortality in recreational fisheries (Addendum VI to Amendment 6 of the Atlantic Striped Bass Interstate Fishery Management Plan).
- A non-offset circle hook will be required regardless of the targeted species when recreationally fishing with bait of any kind (e.g., fish, worms, shrimp, chicken livers, corn, dough balls) and using a hook size of number two (#2) or greater.
- These mandatory circle hook requirements will take effect on January 1, 2021.

DEFINITIONS

BAIT – does not include artificial lures (bucktails, crankbaits, rigged soft plastics, etc.), but does include any other fresh, frozen, live, cut, scented moldable offering used to attract fish.

CIRCLE HOOK – is defined as a non-offset hook where the point is pointed perpendicularly back toward the shank. The word “non-offset” means the point and barb are in the same plane as the shank (e.g., when the hook is laying on a flat surface, the entire hook and barb also lay flat). See figures below:



HELPFUL HINTS

To use circle hooks effectively, do not pull back quickly on the fishing rod to set the hook when you detect a bite. Simply, let the fish run with the hook and apply steady and firm pressure against the rod tip. This resistance will allow the hook to move toward the back of the cheek and grab onto the inside corner of the mouth. Once the hook is set, maintain consistent pressure until you can land the fish.

Commercial fishermen have spoken to how effective circle hooks are at holding their catch, as long as you let the hook do what it is designed to do.

For more information on circle hooks please refer to: [ASMFC Special Report on circle hooks.](#)

Atlantic Striped Bass Addendum VI to Amendment 6
Circle Hook Implementation Plan for the Potomac River

Prepared for the
Atlantic States Marine Fisheries Commission
August 15, 2020

Potomac River Fisheries Commission
P.O. Box 9
Colonial Beach, VA 22443
(804) 224-7148

Potomac River Fisheries Commission Circle Hook Implementation Plan for Atlantic Striped Bass

Section A. Circle Hook Requirements - Proposed Regulatory Language:

DRAFT ORDER #2021-XX

**2021 RECREATIONAL AND CHARTER FISHERIES
STRIPED BASS CIRCLE HOOK RESTRICTIONS**

THE POTOMAC RIVER FISHERIES COMMISSION, having found it necessary for the preservation of the striped bass (rockfish) population to impose restrictions on fishing for striped bass, and pursuant to its authority under Regulation III, Section 10; **HEREBY DECLARES AND ORDERS:** the following restrictions shall apply to the recreational and charter striped bass fishery:

- Spring Season:**
- Open Dates: May 1 through May 15, 2021
 - Open Area: Downstream of Harry W. Nice Bridge (Rt. 301)
 - Creel Limit: One (1) fish per person per day (including charter capt.)
 - Minimum Size Limit: Thirty-five (35) inches TL
 - No High-Grading: Unlawful to return fish to the water after it is placed into a cooler or storage area.
 - Bait Restrictions: No live eel. **Non-offset (inline) Circle Hooks* are required to be used when using cut or whole natural bait.** No more than two (2) hooks or sets of hooks for each rod or line may be used. Artificial lures or plugs with multiple hooks are considered one set of hooks.
- Summer/Fall Season:**
- Open Dates: May 16 thru July 6, 2021 and Aug. 21 thru Dec. 31, 2021
 - Closed Dates: July 7 thru August 20, 2021 (No Direct Targeting)
 - Open Area: Downstream of Woodrow Wilson Bridge (I-95)
 - Creel Limit: Two (2) fish per person per day
 - Minimum Size Limit: Twenty (20) inches TL
 - Bait Restrictions: **Non-offset (inline) Circle Hooks* are required to be used when using cut or whole natural bait.** No more than two (2) hooks or sets of hooks for each rod or line may be used. Artificial lures or plugs with multiple hooks are considered one set of hooks.

* A Circle Hook is defined as a non-offset or inline hook where the point is pointed perpendicularly back towards the shank. The term “non-offset” or “inline” means the point and barb are in the same plane as the shank (e.g. when the hook is laying on a flat surface, the entire hook and barb also lay flat).

AND IT IS FURTHER DECLARED AND ORDERED: this Order #2021-XX shall become effective, January 1, 2021 and remain in effect until further notice.

Section B Public Education and Outreach:

In order to comply with the circle hook requirement, the PRFC proposes to initiate angler education by providing resources to educate anglers on the technical benefits of circle hooks, and methodologies for their proper use, as well as safe practices when handling and releasing fish. Strategies to deliver this information to anglers will include (but not be limited to):

- Development of website content – flyers and videos developed in conjunction with American Sportfishing Association (ASA)
- Social media content (Facebook, Instagram and Twitter)
- Development and dissemination of flyers and brochures to our Charter Boat Captains, Sport Licensees, and our Licensing Agents
- Presentations at PRFC Finfish Advisory Committee meetings
- Presentations at PRFC Commission meetings
- Outreach to fishing clubs and events (fishing expositions and fairs), if they happen
- Providing samples of non offset circle hooks (contingent upon funding)
- Law Enforcement officers (Maryland Natural Resources Police and Virginia Marine Resources Commission) on the Potomac River will be provided with educational handouts and will begin interacting with fishermen on the water in 2020 to let them know the use of circle hooks, when fishing for striped bass with bait, will be mandatory in 2021.



COMMONWEALTH of VIRGINIA

Marine Resources Commission
380 Fenwick Road
Building 96

Matthew J. Strickler
Secretary of Natural Resources

Steven G. Bowman
Commissioner

August 15, 2020

MEMORANDUM

TO: Max Appelman, Striped Bass Fishery Management Plan Coordinator
Atlantic States Marine Fisheries Commission

FROM: Olivia Phillips, Virginia Technical Committee Representative
Virginia Marine Resources Commission

RE: Implementation Plan for Addendum VI Circle Hook Requirements

The attached document describes the Virginia implementation plan for the Addendum VI circle hook requirements.

cc: Pat Geer
Adam Kenyon
Shanna Madsen

An Agency of the Natural Resources Secretariat

www.mrc.virginia.gov

Telephone (757) 247-2200 (757) 247-2292 V/TDD Information and Emergency Hotline 1-800-541-4646 V/TDD

ATLANTIC STATES MARINE FISHERIES COMMISSION
IMPLEMENTATION PLAN TEMPLATE FOR ADDENDUM VI CIRCLE HOOK REQUIREMENTS

Addendum VI to Amendment 6 of the Atlantic Striped Bass Interstate Fishery Management Plan requires the mandatory use of circle hooks when fishing with bait to reduce release mortality in recreational striped bass fisheries. States must implement mandatory circle hook requirements by January 1, 2021.

Per Addendum VI, a ‘circle hook’ is defined as a non-offset hook where the point is pointed perpendicularly back towards the shank. The term ‘non-offset’ means the point and barb are in the same plane as the shank (e.g. when the hook is laying on a flat surface, the entire hook and barb also lay flat).

Purpose: To provide the Atlantic States Marine Fisheries Commission with the implementation plan for circle hooks in Virginia per Addendum VI to Amendment 6.

Regulatory history & language: Virginia Marine Resources Commission staff presented the circle hook provision at a Fisheries Management Advisory Committee held on September 18, 2019. There was no opposition for circle hooks by the committee or members of the public. Regulatory language specific to the circle hook provision established in Addendum VI, was approved by the Virginia Marine Resources Commission on July 28, 2020 and implemented on August 1, 2020. VMRC implemented the circle hook provision prior to the Addendum VI deadline (January 1, 2021) as an additional conservation measure for the upcoming 2019 Fall recreational season (October 4 to December 31).

The regulatory language in the Virginia striped bass regulation, specific to circle hooks are provided here, and the full regulation is included at the end of this memo.

4 VAC 20-252-20: *“Circle Hook” means a non-offset, non-stainless steel hook with the point turned sharply and straight back toward the shank.*

4 VAC 20-252-50B: *Any person fishing recreationally shall use non-offset, corrodible, non-stainless steel circle hooks when fishing with bait, live or chunk.*

The Virginia definition of circle hooks specifies “non-stainless steel” because non-stainless steel hooks dissolve (i.e., rust away) much faster than stainless steel hooks. Further, inclusion of “non-stainless steel” provides consistent regulatory language pertaining to circle hooks among Virginia regulations (e.g., coastal sharks regulation).

There will be no exceptions to the circle hook provision for striped bass for any recreational sector, trips, or user groups.

Education & Outreach: To garner support and compliance with the mandatory circle hook requirements, VMRC staff developed the **Fish F.A.S.T. for Striped Bass** campaign. This campaign encourages anglers to **F**ocus on a quick release to increase chances of survival, **A**lways use appropriate tackle (non-stainless steel, non-offset circle hooks), **S**wim the fish to re-oxygenate before release, and **T**ry to remove the hook while the fish in the water.

Education materials for the **Fish F.A.S.T. for Striped Bass** campaign include an informational webpage (Figure 1; <https://mrc.virginia.gov/Notices/circle-hooks.shtm>) and free circle hooks with attached Fish F.A.S.T. cards (Figure 2). The webpage explains the Fish F.A.S.T campaign, includes a classification of circle hooks (including photos), the benefits of circle hooks, and provides techniques to use circle hooks effectively. The free circle hooks and Fish F.A.S.T. cards have been provided to anglers by APAIS staff since the 2019 fall fishing season, and are available in lobby areas of the VMRC offices. Unfortunately, due to the current COVID-19 office closure, the free circle hooks and Fish F.A.S.T. cards may not be available to as many anglers as staff had originally hoped. However, VMRC staff have advertised the informational Fish F.A.S.T webpage on the VMRC Facebook page (www.facebook.com/MRCVirginia) and on the VMRC homepage (<https://www.mrc.virginia.gov/>). Staff forwarded the information to the major Virginia recreational fishing organizations, which yielded collaborations among the groups to develop more education and outreach materials. As a result, the Fish F.A.S.T. webpage now features materials created by On The Water and the American Sportfishing Association, which explain circle hook use and best handling practices.

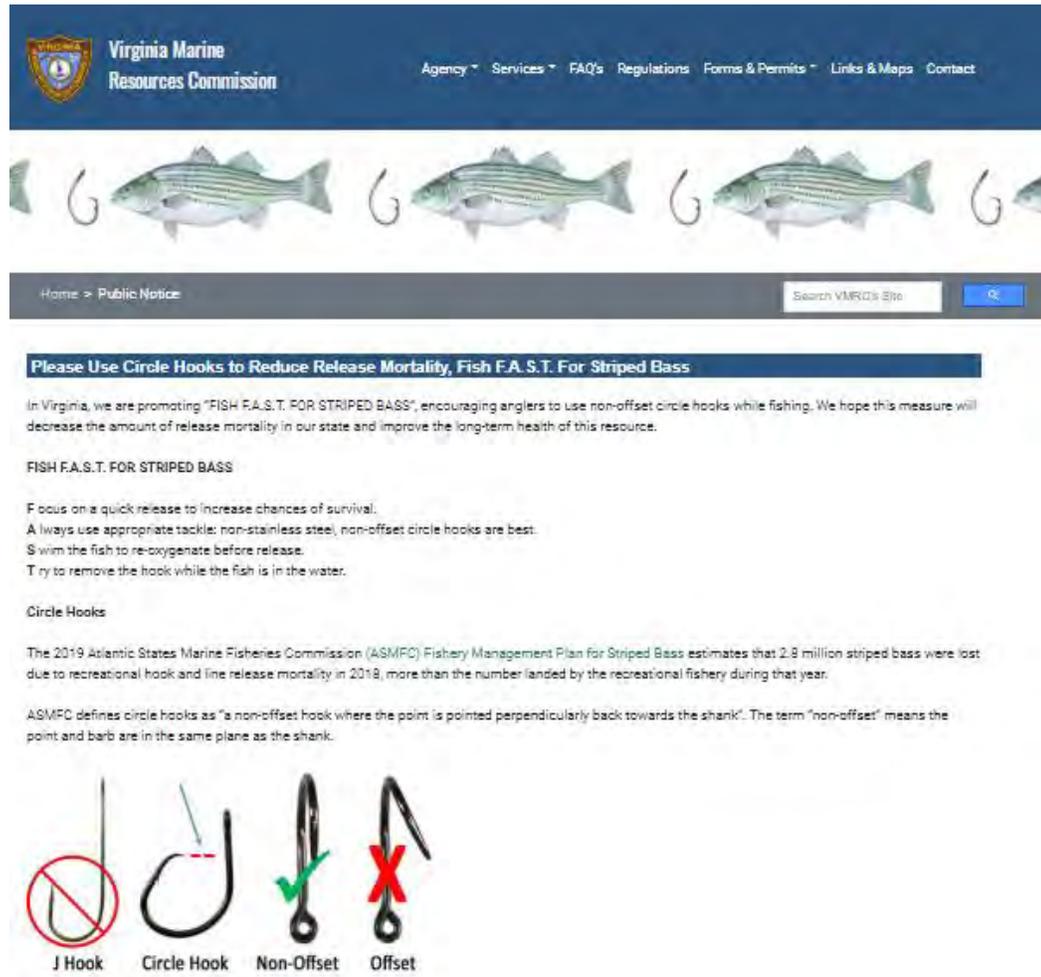


Figure 1. Screenshot of the Fish F.A.S.T. campaign webpage.

VMRC ASKS YOU TO

FISH F.A.S.T.

FOR STRIPED BASS

FISH F.A.S.T. FOR STRIPED BASS

Focus on a quick release to increase survival.

Always use appropriate tackle: non-stainless steel, non-offset circle hooks are best.

Swim the fish to re-oxygenate before release.

Try to remove the hook while fish is in water.

For more information on circle hooks and striped bass, visit our website:

www.mrc.virginia.gov



Figure 2. Example of the Fish F.A.S.T. campaign card (and includes a free circle hook).

VIRGINIA MARINE RESOURCES COMMISSION
“PERTAINING TO THE TAKING OF STRIPED BASS”
CHAPTER 4 VAC 20-252-10 ET SEQ.

PREAMBLE

This chapter establishes a limited commercial and recreational fishery for striped bass in Virginia. The provisions of this chapter are intended to comply with all Federal and interstate requirements for fishing for striped bass. This chapter also authorizes the aquaculture of striped bass and hybrid striped bass and sets forth the conditions required for their culture.

This chapter is promulgated pursuant to the authority contained in §§ 28.2-201 and 28.2-204.1 of the Code of Virginia. This chapter amends and re-adopts, as amended, previous Chapter 4 VAC 20-252-10 et seq., which was promulgated November 26, 2019 and made effective December 1, 2019. The effective date of this chapter, as amended, is August 1, 2020.

4 VAC 20-252-10. Purpose.

The purpose of this chapter is to provide for the continued sustained yield from the recovered striped bass stocks in Virginia and to limit the growth of the number of commercial participants in this fishery. The provisions pertaining to aquaculture serve to prevent the escape of cultured hybrid striped bass into the natural environment and to minimize the impact of cultured fish in the market place on the enforcement of other provisions of this chapter.

This regulation is not intended to create any property right in anyone, and the commission reserves the right to change this regulation at any time it deems it necessary because of biological conditions and to change the regulation in all other respects at any time it deems it necessary to carry out its statutory mission.

4 VAC 20-252-20. Definitions.

The following words and terms when used in this chapter shall have the following meaning unless the context clearly indicates otherwise:

"Chesapeake Bay area" means the commercial fishing area that includes the Chesapeake Bay and its tributaries and the Potomac River tributaries.

"Chesapeake Bay and its tributaries" means all tidal waters of the Chesapeake Bay and its tributaries within Virginia, westward of the shoreward boundary of the Territorial Sea, excluding the coastal area and the Potomac River tributaries as defined by this section.

“Circle Hook” means a non-offset, non-stainless steel hook with the point turned sharply and straight back toward the shank.

"Coastal area" means the area that includes Virginia's portion of the Territorial Sea, plus all of the creeks, bays, inlets, and tributaries on the seaside of Accomack County, Northampton County (including areas east of the causeway from Fisherman Island to the mainland), and the City of Virginia Beach (including federal areas and state parks, fronting on the Atlantic Ocean and east and south of the point where the shoreward boundary of the Territorial Sea joins the mainland at Cape Henry).

"Commercial fishing," "fishing commercially," or "commercial fishery" means fishing by any person where the catch is, or is intended for sale, barter, trade, or any commercial purpose.

"Great Wicomico-Tangier Striped Bass Management Area" means the area that includes the Great Wicomico River and those Virginia waters bounded by a line beginning at Dameron Marsh at NAD 83 North Latitude 37-46.9535, West Longitude 76-17.1294; extending to the southernmost point of Tangier Island, and north to a point on the Virginia–Maryland state boundary at NAD 83 North Latitude 37-57.0407, West Longitude 75-58.5043, and then westerly along the Virginia–Maryland state boundary to Smith Point.

"Potomac River tributaries" means all the tributaries of the Potomac River that are within Virginia's jurisdiction beginning with, and including, Flag Pond extending upstream to the District of Columbia boundary.

"Recreational fishing," "fishing recreationally," or "recreational fishery" means fishing by any person, whether licensed or exempted from licensing, where the catch is not or is not intended for sale, barter, trade, or any commercial purpose.

"Recreational Vessel" means any vessel, kayak, charter vessel, or headboat participating in the recreational striped bass fishery.

"Share" means a percentage of the striped bass commercial harvest quota.

"Spawning reaches" means sections within the spawning rivers as follows:

1. James River from a line connecting Dancing Point and New Sunken Meadow Creek upstream to a line connecting City Point and Packs Point.
2. Pamunkey River from the Route 33 Bridge at West Point upstream to a line connecting Liberty Hall and the opposite shore.
3. Mattaponi River from the Route 33 Bridge at West Point upstream to the Route 360 bridge at Aylett.
4. Rappahannock River from the Route 360 Bridge at Tappahannock upstream to the Route 1 Falmouth Bridge.

"Snout" means the most forward projection from a fish's head that includes the upper and lower jaw.

“Spear” or “spearing” means to fish while the person is fully submerged under the water’s surface with a mechanically aided device designed to accelerate a barbed spear.

"Striped bass" means any fish or any hybrid of the species *Morone saxatilis*.

“Total length” means the length of a fish measured from the most forward projection of the snout, with the mouth closed, to the tip of the longer lobe of the tail (caudal) fin, measured with the tail compressed along the midline, using a straight-line measure, not measured over the curve of the body.

4 VAC 20-252-30. General prohibitions and requirements.

A. It shall be unlawful for any person while aboard any boat or vessel or while fishing from shore or pier to alter any striped bass or to possess any altered striped bass such that its total length cannot be determined.

B. It shall be unlawful for any person to gaff or attempt to gaff any striped bass at any time.

C. It shall be unlawful to place, set, or fish any gill net within 300 feet of any bridge, bridge-tunnel, jetty, or pier during any open recreational striped bass season in the Chesapeake Bay and its tributaries, except during the period midnight Sunday through midnight Wednesday.

D. During the period April 1 through May 31, inclusive, it shall be unlawful for any person to set or fish any anchored gill net or staked gill net, for any purpose, within the spawning reaches of the James, Pamunkey, Mattaponi, and Rappahannock Rivers. Drift or float gill nets may be set and fished within the spawning reaches of these rivers during this period, provided that the person setting and fishing the net remains with the net during the time it is fishing and all striped bass that are caught shall be returned to the water immediately.

E. Any license or permit issued by the commission to fish for striped bass, recreationally or commercially, shall authorize any commission personnel or their designees to inspect, measure, weigh, or take biological samples from any striped bass in possession of the licensee or permittee.

F. Nothing in this chapter shall preclude any person, who is legally eligible to fish, from possessing any striped bass tagged with a Virginia Institute of Marine Science (VIMS) tag. Possession of VIMS-tagged striped bass shall not count towards the personal recreational possession limit. Permitted commercial striped bass individual transferable quota (ITQ) holders shall not be required to apply a tamper evident, numbered tag provided by the commission, in order to possess any striped bass tagged with a VIMS-inscribed tag. It shall be unlawful for any person to retain any VIMS-tagged striped bass except to provide the VIMS-tagged striped bass to a VIMS representative. Under no circumstance shall any VIMS-tagged striped bass be stored for future use or sale or delivered to any person who is not a VIMS representative.

4 VAC 20-252-40. Severability.

Any provision of this chapter that is held invalid by a court of competent jurisdiction shall not affect the validity of other provisions of this chapter which can be given effect without the invalid provision.

4 VAC 20-252-50. Concerning recreational fishing: general.

A. It shall be unlawful for any person fishing recreationally to take, catch, or attempt to take or catch any striped bass by any gear or method other than hook-and-line, rod and reel, hand line, or spearing.

B. Any person fishing recreationally shall use non-offset, corrodible, non-stainless steel circle hooks when fishing with bait, live or chunk.

C. When fishing from a boat or vessel where the entire catch is held in a common hold or container, the possession limit shall be for the boat or vessel and shall be equal to the number of persons on board legally eligible to fish multiplied by the applicable personal possession limit. The captain or operator of the boat or vessel shall be responsible for any boat or vessel possession limit.

D. When fishing from a boat or vessel where the entire catch is held in a common hold or container, the captain or operator of the boat or vessel shall be responsible for any minimum or maximum size limits.

E. It shall be unlawful to combine possession limits when there is more than one area or season open at the same time.

F. It shall be unlawful for any person while actively fishing pursuant to a recreational fishery to possess any striped bass that are smaller than the minimum size limit or larger than the maximum size limit for the area and season then open and being fished.

G. It shall be unlawful for any person fishing recreationally to transfer any striped bass to another person, while on the water or while fishing from a pier or shore.

4 VAC 20-252-55. (Repealed.)

4 VAC 20-252-60. (Repealed.)

4 VAC 20-252-70. (Repealed.)

4 VAC 20-252-80. Chesapeake Bay and its tributaries spring/summer striped bass recreational fishery.

A. The open season for the Chesapeake Bay and its tributaries spring/summer striped bass recreational fishery shall be May 16 through June 15 inclusive.

B. The minimum size limit shall be 20 inches total length.

C. The maximum size limit shall be 28 inches total length.

D. The daily possession limit shall be one fish per person.

4 VAC 20-252-85. [Repealed]

4 VAC 20-252-90. Chesapeake Bay and its tributaries fall striped bass recreational fishery.

A. The open season for the Chesapeake Bay and its tributaries fall striped bass recreational fishery shall be October 4 through December 31, inclusive.

B. The minimum size limit shall be 20 inches total length.

C. The maximum size limit shall be 36 inches total length.

D. The daily possession limit shall be one fish per person.

4 VAC 20-252-100. Potomac River tributaries summer/fall striped bass recreational fishery.

A. The open season for the Potomac River tributaries summer/fall striped bass recreational fishery shall correspond to the open summer/fall season as established by the Potomac River Fisheries Commission for the mainstem Potomac River.

B. The minimum size limit shall be 20 inches total length.

C. From May 16 through June 15 the maximum size limit shall be 28 inches total length.

D. From June 16 through December 31 the maximum size limit shall be 36 inches total length.

E. The daily possession limit shall be one fish per person.

4 VAC 20-252-110. Coastal area striped bass recreational fishery.

A. The open seasons for the coastal area striped bass recreational fishery shall be January 1 through March 31 and May 16 through December 31, inclusive.

B. The minimum size limit shall be 28 inches total length.

C. The maximum size limit shall be 36 inches total length.

D. The daily possession limit shall be one fish per person.

4 VAC 20-252-115. (Repealed.)

4 VAC 20-252-120. Concerning commercial fishing: general.

A. It shall be unlawful for any person to engage in the commercial fishery for striped bass without first having the necessary commercial fisherman's registration license and appropriate gear license as required by Title 28.2 of the Code of Virginia, and the special permit to fish for striped bass established in 4 VAC 20-252-130, except as provided in subsection G of 4 VAC 20-252-160.

B. It shall be unlawful for any person fishing commercially to possess any striped bass taken outside any open commercial season or area, or with gear inapplicable to the season and area, as specified in 4 VAC 20-252-140. Any striped bass caught contrary to this provision shall be returned to the water immediately.

C. It shall be unlawful for any person while actively fishing pursuant to a commercial fishery to possess any striped bass that is less than the minimum size limit applicable for the area and season then open and being fished. Any striped bass caught that does not meet the applicable minimum size limit shall be returned to the water immediately.

D. All striped bass in the possession of any person for the purpose of sale must be identified with a tamper-evident sealed tag that has been approved and issued by the appropriate authority in the jurisdiction of capture. Whole striped bass shall have tags attached directly to the fish. Processed or filleted striped bass must be accompanied by the tags removed from the fish when processed. Any person who possesses any amount of striped bass in excess of the maximum number allowed for a licensed recreational fisherman as described in 4 VAC 20-252-60 through 4 VAC 20-252-110, inclusive, shall be considered as possessing all striped bass for the purpose of sale. When any person possesses striped bass in excess of the maximum number allowed a licensed recreational fisherman, all striped bass of said person shall be tagged, and the possession of any untagged striped bass shall be prima facie evidence of a violation of this chapter and subject to the provisions of 4 VAC 20-252-160 H and I and 4 VAC 20-252-230.

E. When the striped bass are in the possession of any person, other than the original harvester, for the purpose of resale, the striped bass shall be accompanied by a bill of sale which shall include the name of the seller, the permit or license number of the seller if such permit or license is required in the jurisdiction of harvest, the date of sale, the pounds of striped bass in possession, the location of catch and the gear type used to harvest the striped bass. If the striped bass product for sale is fillets, the bill of sale shall also specify the number of fillets.

F. It shall be unlawful for any person fishing commercially to harvest striped bass by any method other than gill net, pound net, haul seine, fyke net, or commercial hook-and-line.

4 VAC 20-252-130. Entry limits, permits, and reports.

A. There is established a special permit for engaging in either the Chesapeake Bay area commercial fishery for striped bass or the coastal area commercial fishery for striped bass. It shall

be unlawful for any person to engage in either commercial fishery for striped bass without first having obtained the permit from the commission and meeting the following conditions:

1. The person shall be a licensed registered commercial fisherman.
2. The person shall have reported all prior fishing activity in accordance with 4VAC20-610 and shall not be under any sanction by the Marine Resources Commission for noncompliance with the regulation.

B. Permits for the commercial harvest of striped bass in the Chesapeake Bay area or coastal area shall be issued to any registered commercial fishermen holding striped bass quota shares issued under the provisions of 4VAC20-252-150 and 4VAC20-252-160.

C. Permits shall be in the possession of the permittee while catching, harvesting, selling or possessing striped bass. Failure to have the appropriate permit in possession shall be a violation of this chapter.

D. It shall be unlawful for any person, business, or corporation, except for licensed restaurants, to purchase from the harvester any quantity of striped bass greater than 10 pounds in total weight taken from Virginia's tidal waters for the purpose of resale without first obtaining a striped bass buyer's permit from the commission, except as described in subsection E of this section. Such permit shall be completed in full by the permittee and kept in possession of the permittee while selling or possessing striped bass. Failure to have the appropriate permit in possession shall be a violation of this chapter.

E. Restaurants shall not be required to obtain a striped bass buyer's permit from the commission but shall be required to certify and maintain a record of any striped bass purchased from any harvester for a period of not less than one year.

F. All permitted commercial harvesters of striped bass shall report to the commission in accordance with 4VAC20-610. In addition to the reporting requirements of 4VAC20-610, all permitted commercial harvesters of striped bass shall record and report daily striped bass harvest by specifying the number of tags used on striped bass harvested for each day in either the Chesapeake Bay area or coastal area and reporting the daily total whole weight of striped bass harvested in either the Chesapeake Bay area or coastal area. Daily striped bass tag use on harvested striped bass and daily total whole weight of harvested striped bass from either the Chesapeake Bay area or coastal area, within any month, shall be recorded on forms provided by the commission and shall accompany the monthly catch report submitted no later than the fifth day of the following month.

G. Any permitted commercial harvester of striped bass who self markets his striped bass to a restaurant, person, or out-of-state market shall be required to prepare a receipt describing each sale greater than 10 pounds in total weight. Each receipt shall be a record and report of the date of transaction, name and signature of buyer, address and phone number of buyer, number and total weight of striped bass sold, and name and signature of harvester. Copies of each receipt shall be forwarded to the commission in accordance with 4VAC20-610.

H. Any buyer permitted to purchase striped bass harvested from Virginia tidal waters shall provide written reports to the commission of daily purchases and harvest information on forms provided by the Marine Resources Commission. Such information shall include the date of the purchase, buyer's name, and harvester's Commercial Fisherman Registration License number. In addition, for each different purchase of striped bass harvested from Virginia waters, the buyer shall record the weight of whole fish and number and type of tags (Chesapeake Bay area or coastal area) that applies to that harvest. These reports shall be completed in full and submitted monthly to the Marine Resources Commission no later than the fifth day of the following month.

I. Failure of any person permitted to harvest, buy, or sell striped bass, to submit the required written report for any fishing day shall constitute a violation of this chapter.

4 VAC 20-252-135. Gill net mesh size and tending restrictions: exemptions.

A. Any registered commercial fisherman who is permitted to harvest striped bass from the coastal area in accordance with 4 VAC 20-252-130 A and C and sets or fishes any gill net in the coastal area shall be prohibited from using a gill net mesh size greater than nine inches in stretched mesh.

B. Any registered commercial fisherman who is permitted to harvest striped bass from the coastal area in accordance with 4 VAC 20-252-130 A and C and sets or fishes any gill net in the coastal area shall be exempt from the maximum gill net mesh size requirements during November and December as described in 4VAC20-430-65 A and B.

C. Any registered commercial fisherman who is permitted to harvest striped bass from the coastal area in accordance with 4VAC20-252-130 A and C and sets or fishes any gill net seven inches or greater in stretched mesh in the Coastal area shall be exempt from the tending requirements described in 4 VAC 20-430-65 E and F during the months of November and December.

D. Any registered commercial fisherman who is permitted to harvest striped bass from the coastal area in accordance with 4VAC20-252-130 A and C shall display an optic yellow flag issued by the commission while fishing for striped bass in the coastal area and while transiting the coastal area before and after a striped bass fishing trip. This flag shall be prominently displayed on the starboard side of the vessel.

E. Any registered commercial fisherman who is permitted to harvest striped bass from the Chesapeake Bay area in accordance with 4VAC20-252-130 A and C and sets or fishes any gill net in the Chesapeake Bay area shall be prohibited from using a gill net greater than seven inches in stretched mesh with the exception of restricted areas as defined in 4VAC20-751-20.

4 VAC 20-252-140. Commercial seasons, areas, and size limits.

Except as may be adjusted pursuant to 4VAC20-252-150, the open commercial striped bass fishing seasons, areas, and applicable size limits shall be as follows:

1. In the Chesapeake Bay area, the open commercial season shall be from January 16 through December 31, inclusive. The minimum size limit shall be 18 inches total length during the periods of January 16 through December 31. The maximum size limit shall be 28 inches from March 15 through June 15.

2. In the coastal area, the open commercial season shall be January 16 through December 31, inclusive. The minimum size limit shall be 28 inches total length.

4 VAC 20-252-150. Individual commercial harvest quota.

A. The commercial harvest quota for the Chesapeake Bay area shall be determined annually by the Marine Resources Commission. The total allowable level of all commercial harvest of striped bass from the Chesapeake Bay and its tributaries and the Potomac River tributaries of Virginia for all open seasons and for all legal gear shall be 983,393 pounds of whole fish. At such time as the total commercial harvest of striped bass from the Chesapeake Bay area is projected to reach 983,393 pounds, and announced as such, it shall be unlawful for any person to land or possess striped bass caught for commercial purposes from the Chesapeake Bay area.

B. The commercial harvest quota for the coastal area of Virginia shall be determined annually by the Marine Resources Commission. The total allowable level of all commercial harvest of striped bass from the coastal area for all open seasons and for all legal gear shall be 125,034 pounds of whole fish. At such time as the total commercial harvest of striped bass from the coastal area is projected to reach 125,034 pounds, and announced as such, it shall be unlawful for any person to land or possess striped bass caught for commercial purposes from the coastal area.

C. For the purposes of assigning tags to a person for commercial harvests in the Chesapeake Bay area as described in 4VAC20-252-160, the individual commercial harvest quota of striped bass in pounds shall be converted to an estimate in numbers of fish per individual harvest quota based on the average weight of striped bass harvested by the permitted person during the previous fishing year. The number of striped bass tags issued to each person will equal the estimated number of fish to be landed by that individual harvest quota, plus a number of striped bass tags equal to 10% of the total allotment determined for each person.

D. For the purposes of assigning tags to a person for commercial harvests in the coastal area of Virginia as described in 4VAC20-252-160, the individual commercial harvest quota of striped bass in pounds shall be converted to a quota in numbers of fish per individual commercial harvest quota, based on the reported average coastal area harvest weight of striped bass harvested by the permitted person during the previous fishing year, except as described in subsection E of this section. The number of striped bass tags issued to each person will equal the estimated number of fish to be landed by that individual harvest quota, plus a number of striped bass tags equal to 10% of the total allotment determined for each person.

E. For any person whose reported average coastal area harvest weight of striped bass in the previous fishing year was less than 12 pounds, a 12-pound minimum weight shall be used to

convert that person's harvest quota of striped bass, in pounds of fish, to harvest quota in number of fish.

4 VAC 20-252-155. Individual transferable shares monitoring and penalties.

A. Any initial overage by any person of an individual commercial harvest quota during any calendar year shall be considered a first offense, with penalties prescribed according to the severity of the overage as described in subdivisions 1 through 5 of this subsection.

1. Any overages that are less than 76 pounds shall result in a warning being issued.
2. Any overages that range from 76 to 250 pounds shall result in a one-year deduction of that overage from that individual commercial harvest quota during the following calendar year.
3. Any overages that range from 251 to 475 pounds shall result in a one-year deduction of two times that overage from that individual commercial harvest quota during the following calendar year.
4. Any overages that range from 476 to 725 pounds shall result in that overage being permanently deducted from that individual commercial harvest quota and a one-year suspension of that person from the commercial fishery for striped bass.
5. Any overages that are greater than 725 pounds shall result in the revocation of that individual striped bass permit, and that person shall not be eligible to apply for a like permit for a period of two years from the date of revocation.

B. Any second overage by any person of an individual commercial harvest quota within five years of a previous offense shall result in penalties prescribed according to the severity of the overage as described in subdivisions 1 through 4 of this subsection.

1. Any overages that are less than 76 pounds shall result in a one-year deduction of the overage from that individual commercial harvest quota during the following calendar year.
2. Any overages that range from 76 to 250 pounds shall result in a one-year deduction of two times the overage from that individual commercial harvest quota during the following calendar year.
3. Any overages that range from 251 to 475 pounds shall result in the overage being permanently deducted from the individual commercial harvest quota and a one-year suspension of that person from the commercial fishery for striped bass.
4. Any overages that are greater than 475 pounds shall result in the revocation of that individual striped bass permit, and that person shall not be eligible to apply for a like permit for a period of two years from the date of revocation.

C. Any third overage by any person of an individual commercial harvest quota within five years of two previous offenses shall result in penalties prescribed according to the severity of the overage as described in subdivisions 1 through 3 of this subsection.

1. Any overages that are less than 76 pounds shall result in a one-year deduction of two times the overage from that individual commercial harvest quota during the following calendar year.

2. Any overages that range from 76 to 250 pounds shall result in the overage being permanently deducted from that individual commercial harvest quota and a one-year suspension of the person from the commercial fishery for striped bass.

3. Any overages that are greater than 250 pounds shall result in the revocation of that individual striped bass permit, and that person shall not be eligible to apply for a like permit for a period of two years from the date of revocation.

D. Any fourth overage by any person of an individual commercial harvest quota within five years of three previous offenses shall result in penalties prescribed according to the severity of the overage as described in subdivisions 1 and 2 of this subsection.

1. Any overages that are less than 76 pounds shall result in the overage being permanently deducted from that individual commercial harvest quota and a one-year suspension of the person from the commercial fishery for striped bass.

2. Any overages that are greater than 75 pounds shall result in the revocation of that individual striped bass permit, and that person shall not be eligible to apply for a like permit for a period of two years from the date of revocation.

4 VAC 20-252-160. Individual transferable shares; tagging.

A. For each person permitted under the provisions of 4VAC20-252-130 to harvest striped bass commercially, a weight quota shall be issued to permitted fishermen in amounts equal to the percentage share of the Chesapeake Bay area and coastal area striped bass harvest quota they hold. Tags issued for Chesapeake Bay area harvest quota shall only be used for striped bass harvests in the Chesapeake Bay area, and tags issued for the coastal area harvest quota shall only be used for striped bass harvests in the coastal area.

B. It shall be unlawful for any person, onboard any vessel, to possess any striped bass tags, in Virginia waters, according to the following provisions:

1. It shall be unlawful for any person, onboard any vessel, to set, place or fish any gear that can harvest striped bass, in the Chesapeake Bay area, when in possession of coastal area striped bass tags issued by the Marine Resources Commission or striped bass tagged with coastal area tags.

2. It shall be unlawful for any person to possess Virginia coastal area striped bass tags in the Chesapeake Bay area, or striped bass tagged with coastal area tags, except when transiting the Chesapeake Bay area.

3. It shall be unlawful for any person to possess striped bass tags issued for previous years for the Chesapeake Bay area, coastal area, or any other jurisdiction.

4. It shall be unlawful for any person to possess Potomac River Fisheries Commission striped bass tags in Virginia waters, except when transiting the Virginia tributaries of the Potomac River to land in Virginia and as provided by 4VAC20-252-160C.

5. It shall be unlawful for any person to possess any non-Virginia jurisdictional striped bass tags, in Virginia waters, or striped bass tagged with any non-Virginia jurisdictional striped bass tags, except as provided by 4VAC20-252-160B.4 and 4VAC20-252-160C.

6. Any violation of this subsection shall result in the confiscation and impoundment of all striped bass tags or striped bass on the vessel.

C. It shall be unlawful for any person, onboard any vessel, to possess any striped bass tags in the Great Wicomico-Tangier Striped Bass Management Area, except current year striped bass tags issued by the jurisdictions of the Virginia Marine Resources Commission, State of Maryland or the Potomac River Fisheries Commission and according to the following provisions:

1. It shall be unlawful for any person, onboard any vessel, to possess more than one jurisdiction's tags, or more than one jurisdiction's tagged striped bass, in the Great Wicomico-Tangier Striped Bass Management Area.

2. It shall be unlawful for any person, onboard any vessel, to place, set or fish any gear that can harvest striped bass, in the Great Wicomico-Tangier Striped Bass Management Area, when in possession of any striped bass tags not issued by the Virginia Marine Resources Commission.

3. Any violation of this subsection shall result in the confiscation and impoundment of all striped bass tags or striped bass on the vessel.

D. Shares of the commercial striped bass quota held by any permitted fisherman may be transferred to any other person who is a licensed registered commercial fisherman; such transfer shall allow the transferee to harvest striped bass in a quantity equal to the share transferred. Any transfer of striped bass commercial shares shall be limited by the following conditions:

1. Shares of commercial striped bass quota shall not be permanently transferred in any quantity less than 500 pounds, or 100% of unused permanent shares, in any year, from February 1 through October 31. Permanent transfers of shares of commercial striped bass quota shall be prohibited during the period of November 1 through January 31.

2. Shares of commercial striped bass quota shall not be temporarily transferred in any quantity less than 500 pounds, from February 1 through October 31, or less than 200 pounds, from November 1 through December 15. Temporary transfers of shares of commercial striped bass quota shall be prohibited from December 16 through January 31.

3. No licensed registered commercial fisherman shall hold more than 2.0% of the total annual Chesapeake Bay area commercial striped bass harvest quota or more than 11% of the total annual coastal area commercial striped bass harvest quota.

4. No transfer of striped bass commercial harvest quota shall be authorized by the commission unless transferor and transferee provide up-to-date records of all commercial landings of striped bass and striped bass tag use to the commission prior to such transfer.

5. No transfer of striped bass commercial harvest quota shall be authorized unless such transfer is documented on a form provided by the Virginia Marine Resources Commission, notarized by a lawful Notary Public, and approved by the commissioner.

E. Transfers of Chesapeake Bay area or coastal area striped bass commercial quota from one person to another may be permanent or temporary. Transferred quota from the Chesapeake Bay area striped bass commercial quota shall only be used by the transferee for striped bass harvested from the Chesapeake Bay area, and transferred quota from the coastal area striped bass commercial quota shall only be used by the transferee for striped bass harvested from the coastal area. Permanent transfers of commercial quota shall grant to the transferee that transferred percentage of the quota for future years, and the transferor loses that same transferred percentage of the quota in future years. Temporary transfers of individual striped bass commercial harvest quota shall allow the transferee to harvest only that transferred percentage of the quota during the year in which the transfer is approved. Transferors are solely responsible for any overage of the transferred percentage of the quota by the transferee. Thereafter, any percentage of the transferred striped bass commercial quota, less any overage incurred by the transferee, reverts back to the transferor.

F. The commission will issue striped bass tags to permitted striped bass commercial fishermen as follows: those fishermen permitted only for Chesapeake Bay area or coastal area harvests of striped bass will receive their allotment of tags prior to the start of the fishing season. Any permitted fisherman eligible for both Chesapeake Bay area and coastal area tags shall receive only one type of area-specific tag allotment, of his choosing, prior to the start of the fishing season, and his other type of area-specific tags will be distributed when it has been determined from the commission's mandatory harvest reporting program that the fisherman has used all of his first allotment of tags and has not exceeded his individual harvest quota. The commissioner may authorize the distribution of the second allotment of area-specific tags to a fisherman eligible for both Chesapeake Bay area and coastal area tags prior to that fisherman's complete use of his first allotment of tags, provided that fisherman surrenders any remaining tags of his first allotment of tags.

G. Striped bass tags are valid only for use by the permittee to whom the tags were allotted. The permittee shall be on board the boat or vessel when striped bass are harvested and tags are applied. Nothing in this subsection shall prevent a permitted commercial hook-and-line fisherman from

using three crew members who are not registered commercial fishermen to assist in the harvest of his allotment of striped bass.

H. At the place of capture, and before leaving that place of capture, tags shall be passed through the mouth of the fish and one gill opening, and interlocking ends of the tag shall then be connected such that the tag may only be removed by breaking. Failure to comply with these provisions shall be a violation of this chapter.

I. It shall be unlawful to bring to shore any commercially caught striped bass that has not been tagged at the place of capture by the fisherman with a tamper evident, numbered tag provided by the commission. It shall be unlawful to possess striped bass in a quantity greater than the number of tags in possession. If a permittee violates this section, the entire amount of untagged striped bass, as well as the number of tags equal to the amount of striped bass in his possession, shall be confiscated. Any confiscated striped bass shall be considered as a removal from that permittee's harvest quota. Any confiscated striped bass tags shall be impounded by the commission. Upon confiscation, the marine police officer shall inventory the confiscated striped bass and may redistribute the catch by one or a combination of the following methods:

1. The marine police officer shall secure a minimum of two bids for purchase of the confiscated striped bass from approved and licensed seafood buyers. The confiscated fish will be sold to the highest bidder, and all funds derived from such sale shall be deposited to the Commonwealth pending court resolution of the charge of violating the possession limits established in this chapter. All of the collected funds and confiscated tags will be returned to the accused upon a finding of innocence or forfeited to the Commonwealth upon a finding of guilt.

2. The marine police officer shall provide the confiscated striped bass to commission staff for biological sampling of the catch. Upon receipt of confiscated striped bass, commission staff will secure a minimum of two estimates of value per pound for striped bass from approved and licensed seafood buyers. The confiscated tags and the estimated value of confiscated striped bass provided for biological sampling will be reimbursed to the accused upon a finding of innocence or retained by the commission upon a finding of guilt.

J. Altering or attempting to alter any tag for the purpose of reuse shall constitute a violation of this chapter.

K. Prior to receiving any commercial season's allotment of striped bass tags, a permitted commercial harvester shall be required to have returned all unused tags from the previous commercial season to the commission within 30 days of harvesting their individual harvest quota, or by the second Thursday in January, whichever comes first. Any unused tags that cannot be turned in to the commission shall be accounted for by the harvester submitting an affidavit to the commission that explains the disposition of the unused tags that are not able to be turned into the commission. Each person shall be required to pay a processing fee of \$25, plus \$0.13 per tag, for any unused tags that are not turned in to the commission.

L. Any person with remaining unused striped bass commercial quota in the current year requesting additional commercial season striped bass tags shall provide up-to-date records of landings and account for all previously issued tags prior to receiving an additional allotment of tags. The harvester shall submit an affidavit to the commission that explains the disposition of the tags that are not accounted for and shall be required to pay a processing fee of \$25, plus \$0.13 per tag, for such tags to the commission.

M. For the commercial fishing season, one type of tag shall be distributed to Chesapeake Bay area permittees and one type of tag shall be distributed to coastal area permittees. For the Chesapeake Bay area, the tag shall only be used on striped bass 18 inches or greater in total length. For the coastal area, the tag shall only be used on striped bass 28 inches or greater in total length. The possession of any improperly tagged striped bass by any permitted striped bass fisherman shall be a violation of this chapter.

4 VAC 20-252-170. Aquaculture of striped bass; permit required.

A. It shall be unlawful for any person to operate a striped bass aquaculture facility without first obtaining a permit from the commission. Such permit shall authorize and define the limits of activities concerning the purchase, possession, sale, giving, receiving, and transportation of striped bass or hybrid striped bass in accordance with the other rules contained in this chapter.

B. The application for a striped bass aquaculture facility shall state the name and address of the applicant, the type and location of the facility, type of water supply, location of nearest tidal waters or tributaries to tidal water, and an estimate of production capacity. All aquaculture permits shall expire on December 31 of the year of issue and are not transferable. Permits shall be automatically renewed by the commission provided no structural changes in the facility have been made, the facility has been adequately maintained, and the permittee has complied with all of the provisions of this chapter.

C. The original of each permit shall be maintained and prominently displayed at the aquaculture facility described therein. A copy of such permit may be used as evidence of authorization to transport striped bass or hybrid striped bass or to sell the fish away from the permitted facility under the conditions imposed in 4VAC20-252-210.

4 VAC 20-252-180. Water supply; outfall; prevention of entry and escapement.

A. A striped bass or hybrid striped bass aquaculture facility may consist of one or more ponds, artificial impoundments, closed recirculating systems or a combination of the above.

B. No pond or impoundment used for striped bass or hybrid striped bass aquaculture may be constructed or situated on a natural water course that originates beyond the boundaries of private land upon which the pond or impoundment is located.

C. There shall be no direct and unscreened discharge from any facility to any natural watercourse. Except as provided in subsection D of this section, outfall from any pond or impoundment shall be processed according to one of the following systems:

1. The outfall shall pass over a dry ground percolation system in which ground absorption of the water is sufficient to prevent the formation of a watercourse which is capable of reaching any natural watercourse. The outfall shall pass through a screened filter box prior to entering the percolation area.

2. The outfall shall pass through a chlorination process and retention pond for dechlorination. The outfall shall pass through a filter box prior to entering the chlorination system.

3. Such facilities must also comply with regulations of the State Water Control Board.

D. If the outfall from an aquaculture facility does not conform to the systems described in subdivision C 1 or C 2 of this section, then all of the following conditions shall be required:

1. The aquaculture of striped bass or hybrid striped bass shall be restricted to the use of cage culture. Such cages shall be constructed of a vinyl coated wire or high density polyethylene mesh material sufficient in size to retain the fish, and all cages must be securely anchored to prevent capsizing. Covers shall be required on all cages.

2. The outfall from the pond or impoundment shall pass through a screened filter box. Such filter box shall be constructed of a mesh material sufficient in size to retain the fish and shall be maintained free of debris and in workable condition at all times.

3. The outfall from the screened filter box shall pass into a containment basin lined and filled with quarry rock or other suitable material to prevent the escapement of the fish from the basin.

E. Those facilities utilizing embankment ponds shall maintain sufficient freeboard above the spillway to prevent overflow.

4 VAC 20-252-190. Acquisition of fish, fingerlings, fry, and eggs.

Striped bass or hybrid striped bass fingerlings, fry, or eggs, may be obtained only from state permitted fish dealers and must be certified by the seller as having a disease free status. Each purchase or acquisition of striped bass or hybrid striped bass must be accompanied by a receipt or other written evidence showing the date, source, species, quantity of the acquisition and its destination. Such receipt must be in the possession of the permittee prior to transportation of such fish, fingerlings, fry, or eggs to the permitted facility. All such receipts shall be retained as part of the permittee's records. The harvesting of striped bass from the tidal waters of Virginia for the purpose of artificially spawning in a permitted aquaculture facility shall comply with all of the provisions of this chapter and state law including minimum size limits, maximum size limits, and closed harvesting seasons and areas.

4 VAC 20-252-200. Inspection of facilities; diseased fish.

A. Inspections. Agents of the commission and the Department of Wildlife Resources are authorized to make periodic inspection of the facilities and the stock of each operation permitted under this section. Every person engaged in the business of striped bass aquaculture shall allow such inspection at any reasonable time.

B. Diseased fish. No person permitted under this chapter shall maintain in the permitted facility any fish which shows evidence of any contagious disease listed in the most current list by the United States Fish and Wildlife Service as "certifiable diseases," except for the period required for application of standard treatment procedures or for approved disposition.

C. Disposition. No person permitted under this chapter shall sell or otherwise transfer possession of any striped bass or hybrid striped bass which shows evidence of a "certifiable disease" to any person, except that such transfer may be made to a fish pathologist for examination and diagnosis.

4 VAC 20-252-210. Sale, records, importation, release.

A. All striped bass or hybrid striped bass except fingerlings, fry, and eggs, which are the product of an aquaculture facility permitted under this section shall be packaged with a printed label bearing the name, address, and permit number of the aquaculture facility. When so packaged and labeled such fish may be transported and sold at retail or at wholesale for commercial distribution through normal channels of trade until reaching the ultimate consumer. Every such sale must be accompanied by a receipt showing the date of sale, the name, address and permit number of the aquaculture facility, the numbers and species of fish sold, and the name of the purchaser. Each subsequent resale must be accompanied by a receipt clearly identifying the seller by name and address, showing the number and species of the fish sold, the date sold, the permit number of the aquaculture facility and, if the sale is to other than the ultimate consumer, the name and address of the purchaser. The purchaser in possession of such fish must exhibit the receipt on demand of any law enforcement officer. A duplicate copy of each such receipt must be retained for one year by the seller as part of the records of each transaction.

B. Each permitted aquaculture facility operator shall maintain a chronological file of the receipts or copies thereof showing the dates and sources of acquisitions of striped bass or hybrid striped bass and quantities thereof, and a chronological file of copies of receipts of his sales required under subsection A of this section. Such records shall be segregated as to each permit year, shall be made available for inspection by any authorized agent of the commission or Department of Wildlife Resources, and shall be retained for at least one year following the close of the permit year to which they pertain.

C. Striped bass or hybrid striped bass which are the product of an approved and state permitted aquaculture facility in another state may be imported into Virginia for the consumer market. Such fish shall be packaged and labeled in accordance with the provisions contained in subsection A of this section. Any sale of such fish also shall be accompanied by receipts as described in subsection A of this section.

D. Release of live fish. Under no circumstance shall striped bass which are the product of an aquaculture facility located within or outside the Commonwealth of Virginia be placed into the waters of the Commonwealth without first having notified the commission and having received written permission from the Commissioner of Marine Resources.

4 VAC 20-252-220. Penalty.

As set forth in § 28.2-903 of the Code of Virginia, any person violating any provision of this chapter shall be guilty of a Class 3 misdemeanor, and a second or subsequent violation of any provision of this chapter committed by the same person within 12 months of a prior violation is a Class 1 misdemeanor.

4 VAC 20-252-230. Sanctions.

A. Any person failing to submit any report required by this chapter shall be denied any striped bass permit for the following year.

B. It shall be unlawful for any person with a pending violation of this chapter or found guilty of violating any provision of this chapter to receive or transfer striped bass commercial harvest quota as described in 4VAC20-252-160.

C. It shall be unlawful for any person with a pending violation of this chapter or found guilty of violating any provision of this chapter to receive additional tag distributions as described in 4VAC20-252-160.

D. Any person found guilty of violating any provision of this chapter may have his permit or license revoked at any time upon review by the commission as provided for in § 28.2-232 of the Code of Virginia. If the commission revokes any person's permit for an aquaculture facility, then that person shall not be eligible to apply for a like permit for a period of two years from the date of revocation.

This is to certify that the foregoing is a true and accurate copy of the chapter passed by the Marine Resources Commission, pursuant to authority vested in the Commission by § 28.2-201 of the Code of Virginia, duly advertised according to statute, and recorded in the Commission's minute book, at meeting held in Hampton, Virginia, on July 28, 2020.

**COMMONWEALTH OF VIRGINIA
MARINE RESOURCES COMMISSION**

BY: _____

**Steven G. Bowman
Commissioner**

Subscribed and sworn to before me this _____ day of July 2020.

Notary Public

**ATLANTIC STATES MARINE FISHERIES COMMISSION
IMPLEMENTATION PLAN TEMPLATE FOR ADDENDUM VI CIRCLE HOOK REQUIREMENTS**

**North Carolina's Atlantic Striped Bass Addendum VI Circle Hook Requirements
Implementation Plan**

Addendum VI to Amendment 6 of the Atlantic Striped Bass Interstate Fishery Management Plan requires the mandatory use of circle hooks when fishing with bait to reduce release mortality in recreational striped bass fisheries. States must implement mandatory circle hook requirements by January 1, 2021.

Per Addendum VI, a 'circle hook' is defined as a non-offset hook where the point is pointed perpendicularly back towards the shank. The term 'non-offset' means the point and barb are in the same plane as the shank (e.g. when the hook is laying on a flat surface, the entire hook and barb also lay flat).

Please include the following elements, at a minimum, in state implementation plans for review by the Striped Bass Plan Review Team (PRT). The PRT will review all state implementation plans and recommend appropriate action to the Striped Bass Management Board:

- A copy of final regulations, or proposed regulatory language. Regulations should:
 - a. Demonstrate intent to reduce recreational release mortality in striped bass fisheries;

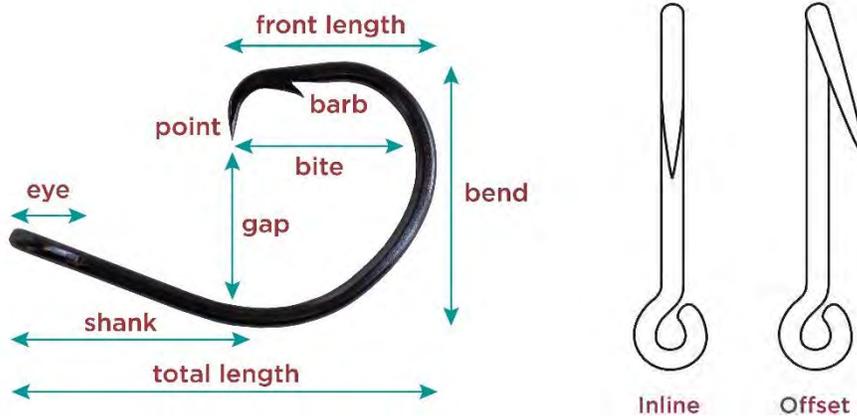
Proposed Intent Language in a news release:

The circle hook requirement complies with the Atlantic States Marine Fisheries Commission's Striped Bass Fishery Management Plan and is designed to minimize harm to striped bass that are released after being caught.

- b. Include a definition of 'circle hook' comparable to that cited above;

Proposed Regulatory Language:

It is unlawful to fish for or possess striped bass from the Atlantic Ocean for recreational purposes using hook and line gear with natural bait unless using a non-stainless steel, non-offset (inline) circle hook, regardless of tackle or lure configuration. Natural bait is defined as any living or dead organism (animal or plant) or parts thereof. Non-offset circle hook is defined as a hook with the point pointed perpendicularly back towards the shank and the point and barb are in the same plane as the shank. (See Diagrams)



Diagrams also found at <http://portal.ncdenr.org/web/mf/circle-hook-diagrams>

c. Include an effective implementation date; and
Implementation Date:

No later than January 1, 2021

d. Specify any exemptions to mandatory circle hook requirements.

Note: circle hook requirements should apply to as many recreational trips as possible that could interact with striped bass. However, states have flexibility to exempt certain fishing methods or angler groups to address specific needs of the state's fisheries. If allowing for certain exemptions, please provide sufficient justification including quantitative analysis (e.g., an estimate of the proportion (%) of striped bass live releases (B2s) that would not be subject to mandatory circle hook requirements). Please use 2016/2017 catch data for reference, which is consistent with bag and size limit analyses used in Addendum VI.

No exemptions. The circle hook requirements will apply to all recreational anglers fishing for or harvesting striped bass using natural bait in the Atlantic Ocean

- Detailed description of public education materials and outreach campaigns that the state is developing to garner support and compliance with mandatory circle hook requirements. Please also highlight any outreach materials or programs that focus on safe practices when handling and releasing fish, or other fishing considerations that could benefit striped bass populations (e.g., using barbless hooks, or avoiding fishing in warm waters).

The NC Division of Marine Fisheries (NCDMF) will continue to distribute ethical angler **and circle hook** information to the public through its brochure on Best Practices for the Ethical Angler

(http://portal.ncdenr.org/c/document_library/get_file?p_l_id=1169848&folderId=4426632&na)

[me=DLFE-141479.pdf](#)) and its annual Coastal Recreational Fishing Digest (http://portal.ncdenr.org/c/document_library/get_file?p_l_id=1169848&folderId=20886841&name=DLFE-143012.pdf). NCDMF will also distribute circle hooks to anglers when available. These outreach efforts include information booths at boat and fishing shows, presentations to fishing clubs, and NC Marine Fisheries Commission meetings. NC Marine Patrol also routinely communicates regulation changes to the public. These efforts will be used to broadcast and explain the circle hook requirements for recreational striped bass fishing in ocean waters and to explain the benefits of circle hooks when striped bass fishing with natural bait.



Atlantic States Marine Fisheries Commission

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MEMORANDUM

October 2, 2020

To: Atlantic Striped Bass Management Board
From: Atlantic Striped Bass Technical Committee
RE: Factors Limiting Recreational Release Mortality Calculations for Stock Assessment

In August, the Atlantic Striped Bass Board (Board) initiated development of Draft Amendment 7 to the Atlantic Striped Bass Fishery Management Plan (FMP). During its deliberations, Board members discussed the importance of addressing release mortality in recreational striped bass fisheries, given it contributes significantly to total fishing mortality for the species. As a result, the Board tasked the Technical Committee (TC) to review factors limiting the accuracy of release mortality estimates for stock assessment purposes, and to identify potential actions that could improve understanding or help reduce release mortality in the fishery.

The TC met on September 17th to address the Board task. This memo summarizes the current methods used to estimate release mortality, reviews the current and historical levels of live releases across the coast, and identifies ways to improve the estimates of release mortality and reduce the mortality associated with fish that are released alive.

Estimates of Release Mortality in Striped Bass

The stock assessment currently uses an estimate of 9% for recreational hooking mortality; that is, 9% of striped bass that are caught recreationally and released alive die afterwards as a result of that fishing interaction. This estimate is from the work of Diodati and Richards (1996), which was based on a study conducted in a saltwater impoundment in Massachusetts. They found that depth and location of hooking, gear type, and angler experience were the most significant factors in determining the rate of hooking mortality. Their estimates ranged from 3% under the best conditions to 26% under the worst conditions. These estimates are consistent with other studies on striped bass hooking mortality. Caruso (2000) conducted a study in Massachusetts waters where estimates ranged from 3% to 15%. Millard et al. (2005) conducted a study in the Hudson River and estimated that 14% of striped bass released alive died. RMC (1990) and Lukacovic and Uphoff (2007) conducted studies in Chesapeake Bay under a range of salinity, temperature, and gear conditions. RMC (1990) estimates ranged from 1.87% under moderate salinity in the mid-Bay area to 70% mortality in the freshwater conditions in the Susquehanna Flats in the upper Bay. Lukacovic and Uphoff's (2007) estimates for the upper Bay ranged from 2.8% to 26.7%, with the highest mortality occurring during June and July. It's difficult to compare across studies because of differences in design. However, the range of estimates in

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brackish to saltwater are fairly consistent, from 2-3% at the lower limit to 26-27% at the higher limit; RMC's (1990) estimates from freshwater were extreme outliers. These studies identified a number of different factors that affected release mortality, including temperature, salinity, fish length, hook type, hooking location, and angler experience. The TC elected to use the Diodati and Richards (1996) overall estimate of 9% because it was conducted in saltwater, as opposed to estuarine conditions, and the majority of releases occur in saltwater. In addition, Diodati and Richards (1996) used anglers with a wide range of experience levels and was more representative of the general angling population, unlike some of other studies that used only experienced anglers. The use of the 9% rate does not mean that every time a fish is released it has a 9% chance of dying. Under some conditions, the fish has a higher or lower probability of dying, but overall, coastwide, it is assumed that 9% of all striped bass released alive die.

For the 2013 benchmark assessment, the TC explored using different mortality rates under different conditions. The main challenge with this approach is the mismatch of scale; these studies collect data on a finer scale than the Marine Recreational Information Program (MRIP) estimates for live releases. These studies record the temperature and salinity of the location where the study fish were caught, whereas MRIP estimates are aggregated into total numbers by state and two-month periods (waves). In addition, many of the factors that influence hooking mortality are not captured by MRIP at all, such as hook type, hooking location, and angler experience. The TC developed a regression tree from the studies described above to identify thresholds of temperature and salinity beyond which mortality would increase. The highest mortality condition occurred at low salinity (<7.9 ppt); above 7.9 ppt, water temperature under 25.65°C (78.2° F) was associated with the lowest mortality, while mortality was higher above that temperature threshold (Figure 1). Average water temperature by state and wave, and average salinity by wave for the middle of Chesapeake Bay, was calculated in order to apply the regression tree to the MRIP estimates. The average water temperature for all states was only greater than the temperature threshold in Chesapeake Bay and North Carolina during Wave 4, and the average salinity never declined below the 7.9 ppt (Figure 2). As a result, the coastwide estimate of release mortality calculated with this method was not significantly different from the 9% estimated by Diodati and Richards (1996).

Live Releases in the Striped Bass Fishery

Since the stock was rebuilt in 1995, approximately 90% of striped bass that are caught recreationally are released alive; although the MRIP calibration increased the magnitude of striped bass catch (due to changes in estimates of fishing effort), it did not affect the percent of striped bass that were released alive (Figure 3). The percentage declined from 2005 – 2010, to a low of about 77%, during a period of low recruitment when fewer small fish were available to the fishery. With the appearance of the strong 2011, 2014, and 2015 year classes, the percent of striped bass released alive coastwide increased again to 93% for 2017-2019.

There are some differences in the percent of fish released alive by region, although all regions release the majority of their catch (approximately 90% in recent years). The north Atlantic region (CT-ME) generally released a higher percent of striped bass in the fishery, while the mid-Atlantic region (NY-DE, ocean waters of MD, VA, and NC) and the Chesapeake Bay (MD and VA)

released a lower percentage of their total catch. Over the last five years, the **total number** of releases was highest in Massachusetts, Maryland, New York, and Connecticut, while New Jersey, New York, and Maryland released the lowest **percentage of their total catch** (Figure 5). Note, however, that the lowest release rate of any state in this time period was 81%.

Although there is some variability across regions, the majority of the striped bass catch in all states and for all years since 1995 has been released alive.

Next Steps to Improve Estimates of Release Mortality

The TC discussed several options to improve estimates of release mortality used in the stock assessment, including short- to long-term methods.

1. Short-term (next 1-2 Board meetings): the TC could conduct sensitivity runs of the current model using different estimates of release mortality based on incorporating seasonality, salinity, and regionally specific release mortality rates to examine changes in total removals and effects on model results. This would allow the Board and TC to examine the potential impacts of more refined release mortality estimates on the stock assessment with the current model.
2. Medium-term (next benchmark assessment): the TC will continue to refine the regression tree approach described above to produce estimates of release mortality rates at a finer scale for incorporating into the assessment.
3. Long-term (next benchmark or beyond): the TC discussed the benefit of a comprehensive and strategically designed striped bass release mortality study along the coast. Details of the design of such a study that could provide these release mortality estimates, whether it would be carried out by state/federal agencies coast wide or by universities and research institutions, and how the funding would be allocated and awarded were beyond the scope of this initial task. However, the TC agreed that one of the key design elements would be ensuring that the factors considered (e.g., temperature, salinity, angler experience, hook type) be linked to data collected through MRIP or ancillary surveys so that the estimated release mortality rates could be applied to the MRIP estimates for use in the assessment.

Next Steps to Reduce Total Removals Due to Release Mortality

The mortality due to recreational releases can be reduced in two ways: (1) reduce the percent of fish that die as a result of being released, through angler education on best handling practices and/or regulations that mandate the best practices (e.g., circle hook regulations), and (2) reduce the number striped bass that are caught and released through effort controls. A more accurate release mortality rate or regional/seasonal mortality rates, applied to released fish in future assessments is important to provide the best data going into the model, but it does not address the fact that 90% of striped bass caught in the recreational fishery are released alive. Reducing releases would require the consideration of management measures to reduce fishing effort in the striped bass fishery, including seasonal closures, as well as angler education and outreach efforts to reduce effort in seasons and regions that may be associated with higher release mortality rates.

The TC also commented that the level of concern warranted when considering the proportion of total removals accounted for by release mortality as opposed to harvested fish depends on the management objectives for this fishery. While there are local fisheries with relatively higher harvest rates, the striped bass fishery in many regions can be characterized as an intentional catch-and-release fishery. In these regions, anglers take trips and direct effort towards striped bass with no intention of harvesting, regardless of size. The approach of converting discards into harvest may not be desired or beneficial to the fishery.

Literature Cited

- Caruso, P. 2000. A Comparison of Catch and Release Mortality and Wounding for Striped Bass (*Morone saxatilis*), Captured With Two Baited Hook Types. Sportfisheries Research Project (F-57-R), Completion Report for Job 12. 16pp.
- Diodati, P.J. and R.A. Richards. 1996. Mortality of Striped Bass Hooked and Released in Salt Water. Transactions of the American Fisheries Society 125:300-307.
- Lukacovic, R. and J. Uphoff. 2007. Recreational Catch-and-Release Mortality of Striped Bass Caught with Bait in Chesapeake Bay. FISHERIES TECHNICAL REPORT SERIES No. 50. Maryland DNR Fisheries Service. Annapolis, Maryland. 21 pp.
- Millard, M.J., Mohler, J.W., Kahnle, A. and Cosman, A. 2005. Mortality associated with catch-and-release angling of striped bass in the Hudson River. North American Journal of Fisheries Management, 25(4): 1533-1541.
- RMC, Inc. 1990. An evaluation of angler induced mortality of striped bass in Maryland. Completion Report (P.L. 89-304, AFC-18-1) to National Marine Fisheries Service, Gloucester, Massachusetts.

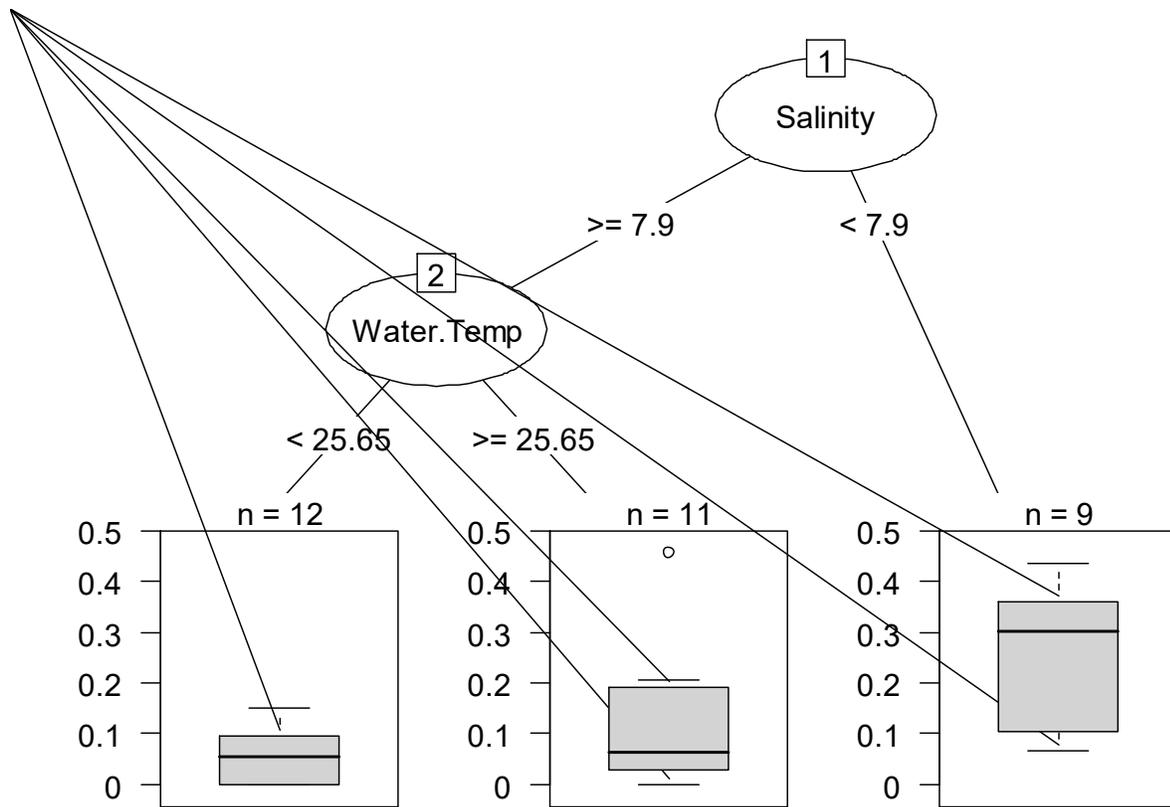


Figure 1: Regression tree to predict hooking mortality by temperature and salinity. Source: developed by the Striped Bass TC during the 2013 benchmark assessment.

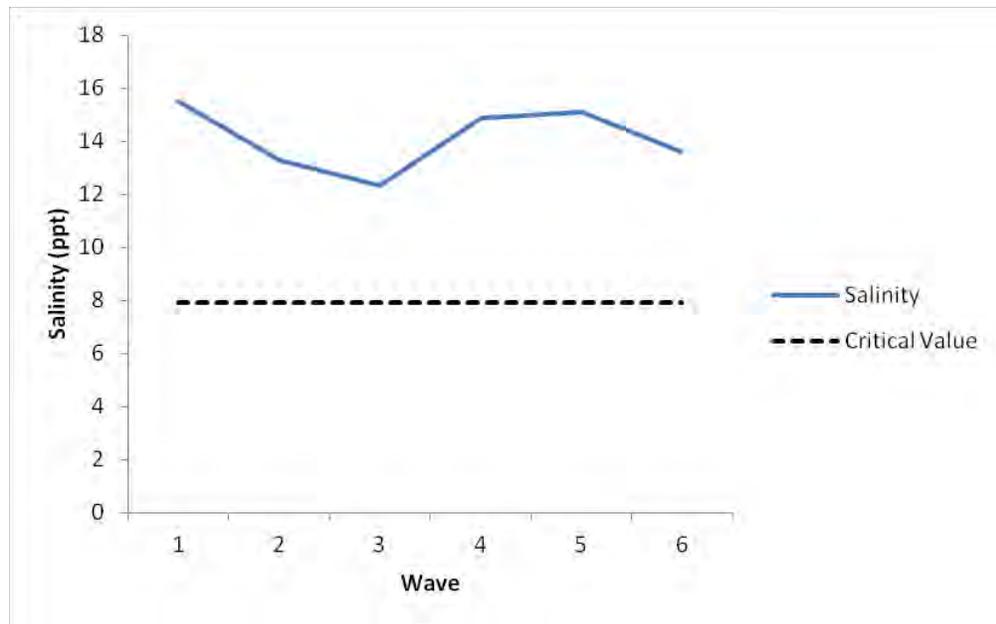
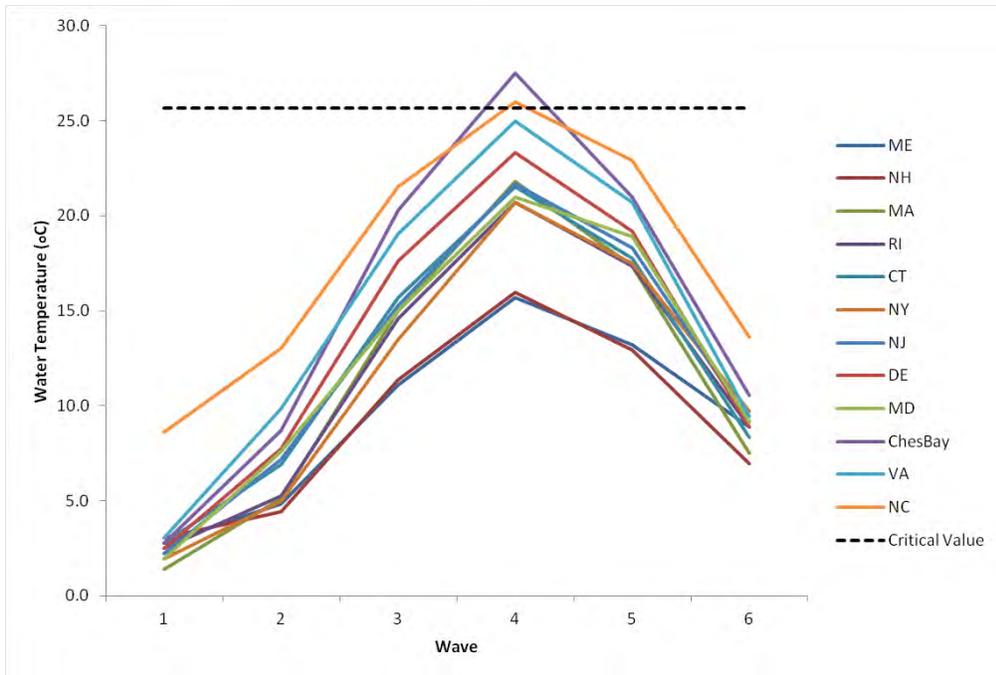


Figure 2: Long-term mean coastal water temperature by state and wave (top) and mean mid-Chesapeake Bay salinity by wave (bottom) with critical values from regression tree analysis. Source: developed by the Striped Bass TC during the 2013 benchmark assessment.

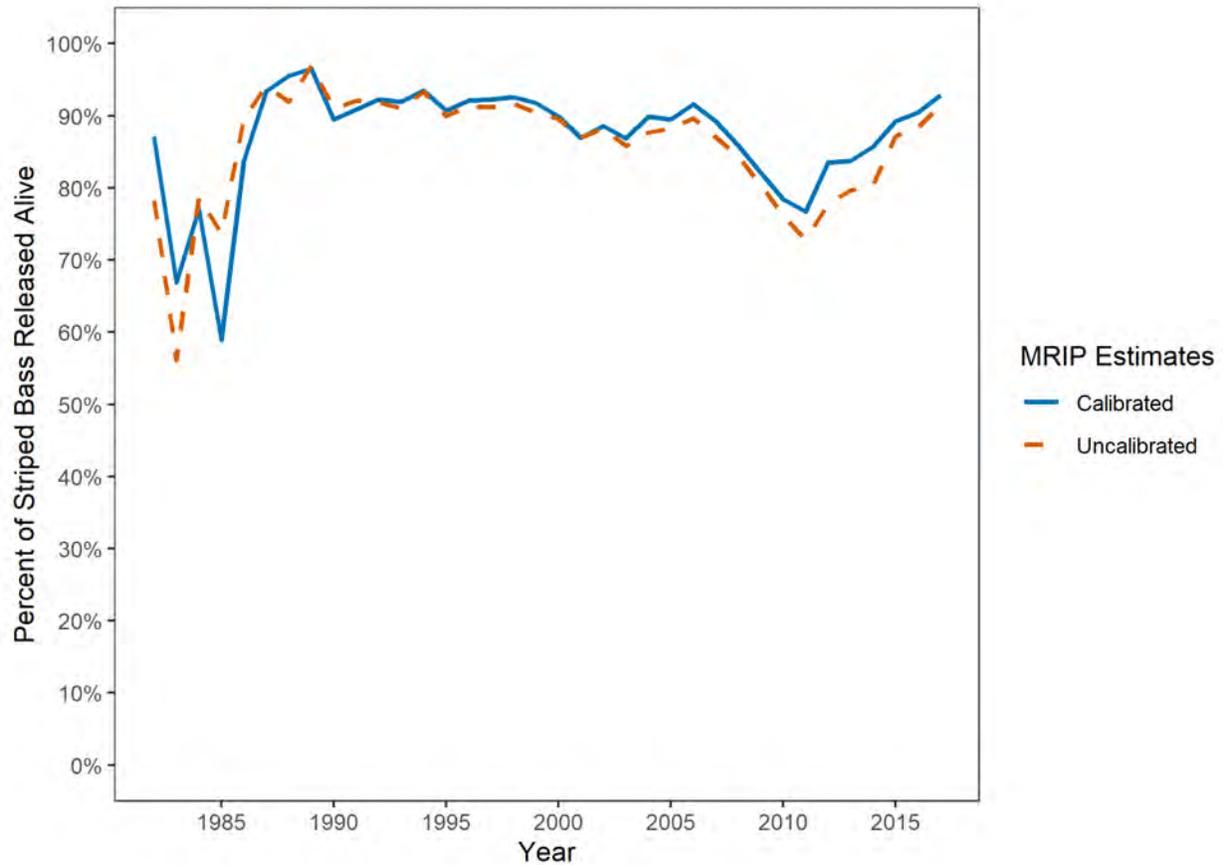


Figure 3. Comparison of the percent of striped bass released alive, 1982-2017, from Marine Recreational Information Program (MRIP) estimates before and after calibration for revised fishing effort estimates.

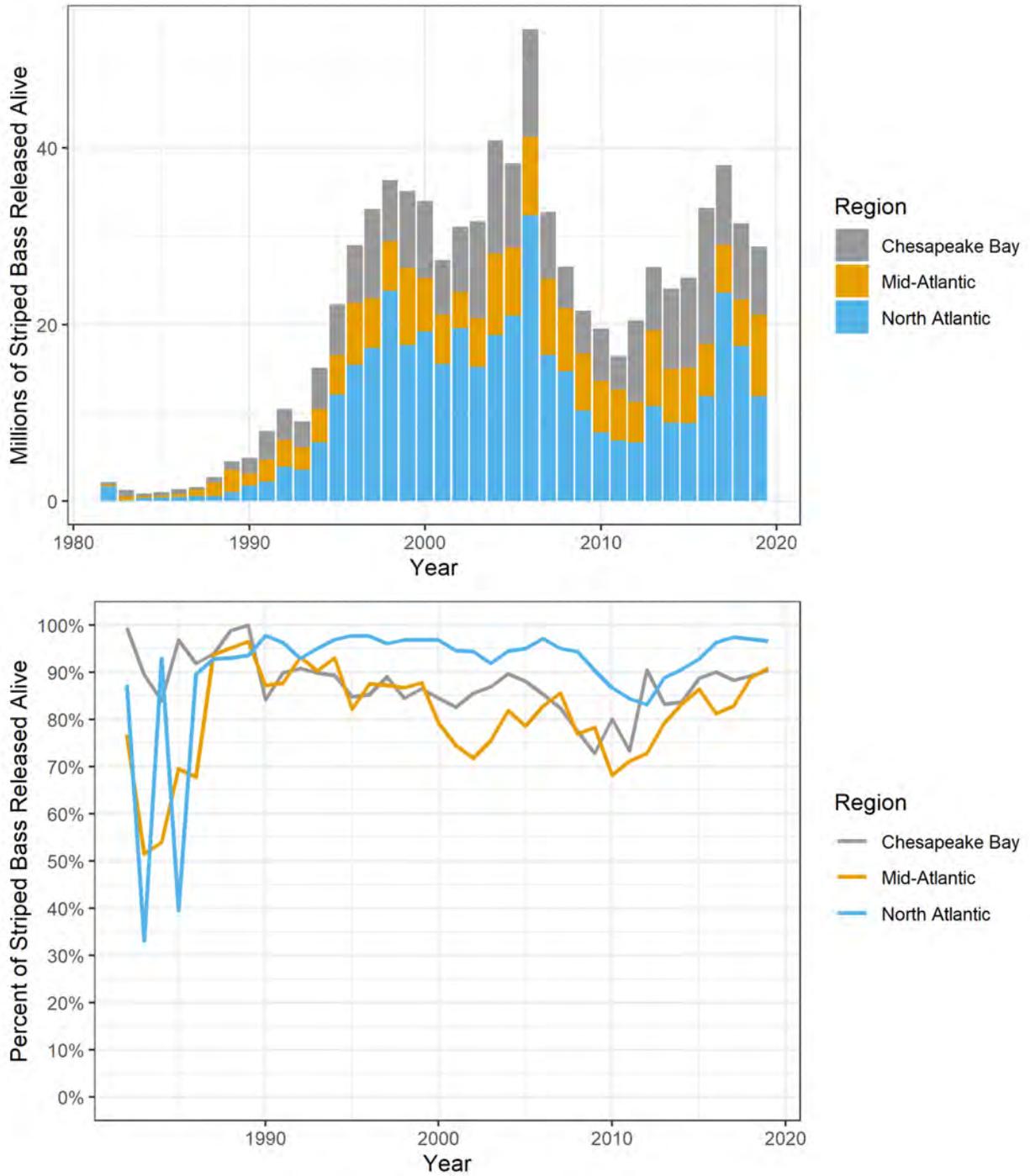


Figure 4. Total striped bass released alive (top) and percent of total striped bass catch released alive (bottom) by region, 1982-2019.

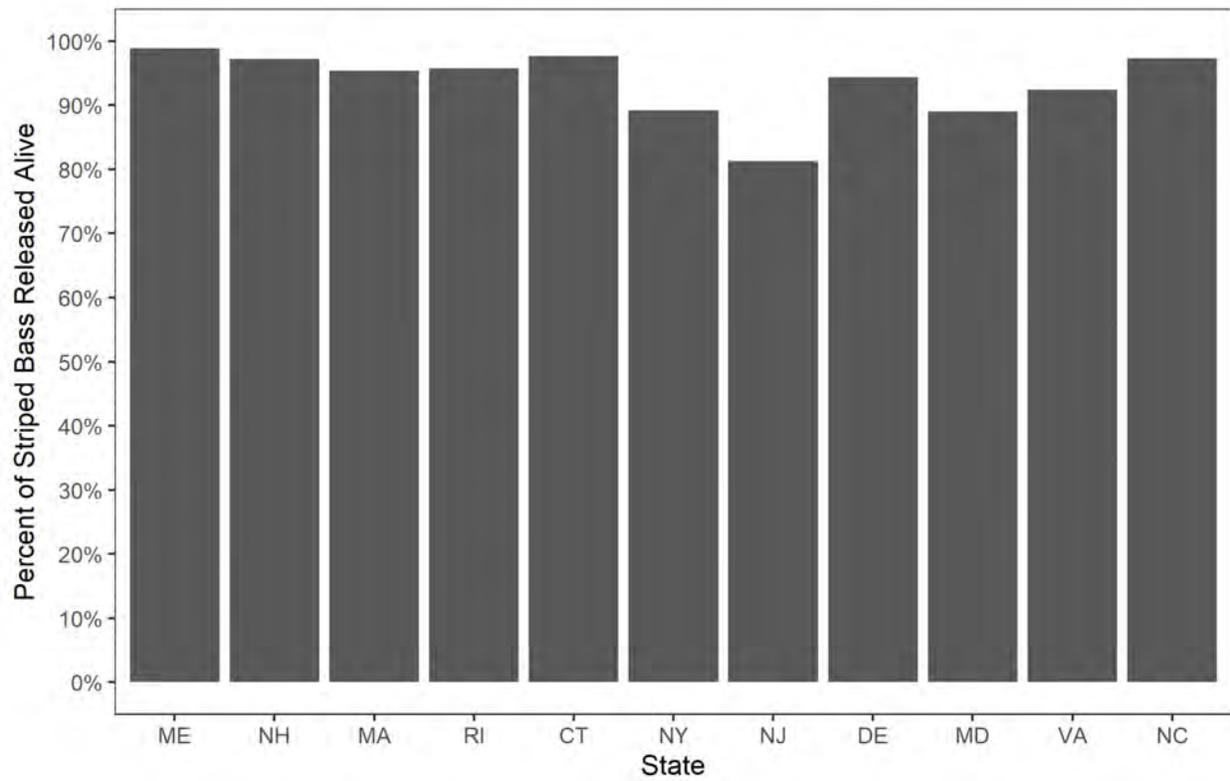
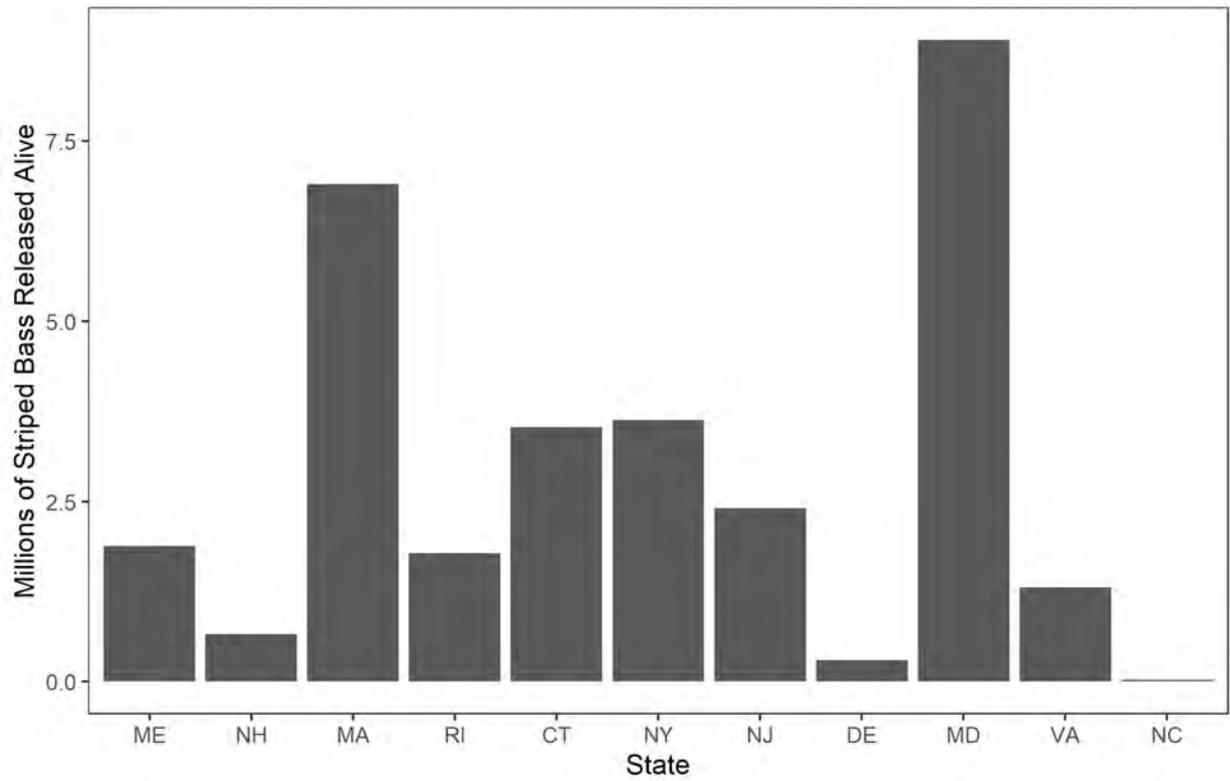


Figure 5. Average number of striped bass released alive (top) and average percent of striped bass released alive (bottom) by state, 2015-2019.

Atlantic States Marine Fisheries Commission

Atlantic Coastal Cooperative Statistics Program Coordinating Council

October 22, 2020

8:30 am - 9:45 am

Web Conference

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 (*L. Fegley*)
- 2) Council Consent
 - Approval of Agenda
 - Approval of Minutes from August 2020
- 3) Public Comment
- 4) Consider Recommendations for FY2021 Submitted Proposals (*J. Simpson*) **Action**
- 5) Committee and Program Updates (*J. Simpson, G. White*)
- 6) Elect Chair and Vice-Chair (*L. Fegley*) **Action**
- 7) Other Business/Adjourn

Atlantic States Marine Fisheries Commission

Business Session

October 22, 2020

10:00 – 11:00 a.m. and 1:30 – 1:45 p.m.

Webinar

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 (<i>P. Keliher</i>) | 10:00 a.m. |
| 2. Committee Consent | 10:05 a.m. |
| • Approval of Agenda | |
| • Approval of Proceedings from August 2020 | |
| 3. Public Comment | 10:10 a.m. |
| 4. Review and Consider Approval of the 2021 Action Plan (<i>R. Beal</i>) | 10:15 a.m. |
| Final Action | |
| 5. Elect Chair and Vice-Chair (<i>R. Beal</i>) Action | 10:50 a.m. |
| 6. Other Business/Recess | 11:00 a.m. |
| 7. Reconvene | 1:30 p.m. |
| 8. Consider Noncompliance Findings (if Necessary) Final Action | 1:30 p.m. |
| 9. Other Business | 1:40 p.m. |
| 10. Adjourn | 1:45 p.m. |

Atlantic States Marine Fisheries Commission

ISFMP Policy Board

October 22, 2020
11:15 a.m. – 1:30 p.m.
Webinar

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>P. Keliher</i>) | 11:15 a.m. |
| 2. Board Consent (<i>P. Keliher</i>) | 11:15 a.m. |
| • Approval of Agenda | |
| • Approval of Proceedings from August 2020 | |
| 3. Public Comment | 11:20 a.m. |
| 4. Chair's Report (<i>P. Keliher</i>) | 11:30 a.m. |
| 5. Executive Committee Report (<i>P. Keliher</i>) | 11:45 a.m. |
| 6. Lunch Break | 12:00-12:30 p.m. |
| 7. Consider Dividing the South Atlantic State/Federal Fisheries Management Board (<i>T. Kerns</i>) Final Action | 12:30 p.m. |
| 8. Set 2021 Coastal Sharks Fishery Specifications (<i>T. Kerns</i>) Final Action | 12:45 p.m. |
| 9. Review Noncompliance Findings, If Necessary Action | 12:55 p.m. |
| 10. Other Business | 1:05 p.m. |
| 11. Adjourn | 1:30 p.m. |

MEETING OVERVIEW

ISFMP Policy Board Meeting
Thursday October 22, 2020
11:15 a.m.-1:30 p.m.
Webinar

| | | |
|---|-----------------------------------|--|
| Chair: Pat Keliher (ME) Assumed Chairmanship: 10/19 | Vice Chair: Spud Woodward (GA) | Previous Board Meetings: August 5, 2020 |
| Voting Members: ME, NH, MA, RI, CT, NY, NJ, PA, DE, MD, DC, PRFC, VA, NC, SC, GA, FL, NMFS, USFWS (19 votes) | | |

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from August 5, 2020

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. Chairman's Report (*P. Keliher*)

| |
|---|
| 5. Executive Committee Report (11:45 a.m.-12:00 p.m.) |
| Background <ul style="list-style-type: none">• The Executive Committee will meet on Octboer21, 2020 |
| Presentations <ul style="list-style-type: none">• P. Keliher will provide an update of the committees work |
| Board action for consideration at this meeting <ul style="list-style-type: none">• none |

6. Lunch Break

| |
|--|
| 7. Consider Dividing the South Atlantic State/Federal Management Board (12:30-12:45 p.m.) Final |
| Background <ul style="list-style-type: none">• The number of species managed under the So. Atl. State/Federal Management Board has increased over time. The Board is made up of the states from Florida to New York but different states have declared interest in different species. |

- There has been an interest by some of the more northern states to declare an interest for a few of the Boards species but not all. In order to make the best use of Commissioner time and keep the meetings at reasonable lengths, staff is recommending to divide the board into two: the first a pelagics board managing Atlantic cobia and Spanish mackerel and second a sciaenids board managing spot, red drum, black drum, Atlantic croaker, and spotted sea trout.

Presentations

- T. Kerns will present information on splitting the Board (**Briefing Materials**)

Board discussion for consideration at this meeting

- Consider splitting the South Atlantic State/Federal Management Board into a Pelagic Board and a Sciaenid Board

6. Set 2021 Coastal Sharks Fishery Specifications (12:45 -12:55 p.m.) Final Action

Background

- Similar to previous fishing seasons, NOAA Fisheries is proposing a January 1 open date for all shark management groups. Also proposed is an initial 36 shark possession limit for large coastal and hammerhead management groups with the possibility of in season adjustments (**Briefing Materials**)

Presentations

- NOAA Fisheries Proposed Rule for 2021 Specifications by T. Kerns

Board action for consideration at this meeting

- Set the 2021 coastal shark specifications including commercial opening dates and commercial possession limit by management group

8. Review Non-Compliance Findings, if Necessary Action

9. Other Business

10. Adjourn

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

**Webinar
August 5, 2020**

These minutes are draft and subject to approval by the ISFMP Policy Board.
The Board will review the minutes during its next meeting.

Draft Proceedings of the ISFMP Policy Board Webinar
August 2020

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| Adjournment..... | 20 |

These minutes are draft and subject to approval by the ISFMP Policy 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 February 6 Meeting and July 14, 2020 Webinar** by Consent (Page 1).
3. **Move to adjourn** by consent (Page 20).

ATTENDANCE
Board Members

| | |
|--|---|
| Pat Keliher, ME (AA) | Loren Lustig, PA (GA) |
| Cheri Patterson, NH (AA) | Warren Elliott, PA (LA) |
| Ritchie White, NH (GA) | Roy Miller, DE (GA) |
| Dennis Abbott, NH, proxy for Sen. Watters (LA) | Russell Dize, MD (GA) |
| Dan McKiernan, MA (AA) | Phil Langley, MD, proxy for Del. Stein (LA) |
| Raymond Kane, MA (GA) | Steve Bowman, VA (AA) |
| Jason McNamee, RI (AA) | Pat Geer, VA, Administrative proxy |
| Justin Davis, CT (AA) | Steve Murphey, NC (AA) |
| Robert LaFrance, CT, proxy for B. Hyatt (GA) | Mel Bell, SC, proxy for P. Maier (AA) |
| Jim Gilmore, NY (AA) | Malcolm Rhodes, SC (GA) |
| Emerson Hasbrouck, NY (GA) | Sen. Ronnie Cromer, SC (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) | Marty Gary, PRFC |
| Adam Nowalsky, NJ, proxy for Asm. Houghtaling (LA) | Karen Abrams, NOAA |
| Kris Kuhn, PA, proxy for T. Schaeffer (AA) | Sherry White, USFWS |

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

Staff

| | |
|-----------------|--------------------|
| Robert Beal | Sarah Hylton |
| Toni Kerns | Chris Jacobs |
| Deke Tompkins | Jeff Kipp |
| Kristen Anstead | Sarah Murray |
| Max Appelman | Kirby Rootes-Murdy |
| Tina Berger | Mike Schmidtke |
| Pat Campfield | Caitlin Starks |
| Lisa Havel | |

Guests

| | | |
|--|-----------------------------|---|
| Fred Akers | | Chris Moore, CBF |
| Joey Ballenger, SC DNR | Mel Gardner | Allison Murphy, CBF |
| Chris Batsavage, NC, Administrative proxy | Angela Giuliano, MD DNR | Ken Neill |
| David Behringer, NC DENR | Brooke Goggins | Derek Orner, NOAA |
| Jeff Brust, NC DENR | Willy Goldsmith, SGA | Nicholas Popoff, FL FWS |
| Matt Cieri, ME DMR | Zack Greenberg, Pew Trusts | Jill Ramsey, VMRC |
| Allison Colden, CBF | Bryan Hall NC DENR | Mike Ruccio, NOAA |
| Caitlin Craig, NYS DEC | Amalia Harrington, ME | Bret Scholtes, Omega Protein |
| Jessica Daher, NJ DEP | Rusty Hudson, FL | Tara Scott, NOAA |
| Monty Deihl | Aaron Kornbluth, Pew Trusts | Alexei Sharov, MD DNR |
| William Dunn | Mike Luisi, MD DNR | Anna Turano, SC DNR |
| John Duane, Wellfleet, MA | Dee Lupton, NC DENR | Megan Ware, ME, Administrative proxy |
| Paul Eidman, Tinton Falls, NJ | Chip Lynch, NOAA | Chris Wright, NOAA |
| Jim Fletcher, Wanchese Fish | Shanna Madsen, VMRC | Erik Zlokovitz, MD DNR |
| Lynn Fegley, MD DNR | Genine McClair, MD DNR | Renee Zobel, NH FGD |
| Matt Gates, CT, Administrative proxy | Conor McManus, RI DEM | |
| | Nichola Meserve, MA DMF | |
| | Steve Meyers | |

The ISFMP Policy Board of the Atlantic States Marine Fisheries Commission convened via webinar; Tuesday, August 5, 2020, and was called to order at 10:30 a.m. by Chairman Patrick C. Keliher.

CALL TO ORDER

CHAIRMAN PATRICK C. KELIHER: Thanks everybody for your attention on all of these matters today. We were obviously moving a bunch of these items to a future meeting or call. With that I'm closing this section of the meeting, and we'll open the closed session at 9:55. We'll make sure we leave plenty of time for questions, answers, comments that need to be made.

APPROVAL OF AGENDA

CHAIRMAN KELIHER: Item Number 2 is Board Consent, Approval of the Agenda. Does anybody have any additions, deletions to the agenda, or any questions around the agenda? I've got to toggle back and forth. Seeing no hands around the agenda, the agenda is approved by consensus.

APPROVAL OF PROCEEDINGS

CHAIRMAN KELIHER: Also, approval of the February and July proceedings for 2020. Does any member of the Policy Board have any questions regarding that document?

Seeing no hands going up, or nobody commenting, the proceedings are approved.

PUBLIC COMMENT

CHAIRMAN KELIHER: Item Number 3 is Public Comment. Are there any members of the public that have anything that they would like to bring to the Policy Board that is not on the agenda?

EXECUTIVE COMMITTEE REPORT

CHAIRMAN KELIHER: Hearing no voices, seeing no hands, we will move right through to the Executive Committee Report.

This morning the Executive Committee met for a little over two hours to discuss many, many different items. The first thing that was discussed at length was the CARES Act. Kelly Denit from NOAA Fisheries did join us to help answer questions. I think it was a good discussion. It certainly raised some additional questions that need to be answered, and Kelly will be following up with Bob Beal, and Bob will get those back out to the Executive Committee.

To date, Massachusetts and South Carolina have been approved. Maine, Rhode Island, Virginia and Georgia have all submitted plans, and I'm assuming they have received, or are about to receive questions regarding their plan. Hopefully the turnaround on those will be quick. I know for Maine's to the turnaround was a little over a week, a week and a half I guess to get questions back. It was a wide range in conversation. I'm not going to go into detail. A lot of it focused around the spend plans, and that allocation.

There was a brief conversation around what is going on in Congress right now about any additional CARES Act dollars that might become available. Kelly did report out that the spend plans that are developed now, hopefully there will be language that the spend plans that are being developed now can be used for future allocations. I want to stress that that is totally optional, so if states want to make a change, if we are lucky enough to get a second round of money, then we would have that flexibility going forward. Kelly did bring up the issues around the sample affidavits, and showing good standing for the applicants with federal government. There was a lot of discussion around the issues of being made more than whole, and how is that going to work?

I'm going by my notes, so if I misstate, I'm going to let Bob jump in. But in particular, PPP and other assistance will not be considered in the 35 percent lost. However, it will be considered in making an individual more than whole, so that is important to note. There was a fair amount of conversation also, as it pertained to that 35 percent loss, and what happens if it is for a distinct period of time, and then that loss is negated based on improved income later in the year.

That potentially puts an individual in a place of having to pay money back. The issue was raised by New Hampshire, and I think a lot of other states certainly raised their eyebrows on that one, to try to figure out how we're going to get around that. Not get around it, but how we're going to address it. That will be something that we'll probably have to have some further conversation on as we go forward.

Some additional questions around the audit as well, and it's clear that whatever we're using to support, or the states are using to support the distribution of the funds would have to be available for those states, and potentially even for the Agency for audits in the future. As I said earlier, Kelly had a few questions she was not able to answer.

She'll be following up directly with Bob Beal, and Bob will get that information back out to the Executive Committee. That was the first item. Does anybody have any questions around the CARES Act that either Bob or I might be able to answer? Seeing no hands, I'm just going to keep going down through my report.

ADMINISTRATIVE OVERSIGHT COMMITTEE REPORT

CHAIRMAN KELIHER: We went out of order, back up to Item Number 4 on the Executive Committee or the AOC Report. The Oversight Committee reviewed the budget that was submitted by staff, and after several conversations with staff and answering questions, the AOC moved to the Executive

Committee that the budget for FY21 be approved, and the budget was approved without objection.

The AOC also reported out around unspent funds related to contractual agreements. I believe the document has been made available for the Policy Board, but the practice that we currently have in place was memorialized in a policy document after discussion with the AOC. AOC had some minor changes. Those were presented this morning to the Executive Committee, and again those were approved without objection.

Also related to the AOC report was an issue that was brought up by Ritchie White from New Hampshire around the use of unspent funds, and the need for a policy. Bob Beal informed me that there was the beginning of a policy being developed prior to COVID, as it pertained to unspent funds and how or what type of policy we should have in place. Based on that conversation, and knowing that that work is already ongoing, Bob and Laura are going to dust off that document, do some additional work on it. That will be brought back to the Executive Committee, and then the Executive Committee will then report out to the Policy Board. I'm just going to keep moving on, and then we'll circle back for questions at the end, if there are any questions. Agenda Item Number 6, back in the order was a report by the Science and Management Committee. This was a report that was presented by Sarah Murray, and it was on public participation to the Advisory Panel process, and through Public Hearing Process.

It was a very thorough review by the Science and Management Committee, really focused on public engagement, exploring strategies and efficiencies on how to reach stakeholders. The Executive Committee did have some conversation around stipends as a way to encourage people. But it was pointed out that stipends for Advisory Panel members, where there are not stipends for Commissioners that are not part of a state agency or any legislative

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staff, potentially could be problematic. Some additional conversations around that may be needed in the future.

One of the ideas around this was to try to find ways to develop some accountability, so if people are participating and they're receiving some sort of stipend, that they would have to have accountability. But again, based on the fact that there are some budgetary constraints around that, and the fact that there would be some inequities.

I think more conversations around that need to take place. Also, around public participation was the issues around a possible hybrid approach, to include both in-person meetings and webinar kind of combined. I know through New England Council we're going to do that on Amendment 23 on groundfish, at least within Maine, trying to bring some people together that will participate in an in-house meeting, as we do some additional work through webinar.

I think those are the type of things, especially in this Pandemic, we're going to have to start thinking outside the box on how this hybrid approach could be utilized. Then lastly, there was more talk about how we can educate, do a better job educating Advisory Panel members in particular.

The thought to that, advisors aren't listened to or they don't listen to us in their general statement was discussed. We talked about how we can improve the expectations of the advisor, that their input is part of a larger process, and how can we move in the direction to do a better job educating, so people are aware of what that input means, and how it is being considered.

I'm going to pause there. I know I've gone through a couple, just make sure I don't have any hand up, so I'm going to continue to move down the list. Item Number 7 is a topic that has come up and has been presented around Pennsylvania's participation on the Menhaden Board. A letter was submitted to Pennsylvania. Pennsylvania has now responded through their attorneys with a letter of disagreement. Kris

Kuhn on the Executive Committee did a very good job explaining the rationale behind that letter.

A lot of conversation on this, a lot of states recognizing the fact that Pennsylvania is very committed to menhaden and the conservation of menhaden, and that we have their participation being in conflict with the compact. Our attorney, the ASMFCs attorney, after reviewing Pennsylvania's letter has asked Bob for some additional information. That information will be presented in a letter form back to Pennsylvania, and there has been no final decision on this. Additional conversations will happen at the Executive Committee, with a plan forward being brought to the Policy Board at a later date. Item Number 8 was to consider the division or dividing the South Atlantic Board. Bob may want to weigh in on this, or Toni if any conversations need to take place around this.

But at this time, the Executive Committee because of lack of time on the agenda, have pushed this off to a later call. We certainly will have more around that issue in a future meeting. Jay McNamee, would you like to bring the issue up around that participation, about Rhode Island's participation?

DR. JASON McNAMEE: I'll try and be really...within it. It connects with this, I think. In any case going back a little over a year. The ASMFC reached out to Rhode Island. I think what was going on was the cobia assessment was going on. What the Commission noticed was Rhode Island had a bunch of commercial landings.

In fact, they were higher than I think some of the states that are currently on the South Atlantic Board. They reached out to Rhode Island to investigate a little bit, whether those were just boats that were actually fishing down south, and then landing up here or not. What we discovered was the majority of those landings were coming out of our floating fish trap fishery, which is an inshore fixed gear, kind

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of akin to like pound nets, kind of a gear like that.

A long story short, those were legitimately fish being caught in Rhode Island waters. That was both interesting and the question that was posed to us is hey, do you want to get involved in the management of cobia, or what would Rhode Island think about joining into the management process for cobia?

We kicked that around a little bit and investigated. The landings are still in the grand scheme of things fairly small. But we were looking at what that would mean by way of regulations and things like that. Long story short, after a consultation with folks in the industry and within state government, we felt we might be interested in getting involved.

We thought, you know it would be good if this trend continues that Rhode Island should be a part of the management process, if restrictions need to be made or what have you. We should be a part of that if there are landings occurring in our area, and it was an opportunity for us to be involved in any of that management process. We are interested, certainly in getting involved. I think it would be focused on cobia.

I don't think it would connect with any of the other South Atlantic species, at least at this point, right? But that is where we are at, so we wanted to at least get that out on the table for the folks in the South Atlantic Board to think about. It may connect in with this decision of splitting the South Atlantic Board. I haven't quite wrapped my head around if that is a critical element or not. In any case, I'll stop yammering away here, Mr. Chair, and that's all I wanted to offer for today.

CHAIRMAN KELIHER: I do have a couple of hands up. I'm assuming they are on this topic. But before we do, we have determined that the Executive Committee will get additional information on this topic from staff, and we can put this as a placeholder, as part of those

discussions. I've got Joe Cimino and Lynn Fegley. Joe.

MR. JOE CIMINO: I support this notion, and if it does become Spanish mackerel and cobia as a separate board, I think there are several states that are going to want to be considered. My question is, since we have, and this may be Lynn's as well. If we have a cobia addendum going forward, and we recognized the other day that we're losing Dr. Schmidtke, so I don't know who on staff could help advise us.

Should we be pausing on that addendum, or is the concept of adding newer states something that would (broke up) a new amendment, in which case let's get through this addendum, and then we start a new amendment when we look at adding other states. But I was just hoping to get some guidance from staff on should that addendum still be moving forward.

CHAIRMAN KELIHER: Toni.

MS. TONI KERNS: For adding states to a management board, Joe. That is something that the Policy Board approves. There are guidelines in the Compact that we follow when adding states to a board, so you don't have to change the addendum for that. Then that management body would be updated in the next management document. I don't know if Bob has anything else to add there.

CHAIRMAN KELIHER: Bob either is still having microphone troubles or –

MR. EXECUTIVE DIRECTOR ROBERT E. BEAL: I'm unmuted by the organizer. I've got a theme for the day. I don't have much to add. That can be a Policy Board decision. The Commission can move states on and off management boards based on Policy Board action. It doesn't take an addendum or an amendment to do that.

MR. CIMINO: Mr. Chair, sorry just a quick follow.

CHAIRMAN KELIHER: Yes, please Joe.

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MR. CIMINO: I appreciate that. I can't pretend I knew all that information that well. But I was being a little bit more specific to the cobia addendum itself. Would it complicate it if there were new states involved? Do we need to think through that whole process of what this particular addendum is doing for us? Should we pause to wait to see if we need to consider other states or not?

CHAIRMAN KELIHER: I've got Lynn Fegley and then Jim Gilmore.

MS. LYNN FEGLEY: That was not my question, but it's a good one. Just to follow up if I may very quickly on Joe's point. I think if the Policy Board decides to split the South Atlantic, then we would really want to make sure with this addendum that Rhode Island has the ability, if they want to declare an interest to participate in that public comment, because there is more specific measures for *de minimis* states, which I assume Rhode Island would be. I think that is something we need to consider. But I also wanted to say that, and I conversed with Toni about this a little bit yesterday. The spot FMP resides in an omnibus with Spanish mackerel, and one is a sciaenid and one is a pelagic. You know Pat Geer and I used to talk about splitting out spot from that omnibus, because it seems to always go together with croaker.

It's a little bit of work for staff to do a spot addendum and a croaker addendum, when potentially they could just do a spot and croaker addendum. But it is also work to split spot out and put it with croaker. But I was curious if the Board was split into a sciaenid and a pelagic section, would that push the issue? Would we need to pull spot out of that omnibus, which actually I think would be a good idea, but I just wanted to check on that.

CHAIRMAN KELIHER: Toni, do you want to comment on that?

MS. KERNS: I will do my best, then Bob can correct me if I'm wrong, based on our conversation last night. I think that we would

be okay. What we would do is, the omnibus is actually Spanish mackerel, spot, and spotted sea trout. We have had individual addenda that relate to individual species under that omnibus.

We could continue to do addenda for Spanish mackerel on their own, and when we were to go forward with our next amendment, the next time we did it then we would be pulling it out of the omnibus and into an amendment on its own. If you recall back in the nineties, Spanish mackerel was its own FMP.

It started off as its own, moved into the omnibus, because I think there are a lot of similar management frameworks for those three species. We thought it would be easier to combine them. Now we are finding ourselves in the place where we think we might need to be splitting them out. I think when we come up on the next amendment, we would do that, Lynn. But we would be okay otherwise.

CHAIRMAN KELIHER: Jim Gilmore.

MR. JAMES J. GILMORE: Just a comment at this point. A couple years ago New York was invited by leadership to join in on the South Atlantic Board because of cobia, and we declined because at that point it was sort of an all-in or all-out. It was sort of a workload thing. We didn't for all the species we would have to be involved with. Now Rhode Island is considering, at least getting in it and commenting on cobia, or even maybe more involved with the management.

We'll have to rethink that, because I'm not sure how well it makes sense that states like New York, and Connecticut too. I'm not sure how much activity Connecticut is having on cobia. But we're having probably the same amount as Rhode Island. Not that I want to make more work, but now if it's not an all-in thing, but if we are going to consider maybe splitting the South Atlantic Board up into different species, we would have to think about that again.

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Just at this point I just wanted, we originally had opted out of it, but maybe we need to reconsider that. Actually, this is going to be happening for maybe a bunch of species as we progress and do our northern migration. Mr. Chairman, you took all our lobsters, we don't have to worry about them anymore, but we've got a lot of things coming up that we never really thought about. As we progress on this, we'll again have to rethink it. I would like to see if Connecticut has any desire to get on this.

CHAIRMAN KELIHER: Are there any other comments on this before we move on? I don't see any other hands. Anybody on the phone have a comment? Hearing none, seeing none, as I stated earlier, the Executive Committee has tabled this for a future conversation. I think we can, based on the comments we've heard here today from the Policy Board, we can add those into the mix.

Then, I think as long as the timing works we can report out at the October meeting. If there are no objections to that, I'll finalize my report, and then we can move on with the agenda. Under Other Business there were several issues brought up, the first being the annual meeting. We are three months away from our annual meeting in New Jersey.

Both Spud and Bob and I have had several conversations about this meeting over the last several weeks. I mean the fact of the matter remains that the COVID-19 Pandemic is still in full swing. We have states that are on this call that are likely lit up as hot spots. The idea of trying to bring everybody together into New Jersey to complete our annual meeting is just not in the cards for us this year.

The Executive Committee after some discussion, agreed that the annual meeting should be moved to a virtual meeting, just as this one. One question was brought up around the fact that is there a way to combine commissioners and put them in one spot, and maybe using videos as part of that, or maybe even not using video.

Staff is going to look into that a little bit more, to see if the GoToWebinar would work for a little bit of a slightly hybrid approach for the Annual Meeting. It was also agreed at that time that we would just not remove New Jersey from the list, but we will just shift over a year so New Jersey will be hosting in 2021.

They've done a tremendous amount of work on this annual meeting, we're sad to see it not happen, but we believe that now would be prudent to make that delay. Bob, I don't think that the Policy Board needs to make a call on this, or affirm the Executive Committee's recommendation. If you could jump in and air your thoughts on that I would appreciate it before I move on.

EXECUTIVE DIRECTOR BEAL: I think that's correct, Pat. It was unanimous at the Executive Committee that changing this year's annual meeting unfortunately to virtual is the way to go. Adjusting the schedule to have New Jersey be the host for next year. I don't think there is any need for the Policy Board to take action on that. The Executive Committee can make that decision.

CHAIRMAN KELIHER: Great, thank you. The only other thing under new business was a letter that was submitted by Commissioner Tom Fote as it pertained to working groups. It was focused on some of the work on the Striped Bass Working Group, but I don't think at the end of the day, Tom was not trying to say that the results of that were flawed. He was trying to raise the issue of participation and state participation, and trying to make it a little bit more holistic, as far as participation. Making sure states are included. Certainly, the policy that we have in place now was followed. There is nothing out of the ordinary around that, it's just continued observation that he wanted to put forward. In doing so, Tom did make a statement.

I had a long conversation with Tom, a very excellent conversation with Tom around an individual who was on the Working Group. I

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talked to that individual; he said no problem stating this publicly. But as you all know, Ritchie White, an outstanding member of the Commission had to have emergency open heart surgery, corrective heart surgery.

He was not on the Committee. Tom was not aware of that, so there were some dynamics in Tom's letter that made us kind of loose sight, or made the message around the working groups kind of lost in that conversation. This was brought up at the Executive Committee. I am bringing it up here today to say that the Executive Committee has tabled that conversation to a future date.

We will look at the issues around the makeup of future work groups, as it pertains to species boards and that work. Again, the fact that the Striped Bass Working Group I think did a really great job. Marty and Megan did a fantastic job being open and transparent, probably much more so than any other workgroup that I've been involved with.

I want to commend them for their work on the workgroup, and the fact that a very balanced document has been presented now to the Striped Bass Board. We'll have more conversations around that at the Executive Committee level, and those may come back to the Policy Board as well.

Then the last item was the item of our Executive Director. We planned a closed session for this, as we do for all staff related issues. In this case it was the Annual Performance Review for Bob Beal. Spud and I took a little bit of a different approach to it, whether Bob liked it or not, I'm not sure. But I know that with my senior staff I use a self-evaluation approach, and we did that with Bob, after he submitted to us his annual duties, which are many.

We asked him to pare it down to a minimum of 10, and I think he put a few more on than that. We also asked him to do some self-reflecting. I find when people do this, they are harder on

themselves than that of their manager. Bob was very open and honest about his review, and about these items. He elevated some things that could be worked on.

Spud and I had very good conversations around those. That document was presented to the Executive Committee, and I am pleased to announce that we continue to be nothing but thrilled with Bob's performance, especially during this time of a global pandemic. You know all of us are affected in one way, shape or form or another.

Then many of us on this call have to deal with it, not only for ourselves, and reflecting on how it's impacting amongst ourselves, but how it is impacting our staff. Bob not only has that on his plate, and how to deal with staff, but also how to deal with the issues around all of the Commissioners from Maine to Florida. I've often said, and I repeated it today that you know an Executive Director has to be the chief cook and bottle washer. In this case he's got to be an administrator, a fishery scientist, a policy advisory, and frankly a therapist to a lot of us. With that, I'm pleased to announce the Executive Committee's full support of Bob Beal, and would like to thank him both personally, and on behalf of the Executive Committee and Board for the work he continues to do.

With that I will conclude my report, and would be happy to answer any questions around any of these items that the Board may have. I am not seeing any hands go up, so with that I will conclude the report of the Executive Committee, and will move right down to the next item, which is Jason McNamee with a progress update on the Risk and Uncertainty Policy. Jason.

**UPDATE ON THE RISK AND
UNCERTAINTY POLICY**

DR. McNAMEE: This is an update on the Risk and Uncertainty Policy that we had been talking about. We went kind of dark on this for a little while. A lot of that had to do with several of

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the folks who are pushing this forward got wrapped up in the ERP work. That is kind of why we haven't seen too much on this in a while, but we're back.

We just wanted to give you an update, and there was actually some work going on this as well. That is what we're talking to you about today. Just a little background. The idea was to develop a process that could be used for many different risk decisions made by the ASMFC, and the attributes of doing that were we would be creating a systematic process to deal with what we're trying to do with risk at the Commission, and to make a process more transparent.

We assess risk all the time when we make management decisions. But a lot of time it's kind of murky and can be different, depending on which Commissioner is kind of making the decisions. The original idea that we had to develop this system was to develop a decision tree to implement this process.

If you remember, we kind of jokingly called it plinko. You sort of entered into this decision tree and you bounce your way down to the bottom, and at the end you get a probability of management success, and so you kind of add and subtract buffers as you go. This is just a reminder of what that looked like, and this isn't even all of it. This is just a portion that we could fit on a slide.

A lot of questions, and a lot of plinking to do with this old system. What we did the last time we all spoke was we had taken the system that we had developed, and we wanted to put it in front of some other groups, and actually try it on a species. At the time we decided to try it on striped bass. The Striped Bass Technical Committee and the Committee for Economic and Social Science were consulted, and they took a crack at trying to both give us some advice on parts, and that is what the CESS was doing.

The Striped Bass TC tried to apply it to striped bass, and so we developed a preliminary striped

bass example. What came out of that, and again this was an experiment, and it was a successful one, because we learned a ton. What we came to the realization of was that this approach is very brittle is the word we've been using for it. What we mean by that is anytime you would add new information, or if you adjust the importance of any one of those categories or decisions, you have to redo the entire tree, because what was happening was it was just additive and subtracting as you kind of went down. If you didn't add it in a new question or if you had an extreme event, so something that really got pinned to a decision or an enhancer within the decision tree that was really significant, and really extreme. You would have to redo the whole tree to make it kind of perform the way you want it to. It was an important experiment, and we learned a lot by going through it.

One of the things that came out was one of the members of the CESS Committee said, hey we should rethink your approach. I've got an idea of a better method to help you kind of deal with these aspects that make your existing system kind of brittle. We went, took his advice, and we revised the approach.

Also, the Striped Bass TC when they went through it, interestingly they ended up having to kind of cobble together some interpolations, I guess I'll call them. That was actually very much in line with the advice that we got from the CESS Committee. Those two things kind of came together, and gave us a consistent signal.

We made some refinements to the information included in the approach that input, and we also developed a new formula for combining the input into a final probability of management success. The following information is incorporated into the Risk and Uncertainty Decision Tool, and it's split into four categories.

I won't go through all of this in the table, but remember you've got a set of information that is about the stock assessment, so it's kind of technical determinations. Then you've got a set

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of information on the uncertainty that is involved for that particular species, and the information that's involved with that species.

Then we had a couple of other categories like the additional risk determinations, like the trophic importance of that species. Then a bunch of stuff on the economic and social considerations, I think the table is mislabeled there, sorry about that. But we've got both short term and long term economic and social considerations, with regard to the commercial sector and the recreational sector. That stuff is all still in there.

There are further details on all of that stuff in the Technical Committee guidance document that you can take a look at. I think it was in the materials that were posted. One recommendation that we want you to think about. One thing we could do is task the Assessment Science Committee and the Management and Science Committee, and the CESS with developing specific criteria for each input.

There are some already there, and they could kind of look through that and decide if there should be some other things in there. Now a little bit about the new approach. This is your old pal, J. Mac talking to you, so of course there has got to be an equation in here at some point, am I right? But don't get scared. It's not that bad.

Like the decision tree the new formula incorporates all of the inputs that we talked about before, all of those questions in the decision tree and the answers. It incorporates them into a final probability of management success. I won't belabor this equation too much, other than show you there is that little superscript in the bottom part of the first equation there with a capital Z, and what you see contained within that is you've got all of these little components. All those are, are the for instance the little x_1 . That is just the answer to question 1 in the decision tree. Now the

thing before it, the little b_1 , that is going to be a weighting of that.

You can give that more importance or less importance in the overall decision process. Then there is a constant there as well, and just to kind of orient you to that. If you wanted to go in with a probability of 50 percent probability of management success, you would just set that constant a to 0. You can kind of adjust that depending on where you want to be with regard to your starting point for your management success.

Okay, so a little bit easier way to kind of understand. The new formula is a sigmoid function. That is another or a logistic formula. The two other ways of kind of describing the same thing. It uses the sigmoid function to address the issues identified in the preliminary decision tree, that brittleness.

Specifically, it's easily adapted to any new information you want to plug in. It's consistent across species, even if the information available is different, and it's able to handle extreme cases, so you can put in really high values into that Z equation I just talked about on the last slide. But it all always gets kind of crunched into fitting within normal probability range from 0 to 1.

By separating the technical information from the weightings, the approach can be more transparent and easier to use. I'm going to get into a quick example here. This will kind of show you exactly how this could work, in kind of a hypothetical world. Let's pretend that we need to set a TAC for a species.

That first decision you need to make before we can get some information about the TACs that we have available to us, is what the probability should be for that TAC, with regard to F, fishing mortality being at or below the F target. If we want a higher probability of management success, we would have a lower TAC, because that would be more risk averse.

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If we want it to be a little more risky in that decision, for whatever reason, and have a lower probability of management success, we would end up with a higher TAC, so that would be a little more risk prone, but we can make those decisions based on our risk policy. Here you have a panel with four plots in it, and this example demonstrates how both the inputs and the weightings affect the final probability of management success.

In this case what you're looking at is the default starting probability of management success being 50 percent. That is something that we tend to use a lot. If you look at the top left panel, that shows a situation where you're not overfished and overfishing is not occurring. You can see that little box falls right on the 50 percent line.

Then to the right, that shows a case when both the biomass and the fishing mortality are between the target and the threshold. You can see that this increases the final probability of management success slightly, you know not too much. But you can see that little gray box is now up above that 50 percent line, you know whatever it is, like 55 percent, or something like that. The bottom left shows when either the stock is overfished or overfishing is occurring. You're not doing great in one of your metrics. What you can see is now this boosts that probability of management success up a little bit higher.

Now you're clearly up above the 50 percent line. Then the bottom right, that is your kind of extreme case. When the stock is both overfished and overfishing is occurring, and you can see that results in the largest increase in probability, your highest stuff on the curve there in that case. For the next, I think three slides this format will be the same.

Your stock status will be in the same position in each case, but now we're going to add in a couple of new scenarios, so you can see how these things interact with the decision process. Okay, so now this figure shows those same

scenarios, but adds a layer of the fact that we have high levels of uncertainty somewhere within our decision process.

What you see that's new on the box here is an orange circle, and that is showing that you have high uncertainty in some element for this hypothetical species. What you can see happens is that little orange circle kind of sits just above the gray box that we talked about on the last slide. You can see, because you have high uncertainty, you want to be a little bit more risk averse.

Now all of those same decisions that you had made will kind of boost it up a little bit, as far as your probability of management success that you get out of this decision tool. This case demonstrates how accounting for a negative socioeconomic impact of the management action would reduce the probability of management success.

This pushes back on the increases that you would get otherwise. Just an important note here is that the magnitude of these shifts depends on the faulty information that is driving it, and on the weighting determined by the Board. That would make all of these things slide further up or further down, you know on the curve. But for this example, the Board could weight short term socioeconomic impacts as relatively high.

That would increase the effect on what you're seeing up on the screen, or you could down weight it, and that would decrease the effect. But what you see here is, now we have a blue triangle on there, and you can see that because we are in this case putting emphasis on the negative, short term, socioeconomic impacts.

You can see that even in that base case you're pushing down below, so you're being more risk prone, you know in that top left box. But in all of the cases, because you have this potential short term negative socioeconomic consequence, you're shifting your probability of

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management success down in each case. You're being more risk prone.

Final scenario, and I'm almost done, Mr. Chair, I promise. There is now a, I'll call it a purple diamond on the screen. In this case what we're trying to demonstrate is incorporating a long term positive socioeconomic impact of a management action. If you were more risk averse, you would get better socioeconomic consequences in the future, and so that is what this case is demonstrating for you. In these cases, where you wanted to emphasize the long-term effects, because they have more positive benefits. You can see that in this case these would be the most risk averse decisions that you would make in this scenario. It boosts up the probability of management success that you would apply to your management action. Incorporating both short term and long term, is what I was allowing these things to be both positive and negative in their directionality, the socioeconomic components.

It allows the Board to transparently account for those types of tradeoffs. The decision tool will be developed by the species board. The facting of the specific decision process will be done by the individual species boards, who would do that in collaboration with the Technical Committee. This will be done in a process that is separate from the management decision, so you will kind of do that ahead of time.

This could be an iterative process, so the Board can provide feedback on the weightings, and the decision tool answers when they see the results. You can kind of have like a process that has feedback. But the idea would be to set your weightings and things like that a priori, so that you are kind of making those initial weighting judgments before you have kind of a pressing management decision to make.

Then the final bullet there, the probability of management success will be used then by the Technical Committee or the Plan Development Team to develop the management options. Instead of the situations where the Board ends

up saying hey, give us a probability of management success between 30 and 75 percent, and then kind of looking at the answers and making a judgment.

They will kind of make the a priori decision of how you want the emphasis to go into the decision process, and then you would have a much smaller range, or actually potentially a single value in the end. It cuts down on the workload and the amount of decision making that the Board has to do after the fact.

Any feedback on this revised risk and uncertainty approach as a whole would be something we're looking at from this group. That is something to kind of think about. Additionally, the Board could use surveys or voting technology, remember we did that process a year or so ago with the clickers.

It's kind of like a live voting surveying thing that we were doing at the Board, which was kind of fun. We could do something like that to collectively determine the weighting preferences. Remember, the Boards are going to have to set these weights ahead of time, so we wanted to know what you thought about that as an approach.

Then the socioeconomic questions are currently the only components that can be both negative and positive, so it could both increase and decrease the probability of management success. We were wondering if you wanted to incorporate other components of the decision process that could be both positive and negative as well.

Then last slide, potential next steps for you to consider are, we could incorporate any feedback that you have today. Then what we could do is take that and then work with the ASC, MSC, and CESS to refine the criteria for the decision tool inputs. Then what we can do is take that and revise the striped bass example to fit this new approach, including a test run with the Striped Bass Board. One final thing I wanted to leave you with is, we met with the Risk and Uncertainty Working Group that had

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been developed. They've generally liked this. But during that discussion they brought up the notion that there may be some other examples we might want to test this on.

Specifically, they brought up lobster and menhaden as other viable candidates, but for the short term we thought continuing to focus on striped bass might be a good way to move this forward. But I wanted to at least mention that advice about lobster and menhaden that came out of the Working Group. Mr. Chair, that is it for me. I am more than happy to take any questions that anybody has on this.

CHAIRMAN KELIHER: Thanks, Jason, very thorough report as always. I particularly love the reference to using our buddy our pal, as I was walking out to get my Advil. Think about the details around this. A couple hands have already gone up. Justin Davis.

DR. JUSTIN DAVIS: Thanks for that presentation, Jay, this is really cool, I like it. I don't know if it would be possible to put up the slide further back with the actual formula, but in the meantime, I guess my question was, in looking at this you've got your different inputs, which will reflect things like socioeconomic factors and the condition of the stock.

Those will be represented here by sort of the X1s and the X2s, and my first question is, those would presumably be scored, like on a 1-5 sort of scale or something like that? Then there would sort of need to be some decision about how that is handled. Then the different, you know what we would think of as kind of the slopes here in a multiple regression, but the B1s and the B2s, the weightings.

Those I think, would those have to sum to 1, so that essentially like if you're setting 1 at 0.25, and another one at 0.5 that is directly saying we're considering the 1 that you're putting the 0.5 in front of is twice as important, or are we going to have to set those factors such that they kind of like produce a certain outcome of overall probability of management success?

Those figures you showed with the sigmoid curve, that they sort of, you know given a certain set of scenarios you end up someplace on that. I guess I'm just wondering, sort of like how the decisions would be made about those weightings. Those are my two questions, if those make sense.

DR. McNAMEE: Yes, really good questions, Justin. Let me see, I'll start with the latter question. The way you characterized it at first is correct. They would need to sum to 1, and that kind of controls where it ends up. You are correct. They need to kind of sum to 1, and the way that you described it, weighting certain things over another is exactly right. If you put a larger B1, you know next to the X1 relative to a smaller B2 next to the X2, B1 is what you're giving the most influence to within the equation. I am sorry, I had forgotten your very first question.

DR. DAVIS: My first question was, for the inputs, the X1s and the X2s, would those be something that is sort of like scored on a scale of like 1-5 or something like that? Would that be a good meeting point of how you come up with your scoring criteria for those.

DR. McNAMEE: Yes, and that was actually the thing that kind of brought this whole thing to the fore. When we brought this to the CESS, they were kind of struggling with the way we had it constructed, because a lot of in particular social science information, comes out of things like Likert scales and you know things like that.

They don't lend themselves well to adding 0.05 or something like that. Whereas, some of the technical stuff does. That comes directly out of the assessment information. You know trying to cobble those different types of things together and make the end results be something that is useful and meaningful. That is what created our challenge, and is what led to this.

That is exactly right. But I think some of that stuff could avail itself, and I think in some of the

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background information that was also posted with this. There is a little more information on this very topic, where socioeconomic questions could be scored 1-5, and so that is what you would be doing there. Then for the technical information you could be adding, giving it scores between 0 and 1, you know things like that. Yes, I think you've got this exactly right, Dr. Davis.

CHAIRMAN KELIHER: Anybody else have any questions for Jason? If staff could go to the final slide, the recommendation.

MR. JOHN CLARK: Pat, could you add me to the queue? This is John Clark.

CHAIRMAN KELIHER: Yes, John. I've got Lynn Fegley, and then we'll go to you, John. Lynn.

MS. FEGLEY: Jason, thank you for this. This came out, I'm just really excited about how all this worked out. I remember those early meetings when we got so excited about plinko. I may have been a little skeptical that this really. Thank you for all the work on this, and the great presentation. I wanted to just highlight two things.

One is, I think this idea that the development of the uncertainty level is separate from a management decision. I think that that is really important, that this is done a priori so that it's not happening at the same time that people have great concerns and fears about particular, and likely necessary management action.

I think that a priori piece of it is important. That kind of brings me to the second part of my question is, you know reference points are set differently for different species, and in some cases a threshold reference point really might be indicative of a border between stock collapse and stock sustenance, and in other cases maybe not so much.

I have been known to say to my constituents that, you know when we manage fisheries, we kind of use the science to create a box for you

that we don't want to go outside of in management. That is our spacey area, and what we do within that spacey area is very much where we need the input from all of our array of stakeholders. My question really is, just about the short-term economic impact weighting factor, and how we sort of ensure, because that is always the scariest thing right, short term economics is always the scariest thing. I guess my sort of process thought question to the Board is, how do we ensure as the Boards are walking through this process that we make sure that we're maintaining that safety box, while we're figuring out the weight of short term economic impacts, if I phrase that so that it makes sense?

DR. McNAMEE: Yes, Mr. Chair, I can respond if you would like.

CHAIRMAN KELIHER: Yes, please do.

DR. McNAMEE: Okay, thanks for that, Lynn, that was great. I completely agree with you on the transparency aspect of it, in making sure that we at least set things up ahead of time based on the risk policy and not based on kind of the heat of the moment. That is super important as well. Then, I think your question about, I like the way you sort of visualized that as the box.

I think that is actually another important factor that I didn't touch on explicitly here. But there may be, for instance we don't want to go all the way to 100, or all the way down to 0, as far as the management, I'm sorry the risk advice of the probability of management success that we get out of this tool.

That is another decision factor, if we want to kind of bound this, and I'm just making stuff up, to not go below 40 percent or above 75 percent, or something like that. That is kind of one aspect of what you're talking about. That's another thing that we'll have to work through, and that's a higher-level decision, so that could be like the ISFMP that kind of sets that with

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advice from the Boards, if we wanted overarching set up criteria.

In another context I think, short term and long term socioeconomic considerations, you can also work within the species specific arena, and just weight those things to make sure you're not putting too much emphasis on those factors, so we don't kind of pin yourself always, you know at the bottom end of the box.

Because lots of times there is going to be significant socioeconomic consequences in the short term. I think that is where the weighting becomes really important. That is why doing a standalone meeting, where we kind of work through those weightings with some scenario testing, and things like that, I think would be a really good approach to setting those weightings.

CHAIRMAN KELIHER: Does anybody else have any additional questions for Jason? I don't see any others. Oh, John go ahead.

MR. CLARK: I wish I could have seen your presentation, Jason. I was following along in the memo. It is very interesting, and my question kind of follows up on Lynn's in that I notice on the socioeconomics, because it is the only one that goes from a negative to a positive. Is it possible that those could all just negate each other? Like if the short-term economic impact is negative 5, weighted for the 1 and then positive 5 for the long term or short-term long term, that you could end up in a situation where these human dimensions determination ends up having no impact on the final probability?

DR. McNAMEE: Yes, yes. Really good question, John. The answer is yes. But that would only be the case if in the end your weightings on those competing factors were exactly the same. If you have, you know a weighting of 0.1 on the one that you have on the negative side and 0.1 on the positive side, and then you scored them exactly the same, so it is kind of like multiple components at play.

But if you have the same weightings, and then gave them the same scores, then yes, they would cancel each other out. They are in fact influencing your final determination though. The result seems like it hasn't had an influence, but it does. I mean what you're saying is, we think that short-term influence and the long-term influence are both super important, and that's why they have kind of canceled themselves out. Then the other components of the decision process.

You know they have kind of determined where you end up on the curve. But that would be something that would avail itself during, kind of the weighting exercise that you're doing with the Board. You could do that kind of a scenario, and then the Board could decide, well we don't want them to have equal weight so they don't do that every time, or some of the time or whatever it is. There are ways to construct it, so that doesn't happen frequently, but long-winded answer to your question. The answer was yes, that can happen.

MR. CLARK: Thanks, Jay, you know as I said, it's just one of those perceptions that a lot of times we'll say it is short-term pain for long-term gain, and having a formula that can actually end up trying to show that is great. But it could also end up being something that kind of minimizes the economic impact. Thanks.

CHAIRMAN KELIHER: Thank you, John, we certainly have got a very thorough report here by Jason and the group on risk and uncertainty. Jason, I think you got some feedback with some very good questions here. There was some discussion or comment in the potential next steps about working with three different groups to refine the criteria.

It would seem to me, based on the questions, there is some revisions and refining that need to be done. Is there any disagreement from the Policy Board about continuing with this work, and getting an additional report back at a later meeting? I don't see any hands going up. Jason, I'm going to take that as affirmative to

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my question to the Policy Board. Do you need any additional input based on that?

DR. McNAMEE: No, I think that is it, Mr. Chair. Thanks to everybody for tuning in, and thinking about this a little bit. With that affirmation, it also sounds like that sticking with the striped bass example is the way to go, so we'll get to work on that and we'll be back.

CHAIRMAN KELIHER: Great, thank you very much Jason, it's great work. Appreciate that.

COMMITTEE REPORTS

CHAIRMAN KELIHER: I'm going to do a quick time check. We've got until 12:05 on the agenda. We could probably run a little bit long. I know it's going to bump up into a meeting for me. Toni, we've got Committee Reports coming up. Do you have a sense of the timing around those?

MS. KERNS: I think they will be fairly quick, all of them. I know that some can be sped up a little if necessary.

CHAIRMAN KELIHER: Okay great. Well, we have both Sarah and Lisa in the queue to present these reports, so why don't we move right to the Assessment and Science Committee, the report from Sarah Murray.

ASSESSMENT SCIENCE COMMITTEE

MS. SARAH MURRAY: Thank you, Mr. Chair, and I'll try to be as fast as possible. The ASC met on May 20 to discuss a number of issues, including the stock assessment schedule, which is the main purpose of this presentation. I did want to also note that there were plans to hold an advanced stock assessment training on management and strategy evaluations, and those have been postponed due to COVID-19.

We're working on rescheduling that, and determining whether we would like to host that as a webinar training or hold it as an in-person training, and hold off until that is feasible. The proposed stock assessment schedule is available here. It is also available in your

meetings materials, as I know these are rather small words.

The ASC discussed and approved the draft stock assessment schedule at their meeting. This schedule, again available in your meeting materials, but I'll review some of the highlights of the changes that occurred since the 2019 annual meeting. First, two additional years were added for 2023, and populated based on the NMFS schedule and standard ASMFC assessment frequencies.

The Horseshoe Crab Adaptive Resource Management, or ARM framework benchmark was added to the schedule in 2021. That was already scheduled for that time, but the ARM hadn't been included on the schedule previously. Jonah crab was tentatively scheduled for 2023 for a first-time assessment. The details are still being sorted out on that.

One of the key challenges that ASC discussed was that there is a bottleneck of assessments scheduled for 2022. On the last schedule that was approved by the Board there were 11 benchmarks and 4 assessments scheduled in 2022. To try to reduce some of this bottleneck, the ASC recommended the following changes.

One, to shift croaker to 2024 from 2022, shift Atlantic sturgeon from 2022 to 2024, and to shift spot from 2022 to 2024. The river herring assessment, there was also a recommendation to shift that on the schedule to 2023. This is really just to reflect the substantial workload and time that is needed to complete that update.

Finally, striped bass on the schedule remained the same as the last approved schedule, which is with a tentative assessment update in 2021. However, the ASC recommended consulting the Striped Bass Management Board and Technical Committee on the pros and cons of shifting the update to a later year. This is the final proposed schedule from ASC, and with that I would be happy to take any questions.

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CHAIRMAN KELIHER: Thank you, Sarah, are there any questions from the Policy Board. Not seeing any questions, coming up right now we do have some suggested schedule changes that have been presented. Does anybody have any concerns regarding the schedule changes that have been presented?

EXECUTIVE DIRECTOR BEAL: This is Bob Beal really quick, Pat.

CHAIRMAN KELIHER: Go ahead, Bob.

EXECUTIVE DIRECTOR BEAL: The only one that popped into my head, and I should have talked to staff about it earlier is, delaying sturgeon until 2024. I don't know if that causes any problems with any pending ESA reviews that NOAA Fisheries might be having, given the threatened and endangered listing of Atlantic sturgeon up and down the coast. I'm not sure if the Management Science Committee thought about that, or if that is something as staff we need to go back and check on. But just, the thought just popped in my head.

CHAIRMAN KELIHER: No, I appreciate that, Bob. I think that is considering some conversations around possible changes in the future. I would recommend that staff check into that, just to make sure we're not going to be missing any deadlines, as far as an assessment, because if we could see changes in any listing criteria based on that assessment, that would be a good thing. Go ahead, Sarah.

MS. MURRAY: Yes, if you don't mind. I just wanted to note, and other staff please chime in if I'm mischaracterizing this. But I believe we were looking into this both in regards to river herring and Atlantic sturgeon, and we didn't think that this would present an issue for Atlantic sturgeon. Toni or Katie, if you have other information, let me know.

MS. KERNS: I think we'll have to check in with NOAA Fisheries. I did check on the shad and river herring question, but I did not check in on sturgeon. I do know that they, the habitat is in

the process of doing a couple workshops right now that got delayed due to COVID, so we'll check in with them and get back to the Board if there are any problems.

CHAIRMAN KELIHER: I'm not sure we need to deal with this with a motion. We've got schedule changes that have been presented by Sarah on behalf of the Science and Assessment Committee. With the one change going that we'll be checking back in with the Agency on sturgeon. Does anybody have any objections that they would like to bring up around the schedule?

MS. KERNS: Pat, I just wanted to let you know that Justin Davis had his hand up. Maybe it was a question, I'm not sure. It was up before you asked.

CHAIRMAN KELIHER: Justin, do you have a question, or is that remaining from the last topic?

DR. DAVIS: I did have a question, thanks Mr. Chairman. I just wanted to be clear that in the new proposed schedule there is still an update scheduled for striped bass in 2021.

MS. MURRAY: Yes, that is correct.

DR. DAVIS: Okay, thank you.

CHAIRMAN KELIHER: Thanks, Justin, sorry I missed your hand. Anybody else? Last call for objections to modification of the schedule. Hearing no objections, it is consensus that the schedule be modified as presented. Thank you very much, Sarah. Any other issues, Sarah, that you need to bring before the Policy Board?

MS. MURRAY: No, that is everything for me, thank you.

CHAIRMAN KELIHER: Great, thank you very much. Let's quickly shift gear and go to the Habitat Committee Report.

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**ATLANTIC COASTAL FISHERIES HABITAT
PARTNERSHIP**

DR. LISA HAVEL: I'll wait for the presentation to come up. If you don't mind, I'll start with the ACFHP update, and then move to Habitat Committee, since ACFHP should be a little bit quicker.

CHAIRMAN KELIHER: That would be great.

DR. HAVEL: Okay, and then I'll take questions on both updates at the end. The Steering Committee met virtually May 26-27. They received updates on current on-the-ground projects, and update on the conservation mapping project, which is very close to completion now. They discussed outreach and communication initiatives, came to consensus on the Melissa Laser Award recipient for 2020, and reviewed the 2020-2021 Action Plan.

The fiscal year 2021 National Fish Habitat Action Plan U.S. Fish and Wildlife Service on the Ground Conservation Funding RFP will be released in August this year. It's slightly delayed, in order to incorporate the completed habitat mapping prioritization that we're wrapping up right now. For those interested, if you want to see the announcement when it does get released, please sign up for our newsletter, or follow us on Facebook.

You can do both of those via our website, Atlanticfishhabitat.org. Regarding project funding since the last time I provided an update. ACFHP received Fish America Foundation funding, a small grant, and this project is being led by the Fish and Wildlife Conservation Commission, Fish and Wildlife Research Institute.

Currently, Florida Bay is experiencing sponge loss due to algal blooms, and so this project is growing 5,000 sponges for out-planting. These sponges will benefit gray snapper, spiny lobster, and other species as well. ACFHP also received funding from NOAA Recreational Fishing, and this funding will go towards a one-acre oyster

reef restoration project on the eastern branch of the Lynnhaven River in Virginia.

This project is being led by the Chesapeake Bay Foundation, and Lynnhaven River Now, and they are going to be actively engaging with fishers through site location for the oyster reef, and also via outreach at the Virginia Rod and Reef Slam: Angling for Oyster Restoration. To be determined whether that will still take place in 2020, but if not, there is opportunity in 2021. We received funding through the U.S. Fish and Wildlife Service NFHP as well. We put funding towards four different on-the-ground projects this year. The first one is Magothy River Shoreline Restoration in Maryland. This will restore 500 linear feet of shoreline, to reduce chronic erosion. They're using seeded reef balls and woody tree boles and root fans, and this will establish needed plan tidal wetlands.

The second project is the County Line Dam Removal in New Jersey. This will remove the second dam on the Paulinskill, in order to open 3.5 river miles. Between this dam, the Columbia Dam removal, which we helped to fund in 2018, and the Paulina Dam, which is scheduled to be removed soon as well. In total it will open 45 river miles for shad and river herring.

The third project is an oyster reef restoration project in Mosquito Lagoon, Florida. This will restore 420 linear feet of habitat, and reduce erosion from boat leaks. Finally, we are helping to fund a stream restoration project on the Town Brook, which is in Plymouth, Massachusetts. This will be replacing a 60-foot Alaskan seep pass with a 420-foot bypass channel with 2 percent slope and several resting pools.

It will open access to 269 acres of alewife spawning habitat. In total we're putting \$161,934.00 directly to on the ground restoration this year, the ACFHP funding. We also endorsed a project. The upper and lower Kickemuit River Dam Removal. This is being led by Bristol County Water Authority and Save the

Bay, and it's taking place in Warren, Rhode Island.

The Dam was created in 1954 to protect water supply from tidal inundation after Hurricane Carol, but is no longer being used. This removal will open 8 square miles for river herring and other species. ACFHP as usual would like to thank ASMFC for your continued operational support, and I'll move right into the Habitat Committee Report, and then happy to take any questions on both at the end.

HABITAT COMMITTEE

DR. HAVEL: The Habitat Committee met virtually May 28 to 29. They received updates on the documents in progress, acoustic impacts to fish habitat, fish habitats of concern document, as well as the habitat hotline. We received an update on the Northeast Regional Habitat Assessment, as well as an ACFHP update.

We had a discussion on clean water and ecological flows. The Habitat Committee decided that their next habitat management series document should focus on dissolved oxygen and pH based on this discussion. Finally, there was a discussion on living shorelines impacts to SAV, and I'll go into more details on the next couple slides for that.

There was a background document on this included in your briefing materials, and I'll hit the highlights in the next couple slides. Living shorelines when properly sited are a great alternative to hardened shorelines. They incorporate vegetation or other natural soft elements, and they promote shoreline stabilization, wave attenuation.

They help with erosion control, and they improve fish habitat. The Habitat Committee supports the use of these softer, more ecologically beneficial means of protecting and stabilizing shoreline. There has been streamlined permitting developed on state and federal levels, and living shorelines preference

has been codified in some state laws and regulations. There have generally been positive developments in terms of living shorelines. However, some states are placing living shorelines in close proximity to submerged aquatic vegetation beds, directly or indirectly impacting this important habitat for many Commission-managed species. Submerged Aquatic Vegetation is an Essential Fish Habitat and Habitat Area of Particular Concern for multiple species.

The ASMFC updated our SAV Policy in 2018, emphasizing its importance. The Habitat Committee recommends that shoreline stabilization alternatives to avoid or minimize impacts to SAV should be considered. Hierarchical approach to siting and design of living shorelines that incorporates avoidance and minimization measures, should be demonstrated before unavoidable impacts to SAV are considered.

Because of the ecological importance of SAV, increasing instances of living shorelines and nature-based projects being proposed in conflict with SAV, continued reported losses of SAV along the Atlantic coast and worldwide, and difficulties associated with mitigating and restoring SAV that has been damaged or lost. The Habitat Committee requests the Policy Board approve the development of a living shoreline's policy that would be protective of SAV.

They are asking to draft a policy, and then the Policy Board would have the ability to provide input on this draft policy, and pass or not pass the policy. The request is just to go ahead with developing a draft for you all to review at a future date. As always, we welcome suggestions for action items that you would like the Committee to work on, and I'm happy to take any questions.

CHAIRMAN KELIHER: Great, thank you, Lisa. Are there any questions for Lisa on either of those presentations? Not seeing a lot of hands go up. Any objections to the development of a

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draft policy by the Habitat Committee as it pertains to SAVs and Living Shorelines? Steve Murphy.

STEVEN W. MURPHY: I don't have an objection to them developing a policy, but I do believe this is not a one-size-fits-all approach, and I think I understand the concerns of the Committee, where certain states have allowed the development of living shorelines on SAV. In North Carolina at least, we have general regional permit or general permit that we use through our coastal management.

We also have those same considerations for protection of SAV built into the nationwide regional conditions, which is an option available to any state to do that, as well working with your regional Corp office. I just want to caution that I don't think one-size-fits-all approaches are the way to do this. I know it's just a policy, but policies have a tendency to be held over us from time to time on the state level. I just wanted to make those comments as they move forward.

CHAIRMAN KELIHER: On that particular topic, I was going to ask a question of Lisa. Have you consulted with the different state coastal programs around this who are utilizing living shoreline approaches?

DR. HAVEL: Well, this came up through the Habitat Committee so all of the state representatives on the Committee were at the discussion back in May. We heard from multiple states that this is an issue. It is not an issue in every state in the ASMFC, but it was enough of a concern amongst the group that they thought a policy would be warranted. There also seemed to be agreement from NOAA in the northeast region that it would be helpful as well for their purposes.

CHAIRMAN KELIHER: Great, thank you. I've got Lynn Fegley.

MS. FEGLEY: Thank you, Lisa. Just help me understand. I think it's fine to go ahead and

jack the policy and see what it looks like. But I guess I'm a little confused. If living shorelines are being placed in proximity to SAV beds and potentially causing harm, isn't that better than putting a hardened shoreline there? Is it the idea that those areas just there is no option? Do you see what I'm saying? I'm not sure if there is a shoreline problem and an SAV bed at the same time, is the policy going to try to help lead people to the best-case solution?

DR. HAVEL: That's a good question, and I think that's why they would like to help develop with a hierarchical approach. In most cases living shorelines are recommended over hardened shorelines, but the Habitat Committee thinks that there might be a happy medium, or you could put possibly breakers or something farther out away from the shore, and not in conflict with SAV that might help protect with some of the erosion.

Also, having SAV in general helps promote shoreline stabilization to where you might not even need a living shoreline to begin with. They want to have all of those options in the policy, so that it's not just going to be, well you can't put a living shoreline, you're going to end up with riff raff. It's not going to be a one-size-fits-all like that.

MS. FEGLEY: Gotcha.

CHAIRMAN KELIHER: Cheri Patterson.

MS. PATTERSON: I find good utility in this, and I would definitely be for this sort of action. Generally, my experience is that it provides more than a unilateral utility. Then it provides many sorts of options for us to consider in a policy atmosphere.

CHAIRMAN KELIHER: I don't have any more hands up right now. I think you've got a green light, Lisa, to go ahead and develop a draft policy to present back to the Policy Board for a future meeting to continue discussion. I appreciate the presentation on both of those areas, so thank you very much. We're about five minutes over. I am pleased to announce

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that the last agenda item is review of noncompliance actions, and why I'm pleased is we don't have any reviews of noncompliant actions.

That is good news for the Commission.

ADJOURNMENT

CHAIRMAN KELIHER: Is there any other business to be brought before the Policy Board today? I am seeing no hands, so with that a motion to adjourn would be in order. Mel Bell has motioned to adjourn and I think Justin Davis has seconded it, so with that thank you very much. I appreciate everybody's time and energy here today, and good luck with the remainder of the Commission meetings.

(Whereupon the meeting adjourned at 12:20
p.m. on August 5, 2020)



Atlantic States Marine Fisheries Commission

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MEMORANDUM

TO: Executive Committee
FROM: Toni Kerns, ISFMP Director
DATE: July 28, 2020

The Commission's South Atlantic State/Federal Management Board (Board) is responsible for the management of 7 species: Atlantic cobia, spot, Spanish mackerel, red drum, black drum, Atlantic croaker, and spotted sea trout. The number of species managed under this Board has increased over time. The Board is made up of the states from Florida to New York but different states have declared interest in different species. For example, the states from New York to Florida have a declared interest in Spanish mackerel, New Jersey to Florida for Atlantic croaker, and Maryland to Florida for spotted seatrout. Due to the large number of species managed by this Board, the length of their meetings has increased in recent time. Depending on the species being discussed, several states on the Board will have "down time" until issues related to the relevant species are addressed in the agenda.

Both Atlantic cobia and Spanish mackerel have seen an increase in commercial harvest over the past three decades (Table 1 and 2). There has been an interest by some of the more northern states to declare an interest for one or both of these species but not for the sciaenids managed under the Board. In order to make the best use of Commissioner time and keep the meetings at reasonable lengths, staff is recommending to divide the board into two: the first a pelagics board managing Atlantic cobia and Spanish mackerel and second a sciaenids board managing spot, red drum, black drum, Atlantic croaker, and spotted sea trout.

M20-90

Table 1. Commercial Atlantic Cobia Landings 1980-2019 (data source: ACCSP; C=confidential)

| Year | MA | RI | CT | NY | NJ | DE | MD | PRFC | VA | NC | SC | GA | |
|------|-----|----|-------|-----|-------|-------|-----|-------|--------|--------|--------|-------|---|
| 1980 | | | | | | | | | 1,400 | 5,128 | C | 497 | |
| 1981 | | | | | | | | | 1,400 | 5,260 | C | 1,126 | |
| 1982 | | | | | | | 100 | | 2,000 | 10,574 | C | 2,304 | |
| 1983 | | | | | | | | | 900 | 4,279 | C | 1,497 | |
| 1984 | | | | | | | | | 1,900 | 6,701 | C | 2,570 | |
| 1985 | 100 | | | | | | 100 | | 2,300 | 6,640 | 1,464 | 611 | |
| 1986 | | | | | | | | | 1,200 | 18,303 | 3,690 | 2,561 | |
| 1987 | | | | 100 | | | | | 300 | 32,672 | 4,718 | 2,705 | |
| 1988 | | | | | 100 | | | | 5,700 | 15,690 | 5,224 | 1,924 | |
| 1989 | | | | | 200 | | 300 | | 10,600 | 14,898 | 6,835 | 440 | |
| 1990 | | | 194 | | 17 | 1,649 | | 431 | 16,532 | 21,938 | 1,802 | 1,367 | |
| 1991 | | | | | | 1,155 | | 2,045 | 11,743 | 23,217 | 3,005 | 2,651 | |
| 1992 | | | 157 | | | 1,037 | | 1,882 | 6,110 | 18,534 | 6,925 | 2,187 | |
| 1993 | | | 28 | | | 792 | | 471 | 5,986 | 20,431 | 9,092 | 2,730 | |
| 1994 | | | | 165 | 483 | | C | | 7,817 | 30,586 | 5,488 | 2,483 | |
| 1995 | | | 518 | | 411 | 1,736 | C | | 22,011 | 35,143 | 6,133 | 1,543 | |
| 1996 | | C | | C | | 2,295 | C | | C | 33,404 | 4,483 | 675 | |
| 1997 | | C | | | 89 | 3,989 | | 377 | 11,710 | 42,063 | 3,513 | 1,742 | |
| 1998 | | C | | | 60 | 2,853 | C | | 13,419 | 22,197 | C | C | |
| 1999 | | C | | | 46 | 1,432 | C | | 5,808 | 15,491 | C | C | |
| 2000 | | C | | | 101 | 1,762 | C | | 7,525 | 28,754 | 2,974 | C | |
| 2001 | | | 223 | | 252 | 683 | C | | C | 24,718 | C | C | |
| 2002 | C | C | | | 70 | 2,086 | C | | 11,445 | 21,058 | 5,007 | C | |
| 2003 | | | 198 | | 84 | 621 | C | C | 7,387 | 21,313 | 4,746 | C | |
| 2004 | | C | | | 758 | 576 | | 211 | 6,143 | 20,162 | 4,014 | 705 | |
| 2005 | | C | | C | | 329 | C | | 6,084 | 17,886 | 3,773 | C | |
| 2006 | | | | | C | | | 48 | 2,705 | 20,270 | 2,405 | C | |
| 2007 | | | 137 | C | | 1,589 | C | | 5,928 | 19,005 | 3,408 | 245 | |
| 2008 | | C | | C | C | | C | | 6,755 | 22,047 | 3,016 | C | |
| 2009 | C | | 134 | C | | 1,134 | | 196 | 5,980 | 31,898 | 2,078 | C | |
| 2010 | | C | | C | | 270 | C | | 8,504 | 43,715 | 2,499 | C | |
| 2011 | | | 170 | | 393.3 | C | C | | 8,500 | 19,924 | 4,020 | C | |
| 2012 | | | 217.3 | | 152 | 699 | C | | 5,382 | 31,972 | 3,359 | C | |
| 2013 | | | 476 | | 840.5 | 885 | C | C | 10,900 | 35,456 | 3,829 | C | |
| 2014 | | C | | | 311 | 359 | C | | 21,255 | 41,798 | 3,492 | C | |
| 2015 | | C | | | 235 | 212 | C | | 25,352 | 52,684 | 2,487 | C | |
| 2016 | | | 183 | | 114 | 282 | C | C | 29,459 | 48,244 | 4,064 | C | |
| 2017 | | | 115 | | 80 | C | C | C | 26,748 | 16,890 | 4,261 | C | |
| 2018 | | | 290 | C | 388 | 707 | C | | 21,355 | 16,578 | 2,723 | C | |
| 2019 | | | 352 | | 1191 | 1,367 | C | C | 2,375 | 31,647 | 21,553 | 2,447 | C |

Table 2. Commercial Spanish Mackerel Landing, 1980-2019 (data source: ACCSP; C=confidential)

| Year | MA | RI | CT | NY | NJ | DE | MD | PRFC | VA | NC | SC | GA | FL |
|------|--------|--------|----|---------|--------|----|--------|------|---------|---------|-------|-------|-----------|
| 1980 | | | | 100 | 600 | | | | 8,300 | 75,306 | 6,769 | 1,491 | 9,811,053 |
| 1981 | | | | 500 | 500 | | | | 3,500 | 51,639 | 53 | 518 | 4,174,432 |
| 1982 | | | | 1,000 | 200 | | | | 12,700 | 189,217 | C | 745 | 3,758,603 |
| 1983 | 2,600 | 2,600 | | 600 | 100 | | | | 3,500 | 41,336 | 706 | | 5,947,102 |
| 1984 | | | | 300 | 100 | | | | 10,000 | 127,467 | 1,321 | C | 2,397,373 |
| 1985 | | | | 100 | | | | | 15,300 | 173,186 | 847 | C | 3,245,008 |
| 1986 | 600 | | | 3,200 | 1,500 | | | | 168,400 | 232,197 | 6,375 | 1,335 | 3,256,777 |
| 1987 | 16,000 | 4,900 | | 16,600 | 24,000 | | 4,800 | | 251,200 | 504,063 | 961 | 255 | 3,497,135 |
| 1988 | | 3,400 | | 19,200 | 16,900 | | 4,300 | | 291,600 | 438,222 | 1,029 | 726 | 3,071,687 |
| 1989 | 12,400 | 8,900 | | 17,700 | 24,100 | | 10,400 | | 354,400 | 589,383 | 1,605 | C | 2,853,177 |
| 1990 | 6,585 | 5,530 | | 24,329 | 28,336 | | 43,411 | | 491,651 | 838,914 | 284 | 491 | 1,978,819 |
| 1991 | 19,698 | 9,530 | | 149,321 | 77,151 | | 62,688 | | 447,127 | 858,808 | C | C | 2,972,167 |
| 1992 | 608 | 2,277 | | 31,873 | 51,751 | | 37,930 | | 271,313 | 738,362 | 1,952 | 71 | 2,028,703 |
| 1993 | 5 | 2,843 | | 42,063 | 23,036 | | 9,445 | | 335,688 | 589,868 | C | 95 | 3,903,498 |
| 1994 | C | 893 | | 124,733 | 19,915 | | 3,363 | | 376,818 | 531,371 | 362 | C | 3,098,336 |
| 1995 | | 12,419 | 2 | 9,136 | 2,153 | | 3,089 | | 168,732 | 402,392 | 135 | C | 3,064,926 |
| 1996 | | 2,523 | 8 | 17,980 | 40,821 | | C | | 283,750 | 401,839 | 236 | C | 2,244,667 |
| 1997 | C | 86 | | 31,107 | 12,122 | | C | | 164,639 | 766,958 | 66 | C | 2,269,289 |
| 1998 | C | 109 | | 37,238 | 13,242 | | C | | 121,109 | 372,415 | 160 | C | 2,498,458 |
| 1999 | C | 276 | | 47,831 | 17,144 | | C | | 251,626 | 459,100 | | C | 1,566,706 |
| 2000 | C | 188 | | 35,825 | 11,757 | | C | | C | 659,726 | 192 | C | 1,675,458 |
| 2001 | C | 20,052 | | 13,851 | 9,401 | C | C | | 178,610 | 653,673 | | C | 2,115,774 |
| 2002 | C | C | 3 | 18,741 | 11,196 | | 20,725 | | 102,417 | 698,448 | 9 | C | 1,994,195 |
| 2003 | C | 366 | | 18,339 | 5,432 | | 5,239 | | C | 456,784 | 214 | C | 2,739,176 |
| 2004 | C | 5,971 | | 16,921 | 3,060 | | 4,881 | | 66,979 | 456,242 | | C | 3,065,324 |
| 2005 | C | 294 | | 5,197 | 2,074 | 15 | 7,750 | | 43,579 | 446,001 | | C | 3,132,626 |
| 2006 | | | | C | 301 | | 418 | | C | 470,662 | C | | 3,141,531 |
| 2007 | | 2,143 | | 7,240 | 2,075 | | 3,755 | | 58,064 | 487,879 | C | C | 3,263,245 |
| 2008 | | 162 | | 2,512 | 1,210 | C | 7,136 | | 153,576 | 415,405 | | C | 2,262,504 |
| 2009 | | 218 | C | 3,463 | 3,324 | C | C | | 137,924 | 961,811 | | | 2,629,343 |
| 2010 | | 522 | C | 3,712 | 829 | | 4,939 | | 47,441 | 911,866 | C | | 3,551,357 |
| 2011 | | 1,795 | C | 1,147 | 305 | | 5,093 | | 36,271 | 871,217 | | | 3,432,932 |
| 2012 | | 2,135 | | 2,293 | 2,806 | | 3,634 | | 18,317 | 916,439 | | | 2,596,917 |
| 2013 | C | C | C | 4,467 | 265 | | 2,553 | | 7,746 | 620,752 | | | 2,265,390 |
| 2014 | C | 43 | C | 2,550 | 292 | | 1,644 | | 7,859 | 673,974 | C | | 2,585,281 |
| 2015 | | C | | 1,357 | 2,746 | | 2,228 | | 14,472 | 561,407 | 28 | | 1,807,967 |
| 2016 | | C | | 813 | 1,997 | C | 16,209 | | 33,091 | 601,526 | 133 | | 2,461,178 |
| 2017 | C | 652 | | 1,053 | 462 | | 817 | | 26,178 | 816,017 | 135 | | 2,672,655 |
| 2018 | C | 951 | | 1,283 | 950 | | 3,112 | | 23,988 | 796,890 | C | | 2,926,282 |
| 2019 | | 1,484 | C | 5,683 | 2,010 | C | C | | 189,739 | 722,396 | C | C | 2,998,800 |

Dated: September 24, 2020.

Paul N. Doremus,

Deputy Assistant Administrator for Operations, National Marine Fisheries Service.

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 635

[Docket No. 200911–0242]

RIN 0648–XT038

Atlantic Highly Migratory Species; 2021 Atlantic Shark Commercial Fishing Year

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Proposed rule; request for comments.

SUMMARY: This proposed rule would adjust quotas and retention limits and establish the opening date for the 2021 fishing year for the Atlantic commercial shark fisheries. Quotas would be adjusted as required or allowable based on any overharvests and/or underharvests experienced during the 2020 fishing year. NMFS proposes the opening date and commercial retention limits to provide, to the extent practicable, fishing opportunities for commercial shark fishermen in all regions and areas. The proposed measures could affect fishing opportunities for commercial shark fishermen in the northwestern Atlantic Ocean, the Gulf of Mexico, and the Caribbean Sea.

DATES: Written comments must be received by October 29, 2020.

ADDRESSES: You may submit comments on this document, identified by NOAA–NMFS–2020–0108, by electronic submission. Submit all electronic public comments via the Federal e-Rulemaking Portal. Go to www.regulations.gov/#!docketDetail;D=NOAA-NMFS-2020-0108, click the “Comment Now!” icon, complete the required fields, and enter or attach your comments.

Comments sent by any other method, to any other address or individual, or received after the end of the comment period, may not be considered by NMFS. All comments received are a part of the public record and will generally be posted for public viewing on www.regulations.gov without change.

All personal identifying information (e.g., name, address, etc.), confidential business information, or otherwise sensitive information submitted voluntarily by the sender will be publicly accessible. NMFS will accept anonymous comments (enter “N/A” in the required fields if you wish to remain anonymous).

Copies of this proposed rule and supporting documents are available from the HMS Management Division website at <https://www.fisheries.noaa.gov/topic/atlantic-highly-migratory-species> or by contacting Lauren Latchford (lauren.latchford@noaa.gov) by phone at 301–427–8503.

FOR FURTHER INFORMATION CONTACT:

Lauren Latchford (lauren.latchford@noaa.gov), Guy Eroh (guy.eroh@noaa.gov), or Karyl Brewster-Geisz (karyl.brewster-geisz@noaa.gov) at 301–427–8503.

SUPPLEMENTARY INFORMATION:

Background

The Atlantic commercial shark fisheries are managed under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). The 2006 Consolidated Atlantic Highly Migratory Species (HMS) Fishery Management Plan (FMP) and its amendments are implemented by regulations at 50 CFR part 635. For the Atlantic commercial shark fisheries, the 2006 Consolidated Atlantic HMS FMP and its amendments established default commercial shark retention limits, commercial quotas for species and management groups, and accounting measures for underharvests and overharvests. Regulations also include provisions allowing flexible opening dates for the fishing year and inseason adjustments to shark trip limits, which provide management flexibility in furtherance of equitable fishing opportunities, to the extent practicable, for commercial shark fishermen in all regions and areas.

2021 Proposed Commercial Shark Quotas

NMFS proposes adjusting the quota levels for the different shark stocks and management groups for the 2021 Atlantic commercial shark fishing year based on overharvests and underharvests that occurred during the 2020 fishing year, consistent with existing regulations at 50 CFR 635.27(b). Overharvests and underharvests are accounted for in the same region, sub-region, and/or fishery in which they occurred the following year, except that large overharvests may be spread over a

number of subsequent fishing years up to a maximum of five years. If a sub-regional quota is overharvested, but the overall regional quota is not, no subsequent adjustment is required.

Unharvested quota may be added to the quota for the next fishing year, but only if NMFS knows the status of all species in the management group, none of the species in the group are overfished, and there is no overfishing in the group. No more than 50 percent of a base annual quota may be carried over from a previous fishing year.

Based on 2020 harvests to date, and after considering catch rates and landings from previous years, NMFS proposes to adjust the 2021 quotas for certain management groups as shown in Table 1. All of the 2021 proposed quotas for the respective stocks and management groups will be subject to further adjustment in the final rule after NMFS considers the dealer reports through mid-October. NMFS anticipates that dealer reports received after that time will be used to adjust 2021 quotas, as appropriate, noting that in some circumstances, NMFS re-adjusts quotas in the subject year.

Because the Gulf of Mexico blacktip shark management group and smoothhound shark management groups in the Gulf of Mexico and Atlantic regions are not overfished, and overfishing is not occurring, available underharvest (up to 50 percent of the base annual quota) from the 2020 fishing year for these management groups may be added to the respective 2021 base quotas. NMFS proposes to account for any underharvest of Gulf of Mexico blacktip sharks by dividing underharvest between the eastern and western Gulf of Mexico sub-regional quotas based on the sub-regional quota split percentage implemented in Amendment 6 to the 2006 Consolidated Atlantic HMS FMP (80 FR 50073; August 18, 2015).

For the sandbar shark, aggregated large coastal shark (LCS), hammerhead shark, non-blacknose small coastal shark (SCS), blacknose shark, blue shark, porbeagle shark, and pelagic shark (other than porbeagle or blue sharks) management groups, the 2020 underharvests cannot be carried over to the 2021 fishing year because those stocks or management groups are overfished, are experiencing overfishing, or have an unknown status. With the exception of the sub-regional western Gulf of Mexico overharvest of the aggregated LCS quota, which will be discussed below, there are no overharvests to account for in these management groups to date. Thus, NMFS proposes that quotas for these

management groups be equal to the annual base quota without adjustment, although the ultimate decision will be based on current data at the time of the final rule.

The proposed 2021 quotas by species and management group are summarized in Table 1; the description of the calculations for each stock and management group can be found below. All quotas and landings are dressed

weight (dw), in metric tons (mt), unless specified otherwise. Table 1 includes landings data as of July 10, 2020; final quotas are subject to change based on landings as of October 2020. 1 mt = 2,204.6 lb.

TABLE 1—2021 PROPOSED QUOTAS AND OPENING DATE FOR THE ATLANTIC SHARK MANAGEMENT GROUPS

| Region or sub-region | Management group | 2020 Annual quota (A) | Preliminary 2020 landings ¹ (B) | Adjustments ² (C) | 2021 Base annual quota (D) | 2021 Proposed annual quota (D + C) | Season opening dates |
|--------------------------|---|----------------------------------|---|---------------------------------|----------------------------------|---------------------------------------|----------------------|
| Western Gulf of Mexico | Blacktip Sharks ³ | 347.2 mt dw (765,392 lb dw). | 204.4 mt dw (450,612 lb dw). | 115.7 mt dw (255,131 lb dw). | 231.5 mt dw (510,261 lb dw). | 347.2 mt dw (765,392 lb dw). | January 1, 2021. |
| | Aggregated ⁴ Large Coastal Sharks. | 72.0 mt dw (158,724 lb dw). | 78.9 mt dw (173,959 lb dw). | ..... | 72.0 mt dw (158,724 lb dw). | 72.0 mt dw (158,724 lb dw). | |
| | Hammerhead Sharks | 11.9 mt dw (26,301 lb dw). | <2.3 mt dw (<5,000 lb dw). | ..... | 11.9 mt dw (26,301 lb dw). | 11.9 mt dw (26,301 lb dw). | |
| Eastern Gulf of Mexico | Blacktip Sharks ³ | 37.7 mt dw (83,158 lb dw). | 3.5 mt dw (7,726 lb dw). | 12.6 mt dw (27,719 lb dw). | 25.1 mt dw (55,439 lb dw). | 37.7 mt dw (83,158 lb dw). | January 1, 2021. |
| | Aggregated Large Coastal Sharks. | 85.5 mt dw (188,593 lb dw). | 50.9 mt dw (112,266 lb dw). | ..... | 85.5 mt dw (188,593 lb dw). | 85.5 mt dw (188,593 lb dw). | |
| | Hammerhead Sharks | 13.4 mt dw (29,421 lb dw). | <2.7 mt dw (<6,000 lb dw). | ..... | 13.4 mt dw (29,421 lb dw). | 13.4 mt dw (29,421 lb dw). | |
| Gulf of Mexico | Non-Blacknose Small Coastal Sharks. | 112.6 mt dw (248,215 lb dw). | 25.2 mt dw (55,563 lb dw). | | 112.6 mt dw (248,215 lb dw). | 112.6 mt dw (248,215 lb dw). | January 1, 2021 |
| | Smoothhound Sharks | 504.6 mt dw (1,112,441 lb dw). | 1.4 mt dw (3,144 lb dw). | 168.2 mt dw (370,814 lb dw). | 336.4 mt dw (741,627 lb dw). | 504.6 mt dw (1,112,441 lb dw). | |
| Atlantic | Aggregated Large Coastal Sharks. | 168.9 mt dw (372,552 lb dw). | 36.8 mt dw (81,217 lb dw). | | 168.9 mt dw (372,552 lb dw). | 168.9 mt dw (372,552 lb dw). | January 1, 2021 |
| | Hammerhead Sharks | 27.1 mt dw (59,736 lb dw). | 10.6 mt dw (23,340 lb dw). | ..... | 27.1 mt dw (59,736 lb dw). | 27.1 mt dw (59,736 lb dw). | |
| | Non-Blacknose Small Coastal Sharks. | 264.1 mt dw (582,333 lb dw). | 44.0 mt dw (96,939 lb dw). | ..... | 264.1 mt dw (582,333 lb dw). | 264.1 mt dw (582,333 lb dw). | |
| | Blacknose Sharks (South of 34° N lat. only). | 17.2 mt dw (37,921 lb dw). | 2.6 mt dw (5,753 lb dw). | ..... | 17.2 mt dw (37,921 lb dw). | 17.2 mt dw (37,921 lb dw). | |
| No regional quotas | Smoothhound Sharks | 1,802.6 mt dw (3,971,587 lb dw). | 121.1 mt dw (266,965 lb dw). | 600.9 mt dw (1,323,862 lb dw). | 1,201.7 mt dw (2,649,268 lb dw). | 1,802.6 mt dw (3,971,587 lb dw). | January 1, 2021. |
| | Non-Sandbar LCS Research. | 50.0 mt dw (110,230 lb dw). | <2.5 mt dw (<5,500 lb dw). | ..... | 50.0 mt dw (110,230 lb dw). | 50.0 mt dw (110,230 lb dw). | |
| | Sandbar Shark Research. | 90.7 mt dw (199,943 lb dw). | <4.5 mt dw (<10,000 lb dw). | ..... | 90.7 mt dw (199,943 lb dw). | 90.7 mt dw (199,943 lb dw). | |
| | Blue Sharks | 273.0 mt dw (601,856 lb dw). | 0 mt dw (0 lb dw) ..... | ..... | 273.0 mt dw (601,856 lb dw). | 273.0 mt dw (601,856 lb dw). | |
| | Porbeagle Sharks | 1.7 mt dw (3,748 lb dw). | 0 mt dw (0 lb dw) ..... | ..... | 1.7 mt dw (3,748 lb dw). | 1.7 mt dw (3,748 lb dw). | |
| | Pelagic Sharks Other Than Porbeagle or Blue. | 488.0 mt dw (1,075,856 lb dw). | 28.8 mt dw (63,485 lb dw). | | 488.0 mt dw (1,075,856 lb dw). | 488.0 mt dw (1,075,856 lb dw). | |

¹ Landings are from January 1, 2020, through July 10, 2020, and are subject to change.
² Underharvest adjustments can only be applied to stocks or management groups that are not overfished and have no overfishing occurring. Also, the underharvest adjustments cannot exceed 50 percent of the base annual quota.
³ This adjustment accounts for underharvest in 2020. This proposed rule would increase the overall Gulf of Mexico blacktip shark quota by 128.3 mt dw (282,850 lb dw). Since any underharvest would be divided based on the sub-regional quota percentage split, the western Gulf of Mexico blacktip shark quota would be increased by 115.7 mt dw, or 90.2 percent of the quota adjustment, while the eastern Gulf of Mexico blacktip shark quota would be increased by 12.6 mt dw, or 9.8 percent of the quota adjustment.
⁴ While there is an overharvest of the western Gulf of Mexico Aggregated LCS sub-regional quota in 2020, NMFS does not expect the full Gulf of Mexico regional quota to be filled, and is thus proposing to maintain the full baseline quota in 2021. However, if the Gulf of Mexico regional quota is filled or exceeded, the sub-regional quota would be adjusted accordingly.

1. Proposed 2021 Quotas for the Gulf of Mexico Region Shark Management Groups

The 2021 proposed commercial quota for blacktip sharks in the western Gulf of Mexico sub-region is 347.2 mt dw (765,392 lb dw) and the eastern Gulf of Mexico sub-region is 37.7 mt dw (83,158 lb dw; Table 1). As of July 10, 2020, preliminary reported landings for blacktip sharks in the western Gulf of Mexico sub-region were at 59 percent (204.4 mt dw) of their 2020 quota levels (347.2 mt dw), and blacktip sharks in the eastern Gulf of Mexico sub-region were at 9 percent (3.5 mt dw) of the sub-regional 2020 quota levels (37.7 mt dw). Reported landings in both sub-regions have not exceeded the 2020 quota to date. Gulf of Mexico blacktip sharks are not overfished, are not experiencing overfishing, and do not have an

unknown status. Pursuant to § 635.27(b)(2)(ii), underharvests for blacktip sharks within the Gulf of Mexico region therefore may be applied to the 2020 quotas, up to 50 percent of the base annual quota. Additionally, any underharvest would be divided between the two sub-regions, based on the percentages that are allocated to each sub-region, which are set forth in § 635.27(b)(1)(ii)(C). To date, the overall Gulf of Mexico blacktip shark management group is underharvested by 177.0 mt dw (390,212 lb dw). Accordingly, NMFS proposes to increase the western Gulf of Mexico blacktip shark quota by 115.7 mt dw or 90.2 percent of the quota adjustment, while the eastern Gulf of Mexico blacktip shark sub-regional quota would increase by 12.6 mt dw, or 9.8 percent of the quota adjustment (Table 1). Thus,

the proposed western sub-regional Gulf of Mexico blacktip shark commercial quota is 347.2 mt dw (765,392 lb dw), and the proposed eastern sub-regional Gulf of Mexico blacktip shark commercial quota is 37.7 mt dw (83,158 lb dw).

The 2021 proposed commercial quota for aggregated LCS in the western Gulf of Mexico sub-region is 72.0 mt dw (158,724 lb dw), and the eastern Gulf of Mexico sub-region is 85.5 mt dw (188,593 lb dw; Table 1). As of July 10, 2020, preliminary reported landings for aggregated LCS in the western Gulf of Mexico sub-region were at 110 percent (78.9 mt dw) of the 2020 quota (72.0 mt dw), while the aggregated LCS in the eastern Gulf of Mexico sub-region were at 60 percent (50.9 mt dw) of the 2020 quota levels (85.5 mt dw). While the aggregated LCS management group

landings have been exceeded in the western Gulf of Mexico sub-region, the current combined catch rates for both sub-regions (82 percent; 129.8 mt dw) indicate that the overall regional 2020 quota is not likely to be exceeded before the end of the fishing year. NMFS will continue to monitor these landings for the remainder of the 2020 fishing year. If the combined aggregated LCS quotas are exceeded, then the 2020 quota would be adjusted to account for any overharvest.

The 2021 proposed commercial quotas for hammerhead sharks in the eastern Gulf of Mexico sub-region and western Gulf of Mexico sub-region are 11.9 mt dw (26,301 lb dw) and 13.4 mt dw (29,421 lb dw), respectively (Table 1). As of July 10, 2020, preliminary reported landings for hammerhead sharks in the western Gulf of Mexico sub-region were less than 20 percent (<2.3 mt dw) of the 2020 quota levels (11.9 mt dw), while landings of hammerhead sharks in the eastern Gulf of Mexico sub-region were at less than 20 percent (<2.7 mt dw) of the 2020 quota levels (13.4 mt dw). Reported landings from both Gulf of Mexico and Atlantic regions have not exceeded the 2020 overall hammerhead quota to date. Given the overfished status of the scalloped hammerhead shark, the hammerhead shark quota cannot be adjusted for any underharvests. Therefore, based on both preliminary estimates and catch rates from previous years and the fact that the 2020 overall hammerhead shark quota has not been overharvested to date, and consistent with the current regulations at § 635.27(b)(2)(ii), NMFS proposes that the 2021 quotas for hammerhead sharks in the western Gulf of Mexico and eastern Gulf of Mexico sub-regions be equal to their annual base quotas without adjustment.

The 2021 proposed commercial quota for non-blacknose SCS in the Gulf of Mexico region is 112.6 mt dw (248,215 lb dw). As of July 10, 2020, preliminary reported landings of non-blacknose SCS were at 22 percent (25.2 mt dw) of their 2020 quota level (112.6 mt dw) in the Gulf of Mexico region. Reported landings have not exceeded the 2020 quota to date. Given the unknown status of bonnethead sharks within the Gulf of Mexico non-blacknose SCS management group, underharvests cannot be carried forward, pursuant to § 635.27(b)(2)(ii). Based on both preliminary estimates and catch rates from previous years, and because there have not been any overharvests, NMFS proposes that the 2021 quota for non-blacknose SCS in the Gulf of Mexico region be equal to the annual base quota without adjustment.

The 2021 proposed commercial quota for smoothhound sharks in the Gulf of Mexico region is 504.6 mt dw (1,112,441 lb dw). As of July 10, 2020, preliminary reported landings of smoothhound sharks were less than 1 percent (1.4 mt dw) in the Gulf of Mexico region. Gulf of Mexico smoothhound sharks are not overfished, are not experiencing overfishing, and do not have an unknown status. Pursuant to § 635.27(b)(2)(ii), underharvests for smoothhound sharks within the Gulf of Mexico region therefore could be added to the 2021 quotas up to 50 percent of the base annual quota. Accordingly, NMFS proposes to increase the 2021 Gulf of Mexico smoothhound shark quota to adjust for anticipated underharvests in 2020 to the full extent allowed. The proposed 2021 adjusted base annual quota for Gulf of Mexico smoothhound sharks is 504.6 mt dw (336.4 mt dw annual base quota + 168.2 mt dw 2020 underharvest = 504.6 mt dw 2021 adjusted annual quota).

2. Proposed 2021 Quotas for the Atlantic Region Shark Management Groups

The 2021 proposed commercial quota for aggregated LCS in the Atlantic region is 168.9 mt dw (372,552 lb dw). As of July 10, 2020, the aggregated LCS fishery in the Atlantic region is still open, and preliminary landings indicate that only 22 percent (36.8 mt dw) of the quota has been harvested. Given the unknown status of some of the shark species within the Atlantic aggregated LCS management group, underharvests cannot be carried over pursuant to § 635.27(b)(2)(ii). Therefore, based on both preliminary estimates and catch rates from previous years, and consistent with current regulations at § 635.27(b)(2), NMFS proposes that the 2021 quota for aggregated LCS in the Atlantic region be equal to the annual base quota without adjustment, because there have not been any overharvests, and underharvests cannot be carried over due to stock status.

The 2021 proposed commercial quota for hammerhead sharks in the Atlantic region is 27.1 mt dw (59,736 lb dw). Currently, the hammerhead shark fishery in the Atlantic region is still open and preliminary landings as of July 10, 2020, indicate that 39 percent (10.6 mt dw) of the Atlantic regional quota has been harvested. Reported landings from both Gulf of Mexico and Atlantic regions have not exceeded the 2020 overall hammerhead quota to date. Given the overfished status of hammerhead sharks, underharvests cannot be carried forward pursuant to § 635.27(b)(2)(ii). Therefore, based on both preliminary estimates and catch

rates from previous years, and consistent with the current regulations at § 635.27(b)(2), NMFS proposes that the 2021 quota for hammerhead sharks in the Atlantic region be equal to the annual base quota without adjustment.

The 2021 proposed commercial quota for non-blacknose SCS in the Atlantic region is 264.1 mt dw (582,333 lb dw). As of July 10, 2020, preliminary reported landings of non-blacknose SCS were at 17 percent (44.0 mt dw) of the 2020 quota level in the Atlantic region. Reported landings have not exceeded the 2020 quota to date. Given the unknown status of bonnethead sharks within the Atlantic non-blacknose SCS management group, underharvests cannot be carried forward pursuant to § 635.27(b)(2)(ii). Therefore, based on preliminary estimates of catch rates from previous years, and consistent with the current regulations at § 635.27(b)(2), NMFS proposes that the 2021 quota for non-blacknose SCS in the Atlantic region be equal to the annual base quota without adjustment.

The 2021 proposed commercial quota for blacknose sharks in the Atlantic region is 17.2 mt dw (37,921 lb dw). This quota is available in the Atlantic region only for those vessels operating south of 34° N latitude. North of 34° N latitude, retention, landing, or sale of blacknose sharks is prohibited. NMFS is not proposing any adjustments to the blacknose shark quota at this time. As of July 10, 2020, preliminary reported landings of blacknose sharks were at 15 percent (2.6 mt dw) of the 2020 quota levels in the Atlantic region. Reported landings have not exceeded the 2020 quota to date. Pursuant to § 635.27(b)(2), because blacknose sharks have been declared to be overfished with overfishing occurring in the Atlantic region, NMFS could not carry forward the remaining underharvest. Therefore, NMFS proposes that the 2021 Atlantic blacknose shark quota be equal to the annual base quota without adjustment.

The 2021 proposed commercial quota for smoothhound sharks in the Atlantic region is 1,802.6 mt dw (3,973,902 lb dw). As of July 10, 2020, preliminary reported landings of smoothhound sharks were at 6.7 percent (121.1 mt dw) of their 2020 quota levels in the Atlantic region. Atlantic smoothhound sharks have not been declared to be overfished, to have overfishing occurring, or to have an unknown status. Pursuant to § 635.27(b)(2)(ii), underharvests for smoothhound sharks within the Atlantic region therefore could be applied to the 2021 quotas up to 50 percent of the base annual quota. Accordingly, NMFS proposes to increase the 2021 Atlantic smoothhound shark quota to adjust for

anticipated underharvests in 2020 as allowed. The proposed 2021 adjusted base annual quota for Atlantic smoothhound sharks is 1,802.6 mt dw (1,201.7 mt dw annual base quota + 600.9 mt dw 2019 underharvest = 1,802.6 mt dw 2021 adjusted annual quota).

3. Proposed 2021 Quotas for Shark Management Groups With No Regional Quotas

The 2021 proposed commercial quotas within the shark research fishery are 50 mt dw (110,230 lb dw) for research LCS and 90.7 mt dw (199,943 lb dw) for sandbar sharks. Within the shark research fishery, as of July 10, 2020, preliminary reported landings of research LCS were at less than 5 percent (<2.5 mt dw) of the 2020 quota, and sandbar shark reported landings were at less than 5 percent (<4.5 mt dw) of their 2020 quota. Under § 635.27(b)(2)(ii), because sandbar sharks and scalloped hammerhead sharks within the research LCS management group are either overfished or overfishing is occurring, underharvests for these management groups cannot be carried forward. Therefore, based on preliminary estimates, and consistent with the regulations at § 635.27(b)(2), NMFS proposes that the 2021 quota in the shark research fishery be equal to the annual base quota without adjustment because there have not been any overharvests, and because underharvests cannot be carried over due to stock status.

The 2021 proposed commercial quotas for blue sharks, porbeagle sharks, and pelagic sharks (other than porbeagle or blue sharks) are 273.0 mt dw (601,856 lb dw), 1.7 mt dw (3,748 lb dw), and 488.0 mt dw (1,075,856 lb dw), respectively. As of July 10, 2020, there were no preliminary reported landings of blue sharks or porbeagle sharks, and landings of pelagic sharks (other than porbeagle and blue sharks) were at 5.9 percent (28.8 mt dw) of the 2020 quota level (488.0 mt dw). Given that these pelagic species are overfished, have overfishing occurring, or have an unknown status, underharvests cannot be carried forward pursuant to § 635.27(b)(2)(ii). Therefore, based on preliminary estimates and consistent

with the current regulations at § 635.27(b)(2), NMFS proposes that the 2021 quotas for blue sharks, porbeagle sharks, and pelagic sharks (other than porbeagle and blue sharks) be equal to their annual base quotas without adjustment, because there have not been any overharvests and because underharvests cannot be carried over due to stock status.

Proposed Opening Date and Retention Limits for the 2021 Atlantic Commercial Shark Fishing Year

In proposing the commercial shark fishing season opening dates for all regions and sub-regions, NMFS considers regulatory criteria listed at § 635.27(b)(3) and other relevant factors such as the available annual quotas for the current fishing season, estimated season length and average weekly catch rates from previous years, length of the season and fishery participation in past years, impacts to accomplishing objectives of the 2006 Consolidated Atlantic HMS FMP and its amendments, temporal variation in behavior or biology of target species (e.g., seasonal distribution or abundance), impact of catch rates in one region on another, and effects of delayed openings.

In analyzing the criteria, NMFS examines the overharvests and underharvests of the different management groups in the 2020 fishing year to determine the likely effects of the proposed commercial quotas for 2021 on shark stocks and fishermen across regional and sub-regional fishing areas. NMFS also examines the potential season length and previous catch rates to ensure, to the extent practicable, that equitable fishing opportunities be provided to fishermen in all areas. Lastly, NMFS examines the seasonal variation of the different species/management groups and the effects on fishing opportunities. At the start of each fishing year, the default commercial retention limit is 45 LCS other than sandbar sharks per vessel per trip in the eastern and western Gulf of Mexico sub-regions and in the Atlantic region, unless NMFS determines otherwise and files with the Office of the Federal Register for publication notification of an inseason adjustment. NMFS may adjust the retention limit

from zero to 55 LCS other than sandbar sharks per vessel per trip if the respective LCS management group is open under §§ 635.27 and 635.28, after considering the six “inseason trip limit adjustment criteria” listed at § 635.24(a)(8). Those criteria are: The amount of remaining shark quota in the relevant area, region, or sub-region, to date, based on dealer reports; the catch rates of the relevant shark species/complexes in the region or sub-region, to date, based on dealer reports; the estimated date of fishery closure based on when the landings are projected to reach 80-percent of the quota given the realized catch rates and whether they are projected to reach 100 percent before the end of the fishing season; effects of the adjustment on accomplishing the objectives of the 2006 Consolidated Atlantic HMS FMP and its amendments; variations in seasonal distribution, abundance, or migratory patterns of the relevant shark species based on scientific and fishery-based knowledge; and/or effects of catch rates in one part of a region precluding vessels in another part of that region from having a reasonable opportunity to harvest a portion of the relevant quota.

After considering all these criteria, NMFS is proposing to open the 2021 Atlantic commercial shark fishing season for all shark management groups in the northwestern Atlantic Ocean, including the Gulf of Mexico and the Caribbean Sea, on January 1, 2021, after the publication of the final rule for this action (Table 2). NMFS proposes to open the season on January 1, 2021, but recognizes that the actual opening date is contingent on publication in the **Federal Register**, and may vary accordingly. NMFS is also proposing to start the 2021 commercial shark fishing season with the commercial retention limit of 45 LCS other than sandbar sharks per vessel per trip in both the eastern and western Gulf of Mexico sub-regions, and a commercial retention limit of 36 LCS other than sandbar sharks per vessel per trip in the Atlantic region (Table 2). Proposed retention limits could change as a result of public comments as well as updated catch rates and landings information available when drafting the final rule.

TABLE 2—QUOTA LINKAGES, SEASON OPENING DATES, AND COMMERCIAL RETENTION LIMIT BY REGIONAL OR SUB-REGIONAL SHARK MANAGEMENT GROUP

| Region or sub-region | Management group | Quota linkages | Season opening date | Commercial retention limits for directed shark limited access permit holders (inseason adjustments are possible) |
|-----------------------------|---|-----------------------------|-----------------------|--|
| Western Gulf of Mexico | Blacktip Sharks Aggregated Large Coastal Sharks. Hammerhead Sharks. | Not Linked Linked. | January 1, 2021 | 45 LCS other than sandbar sharks per vessel per trip. |

TABLE 2—QUOTA LINKAGES, SEASON OPENING DATES, AND COMMERCIAL RETENTION LIMIT BY REGIONAL OR SUB-REGIONAL SHARK MANAGEMENT GROUP—Continued

| Region or sub-region | Management group | Quota linkages | Season opening date | Commercial retention limits for directed shark limited access permit holders (inseason adjustments are possible) |
|------------------------|---|--|------------------------------------|---|
| Eastern Gulf of Mexico | Blacktip Sharks Aggregated Large Coastal Sharks. Hammerhead Sharks. | Not Linked Linked. | January 1, 2021 | 45 LCS other than sandbar sharks per vessel per trip. |
| Gulf of Mexico | Non-Blacknose Small Coastal Sharks. Smoothhound Sharks | Not Linked | January 1, 2021 | N/A. |
| Atlantic | Aggregated Large Coastal Sharks. Hammerhead Sharks | Not Linked Linked | January 1, 2021 January 1, 2021 | N/A. 36 LCS other than sandbar sharks per vessel per trip. If quota is landed quickly (e.g., if approximately 40 percent of quota is caught at the beginning of the year), NMFS anticipates considering an inseason reduction (e.g., to 3 or fewer LCS other than sandbar sharks per vessel per trip), then an inseason increase to 36 LCS other than sandbar sharks per vessel per trip around July 15, 2021. ¹ |
| | Non-Blacknose Small Coastal Sharks. Blacknose Sharks (South of 34° N lat. only). Smoothhound Sharks | Linked (South of 34° N lat. only). Not Linked | January 1, 2021 January 1, 2021 | N/A. 8 Blacknose sharks per vessel per trip (applies to directed and incidental permit holders). N/A. |
| No regional quotas | Non-Sandbar LCS Research. Sandbar Shark Research. Blue Sharks | Linked | January 1, 2021 January 1, 2021 | N/A. N/A. |
| | Porbeagle Sharks. Pelagic Sharks Other Than Porbeagle or Blue. | Not Linked | January 1, 2021 | N/A. |

¹ NMFS is proposing changing the percent of quota harvested at which it considers adjusting the retention limit. Rather than 35 percent, NMFS would consider adjustment to 40 percent to allow fishermen in the Atlantic region to more fully utilize the quota.

In the eastern and western Gulf of Mexico sub-regions, NMFS proposes opening the fishing season on January 1, 2021, for the aggregated LCS, blacktip sharks, and hammerhead shark management groups, with the commercial retention limits of 45 LCS other than sandbar sharks per vessel per trip for directed shark permits. This opening date and retention limit combination would provide, to the extent practicable, equitable opportunities across the fisheries management sub-regions. This opening date takes into account all the season opening criteria listed in § 635.27(b)(3), and particularly the criteria that require NMFS to consider the length of the season for the different species and/or management groups in the previous years (§ 635.27(b)(3)(ii) and (iii)) and whether fishermen were able to participate in the fishery in those years (§ 635.27(b)(3)(v)). The proposed commercial retention limits take into account the criteria listed in § 635.24(a)(8), and particularly the criterion that requires NMFS to consider the catch rates of the relevant shark species/complexes based on dealer reports to date (§ 635.24(a)(8)(ii)). NMFS may also adjust the retention limit in the Gulf of Mexico region throughout the season to ensure fishermen in all parts of the region have an opportunity

to harvest aggregated LCS, blacktip sharks, and hammerhead sharks (see the criteria listed at § 635.27(b)(3)(v) and § 635.24(a)(8)(ii), (v), and (vi)). For both the eastern and western Gulf of Mexico sub-regions combined, dealer reports received through July 10, 2020, indicate that 58 percent (200.4 mt dw), 110 percent (78.9 mt dw), and less than 15 percent (<0.5 mt dw) of the available blacktip, aggregated LCS, and hammerhead shark quotas, respectively, has been harvested. Therefore, for 2021, NMFS is considering opening both the western and eastern Gulf of Mexico sub-regions with a commercial retention limit of 45 sharks other than sandbar sharks, per vessel per trip.

In the Atlantic region, NMFS proposes opening the aggregated LCS and hammerhead shark management groups on January 1, 2021. This opening date also takes into account all the criteria listed in § 635.27(b)(3), and particularly the criterion that NMFS consider the effects of catch rates in one part of a region precluding vessels in another part of that region from having a reasonable opportunity to harvest a portion of the different species and/or management quotas (§ 635.27(b)(3)(v)). The 2020 data indicates that an opening date of January 1, coupled with inseason adjustments to the retention limit, provided a reasonable opportunity for

fishermen in every part of each region to harvest a portion of the available quotas (§ 635.27(b)(3)(i)), while accounting for variations in seasonal distribution of the different species in the management groups (§ 635.27(b)(3)(iv)). Because the quotas we propose for 2021 are the same as the quotas in 2020, NMFS proposes that the season lengths, and therefore, the participation of various fishermen throughout the region, would be similar in 2021 (§ 635.27(b)(3)(ii) and (iii)). Based on the recent performance of the fishery, the January 1 opening date appears to meet the objectives of the 2006 Consolidated Atlantic HMS FMP and its amendments (§ 635.27(b)(3)(vi)). NMFS' review of the landings data from 2016 to the present has shown a decrease in landings over time in the aggregated LCS and hammerhead management groups. In the Final Rule to Establish Adjusted Base Annual Quotas, Opening Dates, and Retention Limits for the 2020 Atlantic Shark Commercial Fishing Year (84 FR 65690; November 29, 2019), NMFS increased the starting retention limit from 25 to 36, and the percentage threshold from 20 to 35 percent. NMFS proposes to follow the same trip adjustment criteria in 2021, but because landings continue to remain low, NMFS is proposing to change the percent of quota harvested at which it

considers adjusting the retention limit from 35 to 40 percent. Changing the percent of quota harvested could allow fishermen in the Atlantic region to more fully utilize the quota. Changing the percentage of quota harvested is a management benchmark NMFS has used (and announced as part of the rulemaking process) in previous seasons to help determine at which point it will consider an inseason action to adjust the retention limits.

In addition, for the aggregated LCS and hammerhead shark management groups in the Atlantic region, NMFS proposes opening the fishing year with the commercial retention limit for directed shark limited access permit holders of 36 LCS other than sandbar sharks per vessel per trip. This retention limit should allow fishermen to harvest some of the 2021 quota at the beginning of the year when sharks are more prevalent in the South Atlantic area (see the criteria at § 635.24(a)(3)(i), (ii), (v), and (vi)). As was done in 2020, if it appears that the quota is being harvested too quickly to allow directed fishermen throughout the entire region an opportunity to fish and ensure enough quota remains until later in the year, NMFS would consider either reducing the commercial retention limits to incidental levels (3 LCS other than sandbar sharks per vessel per trip), or setting another level calculated to reduce the harvest of LCS in accordance with the opening commercial fishing season criteria listed in § 635.27(b)(3) and the inseason trip limit adjustment criteria listed in § 635.24(a)(8). If the quota continues to be harvested quickly, NMFS could consider reducing the retention limit to 0 LCS other than sandbar sharks per vessel per trip to ensure enough quota remains until later in the year. If either situation occurs, NMFS would publish in the **Federal Register** notification of any inseason adjustments of the retention limit. NMFS will consider increasing the commercial retention limits per trip at a later date, after considering the appropriate inseason adjustment criteria, if necessary to provide fishermen in the northern portion of the Atlantic region an opportunity to retain aggregated LCS and hammerhead sharks. Similarly, at some point later in the year, NMFS may consider increasing the retention limit to a higher retention limit of aggregated LCS other than sandbar sharks per vessel per trip, as deemed appropriate, after considering the inseason trip limit adjustment criteria. If the quota is being harvested too quickly or too slowly, NMFS could adjust the retention limit appropriately

to ensure the fishery remains open most of the rest of the year.

All of the shark management groups would remain open until December 31, 2021, or until NMFS determines that the landings for any shark management group are projected to reach 80 percent of the quota given the realized catch rates and whether they are projected to reach 100 percent before the end of the fishing season, or when the quota-linked management group is closed. If NMFS determines that a non-linked shark species or management group must be closed, then, consistent with § 635.28(b)(2) for non-linked quotas (e.g., eastern Gulf of Mexico blacktip, western Gulf of Mexico blacktip, Gulf of Mexico non-blacknose SCS, pelagic sharks, or the Atlantic or Gulf of Mexico smoothhound sharks), NMFS will publish in the **Federal Register** a notice of closure for that shark species, shark management group, region, and/or sub-region that will be effective no fewer than four days from the date of filing (This is pursuant to 50 CFR part 635, as most recently amended by the July 9, 2018, final rule (83 FR 31677) revising Atlantic highly migratory species shark fishery closure regulations). For the blacktip shark management group, regulations at § 635.28(b)(5)(i) through (v) authorize NMFS to close the management group before landings have reached or are projected to reach 80 percent of applicable available overall, regional, and/or sub-regional quota and are projected to reach 100 percent of the relevant quota by the end of the fishing season, after considering the following criteria and other relevant factors: Season length based on available sub-regional quota and average sub-regional catch rates; variability in regional and/or sub-regional seasonal distribution, abundance, and migratory patterns; effects on accomplishing the objectives of the 2006 Consolidated Atlantic HMS FMP and its amendments; amount of remaining shark quotas in the relevant sub-region; and regional and/or sub-regional catch rates of the relevant shark species or management groups. The fisheries for the shark species or management group would be closed (even across fishing years) from the effective date and time of the closure until NMFS announces, via the publication of a notice in the **Federal Register**, that additional quota is available and the season is reopened.

If NMFS determines that a linked shark species or management group must be closed, then, consistent with § 635.28(b)(3) for linked quotas and the Final Rule to Revise Atlantic Highly Migratory Species Shark Fishery Closure Regulations (83 FR 31677; July

9, 2018), NMFS will publish in the **Federal Register** a notice of closure for all of the species and/or management groups in a linked group that will be effective no fewer than four days from the date of filing. In that event, from the effective date and time of the closure until NMFS announces that the season is reopened and additional quota is available (via the publication of another notice in the **Federal Register**), the fisheries for all linked species and/or management groups will be closed, even across fishing years. The linked quotas of the species and/or management groups are Atlantic hammerhead sharks and Atlantic aggregated LCS; eastern Gulf of Mexico hammerhead sharks and eastern Gulf of Mexico aggregated LCS; western Gulf of Mexico hammerhead sharks and western Gulf of Mexico aggregated LCS; and Atlantic blacknose and Atlantic non-blacknose SCS south of 34° N latitude.

Request for Comments

Comments on this proposed rule may be submitted via www.regulations.gov. NMFS solicits comments on this proposed rule by October 29, 2020 (see **DATES** and **ADDRESSES**).

Classification

The NMFS Assistant Administrator has determined that the proposed rule is consistent with the 2006 Consolidated Atlantic HMS FMP and its amendments, the Magnuson-Stevens Act, and other applicable laws, subject to further consideration after public comment.

These proposed specifications are exempt from review under Executive Order 12866.

NMFS determined that the final rules to implement Amendment 2 to the 2006 Consolidated Atlantic HMS FMP (June 24, 2008, 73 FR 35778; corrected on July 15, 2008, 73 FR 40658), Amendment 5a to the 2006 Consolidated Atlantic HMS FMP (78 FR 40318; July 3, 2013), Amendment 6 to the 2006 Consolidated Atlantic HMS FMP (80 FR 50073; August 18, 2015), and Amendment 9 to the 2006 Consolidated Atlantic HMS FMP (80 FR 73128; November 24, 2015) are consistent to the maximum extent practicable with the enforceable policies of the approved coastal management program of coastal states on the Atlantic, including the Gulf of Mexico and the Caribbean Sea, as required under the Coastal Zone Management Act. Pursuant to 15 CFR 930.41(a), NMFS provided the Coastal Zone Management Program of each coastal state a 60-day period to review the consistency determination and to advise NMFS of their concurrence. NMFS received concurrence with the

consistency determinations from several states and inferred consistency from those states that did not respond within the 60-day time period. This proposed action to establish an opening date and adjust quotas for the 2021 fishing year for the Atlantic commercial shark fisheries does not change the framework previously consulted upon. Therefore, no additional consultation is required.

An initial regulatory flexibility analysis (IRFA) was prepared, as required by section 603 of the Regulatory Flexibility Act (RFA). The IRFA describes the economic impact this proposed rule, if adopted, would have on small entities. The IRFA analysis follows.

Section 603(b)(1) of the RFA requires agencies to explain the purpose of the rule. This rule, consistent with the Magnuson-Stevens Act and the 2006 Consolidated Atlantic HMS FMP and its amendments, would adjust quotas and retention limits and establish the opening date for the 2021 Atlantic commercial shark fishing year, consistent with regulations at 50 CFR 635.27(b).

Section 603(b)(2) of the RFA requires agencies to explain the rule's objectives. The objectives of this rule are to: Adjust the base quotas for all shark management groups based on any overharvests and/or underharvests from the previous fishing year(s); establish the opening dates of the various shark fishery management groups; and establish the retention limits for the blacktip shark, aggregated large coastal shark, and hammerhead shark management groups in order to provide, to the extent practicable, equitable opportunities across the fishing management regions and/or sub-regions while also considering the ecological needs of the different shark species.

Section 603(b)(3) of the RFA requires agencies to provide an estimate of the number of small entities to which the rule would apply. The Small Business Administration (SBA) has established size criteria for all major industry sectors in the United States, including fish harvesters. SBA's regulations include provisions for an agency to develop its own industry-specific size standards after consultation with SBA and providing an opportunity for public comment (see 13 CFR 121.903(c)). Under this provision, NMFS may establish size standards that differ from those established by the SBA Office of Size Standards, but only for use by NMFS and only for the purpose of conducting an analysis of economic effects in fulfillment of the agency's obligations under the RFA. To utilize this provision, NMFS must publish such

size standards in the **Federal Register**, which NMFS did on December 29, 2015 (80 FR 81194; 50 CFR 200.2). In this final rule effective on July 1, 2016, NMFS established a small business size standard of \$11 million in annual gross receipts for all businesses in the commercial fishing industry (NAICS 11411) for RFA compliance purposes. NMFS considers all HMS permit holders to be small entities because they had average annual receipts of less than \$11 million for commercial fishing.

As of July 10, 2020, the proposed rule would apply to the approximately 218 directed commercial shark permit holders, 263 incidental commercial shark permit holders, 159 smoothhound shark permit holders, and 104 commercial shark dealers. Not all permit holders are active in the fishery in any given year. Active directed commercial shark permit holders are defined as those with valid permits that landed one shark based on HMS electronic dealer reports. Of the 481 directed and incidental commercial shark permit holders, only 18 permit holders landed sharks in the Gulf of Mexico region, and only 85 landed sharks in the Atlantic region. Of the 159 smoothhound shark permit holders, only 61 permit holders landed smoothhound sharks in the Atlantic region, and none landed smoothhound sharks in the Gulf of Mexico region. NMFS has determined that the proposed rule would not likely affect any small governmental jurisdictions.

This proposed rule does not contain any new reporting, recordkeeping, or other compliance requirements (5 U.S.C. 603(b)(4)) or a collection-of-information requirement subject to the Paperwork Reduction Act. Similarly, this proposed rule would not conflict, duplicate, or overlap with other relevant Federal rules (5 U.S.C. 603(b)(5)). Fishermen, dealers, and managers in these fisheries must comply with a number of international agreements as domestically implemented, domestic laws, and FMPs. These include, but are not limited to, the Magnuson-Stevens Act, the Atlantic Tunas Convention Act, the Marine Mammal Protection Act, the Endangered Species Act, the National Environmental Policy Act, and the Coastal Zone Management Act.

Section 603(c) of the RFA requires each IRFA to contain a description of any significant alternatives to the proposed rule, which would accomplish the stated objectives of applicable statutes and minimize any significant economic impact of the proposed rule on small entities. Additionally, the RFA (5 U.S.C. 603(c)(1)–(4)) lists four general categories of significant alternatives that

would assist an agency in the development of significant alternatives. These categories of alternatives are: (1) Establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities; (3) use of performance rather than design standards; and (4) exemptions from coverage of the rule for small entities. In order to meet the objectives of this proposed rule, consistent with the Magnuson-Stevens Act, NMFS cannot exempt small entities or change the reporting requirements only for small entities, because all of the entities affected are considered small entities. For similar reasons, there are no alternatives discussed that fall under the first, second, and fourth categories described above. NMFS does not know of any performance or design standards that would satisfy the aforementioned objectives of this rulemaking while, concurrently, complying with the Magnuson-Stevens Act; therefore, there are no alternatives considered under the third category.

This rulemaking would implement previously adopted and analyzed measures with adjustments, as specified in the 2006 Consolidated Atlantic HMS FMP and its amendments and the Environmental Assessment (EA) that accompanied the 2011 shark quota specifications rule (75 FR 76302; December 8, 2010). NMFS proposes to adjust quotas established and analyzed in the 2006 Consolidated Atlantic HMS FMP and its amendments by subtracting the underharvest or adding the overharvest as allowable. NMFS has limited flexibility to otherwise modify the quotas in this rule. In addition, the impacts of the quotas (and any potential modifications) were analyzed in previous regulatory flexibility analyses (RFAs), including the RFA that accompanied the 2011 shark quota specifications rule.

Based on the 2019 ex-vessel price (Table 3), fully harvesting the unadjusted 2021 Atlantic shark commercial base quotas could result in total fleet revenues of \$9,997,263. For the Gulf of Mexico blacktip shark management group, NMFS is proposing to adjust the base sub-regional quotas upward due to underharvests in 2020. The increase for the western Gulf of Mexico blacktip shark management group could result in a \$241,691 gain in total revenues for fishermen in that sub-region, while the increase for the eastern Gulf of Mexico blacktip shark

management group could result in a \$27,645 gain in total revenues for fishermen in that sub-region. For the Gulf of Mexico and Atlantic smoothhound shark management groups, NMFS is proposing to increase the base quotas due to the underharvest in 2020. This would cause a potential gain in revenue of \$393,063 for the fleet in the Gulf of Mexico region, and a

potential gain in revenue of \$1,112,680 for the fleet in the Atlantic region.

All of these changes in gross revenues are similar to the gross revenues analyzed in the 2006 Consolidated Atlantic HMS FMP and Amendments 2, 3 5a, 6, and 9 to the 2006 Consolidated Atlantic HMS FMP. The final RFAs for those amendments concluded that the economic impacts on these small entities from adjustments such as those contemplated in this action are expected

to be minimal. In accordance with the 2006 Consolidated Atlantic HMS FMP, as amended, and consistent with NMFS' statements in rule implementing Amendments 2, 3 5a, 6, and 9, and in the EA for the 2011 shark quota specifications rule, NMFS now conducts annual rulemakings in which NMFS considers the potential economic impacts of adjusting the quotas for underharvests and overharvests.

TABLE 3—AVERAGE EX-VESSEL PRICES PER LB DW FOR EACH SHARK MANAGEMENT GROUP, 2019

| Region | Species | Average ex-vessel meat price | Average ex-vessel fin price |
|------------------------|---|------------------------------|-----------------------------|
| Western Gulf of Mexico | Blacktip Shark | \$0.70 | \$9.16 |
| | Aggregated LCS | 0.73 | 15.81 |
| | Hammerhead Shark | 0.52 | 12.00 |
| Eastern Gulf of Mexico | Blacktip Shark | 0.75 | 8.00 |
| | Aggregated LCS | 0.56 | 12.00 |
| | Hammerhead Shark | 0.50 | 13.43 |
| Gulf of Mexico | Non-Blacknose SCS | 0.59 | 5.81 |
| | Smoothhound Shark | 1.06 | ..... |
| | Aggregated LCS | 0.99 | 3.51 |
| Atlantic | Hammerhead Shark | 0.46 | ..... |
| | Non-Blacknose SCS | 1.02 | 4.60 |
| | Blacknose Shark | 1.27 | ..... |
| No Region | Smoothhound Shark | 0.78 | 1.68 |
| | Shark Research Fishery (Aggregated LCS) | 0.86 | 15.15 |
| | Shark Research Fishery (Sandbar only) | 0.68 | ..... |
| | Blue shark | ..... | ..... |
| | Porbeagle shark | 0.36 | 2.51 |
| | Other Pelagic sharks | 1.35 | 7.60 |

For this rule, NMFS also reviewed the criteria at § 635.27(b)(3) to determine when opening each fishery would provide equitable opportunities for fishermen, to the extent practicable, while also considering the ecological needs of the different species. The opening date of the fishing year could vary depending upon the available annual quota, catch rates, and number of fishing participants during the year. For the 2021 fishing year, NMFS is

proposing to open all of the shark management groups on the effective date of the final rule for this action (which is expected to be January 1). The direct and indirect economic impacts would be neutral on a short- and long-term basis, because NMFS is not proposing to change the opening date of these fisheries from the status quo.

For all of the reasons explained above, this action, if implemented, will not

have a significant economic impact on a substantial number of small entities.

Authority: 16 U.S.C. 971 *et seq.*; 16 U.S.C. 1801 *et seq.*

Dated: September 14, 2020.

Samuel D. Rauch, III,
Deputy Assistant Administrator for
Regulatory Programs, National Marine
Fisheries Service.

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