



MAINE

Lobstermen's Association, Inc.

2 Storer St, Ste 203 * Kennebunk, ME 04043
207-967-4555 * 866-407-3770 * www.maine lobstermen.org

To: American Lobster Management Board
Fr: Patrice McCarron, Policy Director, MLA
Re: Delay Implementation of Addendum 27 Gauge Increase for LMA 1

October 10, 2023

The Maine Lobstermen's Association (MLA) has learned that the 2022 lobster monitoring data indicates a 39% decline in the lobster resource which would trigger the scheduled gauge increases required under Addendum 27, beginning in June 2024. The MLA urges the Lobster Board to delay the gauge increase schedule for one year to address unresolved issues with Canada and to allow the industry adequate time to prepare for this change.

Addendum 27 was adopted less than 6 months ago which has not been enough time to address issues that will arise if Canada has a smaller minimum size than the Northeast U.S. lobster fishery. As detailed in MLA's comments on Draft Addendum 27, the primary concern raised by MLA members is that changes to the LMA 1 minimum gauge could negatively impact the boat price for U.S. caught lobster.

Downeast Maine lobstermen will have the additional problem of throwing back short lobsters that likely would be legally harvested by Canadian lobstermen. This will undermine both the conservation impact of the measure increase and the boat price, as the lobsters thrown back and caught by Canadian lobstermen could be sold to U.S. dealers and drive down boat price.

Although ASMFC did not adopt MLA's recommendation to conduct a market impact study of a U.S.-only gauge increase, MLA strongly supports the efforts of ASMFC's subcommittee to engage with Canada on this issue. While MLA is pleased that discussions between the U.S. and Canada are underway, substantive issues presented by the gauge increase have not yet been addressed.

Implementing a gauge increase in June 2024 is also impractical because gauge manufacturers will not be able to produce and distribute updated lobster gauges in such a short period of time. For the gauge increase to have its intended benefit, lobster gauges must be available for all lobstermen at the time of implementation.

The MLA urges you to delay the implementation of the gauge increase timetable for one year to allow ASMFC to ramp up negotiations with Canada to address market and resource conservation concerns and to provide gauge manufacturers the time they need to produce and distribute new lobster gauges.

Thank you for your consideration.



New England Fishermen's Stewardship Association

PO Box 655

Brunswick, ME 04011

October 9, 2023

Dear Commissioner,

It has come to our attention that the trigger has been met for a gauge increase as a result of Addendum XXVII to Amendment Three to the Interstate Management Plan for American Lobster. While the New England Fishermen's Stewardship Association understands the importance of increasing protection of the Gulf of Maine/Georges Bank Spawning Stock, we request that you consider a one year postponement to implementation of the first gauge increase.

The New England Fishermen's Stewardship Association (NEFSA) is a newly founded fishing advocacy group which was formed to represent all wild harvesters in all fisheries within our New England Communities. NEFSA was founded in the spring of 2023 and has already reached nearly 600 members across New England. NEFSA is an alliance of the wild harvesters of the waters off of New England, dedicated to educating the public about how best to manage our seafood resources through sound science and best practices at conservation used by fishermen, with a view toward economic well-being, ecosystem sustainability and US food security.

NEFSA asks that you consider a one year postponement of implementation for a number of reasons. First off, in May of 2023, no one expected the trigger would be met in just five short months. Due to the previous rate of decline, it was anticipated that it would take at least two years to exceed a reduction of 35%. Secondly, due to supply chain issues, we have been made aware that it will be nearly impossible for an adequate number of new gauges at 3 5/16" to be available before June 1, 2024. Thirdly, the recent three year average of data used to reach the trigger includes survey information from the year 2020 in which many surveys were not completed, leading to an incomplete data set. Lastly, even though 2022 landings were still phenomenal, New England lobstermen just came off one of the worst financial years they've seen in quite some time due to an extremely low price and very high expense level.

Harvesters desperately need a one year postponement until implementation of the gauge increase and NEFSA strongly urges the commissioners to consider such action.

Thank you,

Dustin W. Delano

Chief Operating Officer

New England Fishermen's Stewardship Association

coo@fishermenstewardship.org

(207)-615-6352

C. H. Sawyer & Son, LLC
657 Eastern Road
Warren, ME 04864

Phone: (207) 542-7657
Email: dan@chsawyer.com

10/9/23

Atlantic States Marine Fisheries Commission

Jason McNanamee

Chair, American Lobster Board

1050 N. Highland Street

Suite 200 A-N

Arlington, VA 22201

Good Morning Jason,

I'm writing this morning regarding the proposed changes in lobster sizes for the coming season.

My company has been manufacturing and supplying quality tools to the lobster fishing industry for more than 30 years. Our line of stainless-steel lobster and shellfish gauges, originally designed and produced by Donald Erlandson of TOP-ME Products in Topsham, have been established as a standard in the industry since 1995. Production, stock, and supply of these gauges for sale to the Department and others in the industry typically requires months of planning and work.

With the proposed changes and the implementation of the new regulations set for June 1, our company would be hard pressed to manufacture a sufficient quantity of new gauges in time to supply them to the industry. As I recommended in my comment to the ASMFC dated 3/13/23 (see attached document), a more reasonable time frame for implementation of the new regulations would be at least 12 months from the ASMFC survey trigger, in order for all involved in the industry, manufacturers, wholesalers, retailers, and fishermen, the necessary time to adjust to the new gear required for compliance.

Again, I am concerned that we may not be able to supply the new gauges needed in sufficient quantity for compliance with the proposed new lobster size regulations. I would appreciate any changes in the implementation schedule which would allow us more time to provide the gauges needed.

Thank you.

Sincerely,

Daniel Sawyer
C H Sawyer & Son LLC
657 Eastern Road
Warren, ME 04864

Phone: (207) 542-7657

Email: dan@chsawyer.com

C. H. Sawyer & Son, LLC
657 Eastern Road
Warren, ME 04864

Phone: (207) 542-7657
Fax: (314) 237-2590
Email: dan@chsawyer.com

3/13/23

Caitlin Starks
Senior FMP Coordinator
1050 N. Highland Street
Suite 200 A-N
Arlington, Virginia 22201

Good Morning,

I would like to submit a public comment to the commission concerning the Lobster Draft Addendum XXVII.

Our company has been a manufacturer of hand tools for the commercial fishing industry since its founding in 1992. We are currently a major supplier of lobster measuring gauges for all of the LCMA's which would be affected by the changes in minimum/maximum size regulations proposed within the Draft Addendum. Our primary concern is with the implementation schedule for any changes in these regulations which could have an undesired negative economic impact on the manufacturers, suppliers and end – users (lobster fishermen, cooperatives and law enforcement agencies).

Consideration should be given as to the time between the date of notice of the change in regulation to the date the new regulation would take effect to allow an adequate time frame within the industry for the manufacture and distribution of necessary equipment and hardware in the supply chain. All members of the supply chain have an interest in avoiding the waste of resources when parts and equipment must be discarded due to obsolescence rather than replacement due to typical wear, etc.

From my understanding, under the current plan of action for implementation of most of the options available on the draft addendum, the new regulations would automatically take effect as the result of review by the ASMFC of lobster survey data in November each year if the appropriate trigger level indicated by the survey data was reached. The Commission would then notify the public and state agencies and the new regulations would take effect on the opening day of the following lobster season, May 1 of the following year. This would allow only 5 months for the industry to adjust for compliance with the new regulations. Also, as was mentioned at the hearing in Freeport, Maine, March 7 2023, states would be allowed to decide on their own regulations, provided that it would be the same standard or a more conservative standard of measures. Each state's process of passage and implementation of new regulations could shorten the time the industry would have to adjust even further, increasing the chance of a negative impact.

I propose that, **for any of the proposed lobster size regulation changes, the date of implementation and compliance to the new regulations be not less than 12 months from the date the new regulations have been published by each state** in order to avoid waste and to allow for the additional time needed for the states to pass and implement new laws and also permit a feasible time frame for industry supply chain and fishermen the time needed to change their gear for compliance.

Respectfully,
Daniel Sawyer, Owner
C. H. Sawyer & Son LLC



Atlantic States Marine Fisheries Commission

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

MEMORANDUM

September 28, 2023

To: Horseshoe Crab Management Board
From: Tina Berger, Director of Communications
RE: Advisory Panel Nomination

Please find attached a nomination to the Horseshoe Crab Advisory Panel – Sam Martin, a commercial mobile tending gear fisherman for Maryland. While Sam’s nomination says that he has been found in violation of a criminal or civil federal fishery law or regulation. He incorrectly said yes to the answer and this has also been confirmed by the appointing state. Please review this nomination for action at the next Board meeting.

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

Enc.

cc: Caitlin Starks

M23-79

HORSESHOE CRAB ADVISORY PANEL

Bolded names await approval by the Horseshoe Crab Management Board

October 10, 2023

Massachusetts

David Meservey (comm/inshore otter trawl)
P.O. Box 128
South Chatham, MA 02659
Phone: 508.237.4366
dmese@yahoo.com
Appt Confirmed 8/2/22

Chair, Brett Hoffmeister (biomedical)
Associates of Cape Cod
124 Bernard East St Jean Drive
Falmouth MA 02536
Phone (day): 508.444.1426
BHoffmeister@acciusa.com
Appt Confirmed 2/3/16
Appt. Reconfirmed 8/18

Rhode Island

Vacancy (comm/otter trawl)

New York

John L. Turner (conservation)
10 Clark Boulevard
Massapequa, NY 11762
Phone (day): 631.451.6455
Phone (eve): 516.797.9786
jturner@seatuck.org
Appt. Confirmed 2/10/05
Appt Reconfirmed 5/10

Vacancy – commercial pot

New Jersey

Benjie Swan (biomedical)
Limuli Laboratories
Dias Creek, 5 Bay Avenue
Cape May Courthouse, NJ 08210-2556
Phone: 609.465.6552
Swan24@verizon.net
Appt. Confirmed 8/5/10

Delaware

Lawrence Voss (comm./pot)
3215 Big Oak Road
Smyrna, DE 19977
Phone: (302)359-0951

shrlyvss@aol.com

Appt. Confirmed 10/24/18

2 vacancies - dealer/processor & conservation/environmental

Maryland

George Topping (comm/rawl)
32182 Bowhill Road
Salisbury, MD 21804
Phone: 443.497.2141
george@zztopping.com
Appt. Confirmed 5/16

Jeffrey Eutsler (comm/rawl)
11933 Gray's Corner Road
Berlin, MD 21811
Phone: 443.497.3078
jeffeutsler@me.com
Appt. Confirmed 2/4/98
Appt. Reconfirmed 10/02; 10/06; 5/10

Allen L. Burgenson (biomedical)
8875 Hawbottom Road
Middletown, MD 21769
Phone: 301.378.1263
allen.burgenson@lonza.com
Appt. Confirmed 8/21/08
past chair

Sam Martin (comm mobile tending/biomedical harvest)

**985 Ocean Drive
Cape May, NJ 08204
Phone: 609.381.8892
smartin@atlanticcapes.com**

Virginia

Richard B. Robins, Jr. (processor/dealer)
3969 Shady Oaks Drive
Virginia Beach, VA 23455
Phone (day): 757.244.8400
Phone (eve): 757.363.9506
richardbrobins@gmail.com
Appt. Confirmed: 2/9/00
Appt. Reconfirmed 1/2/06; 5/10

HORSESHOE CRAB ADVISORY PANEL

Bolded names await approval by the Horseshoe Crab Management Board

October 10, 2023

Christina M. Lecker
FUJIFILM Wako Chemicals U.S.A. Corporation,
LAL Division
Plant Manager - Cape Charles Facility
301 Patrick Henry Avenue
Cape Charles, VA 23310
Phone: 757-331-4240, 757-331-2026
FAX: 757-331-2046
christina.lecker@fujifilm.com
Appt. Confirmed 10/21/2020

1 vacancy - comm/pot/conch

South Carolina

Nora Blair (biomedical)
Charles River Laboratories Microbial Solutions
1852 Cheshire Drive
Charleston, SC 29412
843.276.7819
Nora.Blair@crl.com
Appt. Confirmed 5/1/19

Vacancy - comm/pot/trawl

Nontraditional Stakeholders

Jeff Shenot
7900 McClure Road
Upper Marlboro, MD 20772
Phone: 301.580.4524
JUGBAY@msn.com
Appt. Confirmed 8/2018

Walker Golder
Executive Director, Coastal Land Trust
3 Pine Valley Dr.
Wilmington, NC 28412
Office: 910.790.4524 x2060
Cell: 910.619.6244
walker@coastallandtrust.org
Appt. Confirmed 8/2018



ATLANTIC STATES MARINE FISHERIES COMMISSION

Advisory Panel Nomination Form

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

Form submitted by: Michael Luisi State: MI
(your name)

Name of Nominee: Sam Martin
 Address: 985 Ocean Drive
 City, State, Zip: Cape May, NJ 08204

Please provide the appropriate numbers where the nominee can be reached:
 Phone (day): 609-381-8892 Phone (evening): same
 FAX: 609-884-3261 Email: smartin@atlanticcapes.com

FOR ALL NOMINEES:

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

2. Has the nominee been found in violation of criminal or civil federal fishery law or regulation or convicted of any felony or crime over the last three years?
 yes YES no _____

3. Is the nominee a member of any fishermen's organizations or clubs?
 yes YES no _____
 If "yes," please list them below by name.

Garden State Seafood Association

Science Center for Marine Fisheries

Fishery Survival Fund

Responsible Offshore Development Association

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

Horseshoe Crab

Squid

Black Sea Bass

Summer Flounder

Scallops

Surf Clams

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

same

FOR COMMERCIAL FISHERMEN:

1. How many years has the nominee been the commercial fishing business? 25 years

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

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

4. What is the predominant geographic area fished by the nominee (i.e., inshore, offshore)? Inshore and Offshore - Mid-Atlantic and New England

FOR CHARTER/HEADBOAT CAPTAINS:

1. How long has the nominee been employed in the charter/headboat business? 25 years

2. Is the nominee employed only in the charter/headboat industry? yes 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? 25 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? 25 years
2. Is the nominee working, or has the nominee ever worked in any area related to the fishing industry? yes YES no _____

If "yes," please explain.

FOR SEAFOOD PROCESSORS & DEALERS:

1. How long has the nominee been employed in the business of seafood processing/dealing? 25 years

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

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

3. How many years has the nominee lived in the home port community? 25 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? 25 years

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

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

FOR ALL NOMINEES:

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

I ALSO AM ON THE ADVISORY PANELS OF THE MANTFC FOR SURFLINE/OCEAN QUAHOG, SPINY DOGFISH AND SAUID, MAC, BUTTERFISH
I SIT ON THE MONKFISH AP FOR NEFMIC.

I THINK IT IS IMPORTANT TO HAVE ADVISORS THAT ARE FULLY ENGAGED IN A BROAD RANGE OF REGULATORY BODIES, WITH A FOCUS ON ECD SYSTEM MANAGEMENT THE GIVES ENHANCED PERSPECTIVE IN SUSTAINING FISHERIES AND FISHING COMMUNITIES.

I WOULD LIKE TO SIT ON THE AP FOR HORSESHOE CRAB AS WE ARE FULLY ENGAGED IN THE FISHERY COMMERCIALY AS WELL AS IN BIO-MEDICAL.

Nominee Signature: Sam

Date: 5/4/2023

Name: Sam Martin
(please print)

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

Michael J. ...
State Director

State Legislator

Governor's Appointee

* Confirmed support from
Dave and Russell via email/
txt.

To: Atlantic States Marine Fisheries Commission (ASMFC)
Horseshoe Crab Management Board

Date: October 09, 2023

Dear Board Members,

I speak for the billions of people in the world that unknowingly rely on the Limulus Amebocyte Lysate (LAL) test to ensure the safety of their health. The worldwide population is the largest stakeholder in the management of horseshoe crabs because of the unique connection between the horseshoe crabs and public health. The LAL product, derived from the white blood cells of the horseshoe crab, tests pharmaceutical drugs and medical devices for deadly bacterial endotoxins. For the past 45 years, the LAL test has proven to be the most accurate and reliable test, and continues to provide the public with the utmost confidence in the safety of medical substances. In addition, LAL use has no effect on the horseshoe crab population due in part to the industry's "Return to Sea" policy and their Best Management Practices (BMPs) for handling the horseshoe crabs. A marine resource being used in the most profound and sustainable way!

In 1978, following FDA guidelines, the LAL test replaced the Rabbit Pyrogen Test because it was more accurate, more sensitive, more reliable and easier to use. LAL is considered the "gold standard" in endotoxin testing, however recently, recombinant products entered the marketplace. The recombinant products do not have the proven track record of LAL, and have not been shown to be an improvement over the LAL test. One issue with using the recombinant products lies in their ability to detect natural endotoxins, and without accurate detection this could cause the death of millions. Another is that the recombinant products are unregulated, meaning their manufacturing and performance measures are variable. One thing is certain, the use of the recombinant products should not be forced by limiting biomedical companies' accessibility to horseshoe crabs.

The availability of horseshoe crabs for the manufacture of LAL is essential and dependent on a healthy horseshoe crab population. From the inception of the ASMFC Interstate Fisheries Management Plan (FMP) for the Horseshoe Crab in 1998, 25 years of data has accumulated from the coastal States, and from the biomedical companies. By all accounts, the American horseshoe crab is thriving. For the year 2022, the Delaware Bay horseshoe crab population was estimated to be 40 million mature males and 16 million mature females, a population of 56 million.

In addition to the FMP, concern for the Red Knot, a long distance migrant bird that feeds on the horseshoe crab eggs, prompted the development of the ARM Model. The objective was to ensure that the horseshoe crab population was not a limiting factor in the survival of the Red Knot. Federal and State fishery biologists, statisticians, and stakeholders including biomedical companies have managed the horseshoe crabs with extreme caution. The management efforts resulted in the drastic reduction in bait harvest

from 2.6 million in 1999 to 570,988 in 2022, closures and restrictions to protect the spawning horseshoe crabs, a large sanctuary, the Carl N. Shuster Jr. Horseshoe Crab Reserve, established in 2001 to protect the young horseshoe crabs, and the accumulation of years of data.

Despite the comprehensive data evidencing a robust horseshoe crab population and the safeguards in place, further limitations for the sake of the Red Knot are demanded. However, there are many pressures that affect the Red Knots during their epic journey. Threats that include but are not limited to habitat loss or degradation, increased frequency and severity of mismatches, Arctic ecosystem change, predation in breeding area, disturbance by humans, pets and domestic animals, predation especially by peregrine falcons, competition with gulls, insufficient water quality, pollution, algal blooms, oil spills, hunting, wind energy and sea level rise.

We need to continue to manage the horseshoe crab population based on the historical landing data and the 25 years of data the FMP accumulated.

We need to continue to ensure that biomedical companies have ample access to horseshoe crabs while continuing to be responsible stewards of the resource.

We cannot ignore the facts and the best available science. In doing so, we do a disservice to the natural resource, we put human life in jeopardy, delay the release of life saving drugs and medical devices, and greatly impede the development of new cures, medicines and treatments.

Sincerely,
Benjie Swan
Limuli Laboratories

From: [Meghan Noe Fellows](#)
To: [Comments](#)
Subject: [External] Use of the Adaptive Resource Management Model to Recommend Horseshoe Crab Bait Harvest Quotas
Date: Tuesday, October 10, 2023 3:06:08 PM



Testimony to the Atlantic States Marine Fisheries Commission Public Hearing on the Draft Addendum to the Horseshoe Crab Fishery Management Plan

September 19, 2022, revised October 10, 2023

Part of this testimony was provided verbally at the DNREC hosted public hearing on the addendum held on SEP 8th, 2022. The testimony provided here was expanded after the hearing.

Introduction and Background

The Center for the Inland Bays is a National Estuary Program responsible for developing and facilitating the implementation of the stakeholder-based Inland Bays Comprehensive Conservation and Management Plan (CCMP). Delaware's Inland Bays are three interconnected Atlantic Coastal lagoons that support a significant population of horseshoe crabs.

The Inland Bays CCMP focuses on reversing eutrophication and restoring key habitats and populations of keystone species such as the horseshoe crab. Water quality of the Bays is highly impaired due to nutrient pollution with some areas experiencing severely degraded aquatic habitat. Baygrass meadows and natural oyster reefs have been nearly eliminated due to disease and pollution. Over a quarter of the estuaries' saltmarshes have been eliminated and marshes continue to degrade due to sea level rise. An important objective of the CCMP is to “to enhance and restore fish populations and their habitats” in part through the advocacy for ecosystem based fisheries management.

The Center also develops and oversees the implementation of the Inland Bays

Environmental Monitoring Plan which includes actions related to horseshoe crabs. Since 2008, the Center has conducted the Inland Bays horseshoe crab spawning survey. The survey of five sandy beaches has found the population to be stable and slightly lower than those of the Delaware Bays survey (on the Delaware side). The survey confirms the importance of the Inland Bays as an important spawning area for the crabs. The Center also participates in the USFWS Cooperative Horseshoe Crab Tagging Program. In 2018, the Center used data from the Program to demonstrate that the Inland Bays population of crabs is indistinct from the Delaware Bay population as a whole (McGowan 2018).

While the Inland Bays do not host the large aggregations of shorebirds found along Delaware Bay, the crabs and their eggs remain an important food source for dozens of economically and ecologically important species of finfish, shellfish, and birds of the estuary.

These comments we provide on the horseshoe crab management plan addendum are consistent with the Inland Bays CCMP.

Comments and Recommendations

Harvest

We commend the ASMFC for including more empirical data from the Delaware Bay into the management model. We acknowledge the remarkable deliberations and analysis that produced the framework revision and research recommendations. And we are thankful for the impressive amount of supporting data collected by a wide variety of agencies with the cooperation of the fishing community and volunteer groups. We acknowledge the direct and indirect economic value of the horseshoe crab fishery and the crab's contribution to the value of wildlife viewing, a healthy ecosystem, and other fisheries. We understand the purpose of the horseshoe management to do the following: *“Manage harvest of horseshoe crabs in the Delaware Bay to maximize harvest but also to maintain ecosystem integrity, provide adequate stopover habitat for migrating shorebirds, and ensure that the abundance of horseshoe crabs is not limiting the red knot stopover population or slowing recovery.”*

Female horseshoe crabs are a particularly important resource for the integrity of the regions' estuaries including the Inland Bays due to their fecundity and egg production. The Center does not support the harvest of female horseshoe crabs at this time due to 1) the observed trends in the overall horseshoe crab population from the Delaware Bay region, 2) the need for more information about the abundance and distribution of horseshoe crab eggs and their relationship with the horseshoe crab population, 3) the potential for the limitation of the red knot's stopover population by horseshoe crab abundance, 4) the lack of understanding how rapidly developing climate impacts including severe weather and spawning habitat change could affect the populations of both crabs and birds. In short, now is not the time to further stress the population of the keystone species that is the horseshoe

crab.

Trends in the horseshoe crab population

While trends from the New Jersey and Delaware fisheries independent population surveys are clearly increasing, the data from the Virginia Tech survey does not show a clearly increasing trend. All of these surveys are rightly utilized in the model to estimate population. However, only the Virginia Tech survey was designed specifically for the crab. The Center values this as the most important survey from a design and analytical approach. Its lack of trend should be valued as a factor in harvest decisions and only clear, cohesive, increasing trends should be used as a basis for consideration of setting a harvest.

Relation of Horseshoe Crab Eggs and Horseshoe Crab Abundance

Counts of horseshoe crab eggs and not the crabs themselves are the most proximate indicator of food for shorebirds and many other predators. In the absence of a long term standardized egg data set, crab abundance should serve as a good indicator of egg availability. However, multiple historical sources of information suggest the occurrence of much higher densities of eggs in the past. The first is an anecdotal account in Goode (1887) as reported in Kremer and Michels (2009) that describes “deposits of eggs so thick on bay beaches that farmers shoveled them up by the wagonload to use as chicken feed”. The second dataset presented in Smith et al. (2022 *in press*) suggest egg densities occurred an order of magnitude greater than present day estimates. Both pieces of evidence should be interpreted with caution: the historical account for its qualitative nature, and comparisons drawn in Smith et al. for their lack of a standardized collection method and focus on a single site. However, the evidence is of sufficient value to warrant establishment of a representative program of egg density monitoring for inclusion in the model. This research should confirm the relationship between horseshoe crab numbers and egg density as well as increase understanding of the relationship between egg densities and shorebird abundance. The Center tested an egg density protocol in summer of 2023, however it is too soon to draw any conclusions from the effort. Available data show a moderate increase in egg abundance from 2015 to 2021.

The Center also feels that sufficient evidence exists to suggest that establishment of a baseline horseshoe crab population level near the peak of a second successive overharvest in the late 1990s (following industrial overharvest from the mid 1800s to mid 1900s) could have led to an under-valuation of the ecological carrying capacity of the crab population and its benefits to the integrity of the the region’s estuaries. The stock assessment presents a status of “neutral” for the crab population based upon the index based reference point of the 1998 fishery-independent population survey. Encouragingly, the model suggests that the horseshoe crab population should reach a dynamic equilibrium in about ten years under levels of harvest resulting from the current harvest levels. We request that after ten years of no female harvest the validity of those projections be evaluated in an attempt to ascertain the actual ecological carrying capacity of the region for

the crab. This period would also allow another generation of horseshoe crabs to mature. Should dynamic equilibrium become apparent after this period, and the results of additional research on key questions support it, a female harvest should once again be considered. This aligns well with the timing of the next ARM framework revision of the proposed management cycle under Option B.

As colonizers, we have often demonstrated a tendency to unintentionally bottom out a living resource population, as we apparently did with the crab after a century of industrial overharvest for fertilizer and livestock feed. Our proposed approach complements and makes reparations for this overharvest and the one that followed by intentionally allowing the return of the population to its maximum abundance, dynamic as that may be, for the benefit of the entire ecosystem; thus validating the limits of the population on both the lower and upper end, then managing from there.

In the meantime, to provide greater potential benefits to the horseshoe crab fishery additional males could be harvested without impacts to recruitment due to the population's high and stable male to female ratio.

Research

The Center supports the research recommendations of the framework revision that has informed the proposed addendum. While they all have merit, we particularly encourage data collection to support 1) inclusion of egg density into the management model and 2) research on the effects of climate change on spawning and breeding habitat for the crabs and birds.

We also request the development of additional long term research questions to further the ecosystem based management approach in preparation for the next framework revision. The questions should focus on elucidating the predator-prey relationships between crabs (and their eggs) and additional predator species in the Delaware Bay region. We note that these research recommendations appear to be lacking, while the original management plan clearly identifies the importance of continued use of the crab for "other dependent species including fish and wildlife," apparently reaffirmed/restated as "ecosystem integrity" under the current framework. We believe the ultimate goal should be for a dynamic food web model that will estimate the effect of the crab harvest on species in addition to the red knot, thus providing greater information for harvest decisions and tradeoffs. We recognize that this incremental approach would likely require the eventual development of management goals for additional focal species found to be significantly dependent upon the crab under conditions of a rapidly changing environment. At the minimum, this would be particularly important to prevent the management of the crab from falling back to single species management in the instance that the red knot goes extinct; which given the astounding levels of greenhouse gasses in the atmosphere appears very possible.

--

Meghan Noe Fellows, CERP
Director of Estuary Science & Restoration
Delaware Center for the Inland Bays

[Get on Board with the Bays!](#)





HORSESHOE CRAB RECOVERY COALITION

September 25, 2023

Horseshoe Crab Management Board

Atlantic States Marine Fisheries Commission 1050 N. Highland Street, Suite 200A

N Arlington, VA 22201

comments@asmfc.org

**Re: Use of the Adaptive Resource Management Model to Recommend
Horseshoe Crab Bait Harvest Quotas**

Dear Members of the Horseshoe Crab Management Board:

As members of the Horseshoe Crab Recovery Coalition, we are writing to urge the Horseshoe Crab Management Board to maintain its moratorium on the harvest of female Delaware Bay origin horseshoe crabs.

The board's decision not to re-open a female harvest was widely applauded by the conservation community and the public. Interest in the twin survival of the horseshoe crab and red knot has grown strongly in recent years, as evidenced by the 30,000 public comment letters submitted to ASMFC ahead of its Winter 2022 meeting.

Since that time, progress toward protecting horseshoe crabs and the species that depend on them has only continued to advance. In Connecticut, legislation is now in place that bans the hand harvest of horseshoe crabs. In South Carolina, a historic agreement is now in place that will prohibit horseshoe crab collection on the beaches of over 30 islands across the South Carolina coast as well as on harvesting anywhere in Cape Romain National Wildlife Refuge. And in healthcare, the U.S. Pharmacopeia has advanced a proposal to facilitate moving away from horseshoe crab blood toward new recombinant products that do not use the blood of a wild animal.

The recent technical analysis from University of Nevada, Reno Associate Professor Dr. Kevin Shoemaker finds that the ARM computer model used by ASMFC does not accurately represent the impacts of a horseshoe crab bait harvest in Delaware Bay on red knot population viability. As a result of the model's intrinsic flaws, relying on it to justify management decisions would further imperil the red knot and other shorebirds that use the Delaware Bay stopover.

The ASMFC's stated responsibility is to manage horseshoe crab populations to ensure the long-term viability of red knot populations. The premise put forward by the ARM model outputs suggesting that the relationship between horseshoe crab and red knot populations is weak is an outcome of using the wrong metric to measure the relationship. Clearly, horseshoe crab eggs, which have been ignored by the ASMFC since the inception of the ARM framework, have the greatest influence on the trajectory of red knot populations.

Given the new science and overwhelming public concern, and in line with the actions of other entities interested in protecting horseshoe crabs and the species that depend on them, we urge the management board to retain the moratorium on the harvest of female Delaware Bay origin horseshoe crabs. Further, we strongly recommend that the ASMFC revamp the ARM model to prevent further risk to horseshoe crabs and the species that depend on them.

Signed,

Members of the Horseshoe Crab Recovery Coalition

American Bird Conservancy

American Littoral Society

Audubon South Carolina

Center for Biological Diversity

Charleston Audubon Society

Coastal Expeditions Foundation

Delaware Audubon

Delaware Riverkeeper Network

Forest Keeper

Georgia Audubon

League of Women Voters of New Jersey

Maryland Ornithological Society, Inc.

Mass Audubon

Menhaden Defenders

New Jersey Audubon

New York City Audubon

North Carolina Wildlife Federation

One Hundred Miles

ReTurn the Favor

Save Coastal Wildlife

Saw Mill River Audubon

Shark River Cleanup Coalition

Southeastern Massachusetts Pine Barrens Alliance

The Humane Society of the United States

The Wetlands Institute

Wildlife Restoration Partnerships



Atlantic States Marine Fisheries Commission

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Shad & River Herring Technical Committee Meeting Summary

September 29, 2023

Technical Committee Members: Wes Eakin (Chair, NY), Matthew Jargowsky (Vice-Chair, MD), Conor O'Donnell (NH), Patrick McGee (RI), Kevin Job (CT), Patrick McGrath (VA), Jeremy McCargo (NC), Bill Post (SC), Jim Page (GA), Reid Hyle (FL), Ruth Haas-Castro (NOAA)

SAS Members: Ben Gahagan (MA), Trey Mace (MD), Margaret Conroy (DE), Kyle Hoffman (SC)

ASMFC Staff: James Boyle and Katie Drew

Other Attendees: Dan Stich (SUNY Oneonta), Shawn Snyder (University of Maine)

The TC met via conference call on September 29, 2023 to receive an update on the 2024 River Herring Benchmark Stock Assessment and provide feedback for the habitat model to be used in the assessment. Additionally, the TC met to review planned changes to Maryland's fishery dependent and independent surveys.

The next SFMP to be reviewed is from Connecticut (Shad).

1. Update on Benchmark Assessment Timeline & Report

Katie Drew presented the latest updates of the River Herring Benchmark Stock Assessment following the Assessment Workshop in August. The Stock Assessment Subcommittee (SAS) recommended extending the timeline for the assessment to present to the Management Board at the 2024 Spring Meeting and provided an updated timeline of tasks for the TC to begin reviewing the draft report. Additionally, the TC reviewed the new method for defining stock structure by region, rather than by state, that will be in addition to coastwide metapopulation and mixed stock structures.

2. Review River Herring Assessment Habitat Model & Data Needs

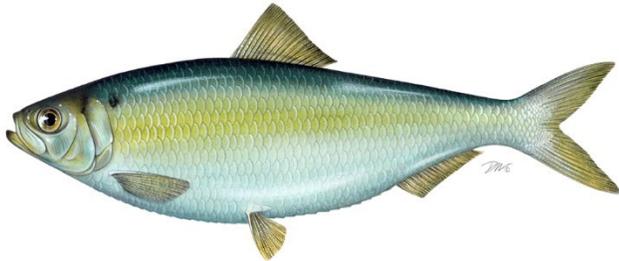
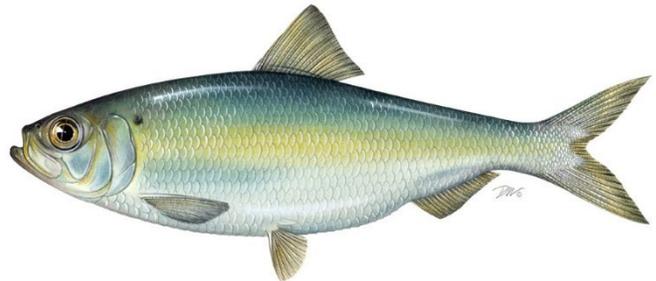
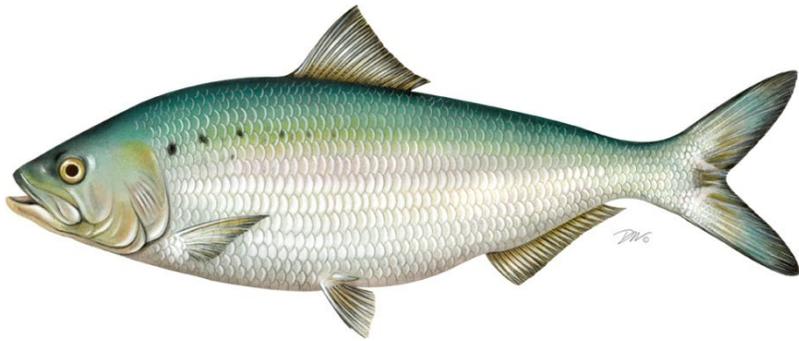
Shawn Snyder presented the river herring habitat model that is to be used in the River Herring Benchmark Stock Assessment for the TC to provide guidance on the current geographic ranges of each species, the impacts of dams, including any new alewife spawning habitat created, and the carrying capacities for population models.

3. Review Changes to Maryland Nanticoke River Surveys

Matthew Jargowsky informed the TC that Maryland is ending its long-term Nanticoke River pound and fyke net survey due to logistical issues with the cooperating commercial fishermen.

Data previously obtained from this survey included CPUE, lengths, ages, and mortality for alewife, blueback herring, and American shad. Without this survey, Maryland only has one other river herring spawning stock survey in the state (compared to two for American shad). Therefore, Maryland plans to replace the old survey with a river herring spawning stock survey similar to their survey in the North East River. Experimental sampling is expected to begin in 2024, with a plan to start the new survey in 2025.

**REVIEW OF THE ATLANTIC STATES MARINE FISHERIES COMMISSION
FISHERY MANAGEMENT PLAN FOR SHAD AND RIVER HERRING
(*Alosa spp.*) FOR THE 2022 FISHING YEAR**



Shad & River Herring Plan Review Team

James Boyle, Atlantic States Marine Fisheries Commission (Chair)
Michael Brown, Maine Department of Marine Resources
Brian Neilan, New Jersey Division of Fish and Wildlife
Jim Page, Georgia Department of Natural Resources
Margaret Conroy, Delaware Division of Fish and Wildlife
Gregg Kenney, New York Department of Environmental Conservation
Matthew Jargowsky, Maryland Department of Natural Resources

October 2023

**REVIEW OF THE ASMFC FISHERY MANAGEMENT PLAN FOR
SHAD AND RIVER HERRING (*Alosa spp.*)**

I. Status of the Fishery Management Plan

<u>Date of FMP Approval:</u>	October 1985
<u>Amendments:</u>	Amendment 1 (April 1999) Amendment 2 (August 2009) Amendment 3 (February 2010)
<u>Addenda:</u>	Technical Addendum #1 (February 2000) Addendum I (August 2002)
<u>Management Unit:</u>	Migratory stocks of American shad, hickory shad, alewife, and blueback herring from Maine through Florida
<u>States With Declared Interest:</u>	Maine through Florida, including the Potomac River Fisheries Commission (PRFC) and the District of Columbia
<u>Active Boards/Committees:</u>	Shad & River Herring Management Board, Advisory Panel, Technical Committee, Stock Assessment Subcommittee, Plan Review Team, Plan Development Team

The 1985 Fishery Management Plan (FMP) for Shad and River Herring was one of the first FMPs developed by the ASMFC. Amendment 1 was initiated in 1994 to require and recommend specific monitoring programs to inform future stock assessments—it was implemented in October 1998. A Technical Addendum to Amendment 1 was approved in 1999 to correct technical errors.

The Shad and River Herring Management Board (Board) initiated Addendum I in February 2002 to change the conditions for marking hatchery-reared alosines; clarify the definition and intent of *de minimis* status for the American shad fishery; and modify and clarify the fishery-independent and dependent monitoring requirements. These measures went into effect on January 1, 2003.

In May 2009, the Board approved Amendment 2 to restrict the harvest of river herring (blueback herring and alewife) due to observed declines in abundance. The Amendment prohibited commercial and recreational river herring harvest in state waters beginning January 1, 2012, unless a state or jurisdiction has a sustainable fishery management plan (SFMP) reviewed by the Technical Committee and approved by the Board. The Amendment defines a sustainable fishery as “a commercial and/or recreational fishery that will not diminish the potential future stock reproduction and recruitment.” Catch and release only fisheries may be maintained in any river system without an SFMP. SFMPs have been approved by the Management Board for Maine, New Hampshire, Massachusetts, New York, and South Carolina (Table 1). Amendment 2 also required states to implement fishery-dependent and independent

monitoring programs.

In February 2010, the Board approved Amendment 3 in response to the 2007 American shad stock assessment, which found most American shad stocks at all-time lows. The Amendment requires similar management and monitoring for shad as developed in Amendment 2 (for river herring). Specifically, Amendment 3 prohibits shad commercial and recreational harvest in state waters beginning January 1, 2013, unless a state or jurisdiction has a SFMP reviewed by the Technical Committee and approved by the Board. The Amendment defines a sustainable fishery as “a commercial and/or recreational fishery that will not diminish the potential future stock reproduction and recruitment.” Catch and release only fisheries may be maintained in any river system without an SFMP. SFMPs have been approved by the Board for Massachusetts, Connecticut, the Delaware River Basin Fish Cooperative (on behalf of New York, Delaware, New Jersey, and Pennsylvania), PRFC, North Carolina, South Carolina, Georgia, and Florida (Table 1). All states and jurisdictions are also required to identify local significant threats to American shad critical habitat and develop a plan for mitigation and restoration. All states and jurisdictions habitat plans have been accepted and approved.

Table 1. States/jurisdictions with approved sustainable fishery management plans (SFMPs) for river herring or shad. Includes year of original Board approval and approved updates¹.

State	River Herring SFMP	Shad SFMP
Maine	Approved (2010, 2017, 2020)	Approved (2020)
New Hampshire	Approved (2011, 2015, 2020)	
Massachusetts	Approved (2016, 2022)	Approved (2012, 2019)
Connecticut		Approved (2012, 2017)
Rhode Island		
Pennsylvania		Approved* (2012, 2017, 2020, 2022)
New York	Approved (2011, 2017, 2022)	Approved* (2012, 2017, 2020, 2022)
New Jersey		Approved* (2012, 2017, 2020, 2022)
Delaware		Approved* (2012, 2017, 2020, 2022)
PRFC		Approved (2012, 2017, 2023)
Maryland		
Virginia		
North Carolina		Approved (2012, 2017, 2020, 2023)
South Carolina	Approved (2010, 2017, 2020)	Approved (2011, 2017, 2020)
Georgia		Approved (2012, 2017, 2020)
Florida		Approved (2011, 2017, 2020)

*The Delaware River Basin Fish and Wildlife Management Co-op has a Shad SFMP, though Delaware and New Jersey are only states that have commercial fisheries. All states have recreational measures, with limited to no catch in the upper Delaware River (New York & Pennsylvania).

¹ SFMPs must be updated and re-approved by the Board every five years.

II. Status of the Stocks

While the FMP addresses four species: two river herrings (blueback herring and alewife) and two shads (American shad and hickory shad)—these are collectively referred to as shad and river herring, or SRH.

The most recent American Shad Benchmark Stock Assessment (ASMFC 2020) indicates American shad remain depleted on a coastwide basis. Multiple factors, such as overfishing, inadequate fish passage at dams, predation, pollution, water withdrawals, channelization of rivers, changing ocean conditions, and climate change are likely responsible for shad decline from historic abundance levels. Additionally, the assessment finds that shad recovery is limited by restricted access to spawning habitat. Current barriers partly or completely block 40% of historic shad spawning habitat, which may equate to a loss of more than a third of spawning adults.

Of the 23 river-specific stocks of American shad for which sufficient information was available, adult mortality was determined to be unsustainable for three stocks (Connecticut, Delaware, and Potomac) and sustainable for five stocks (Hudson, Rappahannock, York, Albemarle Sound, and Neuse). The terms “sustainable” and “unsustainable” were used instead of “not overfishing” and “overfishing” because fishing mortality cannot be separated from other components contributing to total mortality. The assessment was only able to determine abundance status for two stocks: abundance for the Hudson is depleted, and abundance for the Albemarle Sound is not overfished. For the Hudson and coastwide metapopulation, the “depleted” determination was used instead of “overfished” because the impact of fishing on American shad stocks cannot be separated from the impacts of all other factors responsible for changes in abundance.

The status of 15 additional stocks could not be determined due to data limitations, so trends in YOY and adult abundance were provided for information on abundance changes since the 2005 closure of the ocean-intercept fishery. For YOY indices, two systems experienced increasing trends while one system experienced a decreasing trend since 2005. All other systems experienced either no trend (eight systems), conflicting trends among indices (one system), or had no data (11 systems). For adult indices, four systems experienced increasing trends while no systems experienced decreasing trends since 2005. All other systems experienced either no trend (11 systems), conflicting trends among indices (seven systems), or had no data (one system). Trend analyses also indicate a continued lack of consistent increasing trends in coastwide metapopulation abundance since 2005.

Taken in total, American shad stocks do not appear to be recovering. The assessment concluded that current restoration actions need to be reviewed and new efforts need to be identified and applied. Because multiple factors are likely responsible for shad decline, the recovery of American shad will need to address multiple factors including improved monitoring, anthropogenic habitat alterations, predation by non-native predators, and exploitation by fisheries. There are no coastwide reference points for American shad. There is no stock assessment available for hickory shad.

The most recent *River Herring Benchmark Assessment Report* (ASMFC 2012) indicated that of the 24 river herring stocks for which sufficient data were available to make a conclusion, 23 were depleted relative to historic levels and one was increasing. The status of 28 additional stocks could not be determined because the time-series of available data was too short.

Estimates of coastwide abundance and fishing mortality could not be developed because of the lack of adequate data. The “depleted” determination was used instead of “overfished” because of the many factors that have contributed to the declining abundance of river herring, which include not just directed and incidental fishing, but likely also habitat issues (including dam passage, water quality, and water quantity), predation, and climate change. There are no coastwide reference points.

The river herring stock assessment was updated in 2017 (ASMFC 2017) with additional data from 2011-2015, and concluded that river herring remain depleted at near historic lows on a coastwide basis. Total mortality estimates over the final three years of the data time series (2013-2015) were generally high and exceeded region-specific reference points for some rivers. However, some river systems showed positive signs of improvement. Total mortality estimates for 2 rivers fell below region-specific reference points during the final three years of the data time series. No total mortality estimates were below reference points at the end of the 2012 stock assessment data time series. Of the 54 stocks with available data, 16 experienced increasing abundance trends, 2 experienced decreasing abundance trends, 8 experienced stable abundance and 10 experienced no discernable trend in abundance over the final 10 years of the time series (2006-2015). The next river herring benchmark stock assessment is expected to be completed in 2024.

III. Status of the Fisheries

Shad and river herring formerly supported the largest and most important commercial and recreational fisheries throughout their range. Historically fishing took place in rivers (both freshwater and saltwater), estuaries, tributaries, and the ocean. Although recreational harvest data are scarce, today most harvest is believed to come from the commercial industry. Commercial landings for these species have declined dramatically from historic highs. Details on each fishery are provided below.

AMERICAN SHAD:

Total commercial landings throughout the 1950s fluctuated around eight million lbs, then declined to just over two million lbs in 1976. A period of moderate increase occurred through the mid-1980s, followed by further declines through the remainder of the time series. Since the closure of the ocean intercept fishery in 2005, landings have been substantially lower, falling below one million lbs. Since 2015, landings have remained below half a million lbs. The total commercial landings (directed and bycatch) reported in compliance reports from individual states and jurisdictions in 2022 were 110,027 lbs, representing a 44% decrease from landings in 2021 (195,642 lbs) (Table 2). Bycatch landings accounted for approximately 8% of the total commercial landings of American shad in 2022. Landings from Connecticut, North Carolina, and South Carolina accounted for 15.5%, 9.3%, and 68.3% of the directed coastwide commercial fishery removals in 2022, respectively. The remainder of the directed landings came from Georgia, New Jersey, and Delaware. Maryland commercial fishermen are permitted

a bycatch allowance of two fish per day of dead American shad for personal use, provided that shad are captured by gear legally deployed for the capture of other fish species; no sale is permitted. Landings from Virginia and PRFC are attributed to limited bycatch allowances for American Shad.

Substantial recreational shad fisheries occur on the Connecticut (CT and MA), Delaware (NY, PA NJ, and DE), Susquehanna (MD), Santee and Cooper (SC), and St. Johns (FL) Rivers. Shad recreational fisheries are also pursued on several other rivers in Massachusetts, District of Columbia, Virginia, North Carolina, South Carolina, and Georgia. Though shad are recreationally targeted in these locations, many fisheries are catch and release only. Hook and line shad catch levels are not well understood; actual harvest and/or effort is only estimated by a few states through annual creel surveys (e.g. Maryland, North Carolina, Georgia, and Florida). Harvest may only amount to a small portion of total catch (landings and discards), but hooking mortality could increase total recreational fishery removals substantially.

Since 2009, recreational harvest data from the Marine Recreational Information Program (MRIP) are generally not provided for American shad due to high proportional standard errors (PSEs). This is a result of the MRIP survey design, which focuses on active fishing sites along coastal and estuarine areas and is unsuitable for capturing inland harvest. However, Maine, North Carolina, South Carolina, and Florida reported American shad recreational harvest estimates for 2022 (Table 3).

HICKORY SHAD:

In 2022, North Carolina, South Carolina, and Georgia reported directed commercial hickory shad landings; New York and Virginia reported bycatch landings. North Carolina accounts for a vast majority of directed landings, contributing 96% of the total. Coastwide commercial and bycatch landings in 2022 totaled 98,962 lbs, representing a 0.5% decrease from 2021 landings (99,419 lbs) (Table 2). North Carolina and Georgia reported a recreational harvest of 7,244 lbs.

RIVER HERRING (BLUEBACK HERRING/ALEWIFE COMBINED):

Commercial landings of river herring declined 95% from over 13 million lbs in 1985 to about 733 thousand lbs in 2005. Recent commercial landings continue to increase, despite the closure of the ocean-intercept fishery in 2005 and North Carolina implementing a no-harvest provision for commercial and recreational fisheries of river herring in coastal waters of the state in 2007. In 2022, the coastwide directed commercial river herring landings reported in state compliance reports were 4.74 million lbs, a 125% increase from 2021 (2.11 million lbs). Non-confidential bycatch landings in 2022 totaled 3,865 lbs, an 761% increase from the 2021 total of 451 lbs (Table 2). However, the PRT notes that low estimates of bycatch in 2021 were strongly influenced by Massachusetts ending their portside sampling program and instead reporting mixed stock bycatch figures from NOAA's Northeast Fisheries Observer Program (NEFOP). In 2022, Massachusetts reported an additional 27,558 pounds of shad and river herring bycatch from NEFOP data. South Carolina provided an estimate of recreational river herring harvest in 2022; recreational harvest estimates for Maine and Massachusetts are produced by MRIP but highly uncertain (Table 3).

Table 2. Shad and river herring total commercial fishery removals (directed landings and bycatch¹, in lbs) provided by states, jurisdictions and NOAA Fisheries for 2022.

	River Herring	American Shad	Hickory Shad
Maine	4,613,115	C	C
New Hampshire	0	0	0
Massachusetts	0	0	0
Rhode Island	0	0	2,147
Connecticut	0	15,826	0
New York	3,876	C	C
New Jersey	0	1,320	0
Pennsylvania	0	0	0
Delaware	0	C	0
Maryland	C	0	0
D.C.	0	0	0
PRFC	625	7,126	0
Virginia	0	832	597
North Carolina	0	9,443	92,198
South Carolina	129,238	69,510	C
Georgia	0	5,598	3,675
Florida	0	0	0
Total Directed	4,742,989	101,798	96,185
Total Bycatch	3,865	8,229	2,777
Total	4,746,854	110,027	98,962

*Confidential values are indicated by "C." Some values are listed as confidential to protect the confidentiality of other states.

Table 3. Recreational harvest information for river herring and American shad in 2022 from MRIP and state compliance reports.

State	River Herring Harvest	American Shad Harvest	Source of Estimates
Maine	42,188	3,346	MRIP*
New Hampshire	0		Due to failure to meet fishery-independent target in NH's SFP, the recreational river herring fishery was closed in 2021.
Massachusetts	3,183	350	MRIP*; PSE>100 for both estimates
North Carolina		7,437 lbs	Recreational creel surveys on the Roanoke, Tar, Neuse, and Cape Fear rivers
South Carolina	2,028 lbs	28,753 lbs	Creel surveys and mandatory reporting for recreational gill netters.
Florida		441 lbs	Access point creel survey on St. Johns River

*MRIP estimate considered highly uncertain. Spatial coverage of MRIP sampling may not align with recreational harvest areas for shad.

IV. Status of Research and Monitoring

¹ Available information on shad and river herring bycatch varies widely by state. Estimates may not capture all bycatch removals occurring in state waters.

Amendment 2 (2009) and Amendment 3 (2010), required fishery-independent and fishery-dependent monitoring programs for select rivers. Juvenile abundance index (JAI) surveys, annual spawning stock surveys (Table 4), and hatchery evaluations are required for specified states and jurisdictions. States are required to calculate mortality and/or survival estimates, and monitor and report data relative to landings, catch, effort, and bycatch. States must submit annual reports including all monitoring and management program requirements on or before July 1 of each year.

In addition to the mandatory monitoring requirements stipulated under Amendments 2 and 3, some states and jurisdictions continue important voluntary research initiatives for these species. For example, Massachusetts, Pennsylvania, Delaware, Maryland, District of Columbia, North Carolina, South Carolina, and the United States Fish and Wildlife Service (USFWS) are actively involved in shad restoration using hatchery-cultured fry and fingerlings. All hatchery fish are marked with oxytetracycline marks on otoliths to allow future distinction from wild fish. During 2022, several jurisdictions reared American shad, stocking a total of 14,643,171 American shad, a 10% decrease from the 16,239,677 shad stocked in 2021 (Table 5). In addition, 850,000 river herring (both alewife and blueback) larvae were stocked in the James River system in 2022.

V. Status of Management Measures

All state programs must implement commercial and recreational management measures or an alternative program approved by the Management Board (Table 1). The current status of each state's compliance with these measures is provided in the Shad and River Herring Plan Review Team Report (Table 6).

Amendment 2 (2009) prohibits river herring commercial and recreational harvest in state waters beginning January 1, 2012, unless a state or jurisdiction submits a sustainable fishery management plan and receives approval from the Board. Amendment 3 (2010) also requires the development of a SFMP for any jurisdiction maintaining a shad commercial or recreational fishery after January 1, 2013 (with the exception of catch and release recreational fisheries). States are required to update SFMPs every five years.

Under Amendments 2 and 3 to the FMP, states may implement, with Board approval, alternative management programs for river herring and shad that differ from those required by the FMP. States and jurisdictions must demonstrate that the proposed management program will not contribute to overfishing of the resource or inhibit restoration of the resource. The Management Board can approve a proposed alternative management program if the state or jurisdiction can show to the Management Board's satisfaction that the alternative proposal will have the same conservation value as the measures contained in the FMP. In August 2020, the Board approved alternative management plans for recreational fishery regulations in South Carolina, Georgia, and Florida.

Table 4. American shad and river herring passage counts at select rivers along the Atlantic coast in 2022.

State/River	Shad	River Herring
Maine		
Androscoggin	228	139,326
Saco	1,109	179,366
Kennebec	5	83,978
Sebasticook	9	C
Penobscot	7,582	2,852,037
St. Croix	17	712,878
New Hampshire		
Cocheco		4,452
Exeter		273,228
Oyster		11,272
Lamprey		77,285
Winnicut		
Massachusetts		
Merrimack	36,371	50,535
Rhode Island		
Pawcatuck		
Gilbert Stuart		22,592
Nonquit		23,753
Buckeye Brook		106,981
Connecticut River		
Holyoke Dam	190,352	
Pennsylvania[^]		
Schuylkill (Fairmont Dam)		
Pennsylvania[^]/Maryland/Delaware		
Susquehanna (Conowingo)	4,001	848
Susquehanna (Holtwood)		
Susquehanna (Safe Harbor)		
Susquehanna (York Haven)		
South Carolina		
St. Stephen Dam	243,913	9,265
Total 2022	483,587	4,547,796
Total 2021	377,472	4,438,865
Total 2020	713,520	6,252,726
Total 2019	437,853	6,543,632
Total 2018	642,688	9,404,020

[^]Pennsylvania did not submit an annual compliance report.

Table 5. Stocking of Hatchery-Cultured Alosine Larvae (Fry) in State Waters, 2022.

State	American Shad	River Herring
Maine		
Androscoggin River	0	*
New Hampshire		
Lamprey River	0	*
Massachusetts*		
Merrimack River	0	0
Nashua River	0	0
Rhode Island		
Pawcatuck River	1,608,907	0
Pawtuxet River	0	0
Pennsylvania^		
Susquehanna River	0	0
Lehigh River	0	0
Schuylkill River	0	0
Delaware		
Nanticoke River	321,000	0
Maryland		
Choptank River	2,100,000	0
Patapsco River	250,000	0
Maryland/District of Columbia/PRFC**		
Potomac River	255,200	0
Virginia		
James River	0	850,000
North Carolina		
Neuse River	0	0
Roanoke River	0	0
South Carolina		
Santee	9,264,100	0
Edisto River	843,964	0
Wateree River	0	0
Georgia		
Altamaha River	0	0
Oconee River	0	0
Total	14,643,171	850,000

*In Maine and Massachusetts river herring of wild origin are stocked as adult pre-spawning individuals through trap and transfer programs. Similarly, New Hampshire stocked river herring are adults of wild origin. These are not counted toward the total because they are not of hatchery origin.

**Numbers of fry stocked from combined efforts of PRFC, DC, and MD.

^Pennsylvania did not submit an annual compliance report.

VI. Prioritized Research Needs

Due to the large number of research recommendations identified during stock assessments of these alosine species, only research recommendations identified as high priority are presented below. Recommendations are categorized by the expected time frame necessary to complete the recommendation (short term vs. long term). See the most recent benchmark stock assessment of each species (2020 for American shad, 2012 for blueback herring and alewife) for additional important research recommendations.

AMERICAN SHAD

Short Term

- Otoliths should be collected as the preferred age structure. If collection of otoliths presents perceived impact to conservation of the stock, an annual subsample of paired otolith and scales (at least 100 samples if possible) should be collected to quantify error between structures.
- Error between structures, if scales are the primary age structure collected, and for spawn mark count estimates (either between multiple readers or within reader) should be quantified on an annual basis. A mean coefficient of variation (CV) of 5% and detection of no systematic bias should serve as targets for comparisons.
- Two readers should determine consensus ages and spawn mark counts based on improvements in ageing error in the Delaware system when consensus-based estimates were part of the ageing protocol.

Long Term

- Develop a centralized repository for agencies to submit and store genetic sampling data for future analysis. The Atlantic sturgeon repository at the United States Geological Survey (USGS) Leetown Science Center should serve as an example.
- Collect genetic samples from young-of-year (YOY) and returning mature adults during spawning runs for future analysis of baseline genetic population structure and site fidelity/straying rates. These data will help define stock structure, identify stock composition from genetic sampling of American shad catch in mixed-stock fisheries, and provide information on recolonization capabilities in defunct American shad systems.
- Conduct annual stock composition sampling through existing and new observer programs from all mixed-stock fisheries (bycatch and directed). Potential methods include tagging (conventional external tags or acoustic tags) of discarded catch and genetic sampling of retained and discarded catch. Mortality rates of juvenile fish in all systems remain unknown and improvement in advice from future stock assessments is not possible without this monitoring. Known fisheries include the Delaware Bay mixed-stock fishery and all fisheries operating in the Atlantic Ocean (U.S. and Canada) that encounter American shad (see Section 4.1.4 in the stock assessment report).
- Implement fishery-independent YOY and spawning run surveys in all systems with open fisheries. Surveys should collect catch rates, length, individual weight, sex (spawning runs), and age (spawning runs) data at a minimum to allow for assessment of stocks with legal harvest. Require these surveys be in operation in systems with requested fisheries before opening fisheries.
- Conduct complete in-river catch monitoring in all systems with open fisheries. Monitoring programs should collect total catch, effort, size, individual weight, and age data at a

minimum. Require these surveys be in operation in systems with requested fisheries before opening fisheries.

- Conduct maturity studies designed to accommodate the unique challenges American shad reproductive behavior (i.e., segregating by maturity status during spawning runs) poses on traditional monitoring programs. This information will also improve understanding of selectivity by in-river fisheries and monitoring programs.
- Conduct fish passage research at barriers with adults for both upstream and downstream migration and movements and with juveniles for downstream as discussed in Section 1.1.9.5 of the stock assessment report.

RIVER HERRING

Short Term

- Analyze the consequences of interactions between the offshore bycatch fishery and population trends in the rivers.
- Continue genetic analyses to determine population stock structure along the coast and enable determination of river origin of incidental catch in non-targeted ocean fisheries.
- Continue to assess current ageing techniques for river herring, using known-age fish, scales, otoliths, and spawning marks.
- Improve reporting of harvest by waterbody and gear.
- Develop and implement monitoring protocols and analyses to determine river herring population responses and targets for rivers undergoing restoration (dam removals, fishways, supplemental stocking, etc.).
- Explore the sources of and provide better estimates of incidental catch in order to reduce uncertainty in incidental catch estimates.

Long Term

- Encourage studies to quantify and improve fish passage efficiency and support the implementation of standard practices.
- Determine and quantify which stocks are impacted by mixed stock fisheries (including bycatch fisheries). Methods to be considered could include otolith microchemistry, oxytetracycline otolith marking, genetic analysis, and/or tagging.
- Validate [better estimate] the different values of natural mortality (M) for river herring stocks and improve methods for calculating M .
- Conduct biannual ageing workshops to maintain consistency and accuracy in ageing fish sampled in state programs.
- Investigate the relation between juvenile river herring production and subsequent year class strength, with emphasis on the validity of juvenile abundance indices, rates and sources of immature mortality, migratory behavior of juveniles, and life history requirements.
- Expand observer and port sampling coverage to quantify additional sources of mortality for alosine species, including bait fisheries, as well as rates of incidental catch in other fisheries.

VII. Status of Implementation of FMP Requirements

In accordance with the Shad and River Herring Fishery Management Plan, the states are required to submit an annual compliance report by July 1st of each year. The Plan Review Team

(PRT) reviewed all submitted state reports for compliance with the mandatory measures in Amendments 2 (River Herring) and 3 (American shad). Pennsylvania did not submit a compliance report for the 2022 fishing year. Table 6 provides important information on each state's fisheries, monitoring programs, and compliance issues pertaining to the 2022 fishing year. Table 7 summarizes state reports of protected species interactions.

De Minimis Status

A state can request *de minimis* status if commercial landings of river herring or shad are less than 1% of the coastwide commercial total. *De minimis* status exempts the state from the sub-sampling requirements for commercial and recreational catch for biological data. The following states have met the requirements and requested continued *de minimis* status in 2022:

- Maine (American shad)
- New Hampshire (American shad and river herring)
- Massachusetts (American shad)
- Georgia (river herring)
- Florida (American shad and river herring)

State Compliance

Most states have regulations in place that meet the intent of the requirements of the Interstate Fisheries Management Plan for Shad and River Herring. The PRT notes the following compliance issues encountered in their review of the state reports:

1. Several states did not report on all monitoring requirements listed under Amendments 2 and 3 (see Table 6). Persistent funding and staffing issues prevented states from conducting the required surveys.
 - a. The Delaware COOP has not conducted recreational monitoring for American shad since 2002.
 - b. Massachusetts does not conduct a JAI for American shad in the Merrimack River
 - c. Rhode Island takes river herring samples for mortality/survival estimates but mortality rates have not been updated since 2015.
 - d. New York has not completed a creel survey for river herring since 2003.
2. Pennsylvania did not provide an annual compliance report.
3. Maine, DC, and South Carolina did not provide a copy or link to their current fishery regulations.
4. Connecticut and New Hampshire did not include a section for hickory shad reporting.

VIII. PRT Recommendations

While considering the issues listed above, **the PRT recommends approval of the state compliance reports for the 2022 fishing year and *de minimis* requests.** The PRT requests that states with no new information to report still include the hickory shad, law enforcement reporting, and implementation of habitat recommendations sections in their reports. Additionally, the PRT reviewed the additional bycatch information provided by the states in the new report template. Reported bycatch information varies widely by state: Vessel trip reports, creel survey data, on-board observer data, NMFS landings in federal waters, and no information available are all listed as state sources of bycatch data. Given the importance of bycatch losses identified in the 2020 American Shad Benchmark Stock Assessment, the PRT recommends the

Board consider the inconsistency of bycatch/discard reporting sources coastwide and its impact on evaluating bycatch annually.

Table 6. Summary of PRT Review of 2022 State Compliance Reports.

STATE	2022 FISHERY AND MONITORING HIGHLIGHTS	UNREPORTED INFORMATION AND COMPLIANCE ISSUES
MAINE	Due to the low numbers of fish that ascend these fishways during any given year biological samples data (length, weight, sex, and scale sample) are not collected from American shad. Mortality estimates cannot be developed as a result.	Did not provide a copy of state regulations for American shad.
NEW HAMPSHIRE	Due to failure to meet fishery-independent target in New Hampshire's river herring SFMP the river herring commercial and recreational fisheries remained closed in 2022. Biological assessment and annual mortality rates for American shad could not be completed due to no American shad returning to the fishways in 2022.	No hickory shad section or data was included in the report.
MASSACHUSETTS	Although the SFMPs for both the Nemasket River and Herring River were approved, the towns decided to not open the runs for harvest.	No JAI program; requirement for American shad to develop one in the Merrimack River.
RHODE ISLAND		Samples were taken for mortality/survival estimates for river herring but mortality rates have not been updated since 2015.
CONNECTICUT		Shad: Due to a lack of funding and staff, the spawning stock survey, calculation of mortality/survival estimates, and recreational FD monitoring were not completed. Fishery independent work completed but still processing and analyzing data. River Herring: Unable to collect spawning stock data due to funding and staffing issues. Did not include a section for hickory shad.
NEW YORK		Did not include a section for implementation of habitat recommendations. River herring: Monitoring of recreational landings was not completed. Creel surveys have not been completed since 2003.
NEW JERSEY	Did not complete the January Ocean Trawl in 2022 for shad or river herring.	
PENNSYLVANIA		Compliance report not submitted

Table 6. Summary of PRT Review of 2022 State Compliance Reports.

STATE	2022 FISHERY AND MONITORING HIGHLIGHTS	UNREPORTED INFORMATION AND COMPLIANCE ISSUES
DELAWARE BASIN COOP	Delaware River – Smithfield Beach Female GM CPUE Index (1996-2019) Benchmark exceeded, but management action not taken due to non-representative sampling conditions in 2019	No recreational monitoring for American shad since 2002. No mortality rates provided and possibly no ages from commercial data. Did not include section on implementing habitat recommendations.
DELAWARE		Did not include section on implementing habitat recommendations.
MARYLAND	Nanticoke River stock survey not conducted due to lack of fishing. It's unlikely for them to fish again, so MD is exploring options for the future.	
D.C.		Did not include a section for habitat recommendation implementation.
PRFC		Did not include a section for habitat recommendation implementation.
VIRGINIA	Virginia Commonwealth University (VCU) and United States Fish and Wildlife Service (USFWS) personnel collected Alewife Brood Stock in an effort to stock these species in Harrison Lake. The lake is in the headwaters of Herring Creek.	Did not include a section for habitat recommendation implementation.
NORTH CAROLINA	Seasonal reductions in the American Shad commercial fishing season in Albemarle Sound continued in 2022 because of triggers being met in the Sustainable Fisheries Management plan One violation was written for violation of FFRH01: Take/possess river herring during closed season/days on the Chown River	Did not include a section for habitat recommendation implementation.
SOUTH CAROLINA	Hatchery and stocking efforts continue on the Edisto and Santee Rivers in cooperation with the Bears Bluff National Fish Hatchery	Did not provide a copy or link to current fishery regulations, include a law enforcement section, or include section on habitat recommendation implementation.

Table 6. Summary of PRT Review of 2022 State Compliance Reports.

STATE	2022 FISHERY AND MONITORING HIGHLIGHTS	UNREPORTED INFORMATION AND COMPLIANCE ISSUES
GEORGIA	<p>A river herring creel survey was done on the Altamaha River in 2022 to collect data on any potential river herring fishery in the river. Zero (0) river herring were observed in this creel study, and no anglers reported targeting river herring.</p>	<p>Completes creel survey every 5 years.</p>
FLORIDA	<p>For the 6th year in a row, the St. Johns River E-fish index fell below sustainability threshold, triggering a management review (triggers after 3-consecutive years). The state determined that the minimal harvest in recreational fishery doesn't warrant closure. TC will review an update. The state has also not completed aging, though otoliths were collected.</p> <p>Could not calculate age frequency or mortality estimates for adult blueback in the St. Johns River due to a low sample size.</p>	

Table 7. Reported protected species interactions (sturgeon species) in shad or river herring fisheries in 2021. Only the states listed below reported interactions.

Jurisdiction	Atlantic sturgeon		Shortnose sturgeon		Unclassified		Total by State	
	Catch	Mortalities	Catch	Mortalities	Catch	Mortalities	Catch	Mortalities
RI	*						Unavailable *	Unavailable *
CT							0	0
NJ	**	**	**	**	**	**	**	**
PRFC	5						5	0
VA	3						3	0
NC	10	1			2		10	3
SC	5						5	0
GA	10		5				23	0
Total by Species	33	3	13	0	2	0	46	3

*Rhode Island reports NOAA NEFOP and ASM data, which is available after the compliance report submission deadline. Therefore, their data lags by one year. Rhode Island reported 23 sturgeon caught, but none in hauls that started or ended in Rhode Island waters in 2021.

**In 2022 gill netters in New Jersey coastal waters reported discarding 653 lbs of sturgeon.



Mid-Atlantic Fishery Management Council

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P. Weston Townsend, Chairman | Michael P. Luisi, Vice Chairman

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

October 10, 2023

Mr. Geoff White and Ms. Julie DeFilippi Simpson
Atlantic Coastal Cooperative Statistics Program (ACCSP)
1050 N. Highland St., Suite 200 A-N
Arlington, VA 22201

Dear Mr. White and Ms. DeFilippi Simpson,

As you know, the Mid-Atlantic Fishery Management Council (MAFMC) submitted an FY24 ACCSP project proposal titled *Improving Catch and Effort Data Collection from Recreational Tilefish Anglers* which was discussed and ranked by the ACCSP Operations and Advisory Committees at their joint meeting on September 19-20, 2023. The Committees agreed that both the MAFMC Tilefish proposal and another new proposal, *The Economic Impact of Rhode Island's Fishing Industry* submitted by Rhode Island Division of Marine Fisheries (RI DMF), would be valuable and recommended both be considered for funding.

Recognizing that there are limited funds available, and after speaking with the principal investigators of the RI DMF proposal, we are writing to express our flexibility in our requested project funding amount as a means to provide for partial funding for both important proposals. If partial funding were made available to the MAFMC, we would propose to scale back our scope of work and focus on the core components of the proposal – the Tilefish permit holder outreach and improvements to the metadata collection capabilities within the current eFIN app. While the other aspects of our proposal are important, we feel that the outreach and improved metadata component are immediate needs, and the other aspects of our proposal could be considered for future work. We believe this approach would address the recommendations of the ACCSP Operations and Advisory Committees and provide guidance for the ACCSP Coordinating Council as they consider and approve projects for funding in FY24.

Please reach out with any questions or if additional information is needed. Feel free to share this letter with the ACCSP Coordinating Council and we look forward to their review and feedback at their meeting on October 17, 2023.

Sincerely,

Hannah Hart

Jose Montanez

Hannah Hart and José Montañez

Atlantic Menhaden Research Planning

Prepared by

The Virginia Institute of Marine Science
William & Mary

Prepared for

J. Chapman Peterson
Chair, Senate Agriculture, Conservation, and Natural Resources

R. Lee Ware
Chair, House Agriculture, Chesapeake, and Natural Resources

Travis A. Voyles
Secretary of Natural and Historic Resources

Submitted on

October 1, 2023

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2 Executive Summary

Forage fishes play a critical role in marine food webs. These small and medium-sized species are a key food source for many larger fishes, marine mammals, and seabirds, thereby transferring energy from plankton to larger consumers. Historically, fisheries management decisions were aimed at maximizing yields while maintaining biological sustainability, and this philosophy was often applied without considering the ecology and economics of managed resources. Over the past two decades, however, this management philosophy has evolved to become conceptually more holistic, and in some cases, tactically rooted in ecosystem principles. In the mid-Atlantic and Chesapeake Bay region, the Atlantic menhaden is an ecologically important forage fish that has supported the largest fishery by volume on the Atlantic coast for over a century. Fueled by advancements in ecosystem-based fisheries science and management, the stock status of Atlantic menhaden and the potential ecosystem effects of high-volume fishery removals have been more critically evaluated in recent years, particularly in Chesapeake Bay. Although Atlantic menhaden science has been growing and evolving for decades, the available information focused specifically on fish that seasonally inhabit the bay is limited and many unresolved questions remain. For several years, environmentalists, conservation groups, and recreational anglers have expressed concern to elected officials, policy makers, and fisheries scientists about the health of Chesapeake Bay, and in particular, the impacts of Atlantic menhaden commercial fishing on the bay ecosystem. In response to these concerns, the Virginia General Assembly passed legislation during the 2023 session that directs the Virginia Institute of Marine Science (VIMS) to develop a plan for studying Atlantic menhaden in the waters of the Commonwealth. To achieve the legislative objectives, VIMS led a 1.5-day workshop that brought together a diverse group of stakeholders with varied perspectives on issues related to Atlantic menhaden. These stakeholders were asked to work collaboratively toward identifying and prioritizing research topics that address uncertainties and knowledge gaps pertaining to the ecology, fishery impacts, and economic importance of Atlantic menhaden. The workshop was highly successful and consensus among participants supported nine extremely relevant research recommendations. This report summarizes the rationale, methodology, appropriate research agencies, collaborative stakeholders, timelines, and costs associated with these research recommendations. Workshop participants also unanimously agreed that addressing these research topics would greatly enhance the information available to fishery managers charged with formulating robust harvest policies that acknowledge the ecological role of Atlantic menhaden in the Commonwealth and beyond.

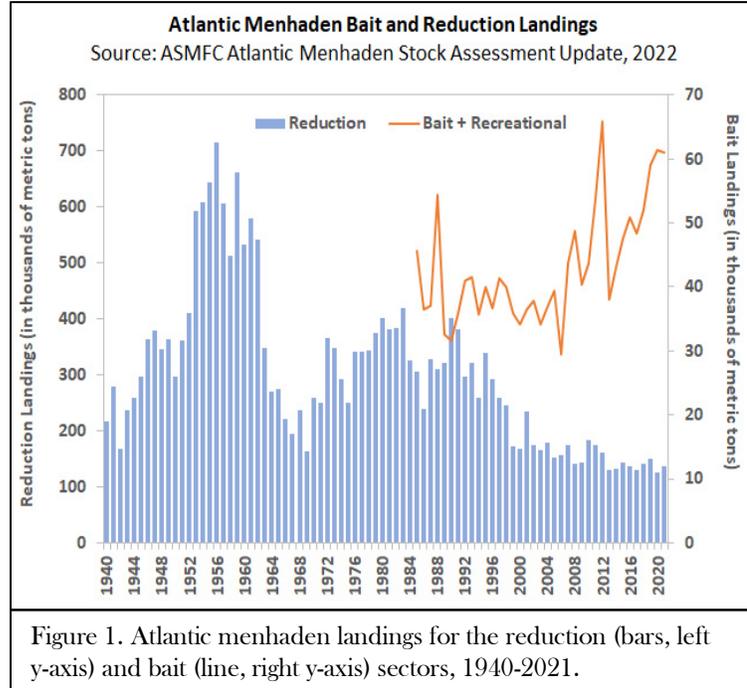
3 Introduction

3.1 Background

Atlantic menhaden is a schooling pelagic fish distributed from Nova Scotia, Canada to Florida. Although maximum age has been estimated to be 10 years, fish older than age-6 are rarely observed. Reproduction occurs in the coastal ocean over a protracted timeframe (approximately Sep-Apr) and larvae are transported by tides and currents to estuarine nursery areas. Chesapeake Bay is believed to be the most important nursery for Atlantic menhaden along the US east coast, and studies have shown peak ingress of larvae into the bay occurs during winter months. Juveniles spend their first spring and summer in estuarine nurseries along the coast, and with the onset of fall, these fish migrate to coastal and ocean habitats in preparation for overwintering. Subadult and adult fish undergo extensive seasonal migrations and inhabit both estuarine and nearshore areas along the coast. Movements are age/size dependent such that older/bigger fish migrate farther distances. Atlantic menhaden use specialized gill rakers to filter seawater and feed on plankton; juveniles consume both phytoplankton and zooplankton while adults feed almost exclusively on zooplankton. A wide variety of species rely on Atlantic menhaden as a key prey resource, including many commercially and recreationally important finfishes like striped bass and bluefish, marine mammals such as bottlenose dolphin and humpback whale, and piscivorous seabirds like osprey, brown pelican, and bald eagle. As a result, Atlantic menhaden are a critical component of estuarine and coastal ocean ecosystems.

In addition to their ecological importance, Atlantic menhaden support the largest commercial fishery by volume (weight), on the US east coast. The majority of landings are taken by the purse seine reduction sector where fish are processed into fish meal and oil. In the 1950s, between 22 and 25 reduction factories operated along the US east coast from Maine to Florida, and during that time, reduction landings peaked at over 700,000 metric tons (mt; Figure 1). However, processing capacity in the reduction sector has systematically decreased over time such that only a

single facility located in Reedville, Virginia is currently operational. As a result, reduction landings have been less than 200,000 mt since the early 2000s. Atlantic menhaden are also harvested by the comparatively smaller scale, coastwide, mixed gear bait sector for use in other commercial and



recreational fisheries. Due to decreased availability of other bait species such as Atlantic herring, bait landings of Atlantic menhaden have increased in recent years and presently comprise approximately 25% of the total coastwide landings. Collectively, these fisheries provide appreciable economic benefits for coastal communities in Virginia, particularly those in the Northern Neck.

Since Atlantic menhaden is a coastal species that inhabits nearshore areas extending across state boundaries, the Atlantic States Marine Fisheries Commission (ASMFC) holds authority for coastwide fisheries management. The ASMFC acts as a deliberative body and coordinates policy and sustainable stewardship of fisheries resources among the 15 Atlantic coast states. However, within the state waters of the Commonwealth, the Virginia Marine Resources Commission (VMRC) has management authority and can enact regulations provided they maintain compliance with the ASMFC Atlantic menhaden fishery management plan (FMP).

In 1981, the ASMFC established the first Atlantic menhaden FMP, and over the 20 years that followed, management regulations were modest with no annual quota levels or harvest caps. However, coincident with a national movement to consider ecosystem principles more formally in fisheries management, the ASFMC modified the FMP in 2001 to explicitly recognize the ecological importance of Atlantic menhaden. This new philosophy stimulated broader thinking about Atlantic menhaden as a key forage species and the potential impacts of fishery removals on ecosystem processes. Although landings during the 2000s were significantly lower than historic levels, the proportion from Chesapeake Bay had increased due to the concentration of purse seine fishing in the mid-Atlantic resulting from closure of surrounding reduction facilities. Concurrently, striped bass in the bay were showing signs of poor condition and skin lesions from the outbreak of mycobacteriosis, which is a subacute to chronic disease with reported prevalence levels greater than 60%. Taken together, managers and stakeholders began to express concern about ‘localized depletion’, or more specifically that reduction fishery removals in the bay were driving the local Atlantic menhaden abundance below the level necessary to maintain its role as a forage species. In response to these concerns, the ASMFC implemented a harvest cap on the reduction sector in Chesapeake Bay that limited removals to 109,020 mt, which was the average of the 2001-2005 reduction landings from the bay. The cap was a precautionary measure designed to limit expansion of reduction fishing in an ecologically important region. In 2012, the ASFMC established a coastwide total landings quota of 170,800 mt and lowered the bay cap for the reduction sector to 87,216 mt. Since that time, the coastwide quota has fluctuated modestly based on the results of stock assessments and ecological modeling activities, but in 2018, the bay cap was further reduced to 51,000 mt, which was again based on average reduction landings from the bay over the previous 5-year period.

Stock assessments designed to provide stock status information for Atlantic menhaden have been routinely conducted since the early 2000s, and results have predominantly indicated that the coastwide population is healthy. Notably, the 2019 and 2022 multispecies ecological assessments designed to account for Atlantic menhaden’s role as a forage fish both indicated that the coastwide

stock was not overfished and was not experiencing overfishing. Despite these favorable determinations, recreational and environmental stakeholders continue to express concern over the health of Chesapeake Bay and the adequacy of Atlantic menhaden abundance to fulfill its ecological role within the estuary. This concern motivated stakeholders to lobby the Governor's Office during fall 2022, and members of the General Assembly during the 2023 legislative session for more conservative Atlantic menhaden regulations. One outcome of those lobbying efforts was Senate Bill 1388, which is an Act that directs the Virginia Institute of Marine Science (VIMS) to develop a plan for studying the ecology, fishery impacts, and economic importance of Atlantic menhaden in the waters of the Commonwealth.

3.2 Senate Bill 1388

An Act to direct the Virginia Institute of Marine Science to develop plans for studying the ecology, fishery impacts, and economic importance of menhaden populations in the waters of the Commonwealth; report.

[§ 1388]

Approved March 22, 2023

Be it enacted by the General Assembly of Virginia:

1. § 1. That the Virginia Institute of Marine Science (VIMS) shall develop plans for studying the ecology, fishery impacts, and economic importance of menhaden populations in the waters of the Commonwealth. Such plans shall (i) include anticipated methodologies, timelines, and costs; (ii) identify relevant stakeholders for participation; and (iii) state whether VIMS is the most appropriate entity to perform the study. In developing the plans, VIMS shall collaborate with and receive input from the Menhaden Management Advisory Committee established in § 28.2-208.2 of the Code of Virginia and the Atlantic Menhaden Technical Committee of the Atlantic States Marine Fisheries Commission and other relevant stakeholders.

VIMS shall, no later than September 1, 2023, provide a report on its findings to the Chairmen of the Senate Committee on Agriculture, Conservation and Natural Resources and the House Committee on Agriculture, Chesapeake and Natural Resources and the Secretary of Natural and Historic Resources.*

* Extension granted to October 1, 2023

3.3 Atlantic Menhaden Workshop

VIMS recognized that Senate Bill 1388 presented a unique opportunity to bring together stakeholders with diverse backgrounds and varying perspectives on issues surrounding Atlantic menhaden for a collaborative meeting to identify and prioritize future research topics. Accordingly, VIMS held a stakeholder workshop on August 8-9, 2023, on the campus of William & Mary in Williamsburg, Virginia. The goals of the workshop were to: 1) identify common goals ('fundamental objectives') and topic ideas around a forward-looking research agenda for studying the ecology, fishery impacts, and economic importance of Atlantic menhaden in the waters of the Commonwealth, 2) prioritize research topic ideas considering shared goals and feasibility, and 3) build greater understanding and collaboration across stakeholder groups. Approximately 20 attendees representing the reduction and bait sectors, recreational anglers, state and federal agencies, academia, the ASMFC Atlantic Menhaden Technical Committee, and an NGO participated in the workshop (Section 5). A professional facilitator from the Institute for Engagement and Negotiation, University of Virginia, guided the workshop proceedings and coordinated the discussion (Section 6). All recommendations stemming from the workshop were arrived at through a consensus building approach. Overall, the workshop was highly collaborative and productive, and what follows is a prioritized summary of Atlantic menhaden research topics identified within the themes of ecology, fishery impacts, and economic importance.

4 Research Priorities

4.1 Ecology

Research on the biology and ecology of Atlantic menhaden has been ongoing since the 1950s. Early work focused on fundamental topics such as timing and occurrence of eggs and larvae, age determination, maturity and reproduction, population size structure, and movement patterns along the coast. These studies provided valuable baseline insights and served as motivation for many subsequent research projects aimed at refining or expanding upon this historical information. Although the breadth and depth of research on Atlantic menhaden has grown considerably over time, previous research efforts did not differentiate between estuarine and coastal habitats because the home range of Atlantic menhaden spans the entire east coast. However, contraction of the reduction sector to a single processing facility in Virginia combined with increased public concern about potential fishing impacts on ecosystem processes in Chesapeake Bay have motivated many bay-centric questions. Accordingly, the following ecological research topics are proposed.

- 1) **Title:** Estimate the seasonal abundance of Atlantic menhaden in Chesapeake Bay
Rationale: Although the routinely conducted coastwide Atlantic menhaden stock assessment provides estimates of total population size, the underlying analytical framework is not able to resolve abundance estimation at more

refined spatial scales, such as Chesapeake Bay. This is because the goal of this modeling effort is to assess the sustainability of all reduction and bait fishing activities across the full range of Atlantic menhaden. Developing a spatially-explicit version of the coastwide modeling framework that isolates Chesapeake Bay would allow estimation of bay-specific abundance and survival over time. Annual abundance and survival estimates for the bay would allow fishery removals to be formally assessed with respect to the standing stock of Atlantic menhaden and its ability to provide ecological functions. Bay-specific estimates could then be linked to environmental variables to assess how Atlantic menhaden respond to changing physical conditions.

Methodology: Developing seasonal estimates of abundance for Atlantic menhaden in Chesapeake Bay would require a two-pronged approach. First, extant catch and effort data for the reduction and bait sectors would need to be acquired, analyzed, and introduced into an appropriate spatial population modeling framework. Second, the fisheries-dependent information would need to be supplemented with survey data collected according to a scientifically valid sampling design. Since Atlantic menhaden are very difficult to sample using traditional fish survey methods due to their surface oriented, schooling behavior, it would be necessary to implement a survey that uses novel, technologically advanced instrumentation. This could include partnering with the reduction sector to charter airplanes for aerial surveys and/or relying on ship based hydroacoustic surveys using, for example, a Simrad EK80 scientific echosounder. Survey frequency would need to be no less than twice monthly from March to November to adequately sample the seasonally changing abundance of Atlantic menhaden in Chesapeake Bay.

Collaborators: Reduction and bait sectors, recreational anglers, NGOs

Agency: Virginia Institute of Marine Science with support from the University of Maryland Center for Environmental Science

Timeline: 3 years

Cost: \$1,100,000

- 2) **Title:** Evaluate movement rates of Atlantic menhaden between the Atlantic coast and Chesapeake Bay

Rationale: In the late-1960s, the National Marine Fisheries Service initiated a large-scale Atlantic menhaden tag-recovery study. Teams of scientists from 12 coastal states tagged fish over several years. In total, over 1 million fish were injected with individually numbered ferromagnetic tags, which were then passively recovered by magnets installed in reduction fishery plants located from Maine to Florida. Historic and recent analyses of these data have provided informative, broad-scale assessments of seasonal movement patterns along the Atlantic coast. However, in addition to the age of the data, the spatial structure does not permit evaluating fine scale movements between coastal and estuarine environments. Understanding contemporary seasonal movement rates of Atlantic menhaden among coastal habitats and Chesapeake Bay would provide important insight into the residence time of fish in the estuary, which in turn, helps address the ecological benefits Atlantic menhaden provide to the bay. Additionally, linking movement rates to environmental drivers would allow identification of factors that influence occupancy of different habitats.

Methodology: Reproducing the ferromagnetic tagging study would be very challenging for several reasons: 1) the high volume of annual Atlantic menhaden landings would require tagging several hundred thousand fish to ensure a reasonable tag-recovery rate, and personnel is limited, 2) the access to ocean fish for tagging is restricted due to the reduction sector being one company with few, fully subscribed purse seine vessels, and 3) harvest of Atlantic menhaden during a purse seine trip is often a mixture of ocean and bay caught fish, which does not allow assignment of the recapture location of a tagged fish to either the coast or estuary. However, acoustic tagging technology has evolved in recent years and tag sizes have become increasingly smaller to accommodate studies of juvenile fish movement. These smaller tags hold promise for Atlantic menhaden, and pairing them with strategically positioned hydroacoustic receivers would yield information on coastal and estuarine movements and residence times.

Collaborators: Reduction and bait sectors

Agency: Virginia Institute of Marine Science

Timeline: 3 years

Cost: \$330,000

3) Title: Assess impacts of predator demand and consumption of Atlantic menhaden

Rationale: It is well understood that Atlantic menhaden is a key forage species for many finfishes, marine mammals, and seabirds. Some finfish and osprey diet composition data are available for Chesapeake Bay and the Atlantic coast, however, across the full spectrum of known Atlantic menhaden predators and times and areas where predator-prey interactions occur, major data gaps remain. Expanding fieldwork, data collection, and analyses aimed at quantifying consumption of Atlantic menhaden more comprehensively would aid assessment of predatory demand and impacts. Modeling work could also provide insight into how Atlantic menhaden abundance influences the demographic rates and dynamics of finfish predators and osprey populations.

Methodology: Extant finfish (> 50 species) and osprey diet data would serve as the basis for this analysis, however, these data would be augmented with newly collected samples from additional predators, regions, and seasons. Sample acquisition will be achieved through collaboration with recreational anglers (stomachs of landed fish) and other fish survey programs, as well as from targeted bottom trawl survey cruises offshore during winter. Information on the diet composition of marine mammals would be acquired through collaborations with academic colleagues and NGOs. Data from all sources would then be combined into a single statistical analysis designed to yield a time-series of predator consumption of Atlantic menhaden in Chesapeake Bay and beyond. Dynamic predator-prey models will be constructed for key finfish predators and osprey to explore Atlantic menhaden abundance regulates predator population dynamics.

Collaborators: Recreational anglers and NGOs

Agency: Virginia Institute of Marine Science and William & Mary

Timeline: 2 years

Cost: \$770,000

4.2 Fishery Impacts

The fish community of Chesapeake Bay is very dynamic. Residence time for most fishes inhabiting the bay is less than six months because of the extreme seasonal changes in water temperature. Species found in northern regions enter the bay during the colder months while those associated

with southern regions utilize the bay during the warmer months. Despite the rapidly changing fish community, Chesapeake Bay has a rich history of supporting diverse fisheries that target a range of species. Although this fishing history is an important cultural aspect of the Commonwealth, limited attention has been directed toward characterizing patterns and changes in fishing practices in the bay over time for both the commercial and recreational sectors. Analyses of fishing strategies can reveal information on patterns of availability of target species over time and space. Since this type of information can aid efforts to evaluate fishery impacts on natural resources, the following research topics are proposed.

1) Title: Analyze spatiotemporal patterns in Atlantic menhaden commercial fishing effort in Chesapeake Bay

Rationale: Since commercial fishers typically set gear in areas that are expected to hold fish, fishing effort data contains information about the availability of target species over time and space. In the case of Atlantic menhaden, a thorough analysis of reduction and bait fishing effort data in Chesapeake Bay would provide key information on the seasonal and spatial distribution patterns of fish, and most importantly, insight regarding potential changes in those distributional patterns. Additionally, linking fishing locations with environmental variables would also yield insight into fine scale Atlantic menhaden availability, movements, and habitat utilization.

Methodology: Quantifying long-term patterns of the Atlantic menhaden fisheries in Chesapeake Bay would require the acquisition of commercial catch and effort data at relatively fine spatial and temporal scales. These data could then be incorporated into an appropriate spatiotemporal model, which would yield insight into changes that have occurred with the fishery, as well as into possible shifts in habitat usage by Atlantic menhaden in the bay. Linking these model outputs to an array of environmental covariates could uncover potential drivers of any spatial or temporal changes observed.

Collaborators: Reduction and bait sectors

Agency: Virginia Institute of Marine Science and Virginia Marine Resources Commission

Timeline: 2 years

Cost: \$192,000

2) Title: Assess the possibility of localized depletion of Atlantic menhaden in Chesapeake Bay

Rationale: A significant concern routinely voiced by stakeholders is whether Atlantic menhaden fishery removals from the bay are detrimental to the overall health of the estuary. The term ‘localized depletion’ refers to a situation where fishery removals are concentrated in a relatively small area compared to the home range of the target species, the scale of those removals exceeds the threshold required to sustain normal ecosystem processes, and replenishment of harvested biomass does not occur rapidly. In general, localized depletion is a challenging concept to address in fisheries science, particularly for highly mobile species that engage in seasonal migrations. At a minimum, four types of information are needed to address this issue for Atlantic menhaden: 1) tabulated harvest removals from Chesapeake Bay annually, 2) estimates of abundance in the bay each year, 3) annual estimates of fish residence time in the bay, and 4) yearly movement rates between the coastal Atlantic and the bay. A more comprehensive understanding of predation impacts and how Atlantic menhaden abundance affects the dynamics of predator populations would also be beneficial. Therefore, formally addressing localized depletion cannot be accomplished unless research is conducted to address topics 1-3 in the Ecology section above.

Methodology: Addressing localized depletion would involve synthesizing the results of topics 1-3 in the Ecology section above.

Collaborators: Reduction and bait sectors, recreational anglers, NGOs

Agency: Virginia Institute of Marine Science

Timeline: 2 years

Cost: Included in costs for Fishery Impacts topic 1

3) Title: Quantify changes in the recreational fisheries in Chesapeake Bay

Rationale: Chesapeake Bay supports many forms of recreation for the citizens of the Commonwealth and beyond, and recreational fishing consistently ranks as one of the most popular pastimes. Many fish species that seasonally inhabit the bay are prized targets of recreational anglers, including striped

bass, cobia, bluefish, sea trout, and summer flounder. Several of these species and others routinely targeted by anglers have strong linkages to Atlantic menhaden as forage, so it is likely that patterns in recreational fishing effort reflect information about the availability of target species, and by extension, Atlantic menhaden. Additionally, a comprehensive analysis of recreational fishing participation, effort, and success would yield indicators on the viability of this industry and its role as an economic driver for the Commonwealth.

Methodology: Data on recreational participation, effort, and harvest would be acquired from the Virginia Marine Resources Commission and the NOAA Marine Recreational Information Program. Spatiotemporal patterns in these data would be quantified following the analytical approach outlined in topic 1 of the Fishery Impacts section above.

Collaborators: Recreational anglers

Agency: Virginia Institute of Marine Science and Virginia Marine Resources Commission

Timeline: 2 years

Cost: Included in costs for Fishery Impacts topic 1

4.3 Economic Importance

Fisheries systems include both fish and people. Consequently, fisheries management should include biological, socioeconomic, and governance considerations. Historically, management policies and governance focused on biological sustainability and aimed to maximize continual harvests. Nowadays governments, NGOs, community-based organizations, and foundations are working to manage fisheries that achieve both ecological sustainability and human well-being outcomes. This transformation has been partially achieved for Atlantic menhaden in that ASMFC now uses ecological reference points that explicitly reflect the predation needs to guide the process of setting coastwide total landings quotas. While this ecosystem-approach to management philosophy represents a major step forward, lacking is comparable progress evaluating the socioeconomic impacts and tradeoffs of management policies for Atlantic menhaden. Accordingly, the following economic research topics are proposed.

- 1) **Title:** Assess the economic impacts of management decisions on Atlantic menhaden fisheries and related industries

Rationale: Fisheries management decisions are frequently based on achieving biological sustainability. However, it has been recognized that biological objectives can often be met through several different management policies, each of which vary in their socioeconomic impacts. The socioeconomic effects of competing policies are often not quantified, which hinders the evaluation of tradeoffs among management options. Atlantic menhaden fisheries support hundreds of jobs in the Commonwealth and products derived from the reduction and bait sectors are utilized by an array of businesses located in Virginia as well as throughout the U.S. and internationally. Thus, management measures implemented for Atlantic menhaden fisheries have cascading effects in local economies and beyond. Assessing these effects would allow fisheries managers to more holistically consider the tradeoffs associated with regulatory options.

Methodology: Using the results of a contemporary economic impact analysis (see topic 2 below), evaluate the economic effects of candidate management strategies on the Atlantic menhaden commercial fisheries in Chesapeake Bay, as well as the associated secondary and tertiary industries.

Collaborators: Reduction and bait sectors, recreational anglers, NGOs

Agency: Virginia Institute of Marine Science

Timeline: 3 years

Cost: \$308,000

2) **Title:** Conduct a contemporary assessment of the social and economic importance of Atlantic menhaden in the Chesapeake Bay region

Rationale: Socioeconomic studies of the Atlantic menhaden fisheries have been conducted in the past, and while they can serve as a baseline framework, changes in the fisheries, regulatory structure, and the economy over the last two decades have made prior work less relevant today. Additionally, previous studies have generally been narrowly defined and of limited use in assessing management tradeoffs. Developing a framework to provide updated economic impact analyses using contemporary methods has been identified as an important priority. Further, there has been expressed interest in quantifying the economic impacts and importance of these fisheries to the Northern Neck, particularly since a large portion of the reduction sector workforce comes from underserved communities.

Methodology: Standard socioeconomic data will be compiled from the reduction and bait sectors to develop an economic impact model for the Atlantic menhaden fisheries in the Chesapeake Bay region. Additionally, non-market valuation methods will be used to quantify the economic importance of Atlantic menhaden to the recreational sector.

Collaborators: Reduction and bait sectors, recreational anglers

Agency: Virginia Institute of Marine Science and Virginia Marine Resources Commission

Timeline: 2 years

Cost: Included in costs for Economic Importance topic 1

3) **Title:** Quantify the bioeconomic impact of Atlantic menhaden fishery removals from the Chesapeake Bay to those from the Atlantic coast

Rationale: Recreational and environmental stakeholders routinely advocate for a ban on purse seine fishing in Chesapeake Bay. Such a restriction would force all harvesting activities to occur in the coastal ocean which has both biological and economic consequences. Biologically, Atlantic menhaden in the bay are generally younger and thus have a lower reproductive output when compared to the older fish in the ocean. Therefore, harvesting exclusively in the ocean has the potential to reduce the reproductive capacity of the population. Economically, fishing in the ocean would incur additional costs, safety concerns, and lost fishing opportunities due to weather. Conversely, increased local availability of menhaden in Chesapeake Bay could improve recreational angler outcomes and associated value. Quantifying these bioeconomic impacts would allow fisheries managers to evaluate tradeoffs associated with the establishment of a marine protected area in Chesapeake Bay.

Methodology: Develop a spatially-explicit, bioeconomic simulation model for Atlantic menhaden in Chesapeake Bay and the coastal ocean. Results from past stock assessments and topics 1-3 in the Ecology section would inform the biological component of the model, while results from topics 1-2 in this section would guide the economic component. Once developed, the impacts of a variety of harvest policies could be quantified, including declaring the Chesapeake Bay a marine protected area.

Collaborators: Reduction and bait sectors, recreational anglers, NGOs

Agency: Virginia Institute of Marine Science

Timeline: 2 years

Cost: Included in costs for Economic Importance topic 1; highly dependent on achieving Ecology topics 1-2

5 Workshop Participants

Participant	Affiliation
Robert Latour	Virginia Institute of Marine Science
Mark Luckenbach	Virginia Institute of Marine Science
Cecilia Lewis	Virginia Institute of Marine Science
Kristina Weaver	Institute for Engagement and Negotiation, University of Virginia
Jim Gartland	Virginia Institute of Marine Science
Caroline DeVries	Virginia Institute of Marine Science
Andrew Scheld	Virginia Institute of Marine Science
Shanna Madsen	Virginia Marine Resources Commission, ASMFC Atlantic Menhaden Technical Committee member - Virginia
Amy Schueller	NOAA Beaufort Laboratory
Genevieve Nesslage	University of Maryland Center for Environmental Science
Michael Wilberg	University of Maryland Center for Environmental Science
Bryan Watts	William & Mary
Montgomery Deihl	Ocean Harvesters
Peter Himchak	Omega Protein
Ross Kellum	Kellum Maritime, LLC
Frederick Rogers	Rogers Bait Company
Bruce Vogt	NOAA Chesapeake Bay Office
Lynn Fegley	Maryland Department of Natural Resources
Alexei Sharov	Maryland Department of Natural Resources ASMFC Atlantic Menhaden Technical Committee member - Maryland
Allison Colden	Chesapeake Bay Foundation
Steve Atkinson	Virginia Saltwater Sportfishing Association

6 Workshop Agenda

Menhaden Workshop: Identifying Shared Goals for Future Research

August 8-9, 2023

Leadership Hall
Alumni House, William & Mary

Meeting Purpose

1. Identify common goals (“fundamental objectives”) and topic ideas around a forward-looking research agenda studying the ecology, fishery impacts, and economic importance of menhaden populations in the Commonwealth (S 1388)
2. Prioritize research topic ideas considering shared goals and feasibility
3. Build greater understanding and collaboration across stakeholder groups

Day 1 Agenda

9:00 - 9:30	Coffee/Networking
9:30 - 10:00	Opening Remarks and Introductions
10:00 - 11:00	Overview of Research Context
11:00 - 11:15	Break
11:15 - 11:30	Overview of Dialogue Process
11:30 - 12:30	Generate Ideas for Research Topics
12:30 - 1:30	Lunch
1:30 - 2:30	Generate Ideas for Research Topics
2:30 - 2:45	Break
2:45 - 4:15	Develop Foundational Objectives for Future Research
4:15 - 4:45	Closing Day 1

Day 2 Agenda

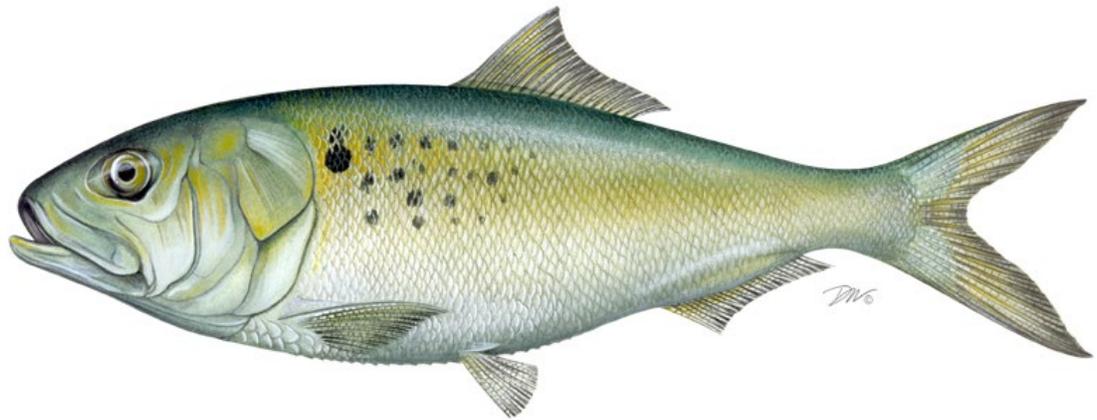
9:00 - 9:30	Day 2 Kickoff
9:30 - 10:00	Discussion: Considerations for Research Feasibility
10:00 - 10:45	Evaluating Research Topics
10:45 - 11:00	Break
11:00 - 11:45	Resources for Implementing Research
11:45 - 12:10	Next Steps
12:10 - 12:30	Closing the Workshop

ATLANTIC STATES MARINE FISHERIES COMMISSION

REVIEW OF THE INTERSTATE FISHERY MANAGEMENT PLAN

FOR ATLANTIC MENHADEN (*Brevoortia tyrannus*)

2022 FISHING YEAR



Prepared by the Plan Review Team



Sustainable and Cooperative Management of Atlantic Coastal Fisheries

**REVIEW OF THE ASMFC FISHERY MANAGEMENT PLAN AND STATE COMPLIANCE FOR
ATLANTIC MENHADEN (*Brevoortia tyrannus*) FOR THE 2022 FISHERY**

Management Summary

<u>Date of FMP:</u>	Original FMP: August 1981
<u>Amendments:</u>	Plan Revision: September 1992 Amendment 1: July 2001 Amendment 2: December 2012 Amendment 3: November 2017
<u>Management Unit:</u>	The range of Atlantic menhaden within U.S. waters of the Northwest Atlantic Ocean, from the estuaries eastward to the offshore boundary of the Exclusive Economic Zone (EEZ).
<u>States With Declared Interest:</u>	Maine – Florida, including Pennsylvania
<u>Additional Jurisdictions:</u>	Potomac River Fisheries Commission, National Marine Fisheries Service, United States Fish and Wildlife Service
<u>Active Boards/Committees:</u>	Atlantic Menhaden Management Board, Advisory Panel, Technical Committee, Stock Assessment Subcommittee, Plan Review Team, Plan Development Team, Ecological Reference Point Workgroup
<u>Stock Status:</u>	Not overfished, and overfishing is not occurring relative to the current ecological reference points (2022 Single-Species Stock Assessment Update)

I. Status of the Fishery Management Plan

Atlantic menhaden management authority is vested in the states because the vast majority of landings come from state waters. All Atlantic coast states and jurisdictions, with the exception of the District of Columbia, have declared interest in the Atlantic menhaden management program.

The first coastwide fishery management plan (FMP) for Atlantic menhaden was passed in 1981. The FMP did not recommend or require specific management actions, but provided a suite of options should they be needed. In 1992, the plan was revised to include a suite of objectives intended to improve data collection and promote awareness of the fishery and its research needs.

[Amendment 1](#), implemented in 2001, provided specific biological, ecological and socioeconomic management objectives. Addenda I and V revised the biological reference points for menhaden and specified that stock assessments are to occur every three years. Although Amendment 1 did not implement any recreational or commercial management measures, Addenda II through IV instituted a harvest cap on the reduction fishery in Chesapeake Bay. Specifically, Addendum II implemented a harvest cap for 2006-2010 fishing seasons; before its first year of implementation, Addendum III revised the cap amount to be the average landings from 2001 to 2005 (or 109,020 mt); and Addendum IV extended the provisions of Addendum III through 2013.

[Amendment 2](#), implemented in 2012, established a 170,800 metric ton (mt) total allowable catch (TAC) for the commercial fishery beginning in 2013. This TAC represented a 20% reduction from average landings between 2009 and 2011. This Amendment also used the 2009-2011 period to allocate the TAC among jurisdictions. Additionally, the Amendment established timely reporting requirements for commercial landings and required states to be accountable for their respective quotas by paying back any overages the following year. Amendment 2 also included provisions that allowed for the transfer of quota between jurisdictions and a bycatch allowance of 6,000 pounds per day for non-directed fisheries that operate after a jurisdiction's quota has been landed. Addendum 1 to Amendment 2 allows two licensed individuals to harvest up to 12,000 pounds of menhaden bycatch when working from the same vessel using stationary multi-species gear; the intent of this provision is to accommodate cooperative fishing practices that traditionally take place in Chesapeake Bay. The Amendment also reduced the Chesapeake Bay reduction fishery harvest cap by 20% to 87,216 mt.

Amendment 2 also enabled the Board to set aside 1% of the coastwide TAC for episodic events. Episodic events are times and areas where Atlantic menhaden are available in more abundance than they normally occur. Technical Addendum I to Amendment 2 established a mechanism for New England states from Maine to Connecticut¹ to use the set aside, which includes a qualifying definition of episodic events, required effort controls to scale a state's fishery to the set aside amount, and a timely reporting system to monitor the set aside. Any unused set aside quota as of October 31 is redistributed to jurisdictions on November 1 based on the Amendment 2 allocation percentages.

In 2015, the TAC was increased by 10% to 187,880 mt for the 2015 and 2016 fishing years. In 2016, the Board again increased the TAC by 6.45% to 200,000 mt for the 2017 fishing year.

Atlantic menhaden are managed under [Amendment 3](#). Approved in November 2017, the Amendment maintained the management program's single-species biological reference points until the review and adoption of menhaden-specific ecological reference points (ERPs) as part of the 2019 benchmark stock assessment process. In doing so, the Board placed development of menhaden-specific ERPs as its highest priority and supports the efforts of the ERP Workgroup to reach that goal.

¹ At its May 2016 meeting, the Board added New York as an eligible state to harvest under the set aside.

Amendment 3 also changed commercial quota allocations in order to strike an improved balance between gear types and jurisdictions. The Amendment allocated a baseline quota of 0.5% to each jurisdiction, and allocated the rest of the TAC based on average landings between 2009 and 2011. This measure provides fishing opportunities to states that had little quota under Amendment 2, while still recognizing historic landings in the fishery. States also have the option to relinquish all or part of its quota which is then redistributed to the other jurisdictions based on the 2009-2011 landings period. The Amendment also prohibits the rollover of unused quota; maintains the quota transfer process; maintains the bycatch provision (which was rebranded as the ‘incidental catch/small-scale fisheries’ (IC/SSF) provision and applicable gear types were defined) and the episodic event set aside program (EESA) for the states of Maine – New York. Finally, the Amendment reduced the Chesapeake Bay cap to 51,000 mt, recognizing the importance of the Chesapeake Bay as nursery grounds for many species by capping recent reduction landings from the Bay at current levels.

[Addendum I](#), implemented in 2023, modifies Amendment 3 by creating a three-tiered system for minimum allocations to the states, with Pennsylvania receiving 0.01%; South Carolina, Georgia, Connecticut, Delaware, North Carolina, and Florida receiving 0.25%; and the remaining states continuing to receive a minimum of 0.5%. Furthermore, the Addendum allocates the remainder of the TAC, excluding the 1% reserved for the EESA, on a state-by-state basis based on landings history of the fishery from 2018, 2019, and 2021. Regarding the IC/SSF provision, the Addendum codifies the ability for states to elect to divide their quotas into sectors, enabling individual sectors to enter into the provision at different times. Additionally, the Addendum removes purse seines as a permitted small-scale directed gear, thereby, prohibiting them from harvesting under the IC/SSF provision. Finally, the Addendum counts IC/SSF landings against the TAC and if IC/SSF landings cause the TAC to be exceeded, then the Board must take action to modify one or both of permitted gear types and trip limits under the provision.

State	Addendum 1 Allocations (%)
ME	4.80%
NH	1.19%
MA	2.12%
RI	0.81%
CT	0.33%
NY	0.84%
NJ	11.00%
PA	0.01%
DE	0.27%
MD	1.17%
PRFC	1.09%
VA	75.21%
NC	0.37%
SC	0.25%
GA	0.25%
FL	0.29%

In August 2020, the Board formally approved the use of ERPs to manage Atlantic menhaden, with Atlantic striped bass as the focal species in maintaining their population. Atlantic striped bass was chosen for the ERP definitions because it was the most sensitive predator fish species to Atlantic menhaden harvest, so an ERP target and threshold sustaining striped bass would likely provide sufficient forage for other predators under current ecosystem conditions. For the development of the ERPs, all other focal species in the model (bluefish, weakfish, spiny dogfish, and Atlantic herring) were assumed to be fished at 2017 levels.

In November 2022, the Board approved a TAC for 2023-2025 of 233,550 mt, based on the ERPs. The new TAC represents a 20% increase from the 2021-2022 TAC level. Based on projections,

the probability of exceeding the ERP fishing mortality target of 0.19 is 2% in 2023, 22% in 2024, and 28.5% in 2025.

II. Status of the Stock

In February 2020, the Board accepted the results of the [Single-Species](#) and [Ecological Reference Point \(ERP\)](#) Benchmark Stock Assessments and Peer Review Reports for management use. These assessments were peer-reviewed and approved by an independent panel of scientific experts through the 69th SouthEast, Data, Assessment and Review (SEDAR) workshop. The single-species assessment acts as a traditional stock assessment using the Beaufort Assessment Model (BAM), a statistical catch-at-age model that estimates population size-at-age and recruitment. According to the model, the stock is not overfished or experiencing overfishing relative to the current single-species reference points.

The ERP assessment evaluates the health of the stock in an ecosystem context, and indicates the fishing mortality rate (F) reference points for menhaden should be lower to account for the species' role as a forage fish². The ERP assessment uses the Northwest Atlantic Coastal Shelf Model of Intermediate Complexity for Ecosystems (NWACS-MICE) to develop Atlantic menhaden ERPs. NWACS-MICE is an ecosystem model that focuses on four key predator species (striped bass, bluefish, weakfish, and spiny dogfish) and three key prey species (Atlantic menhaden, Atlantic herring, and bay anchovy). These species were chosen because diet data indicate they are top predators of Atlantic menhaden or are key alternate prey species for those predators.

The ERP assessment indicates the F reference points for menhaden should be lower than the single-species reference points, but it also concluded that the final ERP definitions, including the appropriate harvest level for menhaden, depend on the management objectives for the ecosystem (i.e., management objectives for both Atlantic menhaden and its predators). Accordingly, instead of proposing a specific ERP definition, the assessment recommends a combination of the BAM and the NWACS-MICE models as a tool for managers to evaluate trade-offs between menhaden harvest and predator biomass.

Atlantic menhaden are now managed by menhaden-specific ERPs as indicated above. The ERP target is the maximum F on Atlantic menhaden that sustains Atlantic striped bass at their biomass target when striped bass are fished at their F target, a measure of the intensity with which the population is being fished, is used to evaluate whether the stock is experiencing overfishing. The ERP threshold is the maximum F on Atlantic menhaden that keeps Atlantic striped bass at their biomass threshold when striped bass are fished at their F target. Population fecundity, a measure of reproductive capacity, is used to evaluate whether the stock is overfished. According to the 2022 single-species stock assessment update, the 2021 estimate of fecundity was above both the ERP FEC target and threshold, and the 2021 estimate of fishing

² it should be noted, however, that the conservative TAC the Board has set for recent years is consistent with the ERP F target provided in the ERP Assessment

mortality was below the ERP F target and threshold, indicating the stock was neither overfished nor experiencing overfishing. The next ERP benchmark stock assessment and single-species assessment update are underway and scheduled to be presented to the Board in 2025.

III. Status of the Fishery

Commercial

Total commercial Atlantic menhaden landings in 2022, including directed, incidental catch, and EESA landings, are estimated at 195,387 mt (430.8 million pounds), an approximate 0.15% increase relative to 2021 (Table 1). The non-incidental catch fishery landings (directed landings plus landings under the EESA) total for 2022 is estimated at 187,231 mt (412.8 million pounds) and represents approximately 96% of the coastwide commercial TAC of 194,400 mt (428.6 million pounds). Landings from the incidental catch fishery are estimated at 8,156 mt (18 million pounds) and do not count towards the coastwide TAC in 2022.

Reduction Fishery

The 2022 harvest for reduction purposes is estimated at 134,477 mt (296 million pounds), a 2% decrease from 2021 and 1.5% below the previous 5-year average of 136,473 mt (300.9 million pounds) (Table 2; Figure 3). Omega Protein's plant in Reedville, Virginia, is the only active Atlantic menhaden reduction factory on the Atlantic coast. In 2020, the reduction plant was shut down for 3 weeks due to the COVID-19 pandemic. Anecdotal reports indicate that in addition to the pandemic, bad weather may have also contributed to lower harvest.

Bait Fishery

The coastwide bait harvest estimate for 2022 from state compliance reports, including directed, incidental catch, and EESA landings, is 60,101 mt (151.6 million pounds). This represents a 3% increase relative to 2021 and a 10% increase compared to the previous 5-year average (Table 2; Figure 3). New Jersey (35%), Virginia (26%), Maine (20%), and Massachusetts (8%) landed the four largest shares in 2022.

Incidental Catch and Small Scale Fisheries Landings

Incidental catch landings in 2022 are estimated at 8,156 mt (18 million pounds), which is a 46% increase relative to 2021 (Table 3). Maine, Massachusetts, and Virginia's non-purse seine bait fishery reported incidental catch landings (82% from purse seines and 10% from gill nets) in 2022 (Table 4). Maine accounted for 87% of total incidental fishery landings. The number of incidental catch trips (4,134) was the highest since 2015 (Table 4).

Episodic Events Set Aside Program

The 2022 EESA quota was 1,944 mt (4.29 million pounds). Maine began harvesting under the EESA program on June 21st and continued until their EESA fishery closed on June 28th. Massachusetts began harvesting under the EESA program on June 23rd and closed the fishery on July 8th. An estimated 1,992 mt (4.4 million pounds) of menhaden were landed under the EESA fishery (Table 5), which is 104,723 pounds over the set aside quota. In January 2023, Massachusetts transferred 64,000 pounds to cover a portion of the overage (see Table 7), and the remaining 40,723 pounds was deducted from the 2023 set aside.

Chesapeake Bay Reduction Fishery Cap (cap)

Amendment 3 implemented a 51,000 mt harvest cap for the reduction fishery in the Chesapeake Bay. The cap for 2022 was set once again at 51,000 mt with harvest remaining under the limit in 2021. Reported reduction landings from Chesapeake Bay in 2022 were about 50,000 mt, under the cap by approximately 1,000 mt.

Recreational

Menhaden are important bait in many recreational fisheries; some recreational fishermen use cast nets to capture menhaden or snag them with hook and line for use as bait, both dead and alive. The Marine Recreational Information Program (MRIP) estimate for Atlantic menhaden harvest (A + B1) in 2022 is 5.7 million pounds (PSE of 16.6) which is a 119% increase from 2021 (2.6 million pounds).

Additionally, it is important to note recreational harvest is not well captured by MRIP because there is not a known, identified direct harvest for menhaden, other than for bait. MRIP intercepts typically capture the landed fish from recreational trips as fishermen come to the dock or beach. However, since menhaden caught by recreational fishermen are often used as bait during their trip, they are typically not part of the catch that is seen by the surveyor completing the intercept.

Quota Transfers

There were 24 state-to-state transfers in 2022 (Table 8), an increase from 16 in 2021. Quota transfers were generally pursued to ameliorate overages. One of the purposes of the commercial allocation changes in Addendum I to Amendment 3 was to reduce the need for quota transfers, and the PRT will monitor the change in quota transfers after implementation in 2023.

IV. Status of Research and Monitoring

Commercial fisheries monitoring

Reduction fishery - The NMFS Southeast Fisheries Science Center Beaufort Laboratory in Beaufort, North Carolina, continues to monitor landings and collect biological samples from the Atlantic menhaden purse-seine reduction fishery. The Beaufort Laboratory processes and ages all reduction samples collected on the East Coast. In addition, the purse-seine reduction fishery continues to provide Captains Daily Fishing Reports (CDFRs) to the Beaufort Laboratory where NMFS personnel enter data into a database for storage and analysis.

Bait fishery - Per Amendment 3, states are required to implement a timely quota monitoring system to maintain menhaden harvest within the TAC and minimize the potential for quota overages. The Standard Atlantic Fisheries Information System (SAFIS) daily electronic dealer reporting system allows near real time data acquisition for federally permitted bait dealers in the Mid-Atlantic and Northeast. Landings by Virginia's purse-seine for-bait vessels (snapper

rigs) in Chesapeake Bay are tabulated at season's end using CDFRs maintained on each vessel during the fishing season. A bait-fishery sampling program for size and age composition has also been conducted since 1994. The Beaufort Laboratory, and some states, age the bait samples collected. See *Section VII* for more information on quota monitoring and biological sampling requirements.

Atlantic menhaden research

The following studies relevant to menhaden assessment and management have been published within the last few years:

- Anstead, K. A., K. Drew, D. Chagaris, A. M. Schueller, J. E. McNamee, A. Buchheister, G. Nesslage, J. H. Uphoff Jr., M. J. Wilberg, A. Sharov, M. J. Dean, J. Brust, M. Celestino, S. Madsen, S. Murray, M. Appelman, J. C. Ballenger, J. Brito, E. Cosby, C. Craig, C. Flora, K. Gottschall, R. J. Latour, E. Leonard, R. Mroch, J. Newhard, D. Orner, C. Swanson, J. Tinsman, E. D. Houde, T. J. Miller, and H. Townsend. 2021. The path to an ecosystem approach for forage fish management: A case study of Atlantic menhaden. *Front. Mar. Sci.* 8: 607657.
- Chagaris D., K. Drew, A. M. Schueller, M. Cieri, J. Brito, and A. Buchheister. 2020. Ecological Reference Points for Atlantic Menhaden Established Using an Ecosystem Model of Intermediate Complexity. *Front. Mar. Sci.* 7:606417.
- Deyle, E., A. M. Schueller, H. Ye, G. M. Pao, and G. Sugihara. 2018. Ecosystem-based forecasts of recruitment in two menhaden species. *Fish and Fisheries* 19(5): 769-781.
- Drew, K., M. Cieri, A. M. Schueller, A. Buchheister, D. Chagaris, G. Nesslage, J. E. McNamee, and J. H. Uphoff. 2021. Balancing Model Complexity, Data Requirements, and Management Objectives in Developing Ecological Reference Points for Atlantic Menhaden. *Front. Mar. Sci.* 8: 608059.
- Liljestrand, E.M., M.J. Wilberg, and A.M. Schueller. 2019. Estimation of movement and mortality of Atlantic menhaden during 1966-1969 using a Bayesian multi-state mark recapture model. *Fisheries Research* 210: 204-213.
- Liljestrand, E.M., M. J. Wilberg, and A. M. Schueller. 2019. Multi-state dead recovery mark-recovery model performance for estimating movement and mortality rates. *Fisheries Research* 210: 214-233.
- Lucca, B. M., and J. D. Warren. 2019. Fishery-independent observations of Atlantic menhaden abundance in the coastal waters south of New York. *Fisheries Research* 218: 229-236.
- Nesslage, G. M., and M. J. Wilberg. 2019. A performance evaluation of surplus production models with time-varying intrinsic growth in dynamic ecosystems. *Canadian Journal of Fisheries and Aquatic Sciences* 76(12): 2245-2255.
- Schueller, A.M., A. Rezek, R. M. Mroch, E. Fitzpatrick, and A. Cheripka. 2021. Comparison of ages determined by using an Eberbach projector and a microscope to read scales from Atlantic menhaden (*Brevoortia tyrannus*) and Gulf menhaden (*B. patronus*). *Fishery Bulletin* 119(1): 21-32.

Theses and Dissertations of Potential Interest:

- McNamee, J. E. 2018. A multispecies statistical catch-at-age (MSSCAA) model for a Mid-Atlantic species complex. University of Rhode Island.

V. Implementation of FMP Compliance Requirements

All states are required to submit annual compliance reports by August 1.

Quota Results

The Board set the TAC at 233,550 mt (514.9 million pounds) for 2023-2025 based on the adopted ERPs. 1% is set aside for episodic events. States may relinquish all or part of its annual quota by December 1st of the previous year. Delaware relinquished one million pounds of quota, which was redistributed to the states according to procedures outlined in Addendum I to Amendment 3 and is reflected in the 2023 Preliminary Quota in Table 7.

Table 7 also contains 2022 state-specific quotas and directed harvest. The final quotas for 2022 account for 1.2 million pounds of quota relinquished by Delaware, state-to-state transfers (Table 8), and transfers to the EESA. Based on preliminary 2022 landings, PRFC and Connecticut both had overages in part due to quota that was transferred to other states. In August 2023, Virginia transferred quota back to PRFC to account for their overage. Connecticut's overage was deducted from their 2023 quota.

Quota Monitoring

The Board approved timely quota monitoring programs for each state through implementation of Amendment 3. Monitoring programs are intended to minimize the potential for quota overages. Table 6 contains a summary of each state's approved quota monitoring system.

Menhaden purse seine and bait seine vessels (or snapper rigs) are required to submit CDFRs. Maine, New York, and Virginia fulfilled this requirement in 2022. New Jersey did not require purse seine vessels to fill out the specific CDFR but did require monthly trip level reporting on state forms that include complementary data elements to the CDFR. Rhode Island purse seine vessels must call in daily reports to RI DMF and fill out daily trip level logbooks. New Hampshire also does not require the specific CDFR, but does require daily, trip-level reporting from dealers and monthly trip-level reporting from harvesters. Massachusetts requires trip level reporting for all commercial fishermen. Menhaden purse seine fisheries do not currently operate in all other jurisdictions in the management unit.

Biological Monitoring Requirements

Amendment 3 maintains biological sampling requirements for non *de minimis* states as follows:

- One 10-fish sample (age and length) per 300 mt landed for bait purposes for Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Delaware; and
- One 10-fish sample (age and length) per 200 mt landed for bait purposes for Maryland, Potomac River Fisheries Commission, Virginia, and North Carolina

Table 9 provides the number of 10-fish samples required and collected for 2022. These are based on the best available 2022 total bait landings data (including directed, incidental, and EESA landings) provided to the Commission by the states. In 2022, Maine fell short of the requirement, collecting 35 of the 39 required samples. Connecticut also collects bait samples from the Long Island Sound Trawl Survey, which produced 190 age samples and 881 length samples over 190 tows.

The PRT continued to discuss whether a sufficient number of age and length samples are being collected from different commercial gear types as well as regions, and whether substituting samples from fishery-independent sources is appropriate for meeting the requirement. The Stock Assessment Subcommittee will evaluate the biological sampling as part of the 2025 single-species assessment update.

Adult CPUE Index Requirement

Amendment 3 requires that, at a minimum, each state with a pound net fishery must collect catch and effort data elements for Atlantic menhaden as follows; total pounds landed per day, number of pound nets fished per day. These are harvester trip level ACCSP data requirements. In May of 2013, the Board approved North Carolina's request to omit this information on the basis that it did not have the current reporting structure to require a quantity of gear field by harvesters or dealers. In recent years, NC DMF staff have worked to develop a proxy method to estimate effort but this approach likely would not work for developing an adult CPUE index.

De Minimis Status

To be eligible for *de minimis* status, a state's bait landings must be less than 1% of the total coastwide bait landings for the most recent two years. State(s) with a reduction fishery are not eligible for *de minimis* consideration. If granted *de minimis* status by the Board, states are exempt from implementing biological sampling as well as pound net catch and effort data reporting. The Board also previously approved a *de minimis* exemption for New Hampshire, South Carolina and Georgia from implementation of timely reporting. The states of Pennsylvania, South Carolina, Georgia, and Florida requested and qualify for *de minimis* status for the 2022 fishing season.

VI. Plan Review Team Recommendations and Notable Comments

Management Recommendations

- The PRT recommends that the *de minimis* requests from Pennsylvania, South Carolina, Georgia, and Florida, be approved.
- The PRT recommends that the Technical Committee be tasked with evaluating the biological sampling requirement to be readdressed in a future management document or stock assessment.

VII. Literature Cited

Atlantic States Marine Fisheries Commission (ASMFC). 2022. Atlantic Menhaden Stock Assessment Update. Prepared by the ASMFC Atlantic Menhaden Stock Assessment Subcommittee. 127 pp.

Southeast Data, Assessment, and Review (SEDAR). 2015. SEDAR 40 – Atlantic Menhaden Stock Assessment Report. SEDAR, North Charleston SC. 643 pp.

SEDAR. 2020. SEDAR 69 – Atlantic Menhaden Benchmark Stock Assessment Report. SEDAR, North Charleston SC. 691 pp. available online at: <http://sedarweb.org/sedar-69>

SEDAR. 2020. SEDAR 69 - Atlantic Menhaden Ecological Reference Points Stock Assessment Report. SEDAR, North Charleston SC. 560 pp. available online at: <http://sedarweb.org/sedar-69>

Table 1. Directed, bycatch, and episodic events set aside landings in 1000s of pounds for 2022 by jurisdiction. Source: 2022 ASMFC state compliance reports for Atlantic menhaden. NA = not applicable; C = confidential

State	Directed	Incidental Catch	EESA
ME	7,574	15,602	2,647
NH	4,987	-	NA
MA	8,087	595	1,743
RI	617	-	-
CT	299	-	NA
NY	1,177	-	NA
NJ	46,889	-	NA
DE	53	-	NA
MD	3,357	-	NA
PFRC	3,569	-	NA
VA	331,081	1,784	NA
NC	539	-	NA
SC	C	-	NA
GA	0	-	NA
FL	152	-	NA

Table 2. Atlantic menhaden reduction and bait landings in thousand metric tons, 1988-2022.

	Reduction Landings (1000 mt)	Bait Landings (1000 mt)
1988	278	43.8
1989	284	31.5
1990	343	28.1
1991	330	29.7
1992	270	33.8
1993	310	23.4
1994	260	25.6
1995	340	28.4
1996	293	21.7
1997	259	24.2
1998	246	38.4
1999	171	34.8
2000	167	33.5
2001	234	35.3
2002	174	36.2
2003	166	33.2
2004	183	34.0
2005	147	38.4
2006	157	27.2
2007	174	42.1
2008	141	47.6
2009	144	39.2
2010	183	42.7
2011	174	52.6
2012	161	63.7
2013	131	37.0
2014	131	41.6
2015	143	45.8
2016	137	43.1
2017	129	43.8
2018	141	50.2
2019	151	58.1
2020	125	59.6
2021	137	58.4
2022	134	60.1
Avg 2017-2021	136	54.0

Table 3. Incidental fishery landings by state in 1000s of pounds, 2013-2022. Only states that have reported incidental catch landings are listed. Average total incidental catch landings for the time series is 8.3 million pounds.

State	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
ME		-	-	506	5,374	2,995	10,751	13,605	11,771	15,602
MA								49	174	595
RI	16	99	70	40	136	-	-	-	C	-
CT	0	-	10	-	124	-	-	-	C	-
NY	0	325	769	281	807	-	-	282	310	-
NJ	0	626	241	196	-	204,240	-	20	C	-
DE	76	112	92	21	29	-	-	-	-	-
MD	2,864	2,201	1,950	996	-	-	-	-	-	-
PRFC	1,087	1,112	455	106	670	-	-	-	-	-
VA	268	2,232	2,103	326	-	110,281	-	-	-	1,784
FL	65	126	302	111	264	-	-	-	-	-
Total	4,377	6,831	5,992	2,581	7,404	3,215	10,751	13,957	12,336	16,152

Table 4. Total incidental landings (1000s of pounds), number of trips, and number of states reporting landings in the incidental catch fishery, 2013-2022.

Year	Landings (1000s of pounds)	Number of Trips	Number of states landing
2013	4,377	2,783	4
2014	6,831	5,275	8
2015	5,992	4,498	9
2016	2,581	2,222	9
2017	7,407	2,108	7
2018	3,310	1,224	3
2019	10,751	3,113	1
2020	13,957	3,565	4
2021	12,336	3,099	6
2022	16,152	4,134	2
Total	67,037	27,887	

Table 5. Episodic Events Set-Aside (EESA) fishery quota, landings, and participating states by year. *The 2018 EESA quota was reduced due to an overage in 2017. The 2018 EESA overage was paid back in full by the state of Maine. **The 2021 overage was covered by quota transfers in 2021 and 2022, and there will be no deduction for the 2022 fishing year. ^The 2022 overage was partially covered by a quota transfer and the remainder was deducted from the 2023 set aside.

Year	States Declared Participation	EESA Quota (MT)	Landed (MT)	% EESA Quota Used
2013		1,708	-	-
2014	RI	1,708	134	7.8%
2015	RI	1,879	854	45.5%
2016	ME, RI, NY	1,879	1,728	92.0%
2017	ME, RI, NY	2,000	2,129	106.5%
2018*	ME	2,031	2,103	103.6%
2019	ME	2,160	1,995	92.4%
2020	ME & MA	2,160	2,080	96.3%
2021**	ME, MA, RI	1,944	2,213	113.8%
2022^	ME, MA	1,944	1,992	102.4%

Table 6. State quota reporting timeframes in 2021. The **bold** text indicates which reporting program (dealer or harvesters) the states use to monitor its quotas. **Blue text** indicates changes from 2020.

State	Dealer Reporting	Harvester Reporting	Notes
ME	monthly	daily/weekly	Harvesters must report same day during directed and episodic event trips; harvesters report daily trips weekly for trips <6,000 lbs. Harvest reports are used for quota monitoring.
NH	daily	monthly	Exempt from timely reporting. Implemented daily, transaction level reporting for state dealers.
MA	weekly	monthly/daily	Harvesters landing greater than 6,000 lbs must report daily
RI	twice weekly	quarterly/daily	Harvesters using purse seines must report daily
CT	weekly/monthly	monthly/daily	CT operates as directed fisheries until 90% of the quota is harvested. Then operates at the 6,000 pound bycatch trip limit.
NY	Weekly	monthly	Capability to require weekly harvester reporting if needed
NJ	weekly	monthly	All menhaden sold or bartered must be done through a licensed dealer
DE	—	monthly/daily	Harvesters landing menhaden report daily using IVR
MD	monthly	monthly/daily	PN harvest is reported daily, while other harvest is reported monthly.
PRFC	—	weekly	Trip level harvester reports submitted weekly. When 70% of quota is estimated to be reached, then pound netters must call in weekly report of daily catch.
VA	—	monthly/weekly/daily	Purse seines submit weekly reports until 97% of quota, then daily reports. Monthly for all other gears until 90% of quota, then reporting every 10 days.
NC	monthly (combined reports)		Single trip ticket with dealer and harvester information submitted monthly. Larger dealers (>50,000 lbs of landings annually) can report electronically, updated daily.
SC	monthly (combined reports)		Exempt from timely reporting. Single trip ticket with dealer and harvester information.
GA	monthly (combined reports)		Exempt from timely reporting. Single trip ticket with dealer and harvester information.
FL	monthly/weekly (combined reports)		Monthly through the FWC Marine Fisheries Trip Ticket system until 75% of quota is projected to have been met, then weekly phone calls to dealers who have been reporting menhaden landings until the directed fishery is closed.

Table 7. Results of 2022 quota accounting in pounds. The 2022 landings do not include landings from the incidental catch fishery because they do not count towards the TAC. A majority of the 2022 episodic events set aside (EESA) quota was used by Maine with the remainder used by Massachusetts. The 2023 base quotas account for the redistribution of relinquished quota by Delaware (1 million pounds) and for the implementation of Addendum I to Amendment 3, which modified the quota allocation process.

State	2022 Base Quota*	Returned Set Aside	Transfers^	Final 2022 Quota	Overages	2023 Base Quota*
ME	2,194,303		5,380,000	7,574,303		24,510,314
NH	2,121,582		3,070,000	5,191,582		6,052,530
MA	5,417,812		2,956,000	8,373,812		10,838,902
RI	2,196,719		-1,460,000	736,719		4,147,882
CT	2,188,548		-2,110,000	78,548	220,704	1,472,767
NY	2,933,580		-	2,933,580		4,298,217
NJ	46,267,280		1,850,000	48,117,280		56,172,891
PA	2,121,464		-1,300,000	821,464		50,974
DE	974,821		-870,000	104,821		375,998
MD	8,029,511		-2,500,000	5,529,511		5,947,968
PRFC	4,561,747		-1,000,000	3,561,747	7,703**	5,547,444
VA	334,781,533		4,310,000	339,091,533		384,164,855
NC	4,062,537		-2,950,000	1,112,537		1,892,146
SC	2,121,464		-2,120,000	1,464		1,274,601
GA	2,121,464		-2,000,000	121,464		1,274,352
FL	2,198,486		-1,320,000	878,486		1,490,464
Total	424,292,851			424,292,851		509,740,712

*Includes redistributed relinquished quota for that year and any overages from the previous season.

**Resolved through quota transfer from VA.

^Includes inter-state transfers and transfers to the EESA quota.

Table 8. State-to-state transfers of menhaden commercial quota for the 2022 Fishing year.

Transfer Date	ME	NH	MA	RI	CT	NY	NJ	PA	DE	MD	PRFC	VA	NC	SC	GA	FL
6/6/2022		750,000			(750,000)											
6/27/2022	2,580,000				(550,000)			(600,000)					(880,000)	(550,000)		
6/27/2022							1,850,000		(500,000)				(600,000)	(750,000)		
6/29/2022				360,000	(100,000)								(160,000)	(100,000)		
7/1/2022	480,000															(480,000)
7/7/2022												370,000		(370,000)		
7/7/2022			2,380,000		(350,000)			(400,000)					(560,000)	(350,000)	(400,000)	(320,000)
7/8/2022									(370,000)			370,000				
7/8/2022	600,000														(600,000)	
7/18/2022			500,000							(500,000)						
7/18/2022		1,000,000								(1,000,000)						
7/20/2022												1,000,000			(1,000,000)	
8/9/2022												320,000				(320,000)
8/17/2022										(500,000)		500,000				
8/17/2022	500,000									(500,000)						
9/14/2022		300,000			(300,000)											
9/16/2022		300,000						(300,000)								
9/16/2022											(1,000,000)	1,000,000				
9/22/2022	220,000		140,000	(360,000)												
9/27/2022		200,000														(200,000)
9/29/2022												750,000	(750,000)			
10/12/2022		400,000		(400,000)												
11/2/2022		120,000		(60,000)	(60,000)											
12/15/2022	1,000,000			(1,000,000)												
Total	5,380,000	3,070,000	3,020,000	(1,460,000)	(2,110,000)	-	1,850,000	(1,300,000)	(870,000)	(2,500,000)	(1,000,000)	4,310,000	(2,950,000)	(2,120,000)	(2,000,000)	(1,320,000)

Table 9. Biological monitoring results for the 2022 Atlantic menhaden bait fishery.

*Age samples are still being processed

State	#10-fish samples required	#10-fish samples collected	Age samples collected	Length samples collected	Gear/Comments
ME	39	35	350	350	31 from purse seine; 4 from gillnets
NH	8	8	80	80	Purse Seine
MA	16	17	170	170	16 purse seine; 1 rod & reel
RI	1	1	10	10	Otter Trawl' 39 additional FI samples available
CT	1	1	10	10	Long Island Sound Trawl Survey - 167 tows in 2022; collected 190 age/881 length samples
NY	2	14	141	141	cast net, seine net
NJ	65	90	*	900	Purse Seine
	6	-	*	-	Other Gears
DE	1	1	10	10	Gill net
MD	8	20	325	1,132	Pound net
PRFC	8	19	190	190	pound net
VA	6	1	10	10	Pound Net
	10	68	679	679	Gill Net
NC	1	7	71	1,236	gillnet
Total	172	282	2046	4918	

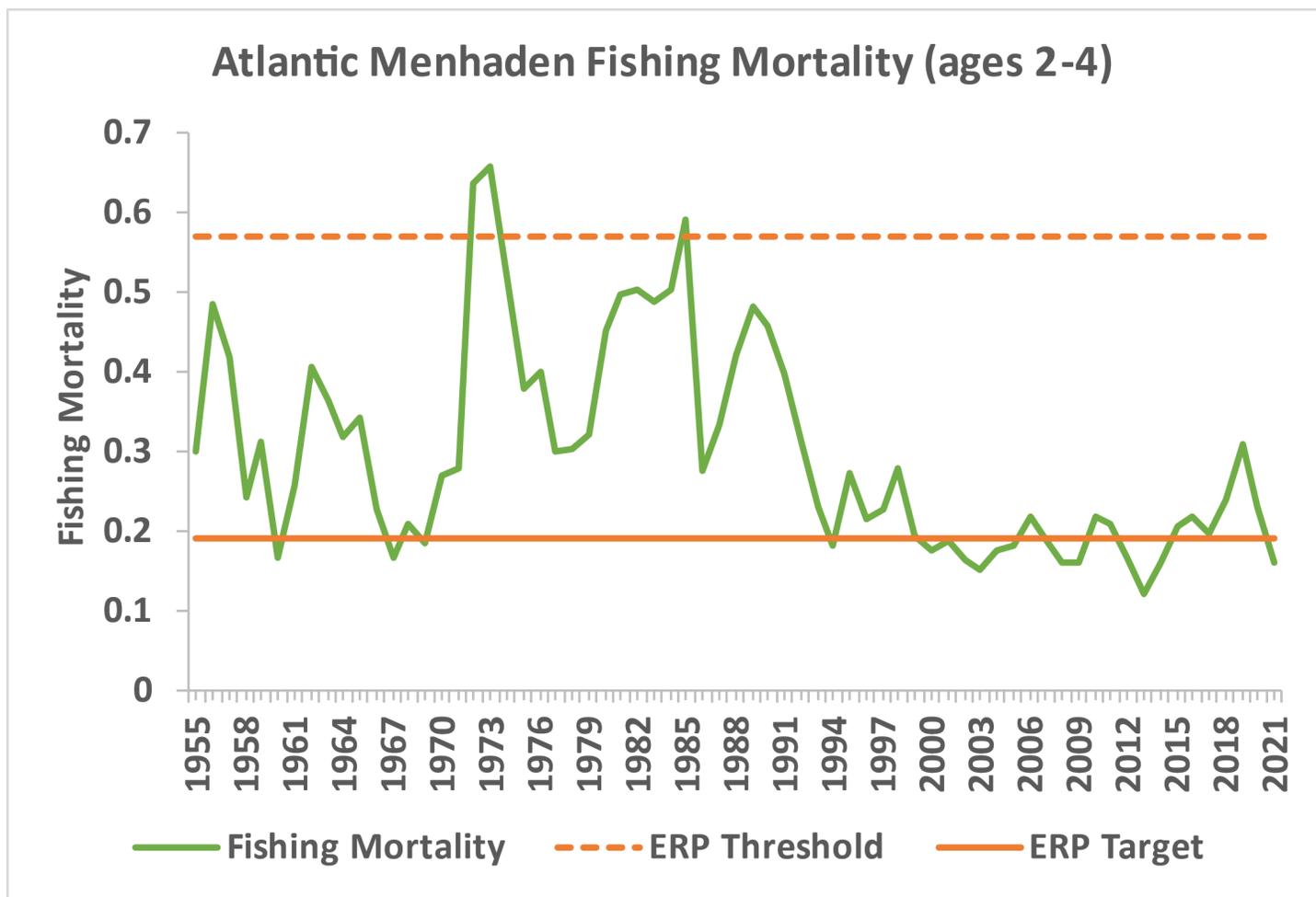


Figure 1. Fishing mortality, 1955-2021. The ERP fishing mortality reference points are $F_{\text{target}} = 0.19$ and $F_{\text{threshold}} = 0.57$. $F_{2017} = 0.16$. Source: ASMFC 2022.

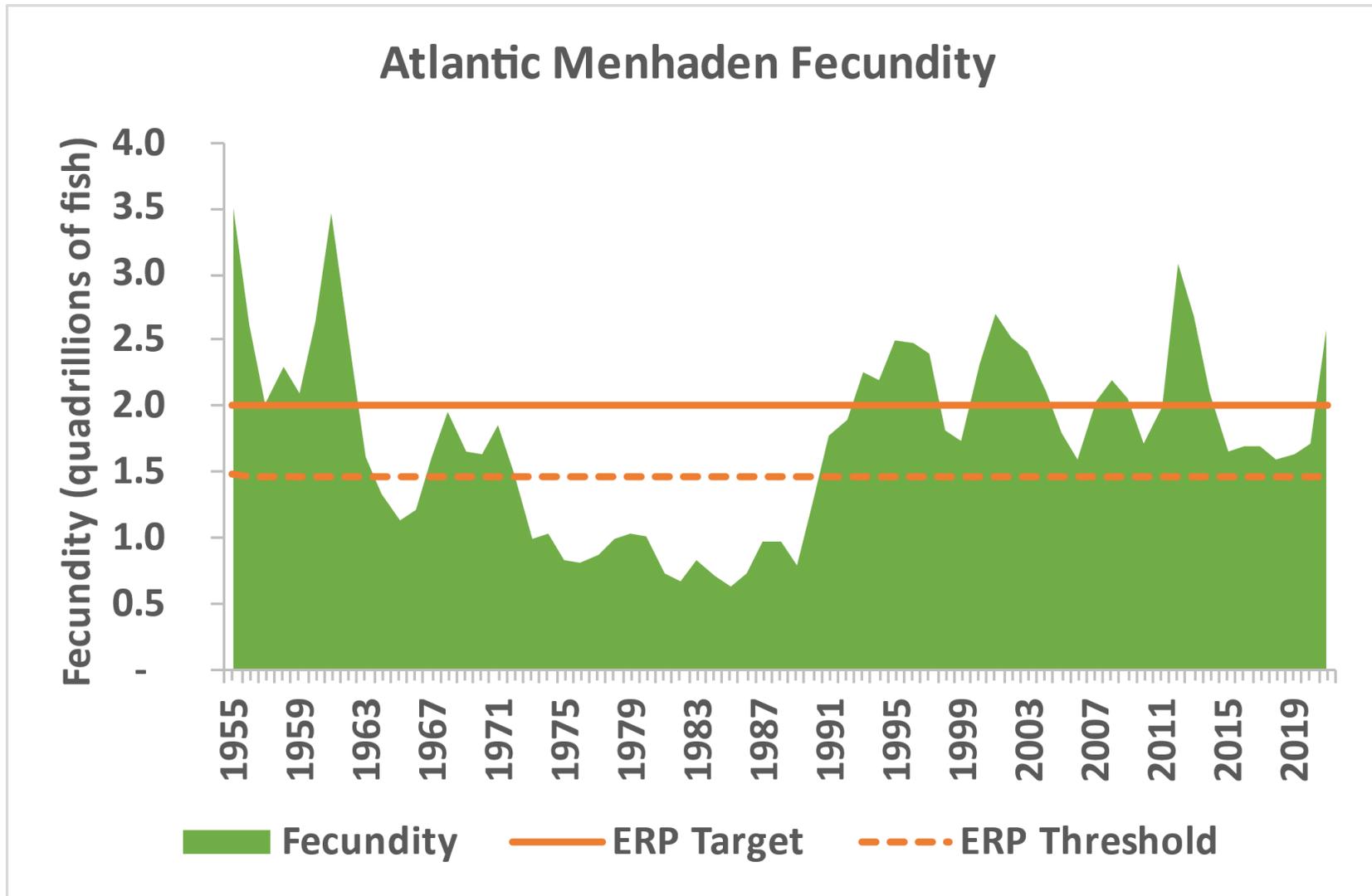


Figure 2. Atlantic menhaden fecundity, 1955-2021. The ERPs for population fecundity are $FEC_{target} = 2,003,986$ (billions of eggs), and $FEC_{threshold} = 1,492,854$ (billions of eggs). Source: ASMFC 2022.

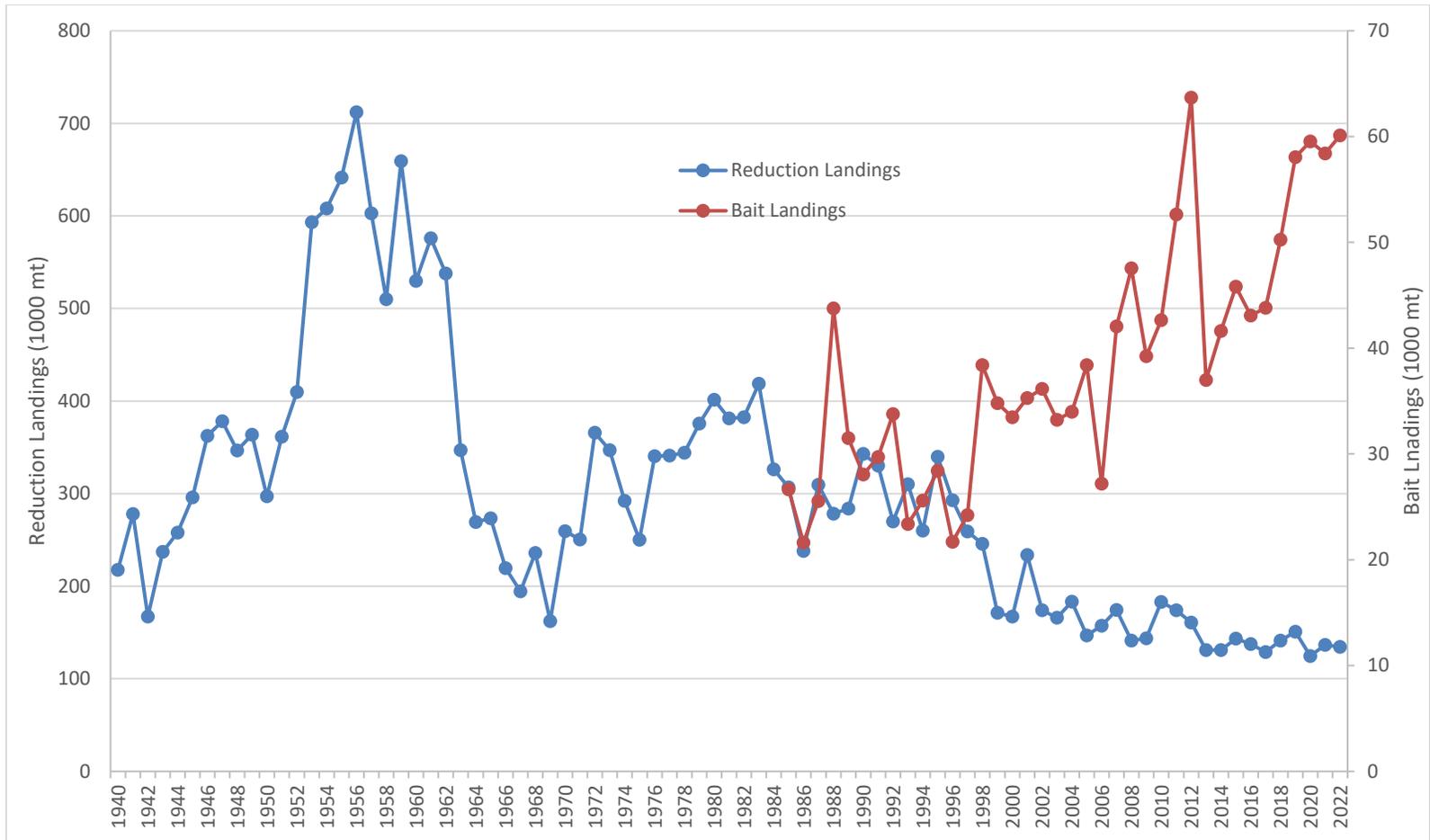


Figure 3. Landings from the reduction purse seine fishery (1940–2022) and bait fishery (1985–2022) for Atlantic menhaden. Note: there are two different scales on the y-axes.

Localized Depletion of Atlantic Menhaden in the Chesapeake Bay and Its Impact on Maryland and Virginia Fisheries



October 16, 2023

Phil Zalesak
President
SMRFO (www.smrfo.org)

Executive Summary

Although the statement that “Atlantic menhaden are not over fished and overfishing is not occurring” may apply to the Atlantic Coast, it does not apply to the Chesapeake Bay.

The latest scientific data indicates that there are insufficient Atlantic menhaden in Virginia waters during the Atlantic menhaden reduction fishing season to sustain life for fish and birds dependent on Atlantic menhaden for their survival.

This lack of menhaden is caused by the removal of 3/4 of a billion fish from the Chesapeake Bay and the waters just outside the Bay along the Atlantic Coast by the Atlantic menhaden reduction fishing industry.

The solution to this problem is to end the Atlantic menhaden reduction fishing in Virginia waters and limit reduction fishing to federal waters east of the 3 nautical mile Exclusive Economic Zone.

References:

https://asmfc.org/uploads/file/63d8390fAtlMenhadenERPAssmt_PeerReviewReports.pdf page iii
<https://www.frontiersin.org/articles/10.3389/fmars.2023.1172787/full>

**Atlantic Menhaden:
A Critical Forage Fish for Striped Bass, Bluefish, Weakfish and Osprey**



Striped Bass Mortality Rate a Function of Atlantic Menhaden Mortality Rate

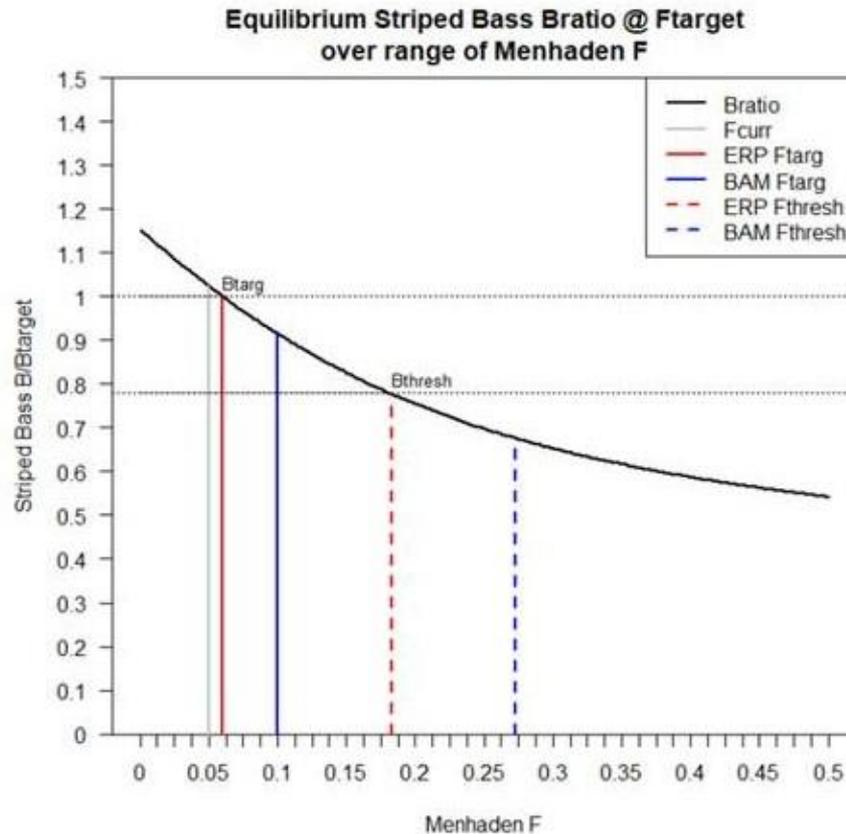


Figure 148. Terminal year biomass ratio (B/B_{TARGET}) from the NWACS-MICE model for age 6+ striped bass over a range of Atlantic menhaden F with striped bass fished at their F target. Vertical solid and dotted lines indicate the BAM single-species target and threshold F as well as the current F and the proposed ERP target and threshold F for Atlantic menhaden.

Allocation of Atlantic Menhaden Reduction Fishery in the Chesapeake Bay

	<u>Metric Tons</u>	<u># of Fish *</u>
• Prior to 2006 No quota	No quota	
• 2006 – 2014	110,400	529,104,000
• 2014 – 2018	87,236	418,088,012
• 2018 – 2023	51,000	244,423,043

* .46 pounds per fish for reduction fishery (NOAA)

<https://asmfc.org/species/atlantic-menhaden>

Atlantic Menhaden Industrial Harvesting



Atlantic Menhaden Storing and Shipping (Purse Seining for Atlantic Menhaden in Cape May NJ)



https://www.youtube.com/watch?v=ZcE_uGmz-yw

Atlantic Menhaden Purse Seine Settings

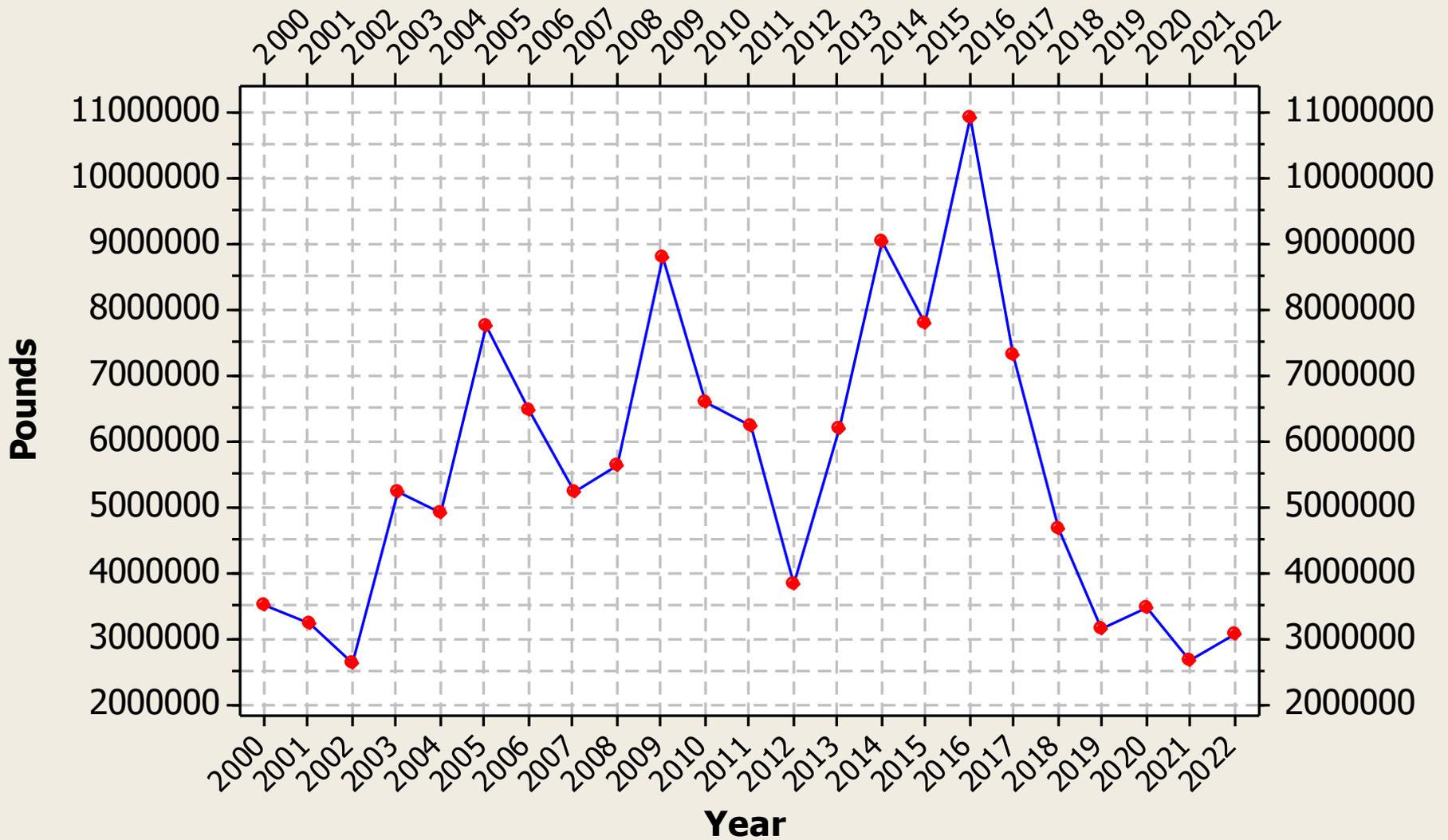
Figure 4.1.3.4.3. Locations of all purse-seine sets by Omega Protein vessels (red) and last sets of trips that were sampled for age and size composition of the catch (= port samples; green) during 2013; data are from CDFR data base.



Current Allocation of Atlantic Menhaden by State

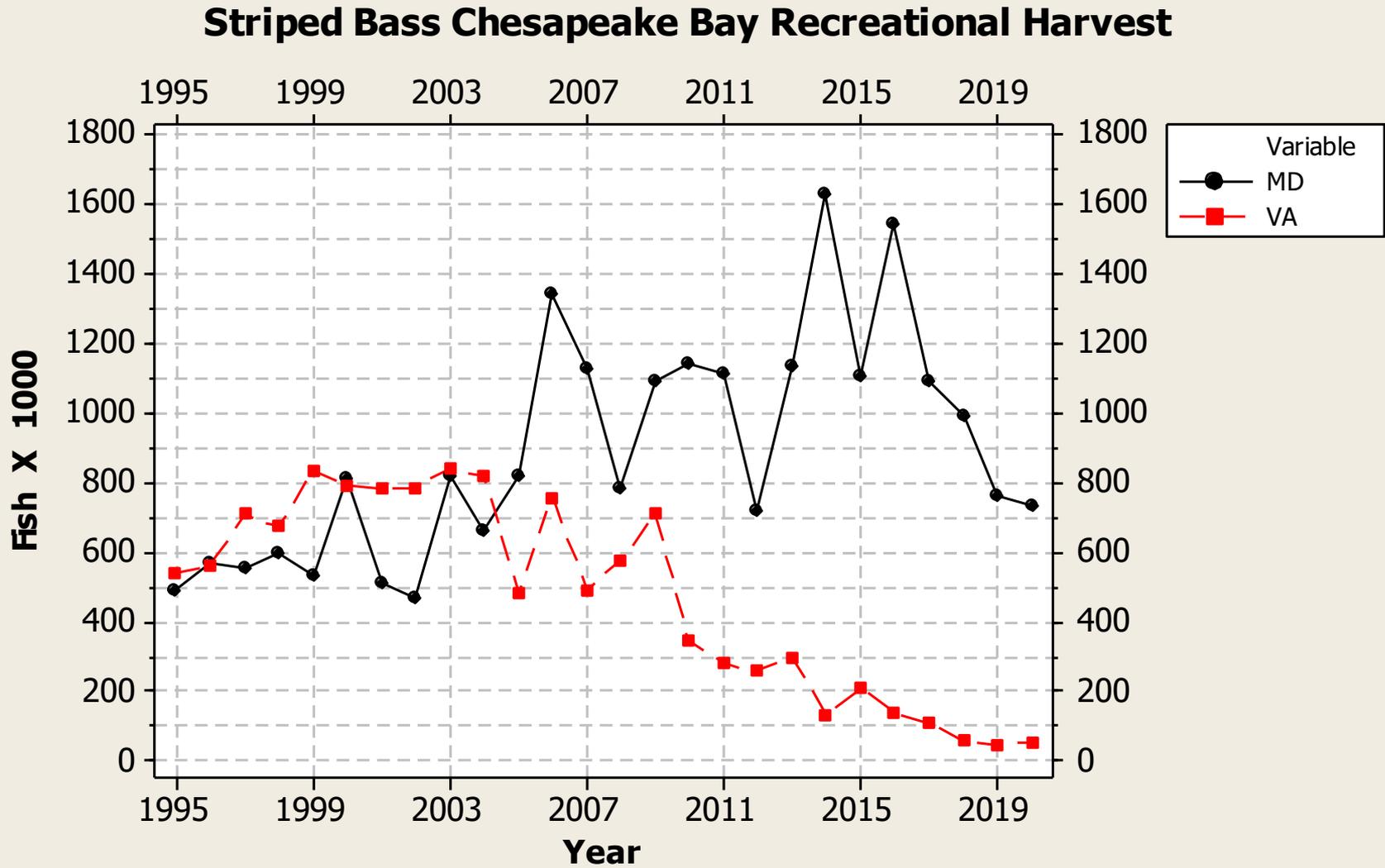
Allocation	Percentage	2023 - 2024		Fish*
		Metric Tons	Pounds	
Atlantic Coast	100.00%	233,550	514,884,330	1,119,313,761
Virginia	75.20%	175,630	387,193,016	841,723,948
Reduction Fishery	67.71%	158,137	348,628,592	757,888,243
Chesapeake Bay	21.84%	51,000	112,434,600	244,423,043
Atlantic Ocean	45.87%	107,137	236,200,420	513,479,174
Other States	24.80%	57,920	127,691,314	277,589,813
* .46 pounds per fish				

Maryland Recreational Striped Bass Harvest by Year

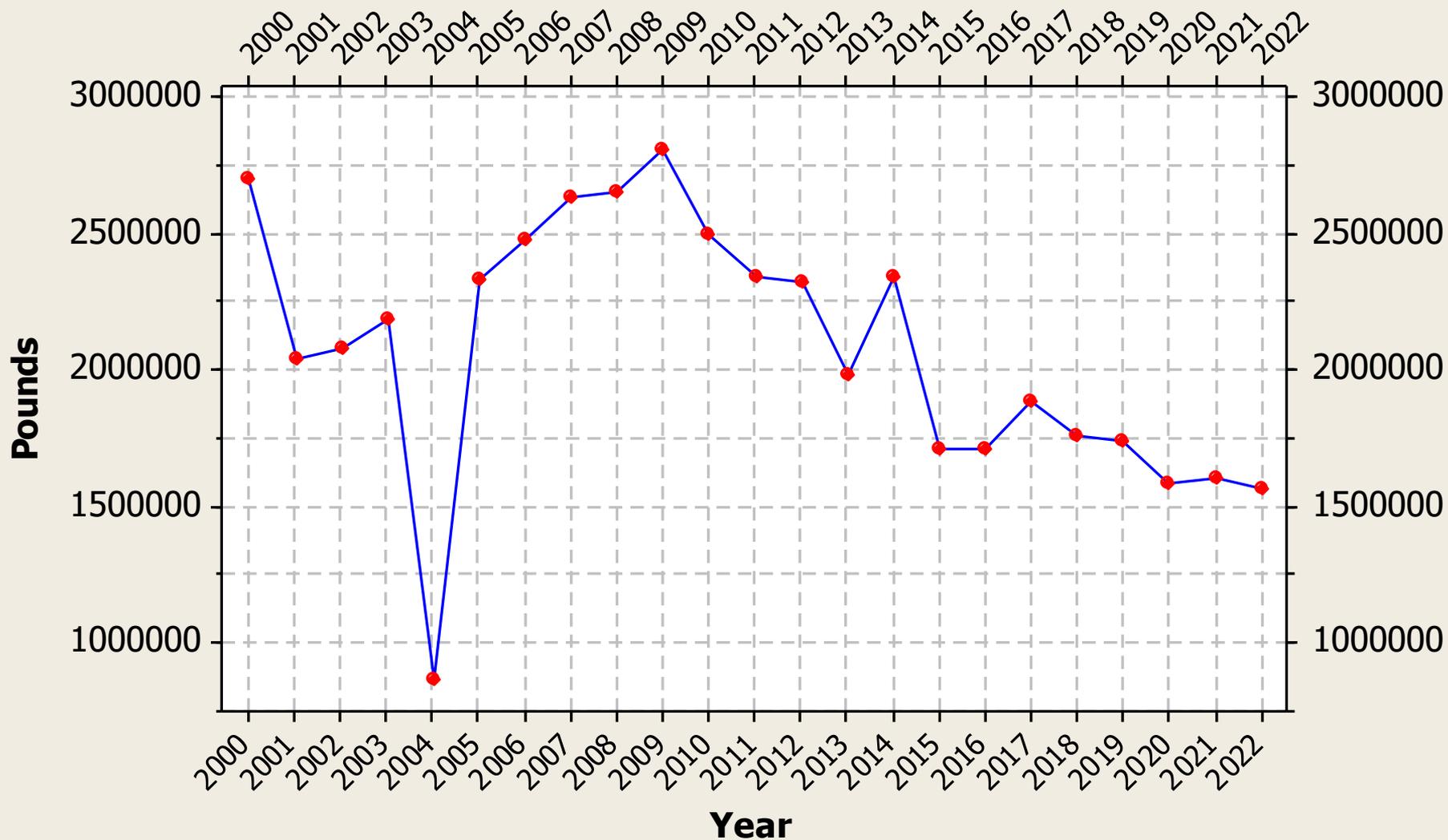


<https://www.st.nmfs.noaa.gov/st1/commercial/>

Striped Bass Chesapeake Bay Recreational Harvest Trend

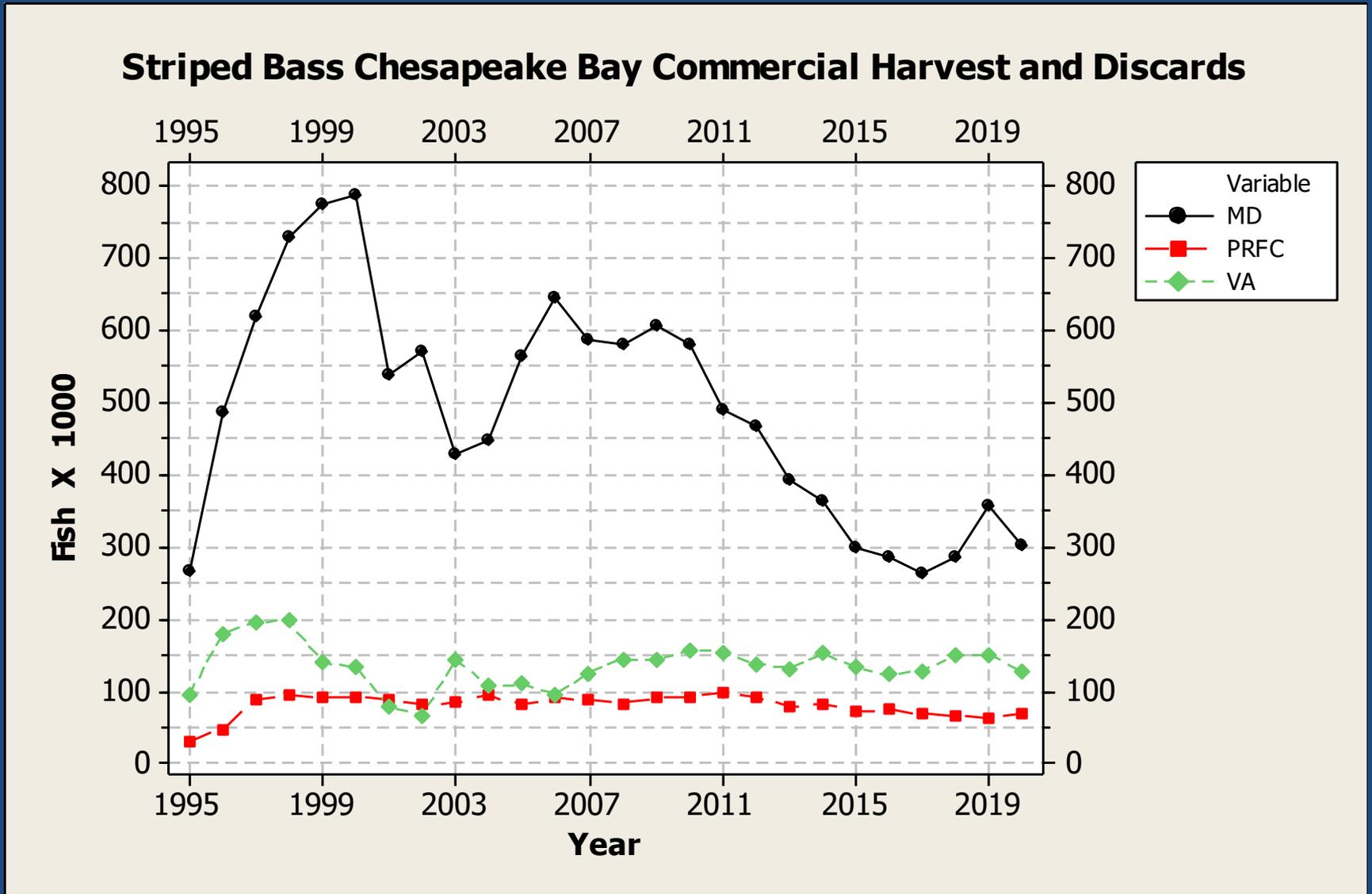


Maryland Commercial Harvest of Striped Bass By Year

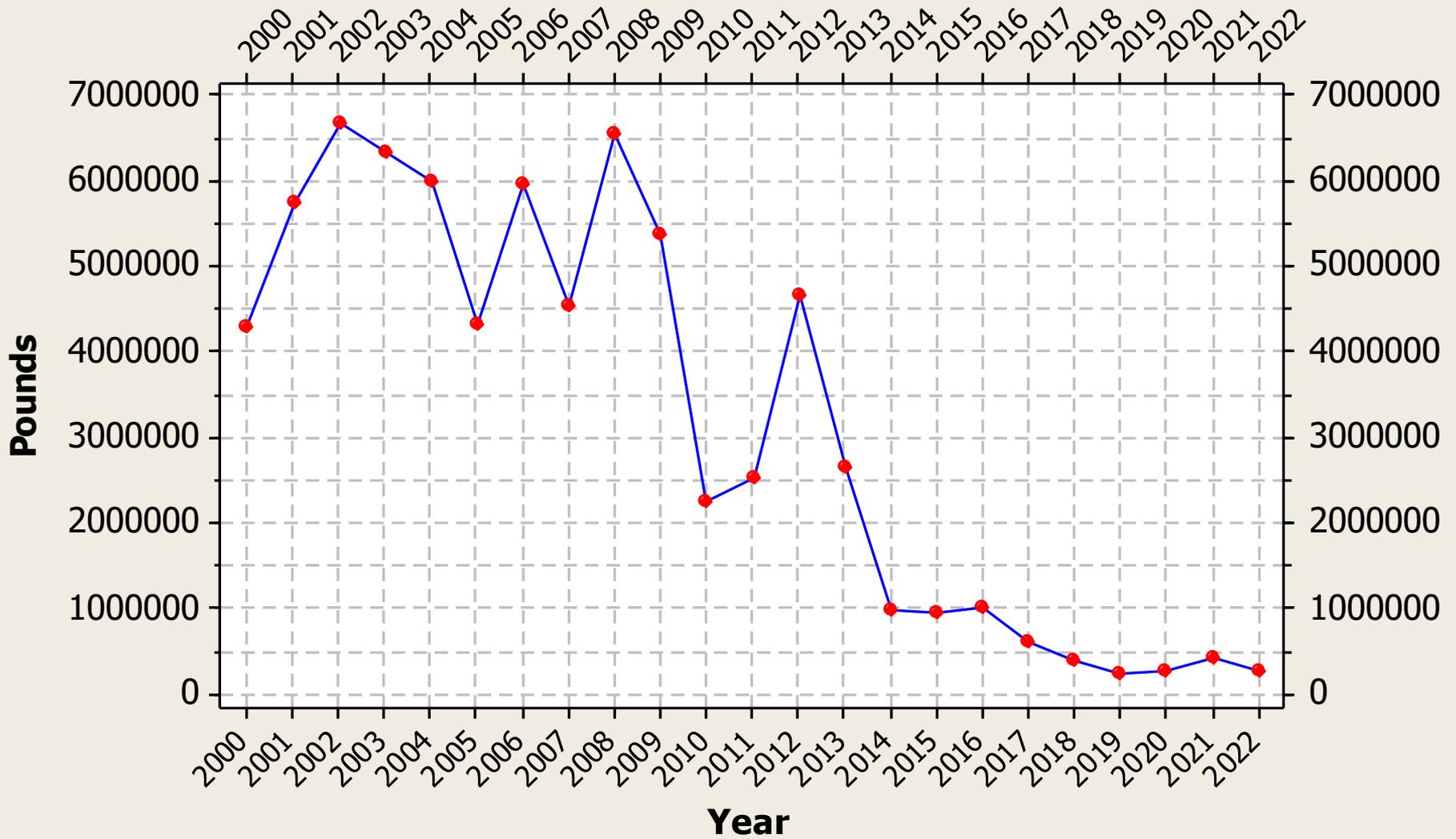


<https://www.st.nmfs.noaa.gov/st1/commercial/>

Striped Bass Chesapeake Bay Commercial Harvest and Discards Trends

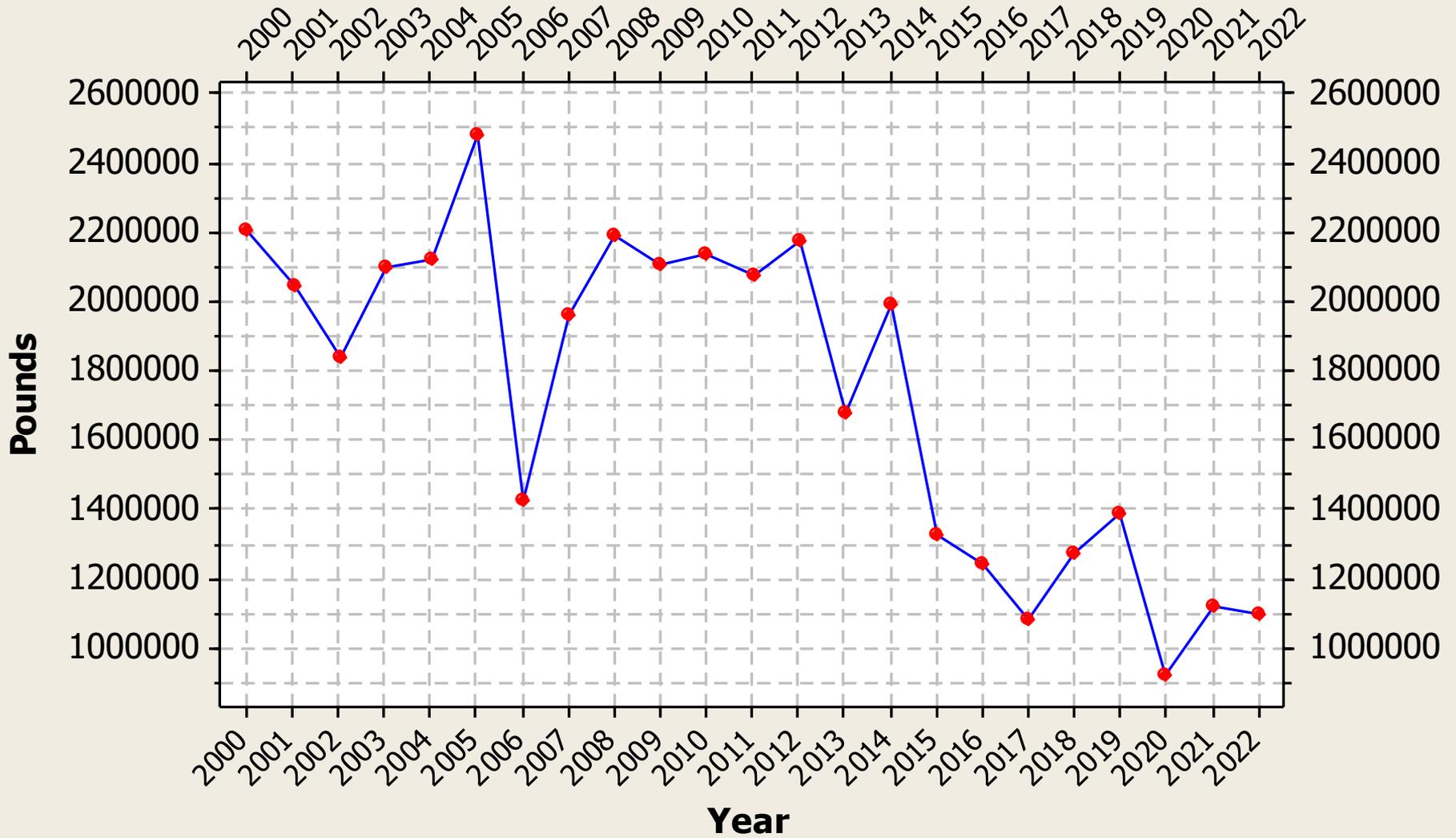


Virginia Recreational Striped Bass Harvest by Year



<https://www.st.nmfs.noaa.gov/st1/commercial/>

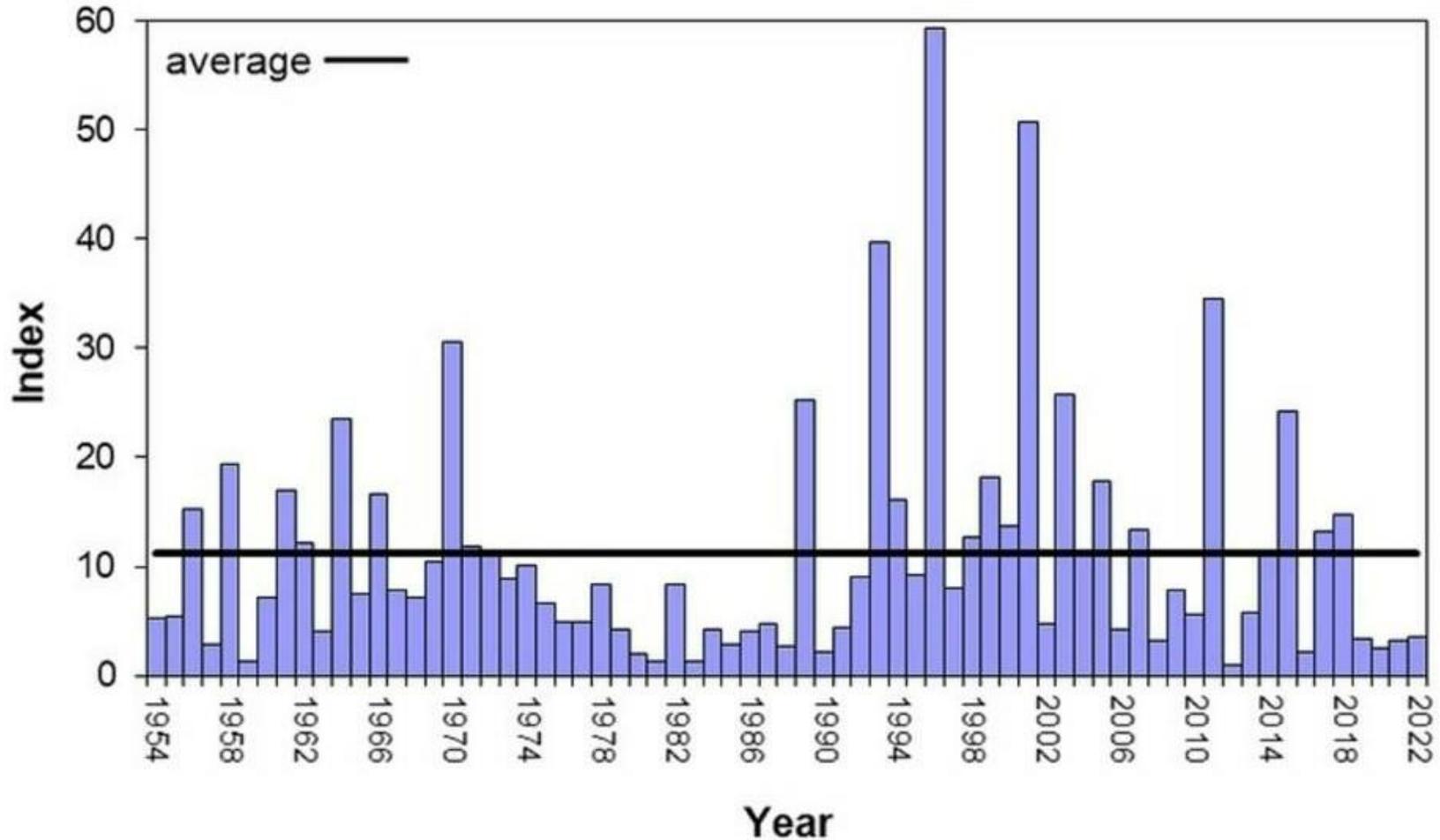
Virginia Commercial Striped Bass Harvest By Year



<https://www.st.nmfs.noaa.gov/st1/commercial/>

Maryland's Juvenile Striped Bass Index

Arithmetic Mean (AM) Catch per Haul



<https://news.maryland.gov/dnr/2022/10/20/chesapeake-bay-2022-young-of-year-survey-results-announced/>

Striped Bass Economic Impact to Maryland (2016)

Commercial GDP: \$17,109,700

Commercial Jobs 584

Recreational GDP: \$802,791,200

Recreational Jobs 10,193

Comparisons Between the Fisheries

Table MD-8. Comparison of commercial and recreational impacts: Maryland 2016

	Commercial Fishery	Recreational Fishery	Total	Commercial Fishery	Recreational Fishery	Total
Pounds landed (000s)	1,709.4	10,919.1	12628.5	14%	86%	100%
Jobs supported	584	10,193	10,777	5%	95%	100%
Income (\$000s)	\$12,569.6	\$496,859.8	\$509,429.7	2%	98%	100%
GDP (\$000s)	\$17,109.7	\$802,791.2	\$819,900.9	2%	98%	100%

Ref: The Economic Contributions of Recreational and Commercial Striped Bass Fishing, Southwick Associates, 4/12/19

Striped Bass Economic Impact to Virginia (2016)

Commercial GDP: \$12,198,100
Commercial Jobs 384

Recreational GPD: \$106,623,300
Recreational Jobs 1,444

Comparisons Between the Fisheries

Table VA-7. Comparison of commercial and recreational impacts: Virginia

	Commercial Fishery	Recreational Fishery	Total	Commercial Fishery	Recreational Fishery	Total
Pounds landed (000s)	1,333.6	1,024.4	2358.0	57%	43%	100%
Jobs supported	384	1,444	1828	21%	79%	100%
Income (\$000s)	\$9,016.0	\$67,550.7	\$76,566.7	12%	88%	100%
GDP (\$000s)	\$12,198.1	\$106,623.3	\$118,821.4	10%	90%	100%

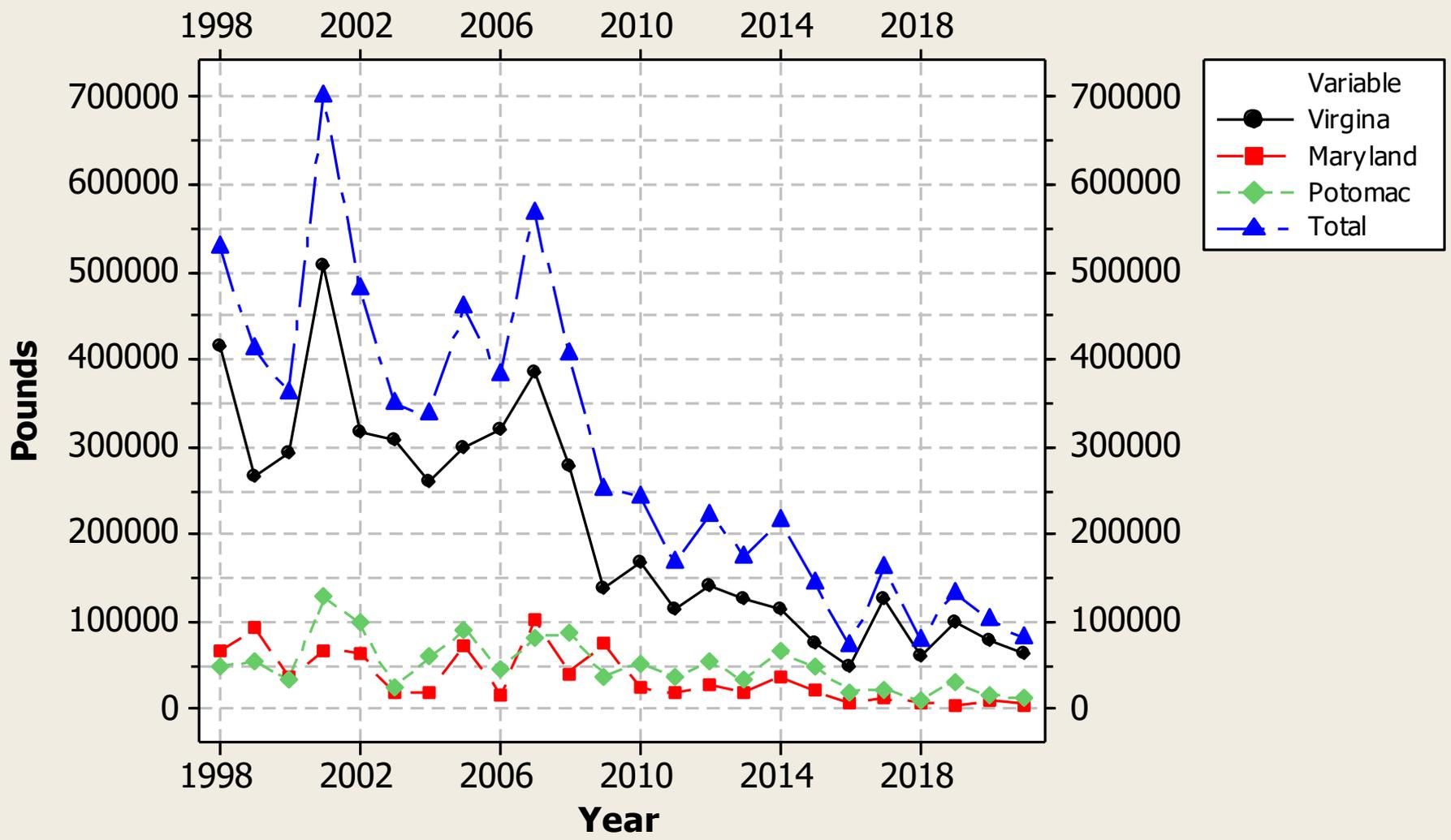
Ref: The Economic Contributions of Recreational and Commercial Striped Bass Fishing, Southwick Associates, 4/12/19

Impact of Striped Bass Related GDP on Maryland and Virginia Economies

	Recreational GDP	Recreational Jobs	Commercial GDP	Commercial Jobs
Maryland	\$802,791,200	10,193	\$17,109,200	584
Virginia	\$106,623,300	1,444	\$12,198,100	384
Total	\$909,414,500	11,637	\$29,307,300	968

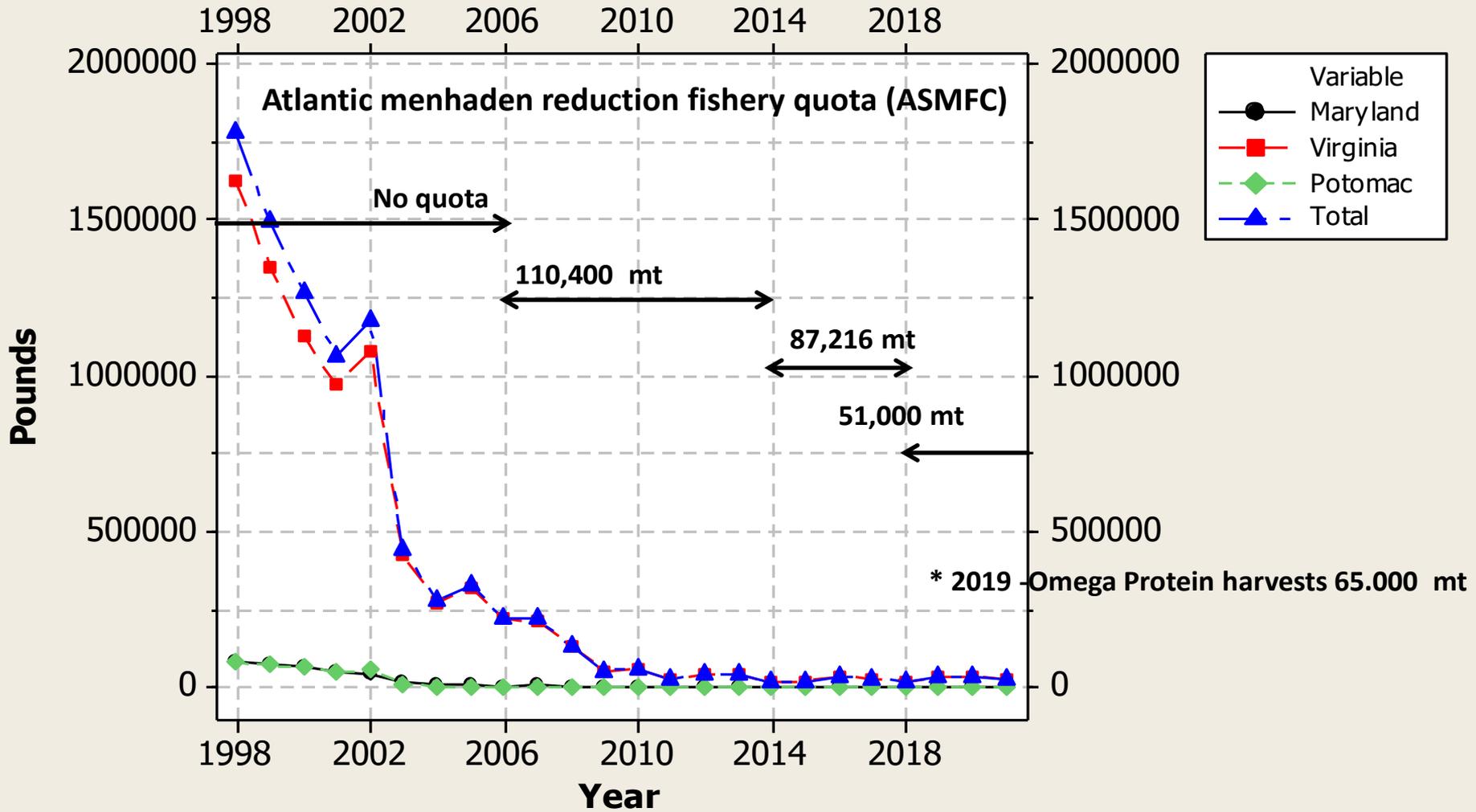
Ref: https://mcgraw.org/wp-content/uploads/2022/01/McGraw-Striped-Bass-Report-FINAL_compressed.pdf

Bluefish Commercial Harvest in the Chesapeake Bay



References: MD DNR, VMRC, PRFC

Weakfish Commercial Harvest in the Chesapeake Bay



References: MD DNR, VMRC, PRFC, ASMFC

Osprey Feeding on Atlantic Menhaden



Dr. Bryan Watts

College of William and Mary

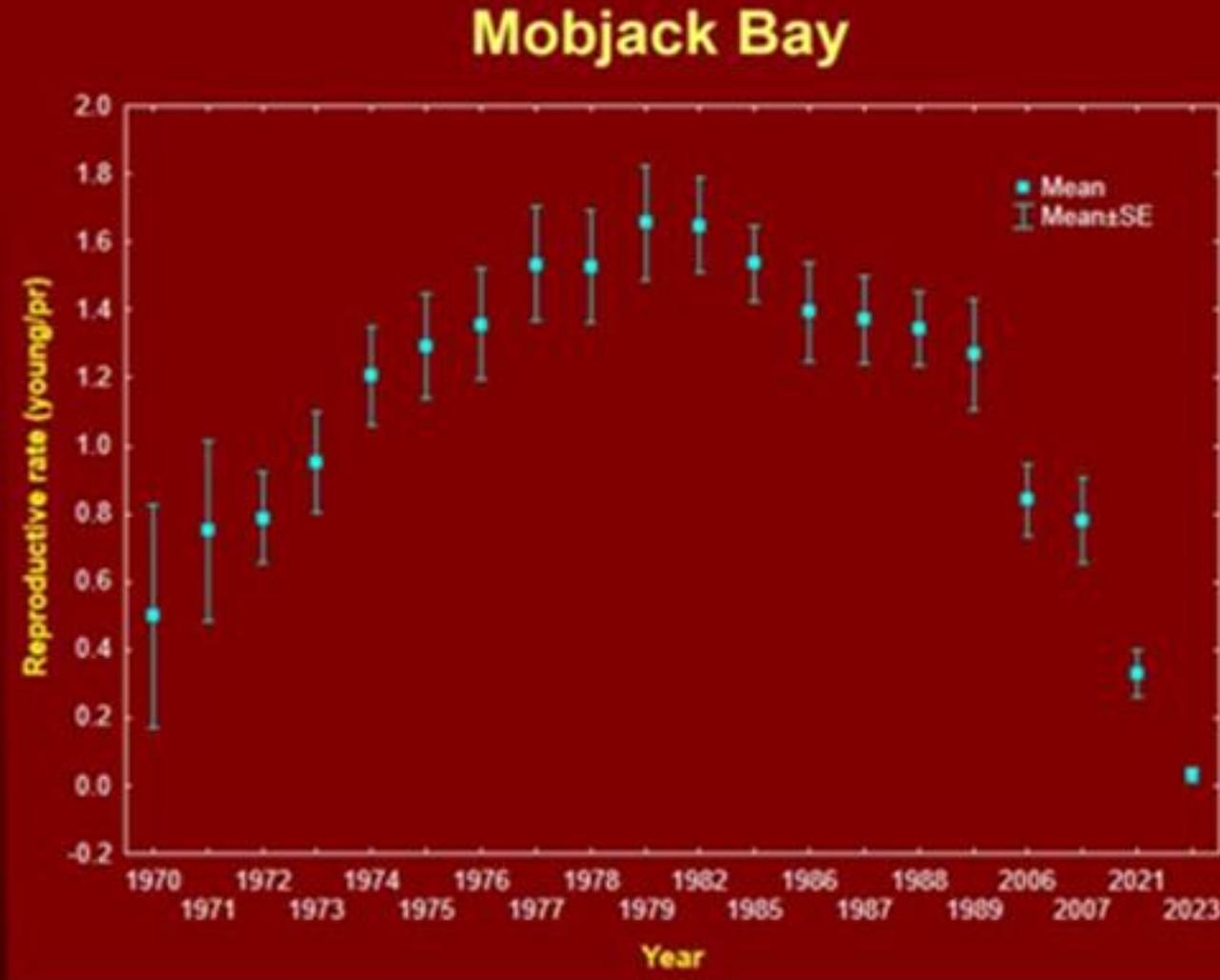
According to Dr. Bryan Watts of the College of William and Mary reductions in menhaden stocks have caused osprey reproductive productivity to decline to below DDT-era rates. This is based on 50 years of research. Dr. Watts provided sworn testimony before the Virginia Marine Resources Commission on 8/22/23. He stated the following:

“The reason we decided to finally to begin to make statements about this issue is that we had moved from several 100 chicks starving in the nests to now 1,000s of chicks starving in the nests in the lower Bay.”

He went on to state “If you look at the relationship between reproductive rates over the last 40 years and the Atlantic menhaden relative abundance index, they are directly related.”

<https://www.youtube.com/watch?v=hf58Z9SLNlg> (14:43)

Osprey Reproductive Rate (Chicks/Active Nest)



Dr. Bryan Watts, Presentation to the ERP Working Group, 10/2/23

Dr. Bryan Watts
College of William and Mary

Osprey Reproductive Rate	Chicks/Active Nest
Requirement	1.15
1970	0.50
1980	2.00
2006	0.75
2021	0.30
2023	0.10

<https://www.youtube.com/watch?v=hf58Z9SLNlg> (14:43).

Osprey Reproductive Performance Data



The CENTER for
CONSERVATION
BIOLOGY

Food Supplementation Increases Reproductive Performance of Ospreys



Introduction | Methods | Results | Discussion | Acknowledgements | Works Cited

Food Addition Group



13 of the 16 nests succeeded at 81%.

3 nests failed during the first **1.38** weeks.

Productivity rate - **1.13** young per active nest.

Control Group



5 of 15 nests succeeded at 33%.

10 nests failed during the first **2.2** weeks.

Productivity rate - **0.47** young per active nest.

Ref: Food Supplementation Increases Reproductive Performance of Ospreys in the Lower Chesapeake Bay, Michael Academia of the College of William & Mary, October 6, 2022

Impact to Osprey in the Chesapeake Bay

Food supplementation Increases Reproductive Performance of Ospreys in the Lower Chesapeake Bay, Frontiers and Marine Science - 4/23/23

“Reproductive rates within the control group were low and unsustainable suggesting that current menhaden availability is too low to support a demographically stable osprey population. Menhaden populations should be maintained at levels that will sustain a stable osprey population in which they are able to produce 1.15 young/active nest to offset mortality.”

Michael Academia and Dr. Bryan Watts

<https://www.frontiersin.org/articles/10.3389/fmars.2023.1172787/full>

The Solution

End Atlantic menhaden reduction harvesting in Virginia waters and limit industrial reduction harvesting to 3 nautical miles off the Atlantic Coastline like all of the other Atlantic States

Support for Proposed Recommendation

First, below is an excerpt from the minutes of the Maryland Department of Natural Resources Tidal and Coastal Recreational Fisheries Committee meeting of 6/29/23. This committee represents thousands of recreational fishermen across the State of Maryland:

Motion from Phil Zalesak, Second by Lenny Rudow - The Maryland Delegation to the ASMFC Atlantic Menhaden Management Board needs to put forth a motion which states: The Atlantic menhaden reduction fishery shall be limited to federal waters east of the western boundary of the Exclusive Economic Zone beginning at 3 nautical miles from the Atlantic Coast. No objections, 1 abstention. Motion passes

Second, both New York and New Jersey have greatly improved its striped bass recreational fishery due to ending Atlantic menhaden reduction fishing in their waters.

New York Experience – 3/8/21

FWD: Menhaden

From: George Scocca george@nyangler.com

To: Tom foragematters@aol.com

Date: Mon, March 8, 2021 7:15am

Hello Tom:

I am the person that spearheaded the bill that has kept reduction fishing out of NY waters. The changes here have been unbelievable. I can talk about it all day. My single greatest accomplishment in 35 years of fisheries management.

The availability of bunker throughout our season has seen an increase in both charter and party boats carrying anglers to get in on our great striped bass fishery. Bass stick with their food source and this has kept a healthy population of stripers in our waters. It's sparked a number of for hire boats to carry more anglers than ever before.

It has also had a profound effect on our bird population. We now have about 12 dozen nest pair eagles on long island and the osprey population is thriving. All due to the amount of forage for them to eat.



And lets not forget the importance of their filtering our waters.

Thank you.

George R. Scocca
nyangler.com

[Check out my LinkedIn profile](#)

“I am the person that spearheaded the bill that has kept reduction fishing out of NY waters . . .

The availability of bunker throughout our has seen an increase in charter and party boats carrying anglers to get in on our great striped bass fishery.

Bass stick with their food source and this has kept a healthy population of stripers in our waters. It's sparked a number of for hire boats to carry more anglers than ever before.

It has had a profound effect on our bird population. We now have about a dozen nest par eagles on long island and the osprey population is thriving.”

**George Scocca
Editor, nyangler.com**

New Jersey Experience

Salt Water Sportsmen – 4/27/23

“Jersey politicians did one thing right: Getting the Omega 3 bunker boats out of state waters.

That has allowed a vast biomass of menhaden to proliferate throughout the year in Jersey waters. This draws behemoth bass into the bays, river systems and alongshore to fatten up on omnipresent adult bunker.”

<https://www.saltwatersportsman.com/howto/is-new-jersey-the-new-striped-bass-mecca/>

Backup

Allocation of Atlantic Menhaden on the Atlantic Coast

	<u>Metric Tons</u>	<u># of Fish*</u>
• 2013 and before	No Quota	No Quota
• 2014	169,092	810,391,789
• 2015 – 2016	187,880	900,435,321
• 2017	200,000	958,521,739
• 2018 – 2019	216,000	1,035,203,478
• 2020	216,000	1,035,203,487
• 2021 - 2022	194,400	931,683,130
• 2023 – 2024	233,550	1,119,313,760

* .46 pounds per fish for the reduction fishery (NOAA)

Previous Allocation of Atlantic Menhaden by State

Allocation	Percentage	2021-2022		Fish*
		Metric Tons	Pounds	
Atlantic Coast	100.00%	192,456	424,288,498	922,366,299
Virginia	78.66%	151,392	333,758,803	725,562,616
Reduction Fishery	71.11%	136,858	301,717,958	655,908,605
Chesapeake Bay	26.50%	51,000	112,434,600	244,423,043
Atlantic Ocean	44.61%	85,858	189,283,358	411,485,561
Other States	21.34%	41,064	90,529,694	196,803,683
* .46 pounds per fish				

Atlantic Menhaden Localized Depletion

Migration Pattern

“Atlantic Menhaden largely remained within the same coastal region from June to October.” 2/19/19

Intense Reduction Harvesting

Reduction harvest season begins in May in the Chesapeake Bay until the ASMFC 51,000 metric ton quota is met

References:

<https://www.sciencedirect.com/science/article/abs/pii/S0165783618302844#:~:text=Our%20objectives%20were%20to%20estimate%20movement%2C%20natural%2C%20and,and%20time-specific%20fishing%20mortality%2C%20and%20monthly%20movement.>

https://asmfc.org/uploads/file//5a4c02e1AtlanticMenhadenAmendment3_Nov2017.pdf page v

**Dr. Noah Bressman Assessment
Salisbury University**

“Virginia based menhaden fishery is overfishing the stock in and around the Chesapeake Bay, which is preventing the important forage fish from making its way into the Bay and its tributaries.”

Ref: Dr. Noah Bressman email to Secretary Jeannie Riccio, Maryland Department of Natural Resources, 10/21/2021

Ecological Impact of Localized Depletion on Of Atlantic Menhaden in the Chesapeake Bay (2019)

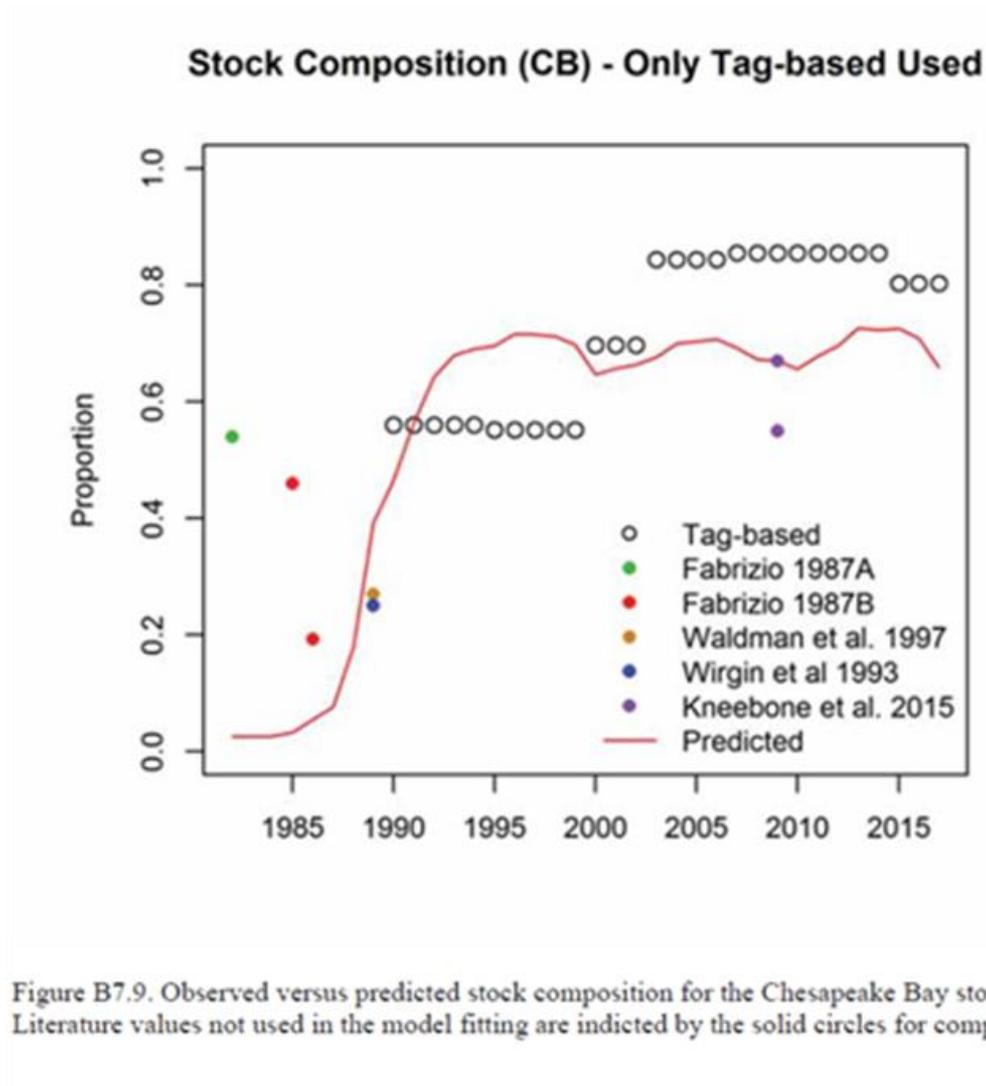
Key Predators

“A suite of five key predator and prey species were identified from diet data and other considerations (referred to as ERP focal species). Atlantic striped bass, bluefish, spiny dogfish, and weakfish were identified as key predator species of Atlantic menhaden” page iii

<http://www.asmfc.org/uploads/file/6436c5022019AtlMenhadenERPStockAssessmentReport.pdf>

pages iii

Chesapeake Bay Contribution to Coastal Stock (>60%) 2019



<https://repository.library.noaa.gov/view/noaa/23031>

Atlantic Coast Economic Impact of Striped Bass (2016)

Commercial GDP: \$103,200,000
Commercial Jobs 2,664

Recreational GDP: \$7,731,600,000
Recreational Jobs 104,867

Comparisons Between the Fisheries

Table R-7. 2016 Comparison of commercial and recreational impacts: North Carolina to Maine

	Commercial Fishery	Recreational Fishery	Total	Commercial Fishery	Recreational Fishery	Total
Pounds landed (000s)	4,978.3	43,731.9	48,710.2	10%	90%	100%
Jobs supported	2,664	104,867	107,531	2%	98%	100%
Income (\$millions)	\$72.7	4,726.0	\$4,726.1	< 1%	>99%	100%
GDP (\$millions)	\$103.2	7,731.6	\$7,731.7	< 1%	>99%	100%

Ref: The Economic Contributions of Recreational and Commercial Striped Bass Fishing, Southwick Associates, 4/12/19

Latest Osprey Status

Michael Academia Email of 6/13/23:

“On June 13, Dr. Bryan and I did a boat survey of 83 nests in Mobjack Bay (Ware, North, and East Rivers). Out of the 83 nests, there were only 3 young (we don't think these nestlings will make it).

What is alarming is that the productivity rate is at 0.04 young per active nest in Mobjack Bay and could be more widespread in the higher salinity zones of Chesapeake Bay. In order for the population to be stable, the productivity rate must be 1.15 young per active nest.”

Chesapeake Bay Model - 5 to 7 Years

Table 1. Comparison of potential approaches for developing a spatially-explicit model for Atlantic menhaden.

Approach	Advice				Data Needs		Timeline***
	Single-spp. CB	Multi-spp. CB	Multi-spp. Regional Allocations	Fine-scale Spatial Dynamics	Possible w/ Existing Data	Add'l data needs	
Coastwide BAM + NWACS-MICE + supplemental Bay abundance	✓					Absolute abundance estimates in C. Bay	5-7 years
Coastwide BAM + NWACS-MICE + Bay indicators	✓*	✓*			✓		5-7 years
Coarse spatial BAM + coastwide NWACS-MICE ERPs	✓**				✓		5-7 years
Coarse spatial BAM + coarse spatial NWACS-MICE ERPs	✓**	✓**	✓		✓	Better diet data for ERP species	5-7 years.
Refined spatial BAM + NWACS-MICE ERPs	✓	✓	✓			Migration at age data for desired regions, better diet data for ERP species	10+ years
Detailed spatial BAM + detailed spatial ERPs	✓	✓	✓	✓		Finer scale data (all types) for ERP species	10+ years

*: This approach would likely provide qualitative, not quantitative, information on Chesapeake Bay Cap

** : Existing data could provide information on MD and VA separately from the rest of the coast, but not Chesapeake Bay itself.

***: These timelines are preliminary estimates and could be revised once model development is underway.

The Latest . . .

- The Atlantic menhaden reduction harvester was having trouble locating Atlantic menhaden in the Chesapeake Bay during May and June as documented on the Facebook page: Menhaden - Little Fish, Big Deal! - <https://www.facebook.com/groups/765772041406313>

 **William Dunn** 2d · 🌐

6/23/23 Friday

All the ships finally got back out after the blow we have been having this week. Spotters got out early searched for a while and landed. Spotters got airborne again for a couple hours and they found maybe a couple schools and then landed again at 10am. Ships have now returned to Reedville.



  John Bello, John Talley and 10 others

1 comment

Who Supports Ending Atlantic Menhaden Reduction Fishing in the Chesapeake Bay?

MD DNR Tidal and Coastal Recreation Fisheries Committee Meeting – 6/29/23

Motion from Phil Zalesak, Second by Lenny Rudow:

“The Maryland Delegation to the ASMFC Atlantic Menhaden Management Board needs to put forth a motion which states: The Atlantic menhaden reduction fishery shall be limited to federal waters east of the western boundary of the Exclusive Economic Zone beginning at 3 nautical miles from the Atlantic Coast.

No objections, 1 abstention. Motion passes.”

Who Supports Ending Atlantic Menhaden Reduction Fishing in the Chesapeake Bay?

Maryland Legislative Sportsmen's Caucus - 10/21/21

Maryland Senate Joint Resolution 6 - 1/27/2022

Maryland Sierra Club (70,000 members)

Josh Tulkin

ShoreRivers Organization (3,500 members)

Matt Pluta

Solomons Charter Captains Association

Captain Wally Williams

Somerset County Charter Captains

Maryland Recreation Fishing Organizations

Annapolis Anglers' Club

Kevin McMenamin

Atlantic Coast Sport Fishing Association

Buddy Seigel

Frederick Saltwater Anglers

Chris Linnetty

Kent Island Fishermen

Bert Olmstead

Mid-Shore Fishing Club

Tom Wilkinson

North Bay Fishing Club

Stan Cebula

Northwest Fishing Club

Mark Kurth

Severn River Rod and Keg Club

Skip Zink

Southern MD Recreational Fishing Org

Phil Zalesak

Susquehanna Fishing Club

Jim Cappetta

Who Supports Ending Atlantic Menhaden Reduction Fishing in Virginia Waters

Steve Atkinson

- President of the Virginia Saltwater Sportsfishing Association
- SMRFO Member as of 4/7/23

Captain William Pappas

- Virginia charter captain who testified at the VMRC in December
- SMRFO Member as of 5/1/23

Michael Academia, MSc.

- The Center for Conservation Biology
- SMRFO Member as of 4/16/23

Deborah Campbell

- Property owner at Silver Beach, Virginia
- SMRFO Member as of 4/13/23

Tom Lilly

- Resident of Tyaskin, Maryland
- SMRFO Member as of 3/1/21

From: [Tom Lilly](#)
To: [Tina Berger](#); [James Boyle](#); [Spud Woodward](#); [Mel Bell](#)
Subject: [External] Fwd: Will the MD menhaden board delegates protect MD and the bay October 17th?
Date: Monday, October 9, 2023 4:50:10 PM

Tina. Please distribute to the menhaden board and policy board for the Upcoming meeting in NC. Thanks

Sent from my iPhone

Begin forwarded message:

From: Tom Lilly <foragematters@aol.com>
Date: October 9, 2023 at 2:20:04 PM EDT
To: Lynn -Dnr- <lynn.fegley@maryland.gov>, Allison Colden CBF <acolden@cbf.org>, Russel Dize <mjdize@verizon.net>, Josh Kurtz -DNR- <josh.kurtz@maryland.gov>, Hillary Falk <hfalk@cbf.org>, David Goshorn -DNR- <david.goshorn@maryland.gov>, Mel Bell <BellM@dnr.sc.gov>, Robert Beal <rbeal@asmfc.org>, James boyle <jboyle@asmfc.org>, Phil Zalesak <flypax@md.metrocast.net>, Chris Moore <cmoore@cbf.org>, Paul -Dnr- <Paul.Genovese@maryland.gov>
Cc: Tom Lilly <foragematters@aol.com>
Subject: Will the MD menhaden board delegates protect MD and the bay October 17th?

Lynn Fegley, David Goshorn Please distribute this to the delegates to the ASMFC menhaden board meeting October 17th and copy me on that. Please advise receipt of this.

Please also distribute to the TFAC for their meeting tomorrow.

Will the MD menhaden board delegates follow the goals of holistic allocation of Chesapeake menhaden based on equitable distribution to the interest groups under Amendment 3 ? There are hundreds of charter captains and tens of thousands of their clients , food fish watermen, their crews, marinas, there are 250,000 fish boat owners and the jobs they affect and in MD there are over 600 thousand salt water anglers and their children and there are over a million wildlife watchers. There are 73,000 in the MD Sierra Club and Shore Rivers. And thousands in Audubon. Every one of these people would benefit from moving the VA factory fishing into the US Atlantic. This would solve the pollution, bycatch and SAV damage and the fact about half of the menhaden caught in VA would have migrated to MD but was caught. There is no evidence a single job or ounce of quota would be lost by the factory fishing. If necessary they can add capacity to fish in the ocean and pay for it with the 57 million dollars worth of menhaden they are given each year by VA and MD

Amendment 3 requires holistic equitable allocation between the interest groups in the bay. From the poor condition of the two “indicator “ species for the level of the menhaden harvest one interest group is getting almost all of it. The striped bass and ospreys are in reproductive failure. The ERP science says over-harvesting is a primary cause.

Will you delegates raise this long delayed allocation issue for the menhaden board agenda for October 17th? Thank you. Thomas Lilly. 443 235 4465

Sent from my iPhone

From: [Tom Lilly](#)
To: [James Boyle](#); [Katie Drew](#); [Spud Woodward](#); [Mel Bell](#); [Spud Woodward](#)
Subject: [External] Material for ERP work group and staff
Date: Monday, October 2, 2023 2:58:38 PM

James and Katie please distribute this to the ERP menhaden work group and the menhaden board. Please let me know if that will or will not be done. Regards. T.

I suggest to the ERP group that one data point that needs collecting are the juvenile menhaden recruitment in MD and Va that I think have been at chronic lows for twenty years .Based on any stock-recruitment relationship and the lack of movement of the mid-Atlantic stock, this should be a holistic or quantitative indicator of an ocean stock in very poor condition. In my river ,the Wicomico ,on the eastern shore that connects to Tangier sound about 30 miles above the Virginia line 10 years ago we had schools of juvenile menhaden exiting the river in the fall by the thousands . This is what fed our juvenile striped bass , ibises and great blue herons etc. and gave anglers great fishing with small plastics on jigs starting around Oct 1st steady day by day for about six weeks on striped bass up to 18-25 inches. This time we had with friends and grandchildren was my favorite time of the year. Those schools and the fun days began declining sharply about five years ago to about a day or so last year to nothing this year. From what I hear that is happening all over the bay. Respectively, this has gone on far to tar to long. There should be an accounting here . The solutions for this problem are all known , they need to be acted on now,....Now not more years from now, do you agree ? Loosing our juvenile menhaden meant the great blue heron colony that was a part of Whitehaven culture for decades disappeared, the ibises that lined the river at low tide are all gone the river and Tangier sound are quiet and lifeless. People quit fishing- kids quit fishing.

I now know from years experience with the board that they don't listen to the people across the bay that morn the loss of these experiences and friendships that were held together by fishing adventures . I know that because they refused a menhaden board meeting at a critical time in August and are now refusing to give people an adequate time at the October meeting. That speaks volumes. I know they don't care if every blue heron and ibis left the bay and hundreds if not thousands of osprey parents have to decide which baby to feed and which to let starve until they are all gone. And I know they don't care about the hundreds of thousands of children that will never know what healthy bay fish and wildlife would mean to their way of life. I know they don't care about the hundreds of charter captains leaving a family business and the kids that will not be taking their place cause the striped bass fishing is so lousy.

But I do know one thing ,with certainty , that they will protect the factory fishing no matter how much wildlife and people are paying the price and many of them will deny their own ERP science about the cause of striped bass and osprey reproductive failures in doing so

Have a nice meeting. Hopefully this ERP group will do something to prove me wrong.Tom Lilly Whitehaven MD

Sent from my iPhone

ATLANTIC STATES MARINE FISHERIES COMMISSION

Draft 2024 Action Plan



For Review by the Business Session

October 18, 2023

Goal 1 – Rebuild, maintain and fairly allocate Atlantic coastal fisheries

Goal 1 focuses on the responsibility of the states to conserve and manage Atlantic coastal fishery resources for sustainable use. Commission members will advocate decisions to achieve the long-term benefits of conservation, while balancing the socio-economic interests of coastal communities. Inherent in this is the recognition that healthy and vibrant resources mean more jobs and more opportunity for those that live along the coast. The states are committed to proactive management, with a focus on integrating ecosystem services, socioeconomic impacts, habitat issues, bycatch and discard reduction measures, and protected species interactions into well-defined fishery management plans (FMPs). FMPs will also address fair (equitable) allocation of fishery resources among the states. Understanding global climate change and its impact on fishery productivity and distribution is an elevated priority. Improving cooperation and coordination with federal partners and stakeholders can streamline efficiency, transparency, and, ultimately, success. In the next five years, the Commission is committed to making significant progress on rebuilding overfished or depleted Atlantic fish stocks.

Fisheries management and stock assessment activities anticipated for 2024 and into 2025 are outlined below. Activities are divided into high priority species (those with significant management action, stock assessment activity, or are of critical importance to the states and their stakeholders) and medium-low priority species. For most species, there are several activities that occur on an annual or ongoing basis, including specification setting; FMP review and state compliance reports; and ensuring cooperation and consistent management programs among the states, regional councils, and NOAA Fisheries for shared resources. While ongoing activities are not listed below, they continue to be conducted. The focus of the Action Plan is to highlight new and high-profile activities where the Commission will focus its resources and energies for the next two years.

HIGH PRIORITY SPECIES FOR 2024

American Eel

- **Draft and finalize an addendum to consider changes to the coastwide catch level for yellow eel, in response to the recent benchmark stock assessment**
- **Draft and finalize an addendum to address Maine’s glass eel quota**
- Monitor international action on the Convention of International Trade of Endangered Species through communications with US Fish and Wildlife Service (USFWS)

American Lobster

- **Initiate benchmark stock assessment for completion in 2025**
- Work with partners and ACCSP on implementing and integrating tracking device data collection as part of Addendum XXIX
- Update annual indices of stock abundance and settlement and respond, if **necessary, per Addendum XXVII**
- **Consider developing a management strategy evaluation to inform future management**
- Continue to monitor and respond as necessary to NOAA rulemaking on Atlantic Large Whale Take Reduction Plan modifications

- Continue to work with the Law Enforcement Subcommittee, the states, and NOAA Fisheries to improve enforcement of management measures in both state and offshore waters
- Work with NOAA Fisheries to ensure consistency in state and federal regulations

Atlantic Croaker

- **Conduct and present traffic light analysis, and respond if necessary**
- **Review and present benchmark stock assessment and peer review, and respond if necessary**

Atlantic Striped Bass

- Finalize and implement Addendum II on **reduction in recreational and commercial measures**
- **Conduct and present stock assessment update, and respond if necessary**
- **Develop alternatives for bag and size limit analysis for effort controls**

Black Sea Bass

- Continue addressing recreational management reform in collaboration with the Mid-Atlantic Fishery Management Council (MAFMC), including:
 - Conduct scoping hearings and begin developing Recreational Sector Separation and Catch Accounting Amendment
- Continue development of **Recreational Measures Setting Process Framework/Addenda and conduct public hearings Present** management track stock assessment, and respond if necessary

Bluefish

- Continue addressing recreational management reform in collaboration with MAFMC, including:
 - Conduct scoping hearings and begin developing Recreational Sector Separation and Catch Accounting Amendment
 - **Continue development of the Recreational Measures Setting Process Framework/Addenda and conduct public hearings**
- **Implement new** management uncertainty tool in collaboration with MAFMC

Horseshoe Crab

- **Set 2025 Delaware Bay bait harvest specifications using the** Adaptive Resource Management Framework Revision
- **Consider Work Group input on Delaware Bay management goals, and respond if necessary**
- **Conduct and present stock assessment update, and respond if necessary**
- Secure long-term funding for the Horseshoe Crab Benthic Trawl Survey for use in the ARM Framework

Red Drum

- **Present benchmark stock assessment and peer review, and respond if necessary**

Scup

- Continue addressing recreational management reform in collaboration with MAFMC, including:
 - Conduct scoping hearings and begin developing Recreational Sector Separation and Catch Accounting Amendment
 - **Continue development of Recreational Measures Setting Process Framework/Addenda and conduct public hearings**
 - **Monitor management and research activities of MAFMC including, but not limited to, scup discards and gear restricted areas analysis**

Shad and River Herring

- **Conduct and present** river herring benchmark stock assessment and peer review, and respond if necessary
- Complete updates to shad sustainable fishery management plans
- Complete updates to shad habitat plans
- Monitor management activities of MAFMC and New England Fishery Management Council (NEFMC) including, but not limited to, shad and river herring catch caps and bycatch avoidance programs

Summer Flounder

- Continue addressing recreational management reform in collaboration with MAFMC, including:
 - Conduct scoping hearings and begin developing Recreational Sector Separation and Catch Accounting Amendment
 - **Continue development of the Recreational Measures Setting Process Framework/Addenda and conduct public hearings**

MEDIUM-LOW PRIORITY SPECIES

Atlantic Herring

- Monitor and respond if necessary to NEFMC activities **including Amendment 10 to address spatial and temporal allocation and management of Atlantic herring at the management unit level to minimize user conflicts, contribute to optimum yield and support rebuilding of the resource** Continue to improve coordination and collaboration with NEFMC
- Conduct meetings as necessary to establish state effort control (days-out) programs for Area 1A
- Explore funding options for biological sampling program

Atlantic Menhaden

- **Initiate single-species stock assessment update to be completed in 2025** Continue work on ecological reference point (ERP) benchmark stock assessment for peer review in 2025

Atlantic Sturgeon

- **Conduct and present stock assessment update, and respond if necessary**
- Monitor state and federal activities in response to an Endangered Species Act listing, including 5-year status reviews and recovery plans
- Monitor federal activities in response to the Action Plan to Reduce Atlantic Sturgeon Bycatch in Federal Large Mesh Gillnet Fisheries

Black Drum

- Update and present indicators of fishery performance and indices of abundance, and respond if necessary

Coastal Sharks

- Monitor activities of NOAA Fisheries Highly Migratory Species (HMS) Division with regards to coastal shark management actions and consider development of complementary management actions as needed for consistency, including monitoring HMS Amendment 14 (annual catch limits and accountability measures), and proposed rule to consider prohibiting retention of sharks listed as threatened under the Endangered Species Act
 - **Initiate addendum to consider moving oceanic whitetip shark to the prohibited species group, if necessary**

Cobia

- **Consider development of management action to address recreational quota reallocation based on increasing catch of cobia in Mid-Atlantic states**
- **Collaborate with the Southeast Fisheries Science Center (SEFSC) and the states to conduct 2026 stock assessment**

Jonah Crab

- **Work with ACCSP and partners on implementing and integrating tracking device data collection as part of Addendum IV**

Northern Shrimp

- Present results of 2023 traffic light analysis, and respond if necessary
- Continue to explore long-term management options given environmental changes in the Gulf of Maine and depleted stock status
- **Consider development of management action to consider implementation of an ongoing moratorium until resource improves**
- **Continue development of management triggers and “wake-up index” to indicate when the stock can support a commercial fishery**

Spanish Mackerel

- Consider development of management action to address differences between state and federal management plans in collaboration with South Atlantic Fishery Management Council (SAFMC)
- **Monitor activities of SAFMC with regards to the Framework Amendment addressing acceptable biological catch limits**

- **Work in collaboration with SAFMC to plan and conduct Spanish mackerel and king mackerel port meetings**
- **Develop a white paper characterizing recreational and commercial Spanish mackerel fisheries along the Atlantic coast**

Spiny Dogfish

- **Present management track** stock assessment and respond, if necessary, in collaboration with NEFMC and MAFMC
- Collaborate with NEFMC and MAFMC on changes to the Interstate FMP if changes to the federal FMP are made in response to the Action Plan to Reduce Atlantic Sturgeon Bycatch in Federal Large Mesh Gillnet Fisheries

Spot

- Conduct and present traffic light analysis, and respond if necessary
- **Continue work on** benchmark stock assessment for peer review in **2025**

Spotted Seatrout

No new tasks

Tautog

- Continue to monitor the implementation of the commercial harvest tagging program to reduce illegal harvest **and consider modifications if necessary**

Weakfish

- Initiate stock assessment update to be completed in 2025

Winter Flounder

No new tasks

CROSS CUTTING ISSUES

- **Continue to monitor impacts of changes to Marine Recreational Information Program (MRIP) Fishing Effort Survey (FES) design and data presentation standards relative to Commission FMPs and stock assessments**
- Continue to update existing management programs to address the concerns of the recreational community with regard to Commission-managed and jointly-managed species
- Continue to work with the states and NOAA Fisheries on changes to the Take Reduction Plan for North Atlantic right whale
- Monitor developments related to changing ocean conditions, ocean acidification, stock distributions, ecosystem services, ocean planning and potential fisheries reallocations
- Continue to explore allocation strategies for the Commission's quota-managed species to reflect current fishery conditions
- Explore the development of a guidance or policy-level document on allocation and use of mode splits

- **Consider strategies for increasing responsiveness in management to climate change**
- **Participate in the East Coast Climate Coordination Group to track progress of the Draft Potential Action Plan**
- **Provide support for the Climate Innovation Group to track information and changes relevant to East Coast fisheries, identify ideas that are worthy of consideration by the Coordination Group, and identify new possible actions to undertake in the Draft Action Plan**
- **Develop joint management agreement with MAFMC to clarify roles and increase efficiency on collaborative projects**

Goal 2 – Provide the scientific foundation for stock assessments to support informed management actions

Sustainable management of fisheries relies on accurate and timely scientific advice. The Commission strives to produce sound, actionable science through a technically rigorous, independently peer-reviewed stock assessment process. Assessments are developed using a broad suite of fishery-independent surveys and fishery-dependent monitoring, as well as research products developed by a coastwide network of fisheries scientists at state, federal, and academic institutions. The goal encompasses the development of new, innovative scientific research and methodology, and the enhancement of the states' stock assessment capabilities. It provides for the administration, coordination, and expansion of collaborative research and data collection programs. Achieving the goal will ensure sound science is available to serve as the foundation for the Commission's evaluation of stock status and adaptive management actions.

Several fisheries science activities occur on an annual or ongoing basis, including development of stock assessments and conducting peer reviews; stock assessment scheduling and evaluation of scientists' workloads; updating Commission research priorities and distributing to funding agencies; external research proposal reviews; development of ecological reference points models; supporting multispecies/diet data collection; fish ageing and tagging programs; gear technology research; and participation in Marine Recreational Information Program (MRIP) and Atlantic Coastal Cooperative Statistics Program (ACCSP) committees. While ongoing activities are not listed below, they continue to be conducted.

SCIENTIFIC COMMITTEE ACTIVITIES

- **Seek Assessment Science Committee (ASC) guidance on best practices for use of MRIP FES data in stock assessments; work with MRIP statisticians to scope magnitude of potential effort and catch estimate changes by species; during stock assessments, conduct sensitivity analyses to evaluate the effects of potential MRIP changes on model results and stock status**
- Continue incorporating socioeconomic information in management documents and streamline processes for producing socioeconomic analyses through the Committee on Economics and Social Sciences
 - Participate in the development of Northeast Fisheries Science Center's (NEFSC) Ecosystem and Socioeconomic Profiles

- Develop an American lobster socioeconomic data inventory to enhance current stock and fishery indicators
- Update the ASMFC Research Priorities; work with scientific committees to write proposals and pursue funding to conduct priority research
- **Solicit ASC input to long-term stock assessment scheduling priorities, and assessment processes, in the Northeast (NRCC) and South Atlantic (SEDAR)**
- Incorporate risk and uncertainty lessons learned for the next iteration of the tool (e.g., **red drum**)
- Develop best practices to standardize and archive modeling code and data, during and after assessments, to increase consistency, efficiency, and assessment throughput
- **Support a Northeast Fish Passage Workshop to communicate and promote new innovations for improving passage efficiency**

DATA COLLECTION

- **Work with the three East Coast Regional Fishery Management Councils to characterize and address deficiencies in NOAA Fisheries' scientific support and associated impacts to fisheries; this effort could include exploration of industry-based platforms to conduct fishery research**
- Coordinate the Southeast Area Monitoring and Assessment Program-South Atlantic (SEAMAP-SA) component
 - Collaborate with the Southeast Coastal Ocean Observing Regional Association to host SEAMAP-SA survey data
 - Seek increased funding support via budget discussions with Congressional staff
- Coordinate the Northeast Area Monitoring and Assessment Program (NEAMAP) and implement action items stemming from annual NEAMAP committee meetings
 - Develop common methodology protocols for NEAMAP surveys
 - Conduct Maturity Staging Workshop
 - Seek increased funding support via budget discussions with Congressional staff
 - Communicate with offshore wind energy developers on use of the NEAMAP brand with regard to pre- and post-construction surveys and monitoring
- Collect new data to address stock assessment needs
 - **Increase the resolution of catch and survey information, including bycatch and fishery-independent information, for future spatial modeling in stock assessments**
 - **Explore the use of video surveys as new fishery-independent indices for Jonah crab**
 - Collect fishery-dependent data using black sea bass research fleet
 - Increase bycatch monitoring of sturgeon, shad and river herring, and sciaenids in state waters, as resources allow
 - Support the states, SAFMC, and ACCSP with the citizen science project to collect new recreational live release data from volunteer anglers
 - Leverage partnerships to increase diet data collection for ecosystem-based assessments and management through new or existing programs (e.g., SEAMAP), as resources allow, notably diets of larger offshore fish, birds, and marine mammals

FISHERIES RESEARCH

- **Collaborate with US Geological Survey (USGS), New York State Department of Environmental Conservation, and Delaware State University to develop new sturgeon spawning stock abundance estimates in the Hudson and Delaware estuaries**
- Conduct Atlantic menhaden and Atlantic sturgeon ageing exchanges and workshops
- Conduct a Fish Ageing Quality Assurance Workshop among Atlantic coast state and university laboratories to ensure consistency between new and historical age data
- Assess fixed gear and right whale interactions in the Gulf of Maine
- Collaborate with university researchers to advance stock assessment population dynamics models: **striped bass management strategy evaluation, ecological** reference points, striped bass multi-stock contributions, spot spatiotemporal model; and lobster thermal habitat and growth model
- Work with federal partners to identify shared research priorities and opportunities for enhanced scientific support to the Commission
- Continue to participate in and co-chair with Fisheries and Oceans Canada the International Council for the Exploration of the Sea (ICES) American Eel Work Group

ECOSYSTEM-BASED MANAGEMENT & CHANGING OCEAN CONDITIONS

- **Promote consistencies in fishery independent survey data collection across East Coast geographic regions and jurisdictions (both state and federal); develop data collection protocols in order to readily combine and use data in coastwide modeling frameworks**
- Evaluate the effects of changing ocean conditions on stock productivity and distribution; develop criteria for adding/subtracting states from fishery management boards when stock distributions change
-
- **Improve coordination and knowledge sharing among the Councils' Scientific and Statistical Committees (SSCs) and the Commission's scientific committees, particularly for species spanning multiple jurisdictions and jointly managed species**
- Collaborate with NOAA Fisheries Northeast and Southeast Fisheries Science Centers to include Commission interests in Ecosystem Status Reports
- Track development of emerging science and tools related to changing ocean conditions and impacts to fisheries (e.g., Climate Vulnerability Assessments)
- **Examine options to increase fishery management integration across FMPs in order to fully implement ecosystem-based modeling results**

COMPETING OCEAN USES

- Determine the Commission's role in wind energy intersections with fisheries; continue to participate in Responsible Offshore Science Alliance and provide forum for the states to discuss interactions between fisheries resources and offshore energy development
- **Support the Recreational Study Fleet Pilot Project, monitor progress, and respond if necessary**
- **Evaluate SEAMAP surveys' interactions with wind energy development in the Southeast**

Goal 3 - Produce dependable and timely marine fishery statistics for Atlantic coast fisheries

Effective management depends on quality fishery-dependent data to inform stock assessments and fisheries management decisions. **This goal focuses on providing timely, accurate catch, effort, biological and socioeconomic data on Atlantic coast recreational, for-hire, and commercial fisheries to support fisheries science and management.**

The Commission will accomplish this through the Atlantic Coastal Cooperative Statistics Program (ACCSP), a cooperative state-federal program that designs, implements, and conducts marine fisheries statistics data collection programs and integrates those data into data management systems to meet the needs of fishery managers, scientists, and harvesters. ACCSP partners include the 15 Atlantic coast state fishery agencies, the three Atlantic Fishery Management Councils, the Potomac River Fisheries Commission, NOAA Fisheries, and the U.S. Fish and Wildlife Service (USFWS).

On a continuing basis, ACCSP does the following:

- Reviews and maintains coastwide standards for data collection and processing in cooperation with all program partners
- Provides funding to its Program Partners supporting data collection management and innovation through a competitive process and monitors funded projects
- Maintains commercial dealer reporting and commercial and for-hire **trip** catch reporting through the Standard Atlantic Fisheries Information System (SAFIS) electronic applications
- Coordinates state conduct of the Marine Recreational Information Program (MRIP) Access Point Angler Intercept Survey (APAIS) and the For-Hire Survey (FHS), including the Large Pelagics Telephone Survey (LPTS) add-on
- Consolidates and integrates partner data and provides user-friendly, on-line, public and confidential access to those data via the Data Warehouse
- Provides communication, outreach, and engagement resources to ACCSP Partners and system users in accordance with the ASMFC Communications Plan
- Maintains security protocols for ASMFC network and information systems to comply with Federal Information Security Management Act

PARTNERSHIPS

- Coordinate with Gulf and Pacific Commissions on data collection and data management initiatives
- **Coordinate Atlantic region recreational fisheries data needs, including prioritization of new and ongoing development activities**
- Participate in the Fisheries Information Systems (FIS) program and promote Atlantic data modernization projects
- Coordinate data initiatives with Councils (NEFMC, MAFMC, SAFMC, GMFMC), and relevant NOAA regional offices and Science Centers

FISHERIES-DEPENDENT DATA COLLECTION

SAFIS

- **Develop modernized dealer reporting application and data processing for implementation in January 2025**
- **Implement expanded at-entry quality control checks on SAFIS eTRIPS submissions for partner specific questions (attributes) based on 2023 data validation & processing workshop**
- Continue to provide data collection pathway for Southeast For-Hire Integrated Electronic Reporting (SEFHIER) implementation
- Extend One Stop Reporting initiative (e.g., expanded functionality across federal permits, convene workshop on state requirements)
- Support implementation of spatial data management (e.g., American lobster trip locations)
- **Launch the SciFish mobile application and project builder under the SAFIS umbrella for standardized citizen science data collection**

Recreational Surveys

- **Continue to develop and seek certification of for-hire methodology for logbook estimates of catch and effort with dockside validation**
- **Scope a pilot project to expand collection of discard data from recreational anglers**

DATA STANDARDS, DISTRIBUTION AND USE

Standards

- **Publish updated and searchable Atlantic coast fisheries data standards to ACCSP website with database driven standard code references**

Data Distribution and Use

- Expand data warehouse content, with emphasis on presentation of recreational estimates
- Establish new biological data feeds and create Data Warehouse queries for biological data linked to collection program details and metadata
- Provide validated commercial landings data for Commission stock assessments (**American lobster, Atlantic croaker, Atlantic herring, Atlantic striped bass, ERP species, and red drum**) and SEDAR process (**red snapper, cobia, gag grouper, blueline tilefish, golden tilefish**)
- Respond to custom data requests, as necessary

Goal 4 – Promote compliance with fishery management plans to ensure sustainable use of Atlantic coast fisheries

Fisheries managers, law enforcement personnel, and stakeholders have a shared responsibility to promote compliance with fisheries management measures. Activities under the goal seek to increase and improve compliance with FMPs. This requires the successful coordination of both management and enforcement activities among state and federal agencies. Commission members recognize that adequate and consistent enforcement of fisheries rules is required to keep pace with increasingly complex management activity and emerging technologies. Achieving the goal will improve the effectiveness of the Commission's FMPs.

The Commission’s Law Enforcement Committee (LEC) carries out much of Goal 4. Most of these activities occur on an annual basis or as part of the FMP development process. Proposed changes in management are evaluated to determine enforceability and effectiveness. The LEC provides managers with feedback on the practicality of regulations to foster stakeholder buy-in and compliance.

COMPLIANCE

- Explore methods for improved enforcement of offshore lobster regulations; work with states to implement vessel tracking **requirements**, consistent with **American Lobster Addendum XXIX and Jonah Crab Addendum IV**
- Incorporate revisions to and reference the revised “Guidelines for Resource Managers” in reviews and evaluations of proposed changes to management programs
- Annually review and comment on (as needed) NOAA Fisheries enforcement priorities to ensure they support the enforceability and effectiveness of Commission management programs
- Evaluate interagency measures to enhance traceability of fishery products across jurisdictional boundaries

PARTNERSHIPS

- Engage and support NOAA Fisheries and USFWS Offices of Law Enforcement, U.S. Department of Justice, and U.S. Coast Guard to facilitate the enforceability of Commission FMPs
- Work to sustain financial support for Joint Enforcement Agreements (JEAs)

STAKEHOLDER AWARENESS

- Use emerging communication platforms and tools to deliver real time information regarding regulations and the outcomes of law enforcement investigations
 - Explore the use of electronic tools to communicate real-time commercial and recreational regulations

Goal 5 – Protect and enhance fish habitat and ecosystem health through partnerships and education

Goal 5 aims to conserve and improve coastal, marine, and riverine habitat to enhance the benefits of sustainable Atlantic coastal fisheries and resilient coastal communities in the face of changing ecosystems. Habitat loss and degradation have been identified as significant factors affecting the long-term sustainability and productivity of our nation’s fisheries. The Commission’s Habitat Program develops objectives, sets priorities, and produces tools to guide fisheries habitat conservation efforts directed towards ecosystem-based management.

The challenge for the Commission and its state members is maintaining fish habitat in the absence of specific regulatory authority for habitat protection or enhancement. Therefore, the Commission will work cooperatively with state, federal, and stakeholder partnerships to achieve this goal. Much of the work to address habitat is conducted through the Commission’s Habitat and Artificial Reef

Committees. In order to identify critical habitat for Commission managed species, each year the committee reviews existing reference documents for Commission-managed species to identify gaps or updates needed to describe important habitat types and review and revise species habitat factsheets. The Habitat Committee also publishes an annual issue of the *Habitat Hotline Atlantic*, highlighting topical issues that affect all the states.

The Commission and its Habitat Program endorses the National Fish Habitat Partnership (NFHP), and will continue to work cooperatively with the program to improve aquatic habitat along the Atlantic coast. Since 2008, the Commission has invested considerable resources, as both a partner and administrative home, to the Atlantic Coastal Fish Habitat Partnership (ACFHP), a coastwide collaborative effort to accelerate the conservation and restoration of habitat for native Atlantic coastal, estuarine-dependent, and diadromous fishes. As part of this goal, the Commission will continue to provide support for ACFHP, under the direction of the National Fish Habitat Partnership Board.

EDUCATE

- Educate Commissioners, stakeholders, and the general public about the importance of habitat to healthy fisheries and ecosystems
- Publish Habitat Management Series document on acoustics affecting fish habitat, and initiate next Habitat Management Series document
- Identify mechanisms to evaluate ecosystem health for consideration by Technical Committees and Boards

INTEGRATE

- Complete Fish Habitats of Concern descriptions to be considered for integration into Commission FMPs
- Increase communication on ecosystem-based management with Commission committees to find overlap with fish habitat related issues
- Explore opportunities to integrate habitat data into stock assessments, where possible

LEVERAGE PARTNERSHIPS

- Engage local, state, and regional governments in mutually beneficial habitat protection and enhancement programs through partnerships
- Foster partnerships with management agencies, researchers, and habitat stakeholders to leverage regulatory, political, and financial support
- Engage in state and federal agency efforts to ensure response strategies to changing ocean conditions are included in habitat conservation efforts
- Work with ACFHP to foster partnerships with like-minded organizations at local levels to further common habitat goals
- **Support ACFHP and its partners in pursuing habitat restoration funding from the Bipartisan Infrastructure Law and Inflation Reduction Act**
- Promote assessment and development of effective fish passage approaches and projects through state and federal collaboration

- Provide administrative home and support to the Atlantic Coast Fish Habitat Partnership, and identify partners to support restoration grant administration and project management
- Work with partners to develop standardized submerged aquatic vegetation monitoring protocols for the Atlantic coast
- Implement the ACFHP 2023-2027 Strategic Plan and annual action plan, including climate resilience and diversity, equity and inclusion initiatives
- Work with partners to protect, restore, or maintain resilient Regional Priority Habitats to optimize ecosystem functions and services to benefit fish and wildlife
- Restore habitats by funding fish habitat conservation projects

Goal 6 – Strengthen stakeholder and public support for the Commission

Stakeholder and public acceptance of Commission decisions are critical to our ultimate success. For the Commission to be effective, these groups must have a clear understanding of our mission, vision, and decision-making process, as well as the opportunities that stakeholders have to participate in our process through advisory panels and public comment. The goal seeks to do so through expanded outreach and education efforts about Commission programs, decision-making processes, and its management successes and challenges. It aims to engage stakeholders in the process of fisheries management, and promote the activities and accomplishments of the Commission. Achieving the goal will increase stakeholder participation, understanding, and acceptance of Commission activities.

On a continuing basis, the Commission conducts outreach and stakeholder engagement through a number of products and activities. These include publications (e.g., bi-monthly Fisheries Focus, Annual Report to Congress), press releases, meeting summaries, stock assessment overviews, website and social media platforms, industry tradeshow and state festivals, and stakeholder engagement through the advisory panel process. Building strong relationships with local, regional and national media contacts, and networking/collaborating with our management partners from the Councils, states and federal agencies are also critical components of our outreach program, which occur on an ongoing basis.

INCREASE PUBLIC UNDERSTANDING AND SUPPORT OF ASMFC

- Continue to provide a streamlined Annual Report, highlighting major accomplishments in a concise format
- Update *Guide to Fisheries Science and Stock Assessments*
- Promote high profile species and stock assessment results through various outreach tools and platforms
- Provide focused outreach on: **Atlantic striped bass, Atlantic menhaden, horseshoe crabs, and continuing recreational reform initiatives with MAFMC**
- Develop overviews for stock assessments for **American lobster, Atlantic croaker, Atlantic herring, Atlantic striped bass, ERP species, and red drum**
- **Develop story map of striped bass migration, spawning patterns and the impact of environmental factors on recruitment to increase understanding of the complexity of the species' life history**

- **Promote best fishing practices for recreational fishing (FishSmart)**

MAXIMIZE USE OF CURRENT AND NEW TECHNOLOGIES

- Update/upgrade ASMFC website, **based on staff input and recommendations from Outreach Survey**, to increase user friendliness; develop new content on climate change effects on managed species, recreational reform initiative, recreational data (MRIP), and best fishing practices; **seek offsite host**
- **Work with Fisheries Science Coordinator to re-design and migrate** NEAMAP and SEAMAP websites to offsite host
- Use webinars, videos and story maps to engage and inform public about current activities (management, science, habitat, and data collection and management)
- Use new technologies and communication platforms to more fully engage the broader public in the Commission's activities and actions
- Use story mapping and photo journaling to better communicate science and management activities
- Monitor the success of website and social media platforms in reaching broader constituency and effectively communicating ASMFC mission, programs and activities

FACILITATE STAKEHOLDER PARTICIPATION

- Revise Advisory Panel (AP) Primer and other AP guidance documents
- **Explore options** to strengthen stakeholder input on pending management documents, stock assessments, and **data collection/management activities**
- Explore additional tools to gather public comment on proposed management actions (e.g., online surveys)

MEDIA RELATIONS AND NETWORKING

- Finalize ASMFC Communications Plan to clarify staff roles and details of outreach program as well as provide vision for future outreach efforts across all Commission Programs, social media; and trade show participation.
- Work with other Northeast Regional Coordinating Council (NRCC) communication members to coordinate outreach on shared stock assessments
- **Work with MRIP communications staff to develop messaging regarding the impacts of possible changes to FES survey methodology on ASMFC managed species**
- Continue to participate on the SAFMC Outreach Advisory Panel and continue to work closely with MAFMC on communication and outreach activities, possibly through participation its newly established Outreach Committee
- Strengthen national, regional, and local media relations to increase coverage of Commission actions; **continue to respond to factual inaccuracies in news articles**
- Consider using a media monitoring service to track media communications and coverage, including social media to analyze strengths and weaknesses and expand coverage
- Work with Atlantic Coast Fisheries Communication Group, comprised of Public Information Officers from the Councils, states and federal agencies, to share successful tools, identify key media contacts and work cooperatively on joint projects

Goal 7 – Advance Commission and member states’ priorities through a proactive legislative policy agenda

State input is critical for a coherent national fisheries policy. The Commission recognizes the need to work with Congress, the Administration and partner organizations in policy formulation, and will be vigilant in advocating state interests to Congress. The Commission will pursue federal resources for states to implement and comply with the Atlantic Coastal Fisheries Cooperative Management Act (Atlantic Coastal Act) and to improve or maintain fisheries data collection. The importance of habitat restoration, research on the impacts of changing ocean conditions, and the need for effective marine enforcement will also be communicated to Congress and our management partners.

DEVELOP AND STRENGTHEN RELATIONSHIPS WITH MEMBERS OF CONGRESS AND STAFF

- Encourage Commissioners to communicate with members of Congress as needed and facilitate in person meetings when possible
 - **Facilitate Commissioners meeting with members of Congress and their staff in their districts**
- Provide opportunities for the Executive Director to communicate with Congressional staff on a regular basis
- Provide state-specific ‘ASMFC Meeting Previews’ to Congressional staff ahead of quarterly Meetings

ENGAGE CONGRESS AND THE ADMINISTRATION ON FISHERY-RELATED LEGISLATION AND ISSUES

- Utilize the Legislative Committee to increase the Commission’s effectiveness on Capitol Hill
 - Review pending legislation of interest to the Commission and make recommendations to the Executive Committee
 - Explore authorizing legislation for fishery-independent surveys supporting ASMFC-managed species (horseshoe crab, Atlantic menhaden, NEAMAP and SEAMAP-SA trawl surveys)
- Monitor federal legislation affecting the Commission, including policy and annual appropriations bills and develop Commission positions on pending federal legislation
 - Existing laws: Atlantic Coastal Act, Interjurisdictional Fisheries Act, Anadromous Fish Conservation Act, Magnuson-Stevens Act, Federal Aid in Fish Restoration Act, and Endangered Species Act, and Bipartisan Infrastructure Law, Inflation Reduction Act
 - Pending legislation/emerging issues: forage fish management, **shifting stocks and reallocations**, disaster declarations **and increasing declaration efficiency**, energy initiatives (offshore wind, hydropower; fishery compensation/mitigation), shark fin trade, whale rulemaking, living shorelines, **modernization of recreational data collection efforts, the NOAA Organic Act**, Reinvesting in Shoreline Economies and Ecosystems, and Recovering America’s Wildlife Act

PURSUE FEDERAL RESOURCES TO SUPPORT MANAGEMENT ACTIVITIES

- Communicate the Commission’s federal funding needs to Congress and advocate for sufficient appropriations in fiscal years 2024 **and 2025**
 - Priority line items under NOAA: Regional Councils and Fishery Commissions, Interjurisdictional Fisheries Act, Fisheries Data Collections, Surveys and Assessments, SEAMAP, and Fisheries Information Networks
 - Priority projects, programs, and activities include: Atlantic Coastal/National Fish Habitat Partnership, Cooperative Enforcement Joint Enforcement Agreements, NEAMAP and SEAMAP-South Atlantic trawl surveys, GOM lobster research, Mid-Atlantic Horseshoe Crab Trawl Survey, Chesapeake Bay Atlantic menhaden abundance, retrofitting South Carolina DNR’s R/V Lady Lisa replacement
- Priority line items under the U.S. Geological Survey (USGS):
 - Priority projects, programs, and activities include: Eastern Ecological Science Center, **the Species Management Research Program and Ecosystem Mission Area**
 - Four Interstate Commissions/USGS science cooperative research funding, **building upon the report language included in the FY24 House and Senate reports**
 - **Build relationships through USGS facilitation with Cooperative Research Units**
 - Seek federal funding support for long-term monitoring surveys and species-specific initiatives
- Engage the Administration (Commerce and Interior Departments) on funding and policy issues, including Secretarial implementation of the Atlantic Coastal Act
- Communicate state and Commission funding needs to NOAA Fisheries, USFWS, and USGS

PARTNERSHIPS

- Coordinate with the Gulf, Pacific, and Great Lakes Commissions on policy items of mutual interest including federal funding for fisheries programs. Executive Directors should continue to provide unified positions on funding and legislative priorities to lawmakers and federal agencies, where appropriate
- Continue participation on Marine Fisheries Advisory Committee
- **Build on partnerships with the Association of Fish and Wildlife Agencies, USFWS, USGS, and Bureau of Ocean Energy Management**

Goal 8 – Ensure the fiscal stability and efficient administration of the Commission

Goal 8 will ensure that the business affairs of the Commission are managed effectively and efficiently, including workload balancing through the development of annual action plans to support the Commission’s management process. It also highlights the need for the Commission to efficiently manage its resources. The goal promotes the efficient use of legal advice to proactively review policies and react to litigation as necessary. It also promotes human resource policies that attract talented and committed individuals to conduct the work of the Commission. The goal highlights the need for the Commission as an organization to continually expand its skill set through training and educational opportunities. It calls for Commissioners and Commission staff to maintain and increase the

institutional knowledge of the Commission through periods of transition. Achieving this goal will build core strengths, enabling the Commission to respond to increasingly difficult and complex fisheries management issues.

On a continuing basis, the Commission staff conservatively manages fiscal resources to achieve the proper balance between allocating funds to coastwide priorities and ensuring fiscal stability. Tasks performed to accomplish this balance include monitoring expenditures on a monthly basis; managing the reserve fund; fine-tuning meeting and travel policies; and preparing and participating in the annual audit and indirect cost proposal.

Human resources management is an ongoing process of recruitment and selection of employees; thoroughly orienting and introducing new employees to the culture of the Commission; maintaining good working conditions for all employees; managing employee relations; and training to enhance and increase their current skills. Ongoing tasks to accomplish this are annual review and revision of position descriptions; facilitating staff participation at national and regional conferences; and providing professional training opportunities. Additionally, human resource support is provided to cooperative programs such as APAIS and ACFHP. All human resources documents are reviewed at least annually to ensure compliance with federal regulations and consistency with current practices.

Further, Commission staff keeps abreast of changes in technology and evaluates the need for updating the Commission's hardware and software. Ensuring consistency of resources and training across the Commission as well as documenting processes and verifying database information are ongoing tasks conducted by the staff.

The Commission process can be overwhelming to new Commissioners. The staff is committed to providing a thorough introduction and orientation to new Commissioners. Tasks conducted throughout the year include documenting institutional knowledge and updating on a regular basis the Commissioner Manual. Staff also provides this service to new members of Commission committees.

MANAGE OPERATIONS AND BUDGETS

- **Work with member states to effectively and efficiently administer Atlantic right whale/lobster Congressional funding**
- **Assist member states in distributing fishery disaster funds as requested**
- **Complete distribution of remaining CARES and Consolidated Appropriations Act funding and respond to audit requirements as necessary**
- Manage all ongoing Cooperative Agreements, ensuring deliverables are completed and budgets are responsibly managed
- Utilize and update as necessary the Commission compensation plan, including job classifications and salaries based on location
- Expand the capacity of contracts database to capture the complete life-cycle of all Commission funding sources
- Work with financial advisor to implement revised Commission investment policy

UTILIZE CURRENT INFORMATION TECHNOLOGY

- Develop protocols for information retention; implement archive storage on the network
- Manage Commission inventory through accounting software, tracking acquisitions and disposals
- Develop and implement a Commission intranet to connect our hybrid workforce via seamless and transparent communication
- Provide updates to staff, reviewing technology that has changed, been implemented or could be better-utilized
- Continue digitization of historical documents
- Perform review of Commission technology, ensuring it is under support and is up-to-date with current technology needs

MANAGE HUMAN RESOURCES

- Continue to refine the telecommute policy, **if necessary**
- Promote Commission's mission and programs, and recruit new and diverse talent through outreach meetings with various marine policy and marine science graduate programs
- Provide training opportunities for ASMFC staff, including National Conservation Training Center
- Conduct annual meeting with financial advisor to review retirement program performance with staff

ENGAGE AND SUPPORT COMMISSIONERS

- Conduct a meetings facilitation training workshop for technical committee members
- Continue process to welcome and orient new Commissioners to allow for full engagement in the Commission process
- Facilitate the retention and transfer of institutional knowledge among Commissioners

ENSURE THE LEGAL COMPLIANCE OF COMMISSION ACTIONS

- Utilize legal advice on new management strategies and policies, and respond to litigation as necessary, whether it be regarding challenges to Commission FMPs, a human resource issue, or access to confidential data

ATLANTIC STATES MARINE FISHERIES COMMISSION

Five-Year Strategic Plan 2024- 2028



*The nation behaves well if it treats the natural resources
as assets which it must turn over to the next generation
increased and not impaired in value.*

Theodore Roosevelt

Introduction

Each state has a fundamental responsibility to safeguard the public trust with respect to its natural resources. Fishery managers are faced with many challenges in carrying out that responsibility. Living marine resources inhabit ecosystems that cross state and federal jurisdictions. Thus, no state, by itself, can effectively protect the interests of its citizens. Each state must work with its sister states and the federal government to conserve and manage natural resources.

Beginning in the late 1930s, the 15 Atlantic coastal states from Maine to Florida took steps to develop cooperative mechanisms to define and achieve their mutual interests in coastal fisheries. The most notable of these was their commitment to form the Atlantic States Marine Fisheries Commission (Commission) in 1942, and to work together through the Commission to promote the conservation and management of shared marine fishery resources. Over the years, the Commission has remained an effective forum for fishery managers to pursue concerted management actions. Through the Commission, states cooperate in a broad range of programs including interstate fisheries management, fisheries science, [fishery-dependent data collection and management](#), habitat conservation, and law enforcement.

Congress has long recognized the critical role of the states and the need to support their mutual efforts. Most notably, it enacted the Atlantic Coastal Fisheries Cooperative Management Act (Atlantic Coastal Act) in 1993, which built on the success of the Atlantic Striped Bass Conservation Act of 1984. Acknowledging that no single governmental entity has exclusive management authority for Atlantic coastal fishery resources, the Atlantic Coastal Act recognizes the states' responsibility for cooperative fisheries management through the Commission. The Atlantic Coastal Act charges all Atlantic states with implementing coastal fishery management plans that will safeguard the future of Atlantic coastal fisheries in the interest of both fishermen and the nation.

Accepting these challenges and maintaining their mutual commitment to success, the Atlantic coastal states have adopted this five-year Strategic Plan. The states recognize circumstances today make the work of the Commission more important than ever before. The Strategic Plan articulates the mission, vision, goals, and objectives needed to accomplish the Commission's mission. It serves as the basis for annual action planning, whereby Commissioners identify the highest priority issues and activities to be addressed in the upcoming year. With 27 species/[species complexes](#) currently managed by the Commission, finite staff time, Commissioner time and funding, as well as a myriad of other factors impacting marine resources (e.g., changing ocean conditions, protected species interactions, offshore energy, and aquaculture), Commissioners recognize the absolute need to prioritize activities, dedicating staff time and resources where they are needed most and addressing less pressing issues as resources allow. Efforts will be made to [balance the competing needs of stability/predictability in fisheries management and the necessity for adaptability to respond to changing fishery and environmental conditions.](#) ~~streamline management by using multi-~~

~~year specifications where possible and increase stability/predictability in fisheries management through less frequent regulatory changes.~~ A key to prioritizing issues and maximizing efficiencies will be working closely with the three East Coast Regional [Fishery](#) Management Councils and NOAA Fisheries.

Mission

The Commission's mission, as stated in its 1942 Compact, is:

To promote the better utilization of the fisheries, marine, shell and anadromous, of the Atlantic seaboard by the development of a joint program for the promotion and protection of such fisheries, and by the prevention of physical waste of the fisheries from any cause.

The mission grounds the Commission in history. It reminds every one of the Commission's sense of purpose that has been in place for over ~~8277~~ years. The constantly changing physical, political, social, and economic environments led the Commission to restate the mission in more modern terms:

To promote cooperative management of marine, shell and diadromous fisheries of the Atlantic coast of the United States by the protection and enhancement of such fisheries, and by the avoidance of physical waste of the fisheries from any cause.

The mission and nature of the Commission as a mutual interstate body incorporate several guiding principles. They include:

- States are sovereign entities, each having its own laws and responsibilities for managing fishery resources within its jurisdiction
- States serve the broad public interest and represent the common good
- Multi-state resource management is complex and dependent upon cooperative efforts by all states involved
- The Commission provides a critical sounding board on issues requiring cross-jurisdictional action, coordinating cooperation, and collaboration among the states and federal government, [including NOAA Fisheries, US Fish and Wildlife Service, and US Geological Survey.](#)

Vision

The long-term vision of the Commission is:

Sustainable and Cooperative Management of Atlantic Coastal Fisheries

Values

The Commission and its member states have adopted the following values to guide its operations and activities. These values affirm the Commission's commitment to sustainable fisheries management for the benefit of recreational ~~and anglers, and~~ commercial ~~fishermen industries harvesters~~ and coastal communities. They also acknowledge the growing importance of managing fisheries in a more holistic and adaptive way, seeking solutions to cross cutting resource issues that lead to long-term ecological and socio-economic sustainability.

- Effective stewardship of marine resources through strong partnerships
- Decisions based on sound science
- Long-term ecological sustainability
- Transparency and accountability in all actions
- Timely response to new information through adaptive management
- Balancing resource conservation with the economic success of coastal communities
- Efficient use of time and fiscal resources
- Work cooperatively with honesty, integrity, and fairness

Driving Forces

The Commission and its actions are influenced by a multitude of factors. These factors are constantly evolving and will most likely change over the time period of this Strategic Plan. However, the most pressing factors affecting the Commission today are climate-induced changes to the ocean environment, fisheries, and coastal communities; changing ocean conditions, resource allocation, the quality and quantity of scientific information; competing ocean uses; a growing demand to address ecosystem functions; and interactions between fisheries and protected species. - The Strategic Plan, through its goals and broad objectives, will seek to address each of these issues over the next five years.

Climate-Induced Changes~~Changing Ocean Conditions~~

Changes in ocean temperature, currents, acidification, and sea level rise are occurring rapidly, affecting nearly every facet of fisheries resources and management at the state, interstate, and federal levels. Potential impacts to marine species include degraded water quality, altered prey and habitat availability, susceptibility to disease, changing migration patterns, and changes to reduced prey and habitat availability, water quality, susceptibility to disease, and spawning and reproductive potential, and declines in survival. It is often difficult for fisheries stock assessments and management to keep pace with changes in ~~The~~ distribution and productivity of fishery stocks ~~are often changing at a rate faster than fisheries stock assessments and management can keep pace with~~. Several Commission species, such as northern shrimp, ~~Southern New England~~American lobster, Atlantic cobia, Atlantic croaker, Atlantic striped bass, Spanish mackerel, black sea bass, and summer flounder are already responding to changes in the ocean. In the case of northern shrimp and Southern New England lobster, warming ocean waters have created inhospitable environments for ~~species~~ reproduction and survivability. For

cobia, black sea bass, and summer flounder, changing ocean conditions have contributed to ~~altered shifts in~~ species distributions, with some species expanding their ranges and others moving into deeper and/or more northern waters to stay within preferred temperature ranges. Where shifts are occurring, the Commission may need to reconsider state-by-state allocation schemes and make adjustments to our fishery management plans (FMPs). For other species depleted due to factors other than fishing mortality (e.g., habitat degradation and availability, predation), the states will need to explore steps ~~that can be taken~~ to aid in species recovery. And, if a stock's viability is compromised, Commission resources and efforts should be shifted to other species that can be ~~recovered-rebuilt~~ or sustainably maintained ~~as a rebuilt stock~~.

Since 2021, the Commission and other marine fishery management organizations along the U.S. East Coast have been exploring governance and management issues related to climate change and fishery stock distributions. This effort recognizes the need to plan for how fishery management organizations and coastal communities can best adapt to environmental changes in a thoughtful and deliberate way. Over the span of this Strategic Plan and beyond, the Commission and other East Coast marine fishery management organizations will be prioritizing actions around three overarching themes of cross-jurisdictional governance; managing under increased uncertainty; and data sources and partnerships to plan for possible future outcomes.

Allocation

~~As noted above, r~~Resource allocation among the states and between various user groups will continue to be an important issue over the next five years. Many of the Commission FMPs divvy up the available harvestable resource through various types of allocation schemes, such as by state, region, season, or gear type. The changing distribution of many species has further complicated the issue of resource allocation with traditional allocation schemes being challenged and a finite amount of fishery resources to be shared. Discussion may be difficult and divisive, with some states (and their stakeholders) wanting to maintain their historic (traditional) allocations, while others are seeking a greater share of the resource given increased abundance and availability in their waters. States will need to seek innovative ways to reallocate species so that collectively all states feel their needs are met. What will be required to successfully navigate these discussions and decisions is the commitment of the states to work through the issues with honesty, integrity, and fairness, seeking outcomes that balance the needs of the states and their stakeholders with the ~~ever-changing~~ever-changing realities of shifting resource abundance and availability.

Science as the Foundation

Accurate and timely scientific information form the basis of the Commission's fisheries management decision-making. Continued investments in the collection and management of fishery-dependent and -independent data remain a high priority for the Commission and its member states. The challenge will be to maintain and expand data collection efforts in the face of shrinking state and federal budgets. Past and current investments by state, regional and federal partners ~~have established of~~ the Atlantic Coastal Cooperative Statistics Program (ACCSP) ~~have established the program~~ as the principal source of marine fishery statistics for the Atlantic

coast. State and regional fishery-independent data collection programs, in combination with fishery statistics, provide the scientific foundation for stock assessments. Many data collection programs will continue to be strained by budget restrictions, scientists' workload capacities, and competing priorities. The Commission remains committed to pursuing long-term support for research surveys and monitoring programs that are critical to informing management decisions and resource sustainability.

Ecosystem Functions

Nationally, there has been a growing demand for fisheries managers to address broader ecosystem functions such as predator-prey interactions and environmental factors during their fisheries management planning. Ecosystem science has improved in recent years, though the challenges of comprehensive data collection continue. While the A-majority of the Commission's species are managed and assessed on a single species basis, there have been significant advancements in the development and use of ecological reference points for Atlantic menhaden management. Horseshoe crabs of Delaware Bay origin are also managed in an ecosystem context to account for the forage needs of migratory shorebirds. When ecosystem information is available, the Commission has managed accordingly to provide ecosystem services. The Commission remains committed to seeking ecological sustainability over the long-term through continuing its work on multispecies assessment modeling and the development of ecosystem-based reference points in its fisheries management planning process.

Competing Ocean Uses

Marine spatial planning has become an increasingly popular method of balancing the growing demands on valuable ocean resources. More specifically, the competing interests of commercial and recreational fishing, offshore wind renewable energy development, aquaculture, marine transportation, offshore oil exploration and drilling, military needs, and habitat restoration are all components that must be integrated into successful ocean use policies. -The Commission has always emphasized cooperative management with our federal partners; however, the states' authorities in their marine jurisdictions must be preserved and respected. -The Commission will continue to prioritize the successful operation of its fisheries, but it will be imperative to work closely with federal, state, and local governments on emerging ocean use conflicts as they diversify into the future.

Protected Species

Like coastal fishery resources, protected species, such as marine mammals, sea turtles, and listed and candidate fish species, traverse both state and federal waters. The protections afforded these species under the Marine Mammal Protection Act and Endangered Species Act can play a significant role in the management and prosecution of Atlantic coastal fisheries. The Commission and the states have a long history of supporting our federal partners to minimize interactions with and bycatch of marine mammals and sea turtles. The listing of Atlantic sturgeon under the Endangered Species Act has added a whole new level of complexity in the ability of the Commission and its member states to carry out their stewardship responsibilities for these important diadromous species. The species spends the majority of its life in state

waters and depend on estuarine and riverine habitat for their survival. Listing has the potential to jeopardize the states' ability to effectively monitor and assess stock condition, as well as impact fisheries that may encounter listed species. It is incumbent upon the Commission and its federal partners to work jointly to assess stock health, identify threats, and implement effective rebuilding programs for listed and candidate species.

More recently, the depleted status of the Northern right whale population and the potential impacts to this population by entanglement in fishing gear, particularly lobster and crab gear, has heightened concern for both whales and the lobster industry.

Increased Cooperation and Collaboration among the States and between the States and Our Federal Partners

Demands for ecosystem-based fisheries management, competing and often conflicting ocean uses, and legislative mandates to protect marine mammals and other protected species, further complicate fisheries management and require quality scientific information to ~~help~~ guide management decisions. Federal agencies have a long track record of providing scientific support to the Commission and collaborations recently expanded in some areas. However there is a developing trend of reduced support for fundamental data collection and assessment support in recent years. There is a growing concern among fishery managers that some "control" over fisheries decisions and status has been diminished due to political intervention and our inability to effect climate changes ~~changing ocean conditions~~ and other environmental factors that impact marine resources. Fisheries management has never been more complex or politically charged. State members are pulled between what is best for their stakeholders versus what is best for the resource and the states as a whole.

While the issues may seem daunting, they are not insurmountable. In order for the Commission to be successful, the states must recommit to their collective vision of "Sustainable and Cooperative Management of Atlantic Coastal Fisheries," recognizing that their strength lies in working together to address the fisheries issues that lie ahead. Given today's political and environmental realities, the need for cooperation among the states has never been more important. It is also critical the states and their federal partners seek to strengthen their cooperation and working relationships, providing for efficient and effective fisheries management across all agencies. No one state or federal agency has the resources, authority, or ability to do it alone.

GOALS & OBJECTIVES

The Commission will pursue the following eight goals and their related strategies during the five-year planning period, from 20~~24~~¹⁹ through 20~~23~~³⁸. It will pursue these goals through specific objectives, targets, and milestones outlined in an annual Action Plan, which is adopted each year at the Commission's Annual Meeting to guide the subsequent year's activities. Throughout the year, the Commission and its staff will monitor progress in meeting the Commission's goals, and evaluate the effectiveness of the strategies. While committed to the

objectives included in this plan, the Commission is ready to adopt additional objectives to take advantage of new opportunities and address emerging issues as they arise.

Goal 1 - Rebuild, maintain, fairly allocate, and promote sustainable Atlantic coastal fisheries

Goal 1 focuses on the responsibility of the states to conserve and manage Atlantic coastal fishery resources for sustainable use. Commission members will advocate decisions to achieve the long-term benefits of conservation, while balancing the socio-economic interests and needs of coastal communities. Inherent in this is the recognition that healthy and vibrant resources benefit stakeholders. The states are committed to proactive management, with a focus on integrating ecosystem services, socio-economic impacts, habitat issues, bycatch and discard reduction measures, and protected species interactions into well-defined fishery management plans. Fishery management plans will also address fair allocation of fishery resources among the states. Understanding ~~changing ocean conditions~~ [climate change](#) and ~~its their~~ impact on fishery productivity and distribution is an elevated priority. Successful management under [climate change](#) ~~changing ocean conditions~~ will depend not only on adjusting management strategies [to be more adaptable and flexible](#), but also in reevaluating and revising, as necessary, the underlying conservation goals and objectives of fishery management plans. [Changing climate and ocean conditions can impact fish stocks, fish habitats, and interactions between species and fisheries. The Commission will strive to proactively consider ecosystem level impacts when making management decisions to take a more holistic consideration of issues.](#) Improving cooperation and coordination with federal partners and stakeholders can streamline efficiency, transparency, and, ultimately, success. In the next five years, the Commission is committed to ending overfishing and working to rebuild overfished Atlantic coast fish stocks, while promoting sustainable harvest of and access to rebuilt fisheries. Where possible, the Commission will seek to aid in the rebuilding of depleted stocks, whose recovery is hindered by factors other than fishing pressure.

Annual action planning will be guided by the following objectives:

- Manage interstate resources that provide for productive, sustainable fisheries using sound science
- [Strengthen state and federal partnerships to improve comprehensive management of shared fishery resources](#)
- [Create management frameworks that are nimble, adaptable, and robust to climate change.](#)
- ~~Adapt management to address emerging issues~~
- Practice efficient, transparent, and accountable management processes
- Evaluate progress towards rebuilding fisheries
- Promote sustainable harvest of and access to rebuilt fisheries
- Strengthen interactions and input among stakeholders, technical, advisory, and management groups

Goal 2 – Provide soundrobust, actionable science to supportinformed management decisionsactions

Sustainable management of fisheries relies on accurate and timely scientific advice. The Commission strives to produce soundrobust, actionable science through a technically rigorous, independently peer-reviewed stock assessment process. Assessments are developed using a broad suite of fishery-independent surveys and fishery-dependent monitoring, as well as research products developed in cooperation with the fishing industry, by a broad network of fisheries scientists at state, federal, and academic institutions along the coast. The goal encompasses the development of novelandnew, innovative scientific research, andmodern assessment methodology, and the enhancement of the states' stock assessment capabilities. It provides for the administration, coordination, and expansion of collaborative research and data collection programs. Achieving the goal will ensure soundrobust science is available to serve as the foundation for the Commission's evaluation of stock status and adaptive management actions.

Annual action planning will be guided by the following objectives:

- Proactively address research priorities through cooperative state and regional data collection programs; strengthen stakeholder involvement in ~~and~~ collaborative research projects, including stakeholder involvement
- Explore the use of newemerging technologies to improve fishery-independent surveys, monitoring, and the timeliness of scientific products
- Provide training to enhance the expertise and involvementparticipation of state and staff scientists in the development of conducting stock assessments
- Streamline assessment -data assimilation within individual states, and among states and ASMFC
- Conduct stock assessments based on comprehensive data sources and rigorous technical analysis; deliver direct, concise scientific advice in order to achieve clear endpoints in the assessment process; generate indicators/rapid assessments for all stocks
- Balance requests from fisheries management with finite assessment workload capacity
- ~~Characterize the risk and uncertainty associated with the scientific advice provided to decision makers~~
- ~~Proactively address research priorities through cooperative state and regional data collection programs and collaborative research projects, including stakeholder involvement~~
- ~~Explore the use of new technologies to improve surveys, monitoring, and the timeliness of scientific products~~
- Utilize ecosystem and climate science products to inform fisheries management decisions, including projected shifts with quota allocation implications
(Action): Integrate estuarine/state waters and federal waters environmental data for use in stock assessments
-

- ~~Promote effective c~~ommunication with stakeholders to ensure scientific advice and on-the-water observations ~~and science~~ are consistent
Characterize the risk and uncertainty associated with the scientific advice provided to decision-makers

-

Goal 3 - Produce dependable and timely marine fishery statistics for Atlantic coast fisheries

Effective management depends on quality fishery-dependent data ~~and fishery-independent data~~ to inform stock assessments and fisheries management decisions. ~~While Goal 2 of this Action Plan focuses on providing sound, actionable science and fishery-independent data to support fisheries management,~~ Goal 3 focuses on providing timely, accurate catch, ~~and effort,~~ and biological data on Atlantic coast recreational, for-hire, and commercial fisheries to support fisheries management.

Goal 3 seeks to accomplish this through the activities of the Atlantic Coastal Cooperative Statistics Program (ACCSP), a cooperative state-federal program that designs, implements, and conducts marine fisheries statistics data collection programs and integrates those data into data management systems that will meet the needs of fishery managers, scientists, and fishermen. ACCSP partners include the 15 Atlantic coast state fishery agencies, the three Atlantic Fishery Management Councils, the Potomac River Fisheries Commission, NOAA Fisheries, and the U.S. Fish and Wildlife Service.

Annual action planning will be guided by the following objectives:

- Focus on activities that maximize benefits, are responsive and accountable to partner and end-user needs, and are based on available resources-
- ~~Cooperatively~~ develop, implement, and maintain coastwide data standards through cooperation with all program partners
- Provide electronic applications that improve efficiently align partner data collection
- Integrate and provide access to partner data via a coastwide repository
- Facilitate fisheries data access through an on-line, user-friendly, system while protecting confidentiality
- Support data systems modernization and integration technological innovation

Goal 4 – Protect and enhance fish habitat and ecosystem health through partnerships and education

Goal 4 aims to conserve and improve coastal, marine, and riverine habitat to enhance the benefits of sustainable Atlantic coastal fisheries and resilient coastal communities in the face of changing ecosystems. Habitat loss and degradation have been identified as significant factors affecting the long-term sustainability and productivity of our nation’s fisheries. The

Commission's Habitat Program develops objectives, sets priorities, and produces tools to guide fisheries habitat conservation efforts directed towards ecosystem-based management.

The challenge for the Commission and its state members is maintaining fish habitat under limited regulatory authority for habitat protection or enhancement. Therefore, the Commission will work cooperatively with state, federal, and stakeholder partnerships to achieve this goal. Much of the work to address habitat is conducted through the Commission's Habitat and Artificial Reef Committees. In order to identify fish habitats of concern for Commission managed species, each year the Habitat Committee reviews existing reference documents for Commission-managed species to identify gaps or updates needed to describe important habitat types and review and revise species habitat factsheets. The Habitat Committee also publishes an annual issue of the *Habitat Hotline Atlantic*, highlighting topical issues that affect all the states.

The Commission and its Habitat Program endorses the National Fish Habitat Partnership, and will continue to work cooperatively with the partnership to improve aquatic habitat along the Atlantic coast. Since 2008, the Commission has invested considerable resources, as both a partner and administrative home, to the Atlantic Coastal Fish Habitat Partnership (ACFHP), a coastwide collaborative effort to accelerate the conservation and restoration of habitat for native Atlantic coastal, estuarine-dependent, and diadromous fishes. As part of this goal, the Commission will continue to provide support for ACFHP, under the direction of the National Fish Habitat Partnership Board.

Annual action planning will be guided by the following objectives:

- Identify fish habitats of concerns through fisheries management programs and partnerships
- Educate Commissioners, stakeholders, and the general public about the importance of habitat to healthy fisheries and ecosystems
- Better integrate habitat information and data into fishery management plans and stock assessments
- Engage local state, and regional governments in mutually beneficial habitat protection and enhancement programs
- Foster partnerships with management agencies, researchers, and habitat stakeholders to leverage scientific, regulatory, political, and financial support
- Work with ACFHP to foster partnerships with like-minded organizations at local levels to further common habitat goals

Goal 5 – Promote compliance with fishery management plans to ensure sustainable use of Atlantic coast [resources fisheries](#)

Fisheries managers, law enforcement personnel, and stakeholders have a shared responsibility to promote compliance with fisheries management measures. Activities under the goal seek to increase and improve compliance with fishery management plans. This

requires the successful coordination of both management and enforcement activities among state and federal agencies. Commission members recognize that adequate and consistent enforcement of fisheries rules is required to keep pace with increasingly complex management activity and emerging technologies. Achieving the goal will improve the effectiveness of the Commission's fishery management plans.

Annual action planning will be guided by the following objectives:

- Develop practical compliance requirements that foster stakeholder buy-in
- Evaluate the enforceability of management measures and the effectiveness of law enforcement programs
- Promote coordination and expand existing partnerships with state and federal natural resource law enforcement agencies
- Enhance stakeholder awareness of management measures through education and outreach
- Use emerging communication platforms to deliver real time information regarding regulations and the outcomes of law enforcement investigations

Goal 6 – Strengthen stakeholder and public support for the Commission

Stakeholder and public acceptance of Commission decisions are critical to our ultimate success. For the Commission to be effective, these groups must have a clear understanding of our mission, vision, and decision-making processes. The goal seeks to do so through expanded outreach and education efforts about Commission programs, decision-making processes, and its management successes and challenges. It aims to engage stakeholders in the process of fisheries management, and promote the activities and accomplishments of the Commission. Achieving the goal will increase stakeholder participation, understanding, and acceptance of Commission activities.

Annual action planning will be guided by the following objectives:

- Increase public understanding and support of activities through expanded outreach at the local, state, and federal levels
- Clearly define Commission processes to facilitate stakeholder participation, as well as transparency and accountability
- Strengthen national, regional, and local media relations to increase coverage of Commission actions
- Use new technologies and communication platforms to more fully engage the broader public in the Commission's activities and actions

Goal 7 – Advance Commission and member states' priorities through a proactive legislative policy agenda

Although states are positioned to achieve many of the national goals for marine fisheries through cooperative efforts, state fisheries interests are often underrepresented at the

national level. This is due, in part, to the fact that policy formulation is often disconnected from the processes that provide the support, organization, and resources necessary to implement the policies. The capabilities and input of the states are an important aspect of developing national fisheries policy, and the goal seeks to increase the states' role in national policy formulation. Additionally, the goal emphasizes the importance of achieving management goals consistent with productive commercial and recreational fisheries and healthy ecosystems.

The Commission recognizes the need to work with Congress in all phases of policy formulation. Several important fishery-related laws ~~may will~~ be reauthorized over the next couple of years (i.e., Atlantic Coastal Act, Magnuson-Stevens Fishery Conservation and Management Act, Interjurisdictional Fisheries Act, Atlantic Striped Bass Conservation Act, and Anadromous Fish Conservation Act). The Commission needs to proactively engage with reauthorization efforts, this includes advocating for increased funding from sources such as Wallop-Breaux Trust Fund, Sportfish Restoration Trust Fund and the Atlantic Coastal Act. The Commission will be vigilant in advancing the states' interests to Congress as these laws are reauthorized and other fishery-related pieces of legislation are considered.

Annual action planning will be guided by the following objectives:

- Increase the Commission's profile and support in the U.S. Congress by developing relationships between Members and their staff and Commissioners, the Executive Director, and Commission staff
- Maintain or increase long-term funding for Commission programs through the federal appropriations process and other available sources, this includes for non-federal surveys and to support our partnerships with outside organizations such as USGS.
- Engage Congress on fishery-related legislation affecting the Atlantic coast
- Promote member states' collective interests at the regional and national levels
- Promote economic benefits of the Commission's actions (return on investment)

Goal 8 – Ensure the fiscal stability & efficient administration of the Commission
(Should this goal be removed since fiscal administration is an ongoing obligation that has little room for interpretation, or should it should stay in and not be reflected in annual action planning, or stay as is?)

Goal 8 will ensure that the business affairs of the Commission are managed effectively and efficiently, including workload balancing through the development of annual action plans to support the Commission's management process. It also highlights the need for the Commission to efficiently manage its resources. The goal promotes the efficient use of legal advice to proactively review policies and react to litigation as necessary. It also promotes human resource policies that attract talented and committed individuals to conduct the work of the Commission. The goal highlights the need for the Commission as an organization to continually expand its skill set through training and educational opportunities. It calls for Commissioners

and Commission staff to maintain and increase the institutional knowledge of the Commission through periods of transition. Achieving this goal will build core strengths, enabling the Commission to respond to increasingly difficult and complex fisheries management issues.

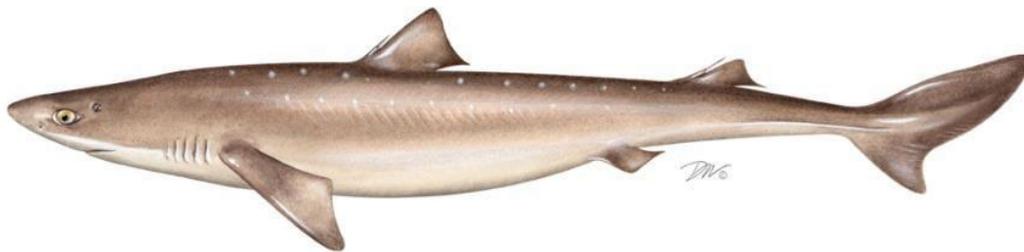
Annual action planning will be guided by the following objectives:

- Conservatively manage the Commission's operations and budgets to ensure fiscal stability
- Utilize new information technology to improve meeting and workload efficiencies, and enhance communications
- Refine strategies to recruit professional staff, and enhance growth and learning opportunities for Commission and state personnel
- Fully engage new Commissioners in the Commission process and document institutional knowledge.
- Utilize legal advice on new management strategies and policies, and respond to litigation as necessary.

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

FOR SPINY DOGFISH
(Squalus acanthias)

2022/2023 FISHING YEAR



Prepared by the Plan Review Team



Sustainable and Cooperative Management of Atlantic Coastal Fisheries

**REVIEW OF THE ASMFC FISHERY MANAGEMENT PLAN AND STATE COMPLIANCE FOR SPINY DOGFISH
(*Squalus acanthias*) FOR THE 2021/2022 FISHERY**

Management Summary

<u>Date of FMP Approval:</u>	November 2002
<u>Amendments:</u>	None
<u>Addenda:</u>	Addendum I (November 2005) Addendum II (October 2008) Addendum III (April 2011) Addendum IV (August 2012) Addendum V (October 2014) Addendum VI (October 2019)
<u>Management Unit:</u>	Entire coastwide distribution of the resource from the estuaries eastward to the inshore boundary of the EEZ
<u>States with Declared Interest:</u>	Maine – North Carolina
<u>Active Boards/Committees:</u>	Spiny Dogfish Management Board, Advisory Panel, Technical Committee, and Plan Review Team

I. Status of the Fishery Management Plan

In 1998, NMFS declared spiny dogfish overfished and initiated the development of a joint fishery management plan (FMP) between the Mid-Atlantic (MAFMC) and New England Fishery Management Councils (NEFMC) in 1999. NMFS approved the Federal Fishery Management Plan (FMP) in September 1999, but implementation did not begin until May 2000 at the start of the 2000/2001 fishing year.

In August 2000, the Atlantic States Marine Fisheries Commission (Commission) took emergency action to close state waters to the commercial harvest, landing, and possession of spiny dogfish when Federal waters closed in response to the quota being fully harvested. With the emergency action in place, the Commission had time to develop an interstate FMP, which prevented the undermining of the Federal FMP and further overharvest of the coastwide spiny dogfish population. Needing additional time to complete the interstate FMP, the Commission extended the emergency action twice through January 2003. During that time, most spiny dogfish landings were from state waters because states had either no possession limits or less conservative possession limits than those of the Federal FMP.

The Commission approved the [Interstate FMP for Spiny Dogfish](#) in November 2002 (first implemented for the 2003-2004 fishing year). In general, the Interstate FMP (FMP) for spiny dogfish complements the Federal FMP. The goal of the FMP is “to promote stock rebuilding and management of the spiny dogfish fishery in a manner that is biologically, economically, socially, and ecologically sound.” In support of this goal, the FMP established the following objectives:

1. Reduce fishing mortality and rebuild the spawning stock biomass to prevent recruitment failure and support a more sustainable fishery.
2. Coordinate management activities between state, Federal, and Canadian waters to ensure complementary regulations throughout the species’ range.
3. Minimize the regulatory discards and bycatch of spiny dogfish within state waters.
4. Allocate the available resource in a biologically sustainable manner that is equitable to all the fishers.
5. Obtain biological and fishery related data from state waters to improve the spiny dogfish stock assessment that currently depends upon data from the Federal bottom trawl survey.

The original Interstate and Federal FMPs established an annual quota that was allocated via fixed percentages between two seasonal periods: 57.9% to Period I (May 1st to October 31st) and 42.1% to Period II (November 1st to April 30th). When the quota allocated to a period is exceeded, the amount over the allocation is deducted from the same period in the subsequent fishing year. The periods could have separate possession limits that were specified on an annual basis. The FMPs also allowed for a five percent rollover of the annual coastwide quota once the stock is rebuilt, and allows each state to harvest up to 1,000 spiny dogfish for biomedical supply or scientific research.

[Addendum I \(November 2005\)](#)

Addendum I to the Interstate FMP for Spiny Dogfish allows the Board to set the quota and trip limit for up to 5 years. This addendum was developed to provide fishermen with the ability to set long term business plans and goals for their fishery operations. The Board may adjust specifications during a fishing season with a 2/3-two-thirds majority vote.

[Addendum II \(October 2008\)](#)

Addendum II replaces the seasonal allocation with a regional distribution of the quota. The regional allocation distributes quota with 58% to Maine – Connecticut, 26% to New York – Virginia, and 16% to North Carolina. Paybacks to regional quota overages are applied in the subsequent fishing seasons.

[Addendum III \(April 2011\)](#)

Addendum III divides the southern region’s annual quota of 42% into state-specific shares (see table below). It also allows for quota transfer between states, rollovers of up to 5% and state-specified possession limits, and includes a three-year reevaluation of the measures. The Addendum’s provisions apply only to states in the southern region (New York through North

Carolina) and do not modify the northern region allocation. The states of Maine to Connecticut will continue to share 58% of the annual quota as specified in Addendum II.

Southern Region State Shares. Quota allocation differs slightly from specific options presented in the draft addendum and are based on needs of states in the southern region with a consideration of historic landings.

	NY	NJ	DE	MD	VA	NC
Percent of Annual Coastwide Quota	2.707%	7.644%	0.896%	5.920%	10.795%	14.036%

[Addendum IV \(August 2012\)](#)

The Addendum updates the definition of overfishing to be consistent with that of the Mid-Atlantic Fishery Management Council and provides the Board the flexibility to update or modify the management program's overfishing definition through Board action based on the recommendations of its Technical Committee. The prior overfishing definition, adopted in 2002, was based on the number of pups per female that recruit to the stock. The updated definition will now be based on maximum sustainable yield or a reasonable proxy, consistent with the best available science. Although there are no immediate impacts to regulations, the change allows the Commission and Council to work from the same starting point when determining annual specifications. The Board considered modifying the management program's 5% rollover provision to either preclude rollovers entirely without specific Board approval or to allow rollovers beyond the current 5% maximum with Board approval. The Board voted to maintain the 5% maximum rollover. Any rollover is predicated on a rebuilt stock.

[Addendum V \(October 2014\)](#)

Addendum V ensures consistency in spiny dogfish management with the Shark Conservation Act of 2010 by prohibiting processing at-sea, including the removal of fins. Prior to approval, states could process spiny dogfish at-sea if the fin to carcass ratio aboard the vessel did not exceed five percent by weight. The Board set an implementation date of May 1, 2015 for states to promulgate this measure.

[Addendum VI \(October 2019\)](#)

Addendum VI allows commercial quota to be transferred between all regions and states to enable full utilization of the coastwide commercial quota and avoid payback for unintended quota overages. Prior to this addendum, quota transfers were only possible between states with individual state quotas, whereas regions have not been granted the authority to donate or receive quota via transfers. Consequently, regions were unable to share in the benefits of quota transfers. For the northern region to participate in quota transfers, the Director of each state's marine fisheries agency within the region must agree to the transfer in writing. As with transfers between states, transfers involving regions do not permanently affect the shares of the coastwide quota. Additionally, the Addendum extends the timeframe for when quota transfers can occur up to 45 days after the end of the fishing year to allow for late reporting of landings data.

II. Status of the Stocks

Stock size estimates (e.g., female SSB) for spiny dogfish rely heavily on fishery-independent data collected during the Northeast Fisheries Science Center (NEFSC) spring bottom trawl survey. Due to mechanical problems, the 2014 survey was unable to sample strata in the mid-Atlantic region. As a result, the 2015 assessment update for spiny dogfish was unable to produce reliable estimates of stock size for 2014, as well as stock size projections utilized for annual specifications. Accordingly, at the direction of the MAFMC and the Science and Statistical Committee (SSC), the NEFSC examined alternative methods to smooth out the effects of the missing 2014 survey data on projected estimates of SSB, F, and other stock status indicators (NEFSC 2015b). A Kalman filter approach was ultimately chosen as the best method to smooth out the effects of the missing data, and to project SSB forward. In 2016, while all core survey strata were completed, the survey was delayed and the effects of the delay in survey timing on the abundance indices are unknown (NEFSC 2017). In 2017 and 2018, the survey was completed on time and all core strata were surveyed.

Based on results of the 2018 stock assessment update, and based on the biological reference points below, spiny dogfish are not overfished and overfishing is not occurring (NEFSC 2018). The MAFMC's SSC recommended not applying the Kalman filter to the three-year moving average of 2016-2018 given the survey data were available and gap filling was not needed. Spiny dogfish was declared rebuilt in 2008 when female SSB exceeded the target level for the first time since implementation of the Interstate FMP. Female SSB has remained above the threshold level and was estimated to be 106,753 metric tons (235.36 million pounds) in 2018 (Table 1 and Figure 1). In 2017, F on exploitable females was estimated to be 0.202 and has remained below the target level since 2005 (Table 1 and Figure 2).

	Female Spawning Stock Biomass (SSB)	Fishing Mortality (F)
Target	B_{msy} Proxy = SSB_{max} (the biomass that results in the maximum projected recruitment) = 159,288 metric tons	There is no F target defined for management use at this time
Threshold	$\frac{1}{2}$ of SSB_{max} = 79,644 metric tons	F_{msy} Proxy = 0.244

The 2018 assessment update utilizes catch and landings data from 1982-2017, and NEFSC spring survey data from 1968-2017 (as noted, the survey was incomplete in 2014 and the 2016 survey was delayed). From 2009-2015, female SSB estimates based on area swept by NEFSC bottom trawl during spring surveys were above the target-level (NEFSC 2017). The 2016 estimate increased, while the 2017 estimate decreased; in 2018 the estimate decreased further from 2017. It is important to note that these estimates from the assessment update are not based on outputs of the stochastic assessment model and cannot be directly compared to the SSB targets and thresholds.

The next management track stock assessment for spiny dogfish is ongoing and will likely be completed in late 2023. In the interim, the NEFSC will continue to summarize the most recent information on the status of spiny dogfish to inform fishery specifications.

III. Status of the Fishery

In the U.S., the majority of spiny dogfish commercial fisheries operate in state waters targeting aggregations of large females. As a result, an estimated 81% of the commercial landings (Sosebee, 2022) are comprised of females, which is consistent with the long-term pattern (NEFSC 2018).

For the 2022 fishing year (May 1, 2022 – April 30, 2023), total U.S. commercial landings based on state compliance reports and SAFIS were estimated at 12.6 million pounds (5,715 metric tons), which is approximately 43% of the coastwide quota and a 28% increase relative to the previous season (Table 4). Massachusetts (36%), Virginia (36%), and New Jersey (16%) accounted for the majority of commercial landings by weight (Table 4).

Atlantic coast landings from Canada were significant from the early 1990s to the mid-late 2000s (hovering around 4.5 million pounds or 2,000 metric tons). Commercial landings from Canada and Distant Water fleets since 2019 are not available at this time. Recreational harvest is estimated via the Marine Recreational Information Program (MRIP). In the 2022 fishing year, recreational harvest of spiny dogfish on the Atlantic coast was estimated at 45,693 fish or an estimated 211,608 pounds¹ (96 metric tons) which is a 41% decrease relative to FY 2021 (357,507 pounds). Calendar year landings estimates for the U.S. commercial and recreational sectors are provided in Table 2.

For 2022, dead discards from the U.S. commercial fishery were not available at the time of this report. Recreational releases for the 2022 fishing year (fish caught by recreational anglers and released back to the water) were estimated at 12.3 million pounds (5,571 metric tons). Applying a 20% post-release mortality rate (NEFSC 2018), 2022 recreational dead discards were estimated at 2.5 million pounds (1,114 metric tons), which is an 8% increase relative to 2021 levels (2.3 million pounds).

IV. Status of Management Measures and Issues

Specifications

The spiny dogfish commercial fishery runs from May 1-April 30. The coastwide quota for the 2022/2023 season was set at 29.56 million pounds. For the northern region, the maximum possession limit was set at 7,500 pounds. Possession limits for states of New York-North Carolina vary by state and are detailed in Table 6.

Quotas

¹ Assuming the average weight of landed and discarded spiny dogfish is 5.12 pounds or 2.5 kilograms.

Under Addendum III, 58% of the annual quota is allocated to the northern region (states from Maine-Connecticut), and the remaining 42% is allocated to the states of New York-North Carolina via fixed percentages. Table 4 details 2022/2023 commercial quotas by region and state. All regions and states harvested within their quota the previous fishing year, therefore no deductions were applied to 2022/2023 quotas. Quota transfers are allowed under Addendum III and until recently have been uncommon. For the 2022/2023 season, the Northern Region and North Carolina each transferred 1,500,000 pounds of quota to Virginia. As there was no stock assessment update or change to 2017 projections that indicated that the stock was below the biomass target, no quota was eligible for rollover per Addendum IV.

From 2000-2011, the U.S. spiny dogfish commercial fishery had, for the most part, fully utilized its quota (MAFMC 2017). However, in recent years (2012-2022), the commercial fishery has significantly underutilized its quota. The MAFMC Advisory Panel (2019) noted that markets are critical for stimulating fishing activity and that the low level of harvest relative to the quota in recent years is primarily due to low price per pound and effort, not biomass. Vessels generally have no problem catching their limits. Being such a low value fishery (hovering around \$0.20/pound over the last 10-years; MAFMC 2018), even a small increase in price could stimulate fishing activity. Reasons for decreased participation in the fishery include increased fuel costs, fewer processors, and general public sentiment regarding sharks and shark fins which has created regulatory issues (e.g., foreign and domestic import and shipping bans) and other barriers to the market (e.g., the species common name dissuades many consumers).

V. Status of Research and Monitoring

Under the Interstate FMP for Spiny Dogfish, the states are not required to conduct any fishery-dependent or independent studies. The Interstate FMP requires an annual review of recruitment, spawning stock biomass, and fishing mortality, which relies heavily on the NEFSC's spring trawl survey data. However, states are encouraged to submit any spiny dogfish information collected while surveying for other species. Table 5 details state-implemented fishery-independent monitoring information relative to spiny dogfish compiled from annual state compliance reports. Please see individual reports for more information.

Exempted Fishing Permits (scientific/education permits)

States may issue exempted fishing permits (EFPs) for the purpose of biomedical supply, educational, or other scientific purposes. In 2022 and 2023, Maine issued ten EFPs for research and educational purposes, including for Maine's Department of Marine Resources fall and spring trawl surveys. The 2022 surveys caught a combined 592 spiny dogfish and results for the 2023 surveys will be available in 2024. Rhode Island issued 14 EFPs for scientific, educational, and/or biomedical research on spiny dogfish, and six spiny dogfish were collected. New Jersey issued three scientific collection permits that collected 405 spiny dogfish and retained 240. In 2022, North Carolina issued 49 scientific and educational permits, one of which reported 185 spiny dogfish captured and released, and 45 were issued in 2023.

VI. Annual State Compliance

The following lists the specific compliance criteria that a state or jurisdiction must implement to be in compliance with the Interstate FMP for Spiny Dogfish (*Section 5.1*):

1. States are required to close state waters to the commercial landing, harvest, and possession of spiny dogfish for the duration of the seasonal period when the commercial quota is projected to be harvested in their state or region.
2. States are required to report landings weekly to NOAA Fisheries or SAFIS.
3. Dealer permits issued pursuant to state regulations must submit weekly reports showing at least the quantity of spiny dogfish purchased (in pounds), the name, and permit number of the individuals from whom the spiny dogfish were purchased.
4. States are required to implement possession limits as determined through the annual specification process.
5. States may issue exempted fishing permits for the purpose of biomedical supply not to exceed 1,000 spiny dogfish per year.
6. State regulations must prohibit “finning” as described in Addendum V.

Additionally, each state must submit a compliance report detailing its spiny dogfish fisheries and management program for the previous fishing year. Compliance reports are due annually on July 1st (Table 6) and must include at a minimum:

1. the previous fishing year’s fishery and management program including activity and results of monitoring, regulations that were in effect and harvest, including estimates of non-harvest losses;
2. the planned management program for the current fishing year summarizing regulations that will be in effect and monitoring programs that will be performed, highlighting any changes from the previous year; and
3. the number of spiny dogfish exempted fishing permits issued in the previous fishing year, the actual amount (in numbers of fish and pounds) collected under each exempted fishing permit, as well as any other pertinent information (i.e., sex, when and how the spiny dogfish were collected). The report should also indicate the number of exempted fishing permits issued for the current fishing year.

Under the Spiny Dogfish FMP, a state may request *de minimis* status if its commercial landings of spiny dogfish are less than 1% of the coastwide commercial total. If granted, the state is exempt from the monitoring requirements of the commercial spiny dogfish fishery for the following fishing year. However, all states, including those granted *de minimis* status, must continue to report any spiny dogfish commercial or recreational landings within their jurisdiction via annual state compliance reports. Delaware and New York requested and qualified for *de minimis* status for the 2022/2023 fishing season (Table 6).

VII. Plan Review Team Recommendations

In evaluating compliance with the FMP, the Plan Review Team (PRT) notes that Connecticut did not provide an annual compliance report and their landings are provided by the Standard Atlantic Fisheries Information System (SAFIS). Additionally, New York's current finning prohibitions only apply to coastal sharks, and the state is planning to implement regulations for spiny dogfish through their regulatory process.

Additionally, while all states within the management unit satisfied the weekly reporting requirements through either SAFIS or NOAA Fisheries, the following states did not clearly provide their reporting regulations: New Jersey and Delaware. Moving forward, the PRT recommends that states specifically reference regulations requiring weekly dealer and landings reporting in their compliance reports. Additionally, Connecticut's compliance report did not include information on any exempted fishing permits issued.

Furthermore, three states reported spiny dogfish harvest under exempted fishing permits, with no state approaching the 1,000 fish limit for "biomedical supply" as loosely defined in the FMP. The PRT notes that states are reporting harvest under a variety of purposes including research and education. The PRT may require Board input on the categories of harvest to count towards this limit in the future should any state near the limit.

Other than the issues described above, the PRT found that all states that submitted compliance reports have implemented regulations consistent with the requirements of the Interstate FMP for Spiny Dogfish and Addenda I-VI. Additionally, the Board should consider the current *de minimis* provisions and what the purpose of designation is given all states still must report annual landings.

Members of the PRT noted that states have improved in providing compliance reports that are standardized and uniform in format and should continue doing so moving forward. Staff will continue to provide states with a template for compliance reports to aid with consistency. Additionally, the PRT indicated the need to continue monitoring the resource based on the results of the 2018 assessment update that indicated a recent declining trend in female SSB.

VIII. Research Recommendations

The following research priorities pertaining to spiny dogfish were identified in Special Report No. 89 (2013). **Please note** that the Board does not need to take action on these recommendations currently and a number of them will be evaluated through the next stock assessment, which is currently underway.

Fishery-Dependent Priorities

High

- Determine area, season, and gear-specific discard mortality estimates coastwide in the recreational, commercial, and non-directed (bycatch) fisheries.
- Characterize and quantify bycatch of spiny dogfish in other fisheries.

- Increase the biological sampling of spiny dogfish in the commercial fishery and on research trawl surveys.
- Further analyses of the commercial fishery is also warranted, especially with respect to the effects of gear types, mesh sizes, and market acceptability on the mean size of landed spiny dogfish.

Fishery-Independent Priorities

- Conduct experimental work on NEFSC trawl survey gear performance, with focus on video work to study the fish herding properties of the gear for species like dogfish and other demersal groundfish.
- Investigate the distribution of spiny dogfish beyond the depth range of current NEFSC trawl surveys, possibly using experimental research or supplemental surveys.
- Continue to analyze the effects of environmental conditions on survey catch rates.

Modeling / Quantitative Priorities

- Continue work on the change-in-ratio estimators for mortality rates and suggest several options for analyses.
- Examine observer data to calculate a weighted average discard mortality rate based on an assumption that the rate increases with catch size.

Life History, Biological, and Habitat Priorities

- Conduct a coastwide tagging study to explore stock structure, migration, and mixing rates.
- Standardize age determination along the entire East Coast. Conduct an ageing workshop for spiny dogfish, encouraging participation by NEFSC, North Carolina Division of Marine Fisheries (NCDMF), Canada DFO, other interested agencies, academia, and other international investigators with an interest in spiny dogfish ageing.
- Identify how spiny dogfish abundance and movement affect other organisms.

Management, Law Enforcement, and Socioeconomic Priorities

- Monitor the changes to the foreign export markets for spiny dogfish, and evaluate the potential to recover lost markets or expand existing ones.
- Update on a regular basis the characterization of fishing communities involved in the spiny dogfish fishery, including the processing and harvesting sectors, based upon Hall-Arber et al. (2001) and McCay and Cieri (2000).
- Characterize the value and demand for spiny dogfish in the biomedical industry on a state by state basis.
- Characterize the spiny dogfish processing sector.

IX. References

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- Special Report No. 89 of the Atlantic States Marine Fisheries Commission. 2013. Research priorities and recommendations to support interjurisdictional fisheries management.
- Sosebee, K.A. 2022. Spiny dogfish catch summary and derivation of catch at length and sex. Working Paper Submitted as part of the 2022 Spiny Dogfish Research Track Assessment.

X. Tables

Table 1. Spiny dogfish female spawning stock biomass (SSB) in millions of pounds 1991-2018 and fishing mortality (F) point estimates, 1991-2017. A Kalman Filter was applied to the 2015 point-estimate. Point-estimates from 1991-2014 via the Kalman filter were not available at the time of this report. Although the absolute values will change after the Kalman filter is applied, the time series trend is similar. Source: NEFSC 2018.

Year	Female SSB	F
1991	516	0.082
1992	594	0.177
1993	485	0.327
1994	410	0.465
1995	294	0.418
1996	266	0.355
1997	252	0.234
1998	202	0.306
1999	114	0.289
2000	116	0.152
2001	136	0.109
2002	143	0.165
2003	129	0.168
2004	118	0.474
2005	105	0.128
2006	234	0.088
2007	312	0.090
2008	429	0.110
2009	360	0.113
2010	362	0.093
2011	373	0.114
2012	476	0.149
2013	466	NA
2014	NA	0.214
2015	306	0.126
2016	345	0.211
2017	257	0.202
2018	235	NA

Table 2. Calendar Year Landings estimates (pounds) of spiny dogfish off the Atlantic coast by commercial fisheries of the United States, Canada, and foreign fleets, and U.S. recreational harvest, 1987-2021. Source: Commercial Data through 2018 provided by NEFSC 2019. 2019-2022 U.S. Commercial landings provided through ACCSP. Recreational Data from MRIP.

Year	Canada	Distant Water Fleets	U.S. Commercial	U.S. Recreational	Total Landings
1987	619,498	306,442	5,758,100	1,134,111	7,818,151
1988	2,205	1,426,389	6,297,800	820,989	8,547,383
1989	368,172	564,383	9,758,700	947,769	11,639,024
1990	2,885,848	866,416	32,158,915	948,070	36,859,249
1991	676,818	515,881	25,433,105	753,259	27,379,063
1992	1,913,610	147,710	25,130,717	1,048,767	28,240,804
1993	3,163,630	59,525	35,800,043	480,204	39,503,402
1994	4,012,408	4,409	30,820,339	308,029	35,145,185
1995	2,107,617	30,865	42,990,104	218,908	45,347,494
1996	950,191	520,290	53,156,131	66,290	54,692,902
1997	983,261	471,789	43,177,848	240,496	44,873,394
1998	2,325,874	1,338,204	45,365,659	214,912	49,244,649
1999	4,609,860	1,221,359	33,463,598	158,006	39,452,823
2000	6,042,863	886,257	20,910,865	13,055	27,853,040
2001	8,421,648	1,492,528	4,920,944	47,935	14,883,055
2002	7,901,358	1,044,990	4,651,562	652,335	14,250,245
2003	2,870,415	1,417,571	2,352,291	103,962	6,744,239
2004	5,207,312	727,525	2,231,631	591,518	8,757,986
2005	5,004,487	727,525	2,503,047	107,477	8,342,536
2006	5,377,068	22,046	5,312,438	218,100	10,929,652
2007	5,255,814	68,343	6,537,566	287,978	12,149,701
2008	3,466,368	288,805	9,060,729	565,461	13,381,363
2009	249,122	180,779	12,145,049	235,674	12,810,624
2010	13,228	279,987	12,693,572	88,111	13,074,898
2011	273,373	315,261	21,600,293	203,366	22,392,293
2012	143,300	302,033	23,871,759	104,548	24,421,640
2013		134,482	16,063,726	190,810	16,389,018
2014	119,049	68,343	23,752,640	263,396	24,203,428
2015	2,205	50,706	20,113,655	137,037	20,303,603
2016	81,571	52,911	27,158,288	523,139	27,815,909
2017	119,049		19,259,449	319,009	19,697,507
2018	99,208		15,299,201	136,094	15,534,503
2019	NA	NA	17,462,685	116,376	17,579,061
2020	NA	NA	17,410,979	263,594	17,674,573
2021	NA	NA	10,253,530	471,864	10,725,394
2022	NA	NA	10,824,396	35,879	10,860,275

Table 3. Total calendar year dead discards estimates (pounds) from the U.S. Atlantic coast spiny dogfish fishery by sector, 1990-2021. Commercial dead discards for 2019-2021 are not available. Source: MRIP and NEFSC 2019.

Year	Commercial	Recreational (20% B2)	Total Dead Discards
1990	41,754,621	830,701	42,585,322
1991	28,668,217	1,146,402	29,814,619
1992	41,401,992	577,170	41,979,161
1993	25,898,443	858,479	26,756,922
1994	18,435,804	654,331	19,090,135
1995	23,812,762	392,863	24,205,625
1996	13,136,779	205,030	13,341,809
1997	9,255,656	537,045	9,792,702
1998	7,305,008	460,325	7,765,333
1999	9,865,123	399,477	10,264,600
2000	6,128,182	370,376	6,498,558
2001	10,236,492	1,271,184	11,507,675
2002	10,392,799	1,099,664	11,492,464
2003	7,998,031	1,746,500	9,744,531
2004	12,011,321	2,982,410	14,993,731
2005	10,775,411	2,186,542	12,961,953
2006	10,847,557	2,574,996	13,422,553
2007	12,456,478	2,660,094	15,116,572
2008	9,843,805	2,442,719	12,286,524
2009	11,735,909	3,180,385	14,916,294
2010	8,146,291	2,134,513	10,280,804
2011	9,533,163	2,615,120	12,148,283
2012	10,081,275	1,903,028	11,984,303
2013	9,875,386	5,295,056	15,170,442
2014	10,657,861	7,724,988	18,382,849
2015	6,783,726	1,886,273	8,669,999
2016	7,122,686	4,001,826	11,124,513
2017	6,756,168	1,572,335	8,328,503
2018	5,310,158	1,642,883	6,953,041
2019	NA	2,555,481	NA
2020	NA	1,717,694	NA
2021	NA	2,611,890	NA
2022	NA	1,962,308	NA

Table 4. Commercial quotas and landings estimates in pounds for May 1, 2022-April 30, 2023 by region and state. There was no adjustment to quotas due to the biomass estimate was below the target. Some values are listed as confidential to protect the confidentiality of other states. Source: State Compliance Reports and SAFIS.*CT landings provided by SAFIS

State	Fixed Percent Allocation	Preliminary Quota	Adjusted Quota	Estimated Landings
Northern Region	58.00%	17,144,556	15,644,556	4,017,767*
NY	2.71%	800,413	800,413	107,645
NJ	7.64%	2,259,728	2,259,728	1,682,797
DE	0.90%	264,866	264,866	Confidential
MD	5.92%	1,749,935	1,749,935	Confidential
VA	10.80%	3,191,020	6,191,020	5,852,669
NC	14.04%	4,149,062	2,649,062	Confidential
Total	100%			12,598,716
% of quota harvested				42.6%
% diff. relative to 2020/2021 fishing year landings (9,868,498 lbs.)				28%

Table 5. State implemented fishery-independent monitoring programs that encounter spiny dogfish. Source: State Compliance Reports. Note: this list is not comprehensive.

Fishery-Independent Monitoring Programs That Encounter Spiny Dogfish	# Spiny Dogfish Encountered	Comments
ME-NH Inshore Trawl survey	592	The 2022 spring survey caught a total of 40 spiny dogfish at a total weight of 59.49 kg. The 2022 fall survey caught a total of 552 spiny dogfish at a total weight of 805.19 kg.
RI DFW, Coastal Trawl Survey	See Comment	The 2022 Fall trawl survey caught 0.20 spiny dogfish per tow. The Monthly trawl survey in 2022 caught an average of 0.75 spiny dogfish per tow. The 2023 Spring trawl survey caught zero spiny dogfish.
CT Long Island Sound Trawl Survey	Unknown	
NY DEC Multispecies Ocean Trawl Survey	10,212	Five tows in October were cut short by five minutes each.
NJ Ocean Stock Assessment (trawl) Survey	2,841	
DE Bay Bottom Trawl (30- and 16-foot)	387	All from 30-foot bottom trawl
NC DMF Gill Net Survey	9	2020 sampling was suspended due to the COVID-19 pandemic. Sampling resumed July 1, 2021. No spiny dogfish were encountered during sampling in 2021.

Table 6. State-by-state compliance with the Interstate Fishery Management Plan for Spiny Dogfish, 2021/2022 reporting period. Source: State Compliance Reports. Y = Yes, met compliance requirement; N = No, did not meet compliance requirement; NA = Not applicable.

State	Report Submitted (Due July 1)	De Minimis Request	Exempted Fishing Permit Harvest	Finning Prohibition	Possession limit (lbs)
Maine	Y	NA	Y	Y	7,500
New Hampshire	Y	NA	NA	Y	7,500
Massachusetts	Y	NA	NA	Y	7,500
Rhode Island	Y	NA	Y	Y	7,500
Connecticut	Y	NA	NA	Y	7,500
New York	Y	Y	NA	Y	7,500
New Jersey	Y	NA	NA	Y	7,500
Delaware	Y	Y	NA	Y	10,000 [#]
Maryland	Y	NA	NA	Y	up to 10,000
Virginia	Y	NA	NA	Y	7,500
North Carolina	Y	NA	Y	Y	20,000

[#]It is unlawful for DE commercial fishermen to possess spiny dogfish taken from federal waters in excess of the federal possession limit

*See PRT recommendations

XI. Figures

Figure 1. Spiny dogfish spawning stock biomass, 1991-2018. Point-estimate for 2015 was derived via application of a Kalman filter. NEFSC 2018.

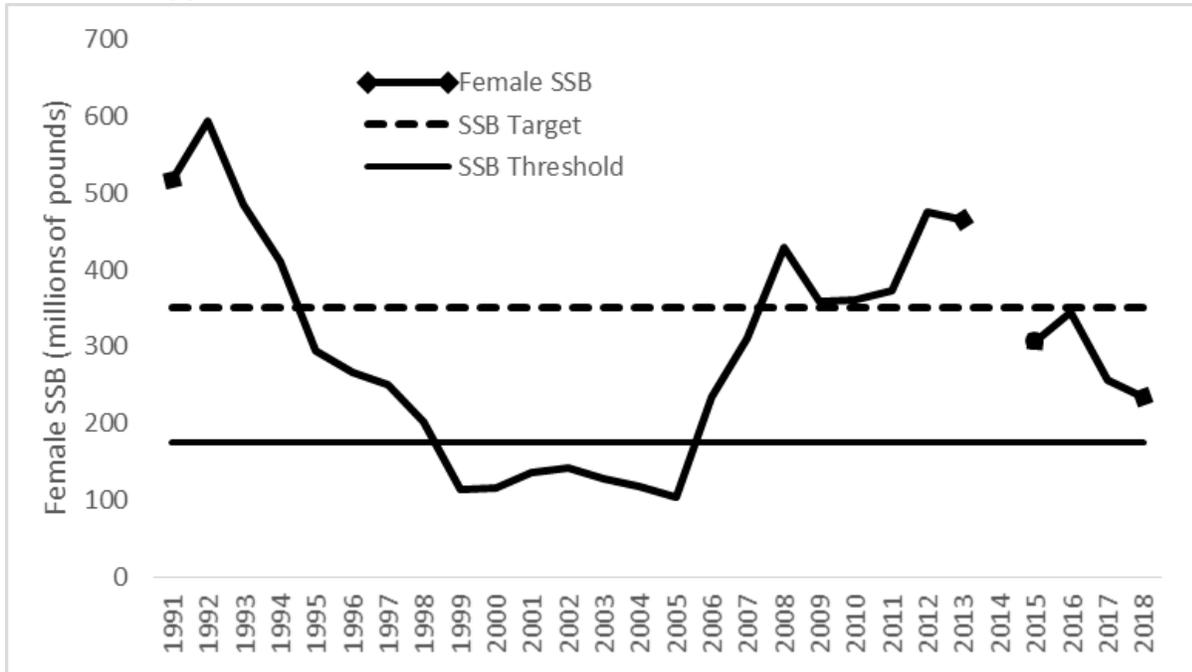
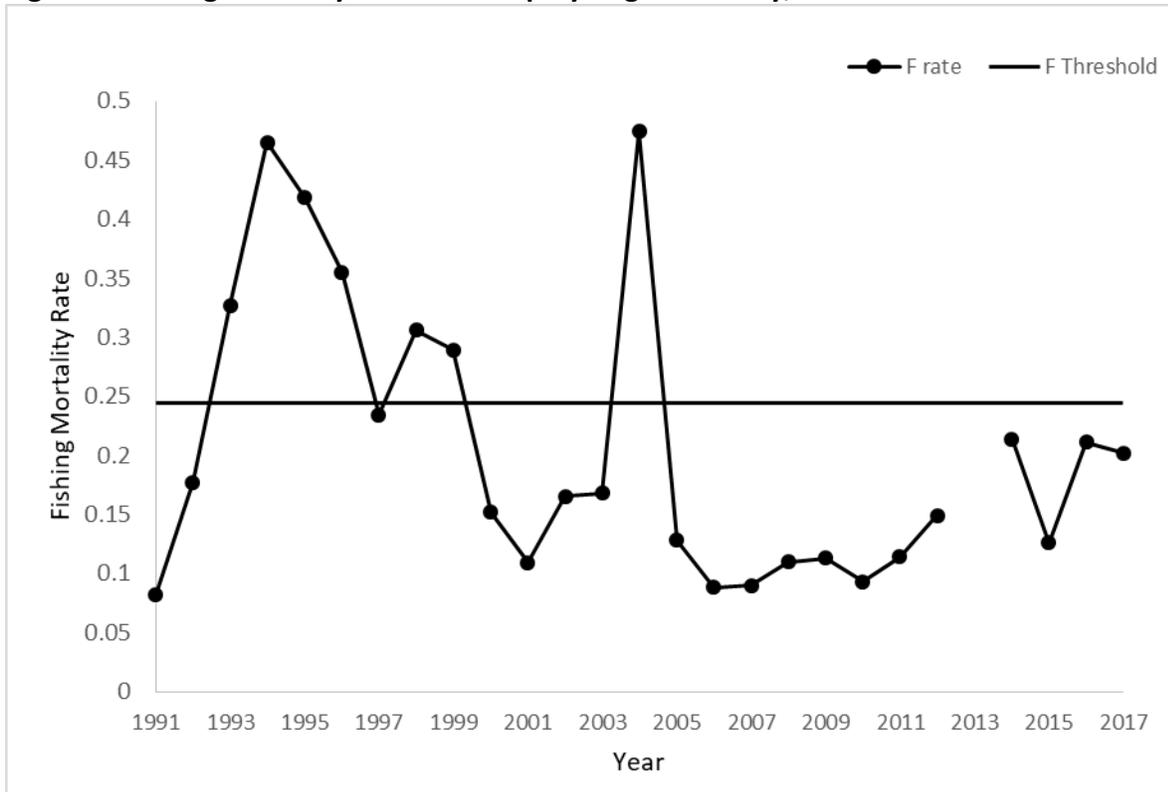


Figure 2. Fishing mortality rates in the spiny dogfish fishery, 1991-2017. Source: NEFSC 2018.





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MEMORANDUM

TO: Atlantic Striped Bass Management Board
FROM: Atlantic Striped Bass Plan Development Team
DATE: October 9, 2023
SUBJECT: Draft Addendum II Board Discussion

In May 2023, the Atlantic Striped Bass Management Board (Board) initiated an addendum to bring fishing mortality to the target in 2024 with options to include modifications to the ocean slot limit, ocean harvest closures if needed, maximum size limits for all commercial fisheries and Chesapeake Bay recreational fisheries, and a Board action provision for future stock assessment response. The Plan Development Team (PDT) developed and presented options to address the Board motion at the Summer 2023 Meeting. After Board discussion, it directed the PDT to remove the seasons from the recreational options, add specific options for the for-hire mode of the recreational fishery, add additional Chesapeake Bay recreational options, add a gill net exemption to the commercial maximum size limit option, add a commercial quota reduction option, and calculate the state specific quota adjustments for the commercial size limit options to maintain current spawning potential ratios (SPRs).

This memorandum highlights three areas for the Board's deliberations on the draft addendum: 1) the range of reductions in the Chesapeake Bay recreational fishery options, 2) the notion of patron regulations in the for-hire mode split options, and 3) the mechanism for providing the gill net exemption. Lastly, the PDT has provided the Board with probability tables of being at the target F in 2024 under the draft addendum options and being at or above the SSB target in 2029 under the draft addendum options.

Chesapeake Bay Recreational Options

Draft Addendum II presents a range of estimated reductions in harvest for the recreational fishery. Specifically, the Chesapeake Bay options, besides status quo, estimate reductions that range from 4.7% to 24.2%. The ocean recreational options, besides status quo, estimate reductions that range from 14.0% to 14.1%. If the Board intends to present options that have similar levels of reduction between the Bay and ocean recreational fisheries, **the PDT recommends removal of options with estimated reductions above 20% (options C1 and D1) and below 10% (options B3, B4, E3, and E4).** This would leave ten options for the recreational Bay fishery; the Board may want to consider further reducing the number of options prior to approving the draft for public comment.

Recreational Mode-split

The Board directed the PDT to add options for separate recreational measures in the for-hire mode vs. private vessel/shore modes. The PDT found some states' specify that for-hire regulations are for the patrons of the vessel only (captain and crew are not included). Since the public comment submitted by the for-hire industry in response to the emergency action adopted in 2023 were seeking different measures to help sell more trips, the PDT discussed a patron specific measure. Additionally, the PDT asked the law enforcement committee about the enforceability of such a regulation. The LEC provided the below response in italics. Based on the LECs feedback, the PDT did not include a recreational for-hire option specific to patrons of the vessel, but one PDT member noted that much of the LEC response also appears relevant to a separate for-hire regulation in general (regardless of how implemented).

Simple, straightforward regulations are easier for the regulated community to understand and remember which is critical for voluntary compliance. They are also more enforceable because violations of simple regulations are easier to detect and to prove. For example, a simple regulation such as "possession of an undersized fish" stands on its own. A violation of this regulation would apply regardless of where the fish was taken, how it was harvested, or any other regulatory variable. Conversely, complex regulations are more susceptible to confusion, misunderstandings, and differing interpretations among the regulated community, law enforcement personnel, and the court system. The proliferation of regulations frustrates industry as well as law enforcement personnel. A separate regulation for a recreational angler who is now on a "For Hire" trip and is considered a "Patron" will complicate and confuse the adopted recreational measures. By having such a requirement, additional elements to a violation of the management measure will need to be proven. For example, while conducting a boarding a vessel, law enforcement would inspect for license, species, seasons, and bag/possession limits. Having a "Patron" standard would now require law enforcement to additionally prove that the angler is a paying customer and not part of a crew.

Gill Net Exemption

The Board added an option for an FMP exemption of a commercial maximum size limit for striped bass gill net fisheries based on concern for the potential increase in dead discards if a commercial maximum size limit is implemented. Specifically, the intended benefit of releasing larger striped bass caught in gill nets will be offset by the high mortality rate of discarded fish (e.g., 45% discard mortality rate assumed in stock assessment for anchor gill nets and 6% discard mortality rate for drift gill nets) and the resulting need to continue fishing to meet the quota. Under the exemption, striped bass gill net fisheries would not be required to have a maximum size limit and would instead would be restricted by a maximum mesh size. After initial discussion of how to draft an FMP exemption, the PDT recommends the Board pursue the exemption as a conservation equivalency exemption rather than an FMP exemption. This will allow states to take into account differing fish size availability and selectivity in their state waters when determining an appropriate maximum mesh size. It also allows states to draft regulatory language to ensure the state's ability to discern between fish caught in an exempted fishery and any other striped bass commercial fishery (e.g., hook and line) if there is overlap of the two.

The PDT recommends removal of option 2, Gill Net Exemption, in section 3.2.3 Gill Net Exemption.

Projections

The PDT was hesitant to provide projections beyond 2024 because we do not know the realized impacts of several factors including the emergency measures, changes in selectivity, the outcome of the 2024 stock assessment update, or what removals or regulations will be in the next 5 years. The PDT also did not find the 2024 target F projection informative, e.g. what does it mean to have a 38% chance vs. a 45% chance of being at or below the target F in 2024 in terms of the long-term goal of rebuilding the stock? The PDT elected to provide SSB projections through 2029, using the F rate the options are estimated to achieve in 2024, to illustrate the differences between the options in terms of the probability of rebuilding by 2029. The PDT reminds the Board these projections carry a significant amount of uncertainty and assumptions (e.g., that F rates will remain the same from 2024 to 2029) and do not incorporate any uncertainty about what the reductions from each option will be. In addition, the projections assumes all options will be implemented for the 2024 fishery. **The PDT stresses that these are not formal rebuilding projections and are only intended to show how the options differ from each other in terms of rebuilding probabilities if the estimated reductions for each option are realized and everything remains constant, which we know will not happen in reality.**

Below are the probability tables of being at F target in 2024 (Table 1) and being at or above the SSB target in 2029 (Table 2), including one scenario where F is equal to F target. These tables are only for comparisons across options; the rebuilding trajectories will depend strongly on realized removals in 2023, 2024, and beyond, as well as the results of the 2024 update where our understanding of abundance and selectivity in 2022 and 2023 will be much clearer.

Table 1. Probability of being at or below the F target in 2024 under different combinations of management options

Commercial quota reduction (both regions)	Chesapeake Bay Options						Ocean	
		Min. Size	Max. Size	Bag Limit	Season	Reduction	B1. 28"-31" (All Modes)	B2. 28"-31" (PR/SH), 28"-33" (FH)
							-14.1%	-14.0%
0%	Option B1	18" DC, 19" MD, 20" VA & PRFC	23"	same as 2022*	same as 2022 ⁺	-17.8%	43%	43%
	Option B2	18" DC, 19" MD, 20" VA & PRFC	24"	same as 2022*	same as 2022 ⁺	-10.8%	38%	39%
	Option B3	18" DC, 19" MD, 20" VA & PRFC	25"	same as 2022*	same as 2022 ⁺	-6.6%	36%	34%
	Option B4	18" DC, 19" MD, 20" VA & PRFC	26"	same as 2022*	same as 2022 ⁺	-4.7%	34%	35%
	Option C1	20"	23"	same as 2022*	same as 2022 ⁺	-24.2%	48%	47%
	Option C2	20"	24"	same as 2022*	same as 2022 ⁺	-17.2%	42%	42%
	Option C3	20"	25"	same as 2022*	same as 2022 ⁺	-13.0%	40%	39%
	Option C4	20"	26"	same as 2022*	same as 2022 ⁺	-11.1%	38%	37%
	Option D1	19"	23"	1 fish	same as 2022 ⁺	-22.4%	47%	47%
	Option D2	19"	24"	1 fish	same as 2022 ⁺	-15.9%	41%	42%
	Option D3	19"	25"	1 fish	same as 2022 ⁺	-12.1%	39%	38%
	Option D4	19"	26"	1 fish	same as 2022 ⁺	-10.3%	38%	38%
	Option E1	19"	23"	1 fish PR/SH, 2 fish For-Hire	same as 2022 ⁺	-17.9%	43%	43%
	Option E2	19"	24"	1 fish PR/SH, 2 fish For-Hire	same as 2022 ⁺	-11.0%	39%	38%
	Option E3	19"	25"	1 fish PR/SH, 2 fish For-Hire	same as 2022 ⁺	-7.0%	36%	34%
	Option E4	19"	26"	1 fish PR/SH, 2 fish For-Hire	same as 2022 ⁺	-5.1%	34%	33%
-14.5%	Option B1	18" DC, 19" MD, 20" VA & PRFC	23"	same as 2022*	same as 2022 ⁺	-17.8%	51%	50%
	Option B2	18" DC, 19" MD, 20" VA & PRFC	24"	same as 2022*	same as 2022 ⁺	-10.8%	46%	45%
	Option B3	18" DC, 19" MD, 20" VA & PRFC	25"	same as 2022*	same as 2022 ⁺	-6.6%	43%	42%
	Option B4	18" DC, 19" MD, 20" VA & PRFC	26"	same as 2022*	same as 2022 ⁺	-4.7%	40%	41%
	Option C1	20"	23"	same as 2022*	same as 2022 ⁺	-24.2%	54%	56%
	Option C2	20"	24"	same as 2022*	same as 2022 ⁺	-17.2%	51%	50%
	Option C3	20"	25"	same as 2022*	same as 2022 ⁺	-13.0%	47%	46%
	Option C4	20"	26"	same as 2022*	same as 2022 ⁺	-11.1%	46%	44%
	Option D1	19"	23"	1 fish	same as 2022 ⁺	-22.4%	54%	53%
	Option D2	19"	24"	1 fish	same as 2022 ⁺	-15.9%	49%	50%
	Option D3	19"	25"	1 fish	same as 2022 ⁺	-12.1%	46%	46%
	Option D4	19"	26"	1 fish	same as 2022 ⁺	-10.3%	45%	45%
	Option E1	19"	23"	1 fish PR/SH, 2 fish For-Hire	same as 2022 ⁺	-17.9%	51%	49%
	Option E2	19"	24"	1 fish PR/SH, 2 fish For-Hire	same as 2022 ⁺	-11.0%	45%	46%
	Option E3	19"	25"	1 fish PR/SH, 2 fish For-Hire	same as 2022 ⁺	-7.0%	43%	43%
	Option E4	19"	26"	1 fish PR/SH, 2 fish For-Hire	same as 2022 ⁺	-5.1%	41%	40%

Table 2. Probability of being at or above the SSB target in 2029 under different combinations of management options

Commercial quota reduction (both regions)	Chesapeake Bay Options						Ocean	
		Min. Size	Max. Size	Bag Limit	Season	Reduction	B1. 28"-31" (All Modes)	B2. 28"-31" (PR/SH), 28"-33" (FH)
0%							-14.1%	-14.0%
	Option B1	18" DC, 19" MD, 20" VA & PRFC	23"	same as 2022*	same as 2022 ⁺	-17.8%	41%	40%
	Option B2	18" DC, 19" MD, 20" VA & PRFC	24"	same as 2022*	same as 2022 ⁺	-10.8%	38%	36%
	Option B3	18" DC, 19" MD, 20" VA & PRFC	25"	same as 2022*	same as 2022 ⁺	-6.6%	35%	34%
	Option B4	18" DC, 19" MD, 20" VA & PRFC	26"	same as 2022*	same as 2022 ⁺	-4.7%	34%	33%
	Option C1	20"	23"	same as 2022*	same as 2022 ⁺	-24.2%	45%	45%
	Option C2	20"	24"	same as 2022*	same as 2022 ⁺	-17.2%	40%	41%
	Option C3	20"	25"	same as 2022*	same as 2022 ⁺	-13.0%	39%	38%
	Option C4	20"	26"	same as 2022*	same as 2022 ⁺	-11.1%	37%	36%
	Option D1	19"	23"	1 fish	same as 2022 ⁺	-22.4%	44%	44%
	Option D2	19"	24"	1 fish	same as 2022 ⁺	-15.9%	39%	39%
	Option D3	19"	25"	1 fish	same as 2022 ⁺	-12.1%	38%	37%
	Option D4	19"	26"	1 fish	same as 2022 ⁺	-10.3%	37%	36%
	Option E1	19"	23"	1 fish PR/SH, 2 fish For-Hire	same as 2022 ⁺	-17.9%	40%	40%
	Option E2	19"	24"	1 fish PR/SH, 2 fish For-Hire	same as 2022 ⁺	-11.0%	37%	37%
	Option E3	19"	25"	1 fish PR/SH, 2 fish For-Hire	same as 2022 ⁺	-7.0%	35%	34%
Option E4	19"	26"	1 fish PR/SH, 2 fish For-Hire	same as 2022 ⁺	-5.1%	33%	33%	
-14.5%	Option B1	18" DC, 19" MD, 20" VA & PRFC	23"	same as 2022*	same as 2022 ⁺	-17.8%	48%	47%
	Option B2	18" DC, 19" MD, 20" VA & PRFC	24"	same as 2022*	same as 2022 ⁺	-10.8%	43%	42%
	Option B3	18" DC, 19" MD, 20" VA & PRFC	25"	same as 2022*	same as 2022 ⁺	-6.6%	41%	39%
	Option B4	18" DC, 19" MD, 20" VA & PRFC	26"	same as 2022*	same as 2022 ⁺	-4.7%	39%	38%
	Option C1	20"	23"	same as 2022*	same as 2022 ⁺	-24.2%	51%	50%
	Option C2	20"	24"	same as 2022*	same as 2022 ⁺	-17.2%	47%	46%
	Option C3	20"	25"	same as 2022*	same as 2022 ⁺	-13.0%	44%	44%
	Option C4	20"	26"	same as 2022*	same as 2022 ⁺	-11.1%	42%	42%
	Option D1	19"	23"	1 fish	same as 2022 ⁺	-22.4%	48%	49%
	Option D2	19"	24"	1 fish	same as 2022 ⁺	-15.9%	46%	45%
	Option D3	19"	25"	1 fish	same as 2022 ⁺	-12.1%	44%	43%
	Option D4	19"	26"	1 fish	same as 2022 ⁺	-10.3%	40%	42%
	Option E1	19"	23"	1 fish PR/SH, 2 fish For-Hire	same as 2022 ⁺	-17.9%	46%	46%
	Option E2	19"	24"	1 fish PR/SH, 2 fish For-Hire	same as 2022 ⁺	-11.0%	44%	43%
	Option E3	19"	25"	1 fish PR/SH, 2 fish For-Hire	same as 2022 ⁺	-7.0%	40%	41%
	Option E4	19"	26"	1 fish PR/SH, 2 fish For-Hire	same as 2022 ⁺	-5.1%	39%	38%
Probability of being at or above the SSB target in 2029 if F target is achieved for 2024-2029								
						F= F target	48%	

Tracey Bauer

From: Comments
Sent: Monday, June 12, 2023 12:30 PM
To: Tracey Bauer; Doug Haymans
Subject: FW: Red fish sticks in Georgia

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Doug and Tracey -- I wanted to forward you both the public comment we received on red drum. Tracey, please include in the meeting materials for the next Sciaenids Board meeting. Thanks. -- Tina

Tina Berger
Director of Communications
Atlantic States Marine Fisheries Commission
1050 N. Highland Street, Suite 200A-N
Arlington, VA 22201
703.842.0749
www.asmfc.org

Sustainable and Cooperative Management of Atlantic Coastal Fisheries

-----Original Message-----

From: scott wagner <savannahfly@msn.com>
Sent: Friday, June 9, 2023 3:34 PM
To: Comments <comments@asmfc.org>
Subject: [External] Red fish sticks in Georgia

If you think stocks are not overfished in Georgia you are as high as are DNR. Or did you just get the lame data from them. They didn't start collecting data until stocks had fallen thru the floor.

Sent from my iPhone