Atlantic States Marine Fisheries Commission

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Spud Woodward (GA), Chair *Joe Cimino (NJ), Vice-Chair* *Robert E. Beal, Executive Director*

Sustainable and Cooperative Management of Atlantic Coastal Fisheries

MEMORANDUM

January 19, 2022 (Revised)

TO: Commissioners; Proxies; American Lobster Management Board; Atlantic Menhaden ManagementBoard; Atlantic Striped Bass Management Board; Executive Committee; Horseshoe Crab Management Board; ISFMP Policy Board; Spiny Dogfish Management Board; Summer Flounder, Scup, and Black Sea Bass Management Board; Tautog Management Board

REB

Executive Director

RE: ASMFC 2022 Winter Meeting Webinar

The Atlantic States Marine Fisheries Commission's 2022 Winter Meeting Webinar will be held January 25-27, 2022. Meeting materials are now available on the Commission website at http://www.asmfc.org/home/2022-winter-meeting. Due to concerns about the continued spread of COVID-19 and the challenges of conducting a fully participatory hybrid meeting (in-person and virtual meeting combined), the meeting has shifted from a hybrid meeting to one that will be conducted entirely via webinar.

Board meeting proceedings will be broadcast daily via webinar beginning Tuesday, January 25 at 10 a.m. and continuing daily until the conclusion of the meeting (expected to be 3:15 p.m.) on Thursday, January 27. The webinar will allow registrants to listen to board deliberations and view presentations and motions as they occur. Management boards will continue to provide opportunity for the public to bring matters of concern to the board's attention at the start of each board meeting. Board chairs will ask members of the public to raise their hands to let the chair know they would like to speak. Depending upon the number of commenters, the board chair will decide how to allocate the available time on the agenda (typically 10 minutes) to the number of people who want to speak. To register for the webinar go to https://attendee.gotowebinar.com/register/8463911188401300749(Webinar ID: 212-070-371).

Each day, the webinar will begin 30 minutes prior to the start of the first meeting so 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 may also call in at 415.655.0600, access code 774-133-932. A PIN will be provided to you after joining the webinar; see webinar instructions for details on how to receive the PIN.

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

Enclosure: Public Comment Guidelines and Final Agenda

Atlantic States Marine Fisheries Commission

2022 Winter Meeting Webinar

January 25-27, 2022

Public Comment Guidelines

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

For issues that are not on the agenda, management boards will continue to provide an opportunity to the public to bring matters of concern to the board's attention at the start of each board meeting. Board chairs will ask members of the public to raise their hands to let the chair know they would like to speak.

Depending upon the number of commenters, the board chair will decide how to allocate the available timeon the agenda (typically 10 minutes) to the number of people who want to speak.

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

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

In addition, the following timeline has been established for the **submission of written comment for issuesfor 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 (January 10) have been included in thebriefing materials.
2. Comments received by 5:00 PM on Tuesday, January 18 are included in the supplemental materials.
3. Comments received by 10:00 AM on Friday, January 21 will be distributed electronically toCommissioners/Board members prior to the meeting.

Comments should be submitted via email at comments@asmfc.org. All comments must clearly indicate thecommenter'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 Boardmeetings. 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.

Tuesday, January 25

10:00 – 11:30 a.m. **American Lobster Management Board**
Member States: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia
Other Members: NMFS
Chair: McNamee
Other Participants: Perry, Reardon, Beal
Staff: Starks

1. Welcome/Call to Order *(J. McNamee)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from October and December 2021
3. Public Comment
4. Consider Draft Addendum XXVII for Public Comment: *Increasing Protection of Spawning Stock in the Gulf of Maine/Georges Bank (C. Starks)* **Action**
5. Consider Terms of Reference for Jonah Crab Benchmark Stock Assessment *(J. Kipp)* **Action**
6. Consider Fishery Management Plan Reviews for American Lobster and Jonah Crab for 2020 Fishing Year *(C. Starks)* **Action**
7. Review and Populate Advisory Panel Membership *(T. Berger)* **Action**
8. Other Business/Adjourn

11:30 a.m. – 1:00 p.m. **Lunch Break**

1:00 – 2:30 p.m. **Tautog Management Board**
Member States: Massachusetts, Rhode Island, Connecticut, New York,New Jersey, Delaware, Maryland, Virginia
Other Members: NMFS
Chair: Luisi
Other Participants: Ares, Snellbaker
Staff: Rootes-Murdy

1. Welcome/Call to Order *(M. Luisi)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from October 2021
3. Public Comment
4. Review and Discuss Hypothetical Scenarios from Risk and Uncertainty Decision Tool *(J. McNamee)*
5. Review Feedback from Law Enforcement Committee on Commercial Tagging Program *(J. Snellbaker)*
6. Other Business/Adjourn

2:45 – 4:15 p.m. **Summer Flounder, Scup, and Black Sea Bass Management Board**

Member States: New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, North Carolina
Other Members: NMFS, PRFC, USFWS
Chair: Davis
Other Participants: Wojcik, Snellbaker
Staff: Colson Leaning

1. Welcome/Call to Order *(J. Davis)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from August 2021
3. Public Comment
4. Review Information for 2022 Recreational Specifications
   - Reconsider the 2022 Recreational Specifications **Possible Final Action**
   - Consider Methodology for Adjusting 2022 Recreational Measures **Possible Action**
5. Other Business/Adjourn

4:30 – 5:00 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: Meserve
Other Participants: Newlin, Moran
Staff: Rootes-Murdy

1. Welcome/Call to Order *(N. Meserve)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from October 2021
3. Public Comment
4. Consider Postponed Motions from October 2021 *(N. Meserve)* **Final Action**

   Main Motion
   Move to set at least a 7500-pound trip limit in the Northern Region (ME through CT) for FY2022 contingent upon NOAA Fisheries adopting at least a 7500-pound trip limit for federal waters. If at least a7500-pound trip limit is not approved in federal waters, then the 6,000-pound trip limit will remain in the Northern Region.

   Motion to Substitute
   Move to substitute to set the Northern Region (ME through CT) state waters trip limit for FY2022 equal to the trip limit in federal waters approved by NOAA Fisheries.

   Motion to Postpone
   Move to postpone action around the state waters trip limits for FY2022 until the ASMFC Winter Meeting.

5. Review and Populate Advisory Panel Membership *(T. Berger)* **Action**
6. Other Business/Adjourn

Wednesday, January 26

8:00 – 9:30 a.m. **Executive Committee**

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

Members: Abbott, Bell, Burgess, Cimino, Clark, Davis, Fegley, Gilmore, Keliher, Kuhn, McKiernan, McNamee, Miller, Patterson, Plumlee, Rawls, Woodward

Chair: Woodward

Staff: Leach

1. Welcome/Call to Order *(S. Woodward)*
2. Committee Consent
   - Approval of Agenda
   - Approval of Meeting Summary from October 2021
3. Public Comment
4. Discuss the Commission's Role in Coordinating the Member States' Efforts in Offshore Wind Energy Development
5. Discuss Appeals Process *(R. Beal)*
6. Discuss CARES Act State Distributions *(R. Beal)*
7. Discuss the Use of Alternates for Advisory Panel Members *(P. Keliher)*
8. Other Business/Adjourn

9:45 – 11:45 a.m. **Horseshoe Crab Management Board**

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

Other Members: NMFS, PRFC, USFWS

Chair: Cimino

Other Participants: Brunson, Couch, Sweka, Chen

Staff: Starks

1. Welcome/Call to Order *(J. Cimino)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from October 2021
3. Public Comment
4. Consider Adaptive Resource Management (ARM) Revision and Peer Review Report
   - Presentation of ARM Revision Report *(J. Sweka)*
   - Presentation of Peer Review Panel Report *(Y. Chen)*
   - Consider Management Response to ARM Revision and Peer Review Report *(J. Cimino)* **Possible Action**
5. Other Business/Adjourn

11:45 a.m. – 12:45 p.m. Lunch Break

12:45 – 1:15 p.m. **NOAA Presentation on Sea Turtle Bycatch in Trawl Fisheries** (*Carrie Upite,* Sea Turtle Recovery Coordinator, NOAA Fisheries' Greater Atlantic Region Fisheries Office)

NOAA Fisheries will provide an overview of its outreach process to develop bycatch reduction measures to reduce takes of sea turtles in Atlantic coast trawl fisheries

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

1. Welcome/Call to Order *(M. Gary)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from October 2021
3. Public Comment
4. Consider Draft Amendment 7 for Public Comment *(E. Franke)* **Action**
5. Other Business/Adjourn

Thursday, January 27

8:30 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: Bell
Other Participants: Newhard, Kersey, Lapp, Brust
Staff: Rootes-Murdy

1. Welcome/Call to Order *(M. Bell)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from October 2021
3. Public Comment
4. Update on 2020-2021 Atlantic Menhaden Mortality Events *(J. Brust)*
5. Consider Draft Addendum I to Amendment 3 for Public Comment *(K. Rootes-Murdy)* **Action**
   - Advisory Panel Report *(M. Lapp)*
6. Review and Populate Advisory Panel Membership *(T. Berger)* **Action**
7. Elect Vice-Chair **Action**
8. Other Business/Adjourn

Noon – 1:00 p.m. **Lunch Break**

1:00 – 3:00 p.m. **Interstate Fisheries Management Program Policy Board**
Member States: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida
Other Members: DC, NMFS, PRFC, USFWS
Chair: Woodward
Staff: Kerns

1. Welcome/Call to Order *(S. Woodward)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from October 2021
3. Public Comment
4. Executive Committee Report *(S. Woodward)*
5. Review and Discuss 2021 Commissioner Survey Results *(D. Tompkins)*
6. Consider Policy on Information Requests *(R. Beal)* **Action**
7. Update on East Coast Climate Change Scenario Planning *(T. Kerns)*
8. Committee Reports *(L. Havel)*
   - Habitat
   - Atlantic Coastal Fish Habitat Partnership
9. Review Noncompliance Findings (if necessary) **Action**
10. Other Business/Adjourn

3:00 – 3:15 p.m. **Business Session**
Member States: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida
Chair: Woodward
Staff: Beal

1. Welcome/Call to Order *(S. Woodward)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from October 2021
3. Public Comment
4. Consider Approval of Amendment 22 to the Interstate Fishery Management Plan for Summer Flounder, Scup, and Black Sea Bass: Commercial/Recreational Allocation *(J. Davis)* **Final Action**
5. Consider Noncompliance Recommendations (if necessary) **Final Action**
6. Other Business/Adjourn

DRAFT FOR BOARD REVIEW

ATLANTIC STATES MARINE FISHERIES COMMISSION

REVIEW OF THE INTERSTATE FISHERY MANAGEMENT PLAN

For Jonah Crab
(*Cancer borealis*)

2020 FISHING YEAR

Prepared by the Plan Review Team

January 2022

Sustainable and Cooperative Management of Atlantic Coastal Fisheries

Table of Contents

2020 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

Year of ASMFC Plan's Adoption:	FMP (2015)
Framework Adjustments:	Addendum I (2016) Addendum II (2017) Addendum III (2018)
Management Unit:	Maine through North Carolina
States with a Declared Interest:	Maine through Virginia (Excluding Pennsylvania and DC)
Active Committees:	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 1990s, 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. 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. It should be noted that there is some uncertainty in the landings data—especially prior to 2008—due to species misidentification issues as well as underreporting of landings before the implementation of reporting requirements. Despite the uncertainty, the overall trend in landings is likely accurate.

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 landings 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. Along the Delmarva Peninsula, small boat fishermen have historically harvested Jonah crab claws because they do not have seawater storage tanks on board to store whole crabs.

In 2020, landings along the Atlantic Coast totaled approximately 13.5 million pounds of Jonah crab, representing $11.2 million in ex-vessel value. The states of Massachusetts (61%) and Rhode Island (24%) were the largest contributors to landings. Landings in descending order also occurred in New Jersey, Maine, New York, Maryland, New Hampshire, Delaware, Connecticut, and Virginia. Over 99% of 2020 coastwide landings 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, Jonah crab size-at-age, and age-at-maturity are 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. A Data Workshop took place in 2020 to evaluate all available data sources and determine whether enough data of sufficient quality are available to conduct a stock assessment. Based on the results of this workshop, in August 2021 the Board initiated a stock assessment for Jonah crab to be completed in 2023.

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 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/or sea sampling.

Addendum I (2016)
Addendum I establishes a bycatch limit of 1,000 crabs per 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 went into effect January 1, 2019. Specifically, Addendum III requires reporting of additional data elements, the implementation of 100% harvester reporting within five years, and the completion of a minimum of ten sea and/or port sampling trips per year for biological sampling of the lobster/Jonah crab fishery. The Addendum III requirement for commercial harvesters to report their fishing location by 10 minute longitudinal/latitudinal square was implemented in 2021. *De minimis* states are not required to conduct fishery-independent sampling or port/sea sampling.

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

- Maine: In 2020, Jonah crab data were collected on 7 lobster sea sampling trips for a total of 1,027 crabs. 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 44 Jonah crab on 14 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 318 Jonah crab were sampled (sexed, measured for carapace width, and weighed when feasible).
- Massachusetts: Massachusetts made 13 port sampling trips and sampled 5,272 Jonah crab from seven different boats. Data collected include carapace width, sex, egg bearing status, cull status, shell hardness, and shell disease severity. No Jonah crab sea sampling trips were conducted.
- Rhode Island: Rhode Island Department of Environmental Management (RI DEM) did not conduct sea sampling for Jonah crab in 2020, due to the COVID-19 pandemic. Funding constraints also limit the ability to conduct sea sampling for Jonah crab. RI DEM conducted port sampling of Jonah crab from five fishing trips in 2020, sampling a total of 1,043 Jonah crabs.
- Connecticut: No sea sampling or port sampling trips were conducted for Jonah crab.
- New York: Staff conducted 12 market sample trips, sampling 555 Jonah crab. No sea sampling trips were conducted for Jonah crab in 2020.
- New Jersey: No sea or port sampling trips were conducted for Jonah crab in 2020.
- Delaware: No sea or port sampling trips were conducted for Jonah crab.
- Maryland: No sea or port sampling trips were conducted for Jonah crab in 2020.
- Virginia: No sea or port sampling trips were conducted for Jonah crab in 2020.

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 YOY Jonah crab has increased over the past two decades with high values in 2012 and 2016 (Figure 1). In 2020, density of YOY Jonah crab increased from 2019 (Figure 1). The density of all Jonah crabs also increased from 2019 in each of the sampled areas.

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 2020 spring survey was canceled due to the COVID-19 pandemic. The 2020 fall survey completed 120 tows and sampled 84 Jonah crab. Abundance indices for Jonah crab have been declining since 2015 (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. In 2020 concentrations of Jonah crab were highest in Statistical Area 511 and decrease to the southwest (Figure 3).

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 4 depicts the CPUE (#/m^2) of Jonah crab for all NH sites combined, from 2009 through 2020. The time series shows a general upward trend to a time series high in 2020.

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 2020. Beginning in 2016 all Jonah crab were evaluated for sex and carapace length. A total of 40 Jonah crab over 8 trips were measured during the 2020 sampling season.

Massachusetts

A. Settlement Survey

The Juvenile Lobster Suction Survey has consistently identified *Cancer* crabs to genus level since 1995, and Jonah crab have been consistently identified to species in the survey since 2011. Jonah crab densities in the four northernmost regions (Cape Ann, Beverly/Salem, Boston Harbor, and South Shore) have either been stable or increasing since 2013 (Figure 5).

B. Ventless Trap Survey

The Massachusetts Division of Marine Fisheries (MA DMF) Ventless Tray Survey is conducted in MA territorial waters of NMFS statistical areas 514 and 538. Stratified mean catch per trawl haul (CPUE) for the survey is standardized to a six-pot trawl with three vented and three ventless traps. The Jonah crab relative abundance index from Area 514 (Figure 6) is the highest in the time series since 2008. NMFS statistical area 538 has remained low since 2010 (Figure 7).

C. Trawl Survey
The MA DMF Trawl Survey data are divided into two regions, Gulf of Maine (survey regions 4 and 5), and Southern New England (survey regions 1-3). Recent trends in both regions during the fall, and GOM in the spring have been positive (Figure 8). The spring survey in SNE consistently catches few, if any crabs. The 2020 spring and fall MA DMF bottom trawl surveys were canceled due to COVID-19.

Rhode Island
A. Settlement Survey
The RI DEM YOY Settlement Survey (Suction Sampling) intercepts Jonah crabs. The 2020 Jonah crab index was 0.08 crabs per m^2 (Figure 9).

B. 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 2020, the stratified abundance index of Jonah crabs was 1.17 crabs per ventless trap, similar to the time series mean of 1.23 crabs per ventless trap (Figure 10).

B. Trawl Survey
RI DEM 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. Jonah crabs are rarely encountered in this survey, and abundance indices are variable yet low (Figure 11).

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 LISTS caught one Jonah crab in the fall 2007 survey and two in the fall 2008 survey. Both observations occurred in October at the same trawl site in eastern Long Island Sound. No trawl survey sampling was conducted in 2020 due to restrictions on field sampling caused by the global COVID-19 pandemic.

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 2020 from the Rockaways to Montauk Point and the New York waters of Block Island Sound. Due to the impacts of the COVID-19 pandemic, sampling was conducted two times in 2020 during the winter (February) and fall (September). Sixteen to 30 stations were sampled each trip. One Jonah crab was caught during the 2020 survey. It was a male with a shell length of 20 mm.

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'). In 2019, a cruise was not conducted in April. 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, but increased slightly in 2019. Due to the COVID-19 pandemic, 2020 CPUE and indices were not obtained (Figure 12).

7.0 Recent and On-Going Research Projects

A. Declawing Study

NH F&G, Wells National Estuarine Research Reserve, and the University of New Hampshire have been conducting a variety of collaborative research on Jonah crabs since 2014. Two of those studies were published in 2021. Goldstein and Carloni (2021) assessed the implications of live claw removal, and Dorrance et al. 2021 conducted follow-up research on that study to better understand the sublethal effects of declawing. These manuscripts provide estimates of mortality for declawed animals, and information on the effects of claw removal on feeding, movement and mating.

In addition to the above-mentioned publications, an acoustic telemetry study was conducted in 2018 and 2019 by same collaborators to assess the movement patterns of both controls and declawed animals. These data are currently the basis for Maureen Madray's thesis (Furey lab-UNH) and will be finalized in the coming months.

B. Growth and Fishery Dependent Data

In 2019, two collaborative studies between the University of Rhode Island and Rhode Island DEM were published. The first of these was a growth study, which described molt increments for adult females and males and molting seasonality and molt probabilities for adult males in Rhode Island Sound. The second was an interview study in which fifteen in-person interviews were conducted 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 characterized in the literature (e.g., seasonal distribution patterns); identified topics requiring further study (e.g., stock structure and spawning seasonality); and highlighted predominant concerns related to fishery management (e.g., inshore-offshore fleet dynamics).

New Hampshire Fish and Game, Wells National Estuarine Research Reserve and the University of New Hampshire conducted research on growth rates of crabs held at ambient and controlled temperatures for sizes ranging from 5 mm (YOY) to 100 mm. These data are currently being analyzed, and will be available for population assessment purposes.

C. 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 December 2021, 105,894 Jonah crabs 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; the implementation deadline for Addendum II was January 1, 2018; and the implementation deadline for Addendum III was January 1, 2019 (with the exception of the 10 minute square reporting requirement).

- 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. New York 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. The state notes that NY has been seeing a decline in Jonah crab landings over time, and according to the draft FMP, New York contributed to 0.9% of the coastwide Jonah crab landings in 2020. New York does currently have limited entry for crab licenses and a moratorium on the lobster license.

9.0 De Minimis Requests

The states of Delaware, Maryland, and Virginia, 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

A stock assessment for Jonah crab is scheduled for completion in 2023. Research recommendations will be made by the Stock Assessment Subcommittee and Peer Review Panel.

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. This issue has been raised since 2018 and has not been addressed within the last year.
- The PRT notes that MA has been unable to meet the August 1 deadline for compliance reports for the last several years.
- 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 the LEC review compliance in the Jonah crab fishery, given it is a fairly new fishery management plan and lessons may be learned.

12.0 Tables

Table 1. Landings (in pounds) of Jonah crab by the states of Maine through Virginia. 2010-2018 landings were provided by ACCSP based on state data submissions. 2020 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	11,520,441
2011	1,096,592	C	5,379,792	3,213,119	C	69,440	26,909		92,401	C	9,878,253
2012	556,675	C	7,540,510	3,774,300	2,349	410,349	68,459		C	C	12,352,641
2013	379,073	340,751	10,109,590	4,651,796	51,462	371,675	8,143		C	C	15,912,489
2014	348,295	404,703	11,904,611	4,435,934	49,998	83,060	33,104		153,714	C	17,413,419
2015	312,063	C	9,128,876	4,298,894	C	207,424	68,116	C	39,750	C	14,055,124
2016	602,206	150,341	10,660,653	4,224,092	C	165,427	260,856	C	14,656	C	16,081,319
2017	1,042,807	113,354	11,698,342	4,111,281	C	158,231	433,132	C	23,564	C	17,580,710
2018	1,054,489	22,118	13,227,380	4,665,701	C	231,642	880,192	C	60,628	C	20,142,148
2019	761,955	70,704	9,697,530	4,222,305	C	125,391	1,061,194	C	47,739	C	15,986,818
2020	693,614	31,658	8,289,531	3,307,160	C	126,025	1,061,010	C	35,605	C	13,544,604

13.0 Figures

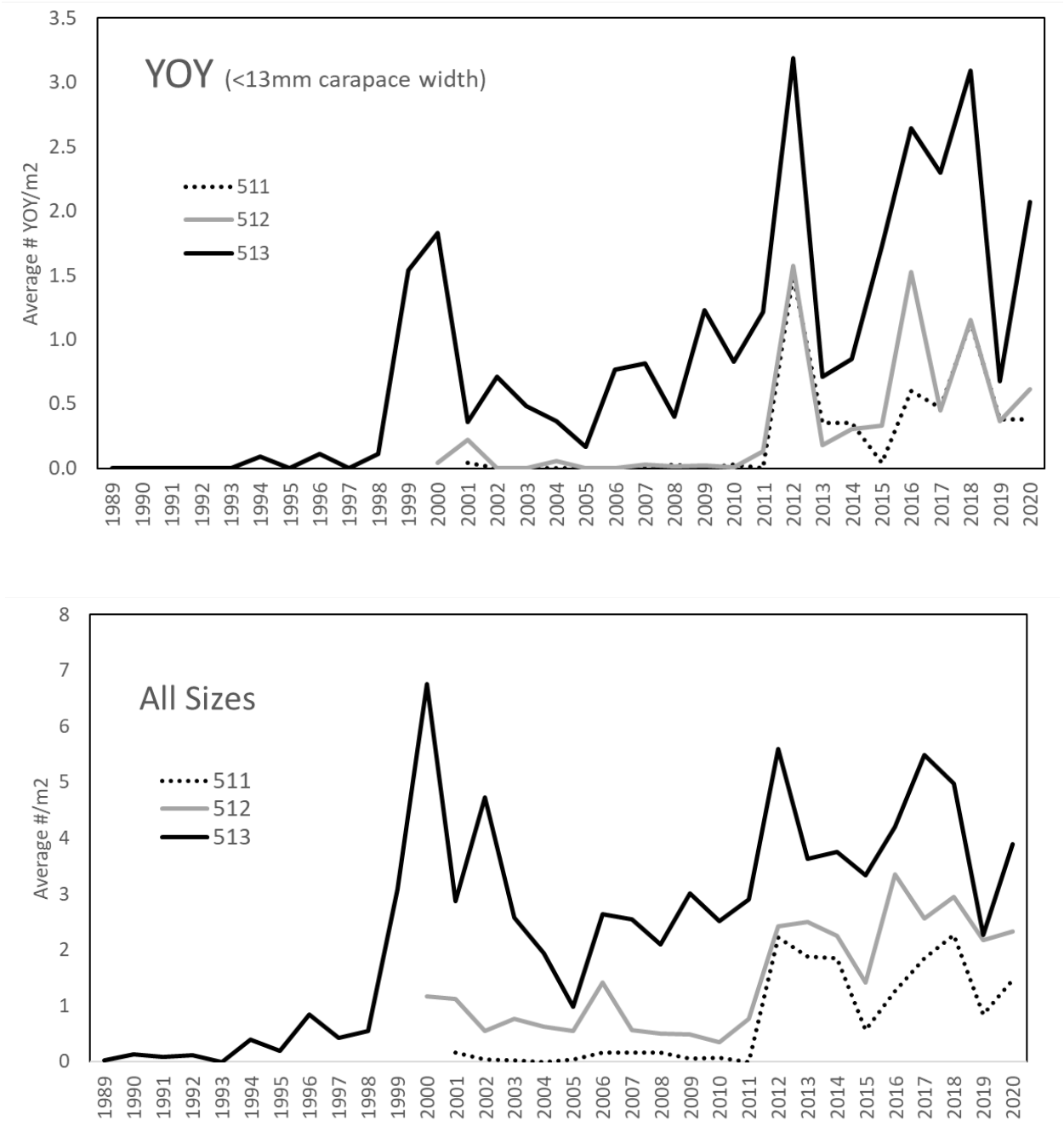


Figure 1. The density of Jonah crab measured over time in the Maine Settlement Survey by statistical area. The top graph shows the density of YOY Jonah crab (<13mm carapace width) and the bottom graph shows the density of all Jonah crab.

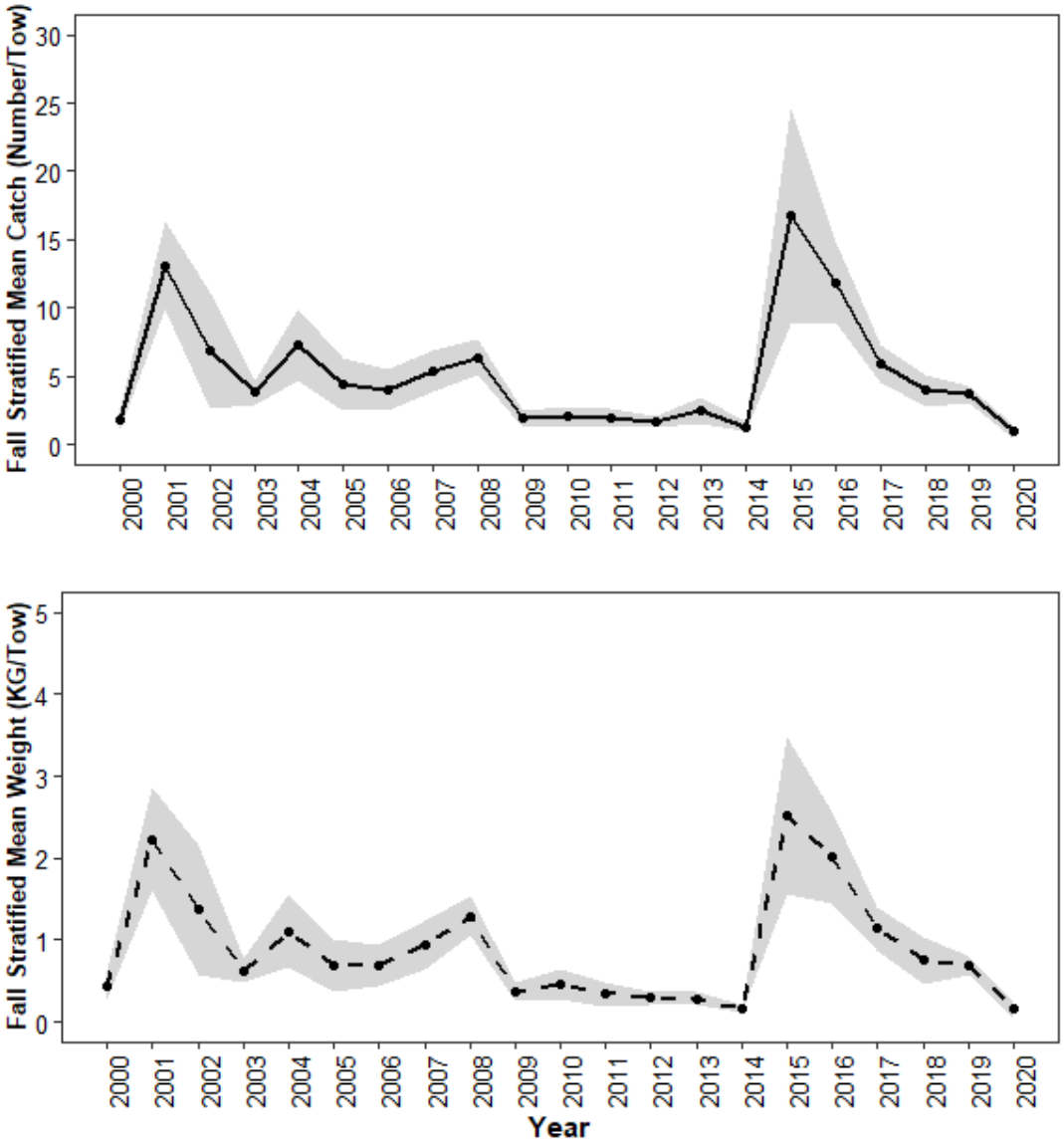


Figure 2. Maine-New Hampshire trawl survey abundance indices for Jonah crab, 2001-2020. Results of the fall stratified mean catch are on the top and results from the fall stratified mean weight are on the bottom.

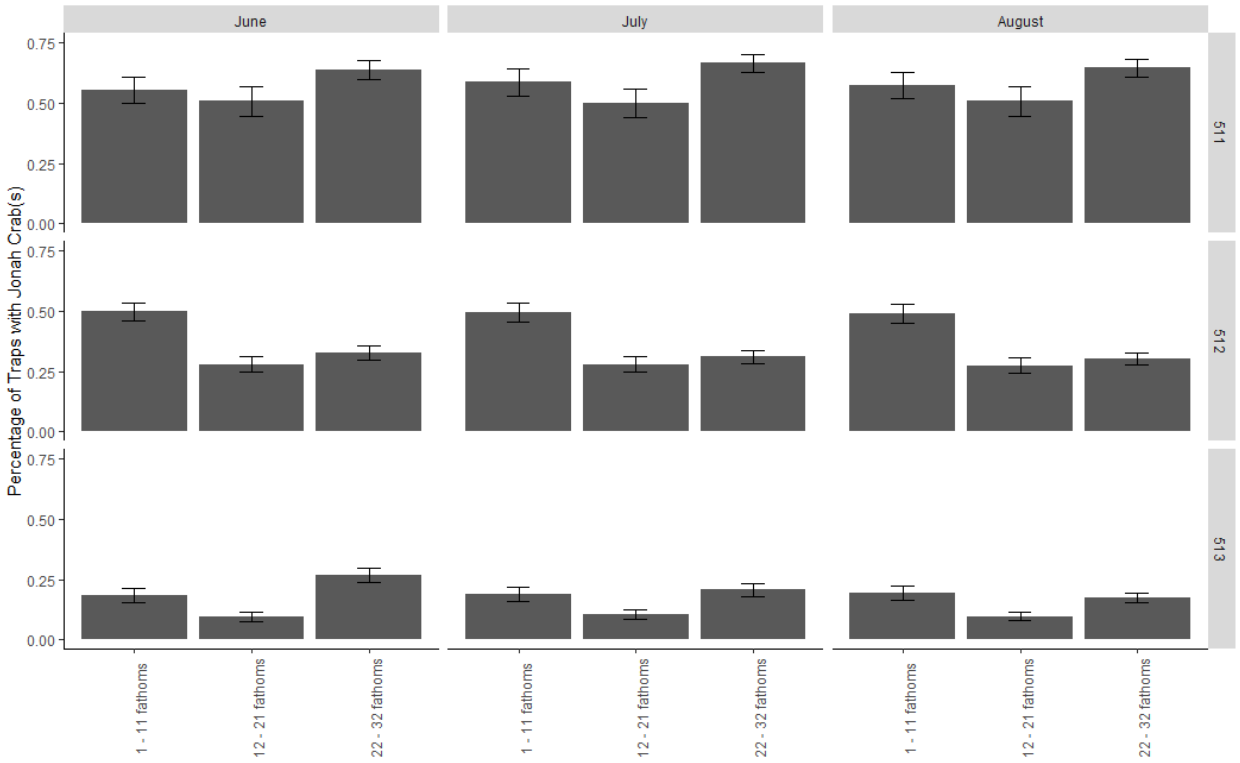
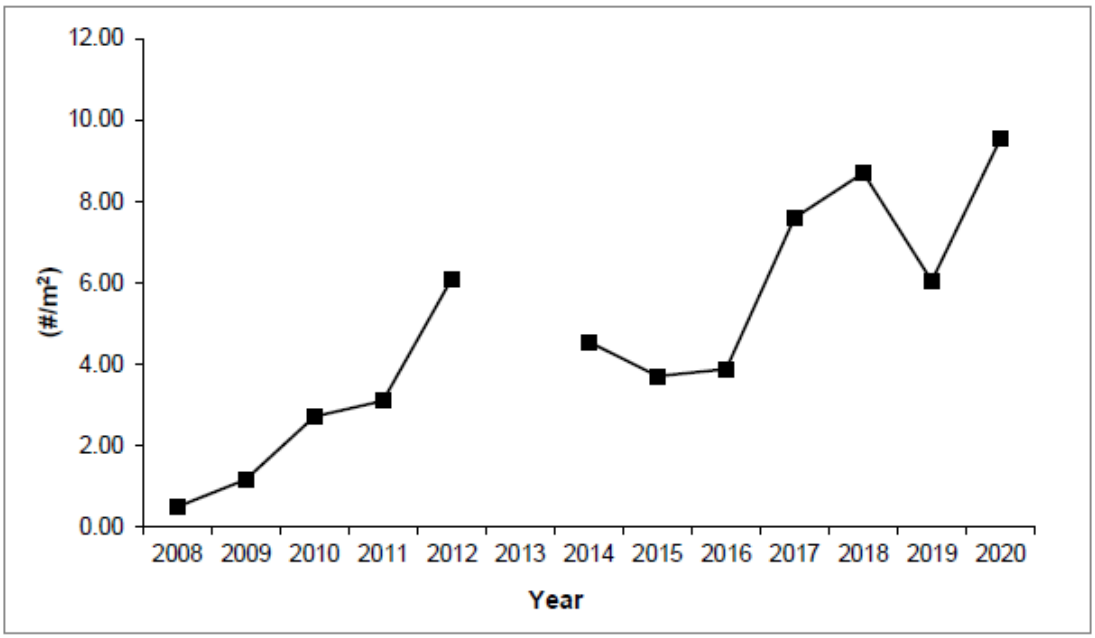


Figure 3. Proportion of traps with Jonah crabs present in the 2020 Maine Ventless Trap Survey.



* No samples collected in 2013

Figure 4. Catch per unit effort (#/m^2) of Jonah crab during the American Lobster Settlement Index Survey, in New Hampshire, from 2009 through 2020.

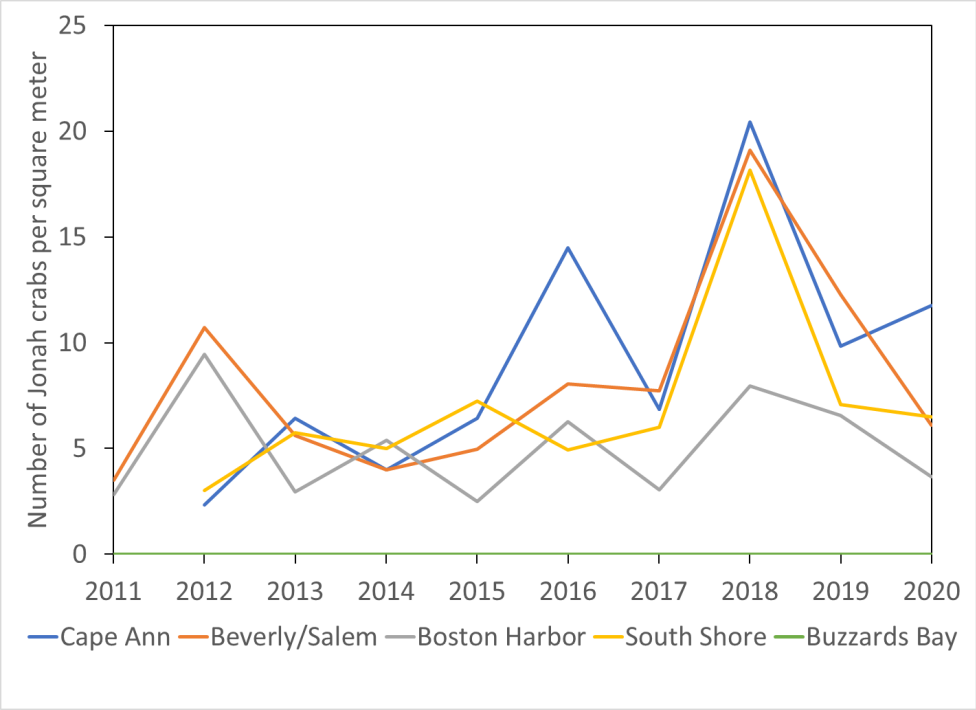


Figure 5. Number of Jonah crab per square meter from the MA DMF juvenile lobster suction survey. Cape Ann, Beverly/Salem, Boston Harbor, South Shore, and Cape Cod Bay are in NMFS statistical area 514; Buzzards Bay and Vineyard Sound are in statistical area 538.

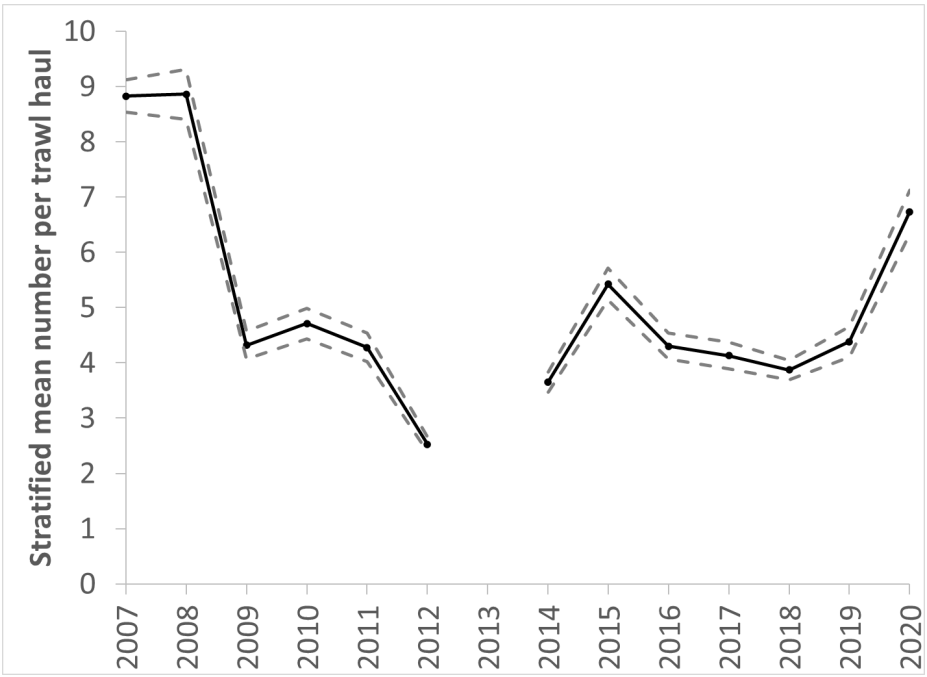


Figure 6. Number of Jonah crab per trawl haul from NMFS stat area 514 from the MA DMF Ventless Trap Survey. CPUE is standardized to a six pot trawl with three vented and three ventless traps. Error bars are ± two times the standard error. The survey did not occur in 2013.

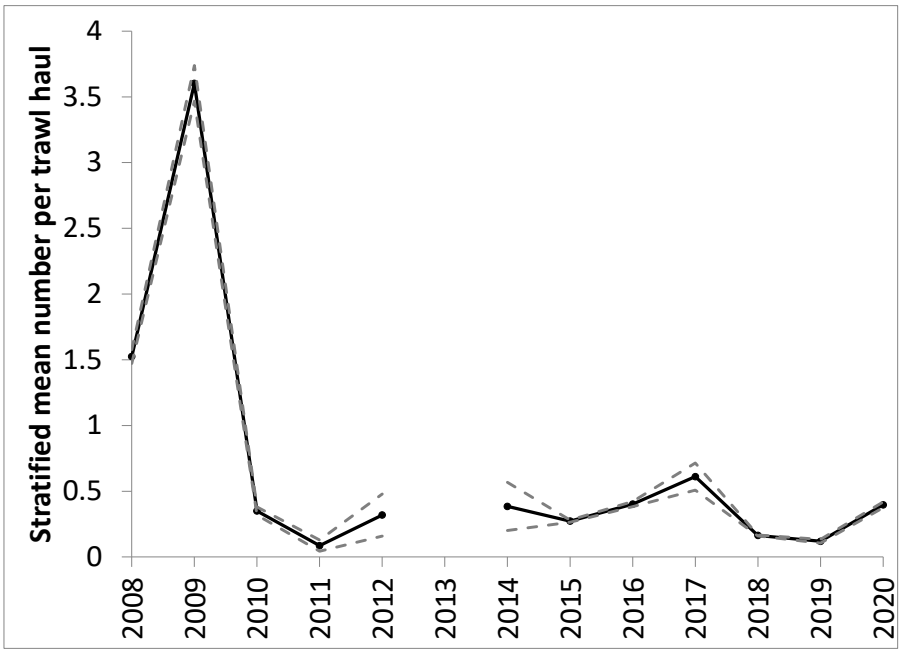


Figure 7. Number of Jonah crab per trawl haul from NMFS stat area 538 from the MA DMF Ventless Trap Survey. CPUE is standardized to a six pot trawl with three vented and three ventless traps. Error bars are ± two times the standard error. The survey did not occur in 2013.

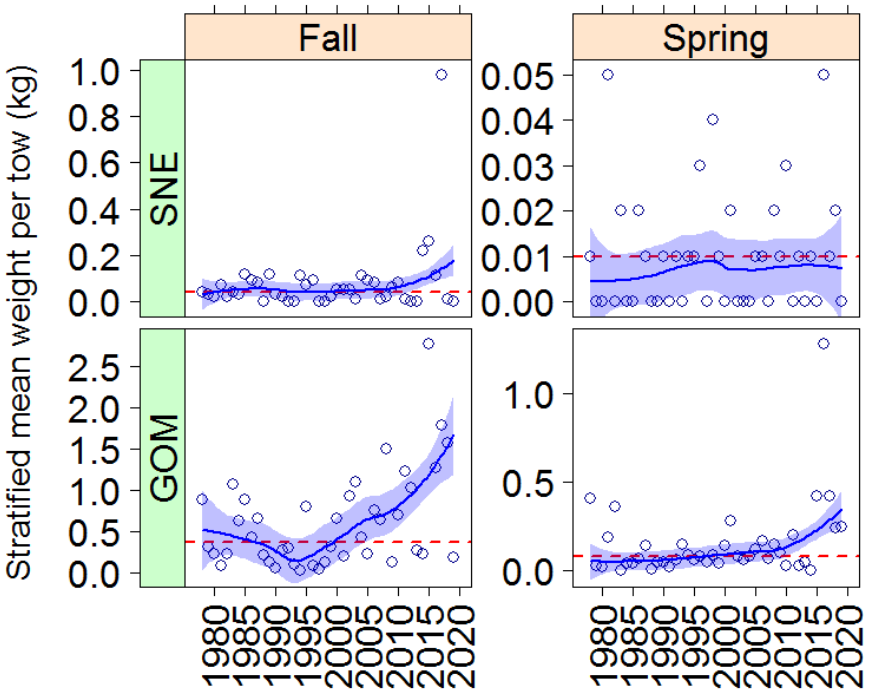


Figure 8. Bootstrapped Jonah crab mean weight (kg) per tow from the MA DMF bottom trawl survey by season and region. Red, dashed line is the time series median, blue line is a loess fit using family=symmetric and span=0.66. These settings provide a resistant fit to outliers at the end of the time-series. Blue shaded area is an approximate 95% confidence interval for the fit.

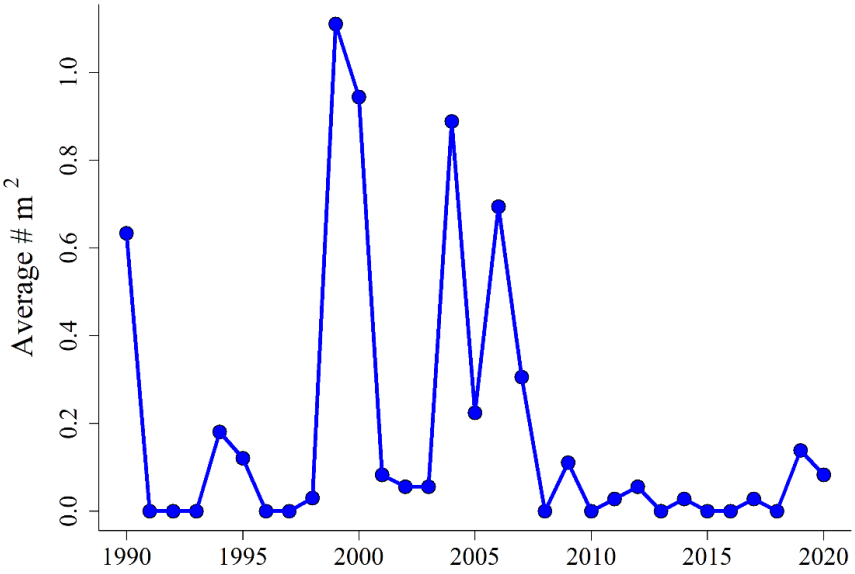


Figure 9. Rhode Island YOY Settlement Survey trend for all Jonah crabs caught per m^2.

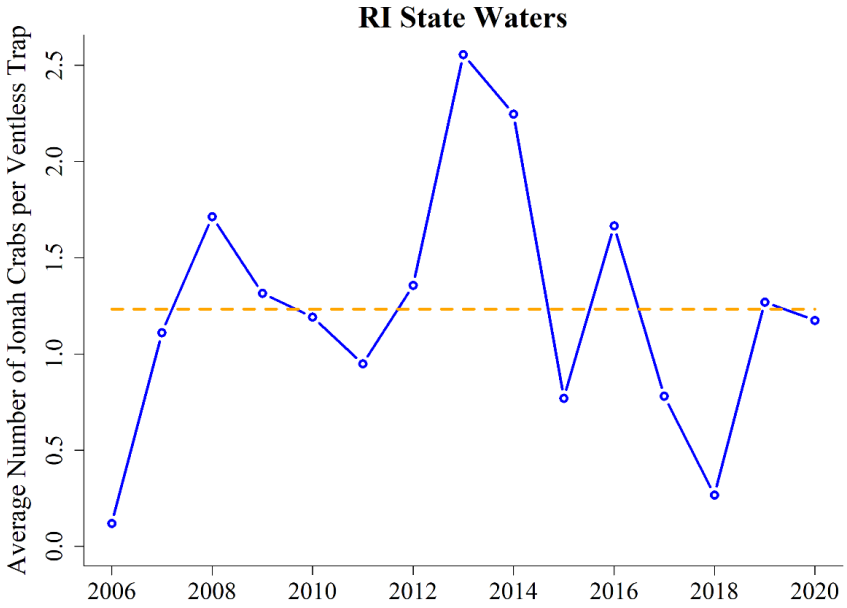


Figure 10. Average number of Jonah crabs caught per ventless trap in RI DMF's ventless trap survey, 2006-2020. Orange dotted line indicates time series mean.

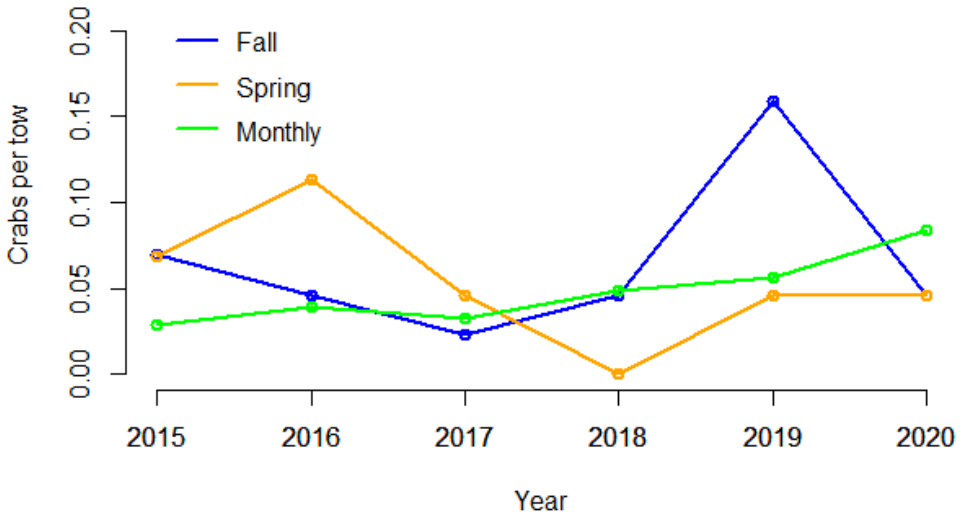


Figure 11. RIDEM DMF Seasonal (Spring and Fall) and Monthly Trawl Jonah crab abundances. CPUE is expressed as the annual mean number-per-tow.

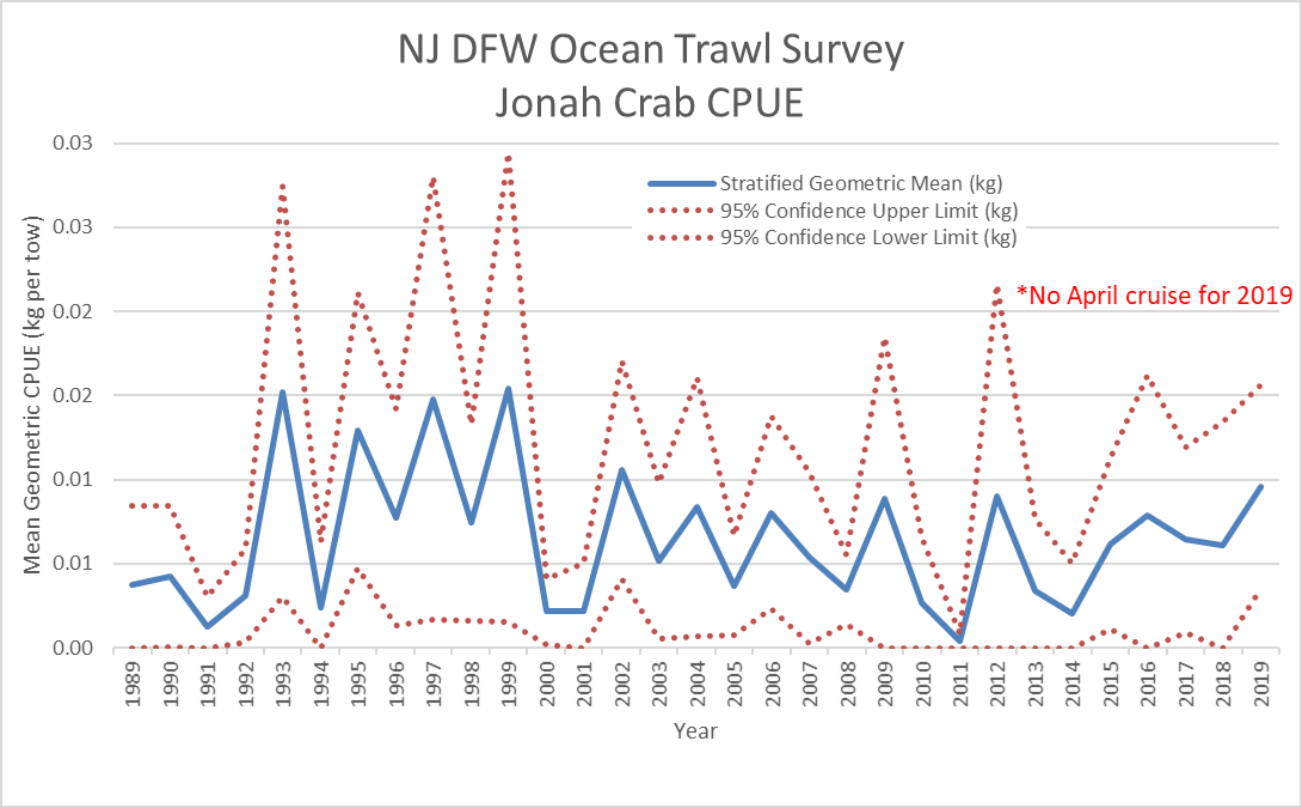


Figure 12. Stratified mean CPUE of all Jonah crab collected aboard the NJDFW Ocean Trawl Survey. The survey stratifies sampling in three depth gradients, inshore (18'-30'), mid-shore (30'-60'), offshore (60'-90'). The mean CPUE was calculated as the sum of the mean weight (in kg) of Jonah crab per size class collected in each sampling area weighted by the stratum area. ***NOTE: No April 2019 Survey was conducted due to Research vessel mechanical issues. Due to the COVID-19 pandemic, 2020 CPUE and indices were not obtained.**

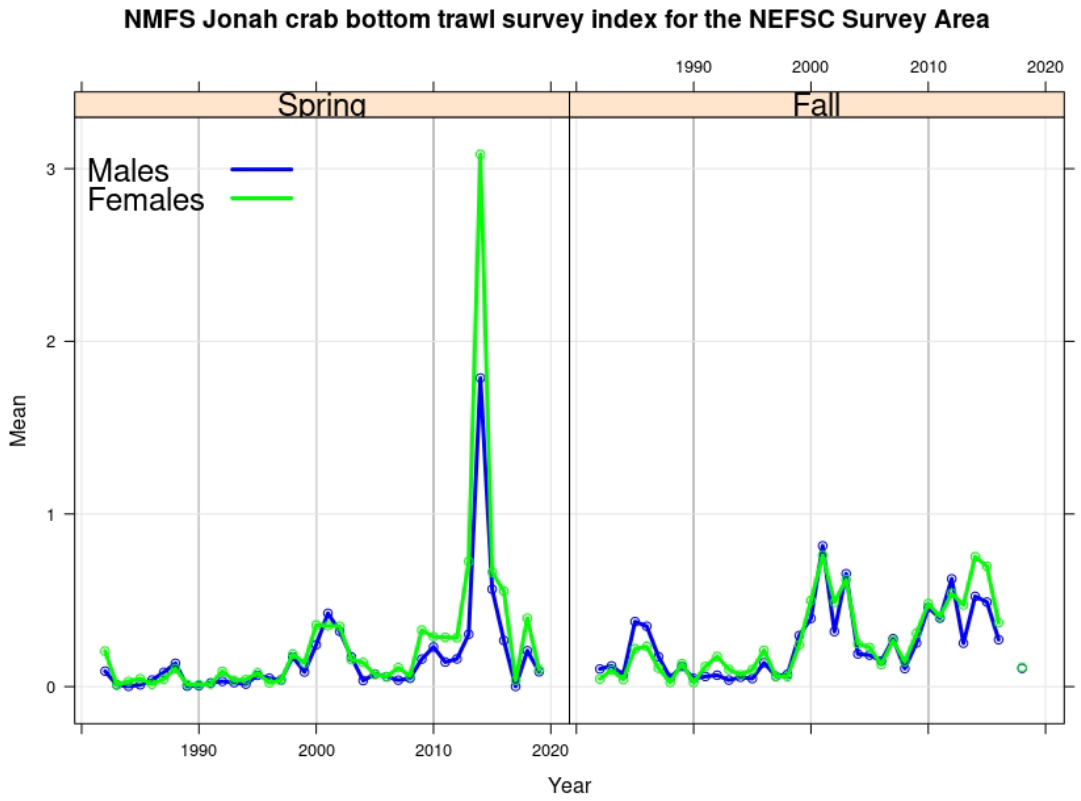


Figure 13. NMFS Jonah Crab index (mean number per tow) from the bottom trawl survey for the NEFSC Survey Area, through spring 2019. There was no survey conducted in 2020 due to the COVID-19 pandemic.

Atlantic States Marine Fisheries Commission

Tautog Management Board

January 25, 2022
1:00 – 2:30 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 (*M. Luisi*) 1:00 p.m.

2. Board Consent 1:00 p.m.
   - Approval of Agenda
   - Approval of Proceedings from October 2021

3. Public Comment 1:05 p.m.

4. Review and Discuss Hypothetical Scenarios from Risk and Uncertainty Decision Tool (*J. McNamee*) 1:15 p.m.

5. Review Feedback from Law Enforcement Committee on Commercial Tagging Program (*J. Snellbaker*) 2:00 p.m.

6. Other Business/Adjourn 2:30 p.m.

The meeting will be held via webinar, click here for details.
Sustainable and Cooperative Management of Atlantic Coastal Fisheries

MEETING OVERVIEW

Tautog Management Board
January 25, 2022
1:00 - 2:30 p.m.
Webinar

Chair: Mike Luisi (MD) Assumed Chairmanship: 11/21	Technical Committee Chair: Craig Weedon (MD)	Law Enforcement Committee Representative: Jason Snellbaker (NJ)
Vice-Chair: Vacant	Advisory Panel Chair: Vacant	Previous Board Meeting: October 18, 2021
Voting Members: MA, RI, CT, NY, NJ, DE, MD, VA, NMFS (9 votes)		

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from October 18, 2021

3. Public Comment – At the beginning of the meeting public comment will be taken on items not on the agenda. Individuals that wish to speak at this time 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 and Discuss Hypothetical Scenarios from Risk and Uncertainty Decision Tool (1:15-2:00 p.m.)

Background

- In October, the Board reviewed a preliminary report of the Risk and Uncertainty Decision Tools for Tautog. The report summarized technical input from the Technical Committee, the Committee on Economics and Social Sciences (CESS) and preliminary weightings for the decision tools' components developed from Board input. The Risk and Uncertainty Decision Tools were developed in conjunction with the 2021 Stock Assessment Update in order to use the most current information to help inform management decisions.
- The 2021 Stock Assessment Update showed improvements in the most regions from the last assessment in 2017. Since the Assessment Update showed no regions are experiencing overfishing, the Board chose to not make any management changes.
- With no management action taken in response to the assessment, the Board requested staff develop hypothetical scenarios to further evaluate the Risk and Uncertainty Decision Tools. (**Briefing Materials**)

Presentations

- Hypothetical Scenarios from the Risk and Uncertainty Decision Tool by J. McNamee

5. Review Feedback from Law Enforcement Committee on Commercial Tagging Program (2:00-2:25 p.m.)
Background • In October the Board approved questions for the Law Enforcement (LEC) to aid in assessing the impact of the commercial harvest tagging program on the illegal harvest and sale of tautog. The commercial harvest tagging program was fully implemented by all states in 2021. • The LEC met in December to respond to the questions of the Board and provided considerations in evaluating the effectiveness of the tagging program **(Briefing Materials)**
Presentations • Feedback from LEC on Commercial Tagging Program by J. Snellbaker

6. Other Business/Adjourn

Atlantic States Marine Fisheries Commission

Summer Flounder, Scup, and Black Sea Bass Management Board

January 25, 2022
2:45 – 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 (*J. Davis*) 2:45 p.m.

2. Board Consent 2:45 p.m.
   - Approval of Agenda
   - Approval of Proceedings from August 2021

3. Public Comment 2:50 p.m.

4. Review information for 2022 Recreational Specifications 3:00 p.m.
   - Reconsider the 2022 Recreational Specifications **Possible Final Action**
   - Consider Methodology for Adjusting 2022 Recreational Measures **Possible Action**

5. Other Business/Adjourn 4:15 p.m.

This meeting will be held via webinar, click here for details.
Sustainable and Cooperative Management of Atlantic Coastal Fisheries

MEETING OVERVIEW

ASMFC Summer Flounder, Scup, and Black Sea Bass Management Board Webinar
January 25, 2022
2:45 p.m. – 4:15 p.m.

Chair: Justin Davis (CT) Assumed Chairmanship: 12/21	Technical Committee Chair: Alexa Galvan (VA)	Law Enforcement Committee Representative: Snellbaker (MD)
Vice Chair: Vacant	Advisory Panel Chair: Vacant	Previous Board Meeting: December 14, 2021
Voting Members: NH, MA, RI, CT, NY, NJ, DE, MD, PRFC, VA, NC, NMFS, USFWS (13 votes)		

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from August 2021

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

4. Review Information for 2022 Recreational Specifications (3:00-4:10 p.m.) Possible Final Action

Background

- In December 2021, the Summer Flounder, Scup, and Black Sea Bass Management Board (Board) and the Mid-Atlantic Fishery Management Council (Council) jointly approved a 28% reduction in coastwide black sea bass harvest. At the same meeting, the Board and the Council jointly approved a 16.5% liberalization in coastwide harvest for summer flounder. The Board and Council opted to proceed with the regional conservation equivalency processes as outlined in Addendum XXXII for both species as opposed to implementing coastwide measures.
- The Board and Council also approved a one-inch increase in the scup recreational minimum size for 2022.
- The Technical Committee (TC) met twice in January 2022 to recommend a methodology to assist regions with developing recreational measure proposals (**Supplemental Materials**). After reviewing the recreational data, the Technical Committee has been considering alternative calculations and methods for regional targets to meet the 2022 RHL for black sea bass.

Presentations • Staff will present an overview of the TC's recommended methodology for regional proposals as well as alternative calculations and methods for regional targets for 2022 recreational specifications.
Board Actions for Consideration • Reconsider the 2022 Recreational Specifications for black sea bass**.** • Approve methodology for adjusting 2022 Summer Flounder and Black Sea Bass Recreational Measures.

5. Other Business/Adjourn

Atlantic States Marine Fisheries Commission

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

MEMORANDUM

TO: **Summer Flounder, Scup, and Black Sea Bass Board**

FROM: **Summer Flounder, Scup, and Black Sea Bass Technical Committee**

DATE: **January 18, 2022**

SUBJECT: **Summer Flounder & Black Sea Bass Methodology for Adjusting 2022 Recreational Measures**

The Summer Flounder, Scup, and Black Sea Bass Technical Committee (TC) met via conference call on January 5 and January 10, 2022 to recommend a methodology for states to use when developing regional proposals for summer flounder and black sea bass recreational measures for the 2022 fishing year.

The TC recommends that both liberalizations and restrictions to recreational regulations for summer flounder and black sea bass be applied equally across regions so that no one region's change in measures is expected to have an outsized impact on expected harvest. The TC recommends that regional measures be adjusted unidirectionally along the coast to maintain an equitable opportunity to harvest fish for all stakeholders.

Recommended Methodology for Summer Flounder

For summer flounder, the TC has recommended criteria for states and regions to use when developing their respective regional proposals. A template for summer flounder proposals is on page 4 of this memo.

1. States within a region should collaborate and submit one regional proposal. Summer Flounder has 6 regions: (MA, RI, CT-NY, NJ, DE-VA, NC)

2. Recreational measures for all states within a region will consist of the same minimum size limit, possession limit, and season length.

3. Proposals may consider adjustments to possession limits, minimum and/or maximum size limits, season, and gear modifications.

4. All liberalizations should be calculated in terms of pounds of fish. This calculation can be made using numbers of fish, using regional or state length-weight information.

5. Analysis should use recreational data from 2018-2021 (2021 data should be included if available)

- The analysis should be based on MRIP data. States may adjust the MRIP data as appropriate to address outliers, low sample sizes, high PSEs, or other data concerns (e.g., through use of averages or smoothing). The MRIP data may be supplemented with additional data sets as appropriate. The proposal must give a full description of each data set used.

6. When calculating the liberalization: pool data from the four years (2018, 2019, 2020, 2021). It may also be appropriate to calculate the liberalization for each individual year then take the average of those 4 liberalizations to determine if pooling has overly weighted the year with the largest level of harvest.

7. Proposals may split measures by mode. The proposal analysis should show how these splits would produce the predicted total harvest for the state.

8. Non-compliant harvest should be kept as part of the data in the analysis. I.e., all previous non-compliant harvest is assumed to still occur under the new regulations.

9. If liberalizations associated with changes to bag/size/season are calculated independently, these interactions should be accounted for using the equation in the bullet below. Please note, X represents the percent increase in expected harvest associated with a change in the first measure and Y represents the percent increase in expected harvest associated with a change in the second measure. If an interaction term is not calculated, there should be sufficient justification with an explanation provided.
   - $Total\ Liberalization = \mathrm{X}\% + \mathrm{Y}\% + (\mathrm{X}\% * \mathrm{Y}\%)]$
   - For example, if a lower minimum size limit is expected to increase harvest by 20% and a higher bag limit is expected to increase harvest by 15%, then the final expected increase in harvest is 26.3%

Recommended Methodology for Black Sea Bass

In an effort to standardize the methodology used to craft black sea bass recreational management measures, the technical committee developed state-specific reference tables to be used within a standardized analytical framework when exploring changes in minimum size, length of season, and possession limit. By standardizing the approach, states are able to easily quantify how changes in measures impact expected harvest within each region. States within a region should collaborate and submit one regional proposal. Black Sea Bass has 3 regions: (MA-NY, NJ, DE-NC).

The standardized reduction tables apply the following criteria:

1. All reductions are calculated in terms of pounds of fish.

2. The analysis uses recreational data from 2018-2021.

3. Non-compliant harvest is assumed to still occur under the new regulations.

4. Reductions across measures are considered cumulatively and their interactive effects are accounted for in the methodology, which precludes the need to apply an interaction term.

Summer Flounder Proposal Template

CE Proposals are due February 21, 2022

Please use the following template when submitting proposals. Please be as concise as possible and use bullets to ensure inclusion of all important information. This template references data standards established by the Technical Committee.

Summary of Proposed Measures

Recreational Fishery

Region	Size Limits	Bag Limits	Open Season	Other

Please provide a proposal that achieves the 16.5% liberalization in pounds for your region from 2018-2021 levels following the criteria established by the TC (see TC memo).

Please address the following questions,

- What recreational measures is your region proposing?
- Does your proposal meet the data standards established by the TC?
- What data sources are used in the analysis (include mode or season specific if applicable)?
- Sample size summary by mode, season, or state and/or data source as applicable.
- Describe in a few sentences how you did the analysis
- Provide a table of results with your analysis.
- Clearly identify how your region's liberalization is achieved.

Note: Please indicate the open and close dates of a season. Also specify if regulations are different by geographical area if applicable (e.g., ocean, bay, river) and the specific season dates of those areas.

Timeline for Implementation

Briefly describe the timeline for implementation of management measures as well as the start of your states' fisheries relative to your proposed implementation date.

From: Michael Shepherd
To: Comments
Subject: [External] 2022wintermeeting
Date: Tuesday, January 18, 2022 12:45:33 PM

From:
Michael Shepherd
Mays Landing, N.J.
Comments concerning summer flounder regulations.
Summer flounder regulations require harvest of female breeders in New Jersey. The legal minimum size for summer flounder should be reduced to permit harvest of smaller males to ease the pressure on virtually females-only regulations.
Add this comment to what I hope is a strong opposition to the current restrictive and destructive regulations.
In addition, the bluefish regulations here in New Jersey of three fish daily allowance per person (five apiece on for hire-boats) are also restrictive and should be eased.
Sheponfishing@yahoo.com
609-350-0388

Sent from my iPhone

Atlantic States Marine Fisheries Commission

Spiny Dogfish Management Board

January 25, 2022
4:30 – 5:00 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 (*N. Meserve*) 4:30 p.m.

2. Board Consent 4:30 p.m.
   - Approval of Agenda
   - Approval of Proceedings from October 2021

3. Public Comment 4:35 p.m.

4. Consider Postponed Motions from October 2021 (*N. Meserve*) **Final Action** 4:45 p.m.

   Main Motion
   Move to set at least a 7500-pound trip limit in the Northern Region (ME through CT) for FY2022 contingent upon NOAA Fisheries adopting at least a 7500-pound trip limit for federal waters. If at least a 7500-pound trip limit is not approved in federal waters, then the 6,000-pound trip limit will remain in the Northern Region.

   Motion to Substitute
   Move to substitute to set the Northern Region (ME through CT) state waters trip limit for FY 2022 equal to the trip limit in federal waters approved by NOAA fisheries.

   Motion to Postpone
   Motion to postpone action around the state waters trip limits for FY2022 until the ASMFC Winter Meeting.

5. Review and Populate Advisory Panel Membership 4:50 p.m.
   (*T. Berger*) **Action**

6. Other Business/Adjourn 5:00 p.m.

The meeting will be held via webinar, click here for details.
Sustainable and Cooperative Management of Atlantic Coastal Fisheries

MEETING OVERVIEW

Spiny Dogfish Management Board
January 25, 2022
4:30 - 5:00 p.m.
Webinar

Chair: Nichola Meserve (MA) Assumed Chairmanship: 10/21	Technical Committee Chair: Scott Newlin (DE)	Law Enforcement Committee Representative: Pat Moran (NJ)
Vice-Chair: Vacant	Advisory Panel Chair: Vacant	Previous Board Meeting: October 21, 2021
Voting Members: ME,NH, MA, RI, CT, NY, NJ, DE, MD, VA, NC, NMFS (12 votes)		

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from October 21, 2021

3. Public Comment – At the beginning of the meeting public comment will be taken on items not on the agenda. Individuals that wish to speak at this time 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 Postponed Motions (4:45 - 4:50 p.m.) Final Action

Background

- In October, the Mid-Atlantic Fishery Management Council (MAFMC) recommended to NOAA Fisheries to increase the federal commercial trip limit to 7,500 pounds. The decision was made based on analysis from MAFMC staff that indicated increasing the trip limit to that level would not have negative impact on the resource or markets.
- Later in October the Board considered the motion by the MAFMC but postponed action on the commercial trip limit in state waters until after the New England Fishery Management Council (NEFMC) met in December. The Board postponed the following motions from the October 2021 meeting:

Main Motion
Move to set at least a 7500-pound trip limit in the Northern Region (ME through CT) for FY2022 contingent upon NOAA Fisheries adopting at least a 7500-pound trip limit for federal waters. If at least a 7500-pound trip limit is not approved in federal waters, then the 6,000-pound trip limit will remain in the Northern Region.

Motion to Substitute
Move to substitute to set the Northern Region (ME through CT) state waters trip limit for FY 2022 equal to the trip limit in federal waters approved by NOAA fisheries.

Motion to Postpone
Motion to postpone action around the state waters trip limits for FY2022 until the ASMFC Winter Meeting.

- In December, the NEFMC voted to recommend increasing the federal commercial trip limit to 7,500 pounds.
- The postponed motions from the Board's October meeting are back on the table.

Board Actions for Consideration

- Consider action on postponed motion

5. Review and Populate Advisory Panel Membership (4:50 - 4:55 a.m.) Action

Background

- There is one new nomination to the Spiny Dogfish Advisory Panel- Captain Rick Bellavance, a commercial rod and reel fisherman and charter/party boat captain from Rhode Island **(Briefing Materials)**

Presentations

- Nominations by T. Berger

Board Actions for Consideration

- Approve Spiny Dogfish Advisory Panel nominations

6. Other Business/Adjourn

Atlantic States Marine Fisheries Commission

Executive Committee

January 26, 2022
8:00 – 9:30 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/Call to Order (*S. Woodward*)

2. Committee Consent
   - Approval of Agenda
   - Approval of Proceedings from October 2021

3. Public Comment

4. Discuss the Commission's Role in Coordinating the Member States' Efforts in Offshore Wind Energy Development

5. Discuss Appeals Process *(R. Beal)*

6. Discuss CARES Act State Distributions (*R. Beal*)

7. Discuss the Use of Alternates for Advisory Panel Members (*P. Keliher*)

8. Other Business/Adjourn

The meeting will be held via webinar, click here for details.
Sustainable and Cooperative Management of Atlantic Coastal Fisheries

Atlantic States Marine Fisheries Commission

APPEALS PROCESS

Draft revisions for consideration by the Executive Committee on January 26, 2022

Revised by the ISFMP Policy Board February 7, 2019

Background

The Atlantic States Marine Fisheries Commission's interstate fisheries management process is based on the voluntary commitment and cooperation of the states. The involved states have frequently demonstrated their willingness to compromise and the overall process has proven to be very successful. However, there have been instances where a state/jurisdiction has expressed concern that the Board decisions have not been consistent with language of an FMP, resulted in unforeseen circumstances or impacts, did not follow established processes, or were based on flawed technical information. In order to address these concerns, the ISFMP Policy Board charged the Administrative Oversight Committee with "exploring and further developing an appeals process".

Under the current management process the primary policy development responsibility lies with species management boards. And, in the case of development of new fishery management plans or amendments the full Commission has final approval authority prior to implementation. The purpose of the appeals process is to provide a mechanism for a state/jurisdiction to petition for a management decision to be reconsidered, repealed or altered. The appeals process is intended to only be used in extraordinary circumstances where all other options have been exhausted. The management boards have the ability to go back and correct errors or address additional technical information through the recently clarified process on "amending or rescinding previous board actions".

During the December 2003 ISFMP Policy Board meeting, the decision was made to continue to have the Policy Board serve as the deliberative body that will consider valid appeals. This decision is consistent with the language that is included in the ISFMP Charter. However, the Charter does not provide detailed guidance on how an appeal is to be addressed.

This paper details for the Commission appeals process.

Appeal Criteria – The intent of the appeals process is to provide a state with the opportunity to have a decision made by a species management board or section reconsidered by the Policy Board. The following criteria will be used to guide what type of decisions can be appealed. In general, management measures established through the FMP/amendment/addendum process can be appealed. However, the appellant must use one of the following criteria to justify an appeal:

1. Decision not consistent with, or is contrary to, the stated goal and objectives of the current FMP (Goal and Objective Section of FMPs/Amendments or Statement of the Problem Section of Addenda).
2. Failure to follow process as identified in the ISFMP Charter, Rules and Regulations or other ASMFC guiding documents (e.g. conservation equivalency guidance).
3. Insufficient/inaccurate/incorrect application of technical information. Examples can include but are not limited to:
    a. If for any calculations used in the decision, an error which changes the results was identified after the decision was rendered;
    b. If any data used as the basis for a decision, undergoes a modification which impacts results after the decision was rendered (i.e. a landings dataset is adjusted significantly due to a recalibration or application of a control rule adjustment);
    c. If data is incorrectly identified and therefore incorrectly applied, such as a misidentification of landings information as catch information, or incorrectly assigned landings/catch to a jurisdiction;
    d. If information used as the basis for the decision lacked scientific or statistical rigor, thereby calling in to question the sound basis for the decision;
    e. If the historical landings, catch, or abundance time series used as a basis for a decision is found to be incorrect.

Any appeal based on criterion 3 may be verified independently by a technical body appointed by the Chair, as needed.

4. Management actions resulting in unforeseen circumstances/impacts that were not considered by the Board as the management document was developed.

The following issues could not be appealed:

1. Management measures established via emergency action
2. Out-of-compliance findings (this can be appealed but, through a separate, established process)
3. Changes to the ISFMP Charter

Appeal Initiation – The ISFMP Charter provides that a state aggrieved by a management board action can appeal to the ISFMP Policy Board. Any state can request to initiate an appeal; also a group of states can submit a unified request for an appeal. The states are represented on the Commission by three representatives that have the responsibility of acting on behalf of the states' Executive and Legislative branches of government. Therefore, in order to initiate an appeal all seated Commissioners (not proxies) of a state's caucus must agree that an appeal is warranted and must sign the letter submitted to the Commission. If a multi-state appeal is requested all the Commissioners from the requesting states must sign the letter submitted to the Commission. During meetings where an appeal is discussed proxies will be able to

participate in the deliberations. Meeting specific proxies will not be permitted to vote on the final appeal determination, consistent with Commission policy.

A state (or group of states) can request and appeal on behalf of the Potomac River Fisheries Commission, District of Columbia, National Marine Fisheries Service, or the United States Fish and Wildlife Service.

The letter requesting an appeal will be submitted to the Chair of the Commission and include the measure(s) or issue(s) being appealed, the justification for the appeal, and the commitment to comply with the finding of the Policy Board. This letter must also include a demonstration that all other options to gain relief at the management board level have been exhausted. This letter must be submitted via certified mail or email at least **45 days** prior to a scheduled ASMFC Meeting Week. The Commission Chair, Vice-Chair and immediate past Chair will determine if the appeal meets the qualifying guidelines and notify the Policy Board of their decision. If the immediate past chair is no longer a commissioner the Chair will select an alternate from a state that is not affected by the appeal. Also, if the Chair, Vice-Chair or immediate past Chair is a signatory to the appeal, the Chair will select an alternate from a state that is not affected (or minimally affected) by the appeal.

Convene a "Fact Finding" Committee (optional) – Upon review of the appeal documentation, the Commission Chair, Vice-Chair and immediate past Chair (or alternate if necessary, as described above) may establish a "Fact Finding" Committee to conduct analyses and/or compile additional information if necessary. This group will be made up of individuals with the technical expertise (including legal, administrative, social, economic, or habitat expertise if necessary) and familiarity with the fishery to conduct the necessary analysis. If such a committee is convened the schedule included in the last section of this document may need to be adjusted to provide time for the Committee to conduct analyses. The Commission Chair, Vice-Chair and immediate past Chair (or alternate if necessary, as described above) may set a deadline for the Committee to complete its work to ensure the appeal is addressed in a timely manner.

ISFMP Policy Board Meeting – Following the determination that an appeal has met the qualifying guidelines, a meeting of the Policy Board will be convened at a scheduled ASMFC meeting week. The agenda of this meeting will be set to allow sufficient time for all necessary presentations and discussions. The Chair of the Commission will serve as the facilitator of the meeting. If the Chair is unable to attend the meeting or would like to more fully participate in the deliberations, the Vice-Chair of the Commission will facilitate the meeting. The ISFMP Director will provide the background on the development of the management program as well as a summary of the justification provided in the record for the management board's action. The ISFMP Director will also present the potential impacts of the appeal on other affected states. The appellant Commissioners will present their rationale for appealing the decision and provide a suggested solution. The Policy Board will then discuss the presentations and ask any necessary questions. The Policy Board will vote to determine if the management board's action was justified. A simple majority of the Policy Board is required to forward a recommendation to

a management board for corrective action. If the Policy Board determines that the existing management program should be modified, it will issue a finding to that effect as well as any guidance regarding corrective action to the appropriate species management board. The referral may be worded to allow the management board flexibility in determining the details of the corrective action. If the Policy Board requires the management board to take specific corrective actions, those corrective actions must:
Option 1. ….be limited to the management options as written in the Draft Amendment or Addendum reviewed by the public.
Option 2. ….be within the range of management options included in the Draft Amendment or Addendum reviewed by the public.

Upon receipt of the Policy Board's recommendation the management board will discuss the findings and make the necessary changes to address the appeal. The management board is obligated to make changes that respond to the findings of the Policy Board. A simple majority of the management board will be necessary to approve the changes.

If the management board is unable to make the changes necessary to respond to the findings of the Policy Board, the following options are available (Any or all of these options can be selected):

1. The management board can request clarification from the Policy Board on the specifics of the findings. A meeting of the Policy Board will be scheduled to ensure the requested clarification is provided to the management board to take action at the Commissions next quarterly meeting.
2. The management board can inform the Policy Board that it is unable to address the findings and the Policy Board will take action to approve changes that will address the appeal.
3. The management board can request additional analyses from the technical committee or other technical support group (e.g. Management and Science Committee, Assessment Science Committee). A meeting of the appropriate technical group will be scheduled to ensure the requested information is provided to the management board to take action at the Commissions next quarterly meeting.

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Appeal Products and Policy Board Authority – Following the Policy Board meeting a summary of the meeting will be developed. This summary will include a detailed description of the findings and will be forwarded to the appropriate management board and Policy Board upon completion. If the Policy Board determines that changes to the management program are necessary, the summary may include guidance to the management board for corrective action. The report of the Policy Board will be presented to the management board for action at the next scheduled meeting.

Considerations to Prevent Abuse of the Appeals Process – The appeals process is intended to be used only in extraordinary situations and is in no way intended to provide a potential avenue

to preempt the established board process. The initiation of an appeal will not delay the Commission process for finding a state out of compliance nor delay or impede the imposition of penalties for delayed compliance.

Limiting Impacts of Appeal Findings – If a state is successful in an appeal and the management program is altered, another state may be negatively impacted by the appeals decision. In order to prevent an appeals "chain reaction," the Policy Board's recommendation and the resulting management board's decision will be binding on all states. All states with an interest in the fishery will be obligated to implement the changes as approved by the management board. Upon completion of the appeals process, a state is not precluded from taking further action beyond the Commission process to seek relief.

If the Policy Board supports the appeal and determines that corrective action is warranted, the potential for management changes to negatively impact other states will be evaluated by the Policy Board and the species management board.

Appeals Process Timeline

1. Within **15 working days** of receipt of a complete appeal request the Commission Chair, Vice-Chair, and immediate past chair (or alternate) will determine if the state has an appeal which meets the qualifying guidelines.

2. Upon a finding that the appeal meets the qualifying guidelines, the appeal will be included on the agenda of the ISFMP Policy Board meeting scheduled during the next ASMFC Meeting Week (provided an adequate time period is available for preparation of the necessary documentation).

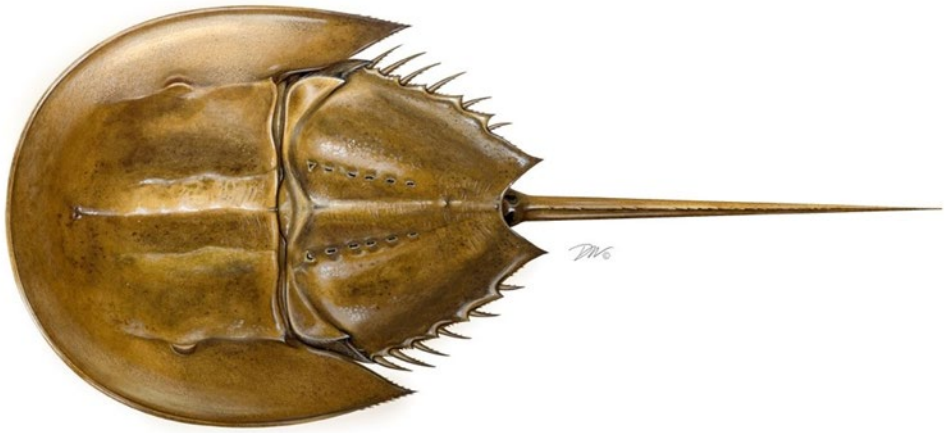
3. Following the finding that an appeal meets the qualifying guidelines, Commission staff and the appellant commissioners will have a minimum of **15 working days** to prepare the necessary background documents.

4. The background documents will be distributed at least **15 days** prior to the Policy Board meeting.

A summary of the Policy Board meeting will be developed and distributed to all Commissioners within **15 working days** of the conclusion of the meeting.

Atlantic States Marine Fisheries Commission

Supplemental Report to the 2021 Revision to the Adaptive Resource Management Framework



Vision: Sustainably Managing Atlantic Coastal Fisheries

EXECUTIVE SUMMARY

The Peer Review Panel (Panel) for the 2021 Revision to the Framework for Adaptive Management (ARM) of Horseshoe Crab Harvest in the Delaware Bay Inclusive of Red Knot Conservation concluded that the ARM Modeling Wok Group completed the Terms of Reference, revised the ARM Framework successfully, and results are suitable for management advice. The Panel did request a few changes be made to some of the modeling, which resulted in a different base run of the model from what was included in the final version of the ARM Revision report. This report, a supplement to the full ARM Revision report, describes the changes requested by the Panel and the revised base run.

Population Models and Revised ARM Framework

The Delaware Adult Trawl Survey index was recalculated based on Peer Review Panel recommendations and therefore the catch multiple survey analysis (CMSA), the model used to estimate male and female horseshoe crab abundances, was rerun. With the new base run, in 2019, the CMSA estimated that there were 21.9 million male and 9.4 million female horseshoe crabs. Additional sensitivity runs were done to test various assumptions and inputs for the CMSA during the Peer Review Workshop and are included in this supplemental report.

Because the CMSA population estimates are included in the integrated population model (IPM) for red knots, this model was also rerun. Estimates of adult survival probability and recruitment were nearly identical to the previous model run, again indicating high adult survival (average 0.93) and low recruitment (average 0.06) for this population.

The projection model for horseshoe crabs was rerun to include the full time series of CMSA estimates (2003-2019) rather than the shorter period used previously (2013-2019), as recommended by the Peer Review Panel. This resulted in more variable and lower mean values of primiparous abundances which resulted in lower projected mean equilibrium values of male and female abundances.

Due to the revised population models and the changes made in the horseshoe crab projection model, the ARM Framework was rerun.

Stock Status

Based on the base run of the revised ARM model, the recommended harvest in 2019 would have been 500,000 male and 144,803 female horseshoe crabs. Conversely, the previous ARM model recommended 500,000 male-only harvest.

It should be noted that this ARM Revision was developed using coastwide biomedical data so as to avoid data confidentiality issues. The population estimates for horseshoe crabs from the CMSA therefore represent an overestimate. If this ARM Revision is accepted for management use, the Delaware Bay-specific biomedical data will be used to determine the harvest package and the model will be run by someone (e.g., ASMFC staff) with confidential data access. Therefore, the final harvest recommendations are likely to be marginally lower than those reported here. No other model inputs were affected by data confidentiality.

Table of Contents

LIST OF TABLES

LIST OF FIGURES

1 OVERVIEW

This report serves as supplemental material to the 2021 Revision to the Framework for Adaptive Management (ARM) of Horseshoe Crab Harvest in the Delaware Bay Inclusive of Red Knot Conservation (ASMFC 2021). During the Peer Review Workshop in November, 2021, the Peer Review Panel (Panel) requested additional information and report for peer review. A description of the additional information, analysis, and conclusions follows, but refer to ASMFC 2021 for a more thorough discussion of the life history, available data sources, analysis background, and stock status discussions for the ARM Framework.

1.1 Modeling Changes

The Panel made many suggestions in the Peer Review Report for both long-term and short-term considerations. Some of the short-term recommendations were made to the base run of the revised ARM model and were completed at or following the Peer Review Workshop. Three changes were made to the data or base run of the models which resulted in different results from those brought to peer review and described in ASMFC 2021:

1. A model-based abundance index for the Delaware Fish and Wildlife Adult Trawl Survey was developed since the design-based index previously used was deemed inappropriate for a fixed-survey design. The catch multiple survey analysis (CMSA) then was rerun with the revised Delaware index in order to estimate female and male horseshoe crab abundances in the Delaware Bay Region for use in the Integrated Population Model (IPM) for red knots and the horseshoe crab projection model.
2. The recruitment function in the horseshoe crab projection model was updated using all years of available primiparous data (2003-2019) instead of the limited years (2013-2019) used in base run.
3. The Revised ARM Framework was rerun to reflect those changes and is now considered the new base run for the model. Associated optimal harvest recommendations was also revised.

Additionally, the Panel made several research recommendations that have now been incorporated into the research recommendations in ASMFC 2021. The revised and complete list of research recommendations is found in this supplemental report, Section 7.

2 DELAWARE FISH AND WILDLIFE ADULT TRAWL SURVEY

Refer to ASMFC 2021 for a description of the survey's sampling design and biological sampling. In ASMFC 2021, the Delaware Adult Trawl Survey abundance index was developed using the delta distribution for the mean and variance for each year of the survey. During the Peer Review Workshop, this method was deemed inappropriate for a fixed-station survey design and the Panel requested that the survey be recalculated and standardized using generalized linear or additive models (GLMs or GAMs).

2.1 Evaluation of Survey Data

This survey catches mainly adult horseshoe crabs and spring (April through July) indices were developed from this survey for male and female horseshoe crabs separately. This survey was standardized using R code to consider a variety of statistical models, including GLMs, as well as zero-inflated models and nominal indices. A full model that predicted catch as a linear function of year, month, water temperature, salinity, depth, and station was compared with nested submodels using AIC. Based on several diagnostics (AIC, dispersion, percent deviance explained, and resulting CVs), the model chosen was a negative binomial that included year and station.

2.2 Abundance Index Trends

For all adult female horseshoe crabs in the spring (Figure 1), abundance began in 2003 with a mid-range value and then decreased in 2004-2005. There was a moderate increase in 2006 and 2007 before dropping to low abundance levels from 2008 through 2013. Since 2014 there has been a generally upward trend. A similar pattern was seen for the spring indices of adult males (Figure 2).

3 HORSESHOE CRAB POPULATION MODEL

3.1 Catch Multiple Survey Analysis (CMSA)

Refer to ASMFC 2021 for model background, description, configuration, and sensitivity runs. Since one of the inputs to the CMSA, the Delaware Bay Adult Trawl abundance index, was changed during the Peer Review Workshop, the CMSA base run had to re-run to calculate revised population estimates for male and female horseshoe crabs.

Revised input values for the CMSA can be found in Table 1 for female horseshoe crabs and Table 2 for male horseshoe crabs.

3.1.1 Results

Base model predictions fit indices well for both female and male horseshoe crabs, with excellent agreement with the primiparous index and well-behaved fits through observed multiparous indices (Figure 3-Figure 4).

Estimated female and male primiparous abundance was fairly stable through the time series with the exception of the missing years of the Virginia Tech trawl survey (2013-2016; Table 3-Table 4; Figure 5-Figure 6). Rising multiparous abundance was evident in both sexes and reflects some of the large increases seen in the multiparous trawl indices in later years (Table 3-Table 4; Figure 5-Figure 6).

3.1.2 Sensitivity Runs

In addition to the sensitivity runs provided in ASMFC 2021, several sensitivity runs were requested by the Panel during the Peer Review Workshop. The additional sensitivity runs requested included using the ASMFC 2019 survey weights, re-weighting the surveys based on area coverage, assuming all harvest is of Delaware Bay-origin, re-weighting the surveys based on area coverage and assuming all harvest is of Delaware Bay-origin, and the revised base run

with the recalculated Delaware index. The results of previous sensitivity runs as well as the additional requested sensitivity runs can be found in Table 5-0.

3.2 Projection Model

The Peer Review Panel approved of the form of the horseshoe crab projection model as described in ASMFC 2021, but requested a change to the dataset used to inform the recruitment process used in the model (see Equations 6-7 of ASMFC 2021). The Panel concluded that the full time series of available CMSA estimates (2003-2019) of primiparous male and female horseshoe crabs should be used to determine the parameters of the recruitment process, rather than the shorter period used for ASMFC 2021 (i.e., 2013-2019). Primiparous abundances over the longer period are more variable and have lower mean values (Table 7), leading to lower projected median equilibrium values of male and female abundances (Figure 15) that are nevertheless bounded by wide confidence limits. Correlation between male and female primiparous abundances remains similar to that used in ASMFC 2021.

4 RED KNOT POPULATION MODEL

4.1 Integrated Population Model (IPM)

4.1.1 Model Description

No changes were made to the IPM model structure; refer to ASMFC 2021 for a detailed description of the model background, parameterization, and sensitivity runs. The model was rerun using the estimates of total female horseshoe crab abundance from the updated CMSA runs described above.

4.1.2 Results

4.1.2.1 Demographic rate estimates

Estimates of adult survival probability and recruitment were nearly identical to the previous model run (Table 8, Figure 7), again indicating high adult survival (average 0.93) and low recruitment (average 0.06) for this population.

4.1.2.2. Effects of environmental variables on red knot demographics

Regression coefficient estimates from this model run were very similar to the previous version (Table 9, Figure 8-Figure 9). The model indicated strong evidence for a positive association between female horseshoe crab abundance and apparent adult survival probability (β_1 = 0.37, 95% CRI: 0.12, 0.63) and no evidence of an effect or interaction with the timing of spawning. There was no clear evidence of a relationship between horseshoe crab abundance and red knot recruitment rate (β_5 = -0.14, 95% CRI: -0.53, 0.32).

5 REVISED ADAPTIVE RESOURCE MANAGEMENT FRAMEWORK

The Peer Review Panel concluded that the form of the decision model was appropriate and did not suggest any changes. However, changes to three inputs to the decision model had the

potential to influence the optimal harvest policy for male and female horseshoe crabs. These were:

1) Revised CMSA estimates of primiparous and multiparous horseshoe crab abundances;

2) Revised red knot IPM parameter estimates that were influenced by the revision of CMSA estimates;

3) New parameters to the horseshoe crab recruitment process based on the full CMSA time series (2003-2019) instead of the shorter period used in ASMFC 2021 (2013-2019).

Time constraints precluded a full assessment of the sensitivity of the optimal harvest policy to each of the above changes independently. Rather, a new base run of the Approximate Dynamic Programming algorithm was conducted incorporating all three. The change to the recruitment process of the horseshoe crab projection model was expected to be quite influential since it represents a significant change to expected long-term equilibrium abundances and the annual variation around them. Broadly, it was expected that these lower projected horseshoe crab abundances would result in a more conservative harvest policy.

Results from the new base run (Figure 10-Figure 16; Table 10) differ from those in the previous base run (Figures 53-59 in ASMFC 2021) in several notable ways. First, as expected, projected equilibrium distributions for male and female horseshoe crab abundances are shifted lower (new median female abundance at projection year 100 is approximately 7.3 million, whereas it was 12.3 million in ASMFC 2021; year-100 median male abundance here is 14.9 million, it was 33.8 million in ASMFC 2021). For males in particular, however, uncertainty is still quite large.

The long-term distribution of red knot abundance has also shifted lower in the new base run (Figure 15), with a median of approximately 100,500 adults at year 100 (versus 128,400 in ASMFC 2021). Uncertainty around this expected value in the new base run is similarly large, compared with results in ASMFC 2021.

The combined influences of lower expected abundances of male and female horseshoe crabs and of adult red knots lead to differences in the optimal harvest strategies for male and female horseshoe crabs. For males, the policy is similar to that of ASMFC 2021, with maximum allowable harvest being the recommendation throughout most of the predicted range of male abundances (Figure 10). However, because those abundances are projected to be generally lower, the harvest curve rises toward maximum harvest at a lower absolute abundance than in ASMFC 2021.

The optimal female harvest surface in the new base run has a shallower slope than the one in ASMFC 2021, along both the female horseshoe crab and red knot axes (Figure 11-Figure 14; Table 10). In contrast to the ASMFC 2021 run, the new harvest policy is unlikely to recommend maximum allowable female harvest (210,000) within the projected range of female horseshoe crab and red knot abundances (green regions in Figure 11-Figure 14). However, its shallow slope results in recommendations of moderate female harvest even at low abundances of female horseshoe crabs and red knots.

6 STOCK STATUS AND CONCLUSIONS

Using the new base run with the recommended changes from the Peer Review Panel, the optimal harvest recommendations were also revised (Table 11; compare to Table 32 in ASMFC). In 2019, the harvest recommendation from the revised ARM Framework would have been 500,000 males and 144,803 females. Optimal harvest recommendations under the previous ARM Framework were for harvest package #3 (0 females, 500,000 males).

Again, it should be noted that this ARM Revision was developed using coastwide biomedical data so as to avoid data confidentiality issues. The population estimates for horseshoe crabs from the CMSA therefore represent an overestimate. If this Revision is accepted for management use, the Delaware Bay-specific biomedical data will be used to determine the harvest package and the model will be run by someone (e.g., ASMFC staff) with confidential data access. Therefore, the final harvest recommendations are likely to be marginally lower than those reported in Table 11 when the Delaware Bay-specific values are used.

7 RESEARCH RECOMMENDATIONS

The ARM subcommittee identified several recommendations that would benefit the adaptive management of horseshoe crabs and red knots in the Delaware Bay area. In section four of the Peer Review Panel's report, the Panel made several other recommendations that have been incorporated into the list. Below is the final and complete list of research recommendations.

The ARM subcommittee and the Peer Review Panel recommend that the ARM data be updated sooner than later (three years or less) as new data become available, notably when the Delaware and New Jersey trawl surveys collect new stage data to improve the estimation of HSC recruitment dynamics. Additionally, the ARM Framework should be revisited every five-ten years for possible revision to account for dynamic changes in the ecosystem.

7.1 Future Research

- Evaluate the effect of climate change on horseshoe crabs and red knots. This includes the effects of warming temperatures, sea level rise, and storm frequency and intensity on the timing and duration of spawning, movement of crabs into and out of Delaware Bay, and effects on spawning habitat. For red knots, this includes effects of climate change on breeding conditions in the arctic and resulting recruitment of red knots.
- Incorporate potential climate change effects into the optimization (e.g., predicted trends in arctic snow cover).
- Evaluate the relationship between horseshoe crab egg density on spawning beaches and abundance of horseshoe crabs in the bay-wide spawning survey and total population estimates derived from the catch multiple survey analysis.
- Improve the understanding of horseshoe crab recruitment for the purpose of updating the stock-recruitment relationship.
- Continue evaluation of catchability and factors influencing catchability of the Virginia Tech horseshoe crab trawl survey.

- Address the issue of gear saturation for spawning beach surveys and/or explore analyses that would be less sensitive to gear saturation. Explore the methodology and data collection of spawning beach surveys and the ability of these surveys to track spawning abundance.
- Quantify the amount of contemporary suitable horseshoe crab spawning habitat in the Delaware Bay.
- Further explore the multi-state mark-recapture analysis of red knot tagging data to estimate the probability of gaining weight and survival as a function of horseshoe crab abundance. Examine the effects of tagging biases, time periods of stopover, short- versus long-distance migrants, and selection of states (i.e., weight thresholds).
- Evaluate the proportion of New York bait landings that could be comprised of Delaware Bay-origin crabs and the movement between the two regions.
- If possible, include other sources of horseshoe crab removals (e.g., illegal take, poaching) in the CMSA. Other sources of removals are currently unknown, but can be added in the future if quantified.

7.2 Data Collection

- Continue funding and support for the annual Virginia Tech Trawl Survey. Consider increasing the sampling effort within the Delaware Bay region or expanding the survey along the Atlantic coast if future funding allows.
- Perform a simulation study to evaluate the performance of current Virginia Tech Survey design in capturing the Delaware Bay horseshoe crab stock dynamics. A simulation could also potentially identify a more cost-effective survey program to ensure the quality of the survey abundance indices.
- Better characterize horseshoe crab discards in other commercial fisheries and refine estimates of discard mortality.
- Continue to collect horseshoe crab sex and stage (primi- and multiparous stages) information from the Delaware Bay Adult Trawl Survey and the New Jersey Ocean Trawl Survey.
- Continue monitoring natural mortality from tagging data within the Delaware Bay region. It is possible that natural mortality is not constant across all age stages post-maturation and future revisions should consider recording post-maturation age group data based on carapace wear, epibionts, and mating scar criteria defined by Botton et al. (2021) in order to estimate age group-specific mortality estimates. Exploring differences in natural mortality among primiparous and multiparous crabs would be beneficial for obtaining age-group specific mortality estimates that could be incorporated into the CMSA model to obtain more accurate abundance estimates.
- Continue to evaluate biomedically bled crabs' mortality rates and effects on spawning behavior. Consider a tagging study of biomedically bled horseshoe crabs to obtain

relative survival and collaborations between researchers and biomedical facilities that would result in peer-reviewed mortality estimates.

- Maintain consistent data collection and survey designs for spawning beach surveys each year.
- Increase effort for tagging resights for horseshoe crabs and expand horseshoe crab tagging efforts throughout the US East Coast, particularly in North Carolina, to ameliorate movement and population exchange patterns adjacent to Delaware Bay. North Carolina has the lowest tagging effort (by tagged individuals and resighting effort) out of any state on the US East Coast. There is limited information regarding the migratory exchange between North Carolina and Delaware Bay that is also the boundary between stock units (ASMFC 2019).
- Improve estimates of counting error during red knot aerial surveys by recording and maintaining records of additional information such as observer ID, tide state, and weather conditions. The integration of simultaneous ground count data or a double-observer method could also be used to improve this component of the IPM.
- Evaluate phenology of horseshoe crab migration into Delaware Bay with more contemporary tools, such as satellite tags or acoustic telemetry. Understanding migration timing could improve understanding of temporal implications of trawl survey timing and horseshoe abundance index inference, as well as the timing of horseshoe crab spawning migrations relative to red knot arrival.
- Develop a survey targeting older juvenile horseshoe crabs within the subtidal zone to enhance the understanding of recruitment. The population dynamics and habitat use of juveniles (age 5-9) remains elusive within the literature, with the exception of the population in Pleasant Bay, Massachusetts.

7.3 Data analysis and modeling

- Update horseshoe crab stock-recruitment relationships as more data become available and refine methodologies to characterize uncertainty.
- Regularly updating the model runs with new information when it becomes available will continue to improve the estimates of recruitment dynamics for both horseshoe crabs and red knots. Although the recruitment dynamics are currently quantified with large uncertainty because of the short time period and missing years of data, the interannual variability in recruitment will be better understood when more data become available.
- Update parameters describing the influence of horseshoe cabs on red knot survival and recruitment though re-fitting the red knot integrated population model to new data.
- Integrate red knot “proportion marked” data into the IPM so that analyses conducted to determine the state of the system can be used to update model parameters with no additional effort.

- Conduct habitat suitability index modeling for primiparous and multiparous horseshoe crabs for both males and females to examine spatio-temporal variability in suitable habitat.
- Quantify and monitor the amount of suitable spawning habitat for horseshoe crabs throughout the Delaware Bay, including fringe marsh habitat which may affect horseshoe crab recruitment dynamics due to climate change.
- Conduct species distribution modeling to examine spatio-temporal changes in distributions of primiparous and multiparous female and male horseshoe crabs.
- Investigate alternative utility functions for red knots with additional stakeholder input.
- Continue to evaluate horseshoe crab tagging data by fitting capture-recapture models that include a short-term (1 year) bleeding effect, account for spatial distribution of harvest pressure, account for capture methodology, and account for disposition of recaptured tagged individuals. Potential methodological approaches include use of time-varying individual covariates to indicate which crabs are 1 year from bleeding and use of hierarchical models to estimate interannual variation in survival within time periods defined by major regulatory changes.
- Explore the possibility of modeling stopover persistence as a function of boreal-wintering area of marked birds using observations away from Delaware Bay.
- Continue to explore the apparent lack of relationship between horseshoe crab egg densities measured by beach surveys and red knot survival.
- Explore the use of expected value of perfect information (EVPI) to evaluate the effects of uncertainties in red knots and horseshoe crab dynamics on harvest decisions.

8 REFERENCES

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9 TABLES

Table 1. CMSA base model inputs for female horseshoe crabs. Biomedical numbers represent coastwide mortality, not Delaware Bay-specific. Values shown for the Virginia Tech (VT) survey's swept area estimations for primiparous (*R*) and multiparous (*N*) are in millions of horseshoe crabs.

Year	Removals				Indices				CVs			
	Bait	Discard	Biomedical	Total	VT, *R*	VT, *N*	DE Adult	NJ OT	VT, *R*	VT, *N*	DE	NJ
2003	202,614	6,567	20,456	229,637	1.537	4.959	0.644	2.246	0.26	0.30	0.47	0.19
2004	92,855	9,554	32,337	134,747	0.794	3.379	0.015	2.502	0.49	0.25	1.05	0.23
2005	103,972	3,031	22,885	129,888	0.358	2.735	0.015	2.770	0.29	0.23	1.05	0.24
2006	83,295	8,664	25,654	117,613	0.479	3.138	0.949	1.856	0.27	0.27	0.37	0.26
2007	54,773	6,500	29,469	90,742	2.051	6.611	0.877	1.474	0.31	0.42	0.37	0.25
2008	35,838	5,084	29,141	70,063	2.373	7.746	0.118	2.370	0.40	0.31	0.50	0.32
2009	35,793	8,475	29,287	73,555	2.571	6.311	0.199	1.368	0.43	0.29	0.45	0.29
2010	30,362	11,527	33,165	75,055	0.885	2.975	0.109	0.579	0.26	0.32	0.51	0.30
2011	24,906	14,742	41,754	81,403	1.338	5.178	0.156	2.215	0.59	0.23	0.47	0.26
2012	40,745	4,673	36,675	82,093	0.845	5.290	0.161	1.804	0.30	0.18	0.47	0.25
2013	16,635	10,933	32,222	59,790			0.014	7.996			1.08	0.35
2014	7,663	15,787	30,865	54,315			0.809	3.358			0.37	0.24
2015	6,680	11,593	33,897	52,169			0.396	3.145			0.40	0.25
2016	8,527	51,069	26,204	85,800			0.714	3.989			0.38	0.24
2017	10,136	31,295	29,635	71,066	1.608	6.024	1.159	5.613	0.23	0.21	0.36	0.25
2018	10,096	9,184	32,405	51,686	1.480	7.185	2.123	3.118	0.26	0.23	0.35	0.23
2019					1.773	7.326	1.349	6.966	0.31	0.21	0.36	0.40

	Starting Values				
M	*R*	*N*	*q_DE*	*q_NJ*	*s*
0.3	1.4E+06	5.3E+06	1.1E-07	5.9E-07	1

Table 2. CMSA base model inputs for male horseshoe crabs. Biomedical numbers represent coastwide mortality, not Delaware Bay-specific. Values shown for the Virginia Tech (VT) survey's swept area estimations for primiparous (R) and multiparous (N) are in millions of horseshoe crabs.

Year	Removals				Indices				CVs			
	Bait	Discard	Biomedical	Total	VT, *R*	VT, *N*	DE Adult	NJ OT	VT, *R*	VT, *N*	DE	NJ
2003	364,132	9,117	23,028	396,277	0.548	11.584	0.337	2.647	0.28	0.24	0.55	0.22
2004	144,729	13,265	34,115	192,109	0.078	8.069	0.000	2.077	0.84	0.29	1.00	0.25
2005	208,670	4,209	31,889	244,768	0.789	5.150	0.000	3.260	0.21	0.25	1.00	0.28
2006	134,617	12,028	30,536	177,181	0.597	5.844	0.328	1.783	0.33	0.22	0.44	0.27
2007	122,272	9,024	45,468	176,764	3.113	15.825	0.870	1.016	0.31	0.27	0.41	0.26
2008	153,516	7,059	37,007	197,581	3.129	15.795	0.105	2.319	0.28	0.28	0.52	0.34
2009	194,426	11,767	34,948	241,141	0.757	14.647	0.151	1.421	0.31	0.33	0.49	0.30
2010	134,223	16,004	35,581	185,809	0.725	6.240	0.240	0.684	0.34	0.30	0.46	0.31
2011	182,131	20,468	55,412	258,011	1.422	13.963	0.305	1.726	0.55	0.28	0.44	0.25
2012	168,034	6,488	45,389	219,911	0.749	15.060	0.112	2.069	0.36	0.40	0.51	0.30
2013	286,609	15,179	39,285	341,073			0.055	8.248			0.60	0.39
2014	256,155	21,919	40,712	318,786			0.874	3.610			0.41	0.27
2015	177,402	16,096	43,710	237,207			0.444	3.205			0.43	0.29
2016	197,734	70,904	22,579	291,218			0.527	5.041			0.42	0.31
2017	329,840	43,451	43,039	416,330	2.608	21.941	1.300	7.183	0.42	0.29	0.40	0.29
2018	175,031	12,752	45,420	233,203	1.523	20.664	3.071	4.564	0.28	0.25	0.39	0.28
2019					3.341	15.749	1.804	7.683	0.29	0.18	0.40	0.48

	Starting Values				
M	*R*	*N*	*q_DE*	*q_NJ*	*s*
0.3	1.5E+06	1.3E+07	4.7E-08	2.6E-07	1

Table 3. CMSA female horseshoe crab model outputs: *q*=catchability coefficients; *R*=primiparous abundance; *N*=multiparous abundance; and *F*=instantaneous fishing mortality rate.

Year	*R*	*N*	*R+N*	*F*
2003	1,544,190	5,061,010	6,605,200	0.041
2004	1,254,290	4,695,600	5,949,890	0.027
2005	415,565	4,291,810	4,707,375	0.032
2006	584,244	3,375,510	3,959,754	0.035
2007	2,337,530	2,832,230	5,169,760	0.021
2008	1,573,060	3,751,750	5,324,810	0.015
2009	1,292,980	3,884,420	5,177,400	0.017
2010	822,549	3,772,200	4,594,749	0.019
2011	2,074,450	3,339,270	5,413,720	0.018
2012	802,266	3,940,520	4,742,786	0.020
2013	9,569,380	3,442,890	13,012,270	0.005
2014	2	9,588,260	9,588,262	0.007
2015	299,411	7,056,410	7,355,821	0.008
2016	6,977,790	5,404,420	12,382,210	0.008
2017	1,867,980	9,099,120	10,967,100	0.008
2018	1,672,230	8,063,460	9,735,690	0.006
2019	2,189,510	7,167,890	9,357,400	

q_DE	7.41E-08
q_NJ	3.77E-07

Table 4. CMSA male horseshoe crab model outputs : ***q*=catchability coefficients; *R*=primiparous abundance; *N*=multiparous abundance; and *F*=instantaneous fishing mortality rate.**

Year	*R*	*N*	*R+N*	*F*
2003	555,967	15,597,600	16,153,567	0.029
2004	83,631	11,625,800	11,709,431	0.019
2005	880,457	8,509,190	9,389,647	0.031
2006	798,084	6,745,350	7,543,434	0.028
2007	4,929,030	5,435,810	10,364,840	0.020
2008	3,681,160	7,526,320	11,207,480	0.021
2009	788,876	8,132,640	8,921,516	0.032
2010	834,793	6,401,670	7,236,463	0.030
2011	3,822,740	5,200,980	9,023,720	0.034
2012	768,416	6,462,870	7,231,286	0.036
2013	11,581,300	5,167,790	16,749,090	0.024
2014	9,233,350	12,114,500	21,347,850	0.017
2015	436,065	15,540,500	15,976,565	0.017
2016	26,978,600	11,631,500	38,610,100	0.009
2017	3,312,030	28,352,400	31,664,430	0.015
2018	1,615,990	23,099,300	24,715,290	0.011
2019	3,789,120	18,108,800	21,897,920	

q_DE	3.17E-08
q_NJ	1.89E-07

Table 5. Sensitivity runs for the CMSA for female horseshoe crabs. All runs that included CONFIDENTIAL biomedical data have been removed. The "modeling base run" is the previous base run from ASMFC 2021, the "post-pr base run" is the post-peer review base run, and the "real (DB) base run" uses the confidential Delaware Bay biomedical data instead of the coastwide. The sensitivity to natural mortality (*M*), different discard mortality rates, leaving out the New Jersey Ocean Trawl (OT) or biomedical (biomed 0% mortality) data, using different survey weighting approaches, and assuming all harvest in the CMSA is Delaware Bay-origin was explored. Primiparous (*R*), multiparous (*N*) and fishing mortality (*F*) estimates are included.

Name	M	λ			Biomed	Discard Mortality			Starting Values				Terminal Output Values			
		VT	DE	NJ		Dredge	Trawl	Gill Nets	*R*	*N*	*q_de*	*q_nj*	*NegLL*	*R*	*N*	*F*
Modeling Base Run	0.3	1	1	1	Coastwide 15%	5%	5%	12%	14.1	15.5	-15.3	-14.3	87.9	2,247,290	7,533,500	0.006
M	0.274	1	1	1	Coastwide 15%	5%	5%	12%	14.1	15.5	-15.3	-14.3	86.5	2,204,475	7,834,127	0.006
Discard	0.3	1	1	1	Coastwide 15%	5%	5%	5%	14.1	15.5	-15.3	-14.3	87.9	2,247,210	7,533,130	0.006
Discard	0.3	1	1	1	Coastwide 15%	12%	12%	12%	14.1	15.5	-15.3	-14.3	88.1	2,251,259	7,511,908	0.007
Discard	0.3	1	1	1	Coastwide 15%	50%	50%	50%	14.1	15.5	-15.3	-14.3	89.3	2,278,436	7,385,285	0.015
No NJ OT	0.3	1	1	0	Coastwide 15%	5%	5%	12%	14.1	15.5	-15.3	-14.3	66.8	2,039,061	7,572,244	0.006
2019 Survey Weights	0.3	0.59	0.16	0.25	Coastwide 15%	5%	5%	12%	14.1	15.5	-15.3	-14.3	22.2	1,934,390	6,734,470	0.007
Area Survey Weights	0.3	0.45	0.15	0.40	Coastwide 15%	5%	5%	12%	14.1	15.5	-15.3	-14.3	22.1	2,045,187	6,955,199	0.006
Biomed	0.3	1	1	1	0% mortality	5%	5%	12%	14.1	15.5	-15.3	-14.3	87.6	2,242,272	7,564,675	0.002
All Harvest DB-origin	0.3	1	1	1	Coastwide 15%	5%	5%	12%	14.1	15.5	-15.3	-14.3	88.8	2,253,511	7,504,399	0.010
Area Wts All DB-origin	0.3	0.45	0.15	0.40	Coastwide 15%	5%	5%	12%	14.1	15.5	-15.3	-14.3	22.5	2,049,282	6,920,510	0.011
Post-PR Base Run	0.3	1	1	1	Coastwide 15%	5%	5%	12%	14.1	15.5	-16.0	-14.3	75.0	2,189,510	7,167,890	0.006
Real (DB) Base Run	0.3	1	1	1	Delaware Bay 15%	5%	5%	12%	14.1	15.5	-16	-14.3	Confidential			

Table 6. Sensitivity runs for the CMSA model for male horseshoe crabs. All runs that included CONFIDENTIAL biomedical data have been removed. The "modeling base run" is the previous base run from ASMFC 2021, the "post-pr base run" is the post-peer review base run, and the "real (DB) base run" uses the confidential Delaware Bay biomedical data instead of the coastwide. The sensitivity to natural mortality (M), different discard mortality rates, leaving out the New Jersey Ocean Trawl (OT) or biomedical (biomed 0% mortality) data, using different survey weighting approaches, and assuming all harvest in the CMSA is Delaware Bay-origin was explored. Primiparous (R), multiparous (N) and fishing mortality (F) estimates are included.

Name	M	λ			Biomed	Discard Mortality			Starting Values				Terminal Output Values			
		VT	DE	NJ		Dredge	Trawl	Gill Nets	*R*	*N*	*q_de*	*q_nj*	*NegLL*	*R*	*N*	*F*
Modeling Base Run	0.3	1	1	1	Coastwide 15%	5%	5%	12%	14.2	16.4	-15.8	-15.2	131.3	3,901,880	20,031,800	0.010
M	0.274	1	1	1	Coastwide 15%	5%	5%	12%	14.2	16.4	-15.8	-15.2	127.8	3,863,175	20,707,365	0.010
Discard	0.3	1	1	1	Coastwide 15%	5%	5%	5%	14.2	16.4	-15.8	-15.2	131.3	3,902,001	20,035,174	0.010
Discard	0.3	1	1	1	Coastwide 15%	12%	12%	12%	14.2	16.4	-15.8	-15.2	131.6	3,902,001	20,015,149	0.011
Discard	0.3	1	1	1	Coastwide 15%	50%	50%	50%	14.2	16.4	-15.8	-15.2	132.9	3,913,724	19,955,194	0.015
No NJ OT	0.3	1	1	0	Coastwide 15%	5%	5%	12%	14.2	16.4	-15.8	-15.2	105.7	3,741,511	20,957,350	0.009
2019 Survey Weights	0.3	0.59	0.16	0.25	Coastwide 15%	5%	5%	12%	14.2	16.4	-15.8	-15.2	35.0	3,532,410	17,504,300	0.011
Area Survey Weights	0.3	0.45	0.15	0.40	Coastwide 15%	5%	5%	12%	14.2	16.4	-15.8	-15.2	32.2	3,627,303	17,966,150	0.011
Biomed	0.3	1	1	1	0% mortality	5%	5%	12%	14.2	16.4	-15.8	-15.2	130.8	3,898,101	20,055,219	0.008
All Harvest DB-origin	0.3	1	1	1	Coastwide 15%	5%	5%	12%	14.2	16.4	-15.8	-15.2	133.3	3,909,813	20,015,149	0.015
Area Wts All DB-origin	0.3	0.45	0.15	0.40	Coastwide 15%	5%	5%	12%	14.2	16.4	-15.8	-15.2	33.0	3,630,932	17,912,332	0.016
Post-PR Base Run	0.3	1	1	1	Coastwide 15%	5%	5%	12%	14.2	16.4	-16.9	-15.2	102.19	3,789,120	18,108,800	0.011
Real (DB) Base Run	0.3	1	1	1	Delaware Bay 15%	5%	5%	12%	14.2	16.4	-15.8	-15.2	Confidential			

Table 7. Parameter values of the horseshoe crab recruitment process used in the projection model, for both the pre- and post-peer review versions of the model. See Equations 6-7 of ASMFC 2021 for a description of the bivariate lognormal distribution that generates male and female primiparous abundances annually.

Name	Symbol	Pre-peer review value (ASMFC 2021)	Post-peer review value
Primiparous female mean	μ^f	14.9493	14.3334
Primiparous female standard deviation	σ^f	0.4909	0.74505
Primiparous male mean	μ^m	15.7447	14.5869
Primiparous male standard deviation	σ^m	0.8837	1.4022
Correlation	ρ	0.6871	0.6712

Table 8. Estimates of average survival (φ) and recruitment (ρ) for red knot from 2005-2018. Average survival probability and recruitment rate were calculated using the average horseshoe crab abundance. 95% CRI (credible intervals) are the upper and lower bounds that contain 95% of the posterior distribution.

Parameter	Mean	95% CRI
Annual apparent survival probability (ϕ)	0.93	0.90, 0.95
Recruitment rate (ρ)	0.063	0.005, 0.149

Table 9. Estimated effects of horseshoe crab abundance, timing of spawning, and Arctic snow cover on red knot survival probability and recruitment rate , presented as the mean and 95% credible interval of the posterior distribution.

Demographic rate	Covariate	Mean	95% CRI
Survival probability	HSC	0.37	0.12, 0.63
	MaySpawnPct	-0.04	-3.31, 3.31
	HSC x MaySpawnPct	0	-0.61, 0.57
	Arctic snow	-1.02	-3.74, 1.83
Recruitment rate	HSC	-0.14	-0.53, 0.32

Table 10. Comparison of harvest policy parameters from the new base run of the decision model with those from ASMFC 2021 (Table 31).

Symbol	Description	New base run	ASMFC 2021
α^f	Slope of the female HSC harvest factor.	$3.573 / (2\times10^7)$	$5.017 / (2\times10^7)$
β^f	Inflection point of the female HSC harvest factor.	10.638×10^6	7.219×10^6
α^m	Slope of the male HSC harvest factor.	$25.422 / (3\times10^7)$	$16.908 / (3\times10^7)$
β^m	Inflection point of the male HSC harvest factor.	0.9121×10^6	7.953×10^6
α^k	Slope of the red knot harvest factor.	$2.162 / (1.8\times10^5)$	$15.783 / (1.8\times10^5)$
β^k	Inflection point of the red knot harvest factor.	6.433×10^4	9.929×10^4

Table 11. Comparison of harvest recommendations from the previous (top section) and revised (bottom section) ARM models when applied to recent abundance estimates of horseshoe crabs and red knots in the Delaware Bay. Coastwide biomedical mortality was used for model development, so actual Delaware-Bay specific values will result in slightly lower population estimates.

Year	VA Tech Swept Area Estimates		Red knots	Optimal HSC Harvest (previous ARM)	
	Female HSC	Male HSC		Female	Male
2017	6,654,877	21,405,997	49,405	0	500,000
2018	7,555,622	19,346,403	45,221	0	500,000
2019	7,934,057	16,645,912	45,133	0	500,000
Year	CMSA Estimates		Red knots	Optimal HSC Harvest (revised ARM)	
	Female HSC	Male HSC		Female	Male
2017	10,967,100	31,664,430	49,405	154,483	500,000
2018	9,735,690	24,715,290	45,221	146,792	500,000
2019	9,357,400	21,897,920	45,133	144,803	500,000

10 FIGURES

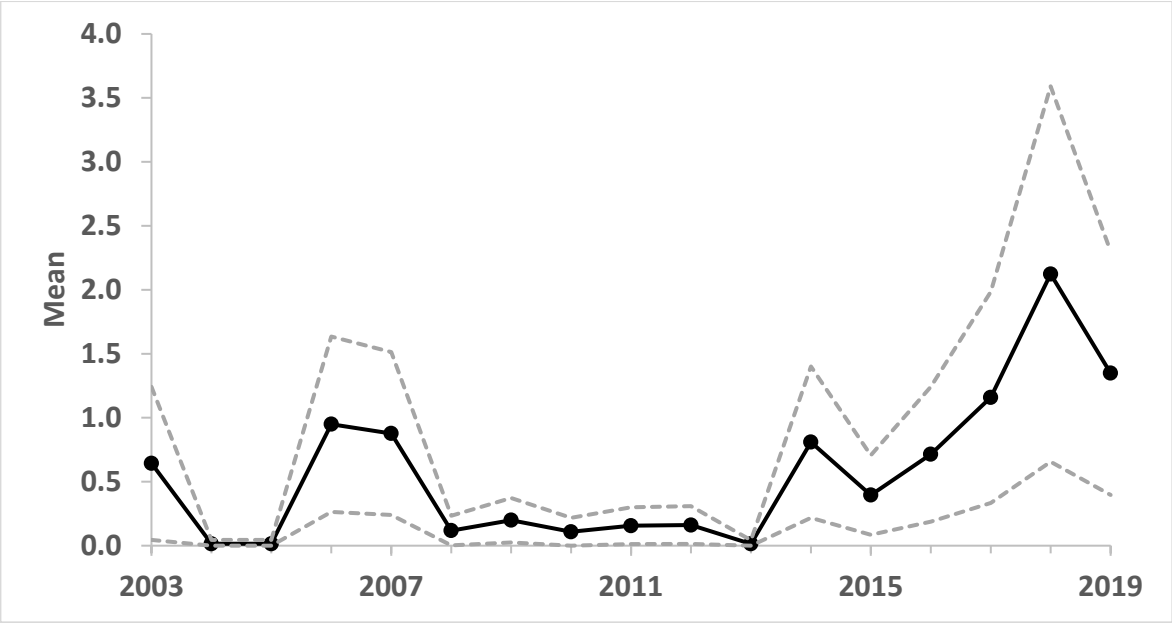

Figure 1. Delaware Fish and Wildlife Adult Trawl Survey abundance index for all adult female horseshoe crabs in the spring.

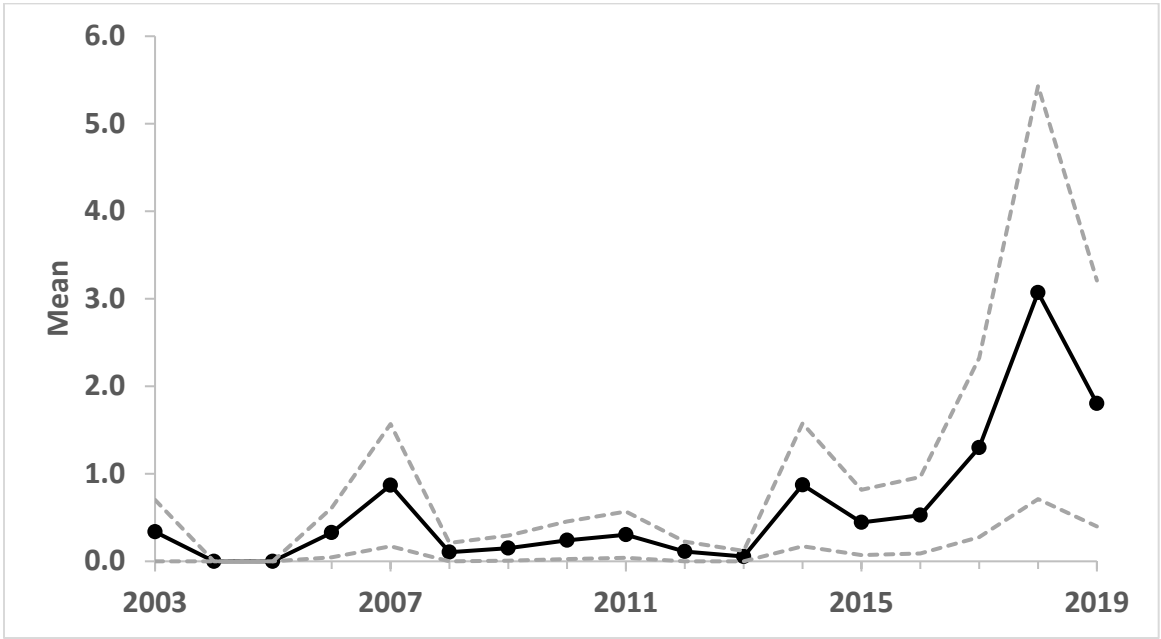

Figure 2. Delaware Fish and Wildlife Adult Trawl Survey abundance index for all adult male horseshoe crabs in the spring.

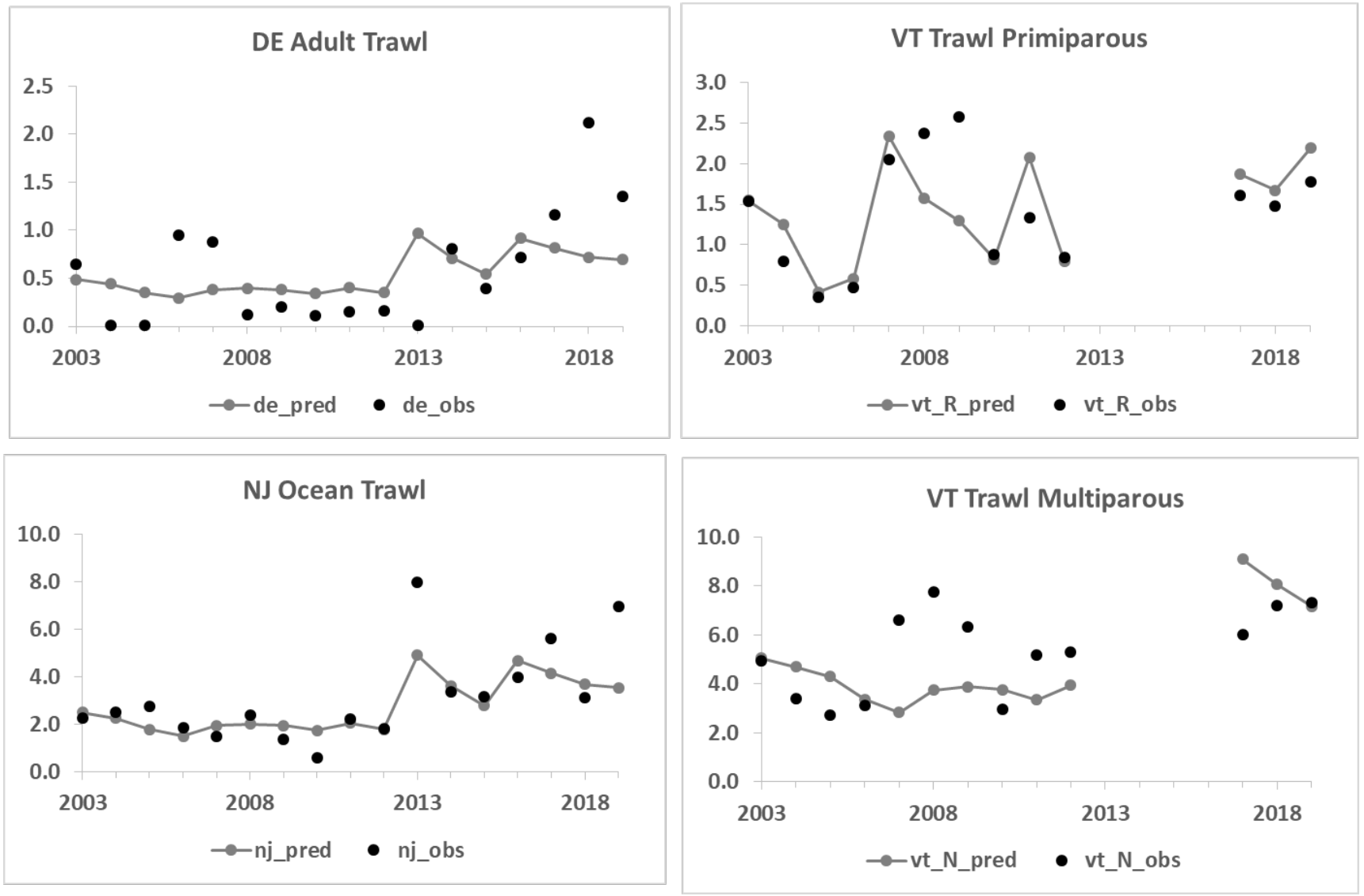

Figure 3. CMSA model fits to the indices for the Delaware (DE) Adult Trawl, New Jersey (NJ) Ocean Trawl, and Virginia Tech (VT) Trawl Surveys for primiparous and multiparous female horseshoe crabs.

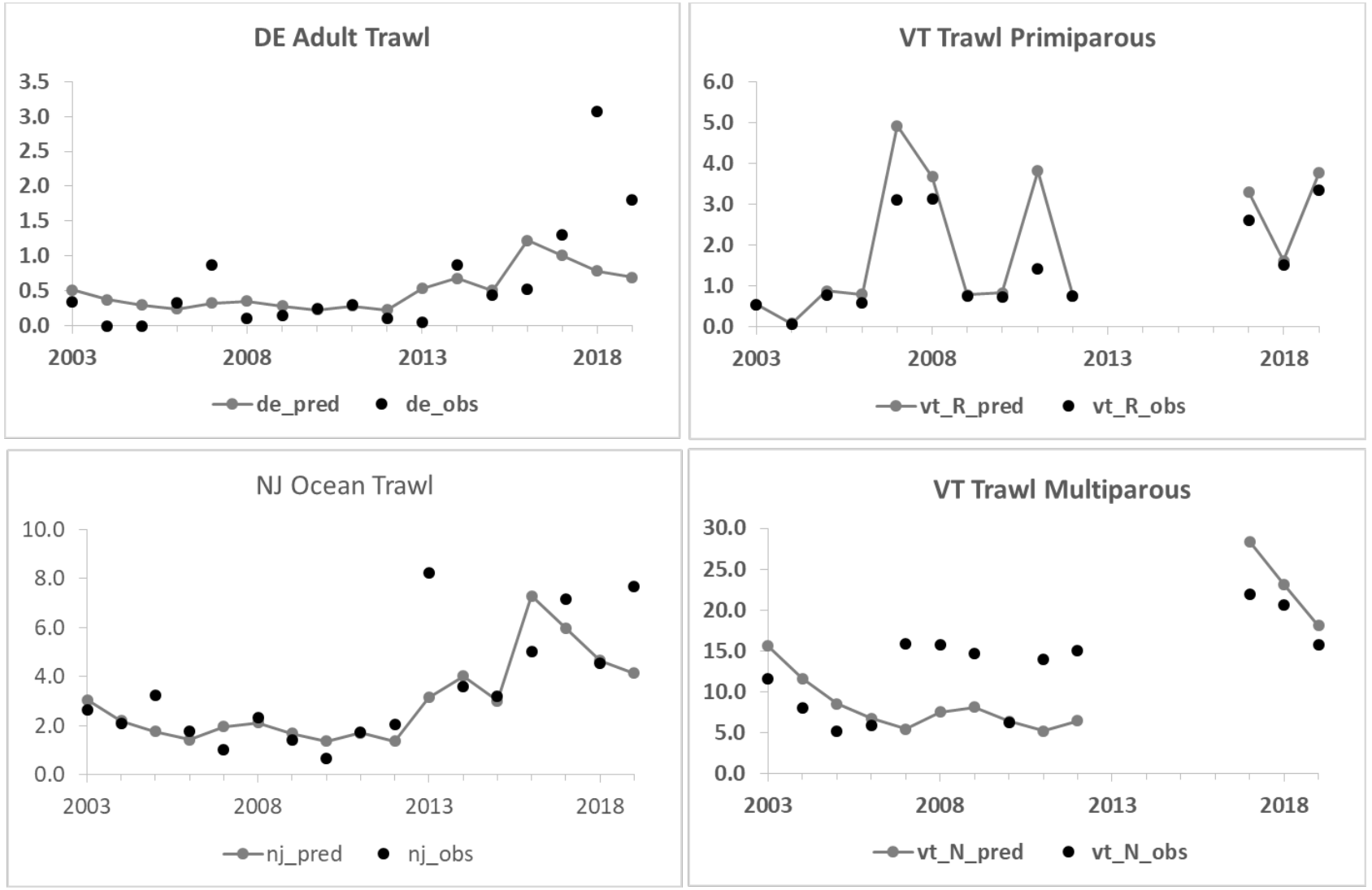

Figure 4. CMSA model fits to the indices for the Delaware (DE) Adult Trawl, New Jersey (NJ) Ocean Trawl, and Virginia Tech (VT) Trawl Surveys for primiparous and multiparous male horseshoe crabs.

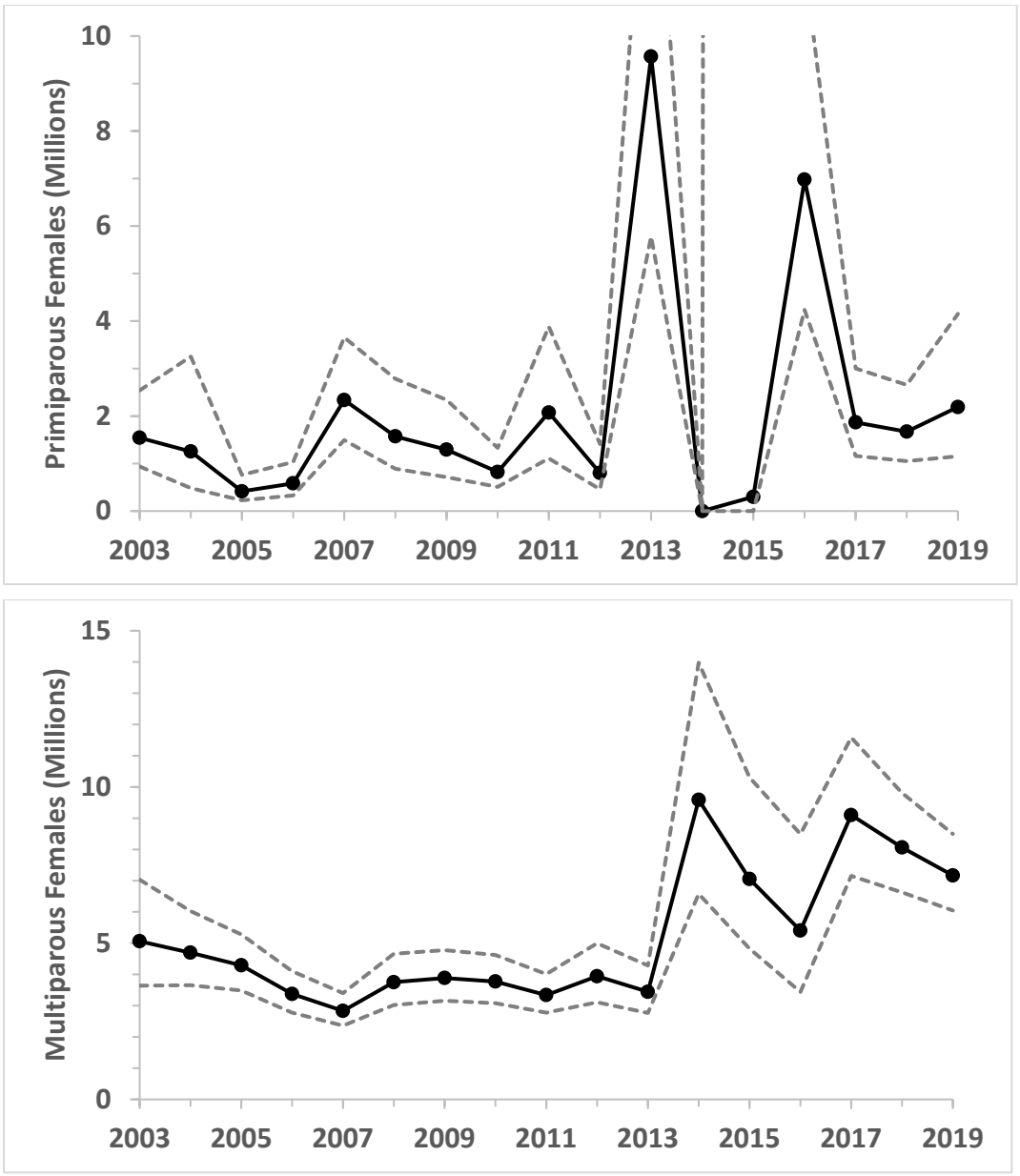

Figure 5. CMSA model estimated primiparous and multiparous female abundance with lower and upper 95% confidence limits. Upper confidence limits for 2013-2016 extend beyond y-axis for primiparous crabs due to missing years of data from the Virginia Tech Trawl Survey.

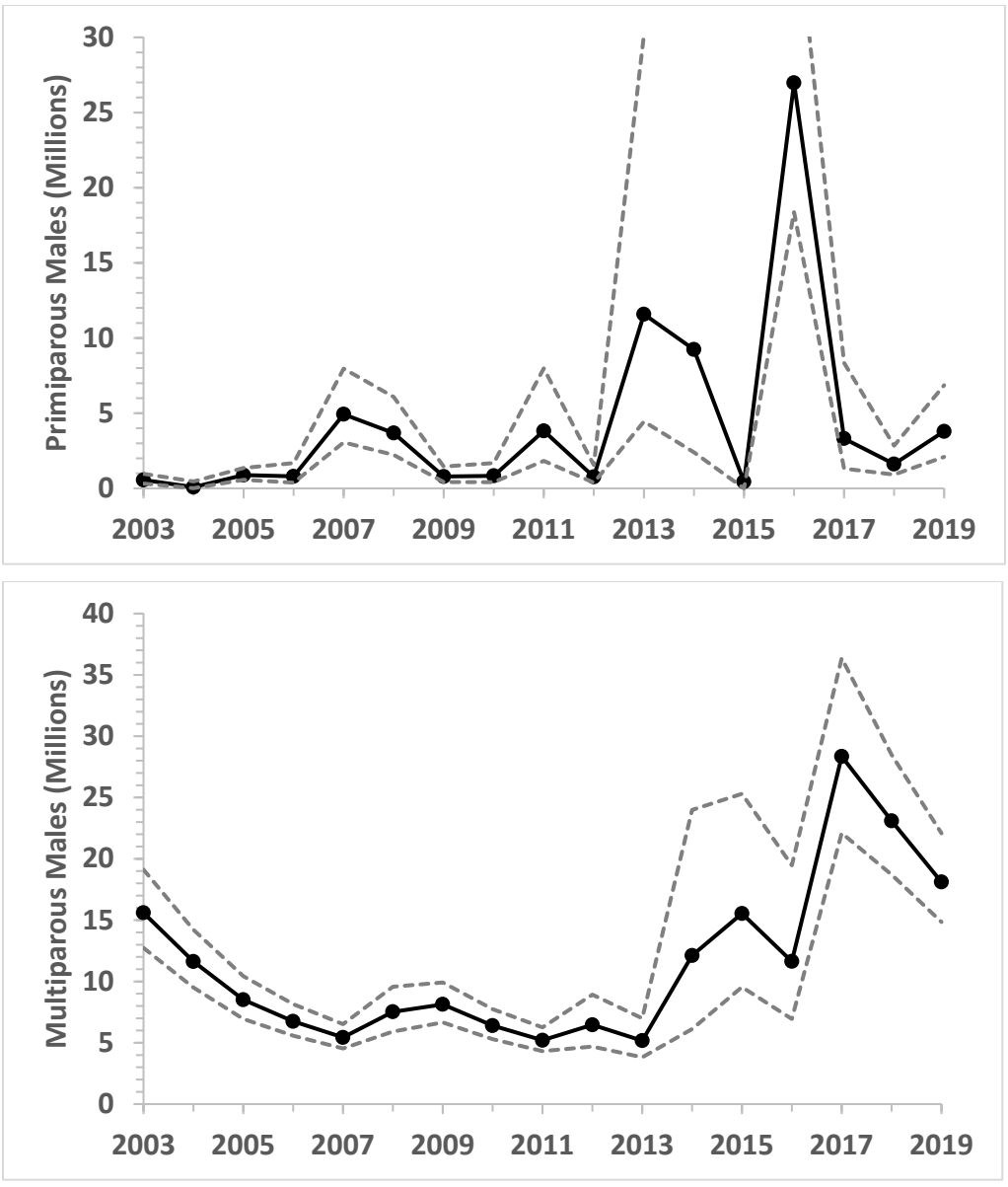

Figure 6. CMSA model estimated primiparous and multiparous male abundance with lower and upper 95% confidence limits. Upper confidence limits for 2013-2016 extend beyond y-axis for primiparous crabs due to missing years of data from the Virginia Tech Trawl Survey.

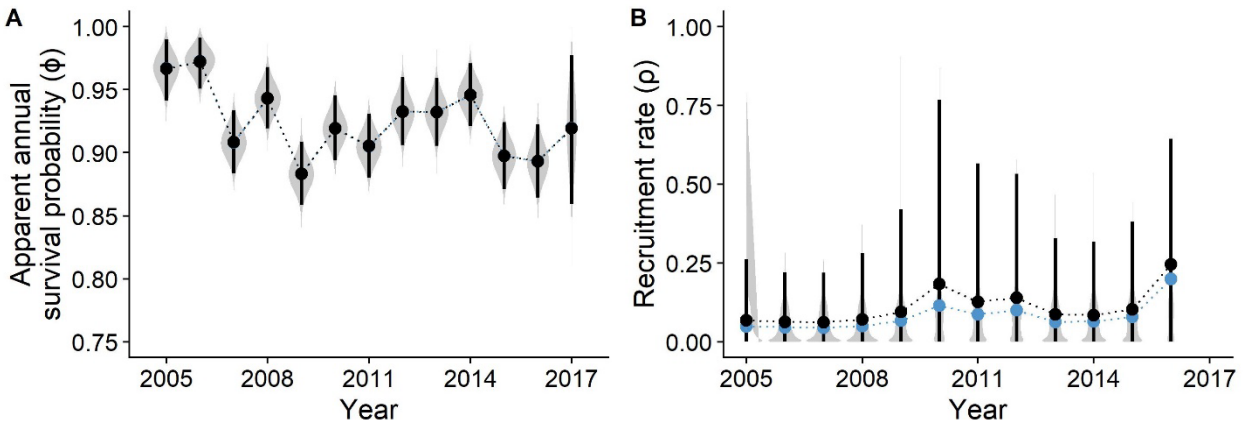

Figure 7. Estimates of survival (A) and recruitment (B) over time for red knot , 2005-2018. Gray shaded regions show the full posterior distributions. Black points and vertical lines represent posterior means and 95% credible intervals. Blue points represent the medians of the posterior distributions.

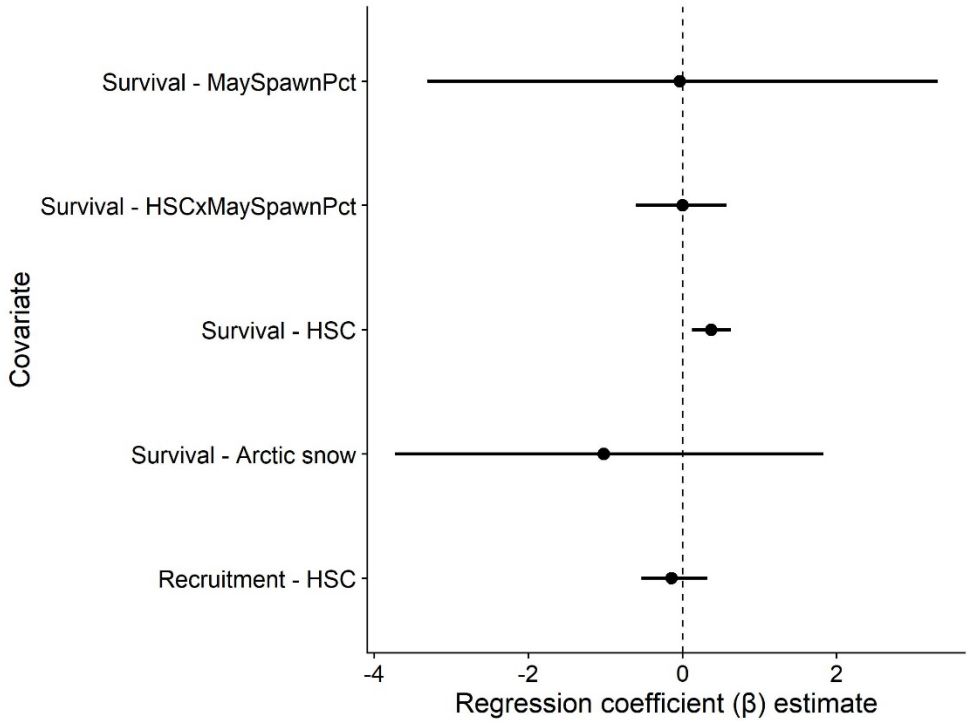

Figure 8. Estimated effects of horseshoe crab abundance, spawn timing, and Arctic snow on red knot survival probability and recruitment rate. Points represent posterior means of the standardized regression coefficients and vertical lines represent 95% credible intervals.

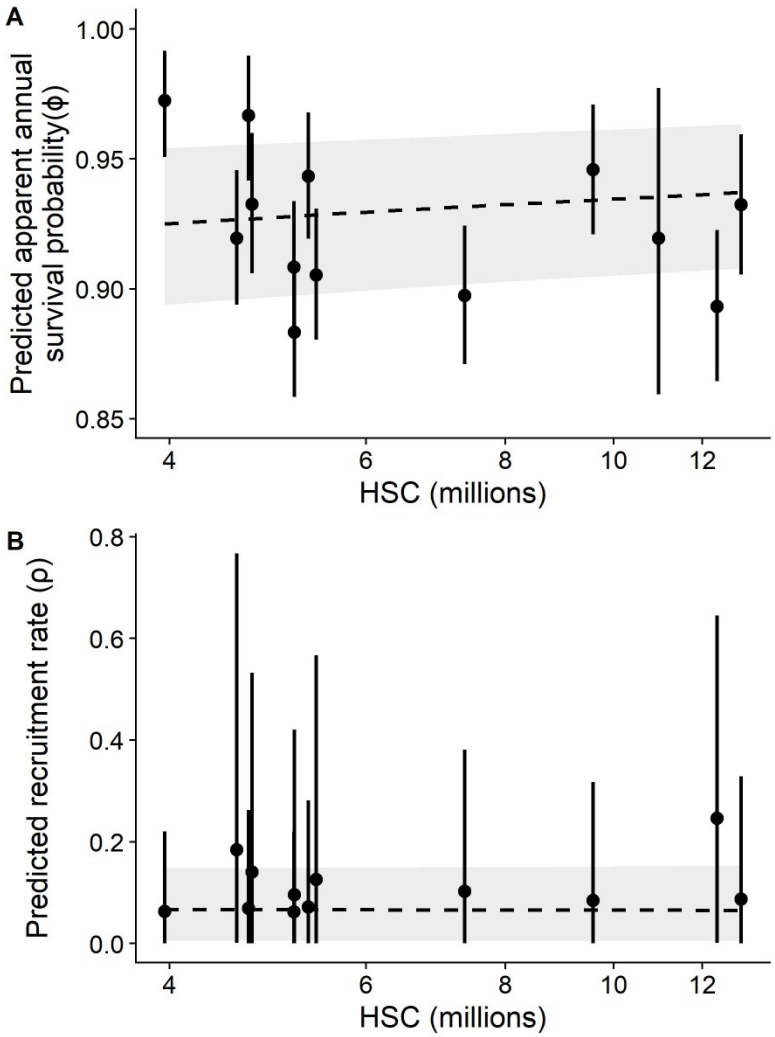

Figure 9. Estimated relationship between horseshoe crab abundance and red knot demographic rates. The black dashed line and gray shaded region show the mean and 95% credible interval of the predicted values. Points and vertical lines show the mean and 95% credible interval of model estimates.

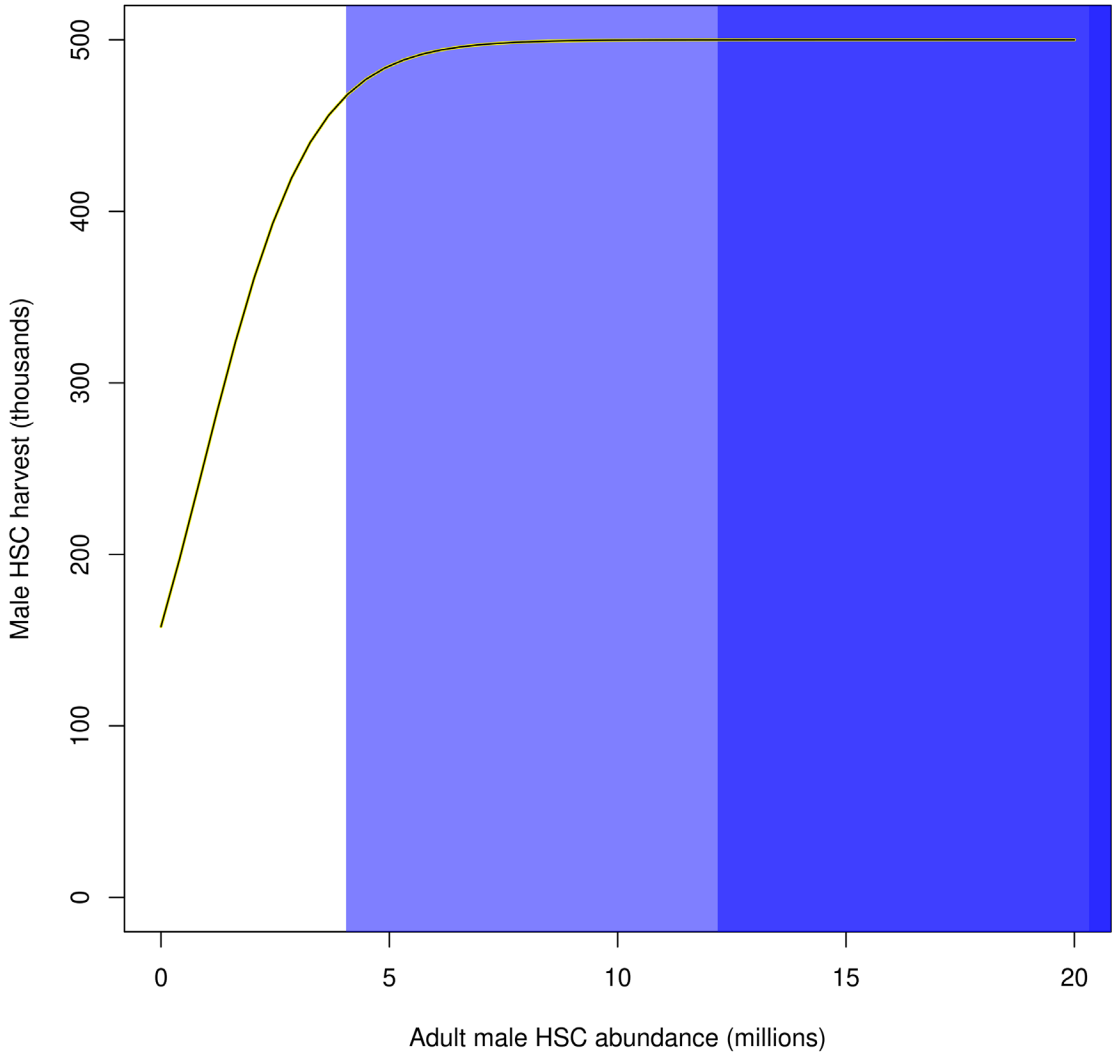

Figure 10. Optimal male bait harvest function for the canonical version of the revised ARM model , with $H^{f}_{\max}$ = 210,000 and $H^{m}_{\max}$= 500,000. Vertical blue lines indicate actual male abundance values in a particular year, in one of 10,000 simulated horseshoe crab populations; many of these values are larger than the upper limit of the x-axis used here and thus are not shown.

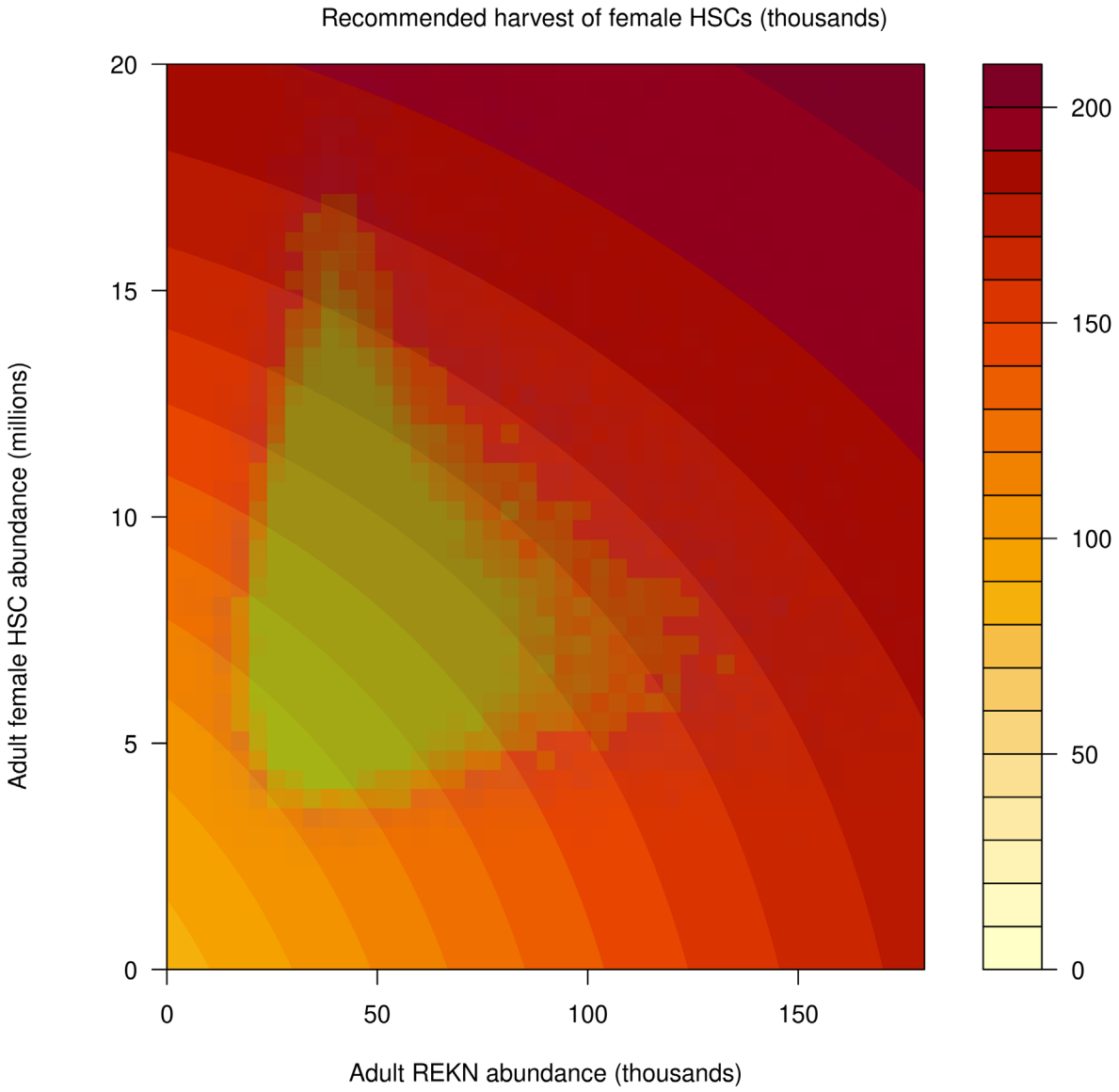

Figure 11. Optimal female bait harvest function for the canonical version of the revised ARM model , with $H^{f}_{\max} = 210,000$ and $H^{m}_{\max} = 500,000$. Recommended harvest depends on both female horseshoe crab (HSC) and adult red knot (REKN) abundances. Transparent green and blue overlay represents a non-parametric kernel, indicating where the bulk of the values of HSC and REKN abundances for the first 10 years of 10,000 simulations over 100 years: the green cells collectively contain 75% of the observations, the blue an additional 20%.

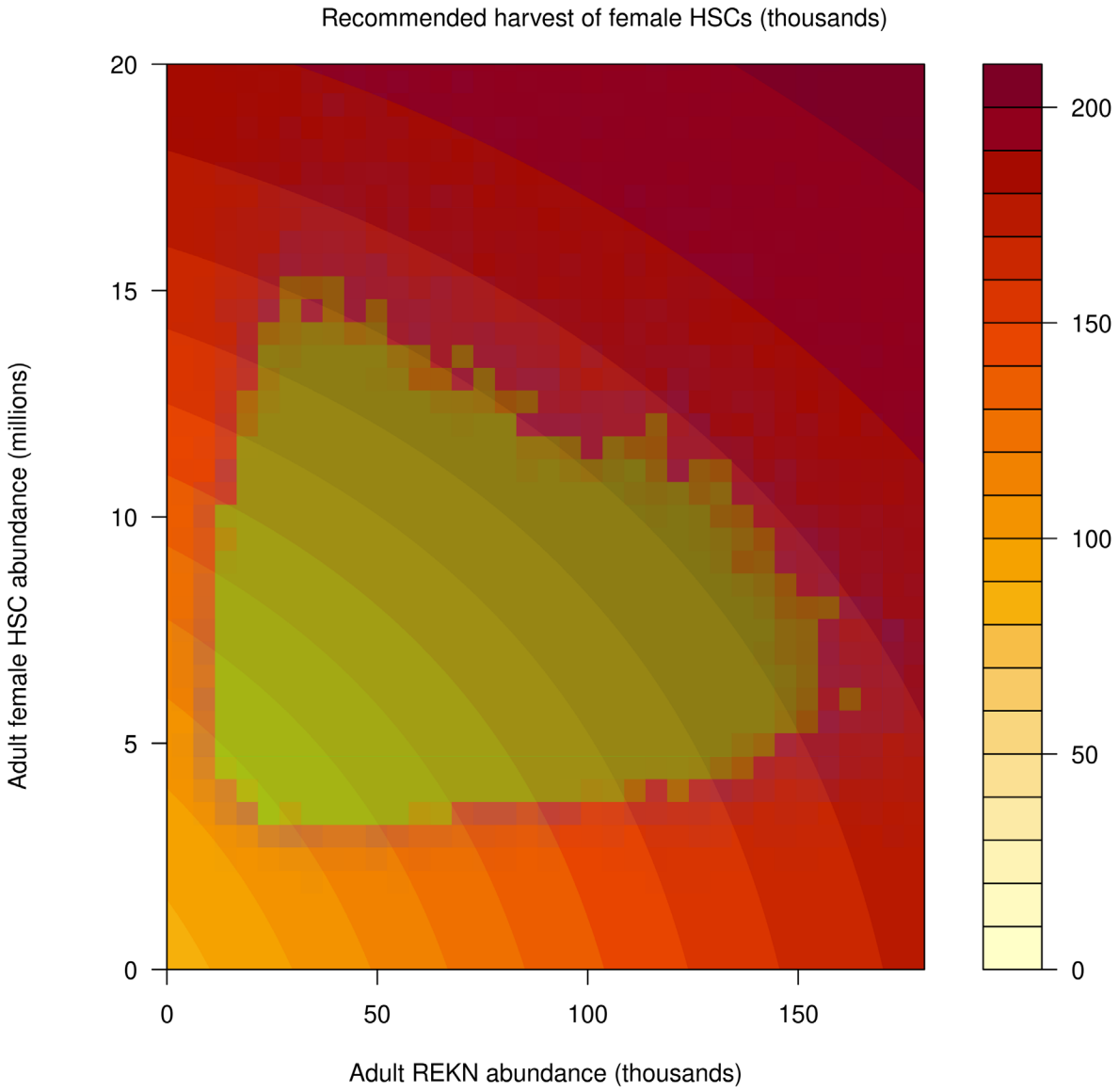

Figure 12. Optimal female bait harvest function for the canonical version of the revised ARM model , with $H^{f}_{\max} = 210,000$ and $H^{m}_{\max} = 500,000$. Recommended harvest depends on both female horseshoe crab (HSC) and adult red knot (REKN) abundances. Transparent green and blue overlay represents a non-parametric kernel, indicating where the bulk of the values of HSC and REKN abundances for years 11-20 of 10,000 simulations over 100 years: the green cells collectively contain 75% of the observations, the blue an additional 20%.

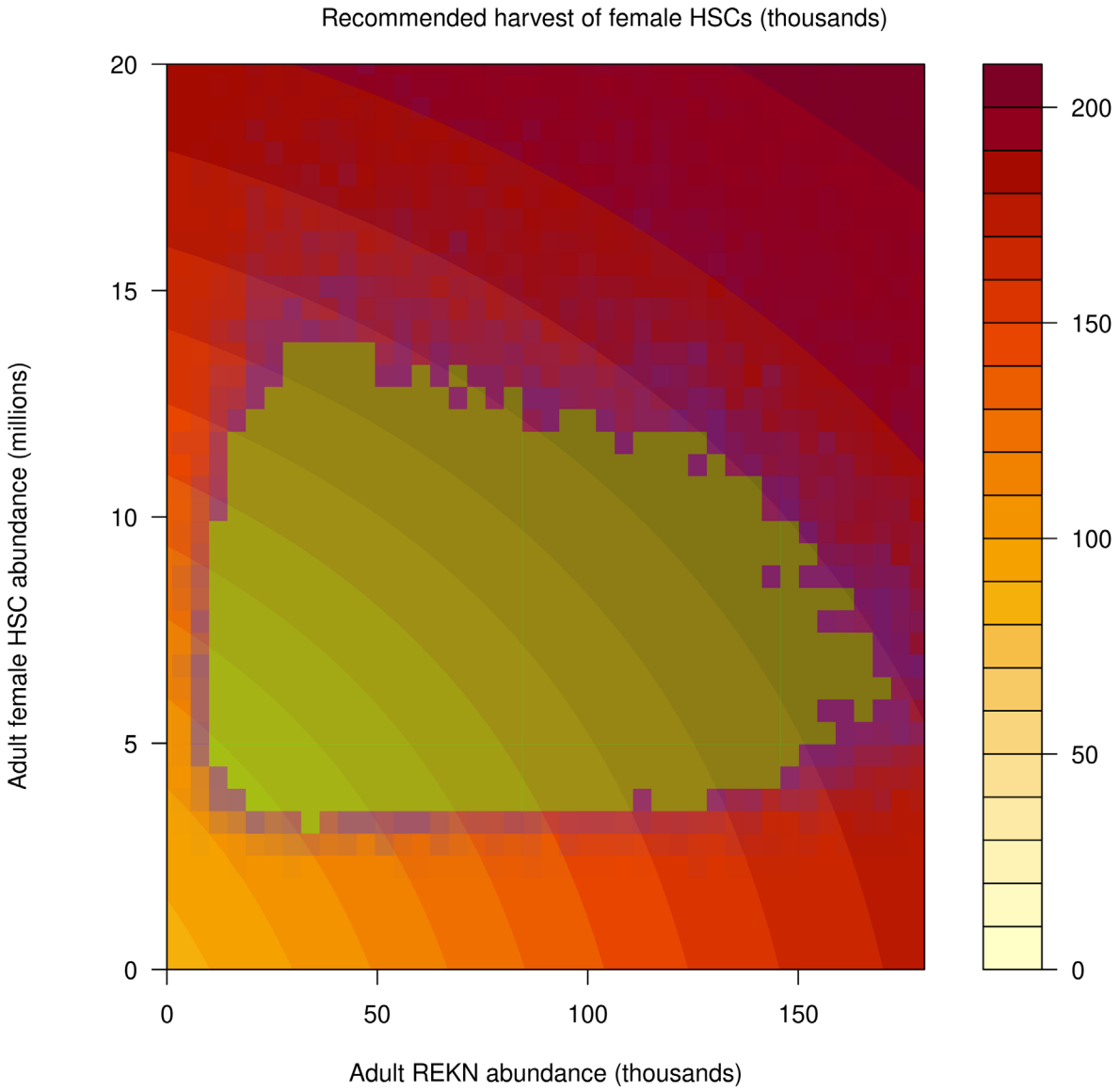

Figure 13. Optimal female bait harvest function for the canonical version of the revised ARM model , with $H^f_{\max} = 210,000$ and $H^m_{\max} = 500,000$. Recommended harvest depends on both female horseshoe crab (HSC) and adult red knot (REKN) abundances. Transparent green and blue overlay represents a non-parametric kernel, indicating where the bulk of the values of HSC and REKN abundances for years 21-30 of 10,000 simulations over 100 years: the green cells collectively contain 75% of the observations, the blue an additional 20%.

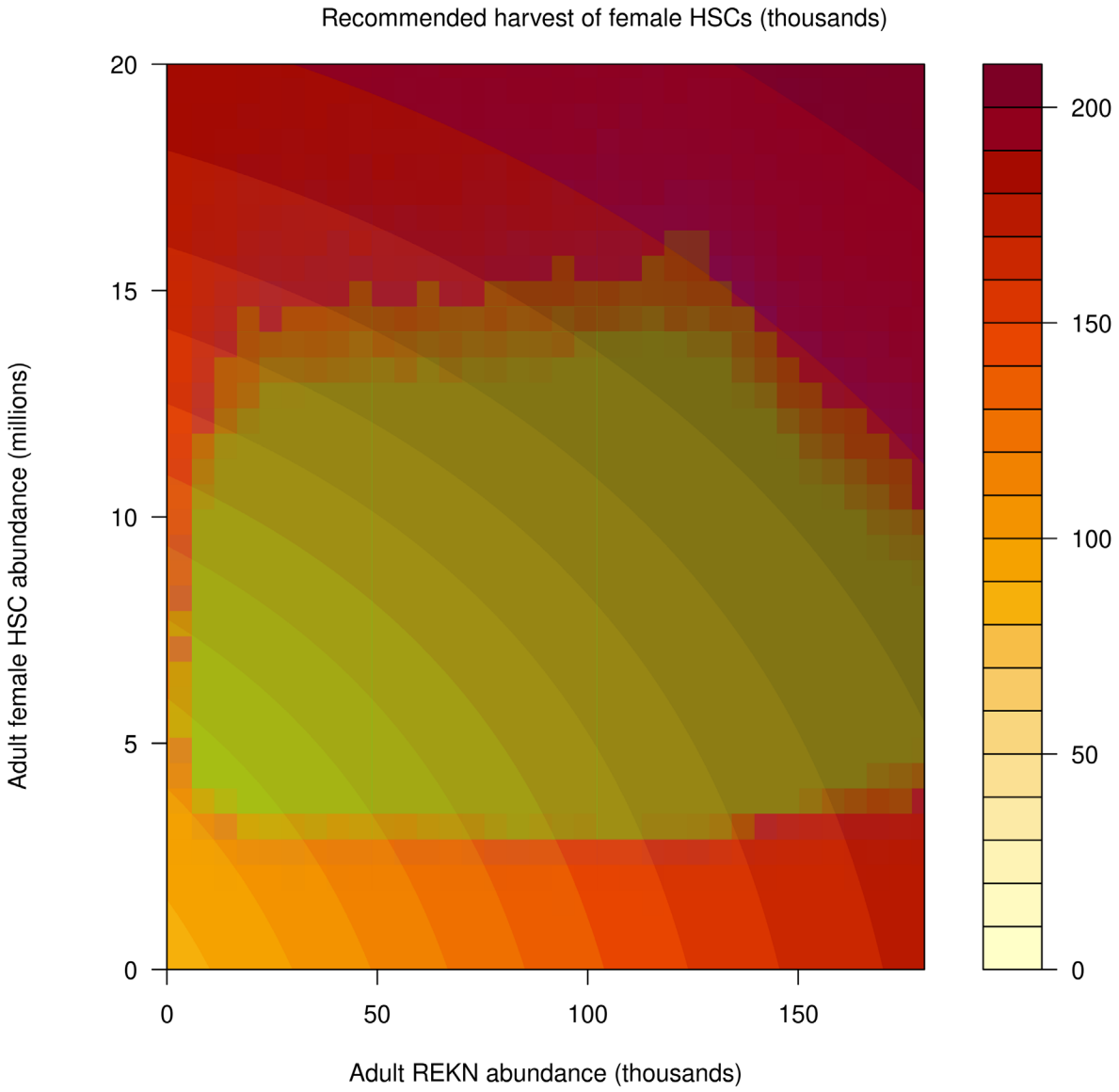

Figure 14. Optimal female bait harvest function for the canonical version of the revised ARM model, with $H^{f}_{\max} = 210,000$ and $H^{m}_{\max} = 500,000$. Recommended harvest depends on both female horseshoe crab (HSC) and adult red knot (REKN) abundances. Transparent green and blue overlay represents a non-parametric kernel, indicating where the bulk of the values of HSC and REKN abundances for years 31-100 of 10,000 simulations over 100 years: the green cells collectively contain 75% of the observations, the blue an additional 20%.

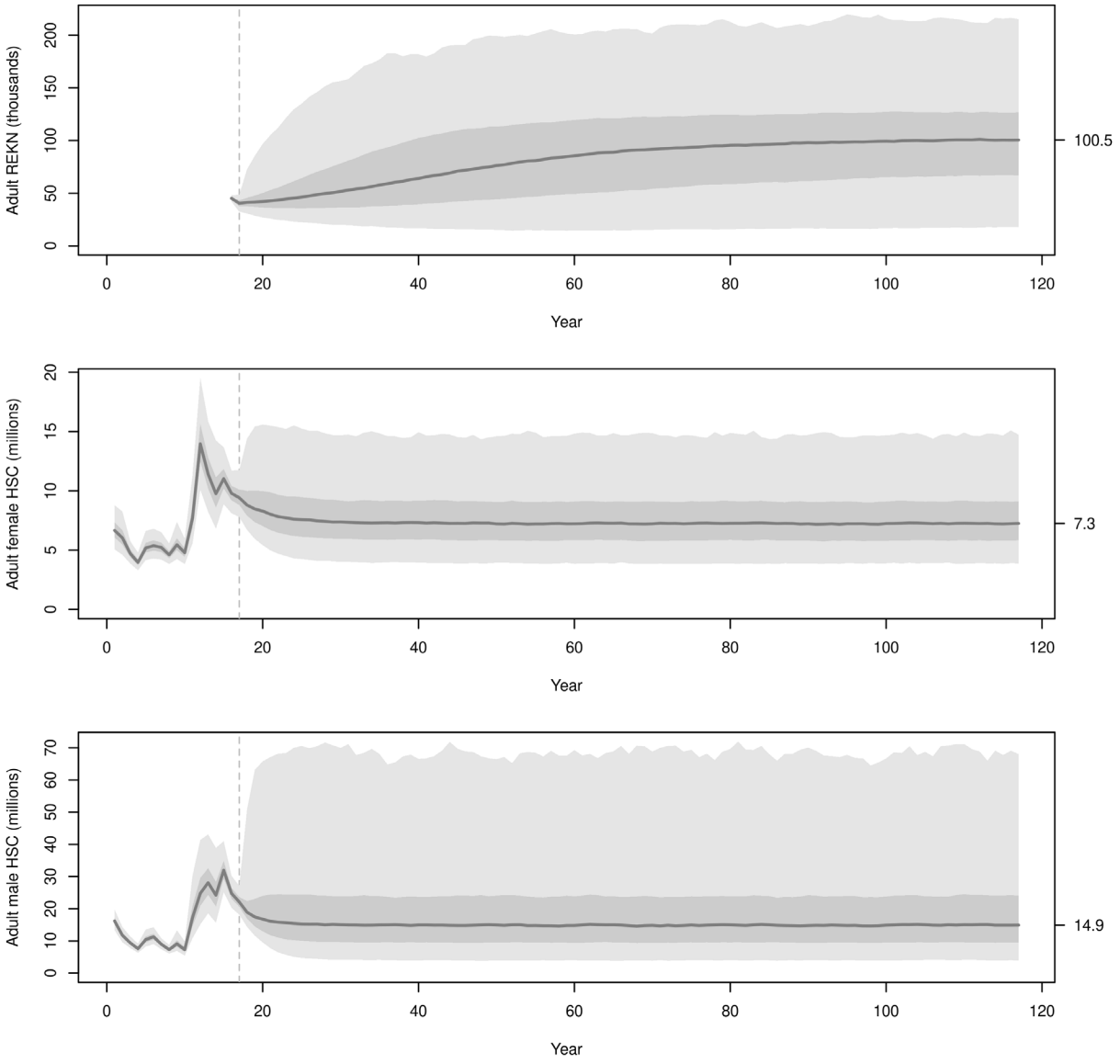

Figure 15. Summary of population trajectories for 10,000 simulated populations of horseshoe crabs and red knots under the optimal harvest policy for the canonical ARM model. Curves to the left of the vertical dashed gray line shows random draws from distributions based on actual estimates; simulated values begin to the right of the line. The dark gray line shows the median; dark gray region indicates the 25th and 75th percentile, or the 50% confidence interval; light gray region is bounded by the 2.5th and 97.5th percentiles, or the 95% confidence interval. Value in the right margin is the median at year 100 of the simulation (year 118 of the time series). Year 1 corresponds to 2003; dashed line is at 2019.

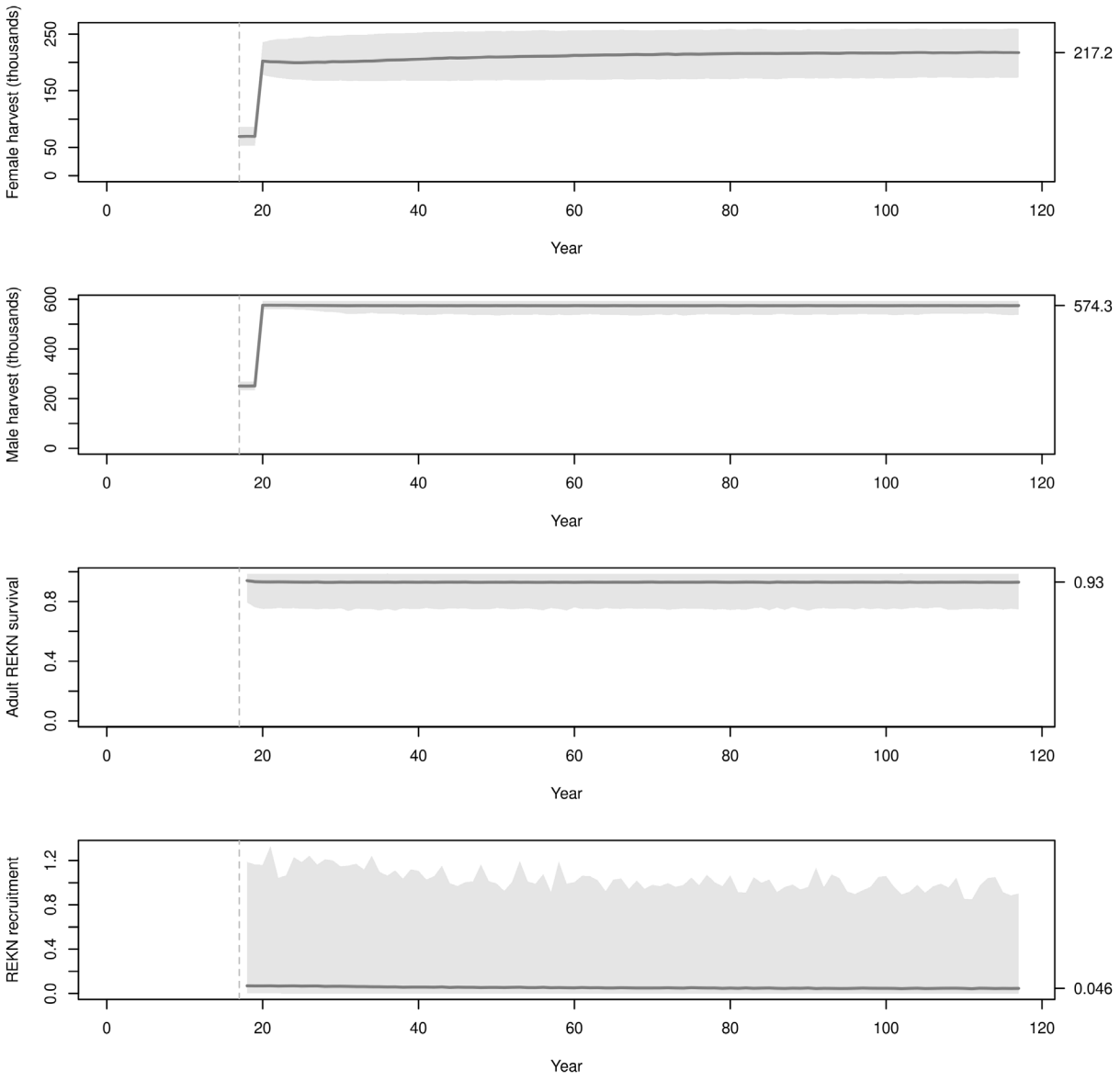

Figure 16. Summary of female and male horseshoe crab bait harvest and red knot (REKN) population parameters for 10,000 simulated populations under the optimal harvest policy for the canonical ARM model. The vertical dashed gray line lies at 2019; year 1 is 2003. The dark gray line shows the median; gray region is bounded by the 2.5th and 97.5th percentiles. Value in the right margin is the median at year 100 of the simulation (year 118 of the time series). Year 1 corresponds to 2003; dashed line is at 2019. Note that female and male harvest here include the 'background harvest' due to biomedical use and bycatch.

EARTHJUSTICE

January 18, 2022

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

VIA ELECTRONIC MAIL

Re: Proposed "Revision to the Framework for Adaptive Management of Horseshoe Crab Harvest in the Delaware Bay Inclusive of Red Knot Conservation"

Dear Commissioners:

I write on behalf of New Jersey Audubon and Defenders of Wildlife regarding the Atlantic States Marine Fisheries Commission's ("ASMFC" or "Commission") upcoming decision on a proposal to revise the Adaptive Resource Management ("ARM") Framework governing the bait harvest of horseshoe crabs. Specifically, as set forth in detail below, the parties to this letter strongly urge the Commission not to approve the proposed Framework Revision[1] that is scheduled for consideration at the Commission's meeting on January 26, 2022.[2] The proposed Framework Revision would dangerously jeopardize a critical food source for the *rufa* red knot, a shorebird listed as threatened under the Endangered Species Act ("ESA"). If the Commission were to approve the proposed revision, the resulting management changes would threaten to further imperil the red knot and would set ASMFC on a course to violate the ESA. Accordingly, the Commission should not approve the proposed Framework Revision.

I. Introduction

Each year, a population of red knots[3] completes one of the most epic migrations in the animal kingdom. Starting from Tierra del Fuego at the southern tip of South America, the red knots fly more than 9,000 miles to their breeding grounds in the Arctic Circle. For most red knots, the final staging area before the Arctic Circle is the Delaware Bayshore, where their stopover coincides with another ecological marvel: the spawning of millions of horseshoe crabs that emerge from the water and lay clusters of around 4,000 eggs, with the potential for an individual

[1] ASMFC, Adaptive Resource Management Subcommittee, Draft "Revision to the Framework for Adaptive Management of Horseshoe Crab Harvest in the Delaware Bay Inclusive of Red Knot Conservation" (2021) ("Framework Revision") (beginning at page 28 of PDF), http://www.asmfc.org/files/Meetings/2022WinterMeeting/HorseshoeCrabBoard_Jan2022.pdf.
[2] ASFMC, ASMFC 2022 Winter Meeting Webinar, January 25-27: Preliminary Agenda, http://www.asmfc.org/home/2022-winter-meeting.
[3] In this document, "red knot" refers to the *rufa* subspecies.

to lay more than 100,000 eggs over the course of several nights.[4] For red knots that have already flown thousands of miles at enormous physiological expense, the eggs provide essential replenishment, enabling a doubling of body mass in just 10 to 14 days, versus 21 to 28 days at comparable stopovers where clams and mussels are eaten.[5] This unique resource fuels the duration of their journey.

In recent decades, this migratory system has been severely strained. The harvest of horseshoe crabs for the bait and biomedical industries increased sharply in the late twentieth century, depleting the supply of eggs awaiting red knots. By the first decade of this century, the peak count of red knots stopping at Delaware Bay had dropped roughly 70 percent from two decades earlier. In 2015, the U.S. Fish and Wildlife Service ("FWS" or "Service") formally listed the *rufa* red knot as threatened under the Endangered Species Act.

ASMFC adopted a fishery management plan for the horseshoe crab harvest in 1998.[6] Since the 2013 fishing season, the Commission has set harvest quotas using an ARM Framework that links the allowable harvest to the red knot stopover population. The Commission has largely prohibited the bait harvesting of female horseshoe crabs in Delaware Bay since 2006, and the ARM process has selected for zero female harvesting every year since it was introduced.

Nevertheless, the red knot ESA listing and existing horseshoe crab harvest strategy have not proven sufficient to reverse population declines in either species. In 2021, the peak count of red knots at Delaware Bay reached a record low, while the estimated Delaware Bay horseshoe crab population has remained at historically low levels. All signs point to the need for additional measures to protect red knots and ensure an adequate food supply.

Unfortunately, instead of considering new measures to increase and restore Delaware Bay's horseshoe crab population, ASMFC is poised to consider adopting measures that would yield the opposite outcome. Indeed, ASMFC is considering the most dramatic weakening of protections in the history of its management of the horseshoe crab harvest. The proposed changes would result in lifting the prohibition on harvesting female horseshoe crabs, further imperiling the food supply for the remaining red knots. Were the Commission to approve these ill-advised changes, it would risk running afoul of the Endangered Species Act.

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[4] *See* U.S Fish & Wildlife Service, The Horseshoe Crab 1 (Aug. 2006), https://www.fws.gov/northeast/pdf/horseshoe.fs.pdf.

[5] *See* Lawrence Niles et al., *Effects of Horseshoe Crab Harvest in Delaware Bay on Red Knots: Are Harvest Restrictions Working?*, 59 BioScience 153, 154 (2009). Compared to other food sources, horseshoe crab eggs are superabundant, energy-rich, and easy to digest.

[6] *See generally* ASMFC, Interstate Fishery Management Plan for Horseshoe Crab (Fishery Management Report No. 32) (Dec. 1998) ("Horseshoe Crab FMP").

II. Since the 2015 ESA listing, the condition of the red knot has grown more dire.

At the outset, it is critical to recognize that 2022 marks the worst possible time since the listing of the red knot under the ESA for ASMFC to consider liberalizing rules for bait harvest of a species that provides a key red knot food source. When listing the *rufa* red knot as "threatened" under the ESA, FWS cited several studies indicating that red knot abundance had declined, "probably sharply," since the 1980s.[7] At Delaware Bay, peak spring population for 2005-2014 was, on average, 70 percent lower than when aerial surveys began in the early 1980s.[8] Over the past decade, the population had shown some signs of stabilizing at this low level. But aerial surveys in 2021 recorded a peak count of only 6,880 individuals—by far the lowest count since surveys began.[9] These figures are ominous for the entire subspecies, as "Delaware Bay provides the final Atlantic coast stopover for a significant majority (50 to 80 percent) of the red knot population making its way to the arctic breeding grounds each spring."[10] Despite eight years of ASMFC horseshoe crab harvest management under an adaptive framework that was supposed to ensure a sufficient food supply for migrating red knots, the most recent count reflects a new low for the affected red knot population and a dire warning about the subspecies' future viability.

Strong scientific evidence links red knot survival and demography to horseshoe crab egg availability at Delaware Bay. In its 2014 assessment for the ESA listing, FWS found that "[r]educed food availability in Delaware Bay due to commercial harvest of the horseshoe crab . . . is considered a primary causal factor in red knot population declines in the 2000s."[11] Reduced food availability is a particular threat for the Southern wintering population of red knots, which is disproportionately reliant on the Delaware Bay staging area.[12] Indeed, while the number of red knots at Delaware Bay indicates subspecies-wide declines over the past several decades, the declines have been especially profound at Southern wintering areas. The average red knot count at Tierra del Fuego for 2018-2020 declined more than 75 percent from average counts in the 1980s and 2000, and since 2011 has flattened at a relatively low level.[13] According to FWS, "[R]educed food availability at just one key migration stopover area (Delaware Bay) is considered the driving factor behind the sharp decline in the Southern wintering population in the

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[7] FWS, Rufa Red Knot Background Information and Threats Assessment (Supplement to Endangered and Threatened Wildlife and Plants; Final Threatened Status for the Rufa Red Knot) 85 (Nov. 2014) ("FWS Listing Supplement"). While FWS primarily analyzed red knot population trends within specific regions, it "note[d] a temporal correlation between declines at Tierra del Fuego and Delaware Bay." *Id.* at 84.

[8] *Id.* at 99. The Service explained that these figures reflected overall population declines, not merely a redistribution of red knots to alternate migration routes. *See id.* 99-100.

[9] Minority Opinion of Wendy Walsh, ARM Subcommittee Member and FWS Species Lead for the *rufa* red knot, *in* Framework Revision, at 115 ("FWS Species Lead Opinion").

[10] FWS Listing Supplement 12.

[11] FWS, Endangered and Threatened Wildlife and Plants; Final Threatened Status for the Rufa Red Knot, 79 Fed. Reg. 73,706, 73,707 (Dec. 11, 2014). The listing became effective on January 12, 2015. *See id.* at 73,706.

[12] *See* FWS, Species Status Assessment Report for the Rufa Red Knot (Version 1.1), at 9 (Sept. 2020) ("FWS 2020 Assessment").

[13] FWS, Draft Recovery Plan for the Rufa Red Knot 8 (May 2021) ("Draft Recovery Plan").

2000s."[14] FWS views the Southern wintering population as "a bellwether for the subspecies as a whole,"[15] which makes this population decline especially concerning.

As FWS has stated, "Studies have shown red knot survival rates are influenced by the condition (weight) of birds leaving the Delaware Bay staging area in spring."[16] In years when horseshoe crab spawning was delayed due to weather conditions, a very low percentage of red knots was able to reach a weight of 180 grams—a threshold that has frequently been used to assess whether red knots were able to achieve sufficient weight gain to complete their migratory journey and subsequent reproduction.[17] Research has also shown that, while red knots arriving relatively late to Delaware Bay were able to compensate by gaining weight at a higher rate, that was not the case in years with low horseshoe crab egg availability.[18] There is simply no question that horseshoe crab management in Delaware Bay impacts the fate of the red knot.

III. ASMFC has long prohibited the harvest of female horseshoe crabs in the Delaware Bay region.

For the past eight years, ASMFC has adopted an approach to horseshoe crab management that at least recognized the fundamental need to promote red knot recovery by restoring horseshoe crab numbers—and in particular female crab numbers—before any expansion of the horseshoe crab bait harvest could be considered. ASMFC issued its first fishery management plan ("FMP") for horseshoe crabs in December 1998, with the first mandatory restrictions implemented in 2000.[19] The plan was prompted by the Commission's October 1997 vote to create an FMP for horseshoe crabs and responded to "[c]oncern over increased exploitation of horseshoe crabs, particularly in the mid-Atlantic States . . . expressed by state and federal fishery resource agencies, conservation organizations, and fisheries interests."[20] The FMP described horseshoe crabs as "play[ing] an important ecological role in the food web" for several species, including red knots.[21]

In 2012, ASMFC approved Addendum VII to the Horseshoe Crab FMP, in which it acknowledged that "the red knot (*rufa* subspecies), one of many shorebird species that feed on horseshoe crab eggs, is at low population levels. Red knots have shown no sign of recovery . . . despite a nearly four-fold reduction in horseshoe crab landings since 1998."[22] Addendum VII implemented the ARM Framework, which was "designed to assist managers with future horseshoe crab harvest regulations by accounting for multiple species effects, focusing on red

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[14] *Id.* at 14.
[15] *Id.* at 13.
[16] FWS 2020 Assessment 25.
[17] *See* FWS Listing Supplement 254.
[18] *See id.* at 253.
[19] Horseshoe Crab FMP iv.
[20] *Id.* at 1.
[21] *Id.* at 12-13.
[22] ASMFC, Addendum VII to the Interstate Fishery Management Plan for Horseshoe Crabs for Public Comment (Adaptive Resource Management Framework) at 1 (Feb. 2012).

knot rebuilding in the Delaware Bay Region."[23] As such, Addendum VII applied only to states in the Delaware Bay region: New Jersey, Delaware, and applicable waters of Maryland and Virginia.[24]

Each year, the ARM model has utilized estimates of the abundance of horseshoe crabs and red knots in the Delaware Bay region to select one of five possible "harvest packages" for horseshoe crabs harvested for use in the bait industry. And each year, the ARM model has selected the same package: 500,000 males and 0 females.[25] These limits apply to the entire Delaware Bay region, and the Commission allocates the male harvest quota among the four states. The model was designed not to select for female harvest until either the female horseshoe crab or the red knot population recovered to a specified threshold, which neither species has done.[26]

Application of this ARM Framework has been deemed by federal wildlife officials to be central to ESA compliance for ASMFC's management of the horseshoe crab bait harvest. In listing the red knot, FWS stated, "We do not consider the [horseshoe crab] harvest a threat under the science-based management framework that has been developed and adopted to explicitly link harvest quotas to red knot population growth."[27] However, the Service has repeatedly qualified that statement to acknowledge the uncertainties about the adequacy of the red knot food supply. For example, at the time of the initial listing, the Service stated, "[B]ecause of the uncertain trajectory of horseshoe crab population growth, it is not yet known if the HSC egg resource will continue to adequately support red knot population growth over the next decade."[28] In 2020, the Service observed, "[T]he continued sufficiency of future crab egg supplies remains uncertain and the management of this fishery remains controversial."[29] And in its Draft Rufa Red Knot Recovery Plan of 2021, the Service noted that "the sufficiency of future crab egg resources is still uncertain."[30] Thus, the Service itself has repeatedly raised concerns about the adequacy of the existing ARM Framework—even before the changes to that framework that are now being considered. And more fundamentally, regardless of the Service's statements, the persistent inability of either red knots or horseshoe crabs to recover from population declines after eight years of the ARM Framework calls into question the adequacy of existing management to ensure that horseshoe crab harvest does not harm and further imperil the red knot population. The record in no way supports weakening protections at this time.

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[23] *Id.* at 2.
[24] *See id.* at 1.
[25] *See* Framework Revision 22.
[26] *See id.*
[27] 79 Fed. Reg. at 73,707.
[28] *Id.* at 73,708.
[29] FWS 2020 Assessment 20.
[30] Draft Recovery Plan 10.

IV. The proposed Framework Revision would imperil red knots by further reducing their food supply.

Despite the precarious condition of the red knots and the absence of progress toward recovery under existing management, ASMFC is now considering changes that would open the door for even more intensive bait harvest of horseshoe crabs in Delaware Bay. The proposed Framework Revision would make a number of significant changes to the ARM model. These include deeply problematic changes that would pave the way for allowing a female horseshoe crab harvest, despite the continued low population counts of both horseshoe crabs and red knots.

A key aspect of the proposed Framework Revision is the method for estimating the horseshoe crab population. Since the ARM model was first utilized, it has exclusively used horseshoe crab population figures from the Virginia Tech Horseshoe Crab Trawl Survey ("VT survey") whenever they are available. The VT survey is designed specifically to count horseshoe crabs in Delaware Bay, and FWS has called it "the best benthic trawl survey to support the ARM."[31] Citing a conclusion of the Commission's Horseshoe Crab Technical Committee, FWS further stated that "efforts have not identified a method by which . . . alternate data sets can be appropriately used for the full and proper functioning of the ARM models."[32]

The Framework Revision would drastically downgrade the model's reliance on the VT survey in favor of two other surveys that only incidentally count horseshoe crabs: the New Jersey Ocean Trawl Survey and the Delaware Fish and Wildlife Adult Trawl Survey.[33] Rather than specifically target the horseshoe crab population, these are general surveys of marine species, and horseshoe crabs are counted only to the extent that they are collected as part of these broader surveys.[34] Yet the Framework Revision would give all three models equal weight.[35]

In a review of the proposed Framework Revision that opposed this approach, FWS Species Lead on the *rufa* red knot and ASMFC ARM Subcommittee member Wendy Walsh described the foreseeable impact of the new approach. Namely, it will generate significantly higher horseshoe crab population estimates based predominantly on surveys that are not purpose-designed to count horseshoe crabs.[36] The review therefore urged the Subcommittee, at the very least, to accord greater weight to the VT survey based on its "technical rigor and deliberate design" and "the high level of confidence that stakeholders have expressed in" it, among other reasons.[37] As the review pointed out, even under the existing model, inflated population estimates from the three equally weighted surveys would have selected for the harvest of female horseshoe crabs in two

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[31] FWS Listing Supplement 247.
[32] *Id.* (citing ASMFC, News Release, "ASMFC Horseshoe Crab Board Sets 2015 Specifications for Horseshoe Crabs of Delaware Bay Origin" (Oct. 30, 2014)).
[33] Framework Revision 55.
[34] *See id.* at 43.
[35] *See id.* at 55.
[36] FWS Species Lead Opinion 111.
[37] *Id.*

of the four years for which data are available.[38] The New Jersey and Delaware surveys diverge from the purpose-designed VT survey in finding that the horseshoe crab population has modestly increased in recent years, which only heightens concerns about an abrupt and disproportionate reliance upon those surveys.[39]

Another troubling aspect of the proposed Framework Revision is the elimination of thresholds below which the ARM model will not select for female horseshoe crab harvest. The model's current utility function will not select for any female horseshoe crab harvest until the Delaware Bay region hosts at least 81,900 red knots or 11.2 million female horseshoe crabs.[40] The proposed revision abandons these constraints and would allow female horseshoe crab harvest even when neither species has reached its designated threshold.[41] The review by FWS's Species Lead for red knots explained that this revision "does not reflect the values and risk attitudes that were clearly expressed by the original group of stakeholders during initial setup of the existing ARM framework," and "[a] precautionary, risk-averse approach to female crab harvest is a central tenet of the existing framework as expressed by the stakeholders during the initial development and adoption of the ARM. Such a major reinterpretation of this tenet as is represented by the proposed new utility function should not be pursued under the mantle of technical updates."[42]

Fundamentally, it is deeply concerning that ASMFC would allow the "immediate resumption of female crab harvest" based on a new and untested model and despite the absence of any indication of red knot recovery under existing management.[43] The Framework Revision proposal suggested that the model will adapt based on new data, with the aim of reducing inaccuracies over time.[44] But the red knot is a threatened species that recently had a record-low population count and whose survival depends upon the annual availability of horseshoe crab eggs. It cannot afford a management tradeoff that allows for near-term harm based on optimistic data and an untested model in exchange for the mere possibility of fixing inaccuracies in the future.

When listing red knots as threatened, FWS stated, "As long as the ARM is in place and functioning as intended, ongoing horseshoe crab bait harvests should not be a threat to the red knot."[45] Now, however, in response to the proposed Framework Revision, the FWS Species Lead for red knots has warned that "[i]mmediate resumption of female harvest by the means described in the draft report may prompt the USFWS to reconsider if the ARM is functioning as

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[38] *See id.* at 111-12.
[39] *See* Framework Revision figs. 21 & 22.
[40] *See id.* at 21.
[41] *See id.* at 83-84.
[42] FWS Species Lead Opinion 113.
[43] *Id.* at 112.
[44] *See* Framework Revision 21.
[45] FWS Listing Supplement 247.

intended."[46] Yet, despite this admonition, ASMFC now appears poised to adopt the Framework Revision.

V. The proposed Framework Revision puts ASMFC on track to violate the Endangered Species Act.

ASMFC is scheduled to decide whether to adopt the proposed Framework Revision to govern the bait harvest of horseshoe crabs at its 2022 Winter Meeting. This decision is critical to the future of the horseshoe crab and red knot populations. Importantly, it also is critical to ASMFC's compliance with the mandates of the Endangered Species Act. Adopting the Revised Framework and reintroducing the harvest of female horseshoe crabs in Delaware Bay even as the red knot population reaches a new nadir would put ASMFC on track to violate the ESA.

The ESA prohibits any person from "tak[ing] any [endangered] species within the United States or the territorial sea of the United States."[47] Such prohibited "taking" includes actions that "harm" listed species, including "significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering."[48] The ESA's "taking" prohibition extends to governmental authorization to take protected species that facilitates such harm by "solicit[ing]" or "caus[ing]" an offense.[49] By regulation, that prohibition extends to the taking of most threatened species, including the red knot.[50]

Like any other association or governmental entity, ASMFC is subject to this ESA taking prohibition.[51] Moreover, ASMFC's fishery management decisions have a direct causal connection to the ultimate bait-harvesting actions that impact horseshoe crabs and red knots.[52] Under the Atlantic Coast Fisheries Cooperative Management Act of 1993, ASMFC's fishery

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[46] FWS Species Lead Opinion 117.
[47] 16 U.S.C. § 1538(a)(1)(B).
[48] 50 C.F.R. § 17.3.
[49] *Strahan v. Coxe*, 127 F.3d 155, 163 (1st Cir. 1997); 16 U.S.C. § 1538(g).
[50] *See* 50 C.F.R. § 17.31(a) (applying the provisions of § 17.21 (addressing endangered species) to threatened species); *id.* § 17.21(a), (c) ("[I]t is unlawful . . . to solicit another to commit or to cause to be committed" the taking of an endangered species.").
[51] The ESA applies to any "person," which is broadly defined. *See* 16 U.S.C. § 1532(13) ("The term 'person' means an individual, corporation, partnership, trust, association, or any other private entity; or any officer, employee, agent, department, or instrumentality of the Federal Government, of any State, municipality, or political subdivision of a State, or of any foreign government; any State, municipality, or political subdivision of a State; or any other entity subject to the jurisdiction of the United States.").
[52] *See, e.g.*, *Sierra Club v. Yeutter*, 926 F.2d 429, 438-39 (5th Cir. 1991) (holding that government agency violated ESA taking prohibition by authorizing logging that destroyed habitat and thereby impaired essential behavioral patterns of listed woodpecker species); *Loggerhead Turtle v. County Council of Volusia County*, 896 F. Supp. 1170, 1181-82 (M.D. Fla. 1995) (holding that county that regulates vehicular access to beaches is liable under ESA for taking of sea turtles caused by nighttime beach driving).

management plans are legally binding upon affected states.[53] Once the Commission issues a plan, states "shall implement and enforce the measures of such plan within the timeframe established in the plan."[54] States are therefore prohibited from authorizing female horseshoe crab harvest in Delaware Bay under the existing framework.[55] The Revised Framework charts a course to lift that critical prohibition. As the FWS Species Lead has noted, lifting that prohibition and applying the Revised Framework would likely yield an immediate authorization for female horseshoe crab harvest in the range of 175,000 to 190,000 individuals per year.[56] Such harvesting of the critical component of the horseshoe crab population on which egg abundance depends threatens significant degradation and modification of red knot habitat at Delaware Bay that would kill or injure red knots by significantly impairing breeding and feeding activities that are essential to the continued existence of the species, as discussed above.[57]

In the Endangered Species Act, Congress adopted a precautionary approach. As the Supreme Court has stated, in the ESA, "Congress has spoken in the plainest of words, making it abundantly clear that the balance has been struck in favor of affording endangered species the highest of priorities, thereby adopting a policy which it described as 'institutionalized caution.'"[58] By setting ASMFC on a path to harm a threatened species whose population shows no sign of recovery, the proposed Framework Revision would fall far short of what the ESA requires.

VI. Conclusion

The Endangered Species Act provides strict protections for the *rufa* red knot, which is listed as threatened under the statute. The red knot's peak stopover population at Delaware Bay is at historically low numbers. Horseshoe crabs, whose eggs nourish the red knot at a critical point in its migration, have not recovered from decades of overharvest. Now is not the time for ASMFC to revise its horseshoe crab management framework in a manner that would allow even greater harvest, including resumption of harvest of the critical female component of the population. Doing so would compound the threats facing the red knot and further jeopardize its recovery, in violation of the ESA. For these reasons, the parties to this letter urge ASMFC not to approve the proposed Framework Revision.

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[53] *See* Atlantic Coastal Fisheries Cooperative Management Act of 1993, Pub. L. 103-206, 107 Stat. 2419, Tit. VIII (codified at 16 U.S.C. § 5101 *et seq.*).
[54] *Id.* § 5104(b)(1).
[55] *Cf. Defenders of Wildlife v. EPA*, 882 F.2d 1294, 1301 (8th Cir. 1989) (EPA's registration of pesticide effected a taking because the pesticide could not be used without such registration).
[56] FWS Species Lead Opinion 113.
[57] *See* 50 C.F.R. § 17.3.
[58] *Tenn. Valley Auth. v. Hill*, 437 U.S. 153, 194 (1978).

Respectfully submitted,

Benjamin Levitan[*]
Senior Attorney
Earthjustice Biodiversity Defense Program
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[*] *Based in Washington, D.C. Admitted only in New York; supervision by Timothy Preso, a member of the D.C. Bar.*

Atlantic States Marine Fisheries Commission

Atlantic Striped Bass Management Board

January 26, 2022
1:30 – 5:00 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 *(M. Gary)*	1:30 p.m.
2. Board Consent • Approval of Agenda • Approval of Proceedings from October 2021	1:30 p.m.
3. Public Comment	1:35 p.m.
4. Consider Draft Amendment 7 for Public Comment *(E. Franke)* **Action** (includes a 15 minute break at 3:30 p.m.)	1:45 p.m.
5. Other Business/Adjourn	5:00 p.m.

The meeting will be held via webinar, click here for details
Sustainable and Cooperative Management of Atlantic Coastal Fisheries

MEETING OVERVIEW

Atlantic Striped Bass Management Board
January 26, 2022
1:30 p.m. – 5:00 p.m.
Arlington, VA

Chair: Marty Gary (PRFC) Assumed Chairmanship: 01/22	Technical Committee Chair: Kevin Sullivan (NH)	Law Enforcement Committee Rep: Kurt Blanchard (RI)
Vice Chair: Vacant	Advisory Panel Chair: Louis Bassano (NJ)	Previous Board Meeting: October 20, 2021
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 October 2021

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

4. Draft Amendment 7 (1:45 – 4:55 p.m.) Action
(includes a 15-min break at 3:30 p.m.)

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 facing striped bass management and build upon the Addendum VI action to end overfishing and initiate rebuilding.
- In May 2021, the Board approved the following four issues for development in Draft Amendment 7: recreational release mortality, conservation equivalency, management triggers, and measures to protect the 2015 year class.
- In October 2021, the Board tasked the PDT with the developing additional options for Draft Amendment 7, including options for Chesapeake Bay recreational measures to protect year classes, options considering recruitment assumptions for stock rebuilding, and an additional option for the fishing mortality threshold trigger.
- The Plan Development Team and the Technical Committee met multiple times between May 2021 and January 2022 to develop Draft Amendment 7 **(Briefing Materials).**

• The Advisory Panel met in September 2021 and January 2022 to discuss the scope and clarity of options presented in Draft Amendment 7 **(Supplemental Materials)**.
Presentations • Overview of Draft Amendment 7 for public comment by E. Franke
Board Actions for Consideration • Approve Draft Amendment 7 for public comment.

5. Other Business/Adjourn (5:00 p.m.)

Atlantic States Marine Fisheries Commission

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

TO: **Atlantic Striped Bass Management Board**

FROM: **Atlantic Striped Bass Advisory Panel**

DATE: **January 18, 2022**

SUBJECT: **Advisory Panel Comments on the Scope of New Options for Draft Amendment 7**

AP Members in Attendance: Louis Bassano (Chair, NJ – recreational), Dave Pecci (ME – for-hire/recreational), Bob Humphrey (ME – comm. rod and reel/for-hire), Peter Whelan (NH – recreational), Patrick Paquette (MA – rec/for-hire/comm), Andy Dangelo (RI – for-hire), Michael Plaia (RI – comm/rec/for-hire), Bob Danielson (NY – recreational), Eleanor Bochenek (NJ – fisheries scientist), Chris Dollar (MD – fishing guide), Charles Green (MD – for-hire), Bill Hall (VA – recreational), Kelly Place (VA – commercial), Jon Worthington (NC – recreational)

ASMFC Staff: Emilie Franke, Katie Drew

The Atlantic Striped Bass Advisory Panel (AP) met via webinar on January 6, 2022 to provide feedback on the new options developed for Draft Amendment 7 following the October 2021 Striped Bass Management Board meeting: fishing mortality management triggers, measures to protect strong year classes (recreational size limits), and stock rebuilding considerations. The following is a summary of the AP's comments and discussion on the scope and clarity of those new options.

The AP previously met on September 29, 2021 to provide feedback on the scope and clarity of the other options presented in Draft Amendment 7, including management triggers, options to address recreational release mortality, and conservation equivalency[1].

After Draft Amendment 7 is approved for public comment, there will be a separate AP meeting to discuss the AP's preferred management options.

Fishing Mortality (F) Threshold Management Trigger Options

- One AP member noted concern about waiting two or three years for more data before taking action to reduce F, and so does not support the alternative F threshold trigger options that would require two or three years of data to evaluate the trigger (i.e.,

[1] The September 2021 Striped Bass AP Meeting Summary is available here: http://www.asmfc.org/uploads/file/61829cd2AtlStripedBassAP_Summary_Sept2021.pdf

comparing a 2-yr or 3-yr average F to the threshold instead of the status quo comparing one year of F to the threshold).

- Some AP members support considering the 2-yr and 3-yr average options during the public comment period to address concerns about MRIP uncertainty and variability of F from year to year.

Measures to Protect Strong Year Classes (Recreational Size/Bag Limits for Ocean and Chesapeake Bay)

- One AP member supports removing these recreational size limit options from consideration in Draft Amendment 7 for the following reasons:
    - The status quo would provide the same rebuilding benefit for the stock as the alternative measures.
    - The process of adjusting to changes in recreational measures is costly for the fishery, particularly for the for-hire industry.
- Several AP members support keeping these recreational size limit options in Draft Amendment 7 for public comment for the following reasons:
    - The public should have the opportunity to comment on alternative size limits and what they want to see in the fishery.
    - Some alternative size limit options would result in a greater reduction in harvest than the status quo; reducing harvest would benefit the stock.
    - Some alternative size limits may reduce release mortality (e.g., fewer fish would be caught and released to find one in a 32" to <40" slot vs. the status quo).
- Some AP members noted diverse age structure is important to consider.
    - Staff indicated the analysis for these options focused on whether the alternative size limits would expedite stock rebuilding based on total spawning stock biomass levels; this analysis did not consider how the age composition of the stock would change as compared to the status quo.
- Some AP members noted effort and behavior may change with different size limits.
    - Staff indicated there is uncertainty around how effort would change with a different size limit and if fish become more or less available to the fishery; this uncertainty cannot be quantified.
- Some AP members highlighted the weak stock-recruit relationship for striped bass (i.e., higher spawning stock biomass does not necessarily lead to higher recruitment) and the influence of environmental conditions on recruitment; although alternative size limits may not significantly increase total SSB levels, protecting strong year classes may still benefit the stock overall by limiting mortality on healthy year classes considering future recruitment success is highly variable.
- One AP member noted closed seasons would protect year classes.
- Some AP members noted the potential relationship between protecting larger fish and the quality of eggs/recruits.

Options for Stock Rebuilding Calculations

- Two AP members noted support for the more conservative approach of using a low recruitment assumption for stock rebuilding calculations in the 2022 assessment, especially considering the recent low juvenile abundance index (JAI) estimates.
- There was general support for including these options considering rebuilding calculations and recruitment in the Draft Amendment for public comment.

Written Comments from AP Member

AP member Dennis Fleming (PRFC – fishing guide/seafood processer/dealer) was not in attendance and provided the following comments to ASMFC staff regarding the AP meeting summary:

- I support the following: Some AP members support considering the 2-year and 3-year average options during the public comment period to address concerns about MRIP uncertainty and variability of F from year to year.
- I support the following: Several AP members support keeping these recreational size limit options in Draft Amendment 7 for public comment for the following reasons.
- I support the following: Two AP members noted support for the more conservative approach of using a low recruitment estimate for the stock rebuilding calculations in the 2022 assessment, especially considering the recent low juvenile abundance index estimates.

1075 Tooker Avenue
West Babylon, NY 11704
January 17, 2022

Atlantic Striped Bass Management Board
Atlantic States Marine Fisheries Commission
1050 N. Highland St., Suite 200 A-N
Arlington, VA 22201

Dear Management Board Members:

On January 26, you will review the most recent Draft Amendment 7 to the Interstate Fishery Management Plan for Atlantic Striped Bass ("Draft Amendment"). As part of that review process, you may elect to add or remove options from the document presented to you by the Plan Development Team ("PDT"). While this is not the appropriate time to comment on the merits of all the various options that might appear in the Draft Amendment when it is released for public comment, I am providing input on two specific options which, for reasons of policy, should be removed from such document prior to its release.

I
MANAGEMENT TRIGGERS

Tier 1 (fishing mortality) Sub-option B-3 should be deleted, as it is poor policy to include a management trigger that, as a practical matter, will be virtually impossible to trip.

Tier 1 Sub-option B-3 would establish a fishing mortality trigger that reads,

> If the three-year average F exceeds the F threshold, the striped bass management program must be adjusted to reduce F to a level that is at or below the target within the timeframe selected under Option A. The three-year average F should not include data under different management actions (i.e., **the F threshold trigger should not be evaluated unless there are at least three years of data in the assessment under the most recent management action**). [emphasis added]

While such language seems fine on its face, the timing of stock assessments, as well as the timing of management actions taken pursuant to such assessments, create a situation in which there will seldom, if ever, be a time when "there are at least three years of data in the assessment under the most recent management action."

That becomes clear when one realizes that an assessment update is conducted approximately every **two** years,[1] necessarily limiting the years of data available since the prior assessment or assessment update. In addition, because management actions are taken in response to information contained in assessments or assessment updates, there will be even fewer years of data "under the most recent management action" available in any assessment or assessment update.

Even in the current situation, when the COVID pandemic delayed preparation of the next stock assessment update, the timeline would not permit the proposed trigger to be tripped. While there will be four years between the 2018 benchmark assessment and the 2022 assessment update, an atypically long interval, the management actions taken in response to the 2018 assessment weren't implemented until 2020. Thus, the 2022 stock assessment update will only contain two years of data since the last management action; should it find overfishing, the trigger, sub-option B-3 (if it was in place at that time) would not trip, as the requisite three years of data would not be available.

It is reasonable to expect that, under a more regular assessment schedule, such 3-year requirement would render the trigger incapable of being triggered at all.

The PDT seems to have recognized that flaw, and addressed it by noting, "Although the trigger would only be evaluated when sufficient data years are available for sub-options B2 or B3, the Board is not limited to taking action only when a management trigger is tripped."

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[1] The Draft Assessment, on page 53, states that "Stock assessment updates are typically conducted about every 2 years with benchmark assessments conducted about every 5 years." Such statement accords with the history of stock assessments included on the Atlantic States Marine Fisheries Commission's Atlantic Striped Bass species page, which shows that, since the adoption of the current Amendment 6 to the Interstate Fishery Management Plan for Atlantic Striped Bass in 2003, either benchmark assessments or assessment updates were conducted in 2004, 2005, 2008, 2009, 2011, 2013, 2015, 2016, and 2018.

While that statement is true, it doesn't answer the key question: Why adopt a management trigger that will probably never be tripped, and then rely on the Management Board to act before any action is triggered?

The Management Board has always been able to act before a trigger is tripped, if it believes that such action is needed. The purpose of a management trigger is not to define those times when the Management Board **may** intervene, but instead to define the occasions when it **must** do so.

Sub-option B3 does not serve that purpose, and thus should be deleted from the Draft Amendment.

II
MANAGEMENT PROGRAM EQUIVALENCY

Sub-option E-1, which would allow a state to adopt conservation-equivalent management measures that only achieved a harvest reduction equal to the fishery management plan standard at the coastwide level, is in violation of the clear language of the Interstate Fishery Management Program Charter, and thus must be deleted from the Draft Amendment.

The Interstate Fishery Management Program Charter ("Charter") unambiguously defines "conservation equivalency" as

> Actions taken by a state which differ from the specific requirements of the FMP, but which **achieve *the same* quantified level of conservation** for the resource under management. For example, various combinations of size limits, gear restrictions, and season length can be demonstrated to **achieve *the same* targeted level of fishing mortality**. The appropriate Management Board/Section will determine conservation equivalency. [emphasis added]

Sub-option E-1, which allows a state to adopt management measures that only achieve the coastwide percentage reduction in fishing mortality, rather than the level of fishing mortality that the fishery management plan standard would achieve in that state, clearly fails to meet the Charter's standard for conservation equivalency.

That failure was implicitly recognized by the PDT, which explained, in the Draft Amendment,

> Suppose an FMP standard is adopted that is projected to achieve a 20% change in fishery removals when applied coastwide. However, at the state level, the FMP standard is projected to achieve a 25% change in State A and a 10% change in State B...
>
> Notably, ***sub-option E-1 may undermine an overall targeted reduction***... [emphasis added]

We saw that occur when the conservation-equivalent measures approved in connection with *Addendum VI to the Atlantic Striped Bass Interstate Management Plan* (Addendum VI) reduced such addendum's already marginal 50% probability of reducing fishing mortality to the target level to an unacceptable 42%, due to the Management Board's willingness to allow some of the most important striped bass states, in terms of recreational harvest, to adopt management measures that only achieved the targeted coastwide reduction in fishing mortality.[2]

Certainly, if conservation equivalent measures led to such a reduced probability of a management action succeeding in its goal, such measures did not meet the Charter's requirement that they "achieve the same quantified level of conservation" and "achieve the same targeted level of fishing mortality." The fact that Addendum VI did successfully reduce fishing mortality to the target level, due to a fortuitous reduction in recreational fishing effort, does not justify the inadequately restrictive state management measures.

Some may choose to argue that the 2016 publication, *Conservation Equivalency: Policy and Technical Guidance Document* ("Guidance Document") takes a more relaxed view of how conservation equivalency may be defined, and thus condones the approach described in sub-option E-1. However, such publication should be viewed as subordinate to, and not of equal status with, the Charter, which states in its Preface that "This document outlines the standard operating procedures and policies of the Atlantic States Marine Fisheries Commission's Interstate Fisheries Management Program." Nor can the Guidance Document be viewed as amending the language and conservation equivalency policy enunciated in the Charter, as the

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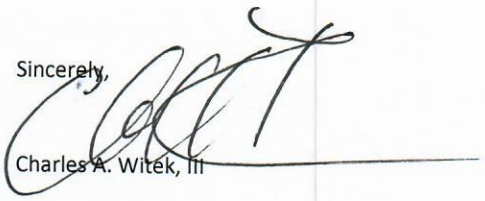
[2] *Proceedings of the Atlantic States Marine Fisheries Commission Atlantic Striped Bass Management Board*, May 5, 2020, p. 2, comments by Dr. Katie Drew, "The predicted reductions, the new predicted total removals in 2020 is a 15 percent reduction from 2017 levels compared to the 18 percent reduction predicted for the consistent coastwide Addendum VI measures. The updated projections indicate a 42 percent chance of being at or below the F target in 2020, compared to a 50 percent chance that was calculated with the original projection."

Guidance Document predates the most recent version of the Charter, which was published in 2019, and retains the fully intact language regarding conservation equivalency, which was cited at the beginning of this section.

Because sub-option E-1 is clearly inconsistent with the conservation equivalency provisions of the Charter, it should be stricken from the Draft Amendment.

Thank you for considering my views on these matters.

Sincerely,



Charles A. Witek, III

Atlantic States Marine Fisheries Commission

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MEMORANDUM

TO: **Atlantic Menhaden Management Board**

FROM: **Atlantic Menhaden Plan Development Team**

DATE: **January 14, 2022**

SUBJECT: **Recommendations on Draft Addendum I to Amendment 3**

At the 2021 Fall Meeting, the Atlantic Menhaden Management Board provided guidance to the Plan Development Team (PDT) in further developing draft Addendum I to Amendment 3 based on the progress outlined in memo (M21-115). The addendum considers changes to commercial allocations, the episodic event set aside (EESA) program, and the incidental catch and small-scale fisheries (IC/SSF) provision. This memo summarizes the PDT recommendations for the Board's consideration in approving the document for public comment.

Each section below includes justification for eliminating specific options. A decision tree for selecting state allocations is included in the Appendix. The topics are interconnected and that decisions made for one topic will impact alternatives under other topics. Because of this interconnectedness, the Board should carefully consider removal of some options to reduce complexity of the document. This will allow the public to effectively provide feedback to the Board before final action. Currently there are 46 total options in the Draft Addendum (33 combinations of allocation options; 6 options for the EESA program; and 14 options for the IC/SSF provision).

Commercial Allocations

3.1.2 Timeframe for Allocating Remaining Available TAC

Option 2. (2009 – 2020): This approach considers a broader landings history from all states, including times of higher and lower landings. However, this option dilutes recent changes in the fishery given the rate of change. The PDT recommends removing this option because similar objectives can be achieved through the weighted timeframe option.

Option 4. Second Highest Year: This approach uses each states' second highest landing year from 2009 – 2020 to determine allocation. As noted in the Addendum, this option bases allocations on a total harvest that is much greater than the current TAC and a theoretical stock distribution that likely never existed. Changes in TAC level and management changes, such as the inclusion of the fixed minimum, during the evaluation time period further complicate fairly assessing a second best year between jurisdictions. A period of high availability for a particular state may have coincided with more restrictive regulations compared to another jurisdiction, and vice versa. The PDT recommends this option be removed.

Option 6B. Weighted Allocation Timeframe #2 (2009-2012 and 2017-2020): The Board requested two versions of the weighted allocation timeframe be developed in October 2021. While the state allocations vary slightly between the two versions, they are conceptually the same and in combination increase the possible state allocation options just among weighted allocation options by nine options for a total of 33 options. The PDT recommends that Timeframe #2 be removed because the same objective is achieved with Timeframe #1.

Additionally when considering the weighted allocation timeframe options, there are currently three different weighting approaches applied to both timeframes. If all three weightings for only one timeframe remain in the addendum, the public will still need to choose from nine different weighting sub-options. The PDT recommends the Board consider the benefits of retaining all three weightings for the timeframe option for public comment.

Episodic Event Set Aside Program

3.3.5 Allow access to EESA at <100% state allocation

This topic is included in the Addendum in the Incidental Catch and Small-Scale Fisheries section due to the decision making process for addressing small-scale purse seines. This option can only be pursued in the current version of the addendum if either Option 2 (no purse seines) or 3 (non-directed gears only) are chosen under Permitted Gear Types.

The PDT notes allowing states to participate in EESA when they have five percent of their allocation remaining may lead to fairness/equity concerns as five percent of one state's allocation may be significantly different than that of another state. Timing and availability of fish among the northern states could exacerbate this issue with one state having access to EESA while still having quota remaining, while another state has not yet had the fish migrate into their state waters and thus has not yet had the opportunity to harvest their quota and opt into EESA. Additionally, several other options in this management document, including revised commercial allocations and increasing the percentage allocated to the EESA, could alleviate the need for this option. The PDT recommends this option be removed.

Incidental Catch and Small-Scale Fisheries Provisions

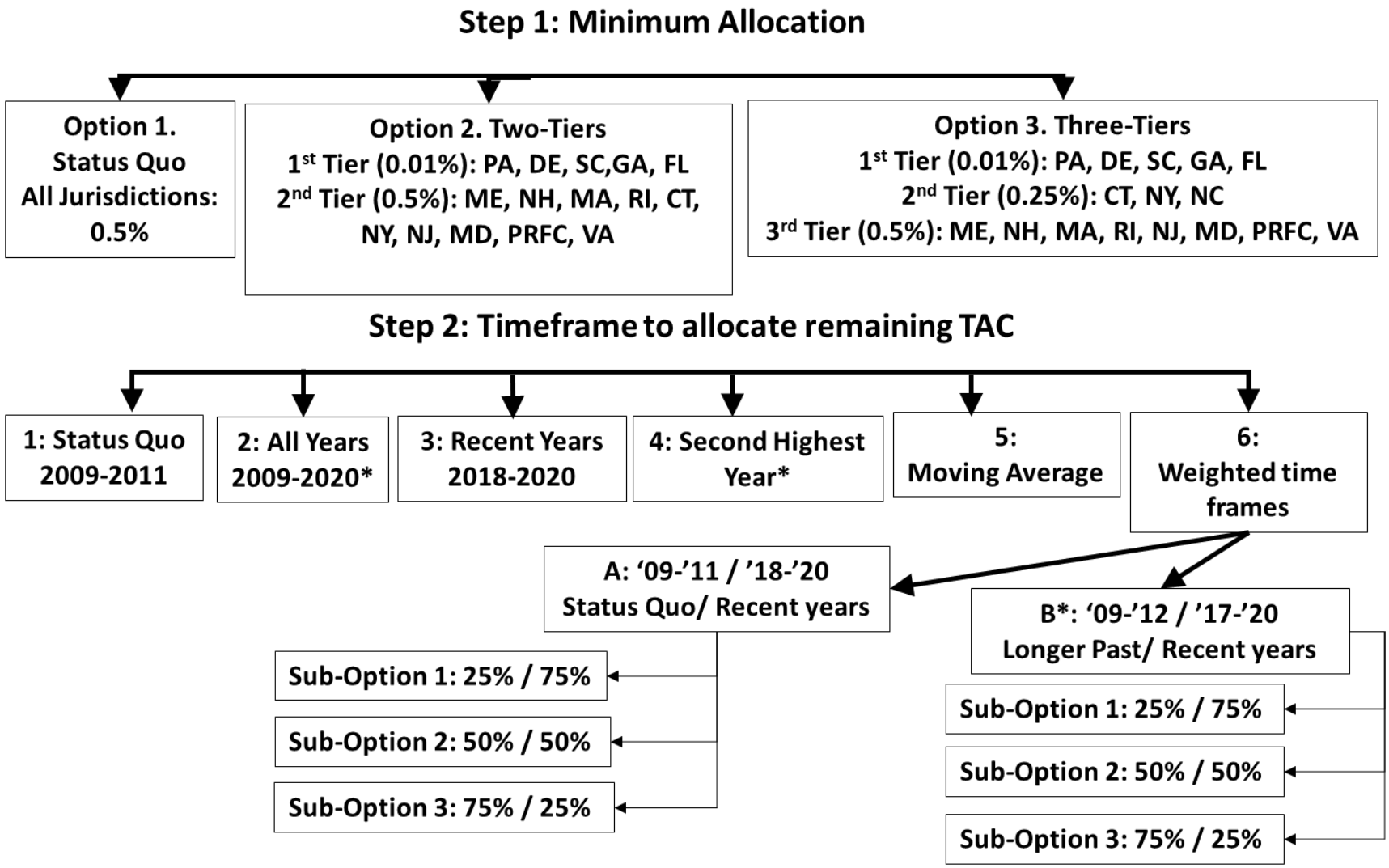
3.3.4 Catch Accounting of the IC/SSF Provision

The PDT recommends this topic and options be removed due to the complexity of catch accounting based on preliminary landings and the timing of when accountability would be implemented. Options 2-4 would need to operate under a considerable time lag as landings are not finalized until the fall of the following year. Under Option 2, the Board will be unable to make timely decisions and take action until two years after the management trigger is tripped (e.g., if landings have exceeded the cap more than 10% in 2022, the Board would take action in 2023, and implementation would occur for the 2024 fishing season). Under Options 3 and 4, the proposed adjustments to the TAC or set-aside would similarly not be addressed until two years after an overage occurred (e.g., an overage in 2022 would be applied in 2024). Additionally,

Option 3 could result in more latent quota if the set-aside is not fully used. The Board has indicated that latent quota is an issue that should be addressed through this addendum and this option may exacerbate that issue. Finally, both Options 3 and 4 could result in overages caused by a minority of states that impact many states. If there is an overage by one or a few states in one year, it would reduce the available set-aside (Option 3) that all states could access, or potentially reduce all states quotas (Option 4). Additional, these options could therefore potentially result in a constant overage/payback cycle, creating a new management problem. As a whole, the PDT believes these options are not effective or efficient, and the goal of the catch accounting approach can be achieved through a combination of the reallocation alternatives and IC/SSF sub-topics (gear restrictions and trip limit) in Addendum I.

Appendix. Decision Tree

The following provides a Decision Tree for selecting state allocations. Please note options the PDT recommends removing are marked with an *



Atlantic States Marine Fisheries Commission

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MEMORANDUM

TO: Atlantic Menhaden Management Board

FROM: Atlantic Menhaden Advisory Panel

DATE: January 14, 2022

SUBJECT: Feedback on Options to include in Draft Addendum I to Amendment 3

The Advisory Panel (AP) met virtually at 5:00 PM on January 12, 2022 to review Draft Addendum I to Amendment 3 and provide feedback on whether any strategies or options should be considered that are not included in the addendum currently. AP members in attendance represented commercial harvesters and processors, recreational anglers, and conservation coalition members.

Participating AP Members:

Vincent Balzano (ME)
Melissa Dearborn (NY)
Jeff Deem (VA)
Bob Hannah (MA)
Peter Himchak (VA)
Jimmy Kellum (VA)
Jeff Kaelin (NJ)
Leonard Voss (DE)
Meghan Lapp (RI, Chair)
Scott Williams (NC)

The following is a summary of the meeting and discussion had by the AP members, organized by management topics in the Draft Addendum.

Commercial Allocation

In considering the first step of setting the minimum commercial allocation (Section 3.1.1) via the tiered approach (either two-tiered or three-tiered) options, one AP member requested that the Board consider an additional sub-option that would apply any available percentages of the Total Allowable Catch not used in the fixed minimum to state allocations, rather than the Episodic Event Set Aside (EESA) program. One AP member noted that the statement of the problem should be adjusted to note that, since 2013 states with directed fisheries have worked within their quota and not used quota transfers or EESA to increase their share of coastwide landings, although fish remained in the area, each year, after their quota was reached. Lastly, this AP member also suggested the Board should consider a research set-aside quota option that would set aside some amount of the coastwide quota annually, similar to the EESA program.

Two AP members noted that in evaluating the timeframe options (Section 3.1.2), they had concern that the second highest year option may still be more of an outlier given it uses total landings that are higher than any year the TAC was specified. One AP member applauded the PDT for thinking "outside the box" when developing the weighted time frames options, using AM 2 allocations and more recent landings in mixed weighted options, sort of the old and new fisheries performances.

Separately, one AP member noted concern about using 2020 landings data to base allocations on, given the COVID-19 pandemic's impact on commercial fishing across the coast. They indicated that landings from many states for 2020 should be considered outliers given the restrictions implemented in the commercial industry to reduce crew and staff's potential exposure to COVID-19.

EESA

Draft Addendum I includes options that could allow the Board to increase the percentage of the EESA of the TAC up to 5% (Section 3.2.1). One AP member suggested that as part of this option, the Board should consider expanding the range of qualified states that can declare into the EESA program south of New York, possibly coastwide, as a sub-option. An additional AP member agreed, noting that if a state experiences an 'episodic' event as outlined in Amendment 3, it does not make sense to limit which states can participate, if an episodic event is possible throughout the species range. Lastly, one AP members asked whether it was essential for the EESA be continued when other sections of the Addendum are designed to allocate more quota to New England areas.

Incidental Catch and Small-Scale Fisheries (IC/SSF) Provision

In discussing permitted gear types in the IC/SSF provision (Section 3.3.2), a number of AP members expressed concern about the current Amendment 3 language that allows some gear types to be considered 'small-scale'. In particular, there was concern that the purse seine gear specifications under this provision allow for gear that can catch well above the 6,000 pound trip limit. An AP member suggested to help further evaluate this issue, include in the Addendum a breakdown of state-by-state information on seine size limits and regulations, and the sizes of seines normally used by states in their directed fisheries.

Other Comments

AP members indicated they wish to meet again once the Draft Addendum has been approved for public comment, and following the public hearings, in order to provide recommendations to the Board on their preferred options.

The AP adjourned at 6:30 PM.

From:	Tom Lilly
To:	Comments; Tina Berger
Subject:	[External] Comment for Winter meeting
Date:	Tuesday, January 18, 2022 12:36:21 PM
Attachments:	Caucus and Bressman .pdf Allocation Law.pdf

Tina Please circulate this to the menhaden board, the plan review team, Kirby Roots Murdy and Director Beal.....

The Maryland Legislative Sportsmen's Caucus has spoken out on the need for action to curb the purse seine menhaden fishing in Virginia and the opinions of Dr.Bressman.. It appears Virginia is not interested in Maryland's concerns. That leaves this board as Maryland's only recourse.(scan Caucus-Bressman)

You have opinions of five respected scientists on the need to reduce the purse seine fishing to aid in restoring our failing rockfish spawning stock. (lowest juvenile production in 50 years.) and reports that ospreys are dying out due to widespread nesting failures due to a lack of menhaden.

We understand your reallocation process being reported on is just based on historic landings and not on what is required by Charter sect 6; which says;

"an effective FMP ...must fully reflect the varying values....important to the various interest groups.....Social and economic impacts and benefits must be taken into account" (scan Allocation)

Historic landing only cover the interests of a foreign fish meal company in Virginia that takes over a hundred million lbs. of menhaden forage from the bay's food chain a year. . NOAA values the Reedville catch at 10 cents a pound or 37 million dollars . How much of the 37 million was fish meal and profit exported to Canada? If that forage was left in the water it would have grown stripers worth 50 times as much a pound for our watermen, wholesalers restaurants and markets' That money would have been spread out among tens of thousands of Maryland and Atlantic coast businesses. The value of better catches for millions of recreational fishermen and their kids ?? ....that is something you have to feel....how do you put a price tag on happiness of a kid and pride of a parent when the kid catches their first striper?

I would request you refer the Charter and Amendment 3 science and socio-economic allocation questions to the appropriate committee...all or almost all of the statistics are readily available. The best available science is well known. You could include in that referral the

scientific, social and economic benefits and impacts on the interested groups in delaying the opening of the season in Virginia waters. The length of time closed would be a holistic socio-economic decision not primarily a scientific one. No lost jobs or quota..they can fish the EEZ. Allowing the forage base to rebuild is vital....the bay cap, unfortunately does nothing to protect the spring-summer menhaden flow. This is basically an allocation decision that is long overdue. Will you consider that Thank you..... Tom Lilly

Senate Chair
JACK BAILEY
Legislative District 29
Calvert & St. Mary's Counties

Maryland Legislative Sportsmen's Caucus
James Senate Office Building, Room 402
410-841-3673 or 301-858-3673
1-800-492-7122 Ext. 3673

Senate Co-Chair
KATIE FRY HESTER
Legislative District 9

House Chair
NED CAREY
Legislative District 31A
Anne Arundel County

Maryland Legislative Sportsmen's Caucus
Lowe House Office Building, Room 161
410-841-3047 or 301-858-3047
1-800-492-7122 Ext. 3047

House Co-Chair
WENDELL BEITZEL
Legislative District 1A

The Maryland Legislative Sportsmen's Caucus

The Sportsmen's Best Friend in Annapolis

October 21, 2021

Steven G. Bowman
VMRC Chairman
Building 96, 380 Fenwick Road
Ft. Monroe, Virginia 23651

RE: "The Most Important Fish in the Sea" – IMMEDIATE ACTION

Mr. Bowman:

Each year the number of menhaden surviving the Virginia netting gauntlet to successfully reach Maryland's portion of the Chesapeake Bay is declining. This scientifically documented fact is detrimental to both avian and marine species dependent upon the "Most Important Fish in the Sea". This must change.

On October 15, 2021, a fishery biology professor from Salisbury University (Dr. Noah Bressman, PhD) formally addressed the dire menhaden issue in a statement to Maryland's DNR Secretary, et al. For the record, the Maryland's Legislative Sportsmen's Caucus within the Maryland General Assembly fully supports the position taken by Dr. Bressman and urges time-sensitive compliance by the Virginia Marine Resources Commission.

Here's what Dr. Bressman stated:

> "Currently, the Virginia-based menhaden fishery is overfishing the stock of Atlantic Menhaden in and around the Chesapeake Bay, which is preventing this important forage fish from making its way into the bay and its tributaries. As an important prey item for many important species in the bay, such as Striped Bass and Osprey, the disappearance of most of the menhaden from the bay is contributing to the disappearance of many species that rely on menhaden.
>
> Virginia has been allotted about 75% of the entire Atlantic Coast's quota, which is a drastically disproportionate amount relative to its coastline. Additionally, much of their harvesting occurs as menhaden migrate into the bay, where they enter Maryland's waters. What this essentially means is 75% of the quota for the entire Atlantic Coast is being taken in the bay or just before they enter the bay. While this may not be causing overfishing for the entire Atlantic Coast based on quotas, because all of these fish are being taken from essentially just the bay, it is having locally drastic effects on the ecosystem.

Therefore, I strongly suggest either delaying the start of the menhaden commercial season until after a significant amount of menhaden have migrated north along the Virginia coast into the Chesapeake bay (which occurs in spring/early summer), by pushing these factory fishing efforts at least 3 miles offshore into federal waters instead of along the coastline in state waters (as the fish in the state waters are most likely to migrate along the coast into the bay), pushing the commercial menhaden fishery north of the entrance to the Chesapeake bay during their migration, and/or significantly reducing the quotas of menhaden in and around the mouth of the Chesapeake bay.

These actions are necessary to ensure the long-term health of the Chesapeake Bay ecosystem and the associated fisheries and ecotourism."

What is happening to the "Most Important Fish in the Sea" is intolerable. VMRC must stand up and do what's right.

Senator Jack Bailey, Senate Co-Chair

Delegate Ned Carey, House Co-Chair

Cc:

Members, Virginia Marine Resources Commission
Dr. Noah Bressman, Salisbury University
Senator Emmett Hanger, Senate Co-Chair, Virginia Legislative Sportsmen's Caucus
Delegate James Easily Edmunds II, House Co-Chair, Virginia Legislative Sportsmen's Caucus
Jeff Crane, President, Congressional Sportsmen's Foundation
The Honorable Ann Jennings, Virginia Secretary of Natural Resources
The Honorable Jeannie H. Riccio, Maryland Secretary of Natural Resources

From: Noah Bressman noahbressman@gmail.com
Subject: Support for Action on Menhaden
Date: Oct 15, 2021 at 10:36:49 AM
To: jeannie.riccio@maryland.gov, bill.anderson@maryland.gov, lynn.fegley@maryland.gov
Bcc: foragematters@aol.com

Dear Secretary Riccio and DNR Menhaden Delegates,

As a Fish Biology Professor at Salisbury University with multiple collaborations with the MD DNR, former nominee to the Mid-Atlantic Fisheries Management Council, an avid angler, science communicator, and concerned citizen of Maryland, I write to offer my support for action on menhaden in and around the Chesapeake Bay. Currently, the VIrginia-based menhaden fishery is overfishing the stock of Atlantic Menhaden in and around the Chesapeake Bay, which is preventing this important forage fish from making its way into the bay and its tributaries. As an important prey item for many important species in the bay, such as Striped Bass and Osprey, the disappearance of most of the menhaden from the bay is contributing to the disappearance of the many species that rely on menhaden.

Currently, Virginia has been allotted about 75% of the entire Atlantic Coast's quota, which is a drastically disproportionate amount relative to its coastline. Additionally, much of their harvesting occurs as menhaden migrate into the bay, where they enter Maryland's waters. What this essentially means is 75% of the quota for the entire Atlantic coast is being taken in the bay or just before they entire the bay. While this may not be causing overfishing for the entire Atlantic coast based on quotas, because all of these fish are being taken from essentially just teh bay, it is having locally drastic effects on the ecosystem.

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Sincerely,
Dr. Noah Bressman, PhD
Assistant Professor of Physiology
Salisbury University

Dr. Noah Bressman, PhD
Assistant Professor of Physiology
Salisbury University
Fish Biology, Biomechanics, Functional Morphology, and Behavior
Noahbressman.wixsite.com/noah
He/him/his

Begin forwarded message:

From: Noah Bressman <noahbressman@gmail.com>
Date: October 18, 2021 at 9:54:57 AM EDT
To: Tina Berger <tberger@asmfc.org>
Subject: Re: FW: Final Supplemental Materials for ASMFC 2021 Fall Meeting

Thanks, Tina! I want to clarify that the most important thing I recommend is that the board take action now to evaluate the options to increase menhaden in Chesapeake Bay. If action was started at Tuesday's board meeting, some or all of the measures could be in effect for the 2022 season. This can be accomplished using qualitative management methods, such as seasonal and area closures without additional research. It can also be accomplished by moving the fishing into the US federal zone as every state except Virginia has seen the necessity for doing. While I am always in support of more research for any topic (because I am a scientist), waiting for additional research on this issue that is already clear will likely lead to menhaden continuing to plummet in the bay, which will further reduce the capacity for striped bass to recover in the bay, especially after the recent report showing their abysmal recruitment over the last 3 years. A delay in action, such as a several years-long stock and recruitment reassessment of the bay before action, will lead to the problem getting worse before it gets better.

Sincerely,
Dr. Noah Bressman, PhD
Assistant Professor of Physiology
Department of Biology
Salisbury University

On Fri, Oct 15, 2021 at 2:47 PM Tina Berger <tberger@asmfc.org> wrote:

> Dr. Bressman – Thank you for your public comment on Atlantic menhaden management. It was sent to the Atlantic Menhaden Board today for its consideration. – Tina

Tina Berger

Statement of Charter and Amendment 3 provisions on the allocation process:

Under the ASMFC Charter and Amendment 3 Fish Management Plan state allocations are to be based on determining the comparative benefits, ecologically, socially and economic, between removing the menhaden from the water for the benefit of the purse seiners or leaving the menhaden in the water to benefit the Atlantic ecosystem and its people, it's fishermen and businesses. There is no mention of basing these allocations on historic landings. Doing so just ignores the Charter and Amendment 3.

Charter Section Five (c) (3) states:

In carrying out its activities, the PDT shall seek advisement from the Committee on Economics and Social Sciences. Charter Section 5 (n) (1) Provides.... Among its duties for the Commission, CESS shall;

1) Develop and implement mechanisms to make economics and social science analysis a functioning part of the Commission's decision making process.

Charter Section Six provides standards and section (a) is relevant here, if provides:

The Commission recognizes that an effective fish management program must be carefully designed in order to fully reflect the varying values ,,,,that are important to the various interest groups involved in coastal fisheries. Social and economic benefits and impacts must be taken into account.

The required calculations are not only of the benefits to Maryland of decreasing menhaden fishing in Virginia (including eliminating allowing Omega to catch part of its quota from schools of menhaden migrating to Maryland) but to consider the impacts or detriments to the people of Maryland, their wildlife and businesses of Omega removing 5,000 ten ton schools of menhaden from the bay food chain each year over the last decade.

Atlantic States Marine Fisheries Commission

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

MEMORANDUM

January 18, 2022

To: **Atlantic Menhaden Management Board**

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

RE: **Advisory Panel Nominations**

Please find two new nominations to the Atlantic Menhaden Advisory Panel – Michael Dawson, a commercial purse seiner from Maine, and William Caldwell, a commercial purse seiner from New York. Please note that New York's nominee, if approved, would add an additional seat for New York. Please review these nominations 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: Emilie Franke

Atlantic Menhaden Advisory Panel

Bolded names await Board approval

Maine

Michael Dawson (comm. inshore purse seine)
39 Lakeview Drive
Bristol, ME 04539
Phone: 207.380.4036
kamano@tidewater.net

Vincent Balzano (comm. trawl & purse seine)
31 Vines Road
Saco, ME 04072
Phone (day): 207.282.3627
Phone (eve): 207.332.6492
vbalzano@mainerr.com
Appt Confirmed 2/1/17

New Hampshire

1 Vacancy – recreational

Massachusetts

Patrick Paquette (rec/for-hire/comm)
61 Maple Street
Hyannis, MA 02601
Phone: 781.771.8374
basicpatrick@aol.com
Appt Confirmed 10/26/16

Bob Hannah (comm. seine/traps)
335 Concord Street
Gloucester, MA 01930
Phone: 978.879.6727
Zoey01930@yahoo.com
Appt Confirmed 10/26/16

Rhode Island

Meghan Lapp (comm.)
100 Davisville Pier
North Kingstown, RI 02852
Phone: 401.218.8658
FAX: 401.295.5825
Meghan@seafreezeltd.com
Appt Confirmed 10/26/16

David P. Monti (rec/for-hire)
399 Greenwood Avenue
Warwick, RI 02886
Phone (day): 401.480.3444
Phone (eve): 401.737.4515
dmontifish@verizon.net
Appt Confirmed 10/26/16

Connecticut

Vacancy (rec)

New York

William Caldwell (comm. seine)
75 East Tiana Road
Hampton Bays, NY 11946
Phone: 631.767.8257
Caldwell691@gmail.com

Melissa Dearborn (processor)
Regal Marine Products, Inc.
198 West 9th Street
Huntington Station, NY 11746
Phone (day): 631.385.8284
Phone (eve): 631.385.7753
FAX: 631.271.5294
regalmar@optonline.net
Appt. Confirmed 7/17/01
Appt. Reconfirmed 1/23/06
Appt Reconfirmed 5/10

New Jersey

Jeff Kaelin (comm. trawl and purse seine)
Lund's Fisheries, Inc.
PO Box 830
997 Ocean Drive
Cape May, NJ 08204-0830
Phone: 207.266.0440
jkaelin@lundsfish.com
Appt. Confirmed 9/19/09

Paul Eidman (rec)
9 Williamsburg Drive
Tinton Falls, NJ 07753
Phone: 732.614.3373
paulyfish@reeltherapy.com
Appt Confirmed 10/26/16

Delaware

William R. Wilson (rec)
18483 Cedar Drive
Lewes, DE 19958
Phone (day): 302.644.3454
Phone (eve): 302.344.5853
FAX:(302.644.3454

Atlantic Menhaden Advisory Panel

Bolded names await Board approval

birdcarver@aol.com
Appt Confirmed 12/17/03
Appt. Confirmed 12/07

Leonard Voss Jr. (comm. gillnet/pot/dredge)
2854 Big Oak Road
Smyra, DE 19477
Phone: 302.423.6564
shrlvss@aol.com
Appt Confirmed 10/26/16

Maryland
David Sikorski (rec)
4637 Willowgrove Drive
Ellicot City, MD 21042
Phone: 443.621.9186
davidsikorski@mac.com
Appt Confirmed 2/3/15

John W. Dean (comm/pound net)
49925 Hays Beach Road
Scotland, MD 20687
Phone: 301.904.8078
Selbysuzi1121@aol.com
Appt Confirmed 2/3/15

Virginia
Jimmy Kellum (commercial purse seine)
144 Kellum Drive
Weems, VA 22576
Phone (day): 804.761.0673
Phone (eve): 804.438.5618
FAX: 804.438.5306
Kellum.maritime@gmail.com
Appt Confirmed 11/3/09

Peter Himchak (commercial purse seine)
Omega Protein
PO BOX 85
Tuckerton, NJ 08087
peter.himchak@omegaprotein.com
Appt Confirmed 10/26/16

Jeff Deem (rec)
6701 Newington Road
Lorton, VA 22079
Phone: 703.550.9245
deemjeff@erols.com
Appt Confirmed 10/26/16

North Carolina
Scott Williams (rec)
7104 Stonehaven Drive
Waxhaw, NC 28173
Phone: 704.989.7211
Scott.williams.charlotte@gmail.com
Appt Confirmed 10/26/16

Vacancy – commercial

South Carolina
Vacancy (rec)

Georgia
Ken Hinman (conservation)
Wild Oceans
PO Box 258
Waterford, VA 20197
Phone: 703.777.0037
Fax: 703.777.1107
khinman@wildoceans.org
Appt. Confirmed 2/19/02
Appt. Confirmed 2/06
Appt Reconfirmed 5/10

Florida
Charles W. Hamaker (rec)
5648 Floral Avenue
Jacksonville, FL 32211
Phone (day): 904.630.3025
Phone (eve): 904.725.3775
FAX: 904.630.3007
charlesh@cou.net
Appt. Confirmed 7/17/01
Appt. Reconfirmed 1/2/06
Appt Reconfirmed 4/22/10

PRFC
Richard H. Daiger (comm/rec gillnet)
173 Oyster House Road
Montross, VA 22520
Phone: 804.472.2184
Appt. Confirmed 7/17/01
Appt. Reconfirmed 1/2/06
Appt Reconfirmed 5/10

ATLANTIC STATES MARINE FISHERIES COMMISSION

Advisory Panel Nomination Form

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

Form submitted by: Pat Keliher State: MAINE
(your name)

Name of Nominee: MICHAEL DAWSON

Address: 39 LAKE VIEW DR

City, State, Zip: BRISTOL ME 04539

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

Phone (day): 207 380 4036 Phone (evening): _____

FAX: _____ Email: KAMANO@TIDEWATER.NET

FOR ALL NOMINEES:

1. Please list, in order of preference, the Advisory Panel for which you are nominating the above person.
   1. MENHADEN
   2. _____
   3. _____
   4. _____
2. Has the nominee been found in violation of criminal or civil federal fishery law or regulation or convicted of any felony or crime over the last three years?
   yes _____ no X
3. Is the nominee a member of any fishermen's organizations or clubs?
   yes X no _____
   If "yes," please list them below by name. MLA.

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

LOBSTER / CRAB

MENHADEN

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

LOBSTER / CRAB

MENHADEN

SHRIMP

GROUNDFISH

HERRING

HALIBUT

FOR COMMERCIAL FISHERMEN:

1. How many years has the nominee been the commercial fishing business? 45 years
2. Is the nominee employed only in commercial fishing? yes X no _____
3. What is the predominant gear type used by the nominee? Seine
4. What is the predominant geographic area fished by the nominee (i.e., inshore, offshore)? INSHORE MIDCOAST MAINE

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.

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

Nominee Signature: [signature] Date: 1-3-22

Name: MICHAEl DAWSON
(please print)

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

[signature] on behalf of the MC Delegation

State Director

State Legislator

Governor's Appointee

ATLANTIC STATES MARINE FISHERIES COMMISSION

Advisory Panel Nomination Form

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

Form submitted by: Emerson Hasbrouck (your name) State: NY

Name of Nominee: William Caldwell

Address: 75 East Tiana Rd.

City, State, Zip: Hampton Bays, NY 11946

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

Phone (day): 631-767-8257 Phone (evening): _____

FAX: _____ Email: caldwell691@gmail.com

FOR ALL NOMINEES:

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

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

   yes _____ no X

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

   yes X no _____

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

President of Southampton Baymen's Assoc.

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

Menhaden
Silversides
Oysters
Clams
Razor clams

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

Menhaden
Silversides
Oysters, clams, razor clams, steamers
Bluefish
Weakfish

FOR COMMERCIAL FISHERMEN:

1. How many years has the nominee been the commercial fishing business? 30 years
2. Is the nominee employed only in commercial fishing? yes ____ no X
3. What is the predominant gear type used by the nominee? common seine
4. What is the predominant geographic area fished by the nominee (i.e., inshore, offshore)? inshore

FOR CHARTER/HEADBOAT CAPTAINS:

1. How long has the nominee been employed in the charter/headboat business? 30 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?
   30 years

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

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

   Commercial fisherman

   Commercial fisherman

   Commercial fisherman

3. How many years has the nominee lived in the home port community? 22 years

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

FOR OTHER INTERESTED PARTIES:

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

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

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

   Commercial fisherman

   Commercial fisherman

   Commercial fisherman

FOR ALL NOMINEES:

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

SEE ATTCHED

Nominee Signature: _____ Date:

Name: William Caldwell 1/11/2022
(please print)

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

_____ State Director

_____ State Legislator

Emerson Hasbrouck
_____ Governor's Appointee

I have been a successful commercial fisherman in New York for 30 years, harvesting menhaden during my entire career. I am currently the highest volume menhaden harvester in New York. I also own and operate a wholesale menhaden bait business where I sell menhaden for lobster bait in Mid-Atlantic in New England states. I have always been dedicated to sustainably managing our marine resources. My efforts in local fisheries have resulted in my position as President of the Southampton Baymen's Association. In order to help manage the menhaden resource, it is my desire to participate in this process as a member of the Menhaden Advisory Panel.