# Atlantic States Marine Fisheries Commission

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

*A.G. "Spud" Woodward (GA), Chair* *Joseph Cimino (NJ), Vice-Chair* *Robert E. Beal, Executive Director*


*Sustainable and Cooperative Management of Atlantic Coastal Fisheries*

## MEMORANDUM

Revised July 26, 2023

TO: Commissioners; Proxies; American Eel Management Board; Atlantic Striped Bass Management Board; Coastal Pelagics Management Board; Coastal Sharks Management Board; Executive Committee; ISFMP Policy Board; Spiny Dogfish Management Board; Tautog Management Board; Shad & River Herring Management Board

FROM: Robert E. Beal
Executive Director

RE: ASMFC Summer Meeting: August 1-3, 2023 (TA 23-043)

The Atlantic States Marine Fisheries Commission's Summer Meeting will be held August 1-3, 2023 at **The Westin Crystal City**. The room block is now closed; if you need assistance reserving a room, please contact Lisa Carty at lcarty@asmfc.org. This will be a hybrid meeting (both in-person and remote) to allow for participation by Commissioners and interested stakeholders.

The final agenda and meeting materials for the Summer Meeting are now available at https://www.asmfc.org/home/2023-summer-meeting; click on the relevant Board/Committee name to access the documents for that Board/Committee.

### Webinar Information

Board meeting proceedings will be broadcast daily via webinar beginning Tuesday, August 1 at 9 a.m. and continuing daily until the conclusion of the meeting (expected to be 11 a.m.) on Thursday, August 3. To register for the webinar, please go to: https://attendee.gotowebinar.com/register/8211916328494316377 (Webinar ID 505-145-715).

If you are joining the webinar but will not be using voice over internet protocol (VoIP), you can also call in at +1 (914) 614-3221, access code 865-531-935. A PIN will be provided to you after joining the webinar; see webinar instructions for details on how to receive the PIN.

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

### Meeting Process

In terms of meeting process, board chairs will ask both in-person and virtual board members if they wish to speak. In-person members can simply raise their hands at the meeting without logging on to the webinar, while virtual members will raise their hands on the webinar. The chair will work with staff to compile the list

of speakers, balancing the flow of questions/comments between in-person and virtual attendees. The same process will be used for public comment. Depending upon the number of commenters, the board chair will decide how to allocate the available time on the agenda (typically 10 minutes) to the number of people who want to speak.

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

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

Enclosed: Final Agenda, Hotel Directions, TA 23-036, Travel Reimbursement Guidelines

# Atlantic States Marine Fisheries Commission

## Summer Meeting

August 1-3, 2023

**The Westin Crystal City**

Arlington, Virginia

## Public Comment Guidelines

To provide a fair opportunity for public input, the ISFMP Policy Board has approved the following guidelines for use at management board meetings:

**For issues that are not on the agenda**, management boards will continue to provide the opportunity for the public to bring matters of concern to the board's attention at the start of each board meeting. Board chairs will ask members of the public to raise their hands to let the chair know they would like to speak. Depending upon the number of commenters, the board chair will decide how to allocate the available time on the agenda (typically 10 minutes) to the number of people who want to speak.

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

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

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

1. Comments received three weeks prior to the start of a meeting week (July 10th) will be included in the briefing materials.
2. Comments received by 5:00 PM on Tuesday, July 25th will be included in supplemental materials.
3. Comments received by 10:00 AM on Friday, July 28th will be distributed electronically to Commissioners/Board members prior to the meeting.

The submitted comments must clearly indicate the commenter's expectation from the ASMFC staff regarding distribution. As with other public comment, it will be accepted via mail and email.

# Final Agenda

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

**Tuesday, August 1**

**9 – 10 AM** **Shad and River Herring Management Board**

*Member States:* Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida
*Other Members:* DC, NMFS, PRFC, USFWS
*Chair:* Fegley
*Other Participants:* Eakin, Sabo
*Staff:* Boyle

1. Welcome/Call to Order *(L. Fegley)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from February 2023
3. Public Comment
4. Consider Update to Potomac River Fisheries Commission American Shad Sustainable Fishery Management Plan *(W. Eakin)* **Final Action**
5. Update on US Geological Survey Alosine Genetic Repository and Expanding Collection Efforts *(W. Eakin)*
6. Progress Update on the 2024 River Herring Benchmark Stock Assessment *(K. Drew)*
7. Other Business/Adjourn

**10:15 – 11:45 AM** **American Eel Management Board**

*Member States:* Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida
*Other Members:* DC, NMFS, PRFC, USFWS
*Chair:* Edwards
*Other Participants:* Carty, Beal, Eyler
*Staff:* Starks

1. Welcome/Call to Order *(P. Edwards)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from February 2023
3. Public Comment

4. Consider Stock Assessment Subcommittee Report on Alternative Analysis of Index Methods for Setting Management Measures **Action**
    - Presentation of Stock Assessment Subcommittee Report (*S. Eyler*)
    - Consider Acceptance of 2023 Benchmark Stock Assessment and Peer Review Report for Management Use
    - Consider Management Response, if necessary
5. Review Maine Glass Eel Quota Provision of Addendum V *(C. Starks)* **Action**
6. Review Maine Life Cycle Survey Report *(D. Carty)*
7. Consider Approval of 2024 Maine Aquaculture Proposal *(C. Starks)* **Action**
8. Other Business/Adjourn

**11:45 AM – 12:30 PM** **Lunch Break (provided)**

**12:30 – 1:30 PM** **Coastal Sharks Management Board**
*Member States*: Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida
*Other Members:* NMFS
*Chair:* Burgess
*Other Participants:* Willey, Thomas, DuBeck
*Staff:* Starks

1. Welcome/Call to Order (*E. Burgess*)
2. Board Consent
    - Approval of Agenda
    - Approval of Proceedings from May 2023
3. Public Comment
4. Presentation on Scoping for Draft Amendment 16 to the Highly Migratory Species Fishery Management Plan *(G. DuBeck)*
5. Consider Approval of Fishery Management Plan Review and State Compliance for the 2021 Fishing Year *(C. Starks)* **Action**
6. Other Business/Adjourn

**1:45 – 5:45 PM** **Atlantic Striped Bass Management Board**
*Member States:* Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina
*Other Members:* DC, NMFS, PRFC, USFWS
*Chair:* Gary
*Other Participants:* Lengyel Costa, Mercer
*Staff:* Kerns

1. Welcome/Call to Order *(M. Gary)*
2. Board Consent
    - Approval of Agenda
    - Approval of Proceedings from May 2023

3. Public Comment
4. Consider Approval of Fishery Management Plan Review and State Compliance for the 2022 Fishing Year *(T. Kerns)* **Action**
5. Review Status of 2023 Emergency Action **Possible Action**
   - Public Hearing Summary *(T. Kerns)*
   - Discuss Timeline for Possible Extension of Emergency Action
6. Consider Approval of Draft Addendum II on 2024 Management Measures for Public Comment *(T. Kerns)* **Action**
7. Other Business/Adjourn

**Wednesday, August 2**

**8 – 10 AM**
*Breakfast will be served at 7:45 a.m.*

**Executive Committee**
*(A portion of this meeting may be closed for Committee members and Commissioners only)*
*Members:* Abbott, Bell, Burgess, Cimino, Clark, Davis, Fegley, Geer, Gilmore, Keliher, Kuhn, McKiernan, McNamee, Miller, Patterson, Rawls, Woodward
*Chair:* Woodward
*Staff:* Leach

1. Welcome/Introductions (S*. Woodward*)
2. Committee Consent
   - Approval of Agenda
   - Approval of Meeting Summary from May 2023
3. Public Comment
4. Consolidated Appropriations Act Update (*R. Beal*)
5. Review Findings of the Legislative and Governor Appointee Commissioner Survey Regarding Stipends (*R. Beal*)
6. Legislative Update (*A. Law*)
7. Discussion on Per Diem Rates (*R. Beal*)
8. Other Business/Adjourn

**10:15 AM – 12:45 PM**

**Coastal Pelagics Management Board**
*Member States*: Rhode Island, New York, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida
*Other Members:* NMFS, PRFC, SAFMC
*Chair:* Cimino
*Other Participants:* Giuliano, Pearce
*Staff:* Tuohy

1. Welcome/Call to Order *(J. Cimino)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from November 2022
3. Public Comment

4. Consider Approval of Fishery Management Plan Review and State Compliance for Atlantic Cobia for the 2022 Fishing Year *(C. Tuohy)* **Action**
5. Consider Total Harvest Quota for Atlantic Cobia for the 2024-2026 Fishing Years **Final Action**
   - Technical Committee Report *(A. Giuliano)*
   - Consider Setting Total Harvest Quota for 2024-2026
6. Consider Timeline for Potential Review of State Recreational Allocation for Atlantic Cobia **Possible Action**
7. Consider 2022 Spanish Mackerel Stock Assessment Update
   - Presentation of Stock Assessment Report
   - Presentation of Peer Review Report and Response from South Atlantic Fishery Management Council *(J. Carmichael)*
8. Update from the South Atlantic Fishery Management Council on Spanish Mackerel Port Meetings *(J. Carmichael)*
9. Other Business/Adjourn
   O

**12:45 – 1:45 PM** **Lunch**

**1:45 – 3:45 PM** **East Coast Climate Change Scenario Planning Initiative**

1. Welcome/Call to Order *(S. Woodward)*
2. Review Findings from the East Coast Climate Change Scenario Planning Initiative (*T. Kerns)*
   - Overview of Summit
   - Review Draft Possible Action Plan
   - Discuss Next Steps
3. Public Comment
4. Other Business/Adjourn

**4 – 5 PM** **Tautog Management Board**

*Member States*: Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia
*Other Members:* NMFS
*Chair:* Luisi
*Other Participants:* Weedon, Snellbaker
*Staff:* Boyle

1. Welcome/Call to Order (*M. Luisi*)
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from January 2022
3. Public Comment
4. Consider Approval of Fishery Management Plan Review and State Compliance for the 2022 Fishing Year *(J. Boyle)* **Action**

5. Consider Committee Reports on Commercial Tagging Program and Possible Changes to the Tagging Program **Possible Action**
   - Technical Committee Report *(C. Weedon)*
   - Law Enforcement Committee Report *(K. Blanchard)*
6. Progress Update on the 2025 Tautog Stock Assessment Update *(K. Drew)*
7. Review and Populate Advisory Panel Membership *(T. Berger)* **Action**
8. Elect Vice-Chair **Action**
9. Other Business/Adjourn

**Thursday, August 3**

**8:30 – 9 AM** **Spiny Dogfish Management Board**

*Member States*: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, North Carolina
*Other Members:* NMFS
*Chair:* Meserve
*Other Participants:* Baker, Newlin, Ferrio
*Staff:* Boyle

1. Welcome/Call to Order *(N. Meserve)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from February 2023
3. Public Comment
4. Review Progress on Mid-Atlantic and New England Fishery Management Councils' Joint Action on Monkfish and Dogfish Fisheries to Reduce Atlantic Sturgeon Bycatch *(C. Ferrio)*
5. Consider Approval of Fishery Management Plan Review and State Compliance for the 2021-2022 Fishing Year (*J. Boyle)* **Action**
6. Other Business/Adjourn

**9:15 – 10:45 AM** **Interstate Fisheries Management Program Policy Board**

*Member States:* Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida
*Other Members:* DC, NMFS, PRFC, USFWS
*Chair:* Woodward
*Staff:* Kerns

1. Welcome/Call to Order *(S. Woodward)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from May 2023
3. Public Comment
4. Executive Committee Report (*S. Woodward*)
5. Review and Consider Changes to Conservation Equivalency Policy and Technical Guidance Document (*T. Kerns*) **Possible Action**

6. Update on the Risk and Uncertainty Policy Development (*J. Patel*)
7. Report from the Atlantic Coast Fish Habitat Partnership (*S. Kaalstad*)
8. Review Noncompliance Findings, if necessary **Action**
9. Other Business/Adjourn

**10:45 – 11:00 AM** **Business Session of the Commission**
*Member States:* Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida
*Chair:* Woodward
*Staff:* Beal

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

**Phillip A. Edwards**
**Chairman American EEL Board.**

**July 19, 2023**

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

**Request to the ASMFC concerning stock enhancement and quota increase for Maine's Glass Eel fishery under Addendum IV to the Interstate Fishery Management Plan for American Eel.**

Commissioners,

For two centuries dams blocked or delayed up and downstream passage for diadromous fish species on the Penobscot River. Since 2012 several large restoration projects have improved up and downstream passage into this watershed (summary attached).

With these improvements, American eels (throughout their life stages), now face reduced migratory delay and safer up and downstream movement. The Maine Elver Fisherman Association, a membership organization of commercial glass eel harvesters, estimates that an average of 25,000,000 glass eels enter the Penobscot each year. In recent years, fishermen antidotally report larger returns on the Penobscot and nearby waters. These large runs are often observed after fishermen have filled their annual quotas on other waterways across the state.

We believe that the restoration work of the past decade has not only improved conditions for glass eels' movement within the Penobscot but also acts as a stock enhancement activity for American eels. We believe these enhancements, all having occurred after January 1, 2011, satisfy section 3.1.1 of Addendum IV to the "Interstate Fishery Management Plan for American Eel". We respectfully request that the Commission considers adjusting Maine's annual glass eel harvest quota in response to the last decade's worth of restoration and stock enhancement activities on the Penobscot River.

Any increase in available quota will not impact the State of Maine's robust system of monitoring annual individual and State catches.

Restoration work on countless other rivers and streams in Maine has also taken place and will continue into the future and we hope the Commission will consider adjusting the quota for the

glass eel fishery annually and increasing access to all eel fishers in Maine waters in response to these activities.

Respectfully,

Darrell Young

Darrell Young
President, Maine Elver Fishermen's Association

**Stock Enhancement Activity Summary**

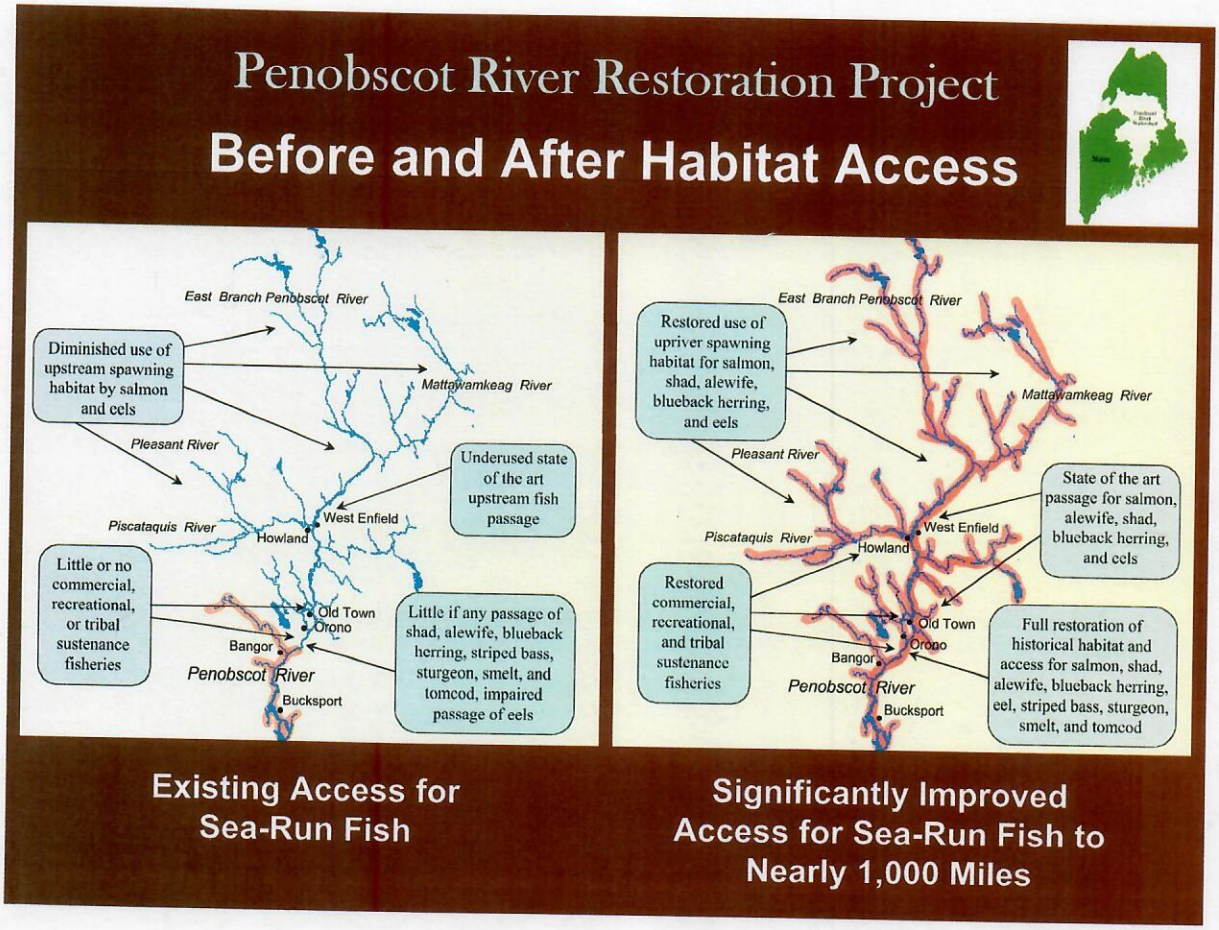
From 2012 to 2016 six major restoration and habitat enhancement activities were completed on the Lower Penobscot River and its major tributaries (the Stillwater and Piscataquis Rivers) as part of the Penobscot River Restoration Project. Collectively these projects directly reconnected over 1,000 river miles and nearly 75% of the area of the Penobscot River Watershed (*Strategic Plan for the Restoration of Diadromous Fishes to the Penobscot River* Maine resource agencies, March 2008) and are the result of major investments from State, Federal, and Tribal governments and nongovernmental organizations.

**Summary of Major Activities of the Penobscot River Restoration Project:**

| Activity | Year | Passage Direction |
|---|---|---|
| Veazie Dam Removal | 2013 | up/down |
| Great Works Dam Removal | 2012 | up/down |
| Howland Bypass | 2015 | up/down |
| Milford fish lift | 2014 | up |
| Orono Dam eel passage | 2014 | up/down |
| Stillwater dam eel passage | 2016 | up/down |

These mainstem passage improvements reconnected a watershed drained by over 1,600 miles of river and streams, and over 600 lakes with 254,600 acres of surface area (*Strategic Plan for the Restoration of Diadromous Fishes to the Penobscot River* Maine resource agencies, March 2008).

Supporting work throughout the watershed continues to reconnect smaller tributaries and sub-drainages and is guided and funded by State, Federal, and Tribal governments and nongovernmental organizations.




Map by the Natural Resource Council of Maine:
https://www.nrcm.org/wp-content/uploads/2018/11/HabitatAccessbeforeandafterPRRP.pdf

# Atlantic States Marine Fisheries Commission

## Coastal Sharks Management Board

*August 1, 2023*
*12:30 – 1:30 p.m.*
*Hybrid Meeting*

## Draft Agenda

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

| | | |
|---|---|---|
| 1. | Welcome/Call to Order (*E. Burgess*) | 12:30 p.m. |
| 2. | Board Consent<br>• Approval of Agenda<br>• Approval of Proceedings from May 2023 | 12:30 p.m. |
| 3. | Public Comment | 12:35 p.m. |
| 4. | Presentation on Scoping for Draft Amendment 16 to the Highly Migratory Species Fishery Management Plan *(G. DuBeck)* | 12:45 p.m. |
| 5. | Consider Approval of Fishery Management Plan Review and State Compliance for the 2021 Fishing Year *(C. Starks)* **Action** | 1:20 p.m. |
| 6. | Other Business/Adjourn | 1:30 p.m. |

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

*Sustainable and Cooperative Management of Atlantic Coastal Fisheries*

# MEETING OVERVIEW

**Coastal Sharks Management Board**
**August 1, 2023**
**12:30 – 1:30 p.m.**
**Hybrid Meeting**

| | | |
|---|---|---|
| Chair: Erika Burgess (FL)<br>Assumed Chairmanship: 05/21 | Technical Committee Chair:<br>Angel Willey (MD) | Law Enforcement Committee Representative: Greg Garner (SC) |
| Vice Chair:<br>Vacant | Advisory Panel Chair:<br>Vacant | Previous Board Meeting:<br>May 2, 2023 |
| Voting Members: MA, RI, CT, NY, NJ, DE, MD, VA, NC, SC, GA, FL, NMFS (13 votes) | | |

**2. Board Consent**

- Approval of Agenda
- Approval of Proceedings from May 2023

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

**4. Presentation on Scoping for Draft Amendment 16 to the Highly Migratory Species Fishery Management Plan (12:45-1:20 p.m.)**

**Background**

- NOAA released a scoping document for Amendment 16 to the 2006 Consolidated Atlantic Highly Migratory Species (HMS) Fishery Management Plan (FMP) in May 2023.
- Amendment 16 could result in large changes to the entire commercial and recreational shark fishery including changes to commercial and recreational shark quotas, shark management groups, shark retention or bag limits, and shark minimum size limits.
- NOAA Fisheries will accept public comment on this scoping document through August 18, 2023.

**Presentations**

- Scoping for Amendment 16 to the HMS FMP by G. DuBeck

**Board actions for consideration at this meeting**

- Consider providing public comment on Scoping for Amendment 16

**5. Fishery Management Plan Review of the 2021 Fishing Year (1:20-1:30 p.m.) Action**

**Background**

- State Compliance Reports are due annually on August 1st.

| |
|---|
| • The Plan Review Team reviewed state reports and compiled the annual FMP Review for the 2021 fishing year **(Supplemental Materials)**.<br>• Massachusetts has requested *de minimis* status. |
| **Presentations**<br>• Overview of the FMP Review Report by C. Starks |
| **Board actions for consideration at this meeting**<br>• Accept 2021 FMP Review and State Compliance Report.<br>• Approve *de minimis* requests from Massachusetts. |

**6. Other Business/Adjourn**

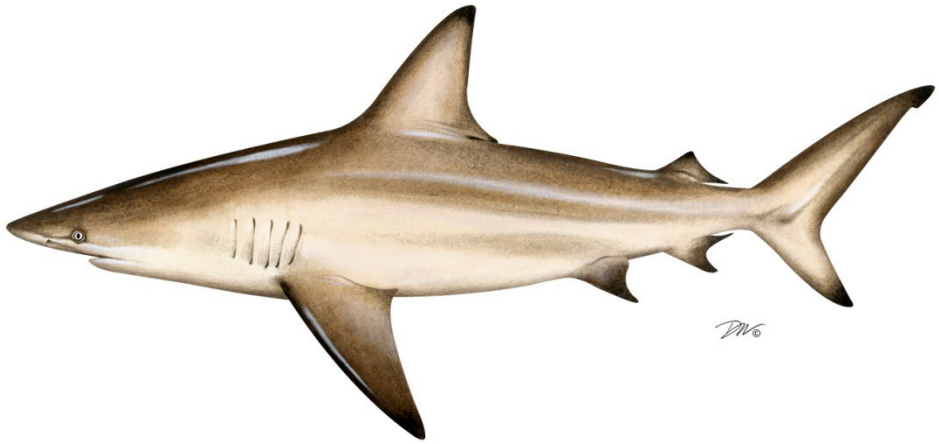
*DRAFT FOR BOARD CONSIDERATION*

# ATLANTIC STATES MARINE FISHERIES COMMISSION

## REVIEW OF THE INTERSTATE FISHERY MANAGEMENT PLAN

## FOR COASTAL SHARKS

### 2021 FISHING YEAR



Prepared by the Coastal Sharks Plan Review Team

**July 2023**

*Sustainable and Cooperative Management of Atlantic Coastal Fisheries*

# REVIEW OF THE ASMFC FISHERY MANAGEMENT PLAN AND STATE COMPLIANCE FOR COASTAL SHARKS FOR THE 2021 FISHERY

## Management Summary

| | |
|---|---|
| Date of FMP Approval: | August 2008 |
| Amendments: | None |
| Addenda: | Addendum I (September 2009)<br>Addendum II (May 2013)<br>Addendum III (October 2013)<br>Addendum IV (August 2016)<br>Addendum V (October 2018) |
| Management Unit: | Entire coastwide distribution of the resource from the estuaries eastward to the inshore boundary of the EEZ |
| States With Declared Interest: | Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida |
| Active Boards/Committees: | Coastal Shark Management Board, Advisory Panel, Technical Committee, and Plan Review Team |

## I. Status of the Fishery Management Plan

The Atlantic States Marine Fisheries Commission (ASMFC; Commission) adopted its first fishery management plan (FMP) for coastal sharks in 2008. Coastal sharks were initially managed under this plan as six different complexes: prohibited, research, small coastal, non-sandbar large coastal, pelagic and smooth dogfish. The Board does not actively set quotas for any shark species. The Commission follows National Oceanic and Atmospheric Administration's (NOAA Fisheries) openings and closures for small coastal sharks, non-sandbar large coastal shark, and pelagic sharks. Species in the prohibited category may not be possessed or taken. Sandbar sharks may only be taken with a shark fishery research permit. All species must be landed with their fins attached to the carcass by natural means. This was adjusted through subsequent addenda listed below. The Interstate Fishery Management Plan for Coastal Sharks (FMP) established the following goals and objectives.

GOAL
The goal of the Interstate Fishery Management Plan for Coastal Sharks is "to promote stock rebuilding and management of the coastal shark fishery in a manner that is biologically, economically, socially, and ecologically sound."

OBJECTIVES

In support of this goal, the following objectives for the FMP include:

1. Reduce fishing mortality to rebuild stock biomass, prevent stock collapse, and support a sustainable fishery.
2. Protect essential habitat areas such as nurseries and pupping grounds to protect sharks during particularly vulnerable stages in their life cycle.
3. Coordinate management activities between state and federal waters to promote complementary regulations throughout the species' range.
4. Obtain biological and improved fishery related data to increase understanding of state water shark fisheries.
5. Minimize endangered species bycatch in shark fisheries.

The FMP has been adapted through the following addenda:

Addendum I (September 2009)

Approved in September 2009, Addendum I modified the FMP to allow commercial fishermen to process (remove the fins of) smooth dogfish at sea from March – June of each year, but also requires a 5-95% fin to carcass ratio for all dressed smooth dogfish carcasses. This Addendum also removed recreational smooth dogfish possession limits, as well as the 2-hour gill-net check requirement for commercial fishermen, which applied to all shark species.

Addendum II (May 2013)

Approved in May 2013, Addendum II modified Addendum I to allow commercial fishermen to process (remove the fins of) smooth dogfish at sea year-round but requires a 12-88% fin-to-carcass ratio for all dressed smooth dogfish carcasses. This ratio was consistent with the Shark Conservation Act of 2010. Addendum II also allocates state-shares of the upcoming federal smoothhound shark quota based on historical landings from 1998-2010.

Addendum III (October 2013)

Addendum III modifies the species groups to ensure consistency with NOAA Fisheries. It creates two new species groups (Blacknose and Hammerhead Species Groups). The addendum also increases the recreational minimum size limit for all hammerhead species to 78" fork length.

Addendum IV (August 2016)

Addendum IV allows smooth dogfish carcasses to be landed with corresponding fins removed from the carcass as long as the total retained catch, by weight, is composed of at least 25 percent smooth dogfish, consistent with federal management measures.

Addendum V (October 2018)

Addendum V allows the Board to respond to changes in the stock status of coastal shark populations and adjust regulations through Board action rather than an addendum, ensuring greater consistency between state and federal shark regulations. Addendum V allows the Board to change a suite of commercial and recreational measures, such as recreational size and possession limits, season length, and area closures (recreational and commercial), in addition to the current specifications for just the commercial fishery, throughout the year when needed.

Under this provision, if the Board chooses to adjust measures through Board action, the public will be able to provide comment prior to Board meetings, as well as at Board meetings at the discretion of the Board Chair. Additionally, the Board can still implement changes in shark regulations through an addendum.

In 2019, in response to measures implemented by NOAA Fisheries through Amendment 11 for Federal Highly Migratory Species (HMS) Permit Holders, the Board approved changes to the recreational size limit for Atlantic shortfin mako sharks in state waters, specifically, a 71-inch straight line fork length (FL) for males and an 83-inch straight line FL for females. These measures were implemented in response to the 2017 Atlantic shortfin mako stock assessment that found the resource is overfished and experiencing overfishing. The states were required to implement the changes to the recreational minimum size limit for Atlantic shortfin mako by January 1, 2020.

Additionally in 2019, the Board moved to require non-offset circle hooks for the recreational shark fishery in state waters with an implementation date of July 1, 2020. The Board chose to do so after NOAA Fisheries requested that the states implement a circle hook requirement for the recreational fishery consistent with the measures approved in HMS Amendment 11.

In May 2022 the Board approved a zero retention limit in state waters for Atlantic shortfin mako sharks for both recreational and commercial fisheries. These measures are consistent with those implemented by NOAA Fisheries for federal HMS permit holders. This action was taken in response to the 2019 Atlantic shortfin mako stock assessment update that indicates the resource is overfished and experiencing overfishing, with a rebuild date of 2070.

**Table 1. List of commercial shark management groups**

| Species Group | Species within Group |
|---|---|
| Prohibited | Sand tiger, bigeye sand tiger, whale, basking, white, dusky, bignose, Galapagos, night, reef, narrowtooth, Caribbean sharpnose, smalltail, Atlantic angel, longfin mako, bigeye thresher, sharpnose sevengill, bluntnose sixgill and bigeye sixgill sharks |
| Research | Sandbar sharks |
| Non-Blacknose Small Coastal | Atlantic sharpnose, finetooth, and bonnethead sharks |
| Blacknose | Blacknose sharks |
| Aggregated Large Coastal | Silky, tiger, blacktip, spinner, bull, lemon, and nurse sharks |
| Hammerhead | Scalloped hammerhead, great hammerhead and smooth hammerhead |
| Pelagic | Shortfin mako*, porbeagle, common thresher, oceanic whitetip and blue sharks |
| Smoothhound | Smooth dogfish and Florida smoothhound sharks |

*Final rule for zero retention of shortfin mako sharks is effective as of July 5, 2022.

## II. Status of the Stocks

Stock status is assessed by species or by species complex if there are not enough data for an individual assessment. Nine species have been assessed domestically, three species have been assessed internationally, and the rest have not been assessed. Table 2 describes the current stock status of all assessed shark species along with references for the stock assessments.

In December 2020, Southeast Data and Assessment Review SEDAR completed a benchmark assessment of the Atlantic blacktip shark (*Carcharhinus limbatus*) stock (SEDAR 65), which indicates the stock is not overfished and not experiencing overfishing.

In June 2020, the International Commission on the Convention of Atlantic Tunas (ICCAT)'s Standing Committee on Research and Statistics (SCRS) completed an assessment of Porbeagle sharks (*Lamna nasus*), which indicates the stock is overfished and not experiencing overfishing. As a result of the previous 2009 assessment, NOAA Fisheries established a 100-year rebuilding plan for porbeagle sharks; the expected rebuilding date is 2108.

The 2017 ICCAT assessment of the North Atlantic population of shortfin mako (*Isurus oxyrinchus)* indicates that the stock is overfished and overfishing is occurring. Multiple models were explored and new data sources were integrated. Combined probability of overfishing occurring and the stock being in an overfished state was 90% across all models.

The 2017 stock assessment (SEDAR 54) for sandbar sharks (*Carcharhinus plumbeus*) indicates the stock is overfished and not experiencing overfishing. This assessment used a new approach (Stock Synthesis) instead of the State Space Age Structure Production Model that was used in the previous assessment (SEDAR 21). A replication analysis conducted using the prior model (updated with data through 2015) resulted in the same stock status as the new model (overfished, no overfishing occurring). The rebuilding date for sandbar sharks is 2070.

The 2016 stock assessment update (SEDAR 21) for Atlantic dusky sharks (*Carcharhinus obscurus*) indicates the stock is overfished and experiencing overfishing. This latest review functioned as an update to the 2011 assessment, so no new methodology was introduced. However, all model inputs were updated with more recent data (i.e., 2010-2015 effort, observer, and survey data). The rebuilding plan for dusky sharks is 2107.

In 2015, a benchmark stock assessment (SEDAR 39) was conducted for the smoothhound complex, including smooth dogfish (*Mustelus canis*), the only species of smoothhound occurring in the Atlantic. The assessment indicates Atlantic smooth dogfish are not overfished and not experiencing overfishing.

The North Atlantic blue shark (*Prionace glauca*) stock was assessed by ICCAT's SCRS in 2015. Similar to the results of the previous 2008 stock assessment, the assessment indicated the stock is not overfished and not experiencing overfishing. However, scientists acknowledge there is a

high level of uncertainty in the data inputs and model structural assumptions; therefore, the assessment results should be interpreted with caution.

SEDAR 34 (2013) assessed the status of Atlantic sharpnose sharks (*Rhizoprionodon terraenovae*) and bonnetheads (*Sphyrna tiburo*). The Atlantic sharpnose shark stock is not overfished and not experiencing overfishing. The stock status of bonnethead stocks (Atlantic and Gulf of Mexico) is considered unknown. Assessment results indicated the stock is not overfished with no overfishing occurring, however all available data pointed towards separate stocks. As the assessment framework would not allow stocks to be split, the assessment continued under a single stock scenario. The results of the assessment were rejected by reviewers noting that the stocks need to be assessed independently. A benchmark assessment is recommended for both stocks of bonnetheads.

A 2011 benchmark assessment (SEDAR 21) of blacknose sharks (*Carcharhinus acrontus*) indicated the stock is overfished and experiencing overfishing. As described in the Magnuson-Stevens Act, NOAA Fisheries must establish a rebuilding plan for an overfished stock. As such, the rebuilding date for blacknose sharks is 2043.

The 2007 SEDAR 13 assessed the SCS complex, finetooth (Carcharhinus isodon), Atlantic sharpnose (Rhizoprionodon terraenovae), and bonnethead (Sphyrna tiburo) sharks (SEDAR 2007). The SEDAR 13 peer reviewers considered the data to be the 'best available at the time' and determined the status of the SCS complex to be adequate. Finetooth, Atlantic sharpnose, and bonnethead were all considered to be not overfished and not experiencing overfishing.

A 2009 stock assessment for the Northwest Atlantic and Gulf of Mexico populations of scalloped hammerhead sharks (*Sphyrna lewini*) indicated the Northwest Atlantic stock is overfished and experiencing overfishing (Hayes et al. 2009). This assessment was reviewed by NOAA Fisheries and deemed appropriate to serve as the basis for U.S. management decisions. In response to the assessment findings, NOAA Fisheries established a scalloped hammerhead rebuilding plan that will end in 2023. However, since the assessment, research has determined that in the U.S. Atlantic, a portion of animals considered scalloped hammerheads are actually a cryptic species, recently named the Carolina hammerhead (*Sphyrna gilberti*; Quattro et al. 2013). Little to no species-specific information exists regarding the distribution, abundance and life history of the two species, therefore for now, both species are currently managed under the name scalloped hammerhead. A research track assessment of the hammerhead complex (SEDAR 77) is ongoing.

**Table 2. Stock Status of Atlantic Coastal Shark Species and Species Groups**

| Species or Complex Name | Stock Status | | References/Comments |
|---|---|---|---|
| | Overfished | Overfishing | |
| **Pelagic** | | | |
| Porbeagle | Yes | No | Porbeagle Stock Assessment, ICCAT Standing Committee on Research and Statistics Report (2020); Rebuilding ends in 2108 (HMS Am. 2) |
| Blue | No | No | ICCAT Standing Committee on Research and Statistics Report (2015) |
| Shortfin mako | Yes | Yes | ICCAT Standing Committee on Research and Statistics Report (2017) |
| All other pelagic sharks | Unknown | Unknown | |
| **Aggregated Large Coastal Sharks (LCS)** | | | |
| Atlantic Blacktip | No | No | SEDAR 65 (2020) |
| Aggregated Large Coastal Sharks - Atlantic Region | Unknown | Unknown | SEDAR 11 (2006); difficult to assess as a species complex due to various life history characteristics/ lack of available data |
| **Non-Blacknose Small Coastal Sharks (SCS)** | | | |
| Atlantic Sharpnose | No | No | SEDAR 34 (2013) |
| Bonnethead | Unknown | Unknown | SEDAR 34 (2013) |
| Finetooth | No | No | SEDAR 13 (2007) |
| **Hammerhead** | | | |
| Scalloped | Yes | Yes | SEFSC Scientific Review by Hayes et al. (2009); Rebuilding ends in 2023 (HMS Am. 5a) |
| **Blacknose** | | | |
| Blacknose | Yes | Yes | SEDAR 21 (2010); Rebuilding ends in 2043 (HMS Am. 5a) |
| **Smoothhound** | | | |
| Atlantic Smooth Dogfish | No | No | SEDAR 39 (2015) |
| **Research** | | | |
| Sandbar | Yes | No | SEDAR 54 (2017); Rebuilding ends 2070 (HMS Am. 2) |
| **Prohibited** | | | |
| Dusky | Yes | Yes | SEDAR 21 update (2016); Rebuilding ends in 2108 (HMS Am. 5b) |
| All other prohibited sharks | Unknown | Unknown | |

## III. Status of the Fishery

*Specifications (Opening, closures, quotas)*

NOAA Fisheries sets quotas for coastal sharks through the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan and its amendments. The opening dates, closure dates, and quotas are detailed in Table 3. All non-prohibited coastal shark management groups opened on January 1, 2021. NOAA Fisheries closes commercial shark fisheries when 80% of the available quota is reached. When the fishery closes in federal waters, the Interstate FMP

dictates that the fishery also closes in state waters. For 2021, the fishery did not close for any of the species groups before December 31.

**Table 3. Commercial quotas and opening dates for 2021 shark fishing season**

| Species Group | Region | 2021 Annual Quota (mt dw) | Season Opening Dates |
|---|---|---|---|
| Aggregated Large Coastal Sharks (LCS) | Atlantic | 168.9 | January 1, 2021 |
| Hammerhead Sharks | Atlantic | 27.1 | |
| Non-Blacknose Small Coastal Sharks (SCS) | Atlantic | 264.1 | January 1, 2021 |
| Blacknose Sharks (South of 34° N. Latitude only) | Atlantic | 17.2 | |
| Smoothhound sharks | Atlantic | 1,802.6 | January 1, 2021 |
| Blue Sharks | No regional quotas | 273.0 | January 1, 2021 |
| Porbeagle Sharks | | 1.7 | |
| Pelagic Sharks other than Porbeagle or Blue | | 488.0 | |
| Shark Research Quota (Aggregated LCS) | | 50.0 | |
| Sandbar Research Quota | | 90.7 | |

*Commercial Landings*

Total commercial landings of Atlantic large coastal shark species in 2021 were less than 181,000 pounds (lbs) dressed weight (dw), more than a 20% decrease from 2020 landings (Table 4; Figure 1). Commercial landings of small coastal shark species in 2021 were 246,932 lbs dw, a 5% increase from 2020 landings (Table 5; Figure 1). Commercial landings of Atlantic pelagic sharks in 2021 were 98,514 lbs dw, which represents an approximate 6% decrease from 2019 landings (Table 6; Figure 1).

**Table 4. Commercial landings of authorized Atlantic large coastal sharks by species (lbs dw), 2016-2021. Source: NOAA Fisheries Stock Assessment and Fisheries Evaluation Report, June 2023. Confidential landings denoted with a "C".**

| Species | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|
| **Great hammerhead** | 20,454 | 17,646 | 22,881 | 26,410 | 27,529 | 33,464 |
| **Scalloped hammerhead** | 12,329 | 4,919 | 5,927 | C | 12,024 | 9,351 |
| **Smooth hammerhead** | 125 | 1,193 | 530 | 661 | 0 | C |
| **Total Hammerhead** | **32,908** | **23,758** | **29,338** | **<35,000** | **39,553** | **<44,000** |
| **Blacktip** | 248,470 | 205,138 | 125,129 | 88,655 | 131,962 | 103,139 |
| **Bull** | 31,417 | 23,802 | 16,707 | 14,677 | 17,703 | 8,624 |
| **Lemon** | 19,205 | 12,005 | 8,910 | 5,096 | 4,479 | 4,843 |
| **Nurse** | 0 | 0 | 0 | C | 0 | 0 |
| **Silky** | 446 | 702 | 175 | 495 | 223 | C |
| **Spinner** | 55,610 | 62,314 | 58,347 | 59,066 | 71,094 | 61,382 |
| **Tiger** | 14,896 | 6,324 | 4,073 | 4,685 | 2,232 | 2,432 |
| **Unclassified** | 0 | 0 | 0 | 0 | 90 | 0 |
| **Total Aggregated LCS** | **370,045** | **310,286** | **213,341** | **<175,000** | **227,783** | **<181,000** |
| **Sandbar** | 114,871 | 121,074 | 132,688 | 150,010 | 49,989 | 108,197 |

**Table 5. Commercial landings of authorized Atlantic small coastal sharks by species (lbs dw), 2016-2021. Source: NOAA Fisheries Stock Assessment and Fisheries Evaluation Report, June 2023.**

| Species | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|
| **Blacknose** | 26,842 | 17,241 | 11,335 | 18,910 | 10,644 | 15,056 |
| **Bonnethead** | 1,688 | 6,077 | 4,240 | 4,134 | 1,818 | 4,620 |
| **Finetooth** | 5,647 | 19,874 | 17,071 | 9,688 | 7,793 | 21,575 |
| **Atl. Sharpnose** | 175,890 | 251,289 | 268,395 | 292,694 | 214,303 | 205,681 |
| **SCS Total** | **210,067** | **294,481** | **301,041** | **325,426** | **234,557** | **246,932** |

**Table 6. Commercial landings of authorized pelagic sharks by species off the Atlantic coast of the United States (lbs dw), 2016-2021. Source: NOAA Fisheries Stock Assessment and Fisheries Evaluation Report, June 2023. Confidential landings denoted with a "C".**

| Species | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|
| **Blue** | 607 | 4,272 | C | 0 | 0 | C |
| **Porbeagle** | 0 | C | 811 | C | 0 | C |
| **Shortfin Mako** | 160,829 | 184,993 | 57,719 | 53,573 | 36,029 | 25,942 |
| **Unclassified Mako** | 0 | 0 | 0 | 0 | 0 | 0 |
| **Oceanic whitetip** | 0 | 0 | 0 | 0 | 0 | C |
| **Thresher** | 78,219 | 61,990 | 63,805 | 51,170 | 62,485 | 58,908 |
| **Total Pelagic** | **239,655** | **>251,255** | **>122,335** | **>105,000** | **98,514** | **>84,850** |

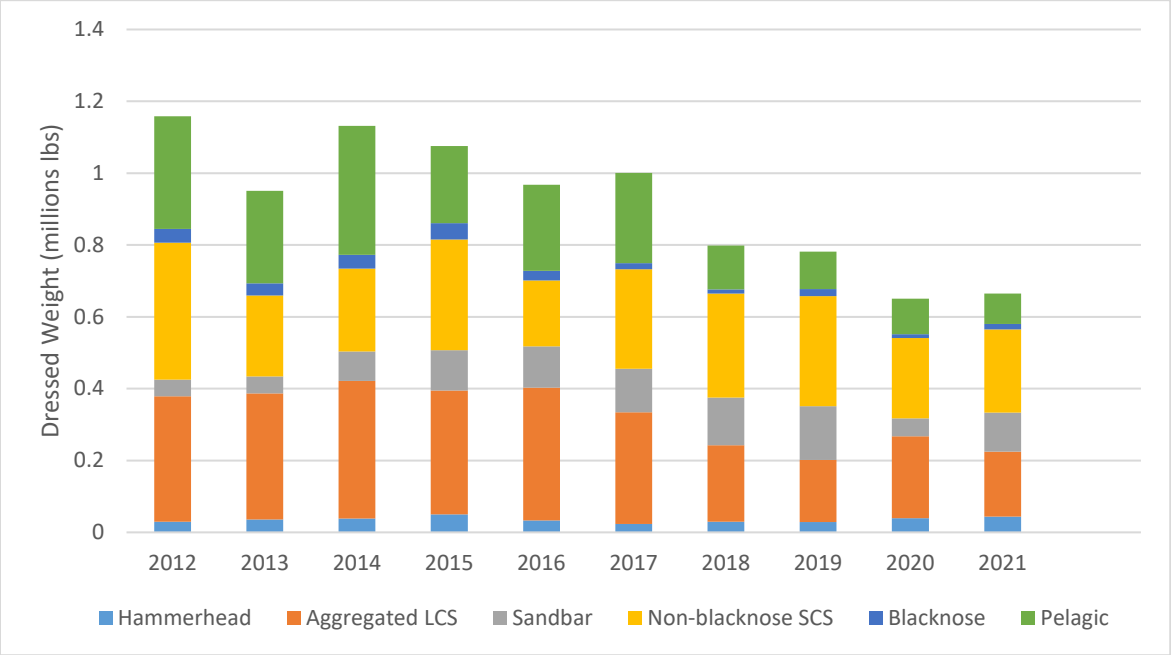



**Figure 1: Commercial landings of coastal sharks off the east coast of the United States by species group, 2012-2021. Source: NOAA Fisheries Stock Assessment and Fisheries Evaluation Report, June 2023.**

*Recreational Landings*

By species group, 62,635 LCS, 110,835 SCS, and 37,534 smoothhound were harvested during the 2021 recreational fishing season (Table 7; Figure 2). Pelagic shark data for 2016-2021 are reported in metric tons whole weight, and in 2021 35.6 mt of pelagic sharks were harvested. In 2021, recreational harvest of prohibited Atlantic shark species was 58, reaching a 5-year low (Table 8).

**Table 7. Estimated recreational harvest of Atlantic shark species by species group in numbers of fish, 2012-2021. Source: NOAA Fisheries Stock Assessment and Fisheries Evaluation Report, June 2023.**

| Species | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|
| **Blacktip** | 6,520 | 1,527 | 500 | 224 | 1,506 | 673 |
| **Bull** | 26 | 3,750 | 32 | 0 | 17 | 0 |
| **Lemon** | 1,207 | 764 | 0 | 4 | 0 | 0 |
| **Nurse** | 21 | 2 | 5 | 13 | 2 | 1 |
| **Spinner** | 761 | 623 | 153 | 66 | 27 | 61,359 |
| **Tiger** | 2,061 | 0 | 1 | 0 | 0 | 1 |
| **Unclassified** | 732 | 625 | 7,544 | 83,129 | 37,790 | 384 |
| **LCS Total** | **11,328** | **7,291** | **8,235** | **83,436** | **39,342** | **62,635** |
| **Hammerhead Total** | **799** | **0** | **0** | **2** | **5** | **0** |
| **Blue shark[1]** | 30.8 | 21.9 | 15.2 | 16.7 | 8.4 | 9.3 |
| **Mako, shortfin[1]** | 167.5 | 192.4 | 125.1 | 25.2 | 24.5 | 21.8 |
| **Oceanic whitetip[1]** | 0 | 0 | 0 | < 0.1 | 0 | < 0.1 |
| **Porbeagle[1]** | 4.3 | 7.7 | 2.8 | 11.8 | 4.9 | 1.2 |
| **Thresher[1]** | 74.3 | 92 | 96.6 | 108.8 | 54.1 | 3.3 |
| **Pelagic Total[1]** | **276.9** | **314** | **239.7** | **162.5** | **91.9** | **35.6** |
| **Blacknose** | 225 | 13 | 13 | 83 | 661 | 2,917 |
| **Bonnethead** | 37,832 | 18,239 | 37,168 | 31,086 | 28,861 | 34,840 |
| **Finetooth** | 0 | 1,219 | 0 | 176 | 113 | 166 |
| **Atlantic sharpnose** | 155,023 | 38,784 | 24,468 | 40,144 | 34,256 | 72,912 |
| **SCS Total** | **193,080** | **58,255** | **61,649** | **71,489** | **63,891** | **110,835** |
| **Smoothhound** | **145,689** | **58,446** | **40,736** | **56,375** | **61,129** | **37,534** |

[1]Pelagic shark data for 2012-2015 includes Gulf of Mexico landings in numbers of fish. Pelagic shark data for 2016-2020 is Atlantic only, but reported in metric tons whole weight.

**Table 8. Estimated recreational mortality (harvest and dead discards) of prohibited Atlantic shark species in numbers of fish, 2016-2021. Source: NOAA Fisheries Stock Assessment and Fisheries Evaluation Report, March 2022.**

| Species | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|
| **Atlantic angel** | 113 | 98 | 31 | 29 | 24 | 12 |
| **Basking** | 8 | 4 | 8 | 3 | 3 | 12 |
| **Bigeye sand tiger** | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bigeye sixgill** | 0 | 0 | 0 | 0 | 0 | 0 |
| **Bigeye thresher** | 28 | 21 | 13 | 24 | 2 | 3 |
| **Bignose** | 1 | 0 | 0 | 0 | 1 | 1 |
| **Caribbean reef** | 0 | 0 | 1 | 0 | 0 | 37 |
| **Caribbean sharpnose** | 0 | 0 | 0 | 0 | 0 | 0 |
| **Dusky** | 29 | 22 | 121 | 19 | 4 | 36 |
| **Galapagos** | 0 | 0 | 0 | 0 | 0 | 0 |
| **Longfin mako** | 15 | 14 | 4 | 14 | 0 | 4 |
| **Narrowtooth** | 0 | 0 | 0 | 0 | 0 | 0 |
| **Night** | 8 | 31 | 74 | 83 | 0 | 6 |
| **Sand tiger** | 26 | 9 | 48 | 20 | 23 | 11 |
| **Sevengill** | 0 | 0 | 0 | 0 | 0 | 0 |
| **Sixgill** | 0 | 1 | 0 | 0 | 0 | 0 |
| **Whale** | 0 | 0 | 0 | 0 | 0 | 0 |
| **White** | 0 | 10 | 5 | 3 | 1 | 3 |
| **Prohibited Total** | **228** | **210** | **305** | **195** | **58** | **125** |

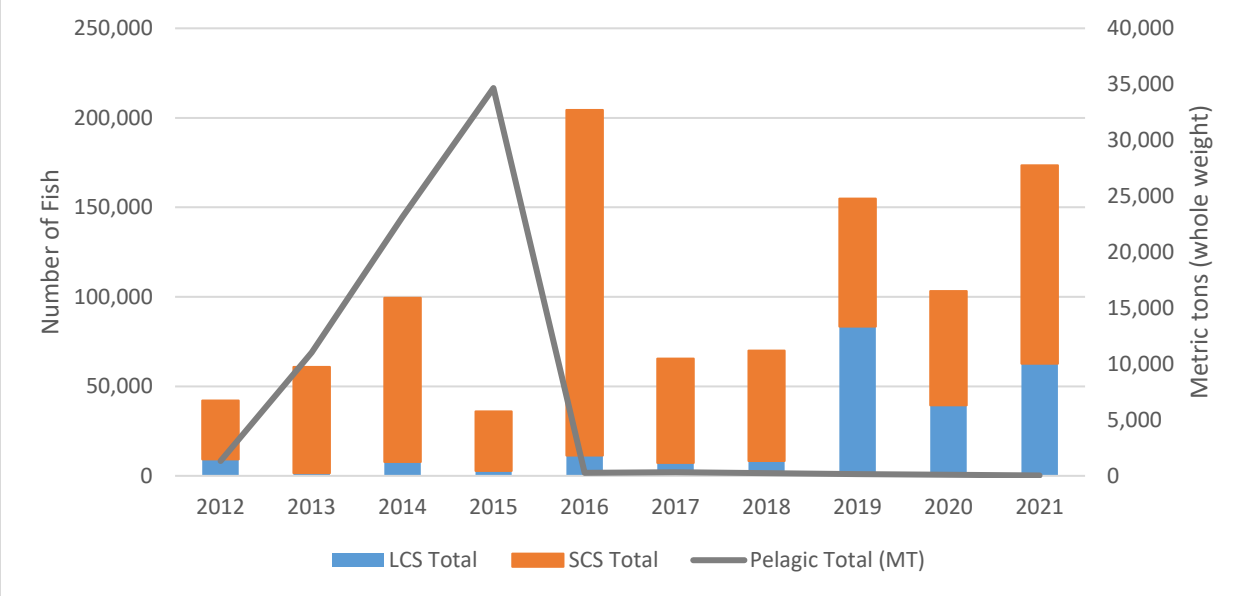



**Figure 2. Estimated recreational harvest for LCS, pelagic, and SCS by species group, in numbers of fish, 2012-2020. Source: NOAA Fisheries Stock Assessment and Fisheries Evaluation Report, June 2023.**

## IV. Status of Research and Monitoring

Under the Interstate Fishery Management for Coastal Sharks, the states are not required to conduct any fishery-dependent or independent monitoring; however, states are encouraged to submit any information collected while surveying for other species. This section describes the research and monitoring efforts through the 2021 fishing year, where available.

The Cooperative Atlantic States Shark Pupping and Nursery (COASTSPAN) Survey appears in multiple state monitoring efforts. The survey monitors the presence of young-of-year and juvenile sharks along the east coast. It is managed and coordinated by NOAA's Northeast Fisheries Science Center (NEFSC) through the Apex Predators Program based at the NEFSC's Narragansett Laboratory in Rhode Island. Longline and gillnet sampling, along with mark-recapture techniques are used to determine relative abundance, distribution, and migration of sharks utilizing nursery grounds from Massachusetts to Florida. In 2021, COASTSPAN program participants were the Virginia Institute of Marine Science, South Carolina Department of Natural Resources, and University of North Florida (samples Georgia and north Florida state waters). In addition, the 2021 survey sampled the Delaware Bay. Standardized indices of abundance from COASTPAN surveys are used in the stock assessments for large and small coastal sharks.

*Massachusetts*

DMF continued its research on the fine-scale predatory behavior of white sharks off the coast of Massachusetts. In 2021, 39 white sharks were tagged with acoustic transmitters off the Outer Cape; 10 of these also carried acceleration data logging camera tags for up to two days. This brings the total to 282 individuals tagged since 2009. These data will be used to examine swimming patterns (e.g., traveling, resting, hunting, foraging, mating), bioenergetics, and, ultimately, provide estimates of the intensity of white shark predation on gray seals.

*Rhode Island*

The RI Division of Fish & Wildlife, Marine Fisheries Section (RIDEM DMF) has conducted a monthly and seasonal trawl survey since 1979 within Narragansett Bay, Rhode Island Sound and Block Island Sound. Smooth dogfish are the only coastal shark species captured in the trawl survey regularly. A summary of fishery-independent monitoring for coastal sharks is summarized in Figure 3 below. The Fall survey catches smooth dogfish most frequently, with indices from the Fall and Monthly surveys greater than the Spring survey in recent years.

RIDEM DMF has been improving Rhode Island's monitoring efforts on coastal sharks. An acoustic receiver array is now established in RI state waters, which will detect tagged fish within 0.5-1km of a receiver. The receiver array is traditionally deployed from mid-April through mid-November/early December. To date, the array has detected sand tiger sharks, white sharks, smooth dogfish, blue sharks, and sandbar sharks. Additional sampling is also being conducted through a Baited Remote Underwater Video System (BRUVS) survey and shark tagging efforts to

understand their residence time in RI state waters. The BRUVS is intended to monitor various species, including sharks. The tagging is directed at the pelagic shark complex.

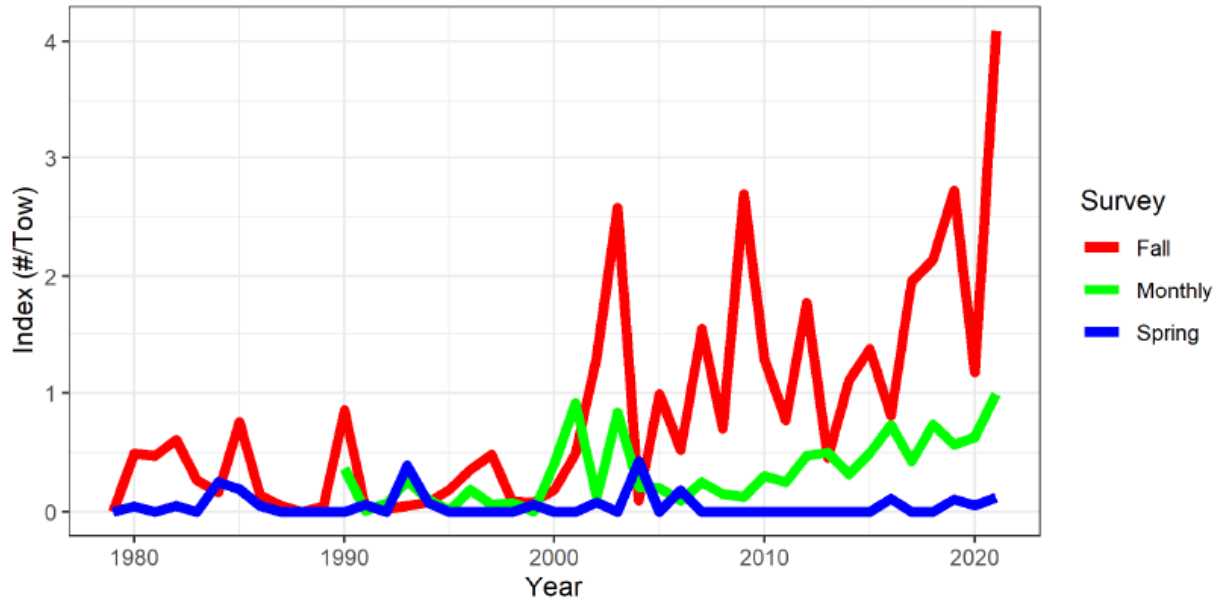



**Figure 3. Smooth dogfish (*Mustelus canis*) annual mean number per tow from the RIDEM DMF bottom trawl surveys.**

*Connecticut*

The Connecticut Department of Energy and Environmental Protection (CT DEEP) monitors the abundance of marine resources in nearby coastal waters with the Long Island Sound Trawl Survey. Spring (April, May and June) and fall (September and October) surveys are conducted each year. Other than smooth dogfish, coastal sharks are not typically encountered by the Long Island Sound Trawl Survey. Smooth dogfish are caught most often in the fall and the fall indices are presented below (Figure 4). Due to the COVID-19 pandemic, the Long Island Sound Trawl Survey was not conducted in 2020 but resumed in 2021. In 2021, the Long Island Sound Trawl survey did encounter a sand tiger shark on September 27th. This is a rare event for the survey and thus no indices were calculated. The animal was 1134 mm total length and weighed 8.42kg. More information on the Long Island Sound Trawl Survey report can be found here.

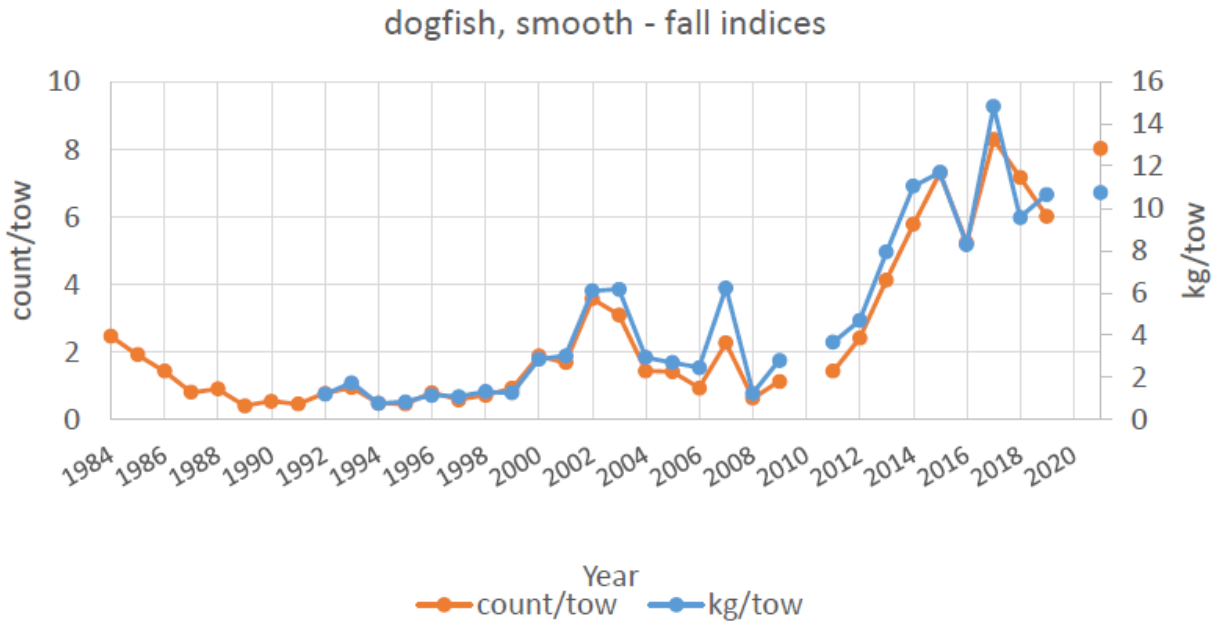



**Figure 4. CT DEEP Smooth Dogfish Long Island Sound Trawl Survey**

*New York*

While the New York Department of Environmental Conservation (NY DEC) does not currently conduct fishery-independent monitoring programs for Atlantic coastal sharks, multiple research permits were issued in 2021 for the collection of information on smooth dogfish, sand tiger sharks, blue sharks, sandbar sharks, dusky sharks, common thresher sharks, spinner sharks, shortfin mako sharks, and white sharks by the Wildlife Conservation Society (WCS)/New York Aquarium; Stony Brook University; South Fork Natural History Museum; and the O'Seas Conservation Foundation. In 2021, WCS/New York Aquarium caught and released 1 smooth dogfish, 9 sand tiger sharks, 1 sandbar shark, 4 dusky sharks, 1 blue shark, and 1 thresher shark; the O'Seas Conservation Foundation collected and tagged 1 blue shark, 4 dusky sharks, 1 spinner shark, 7 white sharks, 4 shortfin mako sharks, and 100 smoothhound sharks. Information on each shark (morphometrics and sex), as well location, date, biological samples collected, telemetry gear deployed, and final disposition of the animals were recorded.

*New Jersey*

New Jersey does not currently conduct any fishery-independent monitoring programs specifically for Atlantic coastal sharks, but does encounter sharks from the state's Ocean Stock Assessment Survey. In 2020, the Survey caught less than 1lb. of smooth dogfish only and no other coastal sharks (Figures 5 and 6). This amount is far less than normal as the survey was stalled due to COVID safety restrictions. The New Jersey Ocean Trawl Survey did not sample in 2021 due to the ongoing COVID-19 pandemic. Survey operations resumed in 2022.

Sharks sampled by the New Jersey Ocean Stock Assessment Survey are collected by a 30-meter otter trawl every January, April, June, August, and October since 1989. Tows are approximately 1 nautical mile and are performed via a stratified random sampling design. Latitudinal strata are identical to those used by the National Marine Fisheries Service groundfish survey. Longitudinal boundaries are defined by the 18-30, 30-60, and 60-90-foot isobaths. Smooth Dogfish are cumulatively weighed and measured by total length in centimeters. All other shark species are sorted by gender, weighed individually, and measured by total length in centimeters.

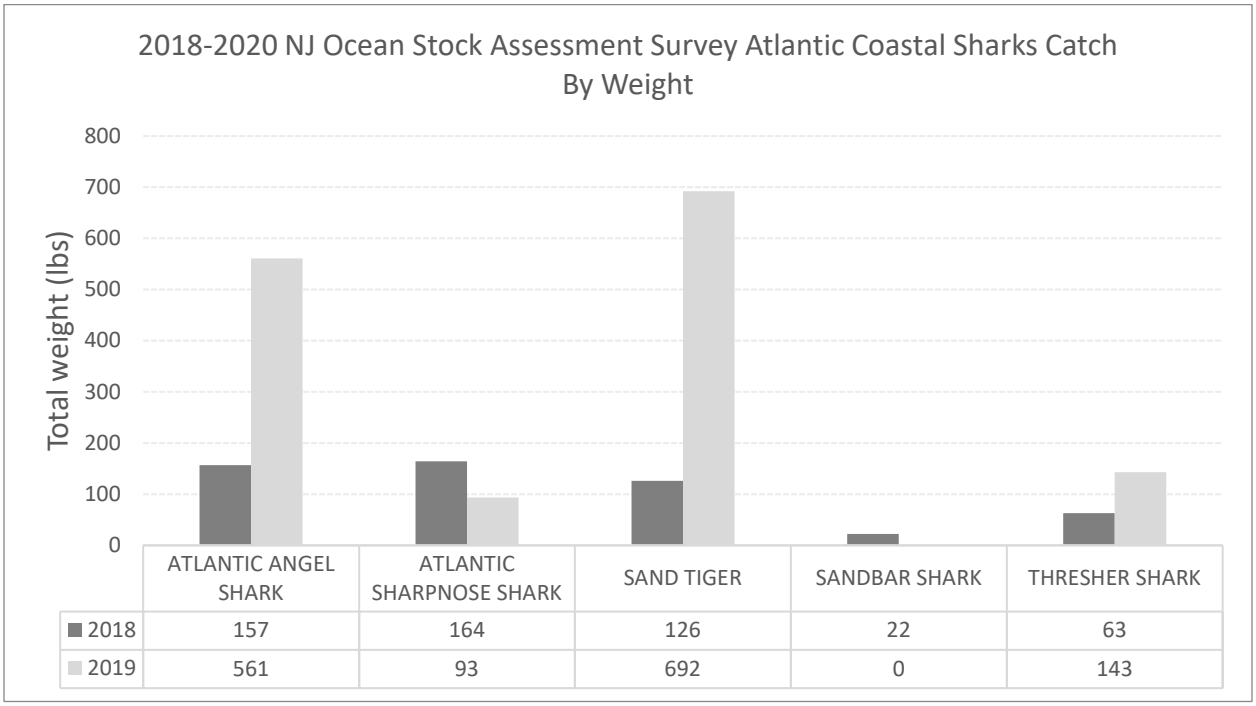



**Figure 5. NJ 2018-2020 Ocean Stock Assessment Survey, Atlantic Coastal Sharks excluding Smooth Dogfish**

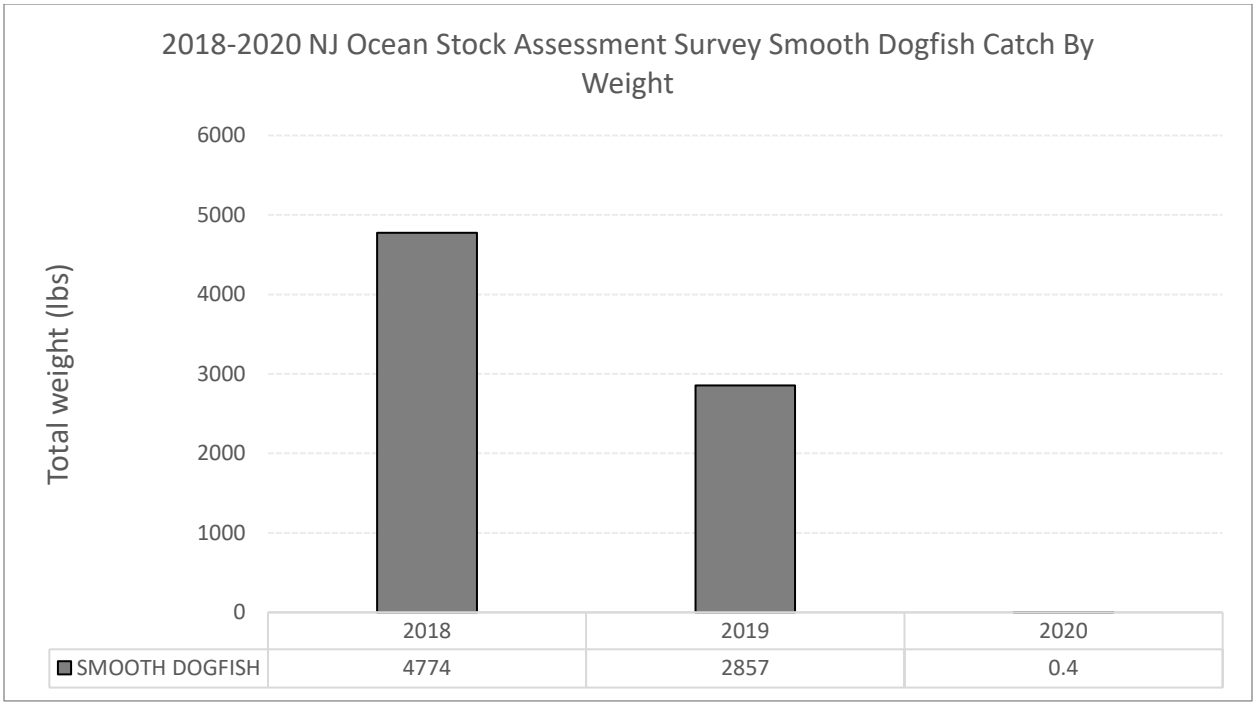



**Figure 6. NJ 2018-2020 Ocean Stock Assessment Survey Atlantic, Smooth Dogfish**

*Delaware*

Delaware conducts a 30' adult trawl survey and a 16' juvenile trawl survey in the Delaware Bay. In the adult trawl survey, smooth dogfish are the most common shark species caught (Figure 7), with sand tiger shark (Figure 8) and sandbar sharks (Figure 9) taken in low numbers. Thresher, Atlantic angel, Atlantic sharpnose (Figure 10) and dusky shark were caught in the past, but rarely. Sand Tiger Shark catch per nautical mile decreased in 2021 from a historical high in 2019. Sandbar Shark catch per nautical mile decreased in 2021 relative to 2020. Smooth dogfish catch per nautical mile increased slightly in 2021 but is still relatively low compared to the early 2000's. In the juvenile trawl, the species caught include Sand Tiger Sharks (Figure 11), Sandbar Sharks (Figure 12) and Smooth dogfish (Figure 13). Apart from Smooth dogfish, the capture of coastal sharks in the juvenile trawl is a rare occurrence.

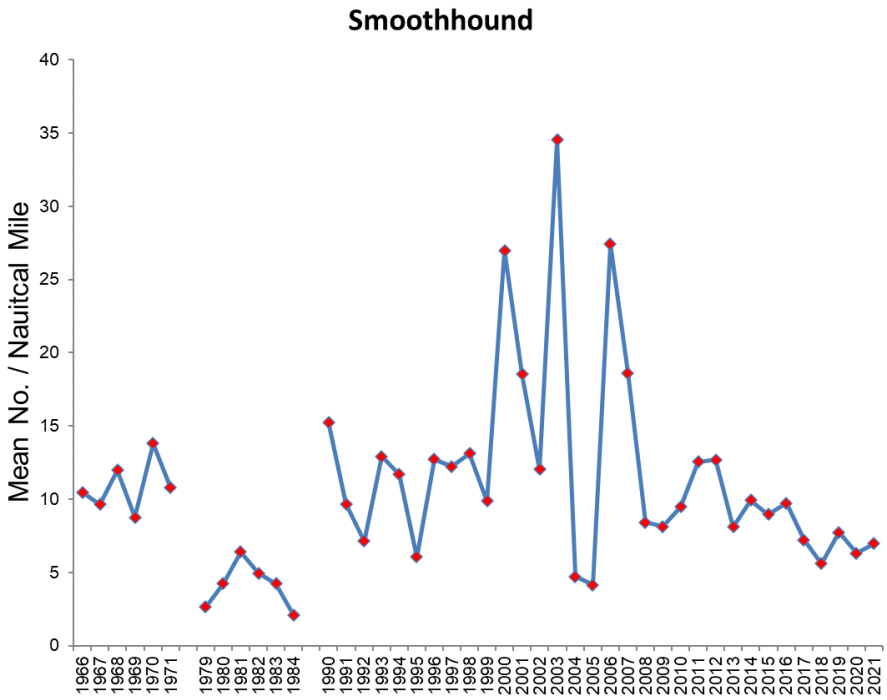



**Figure 7. Smooth dogfish relative abundance (mean number per nautical mile), time series (1966 – 2021) as measured in 30-foot trawl sampling in the Delaware Bay.**

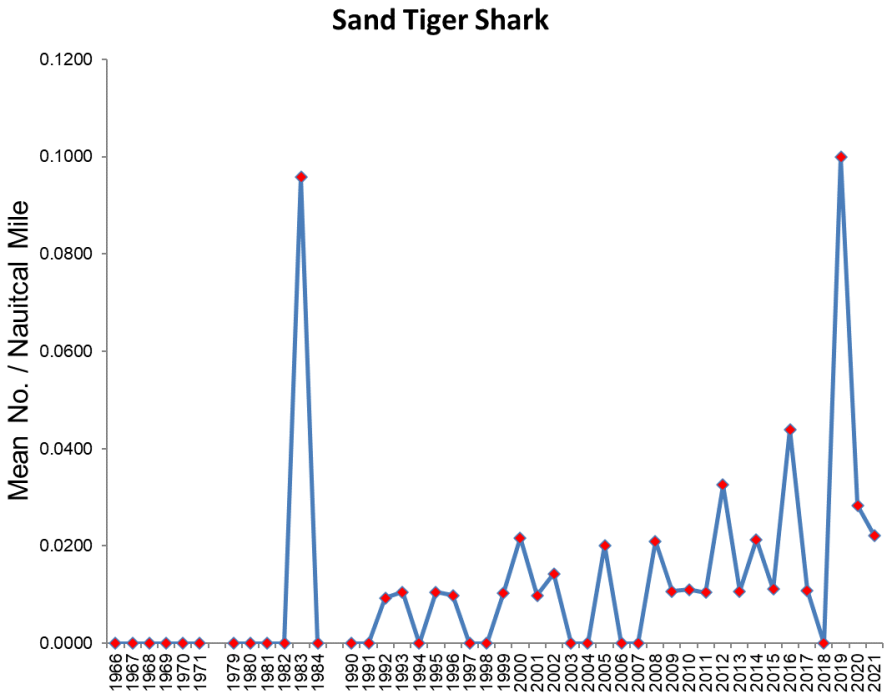



**Figure 8. Sand tiger shark relative abundance (mean number per nautical mile), time series (1966 – 2021) as measured in 30-foot trawl sampling in the Delaware Bay.**

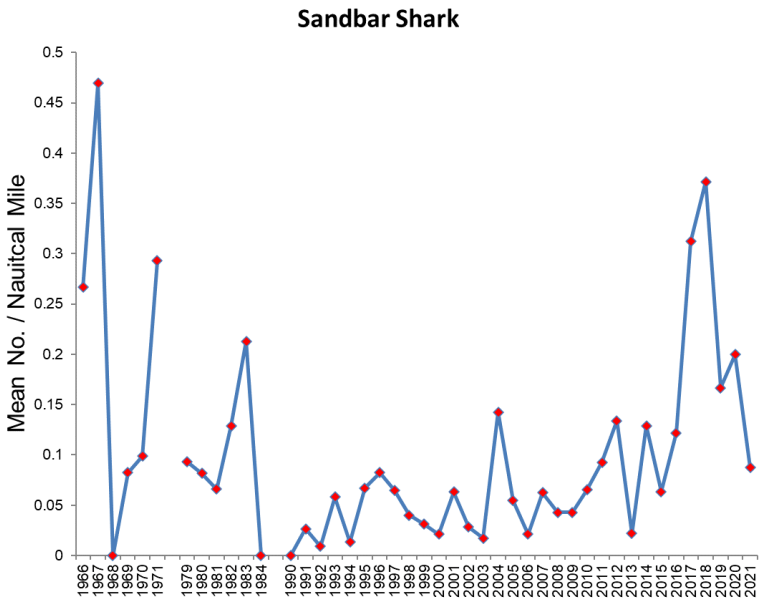



**Figure 9. Sandbar shark relative abundance (mean number per nautical mile), time series (1966 – 2021) as measured in 30-foot trawl sampling in the Delaware Bay.**

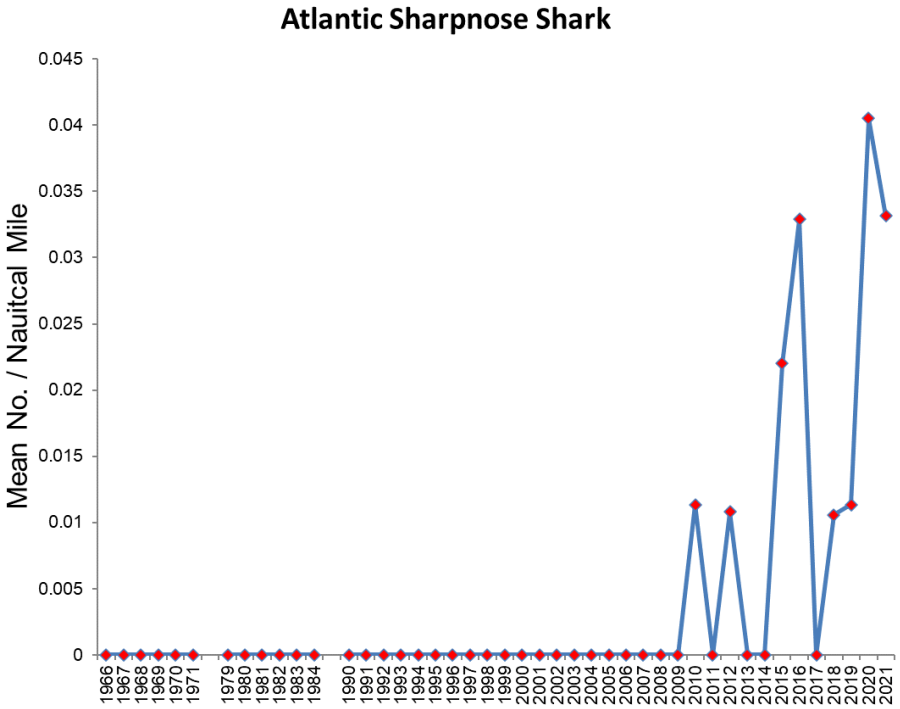



**Figure 10. Atlantic sharpnose shark relative abundance (mean number per nautical mile), time series (1966 – 2021) as measured in 30-foot trawl sampling in the Delaware Bay.**

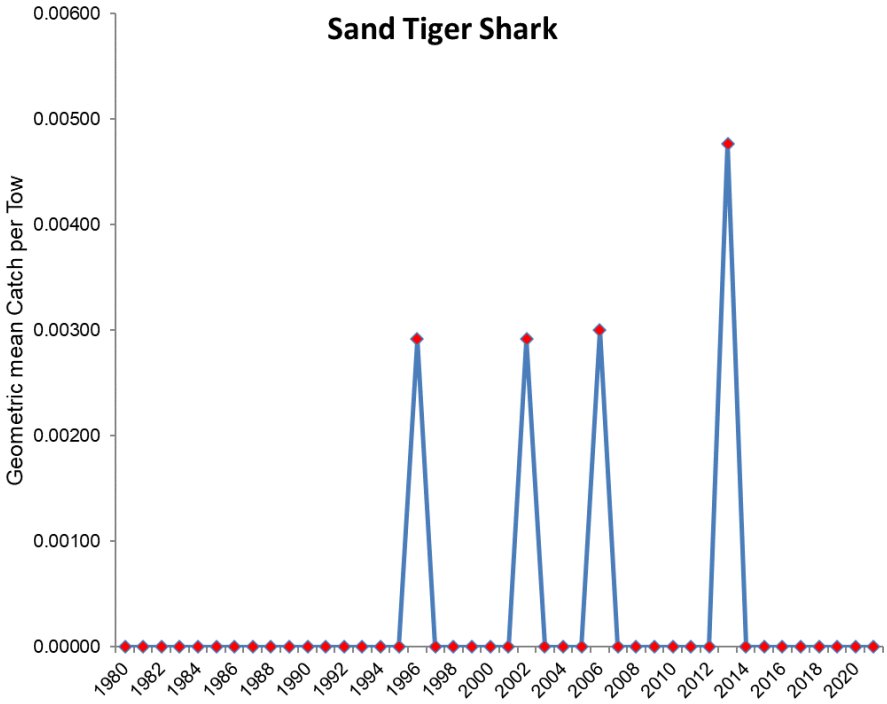



**Figure 11. Index of sand tiger shark, time series (1980 – 2021) as measured by 16-foot trawl sampling in the Delaware Estuary.**

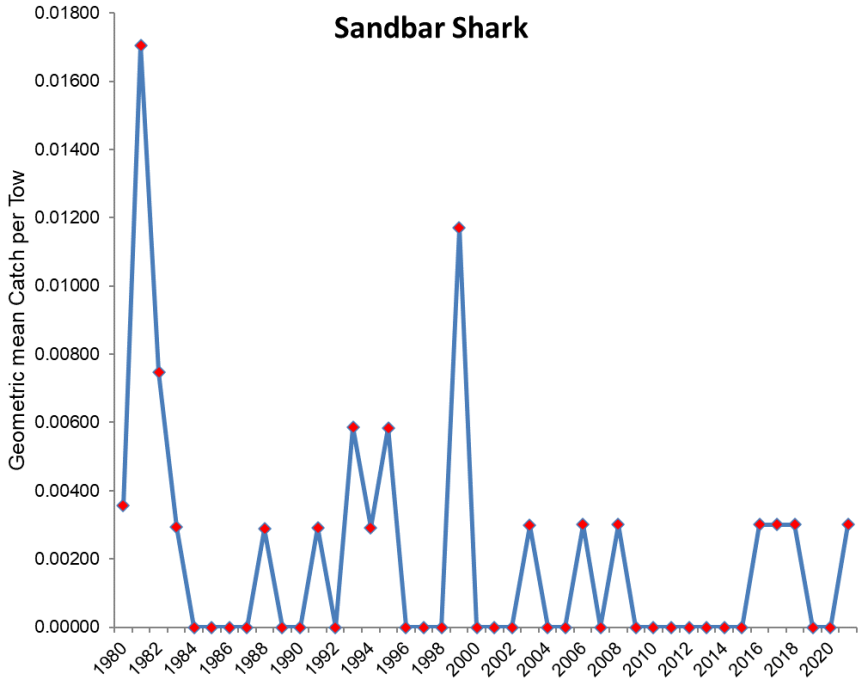



**Figure 12. Index of sandbar shark, time series (1980 – 2021) as measured by 16-foot trawl sampling in the Delaware Estuary.**

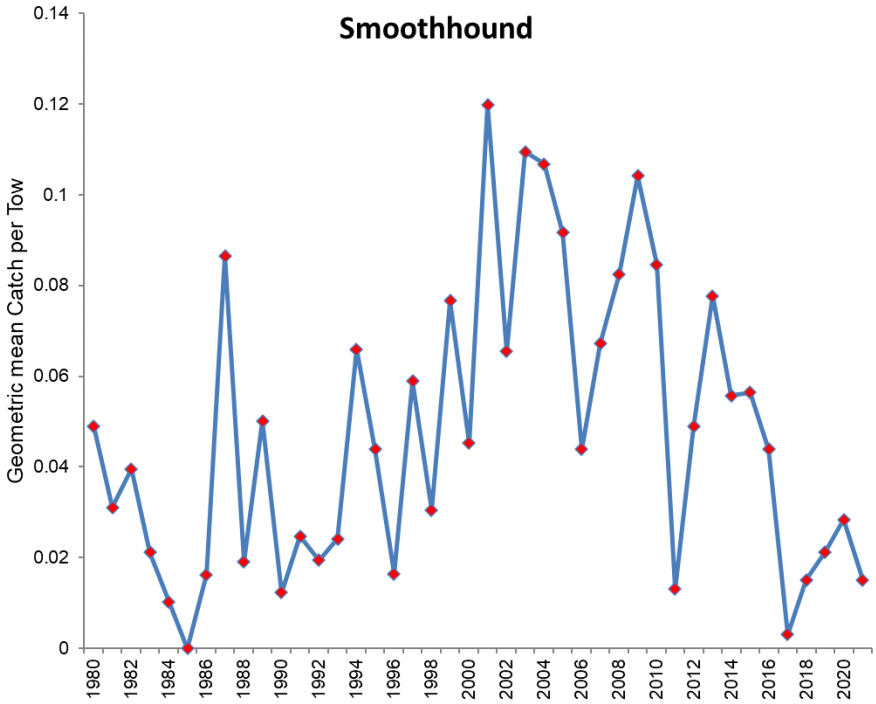



**Figure 13. Index of young-of-year smooth dogfish abundance, time series (1980 – 2021) as measured by 16-foot trawl sampling in the Delaware Estuary.**

*Maryland*

No fishery-independent monitoring for Atlantic coastal sharks was conducted in Maryland state waters.

*Virginia*

The Virginia Institute of Marine Science Shark Research Program began in 1973 and is one of the longest running longline surveys in the world. The program has provided data on habitat utilization, age, growth, reproduction, trophic interactions, basic demographics, and relative abundance for dominant shark species. Cruise times have been variable over the time series, but sampling generally has occurred monthly from May through October. The survey utilizes a fixed station design with nine core sampling locations, although additional auxiliary locations have been sampled frequently over the years.

Beginning in 2012, a separate longline survey conducted by the Virginia Institute of Marine Science designed specifically to target young-of-year sandbar sharks in the lower Chesapeake Bay and Eastern Shore was initiated. The new survey follows a stratified random sampling design, rather than a fixed survey design, and falls under the broader COASTSPAN umbrella survey.

In 2021, Atlantic sharpnose shark was the most commonly encountered species by the offshore survey followed by sandbar shark, blacktip shark, blacknose shark, tiger shark, spinner shark, sand tiger shark, bull shark, great hammerhead, and scalloped hammerhead (Table 9).

Seasonal patterns in survey catches were also evident with June and July showing the highest and lowest overall catches of sharks, respectively, followed by similar catches in August and September.

Monthly COASTSPAN catches of neonate sandbar shark (<= 71 cm total length) in the lower Chesapeake Bay were generally similar but showed a slight increasing trend from June to August. In the coastal lagoons of the Eastern Shore, peak neonate catch occurred in July followed by August and June, respectively (Table 10). As in previous years, neonate total catch in 2021 was higher in the coastal lagoons of the Eastern Shore when compared to that of the lower Chesapeake Bay.

**Table 9. Monthly catch summaries for key shark species encountered during offshore longline cruise conducted by VASMAP, 2021 pooled across the standard six sampling sites. Effort is expressed as total longline soak time of 100 hooks**

| Month | Effort (hrs) | Sand Tiger | Sandbar | Tiger | Atlantic Sharpnose | Spinner | Great Hammerhead | Blacknose | Blacktip | Bull | Scalloped Hammerhead | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Jun | 31.0 | 3 | 7 | 3 | 47 | 1 | 0 | 3 | 5 | 0 | 0 | 69 |
| Jul | 28.7 | 0 | 7 | 1 | 13 | 0 | 0 | 0 | 13 | 1 | 0 | 35 |
| Aug | 28.1 | 0 | 1 | 1 | 37 | 2 | 1 | 0 | 0 | 1 | 0 | 43 |
| Sep | 28.9 | 0 | 17 | 0 | 14 | 2 | 1 | 6 | 0 | 0 | 1 | 41 |
| Total | | 3 | 32 | 5 | 111 | 5 | 2 | 9 | 18 | 2 | 1 | 188 |

**Table 10. Neonate catch summaries for each monthly COASTSPAN cruise, 2021, pooled across the sampling sites with the lower Chesapeake Bay and coastal lagoons of the Eastern Shore. Effort is expressed as total longline soak time of 50 hooks.**

**Lower Chesapeake Bay**

| Month | Effort (hrs) | Neonate |
|---|---|---|
| Jun | 10.0 | 38 |
| Jul | 10.0 | 45 |
| Aug | 10.0 | 47 |
| Total | | 130 |

**Lagoons, Eastern Shore**

| Month | Effort (hrs) | Neonate |
|---|---|---|
| Jun | 7.6 | 49 |
| Jul | 7.5 | 62 |
| Aug | 7.5 | 55 |
| Total | | 166 |

*North Carolina*

*Fishery-Dependent*

Fishery-dependent sampling of North Carolina commercial fisheries has been ongoing since 1982 (conducted under Title III of the Interjurisdictional Fisheries Act and funded in part by the U.S. Department of Commerce, National Marine Fisheries Service). Predominate fisheries sampled includes the ocean gill net, estuarine gill net, ocean trawl, long haul seine/swipe net, beach seine, and pound net fisheries. Shark species were sampled from 38 commercial trips in 2021 (Table 11). From these trips, 155 sharks comprised of six species were sampled (Table 12).

**Table 11. North Carolina 2021 fishery-dependent shark sampling summary by month.**

| Month | Total Trips Sampled |
|---|---|
| January | 5 |
| February | 1 |
| March | 2 |
| April | 6 |
| May | 5 |
| June | 5 |
| July | 2 |
| August | 1 |
| September | 2 |
| October | 4 |
| November | 3 |
| December | 2 |
| Total | 38 |

**Table 12. North Carolina 2021 fishery-dependent shark sampling summary by species for total number of individuals and total sampled weight.**

| Shark Species | #Total Individuals | Weight (kg) |
|---|---|---|
| Atlantic Sharpnose | 19 | 28.6 |
| Blacktip | 8 | 54.8 |
| Bonnethead | 4 | 9.1 |
| Smoothhound | 121 | 158.9 |
| Spinner | 2 | 7.2 |
| Thresher | 1 | 7.3 |
| Total | 155 | 265.9 |

*Fishery-Independent*

The NCDMF has two fishery-independent surveys that collect coastal sharks: A gill net survey (Program 915) and a red drum long line survey (Program 365). Program 915 was initiated in 2001. The objective of this project is to provide annual relative abundance indices for key estuarine species in the near shore, Pamlico Sound, Pamlico, Pungo, Neuse, New, and Cape Fear rivers. The survey employs a stratified random sampling design and utilizes multiple mesh gill nets (3.0 inch to 6.5 inch stretched mesh, by 0.5 inch increments). Program 365 was initiated in 2007 for developing an index of abundance for adult red drum. This project also allows for capture and tagging of Atlantic coastal sharks in collaboration with the NOAA Fisheries Cooperative Shark Tagging Program.

No sharks were caught during Program 365 in 2021. In 2020, Program 915 sampling was suspended due to the COVID pandemic. Sampling resumed July 1, 2021. In 2021, seven species of shark were encountered in Program 915, with Atlantic sharpnose (n=176) representing the highest abundance (Table 13).

**Table 13. Summary of shark captures from NCDMF fishery-independent gill net survey for 2021.**

| Shark Species | Number Measured | Minimum TL (mm) | Maximum TL (mm) | Average TL (mm) |
|---|---|---|---|---|
| Atlantic Sharpnose | 176 | 130 | 1,075 | 453 |
| Blacktip | 5 | 850 | 1,642 | 1,114 |
| Bonnethead | 54 | 668 | 1,180 | 848 |
| Bull | 9 | 549 | 855 | 706 |
| Finetooth | 27 | 550 | 1,420 | 905 |
| Sandbar | 85 | 420 | 1,210 | 714 |
| Scalloped Hammerhead | 5 | 335 | 545 | 423 |

*South Carolina*

Currently, data are collected from estuarine waters by the SCDNR Cooperative Atlantic States Shark Pupping and Nursery Habitat survey (COASTSPAN) and the SCDNR trammel net survey. The COASTSPAN survey monitors the presence and abundance of young-of-year and juvenile sharks in the estuaries and bays of South Carolina. The survey operates from April-September using gillnets, longlines and drumlines to sample index stations. Species captured are measured, sexed, tagged and released, and physical and water quality parameters are recorded (Table 14).

The SCDNR trammel net survey is designed to sample recreationally important species in shallow estuarine waters. Sharks are not a target species, but their abundance as well as length and sex data are recorded (Table 14). Stations selected based on suitable habitats are randomly sampled using a multi-panel net to encircle a section of marsh. Species captured are measured, sexed if possible, and released. In addition, physical and water quality data are recorded for each sample location.

The presence and abundance of juvenile and adult coastal sharks in the bays, sounds and coastal waters of South Carolina are documented by the Coastal Longline Survey. This survey uses a stratified-random approach to sample for adult red drum and coastal sharks. The survey operates annually from August to December using longlines to sample suitable habitat for targeted species. Species captured are measured, sexed, tagged, and released, and physical and water quality parameters are recorded. Species encountered and tagged for all surveys are reported in Table 14. The data gathered from these programs are shared with the NMFS Apex Predators Program and are utilized in stock assessments and management decisions in South Carolina.

**Table 14. Number of sharks captured and tagged by South Carolina Department of Natural Resources' Cooperative Atlantic States Shark Pupping and Nursery Habitat Survey (COASTSPAN), Trammel Net Survey, and Coastal Longline survey in 2021.**

| | COASTSPAN | | Trammel Net | | Coastal Longline Survey | |
|---|---|---|---|---|---|---|
| Shark Species | Captured | Tagged | Captured | Tagged | Captured | Tagged |
| Atlantic Sharpnose | 158 | 0 | 21 | 0 | 880 | 0 |
| Blacknose | 3 | 3 | 0 | 0 | 161 | 155 |
| Blacktip | 91 | 57 | 7 | 0 | 109 | 84 |
| Bonnethead | 280 | 214 | 130 | 0 | 42 | 40 |
| Bull | 8 | 8 | 3 | 0 | 4 | 3 |
| Dusky | 0 | 0 | 0 | 0 | 1 | 0 |
| Finetooth | 305 | 146 | 22 | 0 | 62 | 54 |
| Great Hammerhead | 0 | 0 | 0 | 0 | 0 | 0 |
| Lemon | 9 | 8 | 9 | 0 | 3 | 1 |
| Nurse | 0 | 0 | 0 | 0 | 9 | 0 |
| Sandbar | 270 | 250 | 1 | 0 | 121 | 112 |
| Sand Tiger | 2 | 2 | 0 | 0 | 1 | 1 |
| Scalloped/Carolina Hammerhead | 262 | 42 | 0 | 0 | 11 | 8 |
| Smooth Dogfish | 0 | 0 | 0 | 0 | 0 | 0 |
| Spinner | 5 | 4 | 0 | 0 | 10 | 9 |
| Tiger | 0 | 0 | 0 | 0 | 0 | 0 |

*Georgia*

*Fishery-Dependent*

Although a directed fishery for sharks does not exist in Georgia waters, there is a fishery-dependent sampling project conducted by the Coastal Resources Division (CRD) that can result in the incidental capture of coastal sharks. The Marine Sportfish Carcass Recovery Project, a partnership with recreational anglers along the Georgia coast, is used to collect biological data from finfish. In 2021, no coastal shark species were included.

*Fishery-Independent*

Georgia has several fishery-independent surveys that sample in areas where coastal shark species are encountered and one survey specifically designed to sample sub-adult sharks in Georgia's inshore waters.

- *Coastal Longline Survey (SEAMAP):* The Coastal Longline Survey is designed to sample adult Red Drum and coastal sharks. Sampling occurs in inshore and nearshore waters of southeast Georgia from mid-June through mid-December. Sampling gear consists of a bottom set 926 m, 600 lb. test monofilament mainline configured with 60, 0.5 m gangions made of 200 lb. test monofilament. Each gangion consists of a longline snap and a 15/0 circle hook. Thirty hooks were baited with squid, and thirty were baited with

mullet. Soak time for each set is 30 minutes. During 2021, CRD staff deployed 140 sets consisting of 3,236 hooks and 70 hours of soak time. A total of 658 sharks were captured, representing eleven species (Table 15).

- *Shark Nursery Survey (COASTSPAN):* The University of North Florida assumed field operations for this survey in 2016. Data for the complete time series are maintained by the NMFS Apex Predators Program in Narragansett, RI (contact: Cami McCandless).
- *Ecological Monitoring Trawl Survey (EMTS):* The EMTS is designed to sample penaeid shrimp, blue crab, and other marine organisms typically encountered in the trawl for management and monitoring purposes. Each month, a 40 ft flat otter trawl with neither a turtle excluder device nor bycatch reduction device is deployed at 36 stations across six estuaries. At each station, a standard 15-minute tow is made. During 2021, 394 tows/observations were conducted, totaling 98.01 hours of tow time. A total of 82 sharks, representing 6 species, were captured during 2021 (Table 15).
- *Marine Sportfish Population Health Survey (MSPHS)*: The MSPHS is a multi-faceted ongoing survey used to collect information on the biology and population dynamics of recreationally important finfish. The Altamaha River System and the Wassaw Estuary has been sampled since 2003 using entanglement gear. The St. Andrew Estuary was added in 2019. During the June to August period, young-of-the-year Red Drum in the Altamaha River System and Wassaw and St. Andrew estuaries are collected using gillnets to gather data on relative abundance and location of occurrence. During the September to November period, fish populations in the Altamaha River System and Wassaw Estuary are monitored using monofilament trammel nets to gather data on relative abundance and size composition. In 2021, a total of 324 gillnet and 225 trammel net sets were made, resulting in the capture of 262 individuals representing 6 species of coastal sharks (Table 15).

**Table 16. Numbers of coastal sharks captured in Georgia fishery-independent surveys in 2021 by species and by survey.**

| | CLS | EMTS | MSPHS |
|---|---|---|---|
| SHARK, ATLANTIC SHARPNOSE | 284 | 17 | 5 |
| SHARK, BLACKNOSE | 206 | --- | --- |
| SHARK, BLACKTIP | 85 | 6 | 15 |
| SHARK, BONNETHEAD | 22 | 56 | 220 |
| SHARK, BULL | 2 | --- | 3 |
| SHARK, FINETOOTH | 11 | 1 | 14 |
| SHARK, LEMON | 2 | --- | 5 |
| SHARK, NURSE | 4 | --- | --- |
| SHARK, SANDBAR | 31 | 1 | --- |
| SHARK, SCALLOPED HAMMERHEAD | 4 | 1 | --- |
| SHARK, SPINNER | 7 | --- | --- |
| ALL SPECIES COMBINED | 658 | 82 | 262 |

*Florida*

Florida Fish and Wildlife Conservation Commission had no fisheries-independent monitoring programs for coastal sharks during the 2021 calendar year.

## V. Status of Management Measures and Issues

Coastal Sharks are managed under the Interstate FMP for Coastal Sharks, which was adopted in August 2008 and effective in January 1, 2009, Addendum I (2009), Addendum II (2013), Addendum III (2013), Addendum IV (2016), and Addendum V (2018). The FMP addresses the management of 41 species and establishes a suite of management measures for recreational and commercial shark fisheries in state waters (0 – 3 miles from shore). Addendum V provided the Board the ability to respond to changes in the stock status of coastal shark populations and adjust regulations through Board action rather than an addendum, ensuring greater consistency between state and federal shark regulations.

In April 2019, the Board approved changes to the recreational size limit for Atlantic shortfin mako sharks in state waters, specifically, a 71-inch straight line fork length (FL) for males and an 83-inch straight line FL for females. These measures were consistent with those required for federal highly migratory species (HMS) permit holders under HMS Amendment 11, which was implemented in response to the 2017 Atlantic shortfin mako stock assessment that found the resource is overfished and experiencing overfishing.

In October 2019, the Board approved changes to the gear requirements for recreational shark fishing. For recreational shark fishing in state waters, anglers are required to use non-offset, corrodible, non-stainless steel circle hooks, except when fishing with flies or artificial lures. This measure has been in effect since July 1, 2020 and are intended to promote consistency with those approved through HMS Amendment 11.

In May 2022 the Board approved a zero retention limit in state waters for Atlantic shortfin mako sharks for both recreational and commercial fisheries. These measures are consistent with those implemented by NOAA Fisheries for federal HMS permit holders based on the International Commission for the Conservation of Atlantic Tunas (ICCAT) recommendation. This action was taken in response to the 2019 Atlantic shortfin mako stock assessment update that indicates the resource is overfished and experiencing overfishing, with a rebuild date of 2070.

ASMFC will continue to respond to changes in the Atlantic Highly Migratory Species FMP and make changes as necessary to the interstate FMP.

## VI. Implementation of FMP Compliance Requirements for 2021

Addendum III to the Coastal Sharks FMP was implemented in March 2014, which modified the recreational minimum size limits and the commercial species groupings in the FMP. In 2019, the Board approved the requirement for non-offset, corrodible, non-stainless steel circle hooks, except when fishing with flies or artificial lures. In 2022, the Board adopted a zero retention limit for Atlantic shortfin mako sharks for recreational and commercial state waters fisheries.

All states must demonstrate through the inclusion of regulatory language that the following management measures were implemented.

***Recreational Size Limits***

**Table 17. Recreational minimum size limits, 2021.**

| No Minimum Size | Minimum Fork Length 54 inches | | Minimum Fork Length 78 inches |
|---|---|---|---|
| Smoothhound | Tiger | Nurse | Great hammerhead |
| Atlantic sharpnose | Blacktip | Porbeagle | Scalloped hammerhead |
| Finetooth | Spinner | Thresher | Smooth hammerhead |
| Blacknose | Bull | Oceanic whitetip | |
| Bonnethead | Lemon | Blue | |

***Commercial Species Groupings***

This FMP establishes eight commercial 'species groups' for management (Table 1): Prohibited, Research, Smoothhound, Non-Blacknose Small Coastal, Blacknose, Aggregated Large Coastal, Hammerhead, and Pelagic. These groupings apply to all commercial shark fisheries in state waters.

## VII. PRT Recommendations

*State Compliance*

- New Jersey's implementation of the non-offset stainless steel circle hooks became effective in February 2023.
- Georgia's compliance report does not provide any regulations regarding the variable possession limits for the aggregated large coastal and hammerhead management groups. However, Georgia limits commercial fishermen to the same daily creel and size limits that the recreational sector is subject to, and no commercial landings occurred in 2021.
- Georgia's recreational regulations allows for the landing of 1 hammerhead, 1 shortfin mako, and 1 "other" shark, which is in excess of what is allowed under the FMP (1 shark per person/vessel plus one Atlantic sharpnose and one bonnethead). This issue has been raised with Georgia Department of Natural Resources staff and they have indicated that the regulations will be updated accordingly.
- With the exceptions noted above, the PRT determined that all states have implemented regulations consistent with the FMP requirements.

*De Minimis Status*

This FMP does not establish specific *de minimis* guidelines that would exempt a state from

regulatory requirements contained in this plan. *De minimis* shall be determined on a case-by case basis. *De minimis* often exempts states from monitoring requirements in other fisheries but this plan does not contain any monitoring requirements.

*De minimis* guidelines are established in other fisheries when implementation and enforcement of a regulation is deemed unnecessary for attainment of the fishery management plan's objectives and conservation of the resource. Due to the unique characteristics of the coastal shark fishery, namely the large size of sharks compared to relatively small quotas, the taking of a single shark could contribute to overfishing of a shark species or group. Therefore, exempting a state from any of the regulatory requirements contained in this plan could threaten attainment of this plans' goals and objectives.

Massachusetts is the only state that has been granted *de minimis* status. Massachusetts can continue to have *de minimis* status until their landings patterns change or they request a discontinuation.

In some cases, it is unnecessary for states with *de minimis* status to implement all regulatory requirements in the FMP.

Massachusetts has implemented all regulations with two exceptions: it is exempt from the possession limit and closures of the aggregated large coastal and hammerhead shark fisheries.

## VIII. Research Recommendations

Research recommendations were identified in 2018 in the Commission's Fisheries Research Priorities document (p. 42).

**References**

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## APPENDIX 1. OVERVIEW OF COASTAL SHARK REGULATIONS

*Coastal Sharks FMP Regulatory Requirements*

1. Recreational seasonal closure (Section 4.2.1)

    a. Recreational anglers are prohibited from possessing silky, tiger, blacktip, spinner, bull, lemon, nurse, scalloped hammerhead, great hammerhead, and smooth hammerhead in the state waters of Virginia, Maryland, Delaware and New Jersey from May 15 through July 15—regardless of where the shark was caught.

    b. Recreational fishermen who catch any of these species in federal waters may not transport them through the state waters of VA, MD, DE, and NJ during the seasonal closure.

2. Recreationally permitted species (Section 4.2.2)

    a. Recreational anglers are allowed to possess aggregated large coastal sharks, hammerheads, tiger sharks, SCS, and pelagic sharks. Authorized shark species include: aggregated LCS (blacktip, bull, spinner, lemon, and nurse); hammerhead (great hammerhead, smooth hammerhead, scalloped hammerhead); tiger sharks; SCS (blacknose, finetooth, Atlantic sharpnose, and bonnethead sharks); and, pelagic sharks (blue, common thresher, oceanic whitetip, and porbeagle). Sandbar sharks and silky sharks (and all prohibited species of sharks) are not authorized for harvest by recreational anglers.

3. Landings Requirements (Section 4.2.3)

    a. All sharks (with exception) caught by recreational fishermen must have heads, tails, and fins attached naturally to the carcass. Anglers may still gut and bleed the carcass by making an incision at the base of the caudal peduncle as long as the tail is not removed. Filleting sharks at sea is prohibited.

    b. All sharks (with exception) harvested by commercial fishermen within state boundaries must have the tails and fins attached naturally to the carcass through landing. Fins may be cut as long as they remain attached to the carcass (by natural means) with at least a small portion of uncut skin. Sharks may be eviscerated and have the heads removed. Sharks may not be filleted or cut into pieces at sea.

    c. Exception: Fishermen holding a valid state commercial permit may process smooth dogfish sharks at sea out to 50 miles from shore, as long as the total weight of smooth dogfish shark fins landed or found on board a vessel does not exceed 12 percent of the total weight of smooth dogfish shark carcasses landed or found on board.

4. Recreational Minimum Size Limits (Section 4.2.4)

    a. Sharks caught in the recreational fishery must have a fork length of at least 4.5 feet (54 inches) with the exception of Atlantic sharpnose, blacknose, finetooth,

bonnethead and smoothhound which have no minimum size. Hammerhead species must have a fork length (FL) of 6.5 feet (78 inches).

5. Authorized Recreational Gear (Section 4.2.5)

    a. Recreational anglers may catch sharks only using a handline or rod & reel. Handlines are defined as a mainline to which no more than two gangions or hooks are attached. A handline must be retrieved by hand, not by mechanical means.

    b. Non-offset, corrodible, non-stainless steel circle hooks are required when fishing for sharks recreationally, in state waters. The only exception is when fishing with flies or artificial lures.

6. Possession limits in one twenty-four hour period (Section 4.2.7 and 4.3.6)

    a. Recreational and commercial possession limits as specified in Table 9.
    b. Smooth dogfish harvest is not limited in state waters and recreational shore-anglers may harvest an unlimited amount of smooth dogfish.

7. Commercial Seasonal Closure (Section 4.3.2)

    a. All commercial fishermen are prohibited from possessing silky, tiger, blacktip, spinner, bull, lemon, nurse, scalloped hammerhead, great hammerhead, and smooth hammerhead in the state waters of Virginia, Maryland, Delaware and New Jersey from May 15 through July 15. Fishermen who catch any of the above species in a legal manner in federal waters may transit through the state waters listed above if all gear is stowed.

8. Quota Specification (Section 4.3.4)

    a. When NOAA Fisheries closes the fishery for any species, the commercial landing, harvest, and possession of that species will be prohibited in state waters until NOAA Fisheries reopens the fishery.

9. Permit requirements (Section 4.3.8)

    a. State: Commercial shark fishermen must hold a state commercial license or permit in order to commercially catch and sell sharks in state waters.
    b. Federal: A federal Commercial Shark Dealer Permit is required to buy and sell any shark caught in state waters.
    c. Display and research permit is required to be exempt from seasonal closure, quota, possession limit, size limit, gear, and prohibited species restrictions. States are required to include annual information for all sharks taken for display throughout the life of the shark.

10. Authorized commercial gear (Section 4.3.8.3)

a. Commercial fishermen can only use one of the following gear types (and are prohibited from using any gear type not listed below) to catch sharks in state waters.

   i. **Rod & reel.**
   ii. **Handlines.** Handlines are defined as a mainline to which no more than two gangions or hooks are attached. A handline is retrieved by hand, not by mechanical means, and must be attached to, or in contact with, a vessel.
   iii. **Small Mesh Gillnets.** Defined as having a stretch mesh size smaller than 5 inches.
   iv. **Large Mesh Gillnets.** Defined as having a stretch mesh size equal to or greater than 5 inches.
   v. **Trawl nets.**
   vi. **Shortlines.** Shortlines are defined as fishing lines containing 50 or fewer hooks and measuring less than 500 yards in length. A maximum of 2 shortlines are allowed per vessel.
   vii. **Pounds nets/fish traps.**
   viii. **Weirs.**

11. Bycatch Reduction Measures (Section 4.3.10)

a. Any vessel using a shortline must use corrodible circle hooks. All shortline vessels must practice the protocols and possess the recently updated federally required release equipment for pelagic and bottom longlines for the safe handling, release, and disentanglement of sea turtles and other non-target species, all captains and vessel owners must be certified in using handling and release equipment.

12. Smooth Dogfish

a. Each state must identify their percentage of the overall quota (Addendum II, 3.1)
b. Smooth dogfish must make up at least 25%, by weight, of total catch on board at time of landing. Trips that do not meet the 25% catch composition requirement can land smooth dogfish, but fins must remain naturally attached to the carcass (Addendum IV, 3.0; modifies Addendum II Section 3.5).

**Table 18. Possession/retention limits for shark species in state waters**

| | | |
|---|---|---|
| **Recreational** | *Shore-angler* | 1 shark (of any species except prohibited) per person per day; plus one Atlantic sharpnose, and one bonnethead. No limit on smoothhound. |
| | *Vessel-fishing* | 1 shark (of any species except prohibited) per vessel per trip; plus one Atlantic sharpnose, and one bonnethead per person per vessel. No limit on smoothhound. |

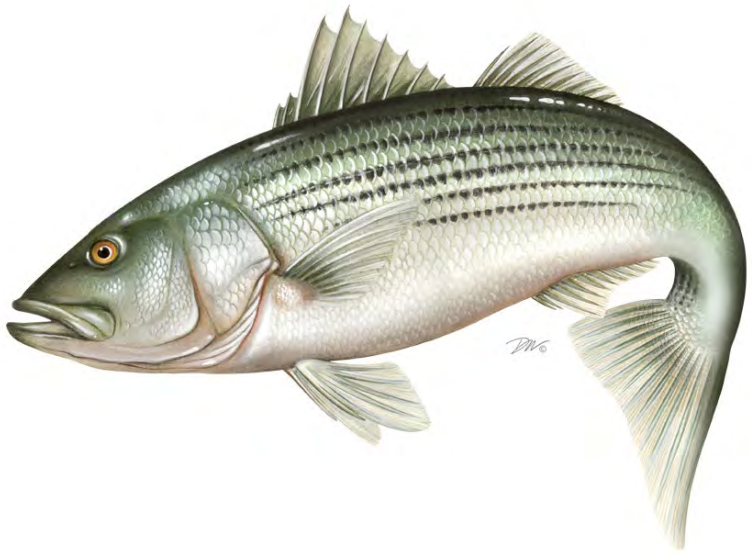
| | | |
|---|---|---|
| **Commercial** | *Directed permit* | Variable possession limit for aggregated large coastal sharks and hammerhead shark management groups. The Commission will follow NMFS for in-season changes to the possession limit. The possession limit range is 0-55, the default is 45 sharks per trip. No limit for SCS or pelagic sharks. |
| | *Incidental permit* | 3 aggregated LCS per vessel per trip and 16 pelagic or SCS (combined) per vessel per trip |

# ATLANTIC STATES MARINE FISHERIES COMMISSION

## REVIEW OF THE INTERSTATE FISHERY MANAGEMENT PLAN

### FOR ATLANTIC STRIPED BASS
### *(Morone saxatilis)*

### 2022 FISHING YEAR



Draft for Board Review

July 2023

*Sustainable and Cooperative Management of Atlantic Coastal Fisheries*

**Table of Contents**

## I. Status of the Fishery Management Plan

| | |
|---|---|
| Date of FMP Approval: | Original FMP – 1981 |
| Amendments: | Amendment 1 – 1984<br>Amendment 2 – 1984<br>Amendment 3 – 1985<br>Amendment 4 – 1989; Addendum I – 1991, Addendum II – 1992, Addendum III – 1993, Addendum IV – 1994<br>Amendment 5 – 1995; Addendum I – 1997, Addendum II – 1997, Addendum III – 1998, Addendum IV – 1999, Addendum V – 2000<br>Amendment 6 – 2003; Addendum I – 2007, Addendum II – 2010, Addendum III – 2012, Addendum IV – 2014, Addendum VI -2019<br>Amendment 7 – 2022; Addendum I – 2023 |
| Management Unit: | Migratory stocks of Atlantic striped bass from Maine through North Carolina |
| States With Declared Interest: | Maine - North Carolina, including Pennsylvania |
| Additional Jurisdictions: | District of Columbia, Potomac River Fisheries Commission, National Marine Fisheries Service, United States Fish and Wildlife Service |
| Active Boards/Committees: | Atlantic Striped Bass Management Board, Advisory Panel, Technical Committee, Stock Assessment Subcommittee, Tagging Subcommittee, Plan Review Team, and Plan Development Team |

*Original FMP and Amendments 1-5*

The Atlantic States Marine Fisheries Commission (Commission) developed a Fisheries Management Plan (FMP) for Atlantic Striped Bass in 1981 in response to poor juvenile recruitment and declining landings. The FMP recommended increased restrictions on commercial and recreational fisheries, such as minimum size limits and harvest closures on spawning grounds. Two amendments were passed in 1984 recommending additional management measures to reduce fishing mortality. To strengthen the management response and improve compliance and enforcement, the Atlantic Striped Bass Conservation Act (P.L. 98-613) was passed in late 1984. The Striped Bass Act[1] mandated the implementation of striped bass regulations passed by the Commission and gave the Commission authority to recommend to the Secretaries of Commerce and Interior that states be found out of compliance when they failed to implement management measures consistent with the FMP.

The first enforceable plan under the Striped Bass Act, Amendment 3, was approved in 1985, and required size regulations to protect the 1982 year class – the first modest size cohort since the

[1] The 1997 reauthorization of the Striped Bass Act also required the Secretaries of Commerce and Interior provide a biennial report to Congress highlighting the progress and findings of studies of migratory and estuarine Striped Bass. The ninth such report was recently provided to Congress (Shepherd et al. 2017).

previous decade. The objective was to increase size limits to allow at least 95% of the females in the 1982 year class to spawn at least once. Smaller size limits were permitted in producer areas than along the coast. Several states, beginning with Maryland in 1985, opted for a more conservative approach and imposed a total moratorium on striped bass landings for several years. The amendment contained a trigger mechanism to relax regulations when the 3-year moving average of the Maryland juvenile abundance index (JAI) exceeded an arithmetic mean of 8.0 – which was attained with the recruitment of the 1989 year class. Also, in 1985, the Commission determined the Albemarle Sound-Roanoke River (A-R) stock in North Carolina contributed minimally to the coastal migratory population, and was therefore allowed to operate under an alternative management program.

Amendment 4, implemented in 1989, aimed to rebuild the resource rather than maximize yield. The amendment allowed state fisheries to reopen under a target fishing morality (F) of 0.25, which was half the estimated F needed to achieve maximum sustainable yield (MSY). The amendment allowed an increase in the target F once spawning stock biomass (SSB) was restored to levels estimated during the late 1960s and early 1970s. The dual size limit concept was maintained (coastal versus producer areas), and a recreational trip limit and commercial season was implemented to reduce the harvest to 20% of that in the historic period of 1972-1979. A series of four addenda were implemented from 1990-1994 to maintain protection of the 1982 year class.

In 1990, to provide additional protection to striped bass and ensure the effectiveness of state regulations, NOAA Fisheries passed a final rule (55 Federal Register 40181-02) prohibiting possession, fishing (catch and release fishing), harvest, and retention of Atlantic striped bass in the Exclusive Economic Zone (EEZ), with the exception of a defined transit zone within Block Island Sound. Atlantic striped bass may be transported through this defined area provided that the vessel is not used to fish while in the EEZ and the vessel remains in continuous transit, and that the fish were legally caught in adjoining state waters.

In 1995, the Atlantic striped bass migratory stock was declared recovered by the Commission (the A-R stock was declared recovered in 1997) and Amendment 5 was adopted to increase the target F to 0.33, midway between the existing F target (0.25) and $F_{MSY}$. Target F was allowed to increase again to 0.40 after two years of implementation. Regulations were developed to achieve the target F (which included measures to restore commercial harvest to 70% of the average landings during the 1972-1979 historical period) and states were allowed to submit proposals to implement alternative regulations that were deemed conservationally equivalent to the Amendment 5 measures. From 1997-2000, a series of five addenda were implemented to respond to the latest stock status information and adjust the regulatory program to achieve each change in target F.

*Amendment 6*

In 2003, Amendment 6 was adopted to address five limitations within the existing management program: 1) potential inability to prevent the Amendment 5 exploitation target from being exceeded; 2) perceived decrease in availability or abundance of large striped bass in the coastal migratory population; 3) a lack of management direction with respect to target and threshold biomass levels; 4) inequitable effects of regulations on the recreational and commercial fisheries, and coastal and

producer area sectors; and 5) excessively frequent changes to the management program. Accordingly, Amendment 6 completely replaced the existing FMP for Atlantic striped bass.[2]

The goal of Amendment 6 is "to perpetuate, through cooperative interstate management, migratory stocks of striped bass; to allow commercial and recreational fisheries consistent with the long-term maintenance of a broad age structure, a self-sustaining spawning stock; and also to provide for the restoration and maintenance of their essential habitat." In support of this goal, the following objectives are included:

1. Manage striped bass fisheries under a control rule designed to maintain stock size at or above the target female spawning stock biomass level and a level of fishing mortality at or below the target exploitation rate.
2. Manage fishing mortality to maintain an age structure that provides adequate spawning potential to sustain long-term abundance of striped bass populations.
3. Provide a management plan that strives, to the extent practical, to maintain coastwide consistency of implemented measures, while allowing the States defined flexibility to implement alternative strategies that accomplish the objectives of the FMP.
4. Foster quality and economically viable recreational, for-hire, and commercial fisheries.
5. Maximize cost effectiveness of current information gathering and prioritize state obligations in order to minimize costs of monitoring and management.
6. Adopt a long-term management regime that minimizes or eliminates the need to make annual changes or modifications to management measures.
7. Establish a fishing mortality target that will result in a net increase in the abundance (pounds) of age 15 and older striped bass in the population, relative to the 2000 estimate.

Amendment 6 modified the F target and threshold, and introduced a new set of biological reference points (BRPs) based on female SSB, as well as a list of management triggers based on the BRPs. The coastal commercial quotas were restored to 100% of the states' average landings during the 1972-1979 historical period, except for Delaware's coastal commercial quota which remained at the level allocated in 2002[3]. In the recreational fisheries, all states were required to implement a two-fish bag limit with a minimum size limit of 28 inches, except for the Chesapeake Bay fisheries, North Carolina fisheries that operate in the A-R, and states with approved alternative regulations. The Chesapeake Bay and A-R regulatory programs were predicated on a more conservative F target than the coastal migratory stock, which allowed these states/jurisdictions (hereafter states) to implement separate seasons, harvest caps, and size and bag limits as long as they remain under that F target. No minimum

[2] While NOAA Fisheries continues to implement a complete ban on the fishing and harvest of striped bass in the EEZ, Amendment 6 includes a recommendation to consider reopening the EEZ to striped bass fisheries. In September 2006, NOAA Fisheries concluded that it would be imprudent to open the EEZ to striped bass fishing because it could not be certain that opening the EEZ would not lead to increased effort and an overfishing scenario.

[3] The decision to hold Delaware's commercial quota at the 2002 level is based on tagging information that indicated F on the Delaware River/Bay stock is too high, and uncertainty regarding the status of the spawning stock for the Delaware River/Bay.

size limit can be less than 18 inches under Amendment 6. The same minimum size standards regulate the commercial fisheries as the recreational fisheries, except for a minimum 20 inch size limit in the Delaware Bay spring American shad gillnet fishery.

States are permitted the flexibility to deviate from these regulations by submitting conservation equivalency proposals to the Plan Review Team (PRT). All proposals are subject to technical review and approval by the Atlantic Striped Bass Management (Board). It is the responsibility of the state to demonstrate through quantitative analysis that the proposed management program is equivalent to the standards in the FMP, or will not contribute to the overfishing of the resource.

Five addenda to Amendment 6 have been implemented. Addendum I, approved in 2007, established a bycatch monitoring and research program to increase the accuracy of data on striped bass discards and recommended development of a web-based angler education program. Also in 2007, President George W. Bush issued an Executive Order (E.O. 13449) prohibiting the sale of striped bass (and red drum) caught within the EEZ. Addendum II was approved in 2010 and established a new definition of recruitment failure such that each index would have a fixed threshold rather than a threshold that changes annually with the addition of each year's data. Addendum III was approved in 2012 and requires all states with a commercial fishery for striped bass to implement a uniform commercial harvest tagging program. The Addendum was initiated in response to significant poaching events in the Chesapeake Bay and aims to limit illegal harvest of striped bass.

Addendum IV was triggered in response to the 2013 benchmark assessment, which indicated a steady decline in SSB since the mid-2000s. The Addendum established new F reference points, and changed commercial and recreational measures to reduce F to a level at or below the new target. Chesapeake Bay fisheries were required to implement lower reductions than coastal states (20.5% compared to 25%) since their fisheries were reduced by 14% in 2013 based on their management program. The addendum maintained the flexibility to implement alternative regulations through the conservation equivalency process. This practice has resulted in a variety of regulations among states. All states promulgated regulations prior to the start of their 2015 seasons.

Addendum VI was initiated in response to the 2018 benchmark assessment which indicated the stock is overfished and experiencing overfishing[4]. Approved in October 2019, the Addendum aimed to reduce total removals by 18% relative to 2017 levels in order to achieve F target in 2020. Specifically, the Addendum reduced all state commercial quotas by 18%, and implemented a 1 fish bag limit and a 28"to less than 35" slot limit for ocean fisheries and a 1 fish bag limit and an 18" minimum size limit in Chesapeake Bay to reduce total recreational removals by 18% in both regions. The Addendum's

[4] In February 2017, the Board initiated development of Draft Addendum V to consider liberalizing coastwide commercial and recreational regulations. The Board's action responded to concerns raised by Chesapeake Bay jurisdictions regarding continued economic hardship endured by its stakeholders since the implementation of Addendum IV and information from the 2016 stock assessment update indicating that F was below target in 2015, and that total removals could increase by 10% to achieve the target F. However, the Board chose to not advance the draft addendum for public comment largely due to harvest estimates having increased in 2016 without changing regulations. Instead, the Board decided to wait until it reviews the results of the 2018 benchmark stock assessment before considering making changes to the management program.

measures were designed to apply the needed reductions proportionally to both the commercial and recreational sectors, although states were permitted to submit alternative regulations through conservation equivalency that achieve an 18% reduction in total removals statewide. The Board reviewed and approved management options for 2020 on a state-by-state basis in February, and all states promulgated regulations by April 1.

Addendum VI also required the mandatory use of circle hooks when fishing with bait to reduce release mortality in recreational striped bass fisheries. States are encouraged to promote the use of circle hooks through various public outreach and education platforms to garner support and compliance with this important conservation measure. In October 2020, the Board approved state implementation plans for circle hook requirements, with the caveat that no exemptions to Addendum VI mandatory circle hook requirements will be permitted. Circle hook regulations were required to be implemented no later than January 1, 2021. In March 2021, the Board approved a clarification on the definition of bait and methods of fishing[5] that require circle hooks, which must be implemented by states as part of Addendum VI compliance. Per Commission standards, states could implement more restrictive measures. The Board also approved guidance on how to address incidental catch of striped bass when targeting other species with non-circle hooks with bait attached. This guidance was not a compliance criterion since incidental catch was not originally part of Addendum VI.

*Amendment 7*

Amendment 7 was approved in May 2022, and consolidates Amendment 6 and its associated addenda into a single document. The purpose of Amendment 7 is to update the management program to align with current fishery needs and priorities given the status and understanding of the resource and fishery has changed considerably since implementation of Amendment 6 in 2003. Amendment 7 builds upon the Addendum VI to Amendment 6 action to address overfishing and initiate rebuilding in response to the overfished finding from the 2018 stock assessment, requiring the Board to rebuild the stock by 2029. Amendment 7 established new requirements for the following components of the FMP: management triggers, conservation equivalency, additional measures to address recreational release mortality, and the stock rebuilding plan.

For management triggers, Amendment 7 established an updated recruitment management trigger that is more sensitive to low recruitment than the previous trigger, and it required a specific management response to low year class strength. The response requires re-evaluation of the fishing mortality management triggers to account for low recruitment. If one of those triggers trips after reevaluation, the Board is required to take action to reduce fishing mortality. Amendment 7 also updated the spawning stock biomass triggers by establishing a deadline for implementing a rebuilding plan. The Board must implement a rebuilding plan within two years of when a spawning stock biomass trigger is tripped.

[5] Definition of Bait and Methods of Fishing: Circle hooks are required when fishing for striped bass with bait, which is defined as any marine or aquatic organism live or dead, whole or parts thereof. This shall not apply to any artificial lure with bait attached.

For conservation equivalency (CE), Amendment 7 does not allow CE to be used for most recreational striped bass fisheries when the stock is overfished. Amendment 7 also provided constraints around the use of Marine Recreational Information Program data for CE proposals and defines the overall percent reduction/liberalization a proposal must achieve, including required uncertainty buffers. These restrictions are intended to minimize the risks due to uncertainty when CE is used for non-quota managed striped bass fisheries.

For recreational release mortality, Amendment 7 established a new gear restriction which prohibits gaffing striped bass when fishing recreationally. This is in addition to the existing circle hook requirement when fishing recreationally with bait. Additionally, Amendment 7 required striped bass caught on any unapproved method of take (e.g., caught on a J-hook with bait) must be returned to the water immediately without unnecessary injury. This provision, which is related to incidental catch, was previously a recommendation in Addendum VI to Amendment 6.

For stock rebuilding, Amendment 7 addressed the 2022 stock assessment and how it would inform efforts to meet the 2029 stock rebuilding deadline. Given concerns about recent low recruitment and the possibility of continued low recruitment, Amendment 7 required the 2022 stock assessment's rebuilding projections to use a low recruitment assumption to conservatively account for that future possibility. Amendment 7 also established a mechanism for the Board to respond more quickly to the 2022 assessment results if action was needed to achieve stock rebuilding by 2029.

All provisions of Amendment 7 were effective May 5, 2022 except for gear restrictions. States had to implement new gear restrictions by January 1, 2023. Amendment 7 also maintained the same recreational and commercial measures specified in Addendum VI to Amendment 6, which were implemented in 2020. As such, all approved Addendum VI conservation equivalency programs and state implementation plans are maintained until such measures are changed in the future.

*Addendum I to Amendment 7*

Addendum I to Amendment 7 was approved in May 2023 to allow for voluntary ocean commercial quota transfers contingent on stock status. The addendum was developed to provide some, more immediate relief to states seeking a change to their commercial quota after the Board decided that changes to the commercial quota system would not be considered in the then ongoing development of Draft Amendment 7. When the stock is overfished, no quota transfers will be allowed. When the stock is not overfished, the Board can decide every one to two years whether it will allow voluntary transfers of ocean commercial quota. The Board can also set criteria for allowable transfers, including a limit on how much and when quota can be transferred in a given year, and the eligibility of a state to request a transfer based on its landings.

*2023 Emergency Action*

The Board approved an emergency action in May 2023 to change the recreational size limit to 28 – 31", effective for 180 days from May 2, 2023 through October 28, 2023. This action responded to the unanticipated magnitude of 2022 recreational harvest, which was nearly double that of 2021, and new stock rebuilding projections, which estimate the probability of the spawning stock rebuilding to its

biomass target by 2029 drops from 97% under the lower 2021 fishing mortality rate to less than 15% if the higher 2022 fishing mortality rate continues each year.

The Board implemented the emergency 31-inch maximum size limit for 2023 to reduce harvest of the strong 2015-year class. The 31-inch maximum size limit applies to all existing recreational fishery regulations where a higher (or no) maximum size applies, excluding the May Chesapeake Bay trophy fisheries which already prohibit harvest of fish less than 35 inches. All bag limits, seasons, and gear restrictions will remain the same. Jurisdictions were required to implement the required measure as soon as possible but no later than July 2, 2023. If it deems necessary, the Board may extend the emergency action for two additional periods of up to one year each at a future Board meeting.

*Pending Action*

The Board initiated Addendum II to Amendment 7 in May 2023 to address the concerns about increased removals and stock rebuilding beyond 2023. The Draft Addendum is intended to follow the 2023 emergency action, and will consider 2024 management measures designed to reduce fishing mortality to the target. Specifically, the Draft Addendum will propose options for the ocean recreational fishery, including modifications to the slot limit with harvest season closures as a secondary non-preferred option. It will also propose options for the Chesapeake Bay recreational fisheries, as well as all commercial fisheries, including maximum size limits.

For measures beyond 2024, the Board intends to consider the results of the upcoming 2024 stock assessment update to inform subsequent management action. To enable an expedited management response to the 2024 stock assessment update, the Draft Addendum will propose a provision that would enable the Board to respond to the results of the stock assessment updates via Board action if the stock is projected to not rebuild by 2029.

The Board will consider Draft Addendum II at the Summer 2023 Meeting, when it will consider approving the document for public comment.

## II. Status of the Stocks

The biological reference points (BRPs) currently used for management are based on the 1995 estimate of female spawning stock biomass (SSB). The 1995 estimate of female SSB is used as the SSB threshold because many stock characteristics (such as an expanded age structure) were reached by this year and the stock was declared recovered. The SSB target is equal to 125% of SSB threshold.

The accepted model is a forward projecting statistical catch-at-age (SCA) model which uses catch-at-age data and fishery-dependent and -independent survey indices to estimate annual population size and fishing mortality (NEFSC 2019). Indices of abundance track relative changes in the population over time while catch data provide information on the scale of the population size. Age structure data (numbers of fish by age) provide additional information on recruitment (number of age-1 fish entering the population) and trends in mortality.

The most recent assessment for striped bass was an update completed in 2022 with data through 2021 (ASMFC 2022a). Prior to this, the 2018 Benchmark Stock Assessment had determined that striped bass were overfished and experiencing overfishing in the terminal year (2017) (NEFSC 2019). Following the implementation of new management measures in 2020, the 2022 Stock Assessment Update found that the stock was no longer experiencing overfishing in 2021 ($F$ = 0.14, below the threshold of 0.20 and the target of 0.17) but remained overfished (Female SSB = 143 million pounds, below both the target of 235 million pounds and the threshold of 188 million pounds) (Figures 1 and 2). These reference points were calculated using the "low recruitment assumption" (per Amendment 7's requirement under a tripped recruitment trigger), which resulted in a lower, more conservative F target and threshold compared to the 2018 benchmark assessment. Although below the threshold and considered overfished, female SSB in 2021 was still estimated to be more than three-times of that during the early 1980s, when the stock was considered collapsed (Figure 1).

The 2022 assessment also indicated a period of strong recruitment (numbers of age-1 fish entering the population) from 1994–2004, followed by a period of low recruitment from 2005–2011 (although not as low as the period of stock collapse in the early 1980s) (Figure 1). This period of low recruitment contributed to the decline in SSB that the stock has experienced since 2010. Recruitment of age-1 fish was high in 2012, 2015, 2016, and 2019 (corresponding to strong 2011, 2014, 2015, and 2018 year classes, respectively); however, estimates of age-1 striped bass were below the long-term average in 2018, 2020, and 2021. Recruitment in 2021 was estimated at 116 million age-1 fish, which is below the time series average of 136 million fish.

The 2022 assessment also included short-term projections to determine the probability of SSB being at or above the SSB target by 2029. These projections used the "low recruitment assumption", which restricts the estimates of age-1 recruitment to those occurring during 2008–2021, rather than the longer time series of 1993–2021. These projections indicated that under the 2021 fishing mortality rate, there was a 97% probability the stock will be rebuilt by 2029.

However, concerns over high recreational removals in 2022 compared to 2021, the terminal year of the most recent assessment update, prompted the Board to request updated stock projections using 2022 preliminary removals. These estimates of preliminary 2022 removals and updated stock projections were presented to the Board in May 2023. These 2022 removals were used to estimate $F$ in 2022. Since striped bass catch and F rates vary from year-to-year (even under the same regulations), the average $F$ from 2019-2022 (excluding 2020 due to uncertainty associated with COVID-19 impacts) was applied to 2023-2029 in the new projections. Under this $F$ rate, the new projections estimate the probability of rebuilding SSB to its target by 2029 drops from 97% to 15%.

It should be noted that these projections are not the same as a full stock assessment update where the model would be re-run to include the 2022 catch-at-age and index data. Accordingly, the status of the stock remains overfished but no longer experiencing overfishing as per the 2022 stock assessment update. The next stock assessment for striped bass is currently scheduled for 2024 (an update with data through 2023).

## III. Status of the Fishery in the Ocean and Chesapeake Bay

*Total Removals*

In 2022, total Atlantic striped bass removals (commercial and recreational, including harvest, commercial dead discards and recreational release mortality) were estimated at 6.8 million fish, which is a 32% increase from 2021 total removals (Table 3; Figure 5). This 2022 increase was driven by an increase in recreational removals, as commercial removals slightly decreased. In 2022, the commercial sector accounted for about 10% of total removals in numbers of fish (9% harvest and 1% dead discards), and the recreational sector accounted for 90% of removals in numbers of fish (51% harvest and 39% release mortality) (Table 4).

*Commercial Fishery*

The commercial fishery (ocean and Chesapeake Bay) harvested 4.28 million pounds (599,615 fish) in 2022, which is a 7% decrease by weight relative to 2021 (1% decrease by number; Tables 5-6).

The ocean commercial quota utilization slightly increased from 76% in 2021 to 79% in 2022, with two New England states (Massachusetts and Rhode Island) reporting quota overages. This is the highest ocean quota utilization in the past five years; ocean quota utilization in 2020-2021 was particularly low at 51% and 55%, respectively. In the ocean, each state that allows commercial harvest utilized 97-109% of their ocean quota in 2022, with the exception of North Carolina which had zero ocean harvest.

In the Chesapeake Bay, quota utilization slightly decreased from 83% in 2021 to 80% in 2022. In the past five years, 2018-2019 were the highest quota utilization years at about 91-92% utilized, while 2020 was the lowest recent quota utilization at 76%.

Quota utilization is important to consider when calculating reductions in commercial removals. The projections for Addendum VI assumed the same quota utilization rate as 2017. As quota utilization changes from year to year, the realized reduction in commercial removals will change.

The PRT notes there are several factors that contribute to changes in commercial harvest levels under the same quota level from 2020-2022. Year class availability could be a factor, particularly in the ocean, with the relatively strong 2015-year class becoming more available to ocean fisheries. If stock abundance is increasing overall, that could also contribute to more fish being available. Availability also depends on when and how long striped bass stay within state waters (vs. offshore in the EEZ) during the season. Another factor is the impacts of COVID-19 during 2020-2021, but those impacts likely varied among states, varied between 2020 and 2021, and varied depending on timing within the season.

Commercial harvest from Chesapeake Bay accounted for 55% of the 2022 total commercial harvest by weight. Of total commercial harvest (combined ocean and Chesapeake Bay) by weight, Maryland landed 31%, Virginia landed 20%, and Massachusetts landed 18% (Table 6; Figure 6). Additional harvest came from New York (15%), the Potomac River (10%), Rhode Island (4%), and Delaware (3%). The proportion of commercial harvest coming from Chesapeake Bay is much higher in numbers of fish; roughly 81% in 2022 (Table 7). This is because fish harvested in Chesapeake Bay have a lower average

weight than fish harvested in ocean fisheries. In 2022, coastwide commercial dead discards were estimated at 81,200[6] fish, which accounts for about 1% of total removals in 2022 (Table 3).

From 2004-2014, coastwide commercial landings averaged 6.8 million pounds per year. From 2015-2019, commercial landings decreased to an average of 4.7 million pounds due to implementation of reduced quotas through Addendum IV. From 2020-2022, coastwide commercial landings decreased again to an average 4.1 million pounds due to further reduced quotas through Addendum VI.

*Recreational Fishery*

Total recreational catch (harvest and live releases) coastwide was estimated at 33.1 million fish in 2022, which is a 38% increase from 2021 (Table 8). This overall coastwide increase was a combination of a large increase in harvest and a marginal increase in live releases.

Under the same management measures as 2020-2021, total recreational harvest in 2022 increased to 3.4 million fish (35.8 million pounds), which is an 88% increase by number relative to 2021 (127% increase by weight) (Tables 9-10). This increase was likely due to the increased availability of the strong 2015-year class in the ocean slot in 2022. New Jersey landed the largest proportion of recreational harvest in number of fish[7] (33%), followed by New York (26%), Maryland (19%), and Massachusetts (14%) (Table 10). The proportion of coastwide recreational harvest in numbers from Chesapeake Bay was estimated at 20% in 2022, compared to 35% in 2021. By weight, the proportion of recreational harvest from the Chesapeake Bay was estimated at 9% in 2022, compared to 20% in 2021. This decrease in the proportion of recreational harvest from the Chesapeake Bay, and therefore increased proportion of ocean recreational harvest, aligns with the availability of the strong 2015-year class in the ocean fishery.

The vast majority of recreational striped bass catch (over 90%) is released alive either due to angler preference or regulation (i.e., closed season, undersized, or already caught the bag limit) (Figure 7). The stock assessment assumes, based on previous studies, that 9% of fish that are released alive die as a result of being caught. In 2022, recreational anglers caught and released an estimated 29.6 million fish, of which 2.7 million are assumed to have died (Table 8). This represents a 3% increase in live releases coastwide from 2021.

In 2022, combined private vessel/shore modes of the recreational striped bass fishery accounted for 95% of recreational removals, and the for-hire components (charter and head boats) accounted for 5%. Coastwide in 2022, private vessel/shore mode recreational removals increased by 42% relative to 2021, while for-hire recreational removals decreased by 7%. However, this trend differs by region and by mode. In the ocean, private vessel/shore mode removals increased by 52% and for-hire removals

[6] Commercial dead discard estimate for 2022 was estimated using the harvest-to-discard ratio from 2021. The entire time series for commercial dead discards will be re-estimated during the 2024 stock assessment using a generalized additive model (GAM).

[7] By weight, New Jersey had the largest proportion of recreational harvest (38%), followed by New York (30%), Massachusetts (15%), and Maryland (9%).

increased by 22% in 2022. In the Chesapeake Bay, private vessel/shore mode removals increased by only 3%, and for-hire removals decreased by 27%.

The ocean and Chesapeake Bay regions experienced different changes in recreational catch in 2022 relative to 2021. The ocean region saw an increase in both recreational harvest (132% increase in numbers of fish) and live releases (7% increase) relative to 2021. On the other hand, the Chesapeake Bay saw a much smaller increase in recreational harvest (7% increase) and a decrease in live releases (18% decrease) relative to 2021. Again, the large increase in ocean recreational harvest is likely due to the availability of the strong 2015 year class in the ocean slot in 2022, when many of those age-7 fish reached a length above the legal minimum size of 28 inches.

The number of trips directed at striped bass (primary and secondary target) also shows a differing trend between the ocean and the Chesapeake Bay. In 2022, the number of ocean directed trips increased by 31% relative to 2021, while the number of Chesapeake Bay directed trips decreased slightly by about 2% (Table 12).

The PRT notes there are several factors that contribute to trends in recreational catch and effort, including year class availability, overall stock abundance, nearshore availability of bait and striped bass, and angler behavior. The relatively strong 2015-year class moving into the ocean and becoming available to the ocean slot (i.e., those 2015-year class fish surpassing 28-inches), is likely the primary driver of increased recreational catch in the ocean in 2022. Angler effort and behavior is also important to consider; when more fish are available in the fishery, effort can often increase in response.

## IV. Albemarle Sound and Roanoke River Management Area

*Fishery Management Plan*

While striped bass in North Carolina's ocean waters are managed under the Interstate FMP, Addendum IV to Amendment 6 formally defers management of the A-R stock to the state of North Carolina using A-R stock-specific BRPs approved by the Board (NCDMF 2013, 2014).

Estuarine striped bass in North Carolina are currently managed under Amendment 1 to the North Carolina Estuarine Striped Bass Fishery Management Plan (FMP) and its subsequent revision and recent supplement (NCDMF 2013, 2014, 2019). It is a joint plan between the North Carolina Marine Fisheries Commission (NCMFC) and the North Carolina Wildlife Resources Commission (NCWRC). Amendment 1, adopted in 2013, lays out separate management strategies for the Albemarle Sound-Roanoke River (A-R) stock and the estuarine (non-migratory) Central and Southern striped bass stocks in the Tar-Pamlico, Neuse, and Cape Fear rivers. Management programs in Amendment 1 for the A-R stock utilize annual total allowable landings (TAL), daily possession limits, open and closed harvest seasons, gill net mesh size and yardage restrictions, seasonal small mesh gill net attendance requirements, single barbless hook requirements in some areas, minimum size limits, and a no-harvest slot limit in the Roanoke River to maintain a sustainable harvest and reduce regulatory discard mortality in all sectors.

Amendment 2 to the North Carolina Estuarine Striped Bass FMP was adopted in November 2022. Amendment 2 maintains for the A-R stock the use of a TAL to manage harvest as informed by stock

assessments, and requires pound for pound payback for any overages. The Roanoke River Management Area continues to have a 18-22" harvest slot limit, and the Albemarle Sound Management Area has a new 18-25" harvest slot limit to protect larger striped bass. Single barbless hooks are still required in the Roanoke River from April-June, and a new requirement to use non-offset barbless circle hooks when fishing with bait in the inland Roanoke River waters is in place from May-June. Adaptive management continues to allow for adjustments to the TAL, bag limits, seasons, and gear.

As of May 2022, striped bass fisheries in the Atlantic Ocean of North Carolina are now managed under ASMFC's Amendment 7 to the Interstate FMP. North Carolina is required to inform the Commission of changes to striped bass management in the A-R System.

*Status of the Albemarle Sound-Roanoke River Striped Bass Stock*

The most recent A-R stock assessment, the 2022 Stock Assessment Update, uses a forward-projecting fully-integrated, age-structured statistical model estimating population parameters and reference points for the A-R striped bass stock for 1991-2021 (Lee et al. 2022). The 2022 stock assessment is an update of the 2020 Benchmark Stock Assessment (Lee et al. 2020). The 2020 benchmark stock assessment model was peer reviewed by an outside panel of experts and approved for management use by the Board in May 2021. The 2022 assessment update was also peer reviewed in January 2023.

The A-R stock is managed using reference points for female spawning stock biomass (SSB) and fishing mortality (*F*) with threshold values based on 35% spawning potential ratio and target values based on 45% spawning potential ratio. The 2022 assessment estimated female SSB in 2021 (terminal year) was 16.1 metric tons, which is below the SSB threshold of 125 metric tons. The assessment estimated *F* in 2021 was 0.77, which is above the *F* threshold of 0.22. These results indicate the stock is overfished and overfishing is occurring (Figures).

| | ***Target*** | ***Threshold*** | ***Terminal Year (2021) Estimate*** |
|---|---|---|---|
| ***Female SSB*** | 164 metric tons | 125 metric tons | 16 metric tons |
| ***Fishing Mortality (F)*** | 0.14 | 0.20 | 0.77 |

Due to the depressed condition of the stock, the population will be monitored through an annual review of data and the stock assessment will be updated if warranted.

In response to similar findings from the previous 2020 stock assessment, North Carolina implemented a 2020 Revision to Amendment 1 that lowered the annual TAL for Albemarle Sound and Roanoke River management areas in order to reduce *F* to the target level. The current TAL is 51,216 pounds, which is a 57% reduction from 2017 landings (NCDMF 2020). The TAL remains in place until a new TAL is determined.

*Albemarle Sound and Roanoke River Atlantic Striped Bass Fisheries*

In 2022, commercial harvest in the ASMA was 24,026 pounds (4,824 fish). There is no commercial harvest in the RRMA. Recreational harvest in the ASMA was 8,417 pounds (2,789 fish), and recreational harvest in the RRMA was 6,069 pounds (1,949 fish).

## V. Status of Research and Monitoring

Amendment 6, its Addenda I-VI, and Amendment 7 (approved May 2022) set the regulatory and monitoring measures for the coastwide striped bass fishery for 2022. Amendments 6 and 7 require certain states to implement fishery-dependent monitoring programs for striped bass. All states with commercial fisheries or substantial recreational fisheries are required to define the catch and effort composition of these fisheries. Additionally, all states with a commercial fishery must implement a commercial harvest tagging program.

Amendments 6 and 7 also require certain states to monitor the striped bass population independent of the fisheries. Juvenile abundance surveys are required from Maine (Kennebec River), New York (Hudson River), New Jersey (Delaware River), Maryland (Chesapeake Bay tributaries), Virginia (Chesapeake Bay tributaries), and North Carolina (Albemarle Sound). Spawning stock sampling is mandatory for New York (Hudson River), Pennsylvania (Delaware River), Delaware (Delaware River), Maryland (Upper Chesapeake Bay and Potomac River), Virginia (Rappahannock River and James River), and North Carolina (Albemarle Sound-Roanoke River). NOAA Fisheries, USFWS, Massachusetts, New York, New Jersey, Maryland, Virginia, and North Carolina are also required to continue their tagging programs, which provide data used to determine survivorship and migration patterns.

## VI. Status of Management Measures and Issues

*Ocean Commercial Quota*

In 2022, the ocean commercial quota was 2,411,154 pounds and was not exceeded. While two states (Massachusetts and Rhode Island) reported overages, the total ocean quota was not exceeded. Table 11 contains final 2022 quotas per Addendum VI and approved conservation equivalency programs and harvest that occurred in 2022.

*Chesapeake Bay Commercial Quota*

In 2022, the Chesapeake Bay-wide quota was 3,001,648 pounds and was allocated to Maryland, the PRFC, and Virginia based on historical harvest. In 2022, the Bay-wide quota was not exceeded. Table 11 contains jurisdiction-specific quotas and harvest that occurred in 2022 for Chesapeake Bay[8].

*Chesapeake Bay Spring Harvest of Migrant Striped Bass*

Historically, recreational fishermen in Chesapeake Bay are permitted to take adult migrant fish during a limited seasonal fishery, commonly referred to as the Spring Trophy Fishery. From 1993 to 2007 the fishery operated under a quota. Beginning in 2008, the Board approved non-quota management until stock assessment indicates that corrective action is necessary to reduce *F* on the coastal stock. The

[8] Maryland commercial landings for 2022 are considered preliminary.

Spring Trophy Fishery is currently managed via bag limits and minimum sizes and Maryland and the Potomac River. The Commonwealth of Virginia closed the spring trophy season beginning in 2019.

The 2022 estimate of migrant fish harvested during the Maryland trophy season from May 1-May 15 was 1,365 fish (486 by charter vessels; 879 fish by private vessels).

For the entire time period of May 1 through June 15 when migrant fish are available to the Chesapeake Bay fisheries, a total of 2,814 migrant fish were harvested in Maryland (937 fish by charter vessels; 1,877 fish by private vessels), which is a 53% decrease compared to 2021 and below the 2006-2022 average of 33,075 fish.

*Wave-1 Recreational Harvest Estimates*

Evidence suggests that North Carolina, Virginia, and possibly other states have had sizeable wave-1 (January/February) recreational striped bass fisheries beginning in 1996 (NEFSC 2018b). MRIP, formerly the Marine Recreational Fisheries Statistics Survey (MRFSS), has sampled for striped bass in North Carolina during wave-1 since 2004 (other states are not currently covered during wave-1). Virginia harvest in wave-1 is estimated for stock assessment via the ratio of landings and tag returns in wave-6 and regression analysis (refer to the methods described in NEFSC 2018a for more detail).

However, based on fishery-independent data collected by NCDMF, ASMFC and USFWS, striped bass distributions on their overwintering grounds during December through February has changed significantly since the mid-2000s. The migratory portion of the stocks has been well offshore in the EEZ (>3 miles) affecting both Virginia's and North Carolina's striped bass winter ocean fisheries in recent years. Furthermore, North Carolina has reported zero recreational striped bass harvest during wave-1 and wave-6 in the ocean for 2012-2022, and Virginia has reported zero recreational ocean harvest for seven of the last nine years. Similarly, North Carolina's commercial fishery has reported zero striped bass landings from the ocean since 2013.

*Addendum III to Amendment 6/Amendment 7 Section 3.1.1: Commercial Fish Tagging Program*

Addendum III to Amendment 6 and Section 3.1.1 of Amendment 7 include compliance requirements for monitoring commercial fishery harvest tagging programs. In 2022, all states implemented commercial tagging programs consistent with the tagging program requirements. Table 16 describes commercial tagging programs by state.

The PRT emphasizes the importance of tag accounting to account for unused tags at the end of each fishing year in all states. Due to the early deadlines for commercial tagging reports (60 days before the commercial fishery opens), tag accounting for the previous year is often preliminary or not yet available at that time. To address this, the PRT reiterates the importance of states reporting all tag accounting results in their annual state compliance reports (i.e., tags issues, tags used, tags returned, tags missing/broken/not accounted for). The PRT recommends that Commission staff work with the Law Enforcement Committee and the PRT to regularly follow-up with all states on tag accounting and other questions about state commercial tagging programs as needed. Additionally, the PRT recommends the Board task the PRT with a specific review of the commercial tagging program in the

near-term to review the program components, such as the biological metrics used to allocate tags, since it has been ten years since the tagging program was implemented.

*Addendum VI to Amendment 6: 18% Reduction in Removals*

2022 was the third implementation year of Addendum VI, which implemented measures to reduce total striped bass removals by 18% relative to 2017 levels in order to achieve the fishing mortality target in 2020. Tables 13a-13c list total removals (harvest plus discards/release mortality for commercial and recreational) in numbers of fish for 2017 and 2020-2022. In 2022, only a 3.5% reduction in total removals coastwide (numbers of fish) was realized relative to total removals coastwide in 2017. Again, this is due to the increase in ocean recreational harvest in 2022 with the availability of the strong 2015 year-class. For the ocean region in 2022, total ocean removals were 15% above total ocean removals in 2017. On the other hand, for the Chesapeake Bay in 2022, total Bay removals were 37% below 2017 Bay removals in 2017.

Tables 14 and 15 list the realized change for recreational removals (in numbers of fish) and commercial harvest (in pounds) by state for 2017, 2021, and 2022. Table 14 also includes the predicted reduction in recreational removals from state conservation equivalency plans, where applicable. The PRT notes that differences in performance are influenced by many factors, including changes in effort, fish availability/year classes, and environmental factors, even under the same management measures. The TC has discussed the challenge of trying to evaluate performance since the effects of different management measures cannot be isolated from the effects of effort changes and fish availability. There is a lot of year-to-year variability even under consistent regulations due to different year classes moving through the stock and variability in effort and angler behavior. During the TC's review of Addendum VI conservation equivalency proposals in 2019, the TC noted there is a high level of uncertainty in the percent reductions calculated due to the effect of changes in angler behavior (effort) and the size structure and distribution of the population (availability of legal and sub-legal fish), and these changes are difficult to account for and cannot be accurately quantified.

*Amendment 7 Recreational Gear Requirements*

All states have implemented the required circle hook regulations. The PRT notes differences among the definitions of bait implemented by the states (see FMP Review for 2021 Fishing Year) with some definitions being more restrictive than the Board-approved definition. A few states have not defined bait, which could be considered more restrictive (per Commission standards, states can implement more restrictive measures). Additionally, some state regulations are more restrictive by not specifying any exemptions, as compared to the Board-approved exemption for bait on artificial lures.

Amendment 7 includes two additional recreational gear requirements required to be implemented by January 1, 2023 regarding gaffing and incidental catch:

- It shall be unlawful for any person to gaff or attempt to gaff any striped bass at any time when fishing recreationally.
- Striped bass caught on any unapproved method of take must be returned to the water immediately without unnecessary injury.

The PRT notes that all states have prohibited gaffing, except for the District of Columbia (DC) which does not specifically prohibit gaffing, but notes that gaffing is not listed as a legal gear in DC. For the incidental catch requirement, many states have implemented the provision as written (or nearly as written) in Amendment 7, but some states have referred to alternative regulatory language to meet the requirement (Table 18). Most alternative language notes that anglers can only take or catch striped bass via methods/gear that are legally allowed in that state's regulations.

*Juvenile Abundance Index Analysis*

The following states are required to conduct striped bass young-of-year juvenile abundance index (JAI) surveys on an annual basis: Maine for the Kennebec River; New York for the Hudson River; New Jersey for the Delaware River; Maryland for the Maryland Chesapeake Bay tributaries; Virginia for the Virginia Chesapeake Bay tributaries; and North Carolina for the A-R stock.

The PRT and the Striped Bass Technical Committee (TC) annually review the JAIs per the recruitment trigger specified in the FMP. As of May 2022, the new Amendment 7 recruitment trigger is effective and reads as follows:

> If any of the four JAIs used in the stock assessment model to estimate recruitment (NY, NJ, MD, VA) shows an index value that is below 75% of all values (i.e., below the 25th percentile) in the respective JAI from 1992-2006* (which represents a period of high recruitment) for three consecutive years, then an interim F target and interim F threshold calculated using the low recruitment assumption will be implemented, and the F-based management triggers will be reevaluated using those interim reference points. If an F-based trigger is tripped upon reevaluation, the striped bass management program must be adjusted to reduce F to the interim F target within one year.

For the 2023 review of JAIs, the analysis evaluates the 2020, 2021, and 2022 JAI values per the Amendment 7 recruitment trigger. One state (Maryland) met the criteria of the Amendment 7 recruitment trigger (Figure 8). Maryland's JAI values for 2020 (1.12), 2021 (1.65), and 2022 (1.78) were below the Maryland JAI trigger level of 4.16. This trips the recruitment trigger in 2023, requiring *F* reference points using the low recruitment assumption to be calculated, which already occurred during the 2022 stock assessment update. The current reference points from the 2022 stock assessment update already use the low recruitment assumption.

New York's JAI (Hudson River) was above its trigger level (11.70) from 2020-2022 with values ranging from 15.89 to 35.39. New Jersey's JAI (Delaware River) was below its trigger level (1.07) in 2021 and 2022 with values of 0.67 and 0,77, respectively. A 2020 JAI value for New Jersey is not available due to COVID-19 restrictions. Virginia's JAI was above its trigger level (8.22) in 2020 with a value of 13.89, but fell below the trigger level in 2021 and 2022 with values of 6.3 and 7.95, respectively.

Maine's JAI (Kennebec River) and North Carolina's JAI (Albemarle-Roanoke) are not part of the recruitment trigger, but are still required monitoring for those states (Figure 9). Maine's JAI was below the level of recruitment failure in both 2020 and 2021 with values of 0.02 and 0.0, respectively. North Carolina's JAI value in 2022 was 0.5, the fifth consecutive year below the level of recruitment failure.

*Law Enforcement Reporting*

States are asked to report any law enforcement issues that occurred the previous season in annual compliance reports. The most common violations noted coastwide were recreationally harvested fish under or over the legal size limit.

## VII. Plan Review Team Comments and Recommendations

A summary of 2022 fishery regulations by state is provided in Table 1 and Table 2. Each state's commercial tag monitoring program is described in Table 16 and state compliance with fishery-independent and -dependent monitoring requirements are summarized in Table 17.

**Based on annual state compliance reports (ASMFC 2023), the PRT determined that all states in 2022 implemented a management and monitoring program consistent with the provisions of Addendum VI to Amendment 6 and Amendment 7 (effective May 2022).**

The PRT had previously noted inconsistencies with Addendum VI implementation, including New York's inclusive slot limit and Maryland's summer closure dates, which are described in the FMP Reviews for the 2021 and 2020 Fishing Years (ASMFC 2022b, ASMFC 2021). The Board did not express any concern with these inconsistencies during prior compliance reviews.

The PRT developed the following **recommendations**:

- The PRT reiterates the importance of states reporting all tag accounting results in their annual state compliance reports (i.e., tags issues, tags used, tags returned, tags missing/broken/not accounted for). The PRT recommends that Commission staff work with the Law Enforcement Committee and the PRT to regularly follow-up with all states on tag accounting and other questions about state commercial tagging programs as needed.

- The PRT recommends the Board task the PRT with a specific review of the commercial tagging program in the near-term to review the program components, such as the biological metrics used to allocate tags, since it has been ten years since the tagging program was implemented.

The PRT notes the following **additional comments**:

- All states have prohibited gaffing, except for the District of Columbia (DC) which does not specifically prohibit gaffing, but notes that gaffing is not listed as a legal gear in DC. For the incidental catch requirement, many states have implemented the provision as written (or nearly as written) in Amendment 7, but some states have referred to alternative regulatory language to meet the requirement (Table 18). Most alternative language notes that anglers can only take or catch striped bass via methods/gear that are legally allowed in that state's regulations. **If the Board has any concerns with the proposed alternative language, the Board should discuss those concerns as soon as possible.**

- While the New York spawning stock monitoring program in the Hudson River does meet the FMP's fishery-independent monitoring requirements, it does not provide an index of relative

abundance to characterize the Hudson River stock which was identified as a high priority research recommendation at SAW 66.

## VIII. Research Recommendations

Research recommendations were developed by the 2018 Benchmark Stock Assessment Subcommittee and the 66th SARC and are listed in the final stock assessment report starting on report page 569 (NEFSC 2019).

## IX. References

ASMFC. 2021. Review of the Interstate Fishery Management Plan for Atlantic Striped Bass (*Morone saxatilis*): 2020 Fishing Year.

ASMFC. 2022a. Atlantic Striped Bass Stock Assessment Update, Atlantic States Marine Fisheries Commission, Arlington, VA. 191p.

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Lee, L.M., T.D. Teears, Y. Li, S. Darsee, and C. Godwin (editors). 2020. Assessment of the Albemarle Sound-Roanoke River striped bass (*Morone saxatilis*) in North Carolina, 1991-2017. North Carolina Division of Marine Fisheries, NCDMF SAP-SAR-2020-01, Morehead City, North Carolina. 171 p.

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North Carolina Department of Marine Fisheries (NCDMF). 2013. Amendment 1 to the North Carolina Estuarine Striped Bass Fishery Management Plan. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. Morehead City, NC. 826 pp.

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NCDMF. 2020. November 2020 Revision to Amendment 1 to the North Carolina Estuarine Striped Bass Fishery Management Plan. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. Morehead City, NC. 12 pp.

Northeast Fisheries Science Center (NEFSC). 2019a. 66th Northeast Regional Stock Assessment Workshop (66th SAW) Assessment Report. US Dept Commer. Northeast Fish Sci Cent Ref Doc. 19-08; 719 p.

Northeast Fisheries Science Center (NEFSC). 2019b. 66th Northeast Regional Stock Assessment Workshop (66th SAW) Assessment Summary Report. US Dept Commer. Northeast Fish Sci Cent Ref Doc. 19-01; 45 p.

Shepherd, G.R., R.W. Laney, M. Appelman, D. Honabarger and C.L. Wright. 2017. Biennial Report to Congress on the Progress and Findings of Studies of Striped Bass Populations --2017. National Marine Fisheries Service, Silver Spring, MD. 11 p.

## X. Tables

Table 1. Summary of Atlantic striped bass commercial regulations in 2022. Source: 2023 State Compliance Reports. Minimum sizes and slot size limits are in total length (TL). *Commercial quota reallocated to recreational bonus fish program.

| STATE | SIZE LIMITS (TL) and TRIP LIMITS | SEASONAL QUOTA | OPEN SEASON |
|---|---|---|---|
| **ME** | Commercial fishing prohibited | | |
| **NH** | Commercial fishing prohibited | | |
| **MA** | ≥35" minimum size; no gaffing undersized fish. 15 fish/day with commercial boat permit; 2 fish/day with rod and reel permit. | 735,240 lbs. Hook & Line only. | 6.16-11.15 (or when quota reached); open fishing days of Monday, Tuesday and Wednesday, with Thursday and Friday added on October 1 (if quota remains). Cape Cod Canal closed to commercial striped bass fishing. |
| **RI** | Floating fish trap: 26" minimum size unlimited possession limit until 70% of quota reached, then 500 lbs. per licensee per day | Total: 148,889 lbs., split 39:61 between the trap and general category. Gill netting prohibited. | 4.1 – 12.31 |
| | General category (mostly rod & reel): 34" min. 5 fish/vessel/day limit. | | 5.20-6.30; 7.1-12.31, or until quota reached. Closed Fridays, Saturdays, and Sundays during Jul-Dec. |
| **CT** | Commercial fishing prohibited; bonus program in CT suspended indefinitely in 2020. | | |
| **NY** | 26"-38" size; (Hudson River closed to commercial harvest) | 640,718 lbs. Pound Nets, Gill Nets (6-8"stretched mesh), Hook & Line. | 5.15 – 12.15, or until quota reached. Limited entry permit only. |
| **NJ*** | Commercial fishing prohibited; bonus program: 1 fish/permit at 24" to <28" | 215,912 lbs. | 5.15 – 12.31 (permit required) |
| **PA** | Commercial fishing prohibited | | |
| **DE** | Gill Net: 20" min in DE Bay/River during spring season. 28" in all other waters/seasons. | Gillnet: 135,350 lbs. No fixed nets in DE River. | Gillnet: 2.15-5.31 (2.15-3.30 for Nanticoke River) & 11.15-12.31; drift nets only 2.15-28 & 5.1-31; no trip limit. |
| | Hook and Line: 28" min | Hook and line: 7,124 lbs. | Hook and Line: 4.1–12.31, 200 lbs./day trip limit |

(Table 1 continued – Summary of commercial regulations in 2022).

| STATE | SIZE LIMITS (TL) and TRIP LIMITS | SEASONAL QUOTA | OPEN SEASON |
|---|---|---|---|
| **MD** | Chesapeake Bay and Rivers: 18–36”<br>Common pool trip limits:<br>Hook and Line - 250 lbs./license/week<br>Gill Net - 300 lbs./license/week | 1,445,394 lbs. (part of Bay-wide quota) | Bay Pound Net: 6.1-12.31<br>Bay Haul Seine: 1.1-2.28; 6.1-12.31<br>Bay Hook & Line: 6.1-12.31<br>Bay Drift Gill Net: 1.1-2.28, 12.1-12.31 |
| | Ocean: 24” minimum | Ocean: 89,094 lbs. | 1.1-5.31, 10.1-12.31 |
| **PRFC** | 18” min all year; 36” max 2.15–3.25 | 572,861 lbs. (split between gear types; part of Bay-wide quota) | Hook & Line: 1.1-3.25, 6.1-12.31<br>Pound Net & Other: 2.15-3.25, 6.1-12.15<br>Gill Net: 11.9.2021-3.25.2022<br>Misc. Gear: 2.15-3.25, 6.1-12.15 |
| **VA** | Chesapeake Bay and Rivers: 18” min; 28” max size limit 3.15–6.15 | 983,393 lbs. (part of Bay-wide quota) | 1.16-12.31 |
| | Ocean: 28” min | 125,034 lbs. | |
| **NC** | Ocean: 28” min | 295,495 lbs. (split between gear types) | Seine fishery was not opened<br>Gill net fishery was not opened<br>Trawl fishery was not opened |

Table 2. Summary of Atlantic striped bass recreational regulations in 2022. Source: 2023 State Compliance Reports. Minimum sizes and slot size limits are in total length (TL).

| STATE | SIZE LIMITS (TL)/REGION | BAG LIMIT | GEAR/FISHING RESTRICTIONS | OPEN SEASON |
|---|---|---|---|---|
| **ME** | ≥ 28” and <35" | 1 fish/day | Hook and line only and no gaffing of striped bass. Regulations define bait as it pertains to the required use of circle hooks; immediate release w/o unnecessary injury if incidentally caught on unapproved hook type; maintains the circle hook exemption for rubber and latex tube rigs. | All year, except spawning areas are closed 12.1-4.30 and C&R only 5.1-6.30 |
| **NH** | ≥ 28” and <35" | 1 fish/day | Gaffing and culling prohibited; Use of corrodible non-offset circle hooks required if angling with bait. If taken contrary to restrictions, return fish to water immediately w/o unnecessary injury. | All year |
| **MA** | ≥ 28” and <35" | 1 fish/day | Hook & line only; no high-grading; gaffs and other injurious removal devices prohibited. Inline circle hook requirement when fishing with bait, except with artificial lures; mandatory release of catch on any unapproved method of take. No filleting at-sea except aboard for-hire vessels provided skin remains and ratio of 2 filets/fish. | All year |
| **RI** | ≥ 28” and <35" | 1 fish/day | Circle required while fishing recreationally with bait for striped bass (except for artificial lures with bait attached); must release if caught on unapproved method of take | All year |
| **CT** | ≥ 28” and <35" | 1 fish/day | Inline circle hooks only when using whole, cut or live natural bait. Exemption of artificial lures/ release of incidental noncircle hook provision. Spearing and gaffing prohibited. If taken contrary to the provisions, shall, without avoidable injury, be returned immediately to the waters. | All year |
| **NY** | Ocean and DE River: 28 -35” | 1 fish/day | Angling only. Spearing permitted in ocean waters. C&R only during closed season, except no targeting in Hudson River during closed season. Circle hook requirements. No gaffing. Mandatory release of catch on any unapproved method of take. | Ocean: 4.15-12.15<br>Delaware River: All year |
| | HR: 18 -28” | 1 fish/day | | Hudson River: 4.1-11.30 |

(Table 2 continued – Summary of recreational regulations in 2022).

| STATE | SIZE LIMITS/REGION | BAG LIMIT | GEAR/FISHING RESTRICTIONS | OPEN SEASON |
|---|---|---|---|---|
| **NJ** | ≥ 28 to < 38” | 1 fish/day | Circle hooks required when fishing with bait; must release if caught on unapproved method of take | Closed 1.1 – Feb 28 in all waters except in the Atlantic Ocean, and closed 4.1-5.31 in the lower DE River and tribs |
| **PA** | Upstream from Calhoun St Bridge: 1 fish/day at ≥ 28” to <35" | | Unlawful to take or attempt to take fish unless the method is specifically authorized. Circle hooks required when fishing with bait downstream from Calhoun St. Bridge. | All year |
| | Downstream from Calhoun St Bridge: 1 fish/day at ≥ 28” to <35 (except 4.1-5.31) | | | All year. 2 fish/day at 21”-<24”slot from 4.1 – 5.31 |
| **DE** | ≥ 28" and <35" | 1 fish/day | Hook & line, spear (for divers) only. Inline circle hooks required when fishing for striped bass using cut or whole natural baits | All year. C&R only 4.1-5.31 in spawning grounds. 20”-25”slot from 7.1-8.31 in DE River, Bay & tributaries |
| **MD** | Ocean: ≥ 28" and <35" | 1 fish/day | Circle hooks if chumming, live-lining, or bait fishing and targeting striped bass; no gaffing | All year |
| | Chesapeake Bay and tribs^ | C&R only | Circle hook requirement with bait; no eels; no stinger hooks; barbless hooks when trolling; max 6 lines when trolling; no gaffing | 1.1-2.28, 3.1-3.31, 12.11-12.31 |
| | Chesapeake Bay: 35" min | 1 fish/day | Geographic restrictions apply; Circle hook requirement with bait; no eels bait; no gaffs | 5.1-5.15 |
| | Chesapeake Bay: 1 fish/day, 19" minimum size; 2/fish/day for charter with only 1 fish >28" | | Geographic restrictions apply; circle hooks if chumming, livelining, or bait fishing and targeting striped bass; no gaffing | 5.16-5.31 |
| | Chesapeake Bay and tribs: 1 fish/day, 19" minimum size; 2/fish/day for charter with only 1 fish >28" | | All Bay and tribs open; circle hooks if chumming, livelining, or bait fishing and targeting striped bass; no gaffing | 6.1-7.15, 8.1-12.10 |

^ Susquehanna Flats: C&R only Jan 1 – March 31 (circle hooks when bait fishing); 1 fish at 19”-26” slot May 16 – May 31 (circle hooks if chumming, livelining, or bait fishing and targeting striped bass).

(Table 2 continued – Summary of recreational regulations in 2022).

| STATE | SIZE LIMITS/REGION | BAG LIMIT | GEAR/FISHING RESTRICTIONS | OPEN SEASON |
|---|---|---|---|---|
| **PRFC** | Spring Trophy:<br>35” minimum size | 1 fish/day | No more than two hooks or sets of hooks for each rod or line; no live eel; no high-grading; non-offset Circle Hooks are required when fishing for striped bass using cut or whole natural bait; no spearing or gaffing | 5.1-5.15 |
| | Summer and Fall: 20” min | 2 fish/day | No more than two hooks or sets of hooks for each rod or line; non-offset Circle Hooks are required when fishing for striped bass using cut or whole natural bait; no spearing or gaffing; any fish caught other than lawful fishing activities immediately released | 5.16-7.6 and 8.21-12.31; closed 7.7-8.20 (No Direct Targeting) |
| **DC** | 18” minimum size | 1 fish/day | Hook and line only; unlawful to take fish except as specified | 5.16-12.31 |
| **VA** | Ocean: 28”-36” slot limit | 1 fish/day | Hook & line, rod & reel, hand line, spearing only. No gaffing. Circle hooks required if/when using live bait. Unlawful to take/attempt take by any other gear/method | 1.1-3.31, 5.16-12.31 |
| | Ocean Spring Trophy: NO SPRING TROPHY SEASON | | | |
| | Chesapeake Bay Spring Trophy: NO SPRING TROPHY SEASON | | | |
| | Bay Spring/Summer:<br>20”-28” slot limit | 1 fish/day | Hook & line, rod & reel, hand line, spearing only. No gaffing. Circle hooks required if/when using live bait. Unlawful to take/attempt take by any other gear/method | 5.16-6.15 |
| | Bay Fall: 20 - 36” slot limit | 1 fish/day | | 10.4-12.31 |
| **NC** | ≥ 28" and <35" | 1 fish/day | No gaffing allowed. Circle hooks required when fishing with natural bait | All year |

Table 3. Total removals (harvest plus discards/release mortality) of Atlantic striped bass by sector in numbers of fish, 1993-2022 calendar years. Note: Harvest is from state compliance reports/MRIP (June 2023), discards/release mortality is from ASMFC. Estimates exclude inshore harvest from NC.

| Year | Commercial | | Recreational | | Total Removals |
|---|---|---|---|---|---|
| | Harvest | Dead Discards* | Harvest | Release Mortality | |
| 1993 | 314,526 | 114,317 | 789,037 | 812,404 | 2,030,284 |
| 1994 | 325,401 | 165,700 | 1,055,523 | 1,360,872 | 2,907,496 |
| 1995 | 537,412 | 192,368 | 2,287,578 | 2,010,689 | 5,028,047 |
| 1996 | 854,102 | 257,506 | 2,487,422 | 2,600,526 | 6,199,556 |
| 1997 | 1,076,561 | 324,445 | 2,774,981 | 2,969,781 | 7,145,769 |
| 1998 | 1,215,219 | 346,537 | 2,915,390 | 3,259,133 | 7,736,278 |
| 1999 | 1,223,572 | 347,186 | 3,123,496 | 3,140,905 | 7,835,158 |
| 2000 | 1,216,812 | 213,863 | 3,802,477 | 3,044,203 | 8,277,354 |
| 2001 | 931,412 | 175,815 | 4,052,474 | 2,449,599 | 7,609,300 |
| 2002 | 928,085 | 187,084 | 4,005,084 | 2,792,200 | 7,912,453 |
| 2003 | 854,326 | 126,274 | 4,781,402 | 2,848,445 | 8,610,447 |
| 2004 | 879,768 | 156,026 | 4,553,027 | 3,665,234 | 9,254,055 |
| 2005 | 970,403 | 142,385 | 4,480,802 | 3,441,928 | 9,035,518 |
| 2006 | 1,047,648 | 152,308 | 4,883,961 | 4,812,332 | 10,896,250 |
| 2007 | 1,015,114 | 158,078 | 3,944,679 | 2,944,253 | 8,062,124 |
| 2008 | 1,027,824 | 108,830 | 4,381,186 | 2,391,200 | 7,909,039 |
| 2009 | 1,050,055 | 133,317 | 4,700,222 | 1,942,061 | 7,825,654 |
| 2010 | 1,031,448 | 132,373 | 5,388,440 | 1,760,759 | 8,313,020 |
| 2011 | 944,777 | 82,015 | 5,006,358 | 1,482,029 | 7,515,180 |
| 2012 | 870,684 | 192,190 | 4,046,299 | 1,847,880 | 6,957,053 |
| 2013 | 784,379 | 112,620 | 5,157,760 | 2,393,425 | 8,448,184 |
| 2014 | 750,263 | 114,065 | 4,033,746 | 2,172,342 | 7,070,415 |
| 2015 | 621,952 | 88,614 | 3,085,725 | 2,307,133 | 6,103,425 |
| 2016 | 609,028 | 91,186 | 3,500,434 | 2,981,430 | 7,182,077 |
| 2017 | 592,670 | 98,801 | 2,937,911 | 3,421,110 | 7,050,492 |
| 2018 | 621,123 | 101,264 | 2,244,765 | 2,826,667 | 5,793,819 |
| 2019 | 653,807 | 85,262 | 2,150,936 | 2,589,045 | 5,479,050 |
| 2020 | 583,070 | 58,641 | 1,709,973 | 2,760,231 | 5,111,915 |
| 2021 | 644,207 | 85,676 | 1,841,902 | 2,583,788 | 5,155,573 |
| 2022 | 599,615 | 81,200 | 3,454,021 | 2,667,846 | 6,802,681 |

* Commercial dead discard estimate for 2022 was estimated using the harvest-to-discard ratio from 2021. The entire time series for commercial dead discards will be re-estimated during the 2024 stock assessment using a generalized additive model (GAM).

Table 4. Proportion of total removals (harvest plus discards/release mortality) of Atlantic striped bass by sector in numbers of fish, 1993-2022. Note: Harvest is from state compliance reports/MRIP (June 2023), discards/release mortality is from ASMFC. Estimates exclude inshore harvest from NC.

| Year | Commercial | | Recreational | |
|---|---|---|---|---|
| | Harvest | Dead Discards* | Harvest | Release Mortality |
| 1993 | 15% | 6% | 39% | 40% |
| 1994 | 11% | 6% | 36% | 47% |
| 1995 | 11% | 4% | 45% | 40% |
| 1996 | 14% | 4% | 40% | 42% |
| 1997 | 15% | 5% | 39% | 42% |
| 1998 | 16% | 4% | 38% | 42% |
| 1999 | 16% | 4% | 40% | 40% |
| 2000 | 15% | 3% | 46% | 37% |
| 2001 | 12% | 2% | 53% | 32% |
| 2002 | 12% | 2% | 51% | 35% |
| 2003 | 10% | 1% | 56% | 33% |
| 2004 | 10% | 2% | 49% | 40% |
| 2005 | 11% | 2% | 50% | 38% |
| 2006 | 10% | 1% | 45% | 44% |
| 2007 | 13% | 2% | 49% | 37% |
| 2008 | 13% | 1% | 55% | 30% |
| 2009 | 13% | 2% | 60% | 25% |
| 2010 | 12% | 2% | 65% | 21% |
| 2011 | 13% | 1% | 67% | 20% |
| 2012 | 13% | 3% | 58% | 27% |
| 2013 | 9% | 1% | 61% | 28% |
| 2014 | 11% | 2% | 57% | 31% |
| 2015 | 10% | 1% | 51% | 38% |
| 2016 | 8% | 1% | 49% | 42% |
| 2017 | 8% | 1% | 42% | 49% |
| 2018 | 11% | 2% | 39% | 49% |
| 2019 | 12% | 2% | 39% | 47% |
| 2020 | 11% | 1% | 33% | 54% |
| 2021 | 12% | 2% | 36% | 50% |
| 2022 | 9% | 1% | 51% | 39% |

* Commercial dead discard estimate for 2022 was estimated using the harvest-to-discard ratio from 2021. The entire time series for commercial dead discards will be re-estimated during the 2024 stock assessment using a generalized additive model (GAM). Note: Percent may not sum to 100 due to rounding.

Table 5. Total harvest of Atlantic striped bass by sector, 1993-2022 calendar years. Note: Harvest is from state compliance reports/MRIP (Query June 2023). Estimates exclude inshore harvest from North Carolina.

| Year | Numbers of Fish | | | Pounds | | |
|---|---|---|---|---|---|---|
| | Commercial | Recreational | Total | Commercial | Recreational | Total |
| 1993 | 314,526 | 789,037 | 1,103,563 | 1,800,176 | 10,163,767 | 11,963,943 |
| 1994 | 325,401 | 1,055,523 | 1,380,924 | 1,877,197 | 14,737,911 | 16,615,108 |
| 1995 | 537,412 | 2,287,578 | 2,824,990 | 3,775,278 | 27,072,321 | 30,847,599 |
| 1996 | 854,102 | 2,487,422 | 3,341,524 | 4,822,864 | 28,625,685 | 33,448,549 |
| 1997 | 1,076,561 | 2,774,981 | 3,851,542 | 6,078,566 | 30,616,093 | 36,694,659 |
| 1998 | 1,215,219 | 2,915,390 | 4,130,609 | 6,551,623 | 29,603,199 | 36,154,822 |
| 1999 | 1,223,572 | 3,123,496 | 4,347,068 | 6,485,079 | 33,564,988 | 40,050,067 |
| 2000 | 1,216,812 | 3,802,477 | 5,019,289 | 6,715,044 | 34,050,817 | 40,765,861 |
| 2001 | 931,412 | 4,052,474 | 4,983,886 | 6,266,953 | 39,263,154 | 45,530,107 |
| 2002 | 928,085 | 4,005,084 | 4,933,169 | 6,152,583 | 41,840,025 | 47,992,608 |
| 2003 | 854,326 | 4,781,402 | 5,635,728 | 6,750,799 | 54,091,836 | 60,842,635 |
| 2004 | 879,768 | 4,553,027 | 5,432,795 | 7,340,822 | 53,031,074 | 60,371,896 |
| 2005 | 970,403 | 4,480,802 | 5,451,205 | 7,120,647 | 57,421,174 | 64,541,821 |
| 2006 | 1,047,648 | 4,883,961 | 5,931,609 | 6,780,541 | 50,674,431 | 57,454,972 |
| 2007 | 1,015,114 | 3,944,679 | 4,959,793 | 7,047,179 | 42,823,614 | 49,870,793 |
| 2008 | 1,027,824 | 4,381,186 | 5,409,010 | 7,190,800 | 56,665,318 | 63,856,118 |
| 2009 | 1,050,055 | 4,700,222 | 5,750,277 | 7,217,484 | 54,411,389 | 61,628,873 |
| 2010 | 1,031,448 | 5,388,440 | 6,419,888 | 6,996,713 | 61,431,360 | 68,428,073 |
| 2011 | 944,777 | 5,006,358 | 5,951,135 | 6,789,792 | 59,592,092 | 66,381,884 |
| 2012 | 870,684 | 4,046,299 | 4,916,983 | 6,516,761 | 53,256,619 | 59,773,380 |
| 2013 | 784,379 | 5,157,760 | 5,942,139 | 5,819,678 | 65,057,289 | 70,876,967 |
| 2014 | 750,263 | 4,033,746 | 4,784,009 | 5,937,949 | 47,948,610 | 53,886,559 |
| 2015 | 621,952 | 3,085,725 | 3,707,677 | 4,829,997 | 39,898,799 | 44,728,796 |
| 2016 | 609,028 | 3,500,434 | 4,109,462 | 4,848,772 | 43,671,532 | 48,520,304 |
| 2017 | 592,670 | 2,937,911 | 3,530,581 | 4,816,395 | 37,952,581 | 42,768,976 |
| 2018 | 621,123 | 2,244,765 | 2,865,888 | 4,741,342 | 23,069,028 | 27,810,370 |
| 2019 | 653,807 | 2,150,936 | 2,804,743 | 4,284,831 | 23,556,287 | 27,841,118 |
| 2020 | 583,070 | 1,709,973 | 2,293,043 | 3,620,031 | 14,858,984 | 18,479,015 |
| 2021 | 644,207 | 1,841,902 | 2,486,109 | 4,335,360 | 15,781,510 | 20,116,870 |
| 2022 | 599,615 | 3,454,021 | 4,053,636 | 4,279,840 | 35,805,246 | 40,085,086 |

Table 6. Commercial harvest by region in pounds (x1000), 1996-2022 calendar years. Source: State compliance reports.
^Estimates exclude inshore harvest.

| Year | Ocean | | | | | | | | Chesapeake Bay | | | | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MA | RI | NY | DE | MD | VA | NC^ | Total | MD | PRFC | VA | Total | |
| 1996 | 695.9 | 122.6 | 504.4 | 120.5 | 75.7 | 165.9 | 58.2 | 1,743.2 | 1,487.7 | 346.8 | 1,245.2 | 3,079.7 | 4,822.9 |
| 1997 | 784.9 | 96.5 | 460.8 | 166.0 | 94.0 | 179.1 | 463.1 | 2,244.4 | 2,119.2 | 731.9 | 983.0 | 3,834.2 | 6,078.6 |
| 1998 | 810.1 | 94.7 | 485.9 | 163.2 | 84.6 | 375.0 | 273.0 | 2,286.6 | 2,426.7 | 726.2 | 1,112.2 | 4,265.1 | 6,551.6 |
| 1999 | 766.2 | 119.7 | 491.8 | 187.1 | 62.6 | 614.8 | 391.5 | 2,633.7 | 2,274.8 | 653.3 | 923.4 | 3,851.4 | 6,485.1 |
| 2000 | 796.2 | 111.8 | 542.7 | 140.6 | 149.7 | 932.7 | 162.4 | 2,836.0 | 2,261.8 | 666.0 | 951.2 | 3,879.0 | 6,715.0 |
| 2001 | 815.4 | 129.7 | 633.1 | 198.8 | 113.9 | 782.4 | 381.1 | 3,054.3 | 1,660.9 | 658.7 | 893.1 | 3,212.6 | 6,267.0 |
| 2002 | 924.9 | 129.2 | 518.6 | 160.6 | 93.2 | 710.2 | 441.0 | 2,977.6 | 1,759.4 | 521.0 | 894.4 | 3,174.9 | 6,152.6 |
| 2003 | 1,055.5 | 190.2 | 753.3 | 191.5 | 103.9 | 166.4 | 201.2 | 2,662.1 | 1,721.8 | 676.6 | 1,690.4 | 4,088.7 | 6,750.8 |
| 2004 | 1,214.2 | 232.3 | 741.7 | 182.2 | 134.2 | 161.3 | 605.4 | 3,271.2 | 1,790.3 | 772.3 | 1,507.0 | 4,069.6 | 7,340.8 |
| 2005 | 1,102.2 | 215.6 | 689.8 | 173.1 | 46.9 | 185.2 | 604.5 | 3,017.4 | 2,008.7 | 533.6 | 1,561.0 | 4,103.3 | 7,120.6 |
| 2006 | 1,322.3 | 221.4 | 688.4 | 179.5 | 91.1 | 195.0 | 74.2 | 2,771.8 | 2,116.3 | 673.5 | 1,219.0 | 4,008.7 | 6,780.5 |
| 2007 | 1,039.3 | 240.6 | 731.5 | 188.7 | 96.3 | 162.3 | 379.5 | 2,838.1 | 2,240.6 | 599.3 | 1,369.2 | 4,209.1 | 7,047.2 |
| 2008 | 1,160.3 | 245.9 | 653.1 | 188.8 | 118.0 | 163.1 | 288.4 | 2,817.7 | 2,208.0 | 613.8 | 1,551.3 | 4,373.1 | 7,190.8 |
| 2009 | 1,134.3 | 234.8 | 789.9 | 192.4 | 127.3 | 140.4 | 190.0 | 2,809.1 | 2,267.3 | 727.8 | 1,413.3 | 4,408.4 | 7,217.5 |
| 2010 | 1,224.5 | 248.9 | 786.8 | 185.4 | 44.8 | 127.8 | 276.4 | 2,894.7 | 2,105.8 | 683.2 | 1,313.0 | 4,102.0 | 6,996.7 |
| 2011 | 1,163.9 | 228.2 | 855.3 | 188.6 | 21.4 | 158.8 | 246.4 | 2,862.5 | 1,955.1 | 694.2 | 1,278.1 | 3,927.3 | 6,789.8 |
| 2012 | 1,218.5 | 239.9 | 683.8 | 194.3 | 77.6 | 170.8 | 7.3 | 2,592.0 | 1,851.4 | 733.7 | 1,339.6 | 3,924.7 | 6,516.8 |
| 2013 | 1,004.5 | 231.3 | 823.8 | 191.4 | 93.5 | 182.4 | 0.0 | 2,526.9 | 1,662.2 | 623.8 | 1,006.8 | 3,292.8 | 5,819.7 |
| 2014 | 1,138.5 | 216.9 | 531.5 | 167.9 | 120.9 | 183.7 | 0.0 | 2,359.4 | 1,805.7 | 603.4 | 1,169.4 | 3,578.5 | 5,937.9 |
| 2015 | 866.0 | 188.3 | 516.3 | 144.1 | 34.6 | 138.1 | 0.0 | 1,887.5 | 1,436.9 | 538.0 | 967.6 | 2,942.5 | 4,830.0 |
| 2016 | 938.7 | 174.7 | 575.0 | 136.5 | 19.7 | 139.2 | 0.0 | 1,983.9 | 1,425.5 | 537.1 | 902.3 | 2,864.9 | 4,848.8 |
| 2017 | 823.4 | 175.3 | 701.2 | 141.8 | 80.5 | 133.9 | 0.0 | 2,056.1 | 1,439.8 | 492.7 | 827.8 | 2,760.3 | 4,816.4 |
| 2018 | 753.7 | 176.6 | 617.2 | 155.0 | 79.8 | 134.2 | 0.0 | 1,916.6 | 1,424.3 | 449.4 | 951.0 | 2,824.7 | 4,741.3 |
| 2019 | 584.7 | 144.2 | 358.9 | 132.6 | 82.8 | 138.0 | 0.0 | 1,441.2 | 1,475.2 | 417.3 | 951.1 | 2,843.6 | 4,284.8 |
| 2020 | 386.9 | 115.9 | 530.5 | 138.0 | 83.6 | 77.2 | 0.0 | 1,332.2 | 1,273.8 | 400.3 | 613.8 | 2,287.9 | 3,620.0 |
| 2021 | 732.1 | 130.3 | 629.5 | 140.3 | 88.7 | 119.9 | 0.0 | 1,840.7 | 1,351.5 | 411.3 | 731.9 | 2,494.7 | 4,335.4 |
| 2022+ | 770.1 | 162.4 | 623.3 | 139.2 | 88.1 | 121.7 | 0.0 | 1,904.9 | 1,223.6 | 428.5 | 722.9 | 2,375.0 | 4,279.8 |

+ Maryland commercial landings for 2022 are considered preliminary.

Table 7. Commercial harvest and discards by region in numbers of fish (x1000), 1996-2022 calendar years. Source: harvest is from state compliance reports, discards is from ASMFC. ^Estimates exclude inshore harvest.

| Year | Ocean | | | | | | | | Chesapeake Bay | | | | Discards* | | | Grand Total Removals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MA | RI | NY | DE | MD | VA | NC^ | Total | MD | PRFC | VA | Total | Ocean | Bay | Total | |
| 1996 | 37.3 | 18.6 | 40.5 | 20.7 | 9.0 | 14.1 | 3.3 | 143.5 | 486.2 | 46.2 | 178.2 | 710.6 | 165.3 | 92.2 | 257.5 | 1,111.6 |
| 1997 | 44.0 | 7.1 | 37.6 | 33.2 | 8.4 | 17.3 | 25.8 | 173.4 | 620.3 | 87.7 | 195.2 | 903.2 | 237.9 | 86.5 | 324.4 | 1,401.0 |
| 1998 | 44.3 | 8.8 | 45.1 | 31.4 | 10.3 | 41.1 | 14.2 | 195.2 | 729.6 | 93.3 | 197.1 | 1,020.1 | 308.3 | 38.2 | 346.5 | 1,561.8 |
| 1999 | 40.9 | 11.6 | 49.9 | 34.8 | 10.2 | 48.7 | 21.1 | 217.2 | 776.0 | 90.6 | 139.8 | 1,006.3 | 312.5 | 34.7 | 347.2 | 1,570.8 |
| 2000 | 42.1 | 9.4 | 54.9 | 25.2 | 13.3 | 54.5 | 6.5 | 205.8 | 787.6 | 91.5 | 132.0 | 1,011.0 | 183.0 | 30.9 | 213.9 | 1,430.7 |
| 2001 | 45.8 | 10.9 | 58.3 | 34.4 | 11.1 | 42.3 | 25.0 | 227.7 | 538.8 | 87.8 | 77.1 | 703.7 | 140.0 | 35.8 | 175.8 | 1,107.2 |
| 2002 | 49.8 | 11.7 | 47.1 | 30.4 | 10.2 | 38.8 | 23.2 | 211.3 | 571.7 | 80.3 | 64.7 | 716.8 | 142.7 | 44.4 | 187.1 | 1,115.2 |
| 2003 | 56.4 | 15.5 | 68.4 | 31.5 | 11.6 | 10.5 | 5.8 | 199.6 | 427.9 | 83.1 | 143.7 | 654.7 | 91.9 | 34.3 | 126.3 | 980.6 |
| 2004 | 63.6 | 16.0 | 70.4 | 28.4 | 14.1 | 10.4 | 31.0 | 233.9 | 447.0 | 92.6 | 106.3 | 645.9 | 106.5 | 49.5 | 156.0 | 1,035.8 |
| 2005 | 60.5 | 14.9 | 70.6 | 26.3 | 6.1 | 11.3 | 27.3 | 217.1 | 563.9 | 80.6 | 108.9 | 753.3 | 85.3 | 57.1 | 142.4 | 1,112.8 |
| 2006 | 70.5 | 15.4 | 73.6 | 30.2 | 10.9 | 11.5 | 2.7 | 214.9 | 645.1 | 92.3 | 95.4 | 832.7 | 97.1 | 55.2 | 152.3 | 1,200.0 |
| 2007 | 54.2 | 13.9 | 78.5 | 31.1 | 11.6 | 10.6 | 16.8 | 216.7 | 587.6 | 86.5 | 124.3 | 798.4 | 93.4 | 64.6 | 158.1 | 1,173.2 |
| 2008 | 61.1 | 16.6 | 73.3 | 31.9 | 14.0 | 10.8 | 13.4 | 221.0 | 580.7 | 82.0 | 144.1 | 806.8 | 63.1 | 45.7 | 108.8 | 1,136.7 |
| 2009 | 59.4 | 16.8 | 82.6 | 21.8 | 12.5 | 8.9 | 9.0 | 211.1 | 605.6 | 89.6 | 143.8 | 839.0 | 59.2 | 74.1 | 133.3 | 1,183.4 |
| 2010 | 60.4 | 15.7 | 82.4 | 19.8 | 5.4 | 9.4 | 13.7 | 206.8 | 579.2 | 90.6 | 154.9 | 824.7 | 39.2 | 93.2 | 132.4 | 1,163.8 |
| 2011 | 58.7 | 14.3 | 87.4 | 20.5 | 2.1 | 12.2 | 10.9 | 206.0 | 488.9 | 96.1 | 153.7 | 738.7 | 34.1 | 47.9 | 82.0 | 1,026.8 |
| 2012 | 61.5 | 15.0 | 67.1 | 15.7 | 6.9 | 10.8 | 0.3 | 177.3 | 465.6 | 90.7 | 137.0 | 693.4 | 25.1 | 167.1 | 192.2 | 1,062.9 |
| 2013 | 58.6 | 13.8 | 76.2 | 17.7 | 7.6 | 10.0 | 0.0 | 183.8 | 391.5 | 78.0 | 131.0 | 600.5 | 37.3 | 75.3 | 112.6 | 897.0 |
| 2014 | 58.0 | 10.5 | 52.9 | 14.9 | 8.5 | 10.0 | 0.0 | 154.8 | 362.2 | 81.5 | 151.8 | 595.5 | 49.1 | 65.0 | 114.1 | 864.3 |
| 2015 | 42.3 | 11.3 | 45.6 | 11.0 | 2.6 | 7.7 | 0.0 | 120.4 | 298.3 | 71.0 | 132.2 | 501.5 | 37.1 | 51.5 | 88.6 | 710.6 |
| 2016 | 48.0 | 11.7 | 51.0 | 8.8 | 1.2 | 7.6 | 0.0 | 128.3 | 284.9 | 73.7 | 122.2 | 480.8 | 45.1 | 46.1 | 91.2 | 700.2 |
| 2017 | 41.2 | 10.1 | 61.6 | 9.5 | 3.5 | 7.6 | 0.0 | 133.5 | 263.6 | 67.5 | 128.0 | 459.2 | 78.4 | 20.4 | 98.8 | 691.5 |
| 2018 | 37.8 | 10.1 | 52.2 | 11.4 | 3.5 | 6.9 | 0.0 | 121.9 | 286.4 | 64.4 | 148.4 | 499.3 | 56.8 | 44.5 | 101.3 | 722.4 |
| 2019 | 29.6 | 7.3 | 29.6 | 8.2 | 3.3 | 6.9 | 0.0 | 84.9 | 356.7 | 62.6 | 149.6 | 568.9 | 18.2 | 67.1 | 85.3 | 739.1 |
| 2020 | 19.6 | 5.037 | 49.3 | 8.4 | 3.4 | 4.42 | 0.0 | 90.2 | 299.9 | 66.6 | 126.4 | 492.9 | 24.8 | 33.8 | 58.6 | 641.7 |
| 2021 | 36.9 | 4.6 | 58.8 | 9.2 | 3.6 | 6.6 | 0.0 | 119.6 | 310.4 | 68.0 | 146.2 | 524.6 | 14.0 | 71.7 | 85.7 | 729.9 |
| 2022+ | 33.0 | 11.5 | 53.8 | 8.2 | 3.4 | 6.3 | 0.0 | 116.1 | 265.2 | 71.7 | 146.7 | 483.6 | 13.2 | 68.0 | 81.2 | 680.8 |

* Commercial dead discard estimate for 2022 was estimated using the harvest-to-discard ratio from 2021. The entire time series for commercial dead discards will be re-estimated during the 2024 stock assessment using a generalized additive model. + Maryland commercial landings for 2022 are considered preliminary.

Table 8. Total recreational catch, releases, and release mortality in numbers of fish by region (x1000), 1996-2022. Source: MRIP (Query June 2023). Estimates exclude inshore harvest from North Carolina.

| Year | Harvest (A+B1) | | | Releases (B2) | | | Total Catch (A+B1+B2) | | | Release Mortality (9% of B2) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ocean | Bay | Total | Ocean | Bay | Total | Ocean | Bay | Total | Ocean | Bay | Total |
| 1996 | 1,362 | 1,125 | 2,487 | 22,384 | 6,511 | 28,895 | 23,746 | 7,636 | 31,382 | 2,015 | 586 | 2,601 |
| 1997 | 1,514 | 1,261 | 2,775 | 22,819 | 10,178 | 32,998 | 24,333 | 11,439 | 35,773 | 2,054 | 916 | 2,970 |
| 1998 | 1,647 | 1,268 | 2,915 | 29,294 | 6,918 | 36,213 | 30,941 | 8,187 | 39,128 | 2,637 | 623 | 3,259 |
| 1999 | 1,758 | 1,366 | 3,123 | 26,139 | 8,760 | 34,899 | 27,897 | 10,125 | 38,022 | 2,353 | 788 | 3,141 |
| 2000 | 2,198 | 1,604 | 3,802 | 25,090 | 8,734 | 33,824 | 27,289 | 10,338 | 37,627 | 2,258 | 786 | 3,044 |
| 2001 | 2,758 | 1,294 | 4,052 | 21,073 | 6,145 | 27,218 | 23,831 | 7,440 | 31,270 | 1,897 | 553 | 2,450 |
| 2002 | 2,756 | 1,249 | 4,005 | 23,653 | 7,371 | 31,024 | 26,409 | 8,620 | 35,030 | 2,129 | 663 | 2,792 |
| 2003 | 3,124 | 1,658 | 4,781 | 20,678 | 10,971 | 31,649 | 23,802 | 12,628 | 36,431 | 1,861 | 987 | 2,848 |
| 2004 | 3,078 | 1,475 | 4,553 | 27,868 | 12,857 | 40,725 | 30,946 | 14,332 | 45,278 | 2,508 | 1,157 | 3,665 |
| 2005 | 3,182 | 1,299 | 4,481 | 28,663 | 9,580 | 38,244 | 31,845 | 10,879 | 42,724 | 2,580 | 862 | 3,442 |
| 2006 | 2,789 | 2,095 | 4,884 | 41,239 | 12,232 | 53,470 | 44,028 | 14,327 | 58,354 | 3,711 | 1,101 | 4,812 |
| 2007 | 2,327 | 1,618 | 3,945 | 25,135 | 7,579 | 32,714 | 27,462 | 9,196 | 36,659 | 2,262 | 682 | 2,944 |
| 2008 | 3,025 | 1,356 | 4,381 | 21,878 | 4,691 | 26,569 | 24,904 | 6,046 | 30,950 | 1,969 | 422 | 2,391 |
| 2009 | 2,898 | 1,803 | 4,700 | 16,740 | 4,838 | 21,578 | 19,638 | 6,641 | 26,279 | 1,507 | 435 | 1,942 |
| 2010 | 3,906 | 1,483 | 5,388 | 13,606 | 5,957 | 19,564 | 17,512 | 7,440 | 24,952 | 1,225 | 536 | 1,761 |
| 2011 | 3,617 | 1,389 | 5,006 | 12,644 | 3,823 | 16,467 | 16,261 | 5,212 | 21,473 | 1,138 | 344 | 1,482 |
| 2012 | 3,071 | 975 | 4,046 | 11,242 | 9,290 | 20,532 | 14,314 | 10,265 | 24,578 | 1,012 | 836 | 1,848 |
| 2013 | 3,723 | 1,435 | 5,158 | 19,463 | 7,131 | 26,594 | 23,186 | 8,565 | 31,751 | 1,752 | 642 | 2,393 |
| 2014 | 2,276 | 1,758 | 4,034 | 15,107 | 9,031 | 24,137 | 17,382 | 10,789 | 28,171 | 1,360 | 813 | 2,172 |
| 2015 | 1,770 | 1,316 | 3,086 | 15,419 | 10,216 | 25,635 | 17,189 | 11,532 | 28,721 | 1,388 | 919 | 2,307 |
| 2016 | 1,817 | 1,683 | 3,500 | 17,794 | 15,333 | 33,127 | 19,611 | 17,016 | 36,627 | 1,601 | 1,380 | 2,981 |
| 2017 | 1,738 | 1,200 | 2,938 | 28,963 | 9,050 | 38,012 | 30,701 | 10,249 | 40,950 | 2,607 | 814 | 3,421 |
| 2018 | 1,195 | 1,050 | 2,245 | 22,739 | 8,669 | 31,407 | 23,933 | 9,719 | 33,652 | 2,046 | 780 | 2,827 |
| 2019 | 1,342 | 809 | 2,151 | 21,131 | 7,636 | 28,767 | 22,473 | 8,445 | 30,918 | 1,902 | 687 | 2,589 |
| 2020 | 923 | 787 | 1,710 | 22,710 | 7,959 | 30,669 | 23,633 | 8,746 | 32,379 | 2,044 | 716 | 2,760 |
| 2021 | 1,189 | 653 | 1,842 | 24,281 | 4,427 | 28,709 | 25,470 | 5,081 | 30,551 | 2,185 | 398 | 2,584 |
| 2022 | 2,756 | 697 | 3,454 | 26,031 | 3,611 | 29,643 | 28,788 | 4,309 | 33,097 | 2,343 | 325 | 2,668 |

Table 9. Recreational harvest by region in pounds (x1000), 1996-2022. Source: MRIP (Query June 2023). ^Estimates exclude NC inshore harvest.

| Year | Ocean | | | | | | | | | | | | Chesapeake Bay | | | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ME | NH | MA | RI | CT | NY | NJ | DE | MD | VA | NC^ | Total | MD | VA | Total | |
| 1996 | 95 | 183 | 2,983 | 1,626 | 1,405 | 10,739 | 3,959 | 795 | 0.0 | 812 | 392 | 22,990 | 2,789 | 2,847 | 5,636 | 28,626 |
| 1997 | 223 | 538 | 5,133 | 1,997 | 2,263 | 8,543 | 2,179 | 374 | 0.0 | 1,096 | 865 | 23,211 | 3,203 | 4,203 | 7,405 | 30,616 |
| 1998 | 305 | 262 | 7,359 | 1,544 | 1,807 | 4,889 | 4,182 | 645 | 579 | 545 | 636 | 22,754 | 3,023 | 3,826 | 6,849 | 29,603 |
| 1999 | 196 | 181 | 4,995 | 1,904 | 1,327 | 7,414 | 9,473 | 312 | 3.8 | 110 | 339 | 26,256 | 2,323 | 4,986 | 7,309 | 33,565 |
| 2000 | 347 | 109 | 4,863 | 2,008 | 890 | 7,053 | 9,768 | 925 | 0.0 | 416 | 277 | 26,656 | 3,503 | 3,892 | 7,395 | 34,051 |
| 2001 | 446 | 334 | 7,188 | 2,044 | 1,101 | 5,058 | 12,314 | 695 | 314 | 382 | 1,082 | 30,959 | 2,928 | 5,376 | 8,304 | 39,263 |
| 2002 | 775 | 322 | 10,261 | 2,708 | 1,251 | 5,975 | 9,621 | 589 | 0.0 | 1,135 | 998 | 33,634 | 2,643 | 5,563 | 8,206 | 41,840 |
| 2003 | 458 | 466 | 10,252 | 4,052 | 2,666 | 10,788 | 12,066 | 763 | 14 | 392 | 966 | 42,882 | 5,246 | 5,964 | 11,210 | 54,092 |
| 2004 | 554 | 268 | 9,329 | 2,460 | 2,229 | 6,437 | 13,303 | 870 | 57 | 1,067 | 6,656 | 43,230 | 4,860 | 4,941 | 9,801 | 53,031 |
| 2005 | 546 | 384 | 7,541 | 3,155 | 3,133 | 11,637 | 14,289 | 680 | 7.7 | 487 | 3,947 | 45,808 | 7,753 | 3,860 | 11,614 | 57,421 |
| 2006 | 610 | 244 | 6,787 | 1,569 | 2,854 | 9,845 | 12,716 | 586 | 2.8 | 921 | 2,975 | 39,109 | 6,494 | 5,071 | 11,565 | 50,674 |
| 2007 | 422 | 93 | 7,010 | 2,077 | 2,786 | 10,081 | 8,390 | 207 | 0.0 | 516 | 1,965 | 33,547 | 5,249 | 4,027 | 9,277 | 42,824 |
| 2008 | 607 | 182 | 8,424 | 970 | 2,273 | 18,000 | 12,407 | 847 | 0.0 | 1,690 | 750 | 46,150 | 5,639 | 4,877 | 10,515 | 56,665 |
| 2009 | 781 | 222 | 9,410 | 2,185 | 1,458 | 7,991 | 17,040 | 940 | 138 | 48 | 187 | 40,399 | 8,672 | 5,340 | 14,012 | 54,411 |
| 2010 | 218 | 238 | 9,959 | 2,102 | 2,323 | 18,190 | 17,454 | 895 | 107 | 206 | 1,198 | 52,891 | 6,482 | 2,059 | 8,541 | 61,431 |
| 2011 | 245 | 659 | 11,953 | 3,066 | 981 | 13,151 | 15,715 | 605 | 8.6 | 308 | 4,467 | 51,157 | 6,220 | 2,214 | 8,435 | 59,592 |
| 2012 | 152 | 432 | 14,941 | 2,096 | 1,835 | 13,096 | 11,551 | 644 | 21 | 1.7 | 0.0 | 44,768 | 3,819 | 4,670 | 8,488 | 53,257 |
| 2013 | 331 | 831 | 9,025 | 4,428 | 4,236 | 16,819 | 19,451 | 1,073 | 1,051 | 67 | 0.0 | 57,313 | 5,137 | 2,607 | 7,744 | 65,057 |
| 2014 | 423 | 203 | 7,965 | 3,402 | 2,665 | 13,998 | 8,886 | 381 | 159 | 0.0 | 0.0 | 38,083 | 8,877 | 989 | 9,866 | 47,949 |
| 2015 | 132 | 202 | 7,799 | 1,394 | 2,585 | 8,695 | 9,982 | 340 | 28 | 0.0 | 0.0 | 31,156 | 7,786 | 957 | 8,743 | 39,899 |
| 2016 | 189 | 191 | 3,731 | 1,776 | 912 | 12,053 | 12,790 | 86 | 7.2 | 0.0 | 0.0 | 31,735 | 10,912 | 1,024 | 11,936 | 43,672 |
| 2017 | 318 | 394 | 5,664 | 1,655 | 1,560 | 8,885 | 10,886 | 666 | 0.0 | 1.8 | 0.0 | 30,030 | 7,309 | 613 | 7,922 | 37,953 |
| 2018 | 142 | 130 | 4,925 | 1,121 | 1,165 | 3,453 | 7,012 | 33 | 0.0 | 0.0 | 0.0 | 17,982 | 4,683 | 404 | 5,087 | 23,069 |
| 2019 | 415 | 291 | 2,698 | 2,300 | 685 | 7,072 | 6,674 | 44 | 7.3 | 0.0 | 0.0 | 20,187 | 3,145 | 224 | 3,370 | 23,556 |
| 2020 | 180 | 29 | 776 | 483 | 830 | 2,202 | 6,584 | 16 | 0.0 | 0.0 | 0.0 | 11,100 | 3,480 | 280 | 3,759 | 14,859 |
| 2021 | 89 | 36 | 1,826 | 597 | 201 | 1,492 | 8,313 | 132 | 0 | 0 | 0 | 12,686 | 2,682 | 414 | 3,095 | 15,782 |
| 2022 | 590 | 240 | 5,288 | 779 | 1,294 | 10,695 | 13,508 | 39 | 0 | 0 | 0 | 32,434 | 3,083 | 288 | 3,371 | 35,805 |

Table 10. Recreational harvest by region in numbers of fish (x1000), 1996-2022. Source: MRIP (Query June 2023). ^Estimates exclude NC inshore harvest.

| Year | Ocean | | | | | | | | | | | | Chesapeake Bay | | | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ME | NH | MA | RI | CT | NY | NJ | DE | MD | VA | NC^ | Total | MD | VA | Total | |
| 1996 | 4.1 | 11.0 | 156.6 | 100.6 | 95.9 | 511.6 | 301.2 | 59.7 | 0.0 | 89.6 | 31.7 | 1,362.0 | 564.2 | 561.3 | 1,125.5 | 2,487.4 |
| 1997 | 43.0 | 29.9 | 365.6 | 124.7 | 149.0 | 450.5 | 171.2 | 29.1 | 0.0 | 91.1 | 60.1 | 1,514.1 | 552.4 | 708.4 | 1,260.8 | 2,775.0 |
| 1998 | 65.3 | 14.8 | 500.9 | 91.1 | 114.1 | 383.8 | 289.2 | 51.0 | 24.3 | 71.3 | 41.2 | 1,647.0 | 596.2 | 672.2 | 1,268.4 | 2,915.4 |
| 1999 | 37.5 | 9.9 | 327.1 | 116.6 | 88.2 | 450.9 | 657.1 | 28.3 | 1.6 | 14.1 | 26.4 | 1,757.8 | 530.9 | 834.8 | 1,365.7 | 3,123.5 |
| 2000 | 77.3 | 6.0 | 306.2 | 156.8 | 84.0 | 494.6 | 939.8 | 88.3 | 0.0 | 27.2 | 18.1 | 2,198.3 | 810.9 | 793.3 | 1,604.2 | 3,802.5 |
| 2001 | 91.9 | 23.5 | 551.0 | 149.8 | 78.2 | 364.2 | 1,267.5 | 70.6 | 64.1 | 36.7 | 60.7 | 2,758.1 | 513.3 | 781.1 | 1,294.4 | 4,052.5 |
| 2002 | 135.2 | 28.1 | 723.5 | 181.5 | 92.5 | 439.3 | 957.6 | 65.7 | 0.0 | 76.4 | 56.3 | 2,756.1 | 464.4 | 784.6 | 1,249.0 | 4,005.1 |
| 2003 | 99.7 | 41.3 | 797.2 | 226.4 | 181.7 | 678.4 | 942.8 | 75.7 | 0.9 | 29.3 | 50.4 | 3,123.8 | 816.0 | 841.6 | 1,657.6 | 4,781.4 |
| 2004 | 118.3 | 22.1 | 666.7 | 159.6 | 134.5 | 458.1 | 1,042.1 | 66.6 | 11.0 | 75.9 | 323.2 | 3,078.1 | 657.5 | 817.4 | 1,474.9 | 4,553.0 |
| 2005 | 118.3 | 35.5 | 536.1 | 195.6 | 202.6 | 854.6 | 958.1 | 48.8 | 3.6 | 34.2 | 194.9 | 3,182.2 | 815.5 | 483.1 | 1,298.6 | 4,480.8 |
| 2006 | 140.9 | 20.9 | 483.2 | 129.3 | 168.3 | 614.8 | 972.2 | 44.5 | 0.4 | 80.6 | 134.2 | 2,789.0 | 1,342.0 | 753.0 | 2,094.9 | 4,884.0 |
| 2007 | 95.5 | 8.1 | 471.9 | 135.8 | 163.9 | 602.8 | 722.2 | 17.2 | 0.0 | 28.0 | 81.8 | 2,327.1 | 1,127.3 | 490.3 | 1,617.6 | 3,944.7 |
| 2008 | 133.4 | 11.9 | 514.1 | 73.4 | 132.8 | 1,169.9 | 791.0 | 67.7 | 0.0 | 94.4 | 36.9 | 3,025.4 | 779.7 | 576.1 | 1,355.8 | 4,381.2 |
| 2009 | 146.5 | 17.3 | 695.0 | 138.4 | 100.3 | 574.2 | 1,141.5 | 64.8 | 10.2 | 3.0 | 6.5 | 2,897.7 | 1,094.4 | 708.1 | 1,802.5 | 4,700.2 |
| 2010 | 37.3 | 21.4 | 808.2 | 162.0 | 170.2 | 1,449.0 | 1,091.4 | 61.4 | 12.5 | 25.3 | 67.1 | 3,905.9 | 1,139.3 | 343.2 | 1,482.6 | 5,388.4 |
| 2011 | 48.5 | 54.2 | 873.5 | 202.2 | 91.1 | 1,005.3 | 1,038.9 | 43.7 | 0.8 | 51.2 | 207.6 | 3,617.1 | 1,112.1 | 277.2 | 1,389.3 | 5,006.4 |
| 2012 | 31.4 | 37.3 | 1,010.6 | 130.7 | 137.1 | 927.5 | 742.4 | 51.3 | 2.9 | 0.3 | 0.0 | 3,071.5 | 716.7 | 258.1 | 974.8 | 4,046.3 |
| 2013 | 73.3 | 63.2 | 658.7 | 308.3 | 269.6 | 902.5 | 1,324.2 | 70.6 | 48.4 | 4.4 | 0.0 | 3,723.2 | 1,136.7 | 297.9 | 1,434.5 | 5,157.8 |
| 2014 | 86.4 | 16.5 | 523.5 | 172.0 | 131.8 | 804.5 | 501.9 | 26.2 | 12.6 | 0.0 | 0.0 | 2,275.5 | 1,627.0 | 131.2 | 1,758.2 | 4,033.7 |
| 2015 | 14.4 | 10.0 | 485.3 | 67.0 | 140.8 | 406.8 | 600.3 | 41.9 | 3.5 | 0.0 | 0.0 | 1,770.1 | 1,108.0 | 207.7 | 1,315.7 | 3,085.7 |
| 2016 | 14.2 | 17.6 | 230.1 | 128.4 | 63.3 | 697.7 | 659.6 | 5.9 | 0.5 | 0.0 | 0.0 | 1,817.2 | 1,545.1 | 138.1 | 1,683.2 | 3,500.4 |
| 2017 | 22.0 | 37.7 | 392.3 | 59.8 | 94.9 | 477.3 | 626.4 | 27.8 | 0.0 | 0.1 | 0.0 | 1,738.3 | 1,091.6 | 108.0 | 1,199.6 | 2,937.9 |
| 2018 | 16.0 | 13.4 | 389.5 | 39.2 | 85.5 | 181.7 | 465.3 | 4.2 | 0.0 | 0.0 | 0.0 | 1,194.6 | 993.3 | 56.8 | 1,050.1 | 2,244.8 |
| 2019 | 38.0 | 14.7 | 195.6 | 104.1 | 67.1 | 498.0 | 412.9 | 10.9 | 1.0 | 0.0 | 0.0 | 1,342.2 | 764.1 | 44.6 | 808.7 | 2,150.9 |
| 2020 | 19.0 | 3.2 | 67.2 | 36.9 | 71.2 | 203.7 | 520.1 | 1.6 | 0.0 | 0.0 | 0.0 | 922.9 | 734.8 | 52.2 | 787.0 | 1,710.0 |
| 2021 | 12.7 | 4.4 | 179.1 | 57.7 | 21.2 | 137.8 | 766.2 | 9.496 | 0.0 | 0.0 | 0.0 | 1,189 | 583.7 | 69.6 | 653.3 | 1,842.9 |
| 2022 | 57.6 | 23.4 | 479.9 | 66.4 | 116.2 | 882.9 | 1,126.5 | 4.0 | 0.0 | 0.0 | 0.0 | 2,757 | 642.2 | 55.0 | 697.2 | 3,454.0 |

Table 11. Results of 2022 commercial quota accounting in pounds. Source: 2023 state compliance reports. 2022 quota was based on Addendum VI and approved conservation equivalency programs.

| State | 2020-22 Quota^ | 2022 Harvest | 2022 Overage |
|---|---|---|---|
| **Ocean** | | | |
| Maine* | 154 | - | - |
| New Hampshire* | 3,537 | - | - |
| Massachusetts | 735,240 | 770,101 | 34,861 |
| Rhode Island | 148,889 | 162,434 | 13,545 |
| Connecticut* | 14,607 | - | - |
| New York | 640,718 | 623,304 | 0 |
| New Jersey** | 215,912 | - | - |
| Delaware | 142,474 | 139,221 | 0 |
| Maryland | 89,094 | 88,069+ | 0 |
| Virginia | 125,034 | 121,723 | 0 |
| North Carolina | 295,495 | 0 | 0 |
| **Ocean Total** | **2,411,154** | **1,904,852** | **0** |
| **Chesapeake Bay** | | | |
| Maryland | 1,445,394 | 1,223,606+ | 0 |
| Virginia | 983,393 | 722,866 | 0 |
| PRFC | 572,861 | 440,087 | 0 |
| **Bay Total** | **3,001,648** | **2,483,438** | **0** |

Note: North Carolina's fishing year is December-November; PRFC's fishing year for gill nets is November-March.

* Commercial harvest/sale prohibited, with no re-allocation of quota.

** Commercial harvest/sale prohibited, with re-allocation of quota to the recreational fishery.

^ Quota changed through conservation equivalency for MA (735,240 lbs), NY (640,718 lbs), NJ (215,912 lbs), DE (142,474 lbs), MD (ocean: 89,094 lbs; bay: 1,445,394 lbs), PRFC (572,861 lbs), VA (ocean: 125,034 lbs; bay: 983,393 lbs).

+ Maryland commercial landings for 2022 are considered preliminary.

Table 12. Number of directed trips for Atlantic striped bass (primary and secondary target) from Maine through North Carolina (excluding inshore NC) for 2018-2022. Source: MRIP (Query June 2023).

| Year | Ocean | Chesapeake Bay | Coastwide Total |
|---|---|---|---|
| **2018** | 15,686,903 | 2,650,311 | **18,337,214** |
| **2019** | 16,189,653 | 1,967,387 | **18,157,040** |
| **2020** | 15,859,277 | 2,678,922 | **18,538,199** |
| **2021** | 16,017,420 | 2,183,568 | **18,200,988** |
| **2022** | 21,046,502 | 2,132,346 | **23,178,848** |

Tables 13a-13c. Total removals in numbers of fish (harvest plus discards/release mortality) of Atlantic striped bass by sector in numbers of fish for 2017, 2020, 2021, and 2022. Harvest is from state compliance reports/MRIP (Query June 2023), discards/release mortality is from ASMFC. Estimates exclude inshore harvest from North Carolina.

Table 13a. Coastwide removals in numbers of fish for 2017 and 2020-2022.

| | Commercial | | Recreational | | Total | |
|---|---|---|---|---|---|---|
| | Commercial Removals | % Change from 2017 | Recreational Removals | % Change from 2017 | Total Removals | % Change from 2017 |
| 2017 | 691,471 | - | 6,359,021 | - | 7,050,492 | - |
| 2020 | 641,711 | -7% | 4,470,204 | -30% | 5,111,915 | **-27.5%** |
| 2021 | 729,883 | +6% | 4,425,690 | -30% | 5,155,573 | **-27%** |
| 2022 | 680,615 | -2% | 6,121,867 | -4% | 6,802,681 | **-3.5%** |

Table 13b. Ocean removals in numbers of fish for 2017 and 2020-2022.

| | Commercial | | Recreational | | Total | |
|---|---|---|---|---|---|---|
| | Commercial Removals | % Change from 2017 | Recreational Removals | % Change from 2017 | Total Removals | % Change from 2017 |
| 2017 | 211,924 | - | 4,344,953 | - | 4,556,877 | - |
| 2020 | 115,044 | -46% | 2,966,848 | -32% | 3,081,891 | **-32%** |
| 2021 | 133,569 | -37% | 3,373,924 | -22% | 3,507,493 | **-23%** |
| 2022 | 129,295 | -39% | 5,099,654 | +17% | 5,228,950 | **+15%** |

Table 13c. Chesapeake Bay removals in numbers of fish for 2017 and 2020-2022.

| | Commercial | | Recreational | | Total | |
|---|---|---|---|---|---|---|
| | Commercial Removals | % Change from 2017 | Recreational Removals | % Change from 2017 | Total Removals | % Change from 2017 |
| 2017 | 479,547 | - | 2,014,068 | - | 2,493,615 | - |
| 2020 | 526,667 | +10% | 1,503,357 | -25% | 2,030,024 | **-19%** |
| 2021 | 596,314 | +24% | 1,051,766 | -48% | 1,648,080 | **-34%** |
| 2022 | 551,520 | +15% | 1,022,212 | -49% | 1,573,732 | **-37%** |

Note: Some states chose a less than 18% commercial quota reduction in exchange for a greater than 18% reduction in recreational removals in their CE plans.

Table 14. Realized percent change in recreational removals in numbers of fish (harvest plus release mortality) of Atlantic striped bass by state relative to 2017 and predicted percent change in recreational removals from approved conservation equivalency plans (where applicable). Harvest is from MRIP (Query June 2023), release mortality is from ASMFC. Estimates exclude inshore harvest from North Carolina. NA = Percent reduction not calculated if implementing Addendum VI measure.

| State | Realized % Change Recreational Harvest from 2017 | | Realized % Change Recreational Release Mortality from 2017 | | Realized % Change Rec. Removals (Harvest + Release Mortality) from 2017 | | Predicted % Change in Rec. Removals from CE Plan |
|---|---|---|---|---|---|---|---|
| | **2021** | **2022** | **2021** | **2022** | **2021** | **2022** | |
| Maine | -42% | +161% | -25% | -55% | -26% | -38% | NA |
| New Hampshire | -88% | -38% | -71% | -26% | -75% | -29% | NA |
| Massachusetts | -54% | +22% | -64% | -55% | -61% | -35% | NA |
| Rhode Island | -4% | +11% | +91% | -39% | +62% | -24% | NA |
| Connecticut | -78% | +23% | -41% | -46% | -48% | -34% | NA |
| New York | -71% | +85% | +13% | +146% | -42% | +106% | -23.8% |
| New Jersey | +22% | +80% | +237% | +186% | +76% | +106% | -25% |
| Delaware | -66% | -86% | +11% | +188% | -31% | +38% | -20% |
| Maryland | -47% | -41% | -50% | -56% | -48% | -47% | -20.6% |
| Virginia | -36% | -49% | -60% | -76% | -48% | -63% | -23.4% |
| North Carolina^ | - | - | +305% | +570% | +305% | +570% | NA |
| **Coastwide Total** | **-37%** | **+18%** | **-24%** | **-22%** | **-30%** | **-4%** | |

^Offshore recreational harvest for North Carolina was 0 fish in 2017 and 2020-2022. Offshore estimated release mortality for North Carolina was 463 fish in 2017, 0 fish in 2020, 1,875 fish in 2021, and 3,107 fish in 2022.

Note: Increased harvest in 2022 and increased recreational releases in NY, NJ, and DE contributed to realized reductions in total recreational removals being less than predicted for those states.

Table 15. Percent change in commercial harvest by weight of Atlantic striped bass by state relative to 2017 and percent change in commercial quota from 2017. Note: Harvest is from state compliance reports. Estimates exclude inshore harvest from North Carolina.

| State | % Change in Commercial Harvest by weight from 2017 | | % Change in Commercial Quota+ |
|---|---|---|---|
| | 2021 | 2022 | Add VI |
| **Ocean** | | | |
| Maine | | | |
| New Hampshire | | | |
| Massachusetts | -11% | -6% | -18%* |
| Rhode Island | -26% | -7% | -18% |
| Connecticut | | | |
| New York | -10% | -11% | -18%* |
| New Jersey | | | |
| Delaware | -1% | -2% | -1.8% |
| Maryland (ocean) | +10% | 9% | -1.8% |
| Virginia (ocean) | -10% | -9% | -9.8% |
| North Carolina^ | - | - | -18% |
| **Ocean Total** | **-10%** | **-7%** | |
| **Chesapeake Bay** | | | |
| Maryland (Ches. Bay) | -9% | -15% | -1.8% |
| PRFC (Ches. Bay) | -17% | -13% | -1.8% |
| Virginia (Ches. Bay) | -12% | -13% | -7.7% |
| **Chesapeake Bay Total** | **-12%** | **-14%** | |
| **Coastwide Total** | **-11%** | **-11%** | |

+ 2020-2022 quota changed through conservation equivalency for MA, NY, NJ, DE, MD, PRFC, VA.

*MA and NY quotas were based on an 18% reduction from 2017 quota and spawner-per-recruit (SPR) analysis that accounted for changing the commercial size limits.

^North Carolina reported no ocean commercial harvest in 2017, 2020-2022.

Note: Some states chose a less than 18% commercial quota reduction in exchange for a greater than 18% reduction in recreational removals in their CE plans.

Table 16. Status of Commercial Tagging Programs by state for 2022.

| State | Total Participants | Tags Issued | Tags Used | Tags Returned /Broken | Tags Not Accounted For[1] | Point of Tag (sale/ harvest) | Biological Metric[2] (Y/N) | Year, State and Unique ID on Tag (Y/N) | Size Limit on Tag (Y/N) | Tag Colors | Annual Tag Color Change (Y/N) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MA | 124 | 58,560 | 32,989 | 24,931 | 640 | Sale | Y | Y | Y | one tag color | Y |
| RI | 20 | 16,210 | 12,051 | 3,643 | 516 | Sale | Y | Y | N | two tag colors by gear | Y |
| NY | 377 | 61,000 | 53,750 | 5,970 | 1,288 | Harvest | Y | Y | N | one tag color | Y |
| DE* | 243 | 17,310 | 8,197 | 9,113 | 0 | Both | Y | Y | N | Harvest: two tag colors by gear<br>Sale: one color | Y |
| MD± | 612 | 442,850 | 286,426 | tbd | tbd | Harvest | Y | Y | N | three tag colors by fishery and area | Y |
| PRFC | 323 | 83,329 | 73,608 | 9,409 | 524 | Harvest | Y | Y | N | five tag colors by gear | N |
| VA | 364 | 198,400 | 152,940 | 39,061 | 6,399 | Harvest | Y | Y | Y | two tag colors by area | Y |
| NC^ | 16 | 6,650 | 4,824 | 1,820 | 6 | Sale | Y | Y | Y | three tag colors by area | N |

[1] Tags not accounted for refers to unused tags that are not returned/not reported as lost or missing.

[2] States are required to allocate commercial tags to permit holders based on a biological metric. Most states use the average weight per fish from the previous year, or some variation thereof. Actual biological metric used is reported in Annual Commercial Tag Monitoring Reports.

*The number of tags noted in the table for Delaware are the tags issued to and used by harvesters. Tags are also issued to weigh stations where a second tag is attached to each striped bass, such that each fish has two tags. In 2022, 14,000 weigh station tags were issued, 8,197 were used, 5,803 were returned, and 0 not accounted for.

± Maryland's audit of unused tags has been delayed by staffing issues.

^ All commercial tags noted in the table for North Carolina were used in the Albemarle Sound management area.

Note: North Carolina's fishing year is December-November; PRFC's fishing year for gill nets is November-March.

Table 17. Status of compliance with monitoring and reporting requirements in 2022. JAI = juvenile abundance index survey, SSB = spawning stock biomass survey, TAG = participation in coastwide tagging program, Y = compliance standards met, N = compliance standards not met, NA = not applicable, R = recreational, C = commercial.

| Jurisdiction | Fishery-independent Monitoring | | Fishery-dependent Monitoring | | Annual reporting Status |
|---|---|---|---|---|---|
| | Requirement(s) | Status | Requirement(s) | Status | |
| ME | JAI | Y | - | NA | Y |
| NH | - | NA | - | NA | Y |
| MA | TAG | Y | composition, catch & effort (C&R), tag program | Y | Y |
| RI | - | NA | composition (C&R), catch & effort (R), tag program | Y | Y |
| CT | - | NA | composition, catch & effort (R) | Y | Y |
| NY | JAI, SSB, TAG | Y | composition, catch & effort (C&R), tag program | Y | Y |
| NJ | JAI, TAG | Y | composition, catch & effort (R) | Y | Y |
| PA | SSB | Y | - | NA | Y |
| DE | SSB, TAG | Y | composition, catch & effort (C), tag program | Y | Y |
| MD | JAI, SSB, TAG | Y | composition, catch & effort (C&R), tag program | Y | Y |
| PRFC | - | NA | composition, catch & effort (C&R), tag program | Y | Y |
| DC | - | NA | - | NA | Y |
| VA | JAI, SSB, TAG | Y | composition, catch & effort (C&R), tag program | Y | Y |
| NC | JAI, SSB, TAG | Y | composition, catch & effort (C&R), tag program | Y | Y |

Table 18. State implementation of new Amendment 7 recreational gear provisions required to be implemented by January 1, 2023:

- *It shall be unlawful for any person to gaff or attempt to gaff any striped bass at any time when fishing recreationally.*
- *Striped bass caught on any unapproved method of take must be returned to the water immediately without unnecessary injury.*

| State | Gaffing Prohibition | Referred Language for Incidental Catch Provision |
|---|---|---|
| Maine | Yes | Striped bass incidentally caught on any unapproved hook type must be returned to the water immediately without unnecessary injury. |
| New Hampshire | Yes | Fish shall be taken only by angling unless otherwise specifically permitted. If a fish is unintentionally taken contrary to the prohibitions or restrictions contained in a provision of this title, such fish shall be immediately liberated and returned to the water without unnecessary injury. |
| Massachusetts | Yes | Striped bass caught on any unapproved method of take must be returned to the water immediately without unnecessary injury. |
| Rhode Island | Yes | Striped bass caught on any unapproved method of take must be returned to the water immediately without unnecessary injury. |
| Connecticut | Yes | Striped bass shall not be taken except by angling and the use of a gaff in the taking of striped bass is prohibited. Any striped bass taken contrary to the provisions of this section shall, without avoidable injury, be returned immediately to the waters from which taken. |
| New York | Yes | Striped bass caught on any unapproved method of take must be returned to the water immediately without unnecessary injury. |
| New Jersey | Yes | Striped bass caught on any unapproved method of take must be returned to the water immediately without unnecessary injury. |
| Pennsylvania | Yes | Any fish caught that is not to be counted in the creel limit shall be immediately released unharmed into the water from which taken. Except as otherwise provided in § 53.24 or § 63.40 (relating to tournament and fishing derby permits; and fishing tournaments and fishing derbies), a fish placed on a stringer, or confined by any type of container, structure or device, or not returned immediately to the water, will be considered as part of the daily creel or possession limits. Fish returned to the water shall be handled carefully and be returned unharmed to the water from which take.<br><br>It is unlawful to use a method for taking fish or attempting to take fish from the waters of this Commonwealth, including boundary lakes and rivers, unless the use of the method is specifically authorized by law or this part. |

| State | Gaffing Prohibition | Referred Language for Incidental Catch Provision |
|---|---|---|
| Delaware | Yes | It is unlawful for any recreational fisherman to take or attempt to take any striped bass from the tidal waters of this State with any fishing equipment other than a hook and line or a spear while said recreational fisherman using the spear is underwater…<br>… Any striped bass taken from the tidal waters of this State that is not immediately returned, without unnecessary injury, to the same waters from which it was taken, is deemed taken and reduced to possession for purposes of this subsection. |
| Maryland | Yes | An individual may only use the gear specified in this regulation to catch fish for recreational purposes from tidal waters. An individual using gear in accordance with this chapter shall comply with all seasons, creel limits, size limits, and other species-specific rules as specified under this subtitle… |
| District of Columbia | No, but does not specify gaffs as legal gear | Except as otherwise permitted by these rules, a person shall fish only with rod, hook, and line, not to exceed three (3) lines in number and not having more than two (2) hooks to each line. Artificial lures or plugs with multiple or gang hooks are considered one unit.<br><br>It is unlawful to: Take fish except as specified in this chapter |
| PRFC | Yes | Any fish, whose size is prohibited or whose season is closed by these regulations, which may be caught or entrapped as an incident to other lawful fishing activities, shall be immediately released and returned to the waters where found… |
| Virginia | Yes | It shall be unlawful for any person fishing recreationally to take, catch, or attempt to take or catch any striped bass by any gear or method other than hook-and-line, rod and reel, hand line, or spearing. |
| North Carolina | Yes | Striped bass taken on any unapproved method must be returned to the water immediately without unnecessary injury. |

## XI. Figures

Figure 1. Atlantic striped bass female spawning stock biomass and recruitment, 1982-2021. Source: 2022 Stock Assessment Update.

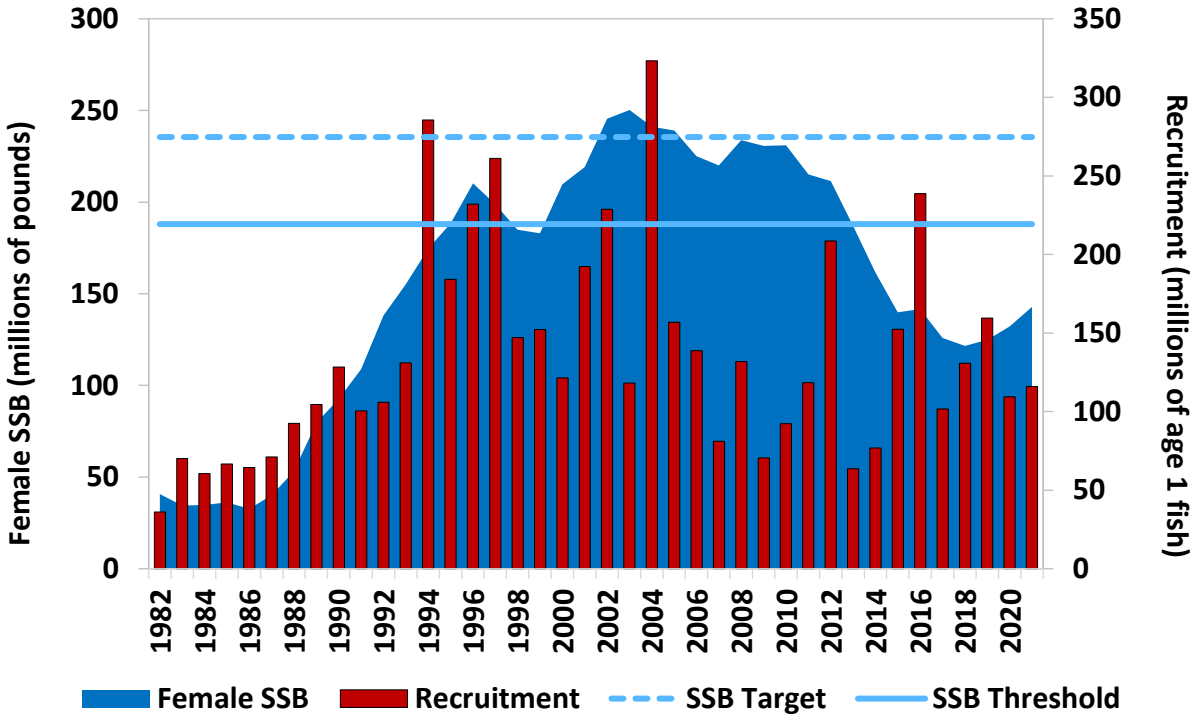



Figure 2. Atlantic striped bass fishing mortality, 1982-2021. Source: 2022 Stock Assessment Update.

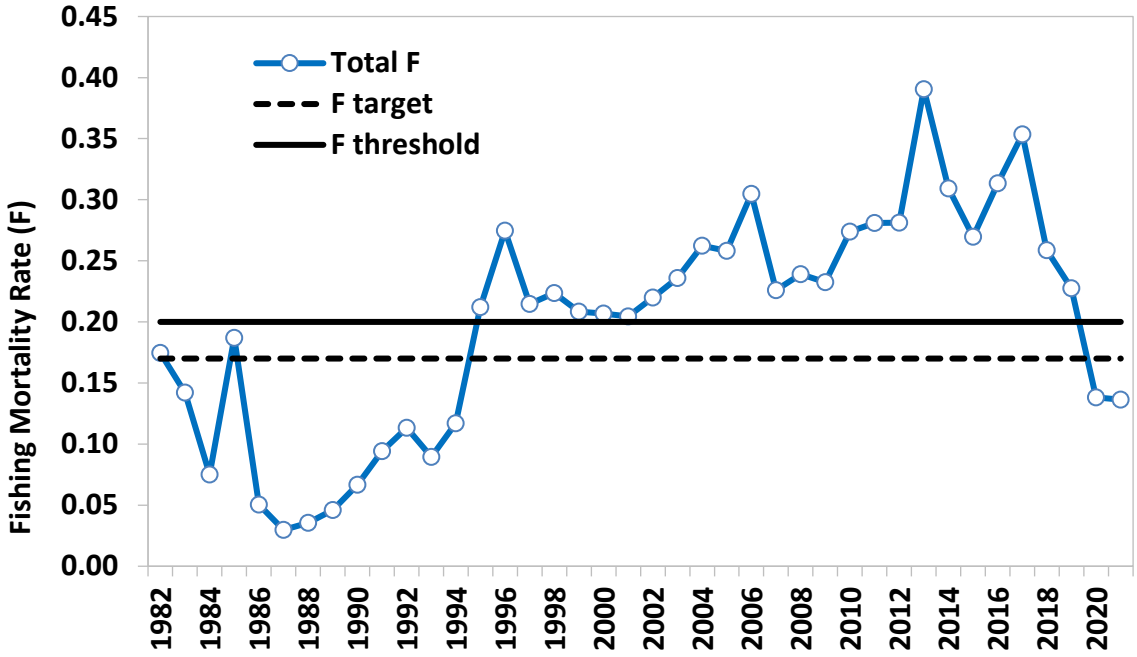


Figure 3. Albemarle Sound-Roanoke River striped bass female spawning stock biomass and recruitment (abundance of age-1), and biological reference points, 1991-2017. Source: 2020 A-R Stock Assessment (Lee et al. 2020).

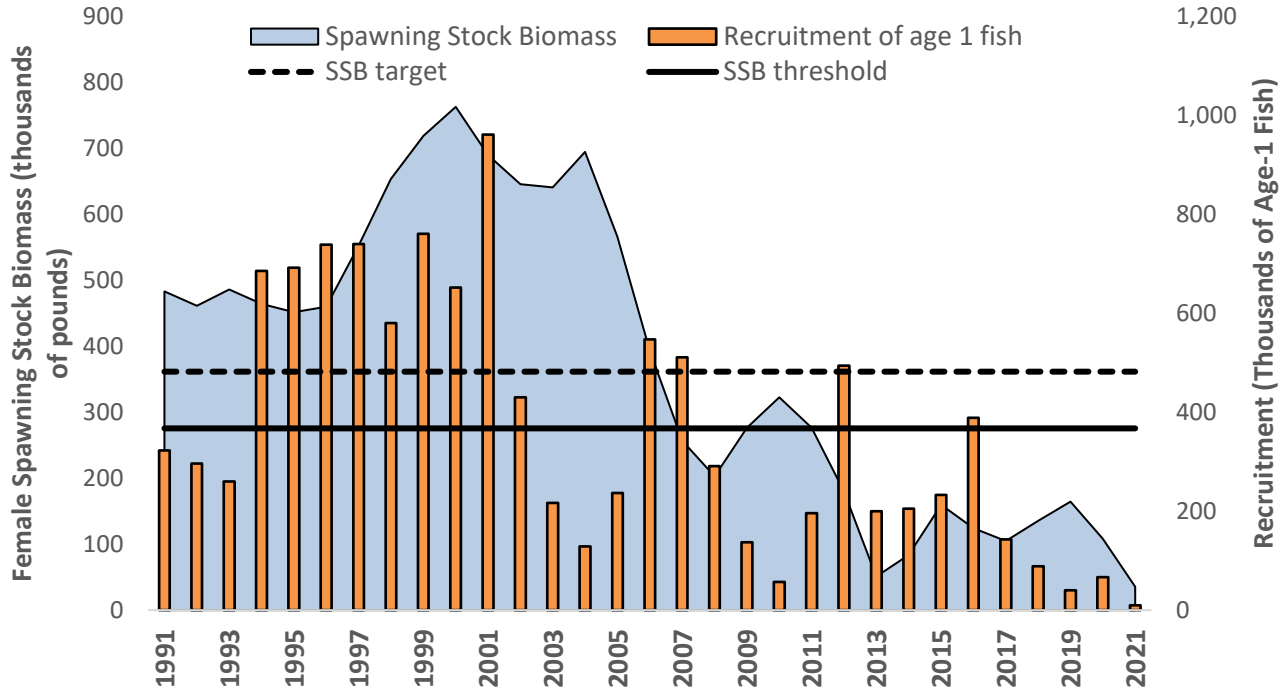



Figure 4. Albemarle Sounds-Roanoke River striped bass fishing mortality (F) estimates, and biological reference points, 1991-2017. Source: 2020 A-R Stock Assessment (Lee et al. 2020).

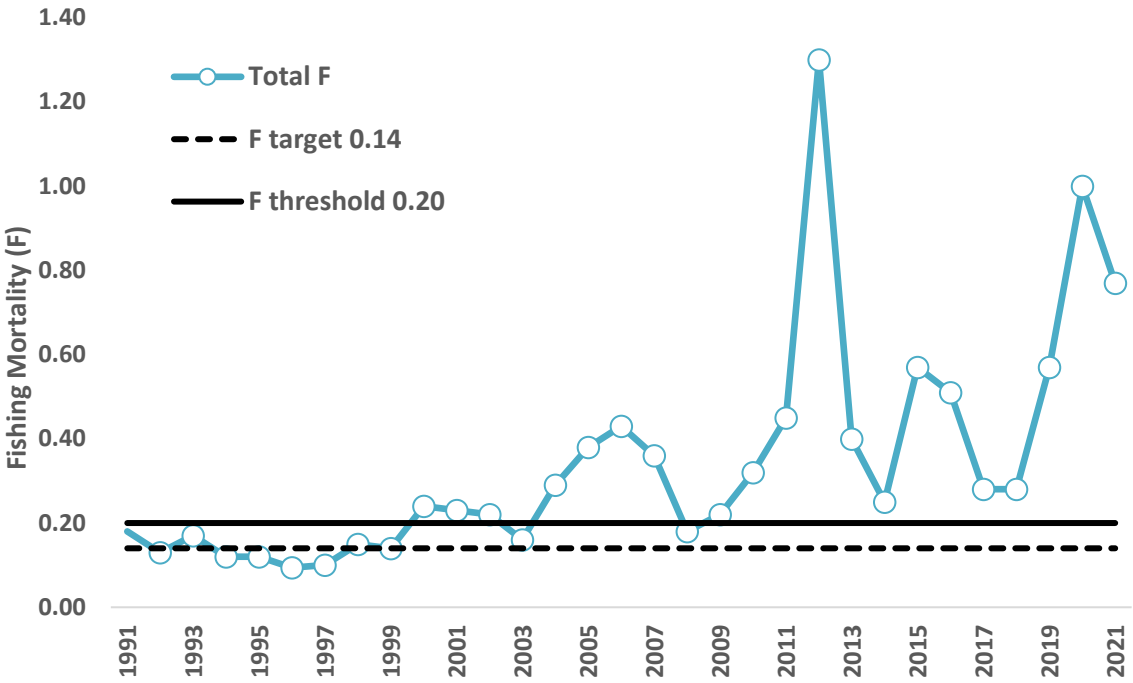


Figure 5. Total Atlantic striped bass removals by sector in numbers of fish, 1982-2022. Note: Harvest is from state compliance reports/MRIP, discards/release mortality is from ASMFC. Estimates exclude inshore harvest from A-R.

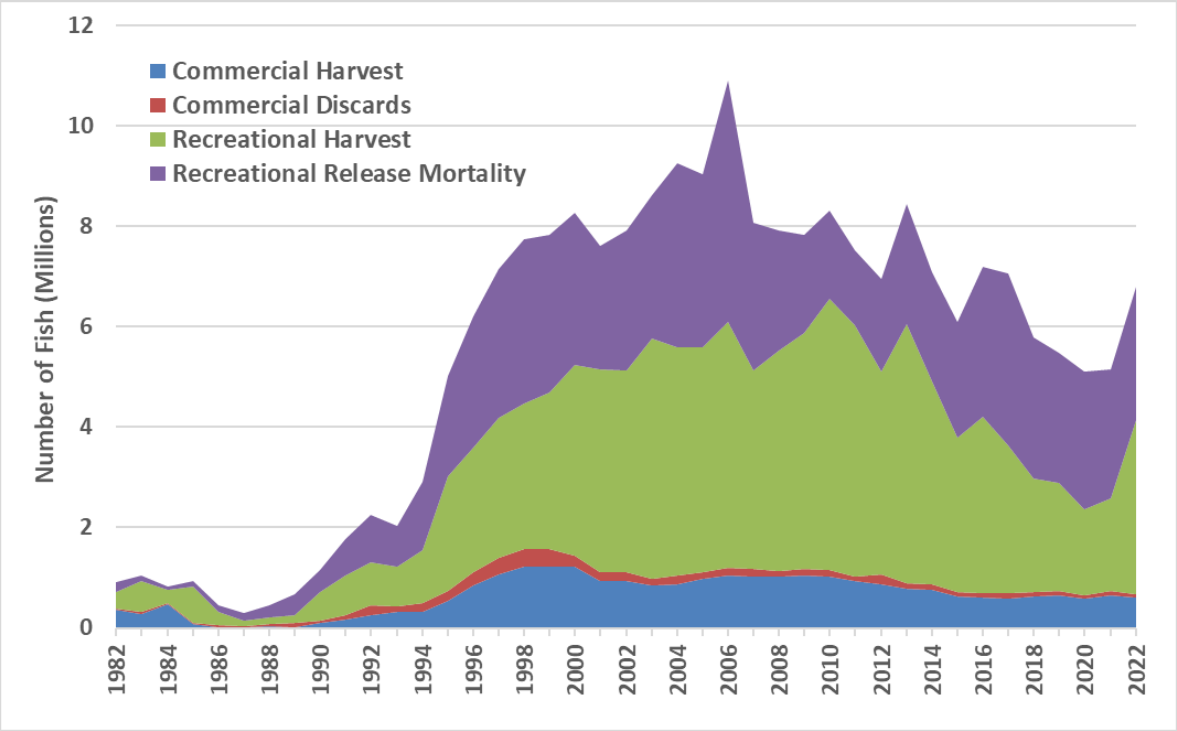



Figure 6. Commercial Atlantic striped bass landings by state in pounds, 1982-2022. Source: State compliance reports. Commercial harvest and sale prohibited in ME, NH, CT, and NJ. NC is ocean only.

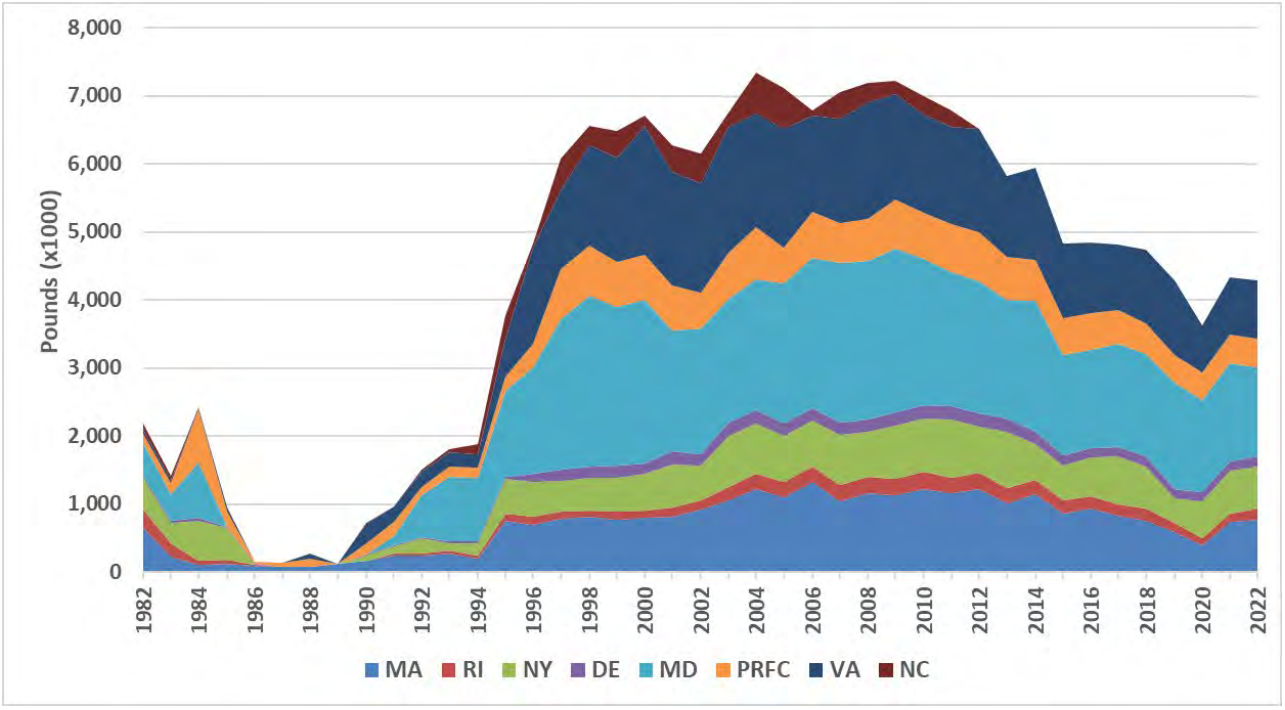


Figure 7. Total recreational catch and the proportion of fish released alive, 1982-2022. Source: MRIP/ASMFC. Estimates exclude inshore harvest from A-R.

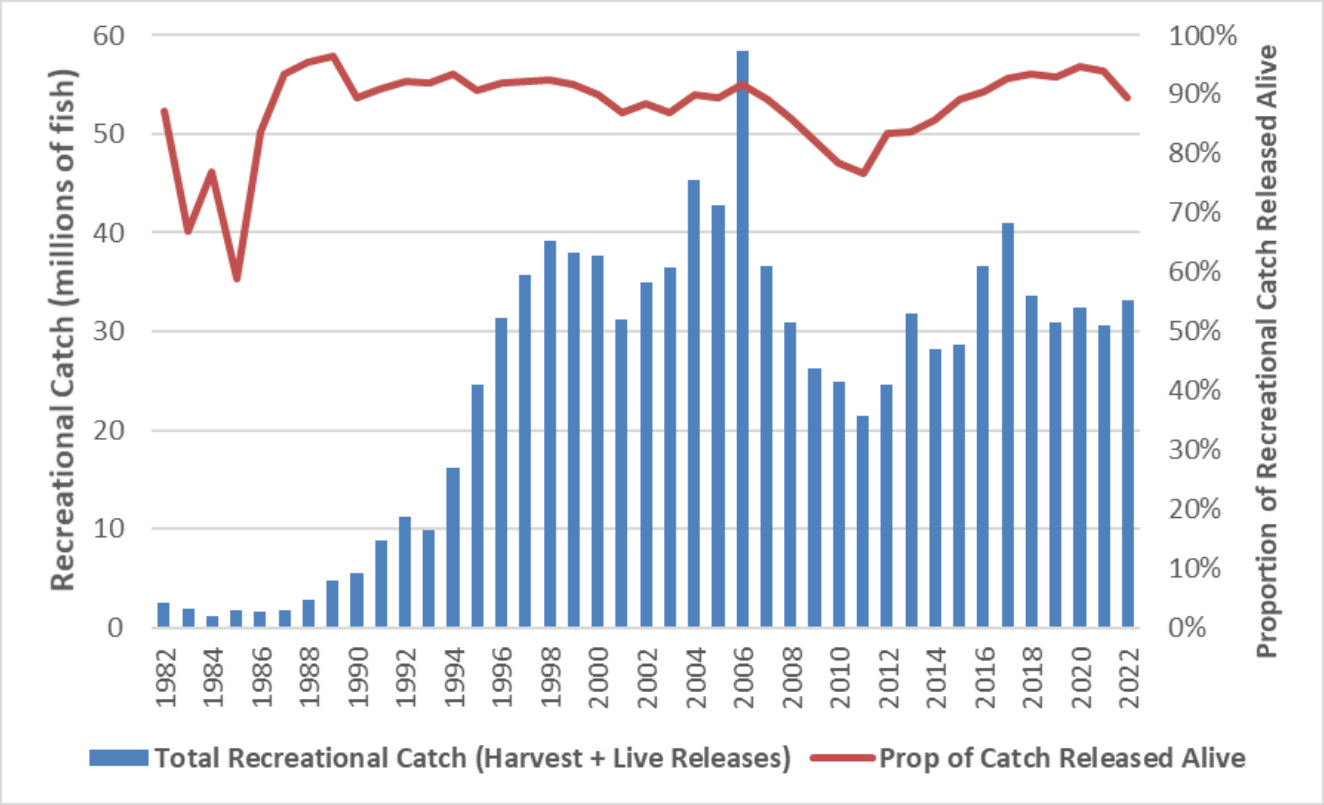


Figure 8. Juvenile abundance indices for New York, New Jersey, Maryland, and Virginia for 1982-2022 with recruitment trigger analysis for recent years. An open circle in the last three years indicates a value below the recruitment trigger level. The recruitment trigger is tripped if a JAI is below the trigger level for three consecutive years. Source: 2023 State Compliance Reports.

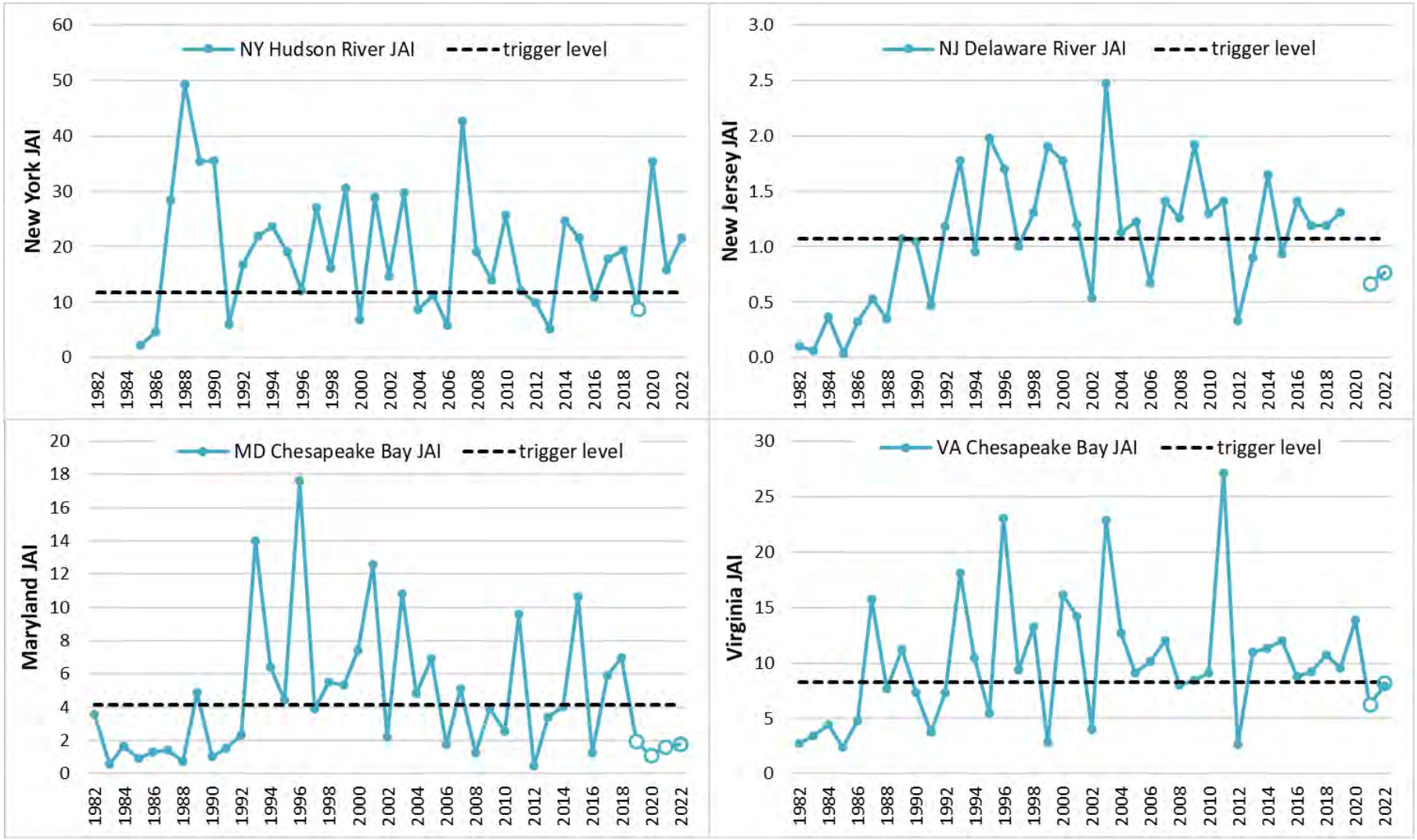
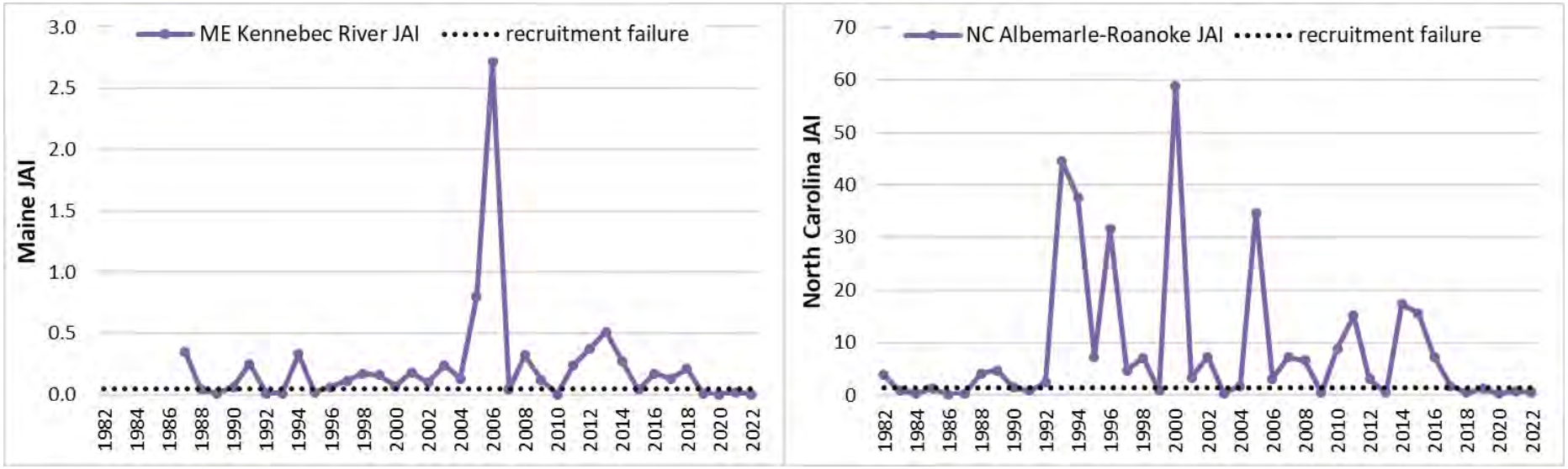


Figure 9. Juvenile abundance indices for Maine and North Carolina from 1982-2022 noting the level of recruitment failure. Source: 2023 State Compliance Reports.



**From:** Toni Kerns
**To:** Tina Berger
**Subject:** FW: [External] Striped Bass Comments
**Date:** Tuesday, July 25, 2023 2:48:47 PM

---

Tina Please include the below comments from Rick in Supplemental Materials.

-----Original Message-----
From: Rick Bellavance <rickbellavance@gmail.com>
Sent: Tuesday, July 25, 2023 2:44 PM
To: Toni Kerns <Tkerns@asmfc.org>; Emilie Franke <EFranke@asmfc.org>
Subject: [External] Striped Bass Comments

Dear Atlantic Striped Bass Management Board,

I write today to offer my thoughts regarding the next proposed addendum to the Striped Bass management plan.

I own and operate a full time charter fishing business in Rhode Island and have been in business for 30 years. Striped Bass is one of the primary species that my customers chose to fish for, because they enjoy eating that particular fish. As the harvest of Striped Bass has been restricted by the Board in an effort to promote rebuilding, my customers are taking home less and less to eat each year. Instead, they are returning many of the fish they catch back to the water. My customers regularly ask me "why do we have to let so many fish go when we are catching more Stripers than ever before?" I can sense their frustration and I wonder how long they will continue to bring me business  e cause I cannot fulfill their needs for harvesting dinner.
I am hopeful the Board can recognize that many people consider harvesting a fish to eat for dinner a driving part of their charter fishing experience. For years, people who want to eat Striped Bass have been the only people who have born the burden of rebuilding Striped Bass and their sacrifices have paid off.
Although the stock projections tell one story, fishermen on the water are living a different story. They are catching high numbers of Striped Bass across many different year classes up and down the eastern sea board. A disconnect exists between the current science and the on the water experiences of Striped Bass fishermen. High variability in MRIP catch data could be the culprit. The high 2022 private and shore recreational catch has sent the projections off in a direction that has the Board concerned. The high 2022 catch could be an anomaly that would benefit from a multi year averaging or it could be a signal of stock strength. Either scenario could justify a pause by the board until a full assessment update it complete next year.

Absent a pause by the board, the PDT and TC have analyzed alternatives to consider including in the addendum that would provide a better opportunity for charter clients that want to harvest a fish to do so with very little difference in overall mortality. I am asking that those alternatives be included in the document for the public to comment on. The anglers who have sacrificed to rebuild striped bass ought to be considered in future management. Equitable is not always equal, the board has placed rebuilding efforts upon the shoulders of anglers who wish to harvest a fish while leaving those who wish to strictly catch and release striped bass unaffected by rebuilding efforts and zero contribution to rebuilding. Offering for hire vessels regulations that allow for easier harvest will at least provide those anglers who have led the rebuilding efforts to date a chance to stay in the game. These alternatives will have very little impact on the boards efforts to improve the odds of rebuilding.
The emergency action measures put in place for 2023 have made my job more difficult and frustrating. I leave the dock each morning with the expectations of satisfying my customers fishing needs that day. This year I have accomplished that less, even though I have caught more Striped Bass per trip than usual. I am worried my customers will not return next year unless they feel they have a fair shot at bringing a fish home for dinner.
In closing, I appreciate the Boards work to date to improve the condition of the Striped Bass stock. Those efforts have paid off in a positive way few could have predicted. Although the science hasn't quite caught up, Striped Bass fishing is really fun again because of your work and I hope you can see to including some alternatives in your next action that will help the for hire industry survive and thrive , as well as send a message to our customers that their sacrifices to date have been worth it.

July 25, 2023

Chair Martin Gary
Striped Bass Management Board
Atlantic States Marine Fisheries Commission
**RE: Draft Addendum II**

Dear Chair Gary and Striped Bass Management Board Members,

The American Saltwater Guides Association represents conservation-minded fishing guides, fishing-related businesses, and private anglers who believe in the concept of "better business through marine conservation." Striped bass is the critical inshore fishery that connects much of the Northeast and Mid-Atlantic and for which our members rely upon. Since our inception, ASGA has engaged on and monitored every striped bass management action at the ASMFC, and we've gone to great lengths to educate the angling public on the complexities of striped bass management and how to provide insightful, respectful public input. ASGA applauds the Striped Bass Board's recent decisions for striped bass conservation in Amendment 7, rebuilding by 2029, approving Emergency Action, and initiating Addendum II.

The Striped Bass Board is scheduled to consider Draft Addendum II for public comment next week at the 2023 Summer ASMFC Meeting. While we believe the Plan Development Team and Technical Committee developed a solid document with a range of options projected to further assist in rebuilding—and not include options outside the scope of the initiating motion—we would like to share some thoughts on Draft Addendum II, as included in meeting materials.

**Recommendations:**

- ASGA understands that unprecedented increases in recreational harvests in 2022 were the primary factor contributing to rebuilding projections declining from 97 to 15 percent. However, we firmly believe that in shared fishery, reductions should be shared across user groups. **All sectors should assist in rebuilding this fishery by 2029.**
- The above recommendation is also compounded by the fact that in the past, several states used conservation equivalency to shift reduction burdens to the recreational sector, maintaining near status quo commercial quotas. At the very least, **the Striped Bass Board should 'wipe the slate clean' and only consider option C2**—FMP Standard as Starting Point.
- The Board should pare down some of the recreational alternatives—**options that achieve regional consistency should be prioritized**, especially in the Chesapeake Bay, to assist law enforcement, data collection, and communication to recreational anglers.
- For the Ocean recreational fishery, the Board should remove some of the more complex seasonal harvest closure options, which we fear may be challenging for states to effectively implement and communicate, leading to compliance issues.

- **Mode splits and no-targeting closures are complicated issues that should not distract the board from implementing Addendum II before the 2024 fishing season**. Time is of the essence to protect the 2015 year-class and continue working towards a rebuilt striped bass stock by 2029. Now, when the stock remains overfished and rebuilding projections were substantially reduced due to harvest, is not the time to consider mode splits.
- 2023 environmental conditions in Chesapeake Bay spawning tributaries were abnormally poor and unlikely to produce a sorely needed strong year-class of striped bass. ASGA encourages the Board to take that into account, as it considers additional conservation and management of striped bass.

Thank you for your consideration of these comments and work towards recovering the striped bass stock. Please reach out if you have any questions.

Sincerely,

Tony Friedrich
Vice President and Policy Director
American Saltwater Guides Association
tony@saltwaterguidesassociation.org
(202) 744-5013

Will Poston
Policy Associate
American Saltwater Guides Association
will@saltwaterguidesassociation.org
(202) 577-8990

| | |
|---|---|
| **From:** | montaukcaptains@gmail.com |
| **To:** | Comments |
| **Subject:** | [External] Comments for ASMFC August Meeting re Striped Bass Emergency Action |
| **Date:** | Tuesday, July 25, 2023 9:30:41 PM |
| **Attachments:** | STB Petition Overview (as of July 25 2023).pdf<br>STB Petition Signatures (as of July 25 2023).pdf |

To whom it may concern –

On behalf of the Montauk Boatmen and Captains Association, we submit this letter in continued strong opposition of the current striped bass emergency action approved by the ASMFC and subsequently implemented in New York, as well as other states, earlier this year. We ask that this be submitted for your consideration during the upcoming August 1-3 meeting.

Earlier this summer we launched a petition, available at www.change.org/WeNeedBetterStripedBassRegs, requesting support from those who understand the importance of more reasonable striped bass regulations, particularly for our for-hire industry. While this letter represents the MBCA and our Montauk for-hire fleet, we know that we are in good company with neighboring captains' associations who are struggling just the same as we are. For ease of reference, I attach a copy of the petition to this email, along with the list of over 2200 signatures in support of what we are fighting for.

We understand and appreciate the need for conservation efforts. We support conservation efforts, so long as they are reasonable and make sense. The current emergency action, reducing the striped bass slot size to a mere 3" range, is unreasonable. The data you've presented does not make sense and despite our attendance at all four public hearings earlier this year, we still have not received a clear explanation of how you reached your current conclusion that such drastic measures must be taken.

Our businesses are already suffering. Customers are already cancelling charters because the likelihood of going home with any striped bass (never mind a limit of striped bass) has decreased exponentially. It is worth noting that our captains already report seeing increases in release mortality, as fish that are too big to keep – some of which are within the 31" to 35" range – are being returned to the ocean only die. Again, we are not alone in this.

We would welcome a dialogue to discuss reasonable alternatives to the current situation. Outreach to our captains has been virtually non-existent. Rather, we have had to be reactive and defend our positions as opposed to helping reach a viable solution.

Before any further decisions are made, we urge you to truly offer us an opportunity to help achieve a better solution than the current emergency action.

Respectfully –

Captain Jill Maganza-Ruiz
Secretary, MBCA
On behalf of the Montauk Boatmen and Captains Association

**Montauk Boatmen and Captains Association**
P.O. Box 2328
Montauk, New York 11954
Email | Website

# Striped Bass Emergency: Get Your Fish to Your Dish!

Started June 14, 2023

**2,248**
Signatures

**2,500**
Next Goal

Support now

Share this petition

## Why this petition matters

Started by [Montauk Boatmen and Captains Association (MBCA)]

Montauk is New York State's largest commercial fishing harbor and home port to some of the greatest fishing on the east coast.

Striped bass, bluefish, fluke, black sea bass, porgies, blackfish, and codfish are all popular species targeted by our captains and, very importantly, the thousands of people who visit Montauk to harvest fish for themselves.

Undoubtedly, one of Montauk's most popular fisheries is striped bass. In fact, more than 75% of our charter boat fleet focuses the bulk of their season on striped bass fishing. Whether it's the thrill of snapping a photo with a record-setting fish or simply going home with dinner, visitors come from all over the country, and even the world, to get in on Montauks' striped bass bite. Striped bass fishing is truly the "bread and butter" for most of our for-hire fishing fleet.

Recently, the Atlantic States Marine Fisheries Commission (ASMFC) took drastic, unreasonable, and unnecessary measures to pass an emergency action that reduces the maximum size of an allowable striped bass from 35" to 31". Many anglers will recall the days when customers who paid a premium to fish on board a charter or head boat had the privilege of going home with 2 striped bass per person, vs the 1 per person limit for recreational anglers. Regulations then changed, limiting the catch to 1 fish per person for all anglers. Three years ago, in 2020, NYS introduced a slot size, further limiting the ability of our captains to catch striped bass for our customers and requiring not only a minimum size of 28", but also a maximum size of 35". And then, earlier this year, the ASMFC approved its preposterous emergency action, which was subsequently implemented by the NYS Department of Environmental Conservation on June 20, 2023, reducing that maximum size to 31", leaving us with a slot range of a mere 3".

The emergency action will have a direct adverse impact on our for-hire fleet. Our customers expect to take fish home after paying a charter or party boat fare. With the rising prices of fuel, bait, tackle and insurance, our captains have had no choice but to raise their rates. From our customers' perspectives, the increase in rate is oftentimes offset by the ability to put fish in their coolers to bring home for their families. Particularly in light of rising costs for basic groceries, this trade-off is essential. If our customers are unable to bring fish home, they will be less inclined to book a fishing trip. This, in turn, also hurts our local businesses, including hotels, restaurants and shops, all of which rely upon Montauk's visitors to thrive.

The MBCA has written to and has since received confirmation of support from our State Senator and Assemblyman, who have urged the NYS DEC to listen to its captains and fishermen before adopting this emergency action. We were never given the opportunity to share our concerns or offer alternatives for their consideration. We understand the importance of conservation, and we support it. However, such efforts must be reasonable and based upon accurate data.

We will continue to fight this fight and lobby for better practices in regulating our fisheries. This striped bass emergency is affecting captains throughout the northeast region and beyond. We

are doing our part here in Montauk, where the impact is devastating.  Please show your support by signing this petition and amplifying our voice for those who need to hear us.

Thank you.

| Name | City | State | Signed On |
|---|---|---|---|
| Montauk Boatmen and Captains Association (I | Montauk | NY | 6/15/2023 |
| Daniel Giunta | Montauk | NY | 6/21/2023 |
| Jill Maganza-Ruiz | Lynbrook | NY | 6/22/2023 |
| Richard Etzel | East Hampton | NY | 6/22/2023 |
| Charles Mayrer | Queens | NY | 6/22/2023 |
| Eric Jimenez | Lompoc | | 6/22/2023 |
| Capt. Brad Ries | Patchogue | NY | 6/23/2023 |
| Steve Ruiz | Brooklyn | NY | 6/23/2023 |
| Anthony Darrigo | East Hampton | NY | 6/23/2023 |
| Matthew Lynch | Sayville | NY | 6/23/2023 |
| Marco Navarro | Mattituck | NY | 6/23/2023 |
| Brett Savio | Lawrence | NY | 6/23/2023 |
| Paul Galeno | Cortlandt Manor | | 6/23/2023 |
| Philip Buonadonna | Farmingville | NY | 6/23/2023 |
| Scott Albrecht | Suffern | NY | 6/23/2023 |
| A.j. Walters | New York | NY | 6/23/2023 |
| Joseph Aviles | New York | NY | 6/23/2023 |
| Steven Laurino | Montauk | NY | 6/23/2023 |
| Jay Sackstein | Brooklyn | NY | 6/23/2023 |
| Alex Radetsky | New York | NY | 6/23/2023 |
| Richard Colombo | West New York | NJ | 6/23/2023 |
| Michael Karman | Sayville | NY | 6/23/2023 |
| Michael Ardolino | | | 6/23/2023 |
| Stephen Smith | East Hampton | NY | 6/23/2023 |
| Alex Morelli | Brooklyn | NY | 6/23/2023 |
| John Gols | Montauk | NY | 6/23/2023 |
| Shannon McGuire | McKinney | | 6/23/2023 |
| Jason Tanner | San Antonio | | 6/23/2023 |
| Jon Edwards | Odenton | MD | 6/23/2023 |
| Andrew Floyd | | | 6/23/2023 |
| G. Diane Matthews-Marcelin | Carson | | 6/23/2023 |
| paul ohara | Brooklyn | NY | 6/23/2023 |
| WALTER SHIELS | New York | NY | 6/23/2023 |
| Emily Varela | Dallas | | 6/23/2023 |
| Adam Kaluba | Burleson | | 6/23/2023 |
| Gigi Love | La Porte | | 6/23/2023 |
| Kimberly Simon | Roebling | | 6/23/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Tomasz Skrodzki | New York | NY | 6/23/2023 |
| chris montilli | Lynbrook | NY | 6/23/2023 |
| Mike Worthington | Hillsboro | | 6/23/2023 |
| Nathanael Higgs | Salvisa | | 6/23/2023 |
| Peter Carey | Commack | NY | 6/23/2023 |
| Danny Erb | Gibsonia | | 6/23/2023 |
| Daniel Willison | Summerville | SC | 6/23/2023 |
| Dieuri Cabrera | Hamilton | NJ | 6/23/2023 |
| Melissa Light | Bernville | | 6/23/2023 |
| Daran Rubin | East Hampton | NY | 6/23/2023 |
| Katherine Schmeer | Saint Augustine | | 6/23/2023 |
| Ryan Pools | Philadelphia | PA | 6/23/2023 |
| Bill Davaris | Midland Park | NJ | 6/23/2023 |
| Christine Cosgrove | Ridge | NY | 6/23/2023 |
| Richard Roberts | Bellmore | NY | 6/23/2023 |
| felix perez | brooklyn | NY | 6/23/2023 |
| Daniel Fernandez | Staten island | NY | 6/23/2023 |
| Timothy Paich | Loveladies | | 6/23/2023 |
| Alexandria Baldwin | Sanford | | 6/23/2023 |
| Sanjith Sakthivel | Houston | | 6/23/2023 |
| Derek Bielitz | New York | NY | 6/23/2023 |
| Christina H | | | 6/23/2023 |
| Damian Salgado | Leonardo | NJ | 6/23/2023 |
| Lily T | Blaine | | 6/23/2023 |
| Irving Lopez | Anaheim | | 6/23/2023 |
| Carl Cucco | Smithtown | NY | 6/23/2023 |
| Eddie Brown | Highlands | NJ | 6/23/2023 |
| Laura Pavlik | Holtsville | NY | 6/23/2023 |
| Dominick Arpino | Hampton Bays | NY | 6/23/2023 |
| Rafael Sowi | Woodside | NY | 6/23/2023 |
| Venus Del Mar | Rincon | | 6/23/2023 |
| David Wynn | Broussard | LA | 6/23/2023 |
| Robert Zelinski | Baldwin | NY | 6/23/2023 |
| Helenmary Hotz | Brookline | | 6/23/2023 |
| Jay Mert | Flushing | NY | 6/23/2023 |
| Christopher Bean | | | 6/23/2023 |
| Elizabeth Bruno | East Hampton | NY | 6/23/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Ashley Peterson | Mattituck | NY | 6/23/2023 |
| Brian Fleming | Old Bethpage | NY | 6/23/2023 |
| Alexander Papaspyrou | Port Jefferson station | NY | 6/23/2023 |
| Charles Cannisi | Seaford | NY | 6/23/2023 |
| Melissa Ries | Patchogue | NY | 6/23/2023 |
| Rob Malone | Staten Island | NY | 6/23/2023 |
| dennis bracken | Hampton Bays | NY | 6/23/2023 |
| Nick Savene | Long Beach | NY | 6/23/2023 |
| Anthony Reyes | Brooklyn | NY | 6/23/2023 |
| Thomas McNally | Milford | NJ | 6/23/2023 |
| Daniel Mckearney | Brooklyn | NY | 6/23/2023 |
| Jim Fiore | Amagansett | NY | 6/23/2023 |
| Kellie Magyari | Stamford | CT | 6/23/2023 |
| Jason Hoffmann | New York | NY | 6/23/2023 |
| Roseann Gillespie | Morganville | NJ | 6/23/2023 |
| Ben Taglialatela | Brooklyn | NY | 6/23/2023 |
| Robert Gatto | Hampton Bays | NY | 6/23/2023 |
| Charlene Knowles | Babylon | NY | 6/23/2023 |
| Brian Damm | New York | NY | 6/23/2023 |
| Claire Giangreco | Bayside | NY | 6/23/2023 |
| Jimmy Hart | Boynton Beach | FL | 6/23/2023 |
| Andrew Pace | Linden | NJ | 6/23/2023 |
| Rocky Placido | Flushing | NY | 6/23/2023 |
| BettyAnne Klepper | Montvale | NJ | 6/23/2023 |
| Nancy Charmak | New York | NY | 6/23/2023 |
| Chris Mcalister | New York | NY | 6/23/2023 |
| Helen Battista | New York | NY | 6/23/2023 |
| Nicholas Marchetti | New York | NY | 6/23/2023 |
| Chris Elser | Southbury | CT | 6/23/2023 |
| Dennis Leopoldi | Redding | CT | 6/23/2023 |
| Justin Truong | San Francisco | | 6/23/2023 |
| Pat Carelli | Flushing | NY | 6/23/2023 |
| Diane Gurney | Smithtown | NY | 6/23/2023 |
| Scott Lonebull | Brooklyn | NY | 6/23/2023 |
| Kevin Moss | New York | NY | 6/23/2023 |
| Michael Gardner | New York | NY | 6/23/2023 |
| Steven Semkow | New York | NY | 6/23/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Vincent Assogna | Montauk | NY | 6/23/2023 |
| James Moore | Flushing | NY | 6/23/2023 |
| Peter Brennan | The Bronx | NY | 6/23/2023 |
| Melissa Mahnken Esposito | Levittown | NY | 6/23/2023 |
| Heaven Galvin | Oakdale | | 6/23/2023 |
| David Titor | Long Beach | NY | 6/23/2023 |
| Celia Flores | San Antonio | | 6/23/2023 |
| Bradley Bankos | Washington | DC | 6/23/2023 |
| Anthony Quaresimo | Montauk | NY | 6/23/2023 |
| Tyler Quaresimo | Montauk | NY | 6/23/2023 |
| James Schneider | Huntington | NY | 6/23/2023 |
| tatum albrecht | Montauk | NY | 6/23/2023 |
| Richard Jensen | East Marion | NY | 6/24/2023 |
| Mark Weitman | Huntington Station | NY | 6/24/2023 |
| Jessica Quaresimo | E montauk | NY | 6/24/2023 |
| Joseph Fiorilli | Uniondale | NY | 6/24/2023 |
| Patrick Gallagher | Kerhonkson | NY | 6/24/2023 |
| Anthony Grech | Brooklyn | NY | 6/24/2023 |
| Sharon Quaresimo | Montauk | NY | 6/24/2023 |
| Matty Soccoa | Holbrook | NY | 6/24/2023 |
| Robert Akkala | Montauk | NY | 6/24/2023 |
| David Lauth | Port Jefferson | NY | 6/24/2023 |
| Joseph Quaresimo | Jacksonville | FL | 6/24/2023 |
| Michael Nero | Bowling Green | KY | 6/24/2023 |
| Gonzalez Carla | Lakewood | NJ | 6/24/2023 |
| Oh Brother Fisheries | East Hampton | NY | 6/24/2023 |
| Linda Howe | Brooklyn | NY | 6/24/2023 |
| Chris Theodorellis | Hauppauge | NY | 6/24/2023 |
| Michael Solomon | Howad Beach | NY | 6/24/2023 |
| Eric Lazo | East meadow | NY | 6/24/2023 |
| Michael Hill | Massapequa | NY | 6/24/2023 |
| Timothy McErlean | Clifton Park | NY | 6/24/2023 |
| Burton Prince | Montauk | NY | 6/24/2023 |
| Chris Sevastakis | New York | NY | 6/24/2023 |
| Fred M. Kettenbeil | Cutchogue | NY | 6/24/2023 |
| James Rice | Acworth | GA | 6/24/2023 |
| Tom Mikoleski | Brooklyn | NY | 6/24/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Sherry Watson | Atlanta | GA | 6/24/2023 |
| slyvie slyvie | ballsacks | | 6/24/2023 |
| Jon Taylor | Fort Montgomery | NY | 6/24/2023 |
| Michael Straite | Mount Holly | | 6/24/2023 |
| Vladimir Burman | Brooklyn | NY | 6/24/2023 |
| Aaron Smookler | Bloomfield | NJ | 6/24/2023 |
| bartolo russo | Selden | NY | 6/24/2023 |
| Mark Klosner | Uniondale | NY | 6/24/2023 |
| john farrell | Long Branch | NJ | 6/24/2023 |
| Liz Coronado | Phoenix | | 6/24/2023 |
| Sarah Davis | Valdosta | | 6/24/2023 |
| Joseph LaFace | Remsenburg | NY | 6/24/2023 |
| Hayley Buffone | Shippensburg | | 6/24/2023 |
| William Cornacchia | Montauk | NY | 6/24/2023 |
| Sal Agosta | Southold | NY | 6/24/2023 |
| Justin Mirza | Saint James | NY | 6/24/2023 |
| Tristan Bhagwandin | Riverhead | NY | 6/24/2023 |
| Amy Kazdin | Hampton Bays | NY | 6/24/2023 |
| vanessa williams | St. Louis | | 6/24/2023 |
| Krzysztof Zebrowski | Riverhead | NY | 6/24/2023 |
| Shazada Latif | Brooklyn | | 6/24/2023 |
| Mike Mentuck | Boston | MA | 6/24/2023 |
| Kevin Shaughnessy | St Louis | MO | 6/24/2023 |
| James Campbell | Middletown | NJ | 6/24/2023 |
| Matt Boardman | Centereach | NY | 6/24/2023 |
| Laura Roberts | Morriston | FL | 6/24/2023 |
| Tim Thilberg | Mattituck | NY | 6/24/2023 |
| Steven Miglino | Brooklyn | NY | 6/24/2023 |
| Christopher albronda | montauk | NY | 6/24/2023 |
| James Mcloughlin | Lynbrook | NY | 6/24/2023 |
| Mike Graham | Keyport | NJ | 6/24/2023 |
| Peter Morisco III | Brooklyn | NY | 6/24/2023 |
| Rina Ma | New York | NY | 6/24/2023 |
| Robert Martinez | Jacksonville | NC | 6/24/2023 |
| James Larosa | Ridge | NY | 6/24/2023 |
| Mike Torrisi | New York | NY | 6/24/2023 |
| Steve Betsch | Port Washington | NY | 6/24/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Ana Cecilia Vásquez | Fayetteville | AR | 6/24/2023 |
| James Stump | Islip | NY | 6/24/2023 |
| Stacey McAllister | Flushing | NY | 6/24/2023 |
| Andrew Dzenis | The Bronx | NY | 6/24/2023 |
| Sean Carkeek | Middletown | NJ | 6/24/2023 |
| Zachary Gatoff | Mattituck | NY | 6/24/2023 |
| Anthony Cecco | Hicksville | NY | 6/24/2023 |
| Yin Yao | | | 6/24/2023 |
| David Stuart | Chicago | | 6/24/2023 |
| Moriah Perrenoud moore | Cleveland | | 6/24/2023 |
| Thomas Buck | Brooklyn | NY | 6/24/2023 |
| Genesis Romero | Miami | | 6/24/2023 |
| Robert Traugott | Astoria | NY | 6/24/2023 |
| Jeffrey Spath | Fishkill | NY | 6/24/2023 |
| Tarek Faitrouni | Staten Island | NY | 6/24/2023 |
| Matthew Quinones | Freehold | NJ | 6/24/2023 |
| Gail Kunzelman | South Salem | NY | 6/24/2023 |
| FRANCIS MATIAS | Swampscott | | 6/24/2023 |
| Worku Berihun | Reynoldsburg | | 6/24/2023 |
| 有希 ライリー | 20 Waterfall Road | | 6/24/2023 |
| Patrícia Silva Santisteban | | | 6/24/2023 |
| Keith Kmiotek | New York | NY | 6/24/2023 |
| Mark Williams | Bethpage | NY | 6/24/2023 |
| William Stampfl | Milton | GA | 6/24/2023 |
| Corey Stella | Port Jefferson Station | NY | 6/24/2023 |
| Harry Conover III | Neptune City | NJ | 6/24/2023 |
| Maddy Boland | Oscoda | | 6/24/2023 |
| Alberto Delmoral | Brooklyn | NY | 6/24/2023 |
| Alona Babich | Vernon Hills | | 6/24/2023 |
| Shelley Barquero | Houston | TX | 6/24/2023 |
| Keeley Rothman | Saint Augustine | | 6/24/2023 |
| Dan Murphy | Hampton Bays | NY | 6/24/2023 |
| Cynthia Porpora | Hollywood | FL | 6/24/2023 |
| William Dougherty | Neptune City | NJ | 6/24/2023 |
| Trevor Ritter | Wilmington | VT | 6/24/2023 |
| Rich Ericksen | Plymouth Meeting | PA | 6/24/2023 |
| Nick Nikas | Merrick | NY | 6/24/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Thomas Tellefsen | Staten Island | NY | 6/24/2023 |
| Jayme Leone | Neptune City | NJ | 6/24/2023 |
| Roberta Malanowski | Irving | | 6/24/2023 |
| Andrew Noland | Asbury Park | NJ | 6/24/2023 |
| Thomas Cusimano | New York | NY | 6/24/2023 |
| David Ronk | West Orange | NJ | 6/24/2023 |
| Lawrence Keating | Eastport | NY | 6/24/2023 |
| Edward Baldrian | Flushing | NY | 6/24/2023 |
| Robert Catoir | East Northport | NY | 6/24/2023 |
| Matt Lajda | Cutchogue | NY | 6/24/2023 |
| alex sabel | Brooklyn | NY | 6/24/2023 |
| Rosalie Cuomo | Brooklyn | NY | 6/24/2023 |
| Ken Hejducek | New York | NY | 6/24/2023 |
| Victor Gautier | Mt.Vernon | | 6/24/2023 |
| Dominic Cilento | Murphy | NC | 6/24/2023 |
| Gregory Gargiulo | West Islip | NY | 6/24/2023 |
| Katie Novelli | Middletown | NJ | 6/24/2023 |
| Donald Giunta | Hicksville | NY | 6/24/2023 |
| Mark Leibowitz | Flushing | NY | 6/24/2023 |
| Allison Battenberg | Manorville | NY | 6/24/2023 |
| Bryan Grogan | Center moriches | NY | 6/24/2023 |
| barbara giunta | Hicksville | NY | 6/24/2023 |
| Anthony DiLernia | Manteo | NC | 6/24/2023 |
| Philip Manzo | Sag Harbor | NY | 6/24/2023 |
| John J. Montrony | West Islip | NY | 6/24/2023 |
| Eddie Bernstein | New York | NY | 6/24/2023 |
| Joseph Harrison | East Hampton | NY | 6/24/2023 |
| Joseph Leone | Neptune | NJ | 6/24/2023 |
| John Passie | Gainesville | | 6/24/2023 |
| Drew Thompson | Montauk | NY | 6/24/2023 |
| Andrew Corrigan | Montauk | NY | 6/24/2023 |
| Amanda Peterson | New York | NY | 6/24/2023 |
| David Dalen | Islip | NY | 6/24/2023 |
| Tim Lopez | Riverhead | NY | 6/24/2023 |
| Oehlbeck Gary | Rochester | NY | 6/24/2023 |
| Boris Lerner | Brooklyn | NY | 6/24/2023 |
| Orla Reville | Brooklyn | NY | 6/24/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Hugh Chancey | New York | NY | 6/24/2023 |
| Georgie Bogetti | Montauk | NY | 6/24/2023 |
| Tony Durso | Mastic beach | NY | 6/24/2023 |
| Richard Pena | Parrish | FL | 6/24/2023 |
| Kristen Bennett | Montauk | NY | 6/24/2023 |
| Richard Sayers | New York | NY | 6/24/2023 |
| Robert Colalillo | Syosset | NY | 6/24/2023 |
| Richard Broullon | Wellington | FL | 6/24/2023 |
| Archer D'Valia | Johns Island | | 6/24/2023 |
| Joe Cascio | Lindenhurst | NY | 6/24/2023 |
| Kenneth Tokar | Garden City | NY | 6/24/2023 |
| Jeff Evans | Waretown | NJ | 6/24/2023 |
| Mark Mceachen | Babylon | NY | 6/24/2023 |
| Giselle Gonzalez | Lakeland | | 6/24/2023 |
| Thomas Fazio | Brooklyn | NY | 6/24/2023 |
| Sebastian Dattolo | Valley Stream | NY | 6/24/2023 |
| Elsa Velez | Brooklyn | NY | 6/24/2023 |
| Frank Mainieri | Neptune City | NJ | 6/24/2023 |
| Adrienne Pasquale | Montauk | NY | 6/24/2023 |
| Jeanne Jafarzadeh | Oakland | NJ | 6/24/2023 |
| joe ferguson | montauk | NY | 6/24/2023 |
| DESI MenendeZ | Hampton Bays | NY | 6/24/2023 |
| Lauren Mulligan | Charlotte | NC | 6/24/2023 |
| Christian Cole | Belleville | | 6/24/2023 |
| Pat Finley | Brooklyn | NY | 6/24/2023 |
| RICHARD DONOFRIO | NEPTUNE | NJ | 6/24/2023 |
| Crist Beiler | STRASBURG | PA | 6/24/2023 |
| Carlos Squires | Water Mill | NY | 6/24/2023 |
| Alice Garza | Mcallen | | 6/24/2023 |
| AnnMarie Sorena | Montauk | NY | 6/24/2023 |
| John Sisak | Asbury Park | NJ | 6/24/2023 |
| Steve Tumminia | Staten Island | NY | 6/24/2023 |
| Goitom Weldemicael | Fairfax | | 6/24/2023 |
| Mike Byrne | Laurelton | NJ | 6/24/2023 |
| Jennifer Johnson | East Bernstadt | | 6/24/2023 |
| Betsy Tt | | NY | 6/24/2023 |
| Michael Moran | Smithtown | NY | 6/24/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| James Mckay | Staten Island | NY | 6/24/2023 |
| Paul Irizarry | Ashburn | VA | 6/24/2023 |
| Donald wleklinski | Terre Haute | IN | 6/24/2023 |
| Stephanie Stanulis | Staten Island | NY | 6/24/2023 |
| Elling Mike | Montauk | NY | 6/24/2023 |
| Lakeya Morris | Durham | NC | 6/24/2023 |
| Bruce Johnson | New York | NY | 6/24/2023 |
| Chris Marsala | Englishtown | NJ | 6/24/2023 |
| Chris Catalano | Huntington Station | NY | 6/24/2023 |
| Michael Galluccio | Hoffman | NJ | 6/24/2023 |
| Izzy Tilley | Fort dodge | | 6/24/2023 |
| Steve Ammirati | Patchogue | NY | 6/24/2023 |
| chris R | New York | NY | 6/24/2023 |
| John Gioulis | Englewood | FL | 6/24/2023 |
| Orva M Gullett | Marion | | 6/24/2023 |
| Jeffrey Brenan | Neptune City | NJ | 6/24/2023 |
| Kevin Kerrigan | New Milford | NJ | 6/24/2023 |
| Derek Grattan | Southold | NY | 6/24/2023 |
| James Donofrio | Barnegat | NJ | 6/24/2023 |
| Jose Garcia | Piscataway | NJ | 6/24/2023 |
| Jon Johnson | Long Branch | NJ | 6/24/2023 |
| Susan Doremus-Levey | New Jersey | NY | 6/24/2023 |
| James Murphy | Staten Island | NY | 6/24/2023 |
| Adele Poplawski | Neptune | NJ | 6/24/2023 |
| Matthew Fendick | Binghamton | NY | 6/24/2023 |
| Michael Schwasnick | Brooklyn | NY | 6/24/2023 |
| Liza Mason | Staten Island | NY | 6/24/2023 |
| Vito Gadaleta | Lakewood | NJ | 6/24/2023 |
| William Zimmerman | Langhorne | PA | 6/24/2023 |
| Robert Smith | Manchester | CT | 6/24/2023 |
| Chris Miller | East Hampton | NY | 6/24/2023 |
| gene kelly | Shirleyhampton bays | NY | 6/24/2023 |
| James Arthur | New York | NY | 6/24/2023 |
| Peter Gioulis | Toms River | NJ | 6/24/2023 |
| Dana Aaronson | Friendswood | TX | 6/24/2023 |
| Brendan McCann | Warwick | NY | 6/24/2023 |
| Frank Vicciariello | Staten Island | NY | 6/24/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Thomas Rathsam | New York | NY | 6/24/2023 |
| Manrose Kaur | Ludington | | 6/24/2023 |
| John Bloss | Montauk | NY | 6/24/2023 |
| Paul Iemma | Pascoag | RI | 6/24/2023 |
| Eric George | Towaco | NJ | 6/24/2023 |
| Roseann Rode | Neptune | NJ | 6/24/2023 |
| Joseph Pancza | Belmar | NJ | 6/24/2023 |
| Pat Wallenstein | Morganville | NJ | 6/24/2023 |
| Phillip Chartouni | New York | NY | 6/24/2023 |
| Thomas Lyons | West Islip | NY | 6/24/2023 |
| Joseph Avelli | Kings Park | NY | 6/24/2023 |
| Thomas Russo | Brentwood | NY | 6/24/2023 |
| James Granelli | Asbury Park | NJ | 6/24/2023 |
| Robin Psota | Montauk | NY | 6/24/2023 |
| James Wood | Altoona | PA | 6/24/2023 |
| MICHAEL NUZZI | Floral Park | NY | 6/24/2023 |
| Andrew Miller | Montauk | NY | 6/24/2023 |
| Walter Wilson | Flemington | NJ | 6/24/2023 |
| Janet Simon | Normandy Beach | NJ | 6/24/2023 |
| Maureen Dietz Dietz | Smithtown | NY | 6/24/2023 |
| Thomas Blewitt | Manasquan | NJ | 6/24/2023 |
| Patricia Galcik | Montauk | NY | 6/24/2023 |
| Matthew Conzo | Ronkonkoma | NY | 6/24/2023 |
| Dirk Grossman | Lakewood | NJ | 6/24/2023 |
| Deborah adelwerth | Center Moriches | NY | 6/24/2023 |
| Kathleen Burns | Neptune City | NJ | 6/24/2023 |
| Chris Wendel | Keansburg | NJ | 6/24/2023 |
| Val Zhmud | Syracuse | NY | 6/24/2023 |
| Geri Stampfl | Union City | NJ | 6/24/2023 |
| Carl Forsberg | East Hampton | NY | 6/24/2023 |
| Rosemary Alvarez | Ft. Pierce | FL | 6/24/2023 |
| Jill Menendez | Oradell | NJ | 6/24/2023 |
| Teresa Tepedino | Mastic | NY | 6/24/2023 |
| JOHN HANSBERRY | Brooklyn | NY | 6/24/2023 |
| Kevin Phillips | Downingtown | PA | 6/24/2023 |
| Dave Ginley | Selinsgrove | PA | 6/24/2023 |
| Mark Montgomery | Uniondale | NY | 6/24/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Chris krebs | Brooklyn | NY | 6/24/2023 |
| Kevin Pitter | Elmont | NY | 6/24/2023 |
| Richard Horner | New York | NY | 6/24/2023 |
| Robert Mezey | Kearny | NJ | 6/24/2023 |
| Lou Taglia | Manville | NJ | 6/24/2023 |
| Ryan Touhy | Deer Park | NY | 6/24/2023 |
| gordon dreher | Laurelton | NJ | 6/24/2023 |
| Richard Callanan | Milford | PA | 6/24/2023 |
| Eugene Cavanagh | Belmar | NJ | 6/24/2023 |
| Cathal Mcginley | Jackson | NJ | 6/24/2023 |
| Mike Daniels | Haddon Heights | NJ | 6/24/2023 |
| Mark Feuer | Farmingville | NY | 6/24/2023 |
| Garrett Van Iderstine | Tavernier | FL | 6/24/2023 |
| Ryan Michaels | Clifton | NJ | 6/24/2023 |
| Frank Wade | montauk | NY | 6/24/2023 |
| Allen Ballek | New York | NY | 6/24/2023 |
| Phil Geller | Staten Island | NY | 6/24/2023 |
| Philip Lixfield | Patchogue | NY | 6/24/2023 |
| Elido Enriquez | Brooklyn | NY | 6/24/2023 |
| Robert J Lazos | Bellmore | NY | 6/24/2023 |
| Joseph Sorrentino | Hornell | NY | 6/24/2023 |
| Manolis Koutouzis | Brooklyn | NY | 6/24/2023 |
| Thomas Mcgeeney | Rockaway Park | NY | 6/24/2023 |
| Toni Albano | New York | NJ | 6/24/2023 |
| Albert Hank | Holbrook | NY | 6/24/2023 |
| Paul Giangreco | New York | NY | 6/24/2023 |
| Scott Meyerriecks | New York | NY | 6/24/2023 |
| Dan Poland | Brooklyn | NY | 6/24/2023 |
| Raquel Manuel | Brooklyn | NY | 6/24/2023 |
| Bill Pell | Southampton | NY | 6/24/2023 |
| Ed Walsh | New York | NY | 6/24/2023 |
| gus meyer | Pottstown | PA | 6/24/2023 |
| Warren Jensen | Greenport | NY | 6/24/2023 |
| Tom Clapsadle | Waterford | CT | 6/24/2023 |
| David Donnelly | Garfield | NJ | 6/24/2023 |
| Ellen Cooper | East Hampton | NY | 6/24/2023 |
| Derick Fowler | Philadelphia | PA | 6/24/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Joseph Devine | Waterford | CT | 6/24/2023 |
| James Dubrowsky Jr | Hampton Bays | NY | 6/24/2023 |
| Joseph OLeary | Mattituck | NY | 6/24/2023 |
| Carl Jacobsen | Plymouth Meeting | PA | 6/24/2023 |
| Sheena Lazo | Wantagh | NY | 6/24/2023 |
| Garrett Moore | Denver | CO | 6/24/2023 |
| David Kapell | Greenport | NY | 6/24/2023 |
| Robert Barry | New York | NY | 6/24/2023 |
| Darrin Binder | Mattituck | NY | 6/24/2023 |
| Frank Sommers | New York | NY | 6/24/2023 |
| Joseph Brady | Putnam Valley | NY | 6/24/2023 |
| Scott Pham | San Diego | CA | 6/24/2023 |
| Dennis Marr | London | NY | 6/24/2023 |
| Joseph Gulino | Ridge | NY | 6/24/2023 |
| Carmela Dettling | Deer Park | NY | 6/24/2023 |
| Tom Heinlein | Flushing | NY | 6/24/2023 |
| Tricia Hall | Cambridge | MA | 6/24/2023 |
| John Lajda | Cutchogue | NY | 6/24/2023 |
| Craig Boyajian | Holbrook | NY | 6/24/2023 |
| Nicole Bumble | East Marion | NY | 6/24/2023 |
| Dionne Holden | Greensboro | NC | 6/24/2023 |
| Charles Johnson | Freeport | NY | 6/24/2023 |
| Joe Russo | Miller Place | NY | 6/24/2023 |
| Clifford Harris | Greenport | NY | 6/24/2023 |
| Thomas Schoregge | Washington | DC | 6/24/2023 |
| Kenya Pena | Bronx | NY | 6/24/2023 |
| James Schneider | Brooklyn | NY | 6/24/2023 |
| Thomas Murphy | Greenwoodlake | NY | 6/24/2023 |
| Andrew Gilchrest | Averill Park | NY | 6/24/2023 |
| kemat singh | South Richmond Hill | NY | 6/24/2023 |
| richard nessel | Flushing | NY | 6/24/2023 |
| Nathan Rojas | Uniondale | NY | 6/24/2023 |
| kenneth spillett | Medford | NY | 6/24/2023 |
| Paul Forsberg | Vero Beach | FL | 6/24/2023 |
| Peter Schembri | Orient | NY | 6/24/2023 |
| Jason Tuma | East Hampton | NY | 6/24/2023 |
| Joan Dinizio | Stafford | VA | 6/24/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Paul Dimos | East Marion | NY | 6/24/2023 |
| Brett Weinberg | San Clemente | CA | 6/24/2023 |
| Robert Antici | Ridge | NY | 6/24/2023 |
| Michele Jensen | Greenport | NY | 6/24/2023 |
| David Moyer | Farmingdale | NY | 6/24/2023 |
| Bernard Arenz | Pompano Beach | FL | 6/24/2023 |
| James Schneck | Brooklyn | NY | 6/24/2023 |
| Larry Rhodes | Brooklyn | NY | 6/24/2023 |
| Sissy Whitcomb | Center Moriches | NY | 6/24/2023 |
| Christopher Charczuk | East Marion | NY | 6/24/2023 |
| David Newman | New York | NY | 6/24/2023 |
| Barry Barth | Mattituck | NY | 6/24/2023 |
| James Dinizio | Stafford | VA | 6/24/2023 |
| James Schwerdt | Westhampton | NY | 6/24/2023 |
| anthony zucco | Homosassa | FL | 6/24/2023 |
| Luke Wiggins | Waterford | CT | 6/24/2023 |
| Nancy Jensen | East Marion | NY | 6/24/2023 |
| Joseph McCoy | Chester | PA | 6/24/2023 |
| Rich Hokanson | Mattituck | NY | 6/24/2023 |
| Michael Potts | Garden City | NY | 6/24/2023 |
| Scott Corwin | Greenport | NY | 6/24/2023 |
| Joe Libertelli | Patchogue | NY | 6/24/2023 |
| Thomas Lasala | Ridge | NY | 6/24/2023 |
| Joseph McCarthy | Southold | NY | 6/24/2023 |
| Joe Paradiso | Flushing | NY | 6/24/2023 |
| Andrew Myslborski | Southold | NY | 6/24/2023 |
| Patricia Jones | Medford | NY | 6/24/2023 |
| Michael Collery | New York | NY | 6/24/2023 |
| Robert Mcginness | Orient | NY | 6/24/2023 |
| jose ortiz | greenport | NY | 6/24/2023 |
| John Richy | New York | NY | 6/24/2023 |
| Nancy Davis | Coram | NJ | 6/24/2023 |
| Jack Passie | Montauk | NY | 6/24/2023 |
| Henry Bogardus | Cutchogue | NY | 6/24/2023 |
| Richard Stack | Holbrook | NY | 6/24/2023 |
| Bryan Rainville | Wolcott | CT | 6/24/2023 |
| Thomas Condit | Centereach | NY | 6/24/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Martha Jones | Southold | NY | 6/24/2023 |
| Chris Channing | Jersey City | NY | 6/24/2023 |
| Lloyd Kalin | Orient | NY | 6/24/2023 |
| Anthony Nash | Oceanside | NY | 6/24/2023 |
| Ed Seckeler | Brentwood | NY | 6/24/2023 |
| Amy McGeeney | Rockaway Park | NY | 6/24/2023 |
| Michael Mezzatesta | New York | NY | 6/24/2023 |
| Andrew Lambiris | Brooklyn | NY | 6/24/2023 |
| Betsy Dzenkowski | East Marion | NY | 6/24/2023 |
| Kenneth Stewart | Bayville | NJ | 6/24/2023 |
| Michael Iannone | North Babylon | NY | 6/24/2023 |
| Mark Boyle | Morristown | NJ | 6/24/2023 |
| Anna OBrien | Bay Shore | NY | 6/24/2023 |
| Mark Moretti | Red Bank | NJ | 6/24/2023 |
| Martin Hall | East Haddam | CT | 6/24/2023 |
| Damian Deleonardo | Lake Worth | FL | 6/24/2023 |
| Christina Tormey | East Marion | NY | 6/24/2023 |
| Matthew Marinelli | Norwich | CT | 6/24/2023 |
| Doreen Marrero | Long Beach | NY | 6/24/2023 |
| Kevin Moffit | New York | NY | 6/24/2023 |
| Ed Reinhardt | Southold | NY | 6/24/2023 |
| Jared Grilli | Shirley | NY | 6/24/2023 |
| Brian Pelkowski | Northport | NY | 6/24/2023 |
| Kyle Clausen | Southold | NY | 6/24/2023 |
| Luc Grard | Oyster Bay | NY | 6/24/2023 |
| Nancy Richy | Commack | NY | 6/24/2023 |
| Andrew Cunliffe | Southold | NY | 6/24/2023 |
| Kevin Bentley | Norwich | CT | 6/24/2023 |
| Shirley Sieverman | East Marion | NY | 6/24/2023 |
| Scott Dinizio | East Marion | NY | 6/24/2023 |
| Warren Jensen | Thurmont | MD | 6/24/2023 |
| Brian Cassidy | Southold | NY | 6/24/2023 |
| donald ambrico | bklyn | NY | 6/24/2023 |
| Kieran McGuire | East Rockaway | NY | 6/24/2023 |
| Steven Heffler | Carmel | NY | 6/24/2023 |
| Harold Joseph (Fritz) Garrecht | Brooklyn | NY | 6/24/2023 |
| Robert  w. Jester | Greenport | NY | 6/25/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Kenneth Veeck | Ballston Spa | NY | 6/25/2023 |
| Caitlin P | Mattituck | NY | 6/25/2023 |
| Frederick Orestuk | Orient Point | NY | 6/25/2023 |
| Todd Newman | Southold | NY | 6/25/2023 |
| Bob Austin | Oyster Bay | NY | 6/25/2023 |
| Tommy Parker | Edison | NJ | 6/25/2023 |
| Mike Salkauskas | Hartford | CT | 6/25/2023 |
| Susan Pfluger | Southold | NY | 6/25/2023 |
| Ed Powers | Kings Park | NY | 6/25/2023 |
| Jason Levy | Simsbury | CT | 6/25/2023 |
| Diana DeJesus | Cutchogue | NY | 6/25/2023 |
| Seth Megargle | Oakdale | CT | 6/25/2023 |
| George Bartenback | West Islip | NY | 6/25/2023 |
| Craig Johnson | Flushing | NY | 6/25/2023 |
| Mark Droskoski | Greenport | NY | 6/25/2023 |
| Marcella Winters | Palm Coast | FL | 6/25/2023 |
| Arthur Arekhau | Bridgeport | CT | 6/25/2023 |
| Benny Lizza | Locust valley | NY | 6/25/2023 |
| Robert Schroeder | Tampa | FL | 6/25/2023 |
| James Wolf | Medford | NY | 6/25/2023 |
| Wayne Miller | Cutchogue | NY | 6/25/2023 |
| Jon Blanchette | Jewett City | CT | 6/25/2023 |
| Ian Olesen | Norwich | CT | 6/25/2023 |
| Matt Taratko | Greenlawn | NY | 6/25/2023 |
| Bobbette Clapsadle | Waterford | CT | 6/25/2023 |
| John Milis | Ridge | NY | 6/25/2023 |
| Terri Parker | Rolla | MO | 6/25/2023 |
| Chris harmon | Cherry Plain | NY | 6/25/2023 |
| Joann Hamilton | Greenport | NY | 6/25/2023 |
| Meagan Grattan | Southold | NY | 6/25/2023 |
| Austin Rheaume | Waterford | CT | 6/25/2023 |
| Terrance Bates | Williamsport | PA | 6/25/2023 |
| Dennis Balka | Piscataway | NJ | 6/25/2023 |
| Laura Hughes | Canterbury | CT | 6/25/2023 |
| James Knobloch | Orient | NY | 6/25/2023 |
| Peter Segerdahl | Bellmore | NY | 6/25/2023 |
| Dan Solomon | Ronkonkoma | NY | 6/25/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Donald Panetta | New Hyde Park | NY | 6/25/2023 |
| Daria Cosgrove | Garfield | NJ | 6/25/2023 |
| Robert Osnoe | Killington | VT | 6/25/2023 |
| Donald Wehrs | Manorville | NY | 6/25/2023 |
| Dennis Tinnin | Southold | NY | 6/25/2023 |
| Teresa McKay | Yaphank | NY | 6/25/2023 |
| Dave Fiedler | Cutchogue | NY | 6/25/2023 |
| Bonnie Angevine | Brooklyn | NY | 6/25/2023 |
| Lauren Provost | Windsor | CT | 6/25/2023 |
| Ralph Menendez | Oradell | NJ | 6/25/2023 |
| David Willmott | Patchogue | NY | 6/25/2023 |
| George Boyden | Lavallette | NJ | 6/25/2023 |
| Ryan Patrick | Brookfield | CT | 6/25/2023 |
| robert heaney | Garden City | NY | 6/25/2023 |
| Kathleen Wehrs | Manorville | NY | 6/25/2023 |
| Eric Martin | Ledyard | CT | 6/25/2023 |
| Walter Schaller | Norwich | CT | 6/25/2023 |
| Ron Atkinson | Aquebogue | NY | 6/25/2023 |
| Samuel Strickland | Southold | NY | 6/25/2023 |
| Kathy Hansen | Southold | NY | 6/25/2023 |
| Peter DALY | Forked River | NJ | 6/25/2023 |
| Kegan Schunk | Windsor | CT | 6/25/2023 |
| Joe Avelli | Kings Park | NY | 6/25/2023 |
| Mark Johnson | Holbrook | NY | 6/25/2023 |
| Ryan Lobb | Bohemia | NY | 6/25/2023 |
| Brian Olesnevich | Vernon | CT | 6/25/2023 |
| George Reinhardt | Islip Terrace | NY | 6/25/2023 |
| Peter g Lauda | Brooklyn | NY | 6/25/2023 |
| Antoinette Grady | Waterford | CT | 6/25/2023 |
| Shannon Feltner | Holts Summit | MO | 6/25/2023 |
| Hannah Batihk | Pompano Beach | FL | 6/25/2023 |
| Vincent Lee | Hazlet | NJ | 6/25/2023 |
| Josh kettenbeil | Mattituck | NY | 6/25/2023 |
| nancy knight | Benton | IL | 6/25/2023 |
| Keith D'Alessandro | Canton | MI | 6/25/2023 |
| Tracy Roane | East Hartford | CT | 6/25/2023 |
| Ellen DePaola | Roslyn Heights | NY | 6/25/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Jeri Williams | Easley | SC | 6/25/2023 |
| Moises Pellot | Brooklyn | NY | 6/25/2023 |
| David Bodnar | New York | NY | 6/25/2023 |
| John Russo | Brooklyn | NY | 6/25/2023 |
| Annemarie Chouinard | Greenport | NY | 6/25/2023 |
| James Lee | Lexington | KY | 6/25/2023 |
| Kenny Chan | New York | NY | 6/25/2023 |
| Stan Lee | Brooklyn | NY | 6/25/2023 |
| Patrick Busse | Glen Head | NY | 6/25/2023 |
| Michael Plafker | Long Beach | NY | 6/25/2023 |
| Ec Newellman | Brooklyn | NY | 6/25/2023 |
| Marcus Gottlieb | Highland Park | IL | 6/25/2023 |
| keith burtis | massapequa | NY | 6/25/2023 |
| Matt Bliven | East Northport | NY | 6/25/2023 |
| Robert Azzarello | Woodbridge | NJ | 6/25/2023 |
| Nicole Wilkinson | Old Lyme | CT | 6/25/2023 |
| Andrea Azzarello | Woodbridge | NJ | 6/25/2023 |
| David Olson | Deer Park | NY | 6/25/2023 |
| Rebecca Delabruere | New Haven | CT | 6/25/2023 |
| George Muller | New York | NY | 6/25/2023 |
| Paul Surozenski | Southold | NY | 6/25/2023 |
| Robert Kropp | Colchester | CT | 6/25/2023 |
| Christine Delancey | Old Bridge | NJ | 6/25/2023 |
| Dale Hynek | Chicago | IL | 6/25/2023 |
| Joel Shirk | Romulus | NY | 6/25/2023 |
| Toni Hamilton | Detroit | | 6/25/2023 |
| Jean . J Lamisere | Somerville | | 6/25/2023 |
| Wai Ming Lau | Brooklyn | NY | 6/25/2023 |
| Brooks Hamilton | Cypress | | 6/25/2023 |
| Joseph Panzarino | Montauk | NY | 6/25/2023 |
| Gwyn Johnson | Sutton | | 6/25/2023 |
| Chris Cunningham | Massapequa park | NY | 6/25/2023 |
| tanner miller | Guyton | | 6/25/2023 |
| Brian Allen | New York | NY | 6/25/2023 |
| Toribio Puluc | Mattituck | NY | 6/25/2023 |
| James Amalfitano | Deer Park | NY | 6/25/2023 |
| Emily Gnatowsky | Oak Park | CA | 6/25/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Laura Schwind | Rochester | | 6/25/2023 |
| Michele Lyons | Cleveland | | 6/25/2023 |
| Raymond Van Etten | Sun City Center | FL | 6/25/2023 |
| Alexa Wolf | East Hampton | NY | 6/25/2023 |
| Taylor Reed | Southold | NY | 6/25/2023 |
| Shaday Berrios | Brownwood | | 6/25/2023 |
| Michael Diario | Plantation | FL | 6/25/2023 |
| Jamie Farleu | New York | NY | 6/25/2023 |
| Kayla Dummy | Philadelphia | | 6/25/2023 |
| andrea tabor | orient | NY | 6/25/2023 |
| Chris Golas | Bound Brook | NJ | 6/25/2023 |
| Nathan Chavarria | San Jose | | 6/25/2023 |
| Jesse Fisher | Charlotte | | 6/25/2023 |
| Paul Yunek | West Islip | NY | 6/25/2023 |
| Kaila Morbeu | San Diego | | 6/25/2023 |
| Karl McKenna | Atlantic Highlands | NJ | 6/25/2023 |
| Joseph Flores | | | 6/25/2023 |
| Bazata Nicholas | Wading River | NY | 6/25/2023 |
| Coleman Brenner | Bothell | | 6/25/2023 |
| Michael Combs | Greenport | NY | 6/25/2023 |
| jack john | Cheyenne | | 6/25/2023 |
| david reutershan | Montauk | NY | 6/25/2023 |
| Jermaine Owens | Southold | NY | 6/25/2023 |
| Carlee-Jo Brown | North Royalton | | 6/25/2023 |
| Jon Conner | Strafford | VT | 6/25/2023 |
| Michelle Chung | Houston | | 6/25/2023 |
| George DuBato | Port Jefferson | NY | 6/25/2023 |
| Sal DiMarco | Shirley | NY | 6/25/2023 |
| Joseph Paton | Asbury Park | NJ | 6/25/2023 |
| Moira Horan | Belmar | NJ | 6/25/2023 |
| Anne Einselen Einselen | Long Beach Township | NJ | 6/25/2023 |
| Daniel Christman | East Hampton | NY | 6/25/2023 |
| beatrice tuthill | Greenport | NY | 6/25/2023 |
| Jamie Quaresimo | East Hampton | NY | 6/25/2023 |
| Frankie Benedetto | Bedford | VA | 6/25/2023 |
| Tim Winters | Cutchogue | NY | 6/25/2023 |
| Laura Riggins | New York | NY | 6/25/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Tracy Mueller | Brooklyn | NY | 6/25/2023 |
| Helen Salvia | Pittsboro | NC | 6/25/2023 |
| thomas callari | Melbourne | FL | 6/25/2023 |
| Donald Willis | Willington | CT | 6/25/2023 |
| Mark Assogna | Valley Stream | NY | 6/25/2023 |
| Brian Fromhold | neptune | NJ | 6/25/2023 |
| Catherine MUSSELWHITE | Albany | NY | 6/25/2023 |
| Nancy Szczotka | Flushing | NY | 6/25/2023 |
| Ryan Burnette | Brevard | | 6/25/2023 |
| Robert Arseneault | Watertown | CT | 6/25/2023 |
| Rich Juzwa | Westbury | NY | 6/25/2023 |
| Patricia Rackett | Homosassa | FL | 6/25/2023 |
| William Peters | Yaphank | NY | 6/25/2023 |
| George Pharaoh | Sag Harbor | NY | 6/25/2023 |
| Karen Szczotka | Southold | NY | 6/25/2023 |
| Ric Suzio | Meriden | CT | 6/25/2023 |
| Edward Lach | Baltimore | | 6/25/2023 |
| Daniel Artopiades | Whitestone | | 6/25/2023 |
| Edward Thoomey | Mastic Beach | NY | 6/25/2023 |
| James Gordon | Cresskill | NJ | 6/25/2023 |
| Heather McCormack | East Hampton | NY | 6/25/2023 |
| Wendy Zuhoski | Mattituck | NY | 6/25/2023 |
| James Klaus | Shirley | NY | 6/25/2023 |
| Ken Dickerson | Peconic | NY | 6/25/2023 |
| Robyn Knobloch | Rome | NY | 6/25/2023 |
| Patricia Ovsianik | Mattituck | NY | 6/25/2023 |
| Peter Viola | East Meadow | NY | 6/25/2023 |
| anthony v testa | Farmingdale | NY | 6/25/2023 |
| Richard Hardt | Ridgewood | NY | 6/25/2023 |
| Christopher Millwater | Lake Grove | NY | 6/25/2023 |
| Jan Morris | Orient | NY | 6/25/2023 |
| Terrell Freeman | New York | NY | 6/25/2023 |
| Deborah Michta | Orient | NY | 6/25/2023 |
| Robert Conti | Floral Park | NY | 6/25/2023 |
| Barbara Farley | Staten Island | NY | 6/25/2023 |
| Paul Warshefski | Hopewell | NJ | 6/25/2023 |
| Tracy OLear | Orient | NY | 6/25/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Andrew Walters | Southold | NY | 6/25/2023 |
| Jamie Humphreys | Palm Coast | FL | 6/25/2023 |
| Maureen Sills | Nesconset | NY | 6/25/2023 |
| David Shinn | Cape Coral | FL | 6/25/2023 |
| shannon elkins | medford | NY | 6/25/2023 |
| Robert Moore | Bluffton | SC | 6/25/2023 |
| Annette Tinder | New York | NY | 6/25/2023 |
| Peter Suski | Stony Brook | NY | 6/25/2023 |
| Mandy Campbell | Trona | | 6/25/2023 |
| Jeff Clausen | Carmel | NY | 6/25/2023 |
| Richard Adams | Atlantic Highlands | NJ | 6/25/2023 |
| Denise Stewart | Forked River | NJ | 6/25/2023 |
| Sarah Sands | Orient | NY | 6/25/2023 |
| Jeffery w zaks | Norwich | CT | 6/25/2023 |
| Keith Sweat | Brooklyn | NY | 6/25/2023 |
| Richard Vandenburgh | Southold | NY | 6/25/2023 |
| Les Gazzola | Riverhead | NY | 6/25/2023 |
| Samantha Dahl | Port Jefferson | NY | 6/25/2023 |
| Deborah Warner | West Warwick | RI | 6/25/2023 |
| Richard Costello | Massapequa | NY | 6/25/2023 |
| Robert Slabinski | Warwick | RI | 6/25/2023 |
| Andrew Dolan | Naples | FL | 6/25/2023 |
| Matthew Siegal | Manhasset | NY | 6/25/2023 |
| Marie Ciulla | Mattituck | NY | 6/25/2023 |
| Gary Gillen | Huntington | NY | 6/25/2023 |
| Kerry Marsala | Manalapan | NJ | 6/25/2023 |
| bob russo | manasquan | NJ | 6/25/2023 |
| Maria Williamson | Crosby | TX | 6/25/2023 |
| Pete Leon | Haddonfield | NJ | 6/25/2023 |
| Glenn Jones | Point Pleasant Beach | NJ | 6/25/2023 |
| Ian Zuhoski | Greenport | NY | 6/25/2023 |
| Pete Rasulo | Huntington | NY | 6/25/2023 |
| Claude Adams | New London | CT | 6/25/2023 |
| David Thompson | Gulfport | | 6/25/2023 |
| Mitchell Todd | Merrick | NY | 6/25/2023 |
| Amelia Perry | Independence | | 6/25/2023 |
| Lorraine Hardt | East Marion | NY | 6/25/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Dennis Peck | Lindenhurst | NY | 6/25/2023 |
| Craig Angelini | Mount Holly | NJ | 6/25/2023 |
| John Urso | Brooklyn | NY | 6/25/2023 |
| Dan Serreli | Galveston | | 6/25/2023 |
| Derek Gendvil | Las Vegas | | 6/25/2023 |
| Eddie Moriarty | Anderson | SC | 6/25/2023 |
| Said Sahil | Fairfax | | 6/25/2023 |
| Damus Enold | Atlanta | | 6/25/2023 |
| philip mazzola | East Hampton | NY | 6/25/2023 |
| Douglas Fogal | Brooklyn | NY | 6/25/2023 |
| Zach Willis | Sneads Ferry | NC | 6/25/2023 |
| Scott Bradian | East Syracuse | NY | 6/25/2023 |
| Michael Lindy | Boston | MA | 6/25/2023 |
| Victoria Hocking | Fairborn | | 6/25/2023 |
| William Graham | Leesburg | FL | 6/25/2023 |
| James Russo | Patchogue | NY | 6/25/2023 |
| Svend Jensen | Massapequa | | 6/25/2023 |
| Kevin Sacco | New York | NY | 6/25/2023 |
| Robert Ehmann | New Port Richey | FL | 6/25/2023 |
| Matthew Palladino | Shirley | NY | 6/25/2023 |
| Carol Capwell | Upperco | | 6/25/2023 |
| Debra Benbow | Miami | FL | 6/25/2023 |
| Patricia Ann Moody | Dumont | NJ | 6/25/2023 |
| Richatd Parisen | Hampton Bays | NY | 6/25/2023 |
| Ed Bondarchuk | Southold | NY | 6/25/2023 |
| Osvaldo Diaz | Hollywood | | 6/25/2023 |
| Ilaria Zaccone | Santa Barbara | | 6/25/2023 |
| Andrew Craig | Rumson | NJ | 6/25/2023 |
| Brendan Damm | New York | NY | 6/25/2023 |
| Alice Gard | Naples | FL | 6/25/2023 |
| aaron rodenberg | Saint Paul | | 6/25/2023 |
| Stephanie Russo | Wainscott | NY | 6/25/2023 |
| Caitlin Zeller | Columbus | | 6/25/2023 |
| Claire Gouvin | Pawcatuck | CT | 6/25/2023 |
| J F | | NY | 6/25/2023 |
| Jeremy tompkins | Pawling | NY | 6/25/2023 |
| Jeannine Kennedy | Brooklyn | NY | 6/25/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| chris Di Menna | Brewster | NY | 6/25/2023 |
| Justin Poole | Fairport | NY | 6/25/2023 |
| Fern Paradis | Cromwell | CT | 6/25/2023 |
| Arya Peltier | Emory | | 6/25/2023 |
| Peter Grillo | Brentwood | NY | 6/25/2023 |
| Patricia Petro | Mastic | NY | 6/25/2023 |
| Gregory Castello | Kearny | NJ | 6/25/2023 |
| Raymond Arbour | PAWCATUCK | CT | 6/25/2023 |
| Thomas Kruel | Riverhead | NY | 6/25/2023 |
| Elvira Hansen | Shelton | CT | 6/25/2023 |
| Barbara Brinkerhoff | Rome | NY | 6/25/2023 |
| Sherry Nephew | Guthrie | OK | 6/25/2023 |
| Joseph Fagone | Commack | NY | 6/25/2023 |
| Jaylen Thimas | Houston | | 6/25/2023 |
| Vincent Esposito | Riverhead | NY | 6/25/2023 |
| Edward Hakim | Laguna Beach | CA | 6/25/2023 |
| Joseph Dacosta | Jersey City | NJ | 6/25/2023 |
| Levi Galvan | Colorado Springs | | 6/25/2023 |
| Bruno Zimmitti | East Islip | NY | 6/25/2023 |
| Nevaeh Reed | Saint Paul | | 6/25/2023 |
| Robert rumore | Massapequa | NY | 6/25/2023 |
| Liz Murphy | Austin | TX | 6/25/2023 |
| Joe Robin | Harrisburg | | 6/25/2023 |
| Marie Dior | Highland | MD | 6/25/2023 |
| Frank Rydlewski | Colchester | CT | 6/25/2023 |
| James Lento | Holbrook | NY | 6/25/2023 |
| Tyler Falcone | Brooklyn | NY | 6/25/2023 |
| Kenneth Butler | Franklin square | NY | 6/25/2023 |
| Gary Charters | Southold | NY | 6/25/2023 |
| Christopher Ryan | Little Silver | NJ | 6/25/2023 |
| Alvin Ponder | Bronx | | 6/25/2023 |
| Ken Kmetz | Mattituck | NY | 6/25/2023 |
| Chris Behrmann | Vernon | CT | 6/25/2023 |
| Lynda Ream | Fairborn | OH | 6/25/2023 |
| REBECCA LESTER | East Hampton | NY | 6/25/2023 |
| William MacRae | Mcminnville | | 6/25/2023 |
| John Testa | Windsor | CT | 6/25/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Hans Hafgren | Flushing | NY | 6/25/2023 |
| Cutty Beresheim | Southampton | NY | 6/25/2023 |
| Dan Domino | Port Chester | NY | 6/25/2023 |
| Dan Mroczka | Meriden | CT | 6/25/2023 |
| Ben Mccarron | Brooklyn | NY | 6/25/2023 |
| Theo Pazinko | Millstone | NJ | 6/25/2023 |
| Jerry Mouse Martinez | Estero | FL | 6/25/2023 |
| Wendy Rincon | Huntington Beach | | 6/25/2023 |
| Gabriel Suchanek | Richmond | | 6/25/2023 |
| Nick Gismondi | West Islip | NY | 6/25/2023 |
| Lilianna Cortes | Flushing | | 6/25/2023 |
| Tess Valenti | Queens | NY | 6/25/2023 |
| Joan Gretschel | Waretown | NJ | 6/25/2023 |
| Jay Card | Oklahoma City | NY | 6/25/2023 |
| KEVIN MATHIAU | Tolland | CT | 6/25/2023 |
| Eileen Schneider | Brooklyn | NY | 6/25/2023 |
| Jules Kelly | Walnutport | | 6/25/2023 |
| Adam Alrubai | The Bronx | | 6/25/2023 |
| Megan Guinta | Montauk | NY | 6/25/2023 |
| Will Burmester | Flushing | NY | 6/25/2023 |
| Mariano Acosta | Brooklyn | NY | 6/25/2023 |
| Grr Grr | | | 6/25/2023 |
| Richard McClure | Poughkeepsie | NY | 6/25/2023 |
| Mariah Roman | Miami | | 6/25/2023 |
| Brent Webster | Bucyrus | | 6/25/2023 |
| Tim Riordan | Sayville | NY | 6/25/2023 |
| Miroslaw Wilczynski | East Windsor | NJ | 6/25/2023 |
| Thomas Sadowski | Charlotte | NC | 6/25/2023 |
| Laureen Broger | Deer Park | NY | 6/25/2023 |
| Craig Ingalls | Stafford | CT | 6/25/2023 |
| Alek George | Oakland | | 6/25/2023 |
| Jack Cox | Enfield | | 6/25/2023 |
| Hayden Myers | Kent | | 6/25/2023 |
| John Schulz | Huntington | NY | 6/25/2023 |
| Janet Murphy | Westland | MI | 6/25/2023 |
| Emily Everhart | Lexington | | 6/25/2023 |
| Andrew Danin | Mount Sinai | NY | 6/25/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Capt. Bill Smith | Shelter Island Heights | NY | 6/25/2023 |
| Anthony Testa | East Hampton | NY | 6/25/2023 |
| Mark Jovic | LINCOLN PARK | NJ | 6/25/2023 |
| DAVE Breitman | East Hampton | NY | 6/25/2023 |
| Angelica Zuniga | Irving | | 6/25/2023 |
| Rebekah Duran | Tucson | | 6/25/2023 |
| John shaul | Brooklyn | NY | 6/25/2023 |
| Gumbo Drumbo | Rochester | | 6/25/2023 |
| Tayfun Yazici | Brooklyn | NY | 6/25/2023 |
| Stephen Colt | Lagrangeville | NY | 6/25/2023 |
| Johanna Napolitano | Brooklyn | NY | 6/25/2023 |
| Anthony Danizio | Rochester | NY | 6/25/2023 |
| James Carey | Montauk | NY | 6/25/2023 |
| Patrick Burkinshaw | Southampton | NY | 6/25/2023 |
| Mario Melito | Syosset | NY | 6/25/2023 |
| Tracy Peterson | Amityville | NY | 6/25/2023 |
| Diana beth | griffith | IN | 6/25/2023 |
| Lindsay White | Commerce Township | | 6/25/2023 |
| TJ Wallace | East Hampton | NY | 6/25/2023 |
| Kathryn Irby | Gulfport | | 6/25/2023 |
| Maedot Yemane | Philadelphia | | 6/25/2023 |
| Sarah L | Cambridge | | 6/25/2023 |
| Leonor Magdaleno | Imperial | | 6/25/2023 |
| Adam Cohen | New York | | 6/25/2023 |
| Claudia Berry | Mattituck | NY | 6/25/2023 |
| John Frione | East Haven | CT | 6/25/2023 |
| Nuno Decosta | Yonkers | NY | 6/25/2023 |
| Nick Webb | Cedar Rapids | | 6/25/2023 |
| Frank Gonzales Jr. | Plymouth | MI | 6/25/2023 |
| hope riddle | Michigan City | | 6/25/2023 |
| Richard McConnell | Olympia Fields | | 6/25/2023 |
| Kimella walker | Dothan | | 6/25/2023 |
| Dakota Martinez | Fremont | | 6/25/2023 |
| Benjamin Whelan | Sag Harbor | NY | 6/25/2023 |
| Anthony Caputo | London | MI | 6/25/2023 |
| Alex Errico | Montauk | NY | 6/25/2023 |
| Catherine Ragsdale | Prattville | | 6/25/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| lyle kutner | Myrtle Beach | SC | 6/25/2023 |
| Annika Gho | Saratoga | | 6/25/2023 |
| Tony Demasi | East Yaphank | NY | 6/25/2023 |
| Donna Gardner | Bellmore | NY | 6/25/2023 |
| Brian Priest | Montauk | NY | 6/25/2023 |
| MattMatthew Lycke | Montauk | NY | 6/25/2023 |
| Wilbur Mack | Uncasville | CT | 6/25/2023 |
| Christensen John | Charlotte | NC | 6/25/2023 |
| Jordan Crouch | Vero Beach | | 6/25/2023 |
| Lawanda North | Brooklyn | NY | 6/25/2023 |
| Shyna Kaur | Maple Valley | | 6/25/2023 |
| Austin Ellois | Baton Rouge | LA | 6/25/2023 |
| Gary Bradshaw | West Hartford | CT | 6/25/2023 |
| Ms.Ford Classic | Oklahoma City | | 6/25/2023 |
| James Peterson | Patchogue | NY | 6/25/2023 |
| Michael Jakits | Bay Shore | NY | 6/25/2023 |
| Dave St.Hilaire | Middletown | CT | 6/25/2023 |
| John Foye | Boston | MA | 6/25/2023 |
| Denise Walters | Roswell | GA | 6/25/2023 |
| Michael Leonard | Riverhead | NY | 6/25/2023 |
| Chris Brockett | East Hampton | CT | 6/25/2023 |
| Bennett Matt | New York | NY | 6/25/2023 |
| Chris Paradiso | Fort Myers | FL | 6/25/2023 |
| Heather Mahaney | Edgewood | | 6/25/2023 |
| John DeVito | New York | | 6/25/2023 |
| Patrick Romano | Staten Island | NY | 6/25/2023 |
| Wes rowlands | pulaski | | 6/25/2023 |
| Meagan Lowery | Port Jefferson Station | NY | 6/25/2023 |
| James McSwigin | Commack | NY | 6/25/2023 |
| Aidan Wagner | Owego | | 6/25/2023 |
| Todd Patane | Huntington | NY | 6/25/2023 |
| Chad Escue | kernersville | | 6/25/2023 |
| Carolyn Smith | Brooklyn | NY | 6/25/2023 |
| Alex Garcia | Sunnyvale | | 6/25/2023 |
| Jeffrey Herting | Sanger | | 6/25/2023 |
| Ernest Erickson | Melville | NY | 6/25/2023 |
| Ribaudo Gaetano | Hoboken | NJ | 6/25/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Thomas Ritner | New York | NY | 6/25/2023 |
| Jamal Haimeur | Holbrook | NY | 6/25/2023 |
| Thomas Castellano | Westwood | NJ | 6/25/2023 |
| Ken Oberlies | Stony Brook | NY | 6/25/2023 |
| Robert Foley | East Hampton | NY | 6/25/2023 |
| Gary Thaler | Boston | MA | 6/26/2023 |
| Eugene Andreola | Toms River | NJ | 6/26/2023 |
| Mary Ellen OBrien | Beaver | PA | 6/26/2023 |
| Seaman Lawrence | New York | NY | 6/26/2023 |
| Sal Trapani | Carmel | NY | 6/26/2023 |
| Terry Cooper | Montauk, n.y. | NY | 6/26/2023 |
| Kathrine Thompson | Southold | NY | 6/26/2023 |
| Jonathan Adkins | Mansfield | | 6/26/2023 |
| Erik Tirpak | Milton | DE | 6/26/2023 |
| Paul Canty | Westhampton Beach | NY | 6/26/2023 |
| William Newham | Blue Point | NY | 6/26/2023 |
| Michael Carilli | Glen Oaks | NY | 6/26/2023 |
| Robert Fitzgerald | Ossining | NY | 6/26/2023 |
| Yasmine Horton | Bessemer | | 6/26/2023 |
| Scott Allen | Middle Island | NY | 6/26/2023 |
| Frank Bachmann | Oyster Bay | NY | 6/26/2023 |
| Kevin Lehmann | Holtsville | NY | 6/26/2023 |
| Billy Bond | Miller Place | NY | 6/26/2023 |
| Robert Bascome | Broomall | PA | 6/26/2023 |
| Jeffrey Donaldson | Milford | CT | 6/26/2023 |
| Robert Thall | Melville | NY | 6/26/2023 |
| Keith Gagner Gagner | Hartford | CT | 6/26/2023 |
| Audrey Boyn | bluffton | SC | 6/26/2023 |
| Ralph Haynes | Fernandina Beach | FL | 6/26/2023 |
| Catherine Ecker Flanagan | East Hampton | NY | 6/26/2023 |
| Erika Panzarino | New York | NY | 6/26/2023 |
| Joseph Chinchilla | Montauk | NY | 6/26/2023 |
| Jane Kotsoni | Sayville | NY | 6/26/2023 |
| Ken Wojtak Sr | Bloomingdale | NJ | 6/26/2023 |
| Christopher Pesce | Branford | CT | 6/26/2023 |
| Robin Faulkner | Greenwich | CT | 6/26/2023 |
| BARBARA arcuri | Merrick | NY | 6/26/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Joe Apanowitch | Durham | CT | 6/26/2023 |
| Beth Farrauto | Patchogue | NY | 6/26/2023 |
| Christine Drakatos | Flushing | NY | 6/26/2023 |
| edward McDonald | East Marion | NY | 6/26/2023 |
| Jason Walter | East Hampton | NY | 6/26/2023 |
| Richard Potter | Freeport | NY | 6/26/2023 |
| Betty Goebel | Melbourne | FL | 6/26/2023 |
| Ron Panowich | Holtsville | NY | 6/26/2023 |
| Randy Vincelette | Preston Citylebanon | CT | 6/26/2023 |
| Lou DiFruscio | Glen Cove | NY | 6/26/2023 |
| Charles Bumble III | East Marion | NY | 6/26/2023 |
| Paul Commesso | Smithtown | NY | 6/26/2023 |
| Laurie Martinka | Bloomingdale | NJ | 6/26/2023 |
| Ron Devito | Brewster | NY | 6/26/2023 |
| Heather Finn | East Hampton | NY | 6/26/2023 |
| Peter Groner | Merrick | NY | 6/26/2023 |
| John Buckmaster | Pompano Beach | FL | 6/26/2023 |
| Gregory Goss | Old Lyme | CT | 6/26/2023 |
| Ron Biggballs Bailey | Centereach | NY | 6/26/2023 |
| Gabriel Gomez | Garden City | NY | 6/26/2023 |
| John C Geyer | Freeport | NY | 6/26/2023 |
| Capt Doug Colbath | Palm Bay | FL | 6/26/2023 |
| B Jones | Metter | GA | 6/26/2023 |
| David Peck | Brick | NJ | 6/26/2023 |
| Grigoriy KRICHMAR | Southampton | NY | 6/26/2023 |
| Maureen Keller | Flushing | NY | 6/26/2023 |
| Jeff Hammel | Larchmont | NY | 6/26/2023 |
| Gary Stephens | Montauk | NY | 6/26/2023 |
| Eugenia Ahern | Elkins Park | PA | 6/26/2023 |
| John Papaleo | Montauk | NY | 6/26/2023 |
| John Hillery | New York | NY | 6/26/2023 |
| Thomas P Darenberg | Lake Suzy | FL | 6/26/2023 |
| Chris Gaulrapp | Carle Place | NY | 6/26/2023 |
| Danny Millerick | Baldwin | NY | 6/26/2023 |
| Stefanie Ribeiro | Garden City | NY | 6/26/2023 |
| Brooks Harris | Atlanta | GA | 6/26/2023 |
| Peter Joyce | New York | NY | 6/26/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Mark Rolfe | East Hampton | CT | 6/26/2023 |
| Jacob Feibusch | Smithtown | NY | 6/26/2023 |
| Anthony Olivieri | Flushing | NY | 6/26/2023 |
| Jeff Schneider | Mastic Beach | NY | 6/26/2023 |
| Scott Jeffrey | Sayville | NY | 6/26/2023 |
| Steven Forsberg | East Hampton | NY | 6/26/2023 |
| Joan Hegner | East Hampton | NY | 6/26/2023 |
| Christopher Hoganson | Fenton | | 6/26/2023 |
| adrianna hill | Maple Heights | | 6/26/2023 |
| Larry Ladd | Chico | | 6/26/2023 |
| Lauren Sammon | Huntington | NY | 6/26/2023 |
| Preston Hon | Gilbert | | 6/26/2023 |
| Julie Cannon | Roswell | | 6/26/2023 |
| Den Bover | Miami | | 6/26/2023 |
| Robert nickle | Stratford | CT | 6/26/2023 |
| Jerica  Lorance Lorance | Hartselle | | 6/26/2023 |
| trudy perez | Slidell | LA | 6/26/2023 |
| Clifford Frost | Indianapolis | | 6/26/2023 |
| Ana Montilla | Cape Coral | | 6/26/2023 |
| Morgan Earth | Winnebago | | 6/26/2023 |
| Ramon felix | Los Angeles | | 6/26/2023 |
| RichArd Pulaski | Sayville | NY | 6/26/2023 |
| Aiden Joey | Westminster | | 6/26/2023 |
| Shukri Robinson | Camden | | 6/26/2023 |
| EdWard Kraser | Bronx | | 6/26/2023 |
| Robert Rucky | East Islip | NY | 6/26/2023 |
| Ahnia Cuti | Spartenburg | | 6/26/2023 |
| 原神 启动 | usa | | 6/26/2023 |
| Kendra Schneeweis | Williamstown | | 6/26/2023 |
| Ghazal V | Los Angeles | | 6/26/2023 |
| Laura Hastings | Gettysburg | | 6/26/2023 |
| James Lynch | Bayside | NY | 6/26/2023 |
| Aurora Bassette | Winnebago | | 6/26/2023 |
| Delaney Williamson | Brandon | | 6/26/2023 |
| Oswald McKamey | Arlington | | 6/26/2023 |
| Ethan Fonseca | Beaumont | | 6/26/2023 |
| Donna Shine | Ladera Ranch | | 6/26/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Charles Etzel | Brooklyn | NY | 6/26/2023 |
| Carmine Trapani | Flushing | NY | 6/26/2023 |
| Megan Holloway | Springfield | | 6/26/2023 |
| Cristofer Sánchez Tejeda | Houston | | 6/26/2023 |
| lauren wilkens | montauk | NY | 6/26/2023 |
| Michael Stepski | Quaker Hill | CT | 6/26/2023 |
| Anthony Belvin | Desoto | | 6/26/2023 |
| Mark Bettencourt | Norwich | CT | 6/26/2023 |
| Salissa Chavez | Queen Creek | | 6/26/2023 |
| Joe Panzarino | Yorktown Heights | NY | 6/26/2023 |
| Steven Sullivan | New York | NY | 6/26/2023 |
| Michael Albronda | Montauk | NY | 6/26/2023 |
| Kathy Grippo | East Hampton | NY | 6/26/2023 |
| Adrienne Depasquale | Montauk | NY | 6/26/2023 |
| Philip Rice | lindenhurst | NY | 6/26/2023 |
| Pete Serafin | Bristol | CT | 6/26/2023 |
| Eric Epstein | Long Beach | NY | 6/26/2023 |
| David Parkes | Commack | NY | 6/26/2023 |
| Dorothy Faszczewski | Brooklyn | NY | 6/26/2023 |
| John Rottino | Willimantic | CT | 6/26/2023 |
| Eileen Henry | Ocean Beach | NY | 6/26/2023 |
| Ray Curtin | Flushing | NY | 6/26/2023 |
| Jack Curtin | New York | NY | 6/26/2023 |
| Debra Kierys | Waterford | CT | 6/26/2023 |
| Anthony Cobb | Montauk | NY | 6/26/2023 |
| Dan Harris | New York | NY | 6/26/2023 |
| Frank Braddick | East Hampton | NY | 6/26/2023 |
| Newton Lamson | Ridgewood | NJ | 6/26/2023 |
| Maurice Andreola | whiting | NJ | 6/26/2023 |
| Arlene Albrecht | East Hampton | NY | 6/26/2023 |
| Gabriella Wilkens | Babylon | NY | 6/26/2023 |
| Rosanna Moskowitz | The Bronx | NY | 6/26/2023 |
| Anthony Palughi | Laurelton | NJ | 6/26/2023 |
| William Schumann | East Hampton | NY | 6/26/2023 |
| Tom Edwardes | Montauk | NY | 6/26/2023 |
| Richard Mackiewicz | New York | NY | 6/26/2023 |
| Nancy Krauss | Brooklyn | NY | 6/26/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Vicky Carter | tuscaloosa | | 6/26/2023 |
| Robert Laurice | Uniondale | NY | 6/26/2023 |
| Ransom Downes | Riverview | FL | 6/26/2023 |
| John Scollan | West Palm Beach | FL | 6/26/2023 |
| Todd Jacobs | Tobyhanna | PA | 6/26/2023 |
| Denise Mccall | Flushing | NY | 6/26/2023 |
| Isabella Clarkson-Coln | Raleigh | | 6/26/2023 |
| Zachary Lee | Paragould | | 6/26/2023 |
| Julia ospedale | Massapequa | NY | 6/26/2023 |
| Taylor Olszewski | Rocky Point | NY | 6/26/2023 |
| Charles Wiggins | Wichita | | 6/26/2023 |
| Jevon Tomaschko | Rochester | NY | 6/26/2023 |
| Michael Nolan | Clementon | NJ | 6/26/2023 |
| Augusto DAGOSTINO | Bronxville | NY | 6/26/2023 |
| Susan Ryan | Eatontown | NJ | 6/26/2023 |
| Michael Mueller | Miami Beach | FL | 6/26/2023 |
| Andrew Fatscher | Brooklyn | NY | 6/26/2023 |
| James Vanderbeek | Levittown | NY | 6/26/2023 |
| Jennifer Basalla | Brooklyn | NY | 6/26/2023 |
| Paul Schaefer | Middletown | CT | 6/26/2023 |
| william behrens | Mastic Beach | NY | 6/26/2023 |
| Tamim Rashid | NYC | | 6/26/2023 |
| Julianne Hnath | New York | NY | 6/26/2023 |
| Trey St John | Kennesaw | | 6/26/2023 |
| Diane Garcia | Central Islip | NY | 6/26/2023 |
| James Owen | New York | NY | 6/26/2023 |
| Robert Lynch | Jacksonville | FL | 6/26/2023 |
| Nick Walden | Ivoryton | CT | 6/26/2023 |
| Raul Cabrera | Fort Pierce | FL | 6/26/2023 |
| Matthew Walenta | Brooklyn | NY | 6/26/2023 |
| Chris Mackey | Bay Shore | NY | 6/26/2023 |
| Michael Carolan | Montauk | NY | 6/26/2023 |
| Stephanie Korzeniewski | Old Lyme | CT | 6/26/2023 |
| Bob Schmitt | Brentwood | NY | 6/26/2023 |
| Patricia Beck | New Bern | NC | 6/26/2023 |
| Richard Fern | OAKDALE | CT | 6/26/2023 |
| Pete LeBlanc | New London | CT | 6/26/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Alexander Mihlstin | Midland | MI | 6/26/2023 |
| Maria Martinez | Hereford | | 6/26/2023 |
| Holly Adriano-Ryan | Gales Ferry | CT | 6/26/2023 |
| Joseph Landi | Stamford | CT | 6/26/2023 |
| Ron Stramiello | Bohemia | NY | 6/26/2023 |
| JOHN KENNEY | Philadelphia | | 6/26/2023 |
| Steven Davis | Lebanon | CT | 6/26/2023 |
| Wendy Korth | Hauppauge | NY | 6/26/2023 |
| Edward Schavel | Ridge | NY | 6/26/2023 |
| Fredi mamo | Flushing | NY | 6/26/2023 |
| Will Emmert | Westville | NJ | 6/26/2023 |
| Ceigon Campbell | Uniontown | | 6/26/2023 |
| Fred Katz | New York | NY | 6/26/2023 |
| Persico Frank | Patchogue | NY | 6/26/2023 |
| Ivan Ramirez | Lindenhurst | NY | 6/26/2023 |
| Chris Galtieri | Brentwood | NY | 6/26/2023 |
| MIshael Munoz | Wichita | | 6/26/2023 |
| Ruari Connolly | Islip terrace | NY | 6/26/2023 |
| John Bott | Palisades Park | NJ | 6/26/2023 |
| Kasey Melzer | Babylon | NY | 6/26/2023 |
| Leo Mantilla | New York | NY | 6/26/2023 |
| Colton Reitzes | Flushing | NY | 6/26/2023 |
| Jonathan Serwatien | Nanuet | NY | 6/26/2023 |
| Ryan Klosterman | New York | NY | 6/26/2023 |
| Ryan Orobona | St james | NY | 6/26/2023 |
| Stephen Muto | New York | NY | 6/26/2023 |
| Madelyn Arnold | Massapequa | NY | 6/26/2023 |
| Stephen Muto | Huntington Station | NY | 6/26/2023 |
| Richard Marino | Islip Terrace | NY | 6/26/2023 |
| Linda Christman | Stuart | FL | 6/26/2023 |
| Phillips Isacc | Jersey City | | 6/26/2023 |
| Joe Schnell | Centereach | NY | 6/26/2023 |
| Francis Valerio | Massapequa Park | NY | 6/26/2023 |
| Greg Cooke | N. Babylon | NY | 6/26/2023 |
| Tyler Pepe | Port Jefferson Station | NY | 6/26/2023 |
| Bryanna Joseph | Philadelphia | | 6/26/2023 |
| Gary Ferber | Mamaroneck | NY | 6/26/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Victor Osorio | Brooklyn | NY | 6/26/2023 |
| Jason Kassis | Brooklyn | NY | 6/26/2023 |
| Lucilo Hernandez | Belleville | NJ | 6/26/2023 |
| James Duffy | Brooklyn | NY | 6/26/2023 |
| Mark Venus | New York | NY | 6/26/2023 |
| Brian Gibbons | New York | NY | 6/26/2023 |
| John Venus | New York | NY | 6/26/2023 |
| Brian Rudolph | New York | NY | 6/26/2023 |
| Carlos Sanchez | Brooklyn | NY | 6/26/2023 |
| Jack Butler | Wantagh | NY | 6/26/2023 |
| Eugene Petrullo | East Meadow | NY | 6/26/2023 |
| Kevin Brunjes | New York | NY | 6/26/2023 |
| Sharyn Orosz | Long Valley | NJ | 6/26/2023 |
| diane baquet | Ridge | NY | 6/26/2023 |
| Gregg Sieber | Hauppauge | NY | 6/26/2023 |
| Sangjun Park | Brooklyn | NY | 6/26/2023 |
| Ian Peverley | Babylon | NY | 6/26/2023 |
| Louis Mauriello | Marlton | NJ | 6/26/2023 |
| Jennifer Johnson | Leicester | | 6/26/2023 |
| Susan McCombs | Oceanside | NY | 6/26/2023 |
| Robert Andersen | The Bronx | NY | 6/26/2023 |
| Joseph Mcbride | Brooklyn | NY | 6/26/2023 |
| John Brisciana | New York | NY | 6/26/2023 |
| Emmanuel Karl | Islip | NY | 6/26/2023 |
| Scott Wood | Mechanicsville | | 6/26/2023 |
| Rick Waltz | Beaver | PA | 6/26/2023 |
| Ney vaz | Philadelphia | PA | 6/26/2023 |
| Ralph Cassis | New York | NY | 6/26/2023 |
| Jessie Pinkman | Rochester | | 6/26/2023 |
| Donald dzenkowski Dzenkowski | East Marion | NY | 6/26/2023 |
| TJ Karbowski | Clinton | CT | 6/26/2023 |
| Michael Eskey | Lebanon | CT | 6/26/2023 |
| Lyudmila Holter | Tacoma | | 6/26/2023 |
| scott daw | Bethlehem | PA | 6/26/2023 |
| Brian Rosenberg | Brooklyn | NY | 6/26/2023 |
| Tina Wagner | East Hampton | NY | 6/26/2023 |
| Mike Laffey | Coram | NY | 6/26/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Anisa Seeram | Flushing | NY | 6/26/2023 |
| James WHITTEN | New York | NY | 6/26/2023 |
| Gregory erikson | Leominster | MA | 6/26/2023 |
| Jonathan Hensler | Plymouth Meeting | PA | 6/26/2023 |
| Judith Lund | Cape May | NJ | 6/26/2023 |
| Thomas Christiano | Center Moriches | NY | 6/26/2023 |
| Charlie Kauflie | Harleysville | PA | 6/26/2023 |
| Mark Roberts | Brooklyn | NY | 6/26/2023 |
| Ryan Christensen | Oceanside | NY | 6/26/2023 |
| Ronnie Anderson | Brooklyn | NY | 6/26/2023 |
| Daniel Castricone | Middletown | NY | 6/26/2023 |
| Christopher Amoroso | New York | NY | 6/26/2023 |
| David Williams | Brooklyn | NY | 6/26/2023 |
| Kevin Fitzsimmons | Copaigue | NY | 6/26/2023 |
| Joseph Dipaola | The Bronx | NY | 6/26/2023 |
| Joey Cannella | | | 6/26/2023 |
| Leah Vang | Kansas City | | 6/26/2023 |
| joseph senatore | Brewster | NY | 6/26/2023 |
| Bob Glickstein | Montauk, N.Y. | NY | 6/26/2023 |
| Matt Muto | Bronx | | 6/26/2023 |
| Timothy Mulholland | Suffern | NY | 6/26/2023 |
| Scott Maskin | Ronkonkoma | NY | 6/26/2023 |
| Robert Schober | Uncasville | CT | 6/26/2023 |
| Ryan Tota | New York | NY | 6/26/2023 |
| Royce Payer | Winnebago | | 6/26/2023 |
| Brian Johnson | New Brunswick | NJ | 6/26/2023 |
| AJ Hackert | Sag Harbor | NY | 6/26/2023 |
| Beth Clark | Whitefield | ME | 6/26/2023 |
| Jonathan Fein | Sag Harbor | NY | 6/26/2023 |
| Andrew Begina | Brooklyn | NY | 6/26/2023 |
| julie sammy | Metairie | | 6/26/2023 |
| Todd Spencer | Brooklyn | NY | 6/26/2023 |
| Laura vonkampen | Ronkonkoma | NY | 6/26/2023 |
| Kathy Moore | Tampa | FL | 6/26/2023 |
| Mike Vogell | Shirley | NY | 6/26/2023 |
| Paul Motta | New Britain | CT | 6/26/2023 |
| Pat Dunleavy | Middletown | NY | 6/26/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Augustus Cruse | Shirley | NY | 6/26/2023 |
| joyce cuggino | Melville | NY | 6/26/2023 |
| MIKE PEHRSSON | islip | NY | 6/26/2023 |
| Jonathan Harding | Garden City | NY | 6/26/2023 |
| bruhmomment yessir | Warren | | 6/26/2023 |
| david stora | New Windsor | NY | 6/26/2023 |
| brayden lawrence | Leander | | 6/26/2023 |
| Nate richemond | Chelsea | | 6/26/2023 |
| Scott Goldman | New York | NY | 6/26/2023 |
| Monica Klenawicus | Shelter Island | NY | 6/26/2023 |
| Ken Worontsoff | Sound Beach | NY | 6/26/2023 |
| Larry Gonzalez | White Plains | NY | 6/26/2023 |
| Bob Stermer | Lancaster | PA | 6/26/2023 |
| Maliah M | Glendale | | 6/26/2023 |
| Christopher Casey | Miller Place | NY | 6/26/2023 |
| Nick Keane | Baldwin | NY | 6/26/2023 |
| Margareth Higgins | Farmingville | NY | 6/26/2023 |
| Prusi Alexander | Brightwaters | NY | 6/26/2023 |
| Brendan Grabe | Commack | NY | 6/26/2023 |
| Brian Nudelman | Newburgh | NY | 6/26/2023 |
| Bill Klepper | Montvale | NJ | 6/26/2023 |
| Logan Schwarz | New York | NY | 6/26/2023 |
| Andrew Raphael | New York | NY | 6/26/2023 |
| William Gould | Bristol | PA | 6/26/2023 |
| Merry Retus | Orient | NY | 6/26/2023 |
| Tessa Bailey | New Boston | | 6/26/2023 |
| Jackie Fletcher | Altamonte Springs | FL | 6/26/2023 |
| Stephanie Bryant | Freehold | NJ | 6/26/2023 |
| Jay Singh | Schenectady | NY | 6/26/2023 |
| Robert Ungaro | New York | NY | 6/26/2023 |
| Ethan Parker | Salt Lake City | | 6/26/2023 |
| Jennifer Gonzalez | New York | NY | 6/26/2023 |
| Todd Fontana | Coram | NY | 6/26/2023 |
| Chris Lambert | | | 6/26/2023 |
| Katherine Hutchins | Phoenix | | 6/26/2023 |
| Jesse Owen | Riverhead | NY | 6/26/2023 |
| Michael Tenner | New York | NY | 6/26/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Elizabeth Tutu | Chicago | | 6/26/2023 |
| Mark Lessner | Ridgecrest | CA | 6/26/2023 |
| Dan Ungur | Brooklyn | NY | 6/26/2023 |
| Gary Coller | Seaford | DE | 6/26/2023 |
| Dylan Rice | Wallingford | CT | 6/26/2023 |
| Drew Schiano | West Islip | NY | 6/26/2023 |
| Seb Sora | Flushing | NY | 6/26/2023 |
| Jeanine Handler | Brooklyn | NY | 6/26/2023 |
| Dianne Carroll | New York | NY | 6/26/2023 |
| Laura Wyble | Fallon | NV | 6/26/2023 |
| Patricia Cusimano | Montauk | NY | 6/26/2023 |
| Joshua Manning | Toms river | NJ | 6/26/2023 |
| Richard Anderson | Philadelphia | PA | 6/26/2023 |
| John Zaremba | East Brunswick | NJ | 6/26/2023 |
| april Silva | Sarasota | FL | 6/26/2023 |
| Marie Mcgrath | New York | NY | 6/26/2023 |
| Derem Edwards | Patchogue | NY | 6/26/2023 |
| Nikki Welch | Des Moines | IA | 6/26/2023 |
| Anthony Riviezzo | New York | NY | 6/26/2023 |
| Whitney Russell | Franklin | CT | 6/26/2023 |
| Paul Meade | Hamden | CT | 6/26/2023 |
| Bruce  A. Blasko | Greenport | NY | 6/26/2023 |
| Gordon Ritchie | Tilton | NH | 6/26/2023 |
| Rick Caruso | Garfield | NJ | 6/26/2023 |
| Savanna Mann | New York | NY | 6/26/2023 |
| DENISE STAATS | Cortlandt Manor | NY | 6/26/2023 |
| Dara Casiano | Huntington | NY | 6/26/2023 |
| Woisin Steven | Medford | NY | 6/26/2023 |
| Robert Weyhrauch | The Bronx | NY | 6/26/2023 |
| Peter O'Neill | Wainscott | NH | 6/26/2023 |
| Harold Coer | Plantsville | CT | 6/26/2023 |
| Anthony Nocito | Philadelphia | PA | 6/26/2023 |
| Sergey Nudelman | Massapequa | NY | 6/26/2023 |
| Thomas Belair | Uncasville | CT | 6/26/2023 |
| Michael Mourning | Bridgeton | NJ | 6/26/2023 |
| Michael Weyhrauch | Largo | FL | 6/26/2023 |
| Ahmad Edwards | Greenlawn | NY | 6/26/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Edward Weyhrauch | Pearl River | NY | 6/26/2023 |
| Jake Mieczkowski | Holbrook | NY | 6/26/2023 |
| Mike Ring | New Smyrna Beach | FL | 6/26/2023 |
| Jesse Gettling | Orlando | FL | 6/26/2023 |
| Jill Berry-gladd | Richland Springs | TX | 6/26/2023 |
| Sebastian Suarez | East Hampton | NY | 6/26/2023 |
| Christopher Gamble | Amagansett | NY | 6/26/2023 |
| Francisco Gonzalez | Middletown | NY | 6/26/2023 |
| debbie ruggiero | jupiter | FL | 6/26/2023 |
| Robert Rubi | Trenton | NJ | 6/26/2023 |
| Bryan Morris | Clinton | CT | 6/26/2023 |
| Paul D'Angelo | East Hampton | NY | 6/26/2023 |
| George Dowers | Philadelphia | PA | 6/26/2023 |
| Wendy Razzi | Rockaway Park | NY | 6/26/2023 |
| William Eckart | Neptune City | NJ | 6/26/2023 |
| David Cottrell | Needham | MA | 6/26/2023 |
| Michele Rotondo | Farmingdale | NY | 6/26/2023 |
| David Schulze | Millsboro | DE | 6/26/2023 |
| Effie Cassar | Selden | NY | 6/26/2023 |
| Fred Schoenewerk | Moyock | NC | 6/26/2023 |
| William Claesen | Shirley | NY | 6/26/2023 |
| Nicholas Terrafirma | Centereach | NY | 6/26/2023 |
| Nick Monastero | Bellmore | NY | 6/26/2023 |
| Thomas Kampa | Manhasset | NY | 6/26/2023 |
| Pat Diorio | Centereach | NY | 6/26/2023 |
| Paul Turano | Ronkonkoma | NY | 6/26/2023 |
| salvatore giambrone | Holbrook | NY | 6/26/2023 |
| Frank Garland | East Quogue | NY | 6/26/2023 |
| Ken Curtiss | Nanuet | NY | 6/26/2023 |
| michaela quaresimo | East Hampton | NY | 6/26/2023 |
| Eileen Wilson | Holbrook | NY | 6/26/2023 |
| george anderson | Saint James | NY | 6/26/2023 |
| Joel Ceffalia | New York | NY | 6/26/2023 |
| Chas Adams | | | 6/26/2023 |
| Amy Israel | Cutchogue | NY | 6/26/2023 |
| FRANK PINO | Brooklyn | NY | 6/26/2023 |
| Carlos Vega | Uncasville | MA | 6/26/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Russell Phillips Phillips | Guilford | CT | 6/26/2023 |
| John Dominianni | Miller Place | NY | 6/26/2023 |
| Steve allen | Waterbury | CT | 6/26/2023 |
| rich roland | Warwick | NY | 6/26/2023 |
| George Drape | Wantagh | NY | 6/26/2023 |
| JOHN-MICHAEL McAULIFFE | Wantagh | NY | 6/26/2023 |
| Elizabeth Rodriguez | Shoreham | NY | 6/26/2023 |
| Rich Quartuccio | Merrick | NY | 6/27/2023 |
| Krista Diorio | Marion Heights | PA | 6/27/2023 |
| Jodi Rosten | Ankeny | IA | 6/27/2023 |
| Tony Lee | Brooklyn | NY | 6/27/2023 |
| Andrew Pinals | East Northport | NY | 6/27/2023 |
| Shaun Waldron | Hicksville | NY | 6/27/2023 |
| Jillian Vignola | Oceanside | NY | 6/27/2023 |
| Cathy Mongiello | Bayport | NY | 6/27/2023 |
| Jeff Davis | Newington | CT | 6/27/2023 |
| Robert mikes | East Meadow | NY | 6/27/2023 |
| Tony Herns | New York | NY | 6/27/2023 |
| Matthew Cannarella | Manorville | NY | 6/27/2023 |
| Randy Smith | Bristol | CT | 6/27/2023 |
| nora-jane adkins | Levittown | NY | 6/27/2023 |
| Sean O'Neill | Farmingdale | NY | 6/27/2023 |
| Greg Howarth | Levittown | NY | 6/27/2023 |
| PJ McGay | Southampton | NY | 6/27/2023 |
| Dorothy Petito | Riverhead | NY | 6/27/2023 |
| Mitchell Ribera | Rutland | VT | 6/27/2023 |
| Kelly Murphy | Albany | NY | 6/27/2023 |
| Howard Hazlett | Lindenhurst | NY | 6/27/2023 |
| Ruth Stone | Ridge | NY | 6/27/2023 |
| Gerard Tenner | Yonkers | NY | 6/27/2023 |
| Ken Holmes | Manorville | NY | 6/27/2023 |
| Sean Rich | Manchester | CT | 6/27/2023 |
| John Griffy | Coatesville | PA | 6/27/2023 |
| James Maloney | Terryville | CT | 6/27/2023 |
| Sheila Estelle | Sayville | NY | 6/27/2023 |
| Richard Lorraine | Bristol | CT | 6/27/2023 |
| Kendra Meltzer | Coram | NY | 6/27/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| WALTER FRIEDAUER | Colts Neck | NJ | 6/27/2023 |
| Stephen Gifford | Oakdale | NY | 6/27/2023 |
| Salvatore Amendolua | Saint James | NY | 6/27/2023 |
| rob viola | Brooklyn | NY | 6/27/2023 |
| Kenneth Gerber | Tabernacle | NJ | 6/27/2023 |
| Joshua Kyle | Litchfield | CT | 6/27/2023 |
| Mayra Morfin | Anaheim | | 6/27/2023 |
| Yetnayet Dejene | Boston | | 6/27/2023 |
| David Almaguer | Lubbock | | 6/27/2023 |
| James Mantone | Flushing | NY | 6/27/2023 |
| Mattis Field | Teaneck | | 6/27/2023 |
| Todd Triolo | Bay Shore | NY | 6/27/2023 |
| Kaleb Williams | Linefork | | 6/27/2023 |
| Bryan Parks | Mount Holly | NJ | 6/27/2023 |
| Alex Dudich | Midlothian | | 6/27/2023 |
| Maureen Finnen | Bohemia | NY | 6/27/2023 |
| Brenden Wolff | Brooklyn | NY | 6/27/2023 |
| believers_ 1body | Atlanta | GA | 6/27/2023 |
| Christian McGehrin | Lyndhurst | | 6/27/2023 |
| jonathan fillion | west hartford | CT | 6/27/2023 |
| Anne Hodnik | East Hampton | NY | 6/27/2023 |
| Duane Marcy | Island Park | NY | 6/27/2023 |
| Robert Labar | Rockaway | NJ | 6/27/2023 |
| Mairead Aripotch | East Hampton | NY | 6/27/2023 |
| Gerardo Montoni | New York | NY | 6/27/2023 |
| Mary E. Persan | Melbourne | FL | 6/27/2023 |
| Allan Briggs | Waterford | CT | 6/27/2023 |
| PATRICK LANZARONE | West Babylon | NY | 6/27/2023 |
| Ronnie Mohammed | Flushing | NY | 6/27/2023 |
| Mark Sanchez | Smithtown | NY | 6/27/2023 |
| Joe Biro | Brooklyn | NY | 6/27/2023 |
| marquis Vandewater | Redhook | NY | 6/27/2023 |
| Francis Desrosiers | Middle village | NY | 6/27/2023 |
| Mark Bellantoni | Yonkers | NY | 6/27/2023 |
| Noah Harper | Yonkers | NY | 6/27/2023 |
| Don Imbriaco | The Bronx | NY | 6/27/2023 |
| Gary Giancola | Westhampton | NY | 6/27/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Frank Tails | Bay Shore | NY | 6/27/2023 |
| Harry Browne | Hackettstown | NJ | 6/27/2023 |
| Ian Flaherty | Wantagh | NY | 6/27/2023 |
| Fred Rollo | Brooklyn | NY | 6/27/2023 |
| Sandra O'Leary | Waterbury | CT | 6/27/2023 |
| Jonathan Schulhoff | Port Jefferson | NY | 6/27/2023 |
| Paul Malenczak | Brentwood | NY | 6/27/2023 |
| Edward Carnesi | Syracuse | NY | 6/27/2023 |
| Marc Boccaccio | Jupiter | FL | 6/27/2023 |
| Judy Melito | Laurel Hollow | NY | 6/27/2023 |
| William hyndman | Riverview | FL | 6/27/2023 |
| Sandra Stemberga | Centerport | NY | 6/27/2023 |
| Joshua Allen | Wolcott | CT | 6/27/2023 |
| Jennifer Siff | Syracuse | NY | 6/27/2023 |
| Victor Ryder | Brentwood | NY | 6/27/2023 |
| Charles Warkenthien | Clarence | NY | 6/27/2023 |
| gloria stramiello | Medford | NY | 6/27/2023 |
| Tim Richter | New York | NY | 6/27/2023 |
| nicole szendy | northport | NY | 6/27/2023 |
| Michael Brinskele | West New York | NJ | 6/27/2023 |
| Katelin Potter | Orlando | FL | 6/27/2023 |
| Beth LaSalle | Commack | NY | 6/27/2023 |
| Steve Weintraub | Red Bank | NJ | 6/27/2023 |
| Stephen Hagerman | Toms River | NJ | 6/27/2023 |
| Tina Plumley | Verona | NY | 6/27/2023 |
| Colleen Ecuyer | Wantagh | NY | 6/27/2023 |
| Michael Hamilton | Williamstown | NJ | 6/27/2023 |
| James Connors | Shoreham | NY | 6/27/2023 |
| Christopher Leyden | Kearny | NJ | 6/27/2023 |
| John Warburton | Wantagh | NY | 6/27/2023 |
| Ben Cadley | Middletown | CT | 6/27/2023 |
| Riley Reville | Flushing | NY | 6/27/2023 |
| Mark Cusumano | Northport | NY | 6/27/2023 |
| mike cohen | pearl river | NY | 6/27/2023 |
| Scott Christensen | Sacramento | CA | 6/27/2023 |
| Dylan Rodolosi | New York | NY | 6/27/2023 |
| Patricia McDermott | Brooklyn | NY | 6/27/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Joe Ayres | BLAUVELT | NY | 6/27/2023 |
| Charlie Bloss | Brewster | NY | 6/27/2023 |
| Thomas Devine | Lincroft | NJ | 6/27/2023 |
| Jennifer Fontanetta | Flushing | NY | 6/27/2023 |
| Christopher Parker | East Islip | NY | 6/27/2023 |
| Jose Collado | Avenel | NJ | 6/27/2023 |
| Alex Gaufman | Melville | NY | 6/27/2023 |
| Eva Rucinski | Johnson City | TN | 6/27/2023 |
| Melinda Kinnaird | Hot Springs National Park | AR | 6/27/2023 |
| Jared Weigel | Brooklyn | NY | 6/27/2023 |
| Adam Panetta | Massapequa | NY | 6/27/2023 |
| Ed Gillen | Smithtown | NY | 6/27/2023 |
| Steve Wolf | Sayville | NY | 6/27/2023 |
| David Lauder | Oak Brook | IL | 6/27/2023 |
| John Condon | Mattituck | NY | 6/27/2023 |
| Michael J. D'Ambrosio | Sherman | CT | 6/27/2023 |
| libby Koch | Greenport | NY | 6/27/2023 |
| Michael Lukens | Brooklyn | NY | 6/27/2023 |
| Mary Adler | Westchester | OH | 6/27/2023 |
| Cole Kurin | San Francisco | CA | 6/27/2023 |
| Susano Jimenez | New York | NY | 6/27/2023 |
| MICHAEL D'Ambrosio | Cape Coral | FL | 6/27/2023 |
| Vincent Pesce | East Moriches | NY | 6/27/2023 |
| barbara d'Esposito | Holtsville | NY | 6/27/2023 |
| Victoria Mason | Wellington | FL | 6/27/2023 |
| Ronald Miller | Hancock | NY | 6/27/2023 |
| Edward haak | Middletown | NJ | 6/27/2023 |
| leidiana ferreira | The Bronx | NY | 6/27/2023 |
| Jeff Fleming | Belmar | NJ | 6/27/2023 |
| Kevin Malone | New York | NY | 6/27/2023 |
| Eriberto Gomez | Brooklyn | NY | 6/27/2023 |
| Brian Clemente | Philadelphia | PA | 6/27/2023 |
| Keith Williams | New York | NY | 6/27/2023 |
| Joseph rodriguez | Brentwood | NY | 6/27/2023 |
| Daniel Buckley Jr | Calverton | NY | 6/27/2023 |
| Anthony Carter | Philadelphia | PA | 6/27/2023 |
| Adam Ackerman | Freeport | NY | 6/27/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Kevin Myers | Mount Vernon | NY | 6/27/2023 |
| Calvin Jackson | Elizabeth | NJ | 6/27/2023 |
| Sharon Pasach | Tampa | FL | 6/27/2023 |
| Ray Taylor | Newark | NJ | 6/27/2023 |
| Howard Hawkins | East Newark | NJ | 6/27/2023 |
| John RUPA | Linden | NJ | 6/27/2023 |
| Shirley O'Keefe Borak | | | 6/27/2023 |
| Carl Long | Brooklyn | NY | 6/27/2023 |
| Thomas Green | Berlin | NJ | 6/27/2023 |
| Fran McConnell | New Smyrna Beach | FL | 6/27/2023 |
| Kali Stewart | Wolcott | CT | 6/27/2023 |
| Pat Flaherty | Bernville | PA | 6/27/2023 |
| George Higgins | Morristown | NJ | 6/27/2023 |
| Gauntlett Mighty | Brooklyn | NY | 6/27/2023 |
| Brian Robson | Cape May Court House | NJ | 6/27/2023 |
| Ramone Crudup | Youngsville | NC | 6/27/2023 |
| Quentin Sathasivam | The Bronx | NY | 6/27/2023 |
| joanne fitchett | Parksley | VA | 6/27/2023 |
| Dawn Vallas | New London | CT | 6/27/2023 |
| James Peterson | Patchogue | NY | 6/27/2023 |
| Brian Booth | Philadelphia | PA | 6/27/2023 |
| Anderson John | New York | NY | 6/27/2023 |
| Richard Chamorro | Fair Lawn | NJ | 6/27/2023 |
| Domingo Buenafuente | Lakewood | NJ | 6/27/2023 |
| Harry Harris | New York | NY | 6/27/2023 |
| Chris Tai | Manhasset | NY | 6/27/2023 |
| Darrel Harris | Columbia | SC | 6/27/2023 |
| John Sanchez | Brooklyn | NY | 6/27/2023 |
| Matt Gilbert | Brooklyn | NY | 6/27/2023 |
| Tracy Erb | New York | NY | 6/27/2023 |
| Celeste Chancey | Hampton Bays | NY | 6/27/2023 |
| Steve Gianiotis | Howard Beach | NY | 6/27/2023 |
| Larry Bledsoe | Philadelphia | PA | 6/27/2023 |
| Margaret Fischer-Safwat | Hackensack | NJ | 6/28/2023 |
| Theresa Kennedy | Amityville | NY | 6/28/2023 |
| John Perrotta | Mineola | NY | 6/28/2023 |
| Lionel Lyons | Freeport | NY | 6/28/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Robert Hayes | Philadelphia | PA | 6/28/2023 |
| Christopher Miklas | Ridge | NY | 6/28/2023 |
| Thomas Wynn | Valley Stream | NY | 6/28/2023 |
| GREGORY Harris | Rochester | NY | 6/28/2023 |
| Phyllis Maganza | Valley Stream | NY | 6/28/2023 |
| Darrell Deas | The Bronx | NY | 6/28/2023 |
| Margaret Leeson | Amityville | NY | 6/28/2023 |
| Jake Giunta | Bethpage | NY | 6/28/2023 |
| Paul Donovan | Queens | NY | 6/28/2023 |
| Griffin Severin | Plainview | NY | 6/28/2023 |
| Michael Bromberg | Plainview | NY | 6/28/2023 |
| Bob Day | North Myrtle Beach | SC | 6/28/2023 |
| George Holmes Jr | Medford | NY | 6/28/2023 |
| Gavin Taylor | Bethpage | NY | 6/28/2023 |
| Donte Harris | Philadelphia | PA | 6/28/2023 |
| Chris Kohnken | Sag Harbor | NY | 6/28/2023 |
| Capt Tom Federico | Sagaponack | NY | 6/28/2023 |
| James Ansaldi | Commack | NY | 6/28/2023 |
| Elizabeth Correll | Plainview | NY | 6/28/2023 |
| Barbara Skelly | Sayville | NY | 6/28/2023 |
| Joseph Ansaldi | Ho Ho Kus | NJ | 6/28/2023 |
| David Eichhorn | Laurel | MD | 6/28/2023 |
| Sean Delaney | Orlando | FL | 6/28/2023 |
| Natalie Giunta | Bethpage | NY | 6/28/2023 |
| George Dawson | The Bronx | NY | 6/28/2023 |
| Matthew Lambert | Long Beach | NY | 6/28/2023 |
| Andrew Cousins | Syosset | NY | 6/28/2023 |
| Kellen O'Connell | New York | NY | 6/28/2023 |
| CHARLES ALLBRIGHT | Floral Park | NY | 6/28/2023 |
| steven weitz | garden city | | 6/28/2023 |
| Daniela Gabbola | bethpage | NY | 6/28/2023 |
| James Wheeler | Bethpage | NY | 6/28/2023 |
| Jen Venth | Wading River | NY | 6/28/2023 |
| Lacyna Kuper | Elmont | NY | 6/28/2023 |
| Grant Holly | Roanoke | VA | 6/28/2023 |
| Ken Deeg | Southampton | NY | 6/28/2023 |
| Max Maurrasse | Trumbull | CT | 6/28/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Marla Santacroce | Mastic Beach | NY | 6/28/2023 |
| Jackie Lucas | Coram | NY | 6/28/2023 |
| Freddy Kuang | Yonkers | NY | 6/28/2023 |
| Joe Gonzalez | Queens | NY | 6/28/2023 |
| Danielle Arthur | Hicksville | NY | 6/28/2023 |
| Meaghan Hammill | Hicksville | NY | 6/28/2023 |
| Greg Boglioli | Barre | VT | 6/28/2023 |
| Lori Tardi | Central Islip | NY | 6/28/2023 |
| David J Hammill | Bethpage | NY | 6/28/2023 |
| Stanley Trojanowski | Hicksville | NY | 6/28/2023 |
| Christine Giunta | Garden City | NY | 6/28/2023 |
| Ken Tumsuden | Huntington Station | NY | 6/28/2023 |
| Lorianne Williams | Fort Lauderdale | FL | 6/28/2023 |
| Jamie Lago | Seaford | NY | 6/28/2023 |
| Salvatore Lantiere | Southampton | NY | 6/28/2023 |
| Natalie Federico | Sagaponack | NY | 6/28/2023 |
| Nick Drago | Philadelphia | PA | 6/28/2023 |
| Dawn Hesler | Port Saint Lucie | FL | 6/28/2023 |
| Jamarle Worilds | Linden | NJ | 6/28/2023 |
| John Moy | Wantagh | NY | 6/28/2023 |
| Matt Gabbola | Plainview | NY | 6/28/2023 |
| Sallie Bailie | Cibolo | TX | 6/28/2023 |
| Jack Kelly | Port Jefferson | NY | 6/28/2023 |
| Michelle Marano-Romano | Plainview | NY | 6/28/2023 |
| Jaclyn Roge | Jacksonville | FL | 6/28/2023 |
| Guerlensie Gwaltney | Brooklyn | NY | 6/28/2023 |
| Nicholas Moran | Middletown | CT | 6/28/2023 |
| perillo claudia | Hicksville | NY | 6/28/2023 |
| Jerry O'Mara | Ronkonkoma, Long Island | NY | 6/28/2023 |
| Scott Rufer | Valley Stream | NY | 6/28/2023 |
| WERNER SCHULER | Flushing | NY | 6/28/2023 |
| Alicia Hinton | Sagaponack | NY | 6/28/2023 |
| Debora Anderson | West Deptford | NJ | 6/28/2023 |
| Randell Thomas | New York | NY | 6/28/2023 |
| Jonathan Edwards | Teaneck | NJ | 6/28/2023 |
| Michael Keller | Hollis Hills | NY | 6/28/2023 |
| Rita Giandonato | Philadelphia | PA | 6/28/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Nicole Lyons | Hicksville | NY | 6/28/2023 |
| Joyce Williams | Freeport | NY | 6/28/2023 |
| Maria LoBue | | NY | 6/28/2023 |
| Wayne Prince | New York | NY | 6/28/2023 |
| Carmine Ferruggia | Flushing | NY | 6/28/2023 |
| Pugliese George | Sarasota | FL | 6/28/2023 |
| Glock Nineteen | Honolulu | | 6/28/2023 |
| Robert Yaros | Whitehall | | 6/28/2023 |
| Kelley McHenry | Oceanside | NY | 6/28/2023 |
| Robyn Bennett | Farmingville | NY | 6/28/2023 |
| Heather Hopfinger | Belleville | | 6/28/2023 |
| Anthony Misrendino | Morristown | | 6/28/2023 |
| rachael Glogovsky | Lake Geneva | | 6/28/2023 |
| Jennifer Delacruz | East Stroudsburg | PA | 6/28/2023 |
| Steve Rauchut | Palm Harbor | FL | 6/28/2023 |
| ismael diaz | New York | NY | 6/28/2023 |
| Susan Malinauskas | East Marion | NY | 6/28/2023 |
| Phil Spruill | Hicksville | NY | 6/28/2023 |
| Andrzej Trojanowski | Brooklyn | NY | 6/28/2023 |
| Terry Skalska | Glen Cove | NY | 6/28/2023 |
| FREDDO Seltzer | Bay Shore | NY | 6/28/2023 |
| Kristen massey | Sanford | NC | 6/28/2023 |
| Wayne Spiro | Massapequa | NY | 6/28/2023 |
| Vincent Lechmanick | Middletown | RI | 6/28/2023 |
| Jennifer Murphy | Sayville | NY | 6/28/2023 |
| Marion Centeno | Melbourne | FL | 6/28/2023 |
| Frank Irons | New York | NY | 6/28/2023 |
| Mark Bozzo | The Villages | FL | 6/28/2023 |
| Alice Nicolai | Montauk | NY | 6/28/2023 |
| Chris Schelhas | Mastic | NY | 6/28/2023 |
| Rosalba Sessa | Plainview | NY | 6/28/2023 |
| Christiansen Christiansen | Sayville | NY | 6/28/2023 |
| Ingrid Lemme Chalut | Beckley | WV | 6/28/2023 |
| Bryan Eakens | St. Petersburg | FL | 6/28/2023 |
| Rick Haug | Manorville | NY | 6/28/2023 |
| jamie wilkinson | Inlet Beach | FL | 6/28/2023 |
| Jon Krasner | East Hampton | NY | 6/28/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Roseann Quaranta | Ronkonkoma | NY | 6/28/2023 |
| Jeff batky | New York | NY | 6/28/2023 |
| Todd Crumbling | Perkasie | PA | 6/28/2023 |
| Sophie Cole | Fort Lee | NJ | 6/28/2023 |
| Kathleen Duca | Vernon | | 6/28/2023 |
| Jeannette Kenney | Bethpage | NY | 6/28/2023 |
| Debbie Swendsen | Syracuse | NY | 6/28/2023 |
| Botelho William | East Providence | RI | 6/28/2023 |
| Eileen Samuel | Jensen Beach | FL | 6/28/2023 |
| Brian Olas | Yarmouth | ME | 6/28/2023 |
| Charles Julian | Narragansett | RI | 6/28/2023 |
| Donald Stephen Langille | Stephentown | NY | 6/28/2023 |
| Lisa Vietri | Jamestown | RI | 6/28/2023 |
| Michael LaBonte | Watervliet | NY | 6/28/2023 |
| Jason Tuthill | Port Charlotte | FL | 6/28/2023 |
| Kim Berhau | Port Jervis | NY | 6/28/2023 |
| Steven Jagoda | Louisville | KY | 6/28/2023 |
| Dawn King | Hamden | CT | 6/28/2023 |
| Suzanne Ardilio-Brennan | Massapequa | NY | 6/28/2023 |
| Lucille Robertson | Amityville | NY | 6/28/2023 |
| william wilkinson | Roswell | GA | 6/28/2023 |
| Kathleen McDonald | White Plains | NY | 6/28/2023 |
| Ken Urick | Carle place | NY | 6/28/2023 |
| Nicole Berhau | Newburgh | NY | 6/28/2023 |
| Cliff Minnig | Point Pleasant | NJ | 6/28/2023 |
| Robert Miller | New York | NY | 6/28/2023 |
| Kim Williams | Westhampton | NY | 6/28/2023 |
| frank cafiso | Sag Harbor | NY | 6/28/2023 |
| DENNIS SCALA | Brooklyn | NY | 6/28/2023 |
| Andy Gonzalez | Pleasantville | NY | 6/28/2023 |
| Suzie Decola | New York | NY | 6/28/2023 |
| Michelle Tantillo | ronkonkoma | NY | 6/28/2023 |
| William Damon | Mount Vernon | NY | 6/28/2023 |
| denise andriano | massapequa | NY | 6/28/2023 |
| Christina Catera | Brooklyn | NY | 6/28/2023 |
| Kenneth Higgins | Brooklyn | NY | 6/28/2023 |
| Kathleen Simpson | Valatie | NY | 6/28/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Nick Tantillo | Ronkonkoma | NY | 6/28/2023 |
| Angela Walters | Syosset | NY | 6/28/2023 |
| Christopher Pelszynski | Deer Park | NY | 6/28/2023 |
| Matthew Dwyer | Port Chester | NY | 6/28/2023 |
| Anna Saporito | East Stroudsburg | PA | 6/28/2023 |
| Derick Chau | New York | NY | 6/28/2023 |
| William Gorry | North Providence | RI | 6/28/2023 |
| Kristi Wood | Norwich | CT | 6/28/2023 |
| Roger Tursi | lindenhurst | NY | 6/28/2023 |
| Kevin Whitnum | New York | NY | 6/28/2023 |
| Matthew Curran | Hampton Bays | NY | 6/28/2023 |
| Donald Lewis | Brooklyn | NY | 6/28/2023 |
| Joseph Tantillo | Ronkonkoma | NY | 6/28/2023 |
| Dawn Jacobs | Mattituck | NY | 6/28/2023 |
| Sue loetscher | Hampton Bays | NY | 6/28/2023 |
| Patrick Heaney | Enfield | CT | 6/28/2023 |
| Glen Grippo | East Hampton | NY | 6/28/2023 |
| Vladimyr Tabares | Mount Vernon | NY | 6/28/2023 |
| Joseph Jasinski | Buchanan | NY | 6/28/2023 |
| Tish Negron | Brooklyn | NY | 6/28/2023 |
| Maryann Lipotica | Bayside | NY | 6/28/2023 |
| Martin Langan | Fords | NJ | 6/28/2023 |
| Ernest Resciniti | New York | NY | 6/28/2023 |
| Stan Filipkowski | Old Westbury | NY | 6/28/2023 |
| John Kessler | Middle Village | NY | 6/28/2023 |
| Beth Wendel | Hicksville | NY | 6/28/2023 |
| Michael Finerty | Mamaroneck | NY | 6/28/2023 |
| Dan Craigs | Mount Sinai | NY | 6/28/2023 |
| Ralph Buffolino | Old Westbury | NY | 6/28/2023 |
| Jamila Harris | New York | NY | 6/28/2023 |
| Casey C/O Casco Tools Cass | Stuart | FL | 6/28/2023 |
| Nicholas Terlizzo | Brooklyn | NY | 6/28/2023 |
| John Umina | East Moriches | NY | 6/28/2023 |
| Mark Monfoletto | Deer Park | NY | 6/28/2023 |
| George Macchia | Oyster Bay Cove | NY | 6/28/2023 |
| Deb Bowden | Hewlett | NY | 6/28/2023 |
| Cynthia Stroh | Astoria | NY | 6/28/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Robert Anderson | Babylon | NY | 6/28/2023 |
| Claudia Armendinger | Brooklyn | NY | 6/28/2023 |
| Doug Ballas | Centereach | NY | 6/28/2023 |
| Jose Godoy | New York | NY | 6/28/2023 |
| Edward Fischer | Pawli | NY | 6/28/2023 |
| Tracy Hansen | East moriches | NY | 6/28/2023 |
| Todd Perlman | East Moriches | NY | 6/28/2023 |
| Andrew Casale | Montauk | NY | 6/28/2023 |
| GERRY HOLLY | E. Setauket | NY | 6/28/2023 |
| Francis Lee | San Bruno | CA | 6/28/2023 |
| Ken Heilmann | Massapequa | NY | 6/28/2023 |
| Larry Bernocco | Central Islip | NY | 6/28/2023 |
| julie bondarchuk | Greenport | NY | 6/28/2023 |
| joseph dertinger | east meadow | NY | 6/28/2023 |
| Dave Battle | La Mesa | CA | 6/28/2023 |
| Troy Merkle | Farmingdale | NY | 6/28/2023 |
| Jacob Stroke | Howard Beach | NY | 6/28/2023 |
| Juan Maldonado | Ellington | CT | 6/28/2023 |
| James Kennedy | West Babylon | NY | 6/28/2023 |
| James Broderick | Eastport | NY | 6/28/2023 |
| Edwin Smith | Floral Park | NY | 6/28/2023 |
| Fred Callis | Mattituck | NY | 6/28/2023 |
| Edward Mcintyre | East Moriches | NY | 6/28/2023 |
| mark rafferty jr | New York | NY | 6/28/2023 |
| George Robert | Hollywood | FL | 6/28/2023 |
| Tom Britton | Valley Stream | NY | 6/28/2023 |
| Rob White | New York | NY | 6/28/2023 |
| nicholas post | Brookhaven | NY | 6/28/2023 |
| William Klatt | Riverhead | NY | 6/28/2023 |
| Deborah Maganza | Brooklyn | NY | 6/28/2023 |
| Michele Carasiti | East Moriches | NY | 6/28/2023 |
| Colleen Hickey | Flushing | NY | 6/28/2023 |
| Melissa Iannello | Glendale | NY | 6/28/2023 |
| Sunshine VIgilant | Whittier | CA | 6/28/2023 |
| Corey Meyers | Lakeland | FL | 6/28/2023 |
| Anthony Jacino | East Moriches | NY | 6/28/2023 |
| Thomas Boyle | Flushing | NY | 6/28/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Mike Schneider | Sayville | NY | 6/28/2023 |
| Junior Espinoza | Croton-on-Hudson | NY | 6/28/2023 |
| John McLaughlin | ashland | NY | 6/28/2023 |
| Joseph Nizza | Mastic Beach | NY | 6/28/2023 |
| Valerie Bando-Meinken | East Hampton | NY | 6/28/2023 |
| Steven Klugewicz | New York | NY | 6/28/2023 |
| WILLIAM. WITCHEY | Huntington Station | NY | 6/28/2023 |
| Brian Ganser | New York | NY | 6/28/2023 |
| Cathy Allen | Greenport | NY | 6/28/2023 |
| Robert King | Hampton Bays | NY | 6/28/2023 |
| Mary Perez | Seffner | FL | 6/28/2023 |
| Philip Handler | Deer Park | NY | 6/28/2023 |
| Danielle Cascardi | Islip | NY | 6/28/2023 |
| Bob Bob | Uniondale | NY | 6/28/2023 |
| John Nemeth | Lindenhurst | NY | 6/28/2023 |
| Sandra Romito | Portland | OR | 6/28/2023 |
| John Guiliano | Syosset | NY | 6/28/2023 |
| Elizabeth Corrigan | Flushing | NY | 6/28/2023 |
| Steve Quattrocchi | Danbury | CT | 6/28/2023 |
| Debbie Cummings | Boca Raton | FL | 6/28/2023 |
| Debbie Faiella | Port w | NY | 6/28/2023 |
| Kate Maier | Minden | NV | 6/28/2023 |
| David Harrison | Patterson | NY | 6/28/2023 |
| Maura Rudolph | STJames | NY | 6/28/2023 |
| Joe Sanchez | Staten Island | NY | 6/29/2023 |
| Farooq Pervez | Flushing | NY | 6/29/2023 |
| Agustin Galan | Brooklyn | NY | 6/29/2023 |
| Corey White | Manorville | NY | 6/29/2023 |
| Michael Brightbill | Brooklyn | NY | 6/29/2023 |
| Norberto Rosario | Jericho | NY | 6/29/2023 |
| Joy Hear | Montauk | NY | 6/29/2023 |
| Daniel Bove | The Bronx | NY | 6/29/2023 |
| Anthony Lino | Brooklyn | NY | 6/29/2023 |
| Jim Zaveski | Morgantown | WV | 6/29/2023 |
| Thomas Bucci | East Islip | NY | 6/29/2023 |
| Giuseppe Novello | East Moriches | NY | 6/29/2023 |
| James Brennan | New York | NY | 6/29/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Erica Watzel | Cuiabá | MT | 6/29/2023 |
| Wayne Merkel | Ephrata | PA | 6/29/2023 |
| Victor Guyer | Schoharie | NY | 6/29/2023 |
| Chad Davidson | Fairmont | | 6/29/2023 |
| Ramon Perez IV | Peekskill | NY | 6/29/2023 |
| Anthony D'Arrigo | Montauk | NY | 6/29/2023 |
| William End | Amityville | NY | 6/29/2023 |
| Edward Callaghan | Flushing | NY | 6/29/2023 |
| Ken Bell | Old Westbury | NY | 6/29/2023 |
| Ethna O'Shea | Torrance | CA | 6/29/2023 |
| Michael Langille | Stafford | VA | 6/29/2023 |
| Alan Weinstein | New York | NY | 6/29/2023 |
| Gabe Jimenez | Floresville | | 6/29/2023 |
| Slouchans jacqueline | VALBONNE | IA | 6/29/2023 |
| Lawrence Moore | New York | NY | 6/29/2023 |
| james hamilton | Riverhead | NY | 6/29/2023 |
| Melodie Padgett | | KY | 6/29/2023 |
| Lawrence Jacobson | Brooklyn | NY | 6/29/2023 |
| Rob Stermann | Brooklyn | NY | 6/29/2023 |
| Jared Augusta | Brooklyn | NY | 6/29/2023 |
| michael DiPalo | Brooklyn | NY | 6/29/2023 |
| Teddy Anderson | Brooklyn | NY | 6/29/2023 |
| Daniel Jacobson | Brooklyn | NY | 6/29/2023 |
| Quincy Patterson | Bricktown | NJ | 6/29/2023 |
| Deborah Potter | Bluffton | SC | 6/29/2023 |
| Jim Krug | Merrick | NY | 6/29/2023 |
| Edward Grimm | Rockville Centre | NY | 6/29/2023 |
| Aidan Hartwich | New York | NY | 6/29/2023 |
| John Steadman | Montauk | NY | 6/29/2023 |
| Jim Gagnon | Patchogue | NY | 6/29/2023 |
| Christopher Farley | Patchogue | NY | 6/29/2023 |
| Paul Cardenas | Saylorsburg | PA | 6/29/2023 |
| Joe Knipe | Brooklyn | NY | 6/29/2023 |
| Laurence Northcote | Huntington Station | | 6/29/2023 |
| Gary Ederer | Pleasantville | NY | 6/29/2023 |
| Joseph Brigandi | Bellmore | NY | 6/29/2023 |
| Peter Amato | Brooklyn | NY | 6/29/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Matt Swart | Orlando | FL | 6/29/2023 |
| Hector Flores | Mastic beach | NY | 6/29/2023 |
| Daniel Nutt | New London | CT | 6/29/2023 |
| jason scheffer | New York | NY | 6/29/2023 |
| Bobby Stokel | Merrick | NY | 6/29/2023 |
| Scott Streichenwein | Rensselaer | NY | 6/29/2023 |
| Lazarus Regueiro | East Quogue | NY | 6/29/2023 |
| Patricia Beaumont | Long Beach | NY | 6/29/2023 |
| Dan Brown | Bronx | NY | 6/29/2023 |
| jane Fox | Shirley | NY | 6/29/2023 |
| Timothy Schneider | Brooklyn | NY | 6/29/2023 |
| Greg Siben | Ronkonkoma | NY | 6/29/2023 |
| Erin Rubie | West Valley City | UT | 6/29/2023 |
| Robert Krug | Key West | FL | 6/29/2023 |
| Daniel J Lunney | Brooklyn | NY | 6/29/2023 |
| Dwayne boyd | The Bronx | NY | 6/29/2023 |
| Louis Bartolotti | The Bronx | NY | 6/29/2023 |
| Robert Wisker | Montrose | NY | 6/29/2023 |
| Matthew Kennaugh | Huntington | NY | 6/29/2023 |
| William Berroyer | East Moriches | NY | 6/29/2023 |
| Andrew Vallas | Old Chatham | NY | 6/29/2023 |
| Michael Krug | Brooklyn | NY | 6/29/2023 |
| Joseph Santagata | Seffner | FL | 6/29/2023 |
| Rena Ward | Little River | SC | 6/29/2023 |
| Rich , Joseph and Gaitri Rubendall | Babylon | NY | 6/29/2023 |
| Hayden Verostic | Blacksburg | VA | 6/29/2023 |
| Charles Lyons | Westbury | NY | 6/29/2023 |
| Kim Beyer | Brooklyn | NY | 6/29/2023 |
| Thomas DeLuca | Shohola | PA | 6/29/2023 |
| Jeffrey Knighton | New York | NY | 6/29/2023 |
| Nicholas Costi | Hauppauge | NY | 6/29/2023 |
| Ron Loeb | Brooklyn | NY | 6/29/2023 |
| Michele Hamilton | Burleson | TX | 6/29/2023 |
| Matt Loeb | Brooklyn | NY | 6/29/2023 |
| Jim Aripotch | New York | NY | 6/29/2023 |
| Kenneth Masci | Commack | NY | 6/29/2023 |
| Robert Sendlenski | Ossining | NY | 6/29/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Vincent Harty | East islip | NY | 6/29/2023 |
| Tom Fennell | Flushing | NY | 6/29/2023 |
| Maria Atlas | Hillsborough | NJ | 6/29/2023 |
| Mike Lorusso | Sacramento | CA | 6/29/2023 |
| Michael Stack | Hauppauge | NY | 6/29/2023 |
| Brian Thompson | New York | NY | 6/29/2023 |
| Dave Livingston | Merrick | NY | 6/29/2023 |
| Shane Meyers | Huntington Station | NY | 6/29/2023 |
| Lisa Brooks | Malverne | NY | 6/29/2023 |
| Matthew Edelman | Farmingdale | NY | 6/29/2023 |
| Stanley Mankowski | Farmingdale | NY | 6/29/2023 |
| John logie | Montauk | NY | 6/29/2023 |
| Donna Lizza | Southport | NC | 6/29/2023 |
| Sal Caparatta | New York | NY | 6/29/2023 |
| Thomas Curtin | Murfreesboro | TN | 6/29/2023 |
| Kenneth D. Bogard | Bradenton | FL | 6/29/2023 |
| Kristy Mariano | Oswego | NY | 6/29/2023 |
| Tina Piette | Mastic Beach | NY | 6/29/2023 |
| Rob Sckalor | Brooklyn | NY | 6/29/2023 |
| Michael Medea | Brooklyn | NY | 6/29/2023 |
| Matthew Lange | Lindenhurst | NY | 6/29/2023 |
| Matt Pullano | North Bellmore | NY | 6/29/2023 |
| C P | New York | NY | 6/29/2023 |
| Andrzej Zieba | Farmingdale | NY | 6/29/2023 |
| Dayana Diaz | East Hampton | NY | 6/29/2023 |
| george carter | Hicksville | NY | 6/29/2023 |
| Carl Graham | Syracuse | NY | 6/29/2023 |
| Adriana Verdo | Citrus springs | FL | 6/29/2023 |
| Steve Fazio | Setauket | NY | 6/29/2023 |
| JANE CARLEO | Deer Park | NY | 6/29/2023 |
| Deborah Dahlgren | East Hartford | CT | 6/30/2023 |
| David Batkiewicz | Deer Park | NY | 6/30/2023 |
| Bertolino Vincent | Northport | NY | 6/30/2023 |
| Paul Checco | Hartford | CT | 6/30/2023 |
| Michael Mirabella | New York | NY | 6/30/2023 |
| Sean Walsh | Seattle | WA | 6/30/2023 |
| Karen Mandracchia | Manhasset | NY | 6/30/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Cary Wolfson | Indianapolis | IN | 6/30/2023 |
| Frank Hatch | Flushing | NY | 6/30/2023 |
| Matthew Murphy | Brooklyn | NY | 6/30/2023 |
| Lindel Perrotte | New York | NY | 6/30/2023 |
| Mike Marciano | New York | NY | 6/30/2023 |
| Anthony Carpico | Brooklyn | NY | 6/30/2023 |
| Daniel Murphy | Brooklyn | NY | 6/30/2023 |
| Fredrick May | New York | NY | 6/30/2023 |
| Paul Rivera | New York | NY | 6/30/2023 |
| Liam Murphy | Bridgeport | CT | 6/30/2023 |
| Emma Maxaner | New York | NY | 6/30/2023 |
| Ryszard Olejnik | New York | NY | 6/30/2023 |
| Bill Wolf | Islip | NY | 6/30/2023 |
| Wendy Wagner | Tripoli | WI | 6/30/2023 |
| Angela Clark | Freeport | IL | 6/30/2023 |
| Tanya Miller | Montauk | NY | 6/30/2023 |
| Michael Brausch | Hampton Bays | NY | 6/30/2023 |
| Patricia and Anthony Fileccia | Brooklyn | NY | 6/30/2023 |
| Peter Erskine | Brooklyn | NY | 6/30/2023 |
| Kat Egan | Rockville Centre | NY | 7/1/2023 |
| Josh Standiford | Lake Zurich | | 7/1/2023 |
| Anthony Weiss | East Hampton | NY | 7/1/2023 |
| Diana Alvarado | Lehigh Acres | | 7/1/2023 |
| Dazmen Seawright | Columbia | | 7/1/2023 |
| Brysen Wrobel | Lake Villa | | 7/1/2023 |
| Karen Mareb | Sandown | NH | 7/1/2023 |
| Sophia aguilar | Yonkers | | 7/1/2023 |
| Dreamy Bull | Dracut | | 7/1/2023 |
| Luna Rupert | Pittsburgh | | 7/1/2023 |
| Haley ARNOLD | Gilbert | | 7/1/2023 |
| Adler Voltaire | Dorchester | | 7/1/2023 |
| mia roberts | Hackett | | 7/1/2023 |
| Dixie Normas | miami | | 7/1/2023 |
| Irene Gonzalez | Sacramento | | 7/1/2023 |
| Elijah Castillo | Mountain Home | | 7/1/2023 |
| roger porter | sahurita | | 7/1/2023 |
| Joe Biden | Manchester | | 7/1/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Marianne Dabrowski | Cranford | NJ | 7/1/2023 |
| Paula Colwell | Peck | ID | 7/1/2023 |
| Jonathan Meyer | Kansas City | MO | 7/1/2023 |
| Lilkian LoRusso | Brooklyn | NY | 7/1/2023 |
| Patrick Lorusso | Brooklyn | NY | 7/1/2023 |
| Patrick LoRusso | New York | NY | 7/1/2023 |
| Tara Gatta | Miami | FL | 7/1/2023 |
| Andrea Maggi | New York | NY | 7/1/2023 |
| William Nagwak | Brooklyn | NY | 7/1/2023 |
| James Hammond | Worcester | MA | 7/1/2023 |
| Frank Oliveira | Denver | CO | 7/1/2023 |
| Rena Sylvester | East Setauket | NY | 7/1/2023 |
| Ricardo Urdaneta | Merrick | NY | 7/1/2023 |
| Danny DeVito | Port Washington | NY | 7/1/2023 |
| aiden drake | New York | NY | 7/1/2023 |
| Roseann Merk | Brooklyn | NY | 7/1/2023 |
| Steven shoshany | East Hampton | NY | 7/2/2023 |
| Thomas Wood | Brooklyn | NY | 7/2/2023 |
| Jake Deodato | New York | NY | 7/2/2023 |
| Jason Deodato | New York | NY | 7/2/2023 |
| James Pavese | New York | NY | 7/2/2023 |
| Matthew Deodato | New York | NY | 7/2/2023 |
| Matt Nelson | Brooklyn | NY | 7/2/2023 |
| Jake Fine | New York | NY | 7/2/2023 |
| Lizzie Speyer | Brooklyn | NY | 7/2/2023 |
| Nadine Uihlein | Huntington Station | NY | 7/2/2023 |
| Matthew Krupnick | Brooklyn | NY | 7/2/2023 |
| Emily Krupnick | New York | NY | 7/2/2023 |
| Julie Krupnick | New York | NY | 7/2/2023 |
| Stephen Sundholm | New York | NY | 7/2/2023 |
| Derrick Hansen | East Moriches | NY | 7/2/2023 |
| Sam Cohen | New Orleans | LA | 7/2/2023 |
| Gary Cohen | Pleasantville | NY | 7/2/2023 |
| Robert Fiorentino | Brooklyn | NY | 7/2/2023 |
| Meredith Leigh | Flushing | NY | 7/2/2023 |
| John Fischetti | Sag Harbor | NY | 7/3/2023 |
| Mark Laieta | West Babylon | NY | 7/3/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Connor Lehner | Brooklyn | NY | 7/3/2023 |
| Mike Fiscina | Lake Grove | NY | 7/3/2023 |
| Joseph DeGregorio | Albertson | NY | 7/3/2023 |
| James O'Connor | River Edge | NJ | 7/3/2023 |
| Eric Robinson | Long beach | NY | 7/3/2023 |
| Tyler Bragg | Riverhead | NY | 7/3/2023 |
| Maribel Marulanda | New York | | 7/3/2023 |
| Gabriele Bellini | New York | NY | 7/3/2023 |
| Ian Donovan | Canterbury | CT | 7/3/2023 |
| Bill Wiese | East Hampton | NY | 7/3/2023 |
| Mike Murphy | Columbus | OH | 7/3/2023 |
| Mike Mowrey | Portsmouth | NH | 7/3/2023 |
| Donna Gooley | Mendham | NJ | 7/3/2023 |
| Dmitry Levkov | Miami | FL | 7/4/2023 |
| Eleanor Klepper | New York | NY | 7/4/2023 |
| Kaeden Barker | Frankton | | 7/4/2023 |
| Tetiana Markova | Irvine | | 7/4/2023 |
| Isliam Yahiaiev | Brooklyn | | 7/4/2023 |
| Jackson Wallace | Austin | | 7/4/2023 |
| Yuki Togashi | Midland | | 7/4/2023 |
| Regina Brooks | Pittsburgh | | 7/4/2023 |
| Dixie Todd | Spokane Valley | | 7/4/2023 |
| robin scott | Franklin | | 7/4/2023 |
| Nahvea Faison | Clearwater | | 7/4/2023 |
| Ediverto Galvez | Panorama City | | 7/4/2023 |
| Rea Henn | Anchorage | | 7/4/2023 |
| Ren Cyber | Kansas City | | 7/4/2023 |
| Hanna Rudyk | Fairfield | | 7/4/2023 |
| Upsetti Spaghetti | Washington | | 7/4/2023 |
| Olga Tutova | West New York | | 7/4/2023 |
| Juliette Landry | Northport | | 7/4/2023 |
| Alex Kowtun | Hornell | NY | 7/4/2023 |
| Tanja Schacht | Heidenheim | | 7/4/2023 |
| Meg Burdge | Simpsonville | SC | 7/4/2023 |
| Charlie Fernandes | New York | NY | 7/4/2023 |
| Phil Guarno | New York | NY | 7/4/2023 |
| Mark Bradburn | Oyster Bay | NY | 7/4/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Colleen Kidd | Mastic Beach | NY | 7/4/2023 |
| Shane Sharkey | Southampton | NY | 7/4/2023 |
| Robert Scholl | Wantagh | NY | 7/4/2023 |
| Nick Graziano | Ronkonkoma | NY | 7/4/2023 |
| Jim Hraska | Albany | NY | 7/4/2023 |
| Lisa Moschella | Staten Island | NY | 7/5/2023 |
| Doug Grimm | Brooklyn | NY | 7/5/2023 |
| Wyatt Drake | Columbus | | 7/5/2023 |
| Maria Zamora | Arleta | | 7/5/2023 |
| Ryan Pierce | Temple | | 7/5/2023 |
| Blitz X | Houston | | 7/5/2023 |
| Anonymous . | Spring | | 7/5/2023 |
| Tate Miller Townsend | Jackson | | 7/5/2023 |
| Eliza Heiken | Kansas City | | 7/5/2023 |
| Paul Klein | Jersey City | NJ | 7/5/2023 |
| Quenna Moore | Rochester | | 7/5/2023 |
| Greg Kunkle | Salvisa | | 7/5/2023 |
| Brynley Lys | Brooklyn | NY | 7/5/2023 |
| Giancarlo Briceño | Los Angeles | | 7/5/2023 |
| Chris White | New York | NY | 7/5/2023 |
| Richard Gherardi | East Hampton | NY | 7/5/2023 |
| Stella Rice | Bala Cynwyd | | 7/5/2023 |
| Leanna Bowlin | tulsa | | 7/5/2023 |
| Vance Duguay | Benton | | 7/5/2023 |
| Robert Vassil | Massapequa Park | NY | 7/5/2023 |
| R. Mark Roeloffs | East Hampton | NY | 7/5/2023 |
| Susan Whalen | The Bronx | NY | 7/5/2023 |
| Francis Loenorb | Bronx | NY | 7/5/2023 |
| Jonathan Bradley | Southampton | NY | 7/5/2023 |
| F Michaels | Brooklyn | NY | 7/5/2023 |
| Ryan Telesca | New York | NY | 7/5/2023 |
| Katherine Holcombe | East Hampton | NY | 7/5/2023 |
| Ann Holcombe | Brooklyn | NY | 7/5/2023 |
| Marie Holcombe | East Hampton | NY | 7/5/2023 |
| Cade Ratcliff | San Francisco | | 7/5/2023 |
| Avi Stern | Springfield Township | | 7/5/2023 |
| Kyeo Kq | Rome | | 7/5/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Mark Dai | Fishers | | 7/5/2023 |
| Emmett Fry | Fernley | | 7/5/2023 |
| James McCormick | Allen | | 7/5/2023 |
| Cheryal Lymons | Pensacola | | 7/5/2023 |
| Alisha Triana | Richmond | | 7/5/2023 |
| Gracie Hansen | Brick | | 7/5/2023 |
| Joe Dajos | Fenton | | 7/5/2023 |
| Anthony Contino | Lady Lake | | 7/5/2023 |
| Jennifer Rush | Mentor | | 7/5/2023 |
| Jaclyn Taylor | Bakersfield | | 7/5/2023 |
| Nick Mangru | Atlanta | | 7/5/2023 |
| Adam Tobias | Lincoln | | 7/5/2023 |
| Mesia Hayes | San Dimas | | 7/5/2023 |
| Madyson Gorgas | Sylvia | | 7/5/2023 |
| N A | Marblehead | MA | 7/5/2023 |
| Colin Cherry | Springfield | | 7/5/2023 |
| Lisa Hughes | Fort Worth | TX | 7/5/2023 |
| Robert Lakin | Springfield | VT | 7/5/2023 |
| Andrew Baker | Nashville | TN | 7/6/2023 |
| john urbonas | Plainfield | IL | 7/6/2023 |
| Ian Fuller | Bay Shore | NY | 7/6/2023 |
| Sharon Botto | Sag Harbor | NY | 7/6/2023 |
| Anne Winicki | Panama City Beach | FL | 7/6/2023 |
| Jose Castillo | Taylors | | 7/6/2023 |
| Rita Mavunda | Miami | FL | 7/6/2023 |
| Brett Hogan | Jewett | NY | 7/6/2023 |
| Casey Pidich | Brooklyn | NY | 7/6/2023 |
| T D | New York | NY | 7/6/2023 |
| dennis oury | Lodi | NJ | 7/6/2023 |
| JOANNE Kurtz Paris Smith | Woodstock | CA | 7/6/2023 |
| Jake Diamond | Brooklyn | NY | 7/6/2023 |
| Jeffrey Agdern | Brooklyn | NY | 7/6/2023 |
| Nolan Snyder | Deer park | NY | 7/6/2023 |
| Katie Bruno | East Hampton | NY | 7/6/2023 |
| Yt azul Zizzy | Chihuahua City | | 7/6/2023 |
| mia campbell | Delaware | | 7/6/2023 |
| Bruce Rupp | Massapequa Park | NY | 7/6/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Benjamin Rhoades | Columbia | | 7/6/2023 |
| Diane Fuller | East Islip | NY | 7/6/2023 |
| Debbie E | Felton | | 7/7/2023 |
| Heather Isaac | Vista | | 7/7/2023 |
| Chris Farrell | Brooklyn | NY | 7/7/2023 |
| Timothy Farrell | New York | NY | 7/7/2023 |
| Dave Walters | Brooklyn | NY | 7/7/2023 |
| Johnny Marcano | New York | NY | 7/7/2023 |
| Fernando Albuquerque | Brooklyn | NY | 7/7/2023 |
| Ricardo Fuentes | New York | NY | 7/7/2023 |
| Juan carlos. Orellana | New York | NY | 7/7/2023 |
| Travis Kaiser | Center Moriches | NY | 7/7/2023 |
| Carolina Zoldyck | Guaratingueta | | 7/7/2023 |
| Douglas Bell | Valley Stream | NY | 7/7/2023 |
| Thomas Gaita | East Hampton | NY | 7/7/2023 |
| Teresa Godzieba | Farmingville | NY | 7/8/2023 |
| Lauren Murano | Ronkonkoma | NY | 7/8/2023 |
| Nick Tavel | New York | NY | 7/8/2023 |
| Christopher Pare | Brooklyn | NY | 7/8/2023 |
| Rick Mccarty | Brooklyn | NY | 7/8/2023 |
| P Grande | New York | NY | 7/8/2023 |
| Alex Cauchon | Montauk | NY | 7/8/2023 |
| Brian Lilienthal | New York | NY | 7/8/2023 |
| Jhon Dayro Pérez Becerra | Flushing | | 7/8/2023 |
| Guersley Baptiste | Rockville | | 7/8/2023 |
| Braden Dewald | Chicago | | 7/8/2023 |
| camila rivera | Floridablanca | | 7/8/2023 |
| Robert Slone | Brooklyn | NY | 7/8/2023 |
| Joseph Sciortino | Brooklyn | NY | 7/8/2023 |
| Anthony Cintorino | Brooklyn | NY | 7/8/2023 |
| Glenn Fiocca | Brooklyn | NY | 7/8/2023 |
| Devon Phillips | Baldwin | NY | 7/9/2023 |
| Louise Castronovo | Brooklyn | NY | 7/9/2023 |
| Matt Groh | Brooklyn | NY | 7/9/2023 |
| Shaun Riney | Brooklyn | NY | 7/9/2023 |
| John Horowitz | Brooklyn | NY | 7/9/2023 |
| Rick Dannan | Islip | NY | 7/9/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Richard Dannan | Cazenovia | NY | 7/9/2023 |
| Matt novak | Cazenovia | NY | 7/9/2023 |
| Christopher Sciortino | Massapequa | NY | 7/9/2023 |
| James DeMartis | Brooklyn | NY | 7/9/2023 |
| Dylan Abad | Mt. Sinai | NY | 7/9/2023 |
| James France | Brooklyn | NY | 7/9/2023 |
| Nicholas Vanderbruggen | New York | NY | 7/9/2023 |
| Annick Richardson | Dayton | OH | 7/10/2023 |
| Adrien ANGELVY | Shelter Island Heights | NY | 7/10/2023 |
| Parker Clark | Waterford | CT | 7/10/2023 |
| Marina DAngelo | Brooklyn | NY | 7/10/2023 |
| Thomas D'Angelo | West Islip | NY | 7/10/2023 |
| nae morales | Plainfield | | 7/10/2023 |
| Jessica Lavallis | Dearborn | | 7/10/2023 |
| Yeidie Poggi | Sabana Grande | | 7/10/2023 |
| Jenna Deedy | Nashua | | 7/10/2023 |
| The Glee Club | | | 7/10/2023 |
| Peter Vanderbruggen | Shelter island | NY | 7/10/2023 |
| Jean-Sebastien Brettes | Shelter Island | NY | 7/10/2023 |
| Christine Smith | New York | NY | 7/10/2023 |
| Erika Luthy | Philadelphia | PA | 7/10/2023 |
| Peter Longo | Woodstock | NY | 7/11/2023 |
| Florence TREBOUTTE | Paris | | 7/11/2023 |
| Alexander Timlin | Southampton | NY | 7/11/2023 |
| Hung Le | Bloomfield | CT | 7/11/2023 |
| Murasaki Jueri | Bloomfield | CT | 7/11/2023 |
| Stephen Carroll | Brooklyn | NY | 7/11/2023 |
| Aubreanna Baverso | Irwin | | 7/11/2023 |
| john naval | jamaica | NY | 7/11/2023 |
| Kennedy Bow | Chesterfield | | 7/11/2023 |
| Steven Jauffrineau | New York | NY | 7/11/2023 |
| Sam Warm | Port Jefferson | NY | 7/11/2023 |
| Greg Gordon | Bridgehampton | NY | 7/11/2023 |
| Codie Scott | Cortez | | 7/12/2023 |
| Ed Rm | Chicago | | 7/12/2023 |
| Riley Gwyn | Murfreesboro | | 7/12/2023 |
| Ethan Poe | San Antonio | | 7/12/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Ranimyr Streeby | Calimesa | | 7/12/2023 |
| Shaun Mtz | EspaÃ±ola | | 7/12/2023 |
| Griffin Kennedy | Brooklyn | NY | 7/12/2023 |
| Enzo Revelli | New York | NY | 7/12/2023 |
| Mike Kennedy | New York | NY | 7/12/2023 |
| Sophie Myers | Conway | | 7/12/2023 |
| Milan Adjudani | Phoenix | | 7/12/2023 |
| Aiyanah Roy | Pittsfield | | 7/12/2023 |
| Jeffrey Devine | New York | NY | 7/12/2023 |
| Michael Russo | Roslyn | NY | 7/12/2023 |
| Mateo Corona | Baytown | | 7/12/2023 |
| Jessica Wesson | Blytheville | | 7/12/2023 |
| Matt McGinn | Jordan | | 7/12/2023 |
| Joanna Smith | Orangeburg | | 7/12/2023 |
| Rayna Williams | Houston | | 7/12/2023 |
| Daniel Mondragon | Somerville | | 7/12/2023 |
| Francisco Delgado | New York | NY | 7/12/2023 |
| Matthew Mulcahy | Brooklyn | NY | 7/12/2023 |
| Sophie Grove | Hagerstown | | 7/12/2023 |
| Dran Gibilterra | Washington | DC | 7/12/2023 |
| Donald Martin | Brooklyn | NY | 7/12/2023 |
| Michele Fitzsimmons | Flushing | NY | 7/12/2023 |
| Noelle Ditroia | Stony Brook | NY | 7/12/2023 |
| Lynken Blakeney | Flanders | | 7/12/2023 |
| Savannah Marlowe | Loveland | | 7/12/2023 |
| Molli Gurba | Newton | | 7/12/2023 |
| Conner Perez | Peekskill | NY | 7/12/2023 |
| peyton lewis | Chicago | | 7/12/2023 |
| Isabella Dodd | Collingswood | | 7/12/2023 |
| Ben Stratton | Oldsmar | | 7/12/2023 |
| Leilani Fernandes | Bridgeport | | 7/12/2023 |
| Michael Kennedy | Copake | NY | 7/13/2023 |
| Larry Gardner | Palmetto | FL | 7/13/2023 |
| Vincent Calandra | New York | NY | 7/13/2023 |
| Anthony Gralto | New York | NY | 7/13/2023 |
| Pete Bernet | New York | NY | 7/14/2023 |
| John Napoli | Holbrook | NY | 7/14/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| James Payne | Brooklyn | NY | 7/14/2023 |
| Marie Ashway | Venice | FL | 7/14/2023 |
| Ángel Manuel Arias Navas | Ciudad Real | | 7/15/2023 |
| Michael Zanoni | Brooklyn | NY | 7/15/2023 |
| Chris Boehler | Brooklyn | NY | 7/15/2023 |
| Gordon Poston | Kingstree | | 7/15/2023 |
| Elmir Pasalic | New York | NY | 7/17/2023 |
| Kevin Grillo | Camden | NJ | 7/17/2023 |
| Russell Hence | Avon | MA | 7/17/2023 |
| George Jehn | Farmingdale | NY | 7/17/2023 |
| Chris Reilly | Brooklyn | NY | 7/17/2023 |
| Andrew Lieb | Phenix City | | 7/18/2023 |
| Ghanesh Shewnarain | Saint Albans | | 7/18/2023 |
| Roger Nehl | Brooklyn | NY | 7/18/2023 |
| Patrick Mullery | Blue Point | | 7/18/2023 |
| Jaquisee Jaqavion III | Charlotte | | 7/19/2023 |
| Ron Cammarata | Brooklyn | NY | 7/20/2023 |
| Harvey Federman | East Hampton | NY | 7/20/2023 |
| Matthew Wade | Centerport | NY | 7/20/2023 |
| Salvatore Buzzetta | Montauk | NY | 7/20/2023 |
| Alexa Boudro | Claremont | | 7/20/2023 |
| Jayke Schaefer | Syosset | NY | 7/20/2023 |
| Divya Nagendran | Aurora | | 7/21/2023 |
| Victoria Main | Sykesville | | 7/21/2023 |
| Fay DeDora | New York | NY | 7/21/2023 |
| Robert Morris | Brooklyn | NY | 7/21/2023 |
| Katie Lane | Medford | | 7/21/2023 |
| Pedro Pires | Rio de Janeiro | | 7/22/2023 |
| James Dodson | Floral park | NY | 7/22/2023 |
| Blair Lawlor | Brooklyn | NY | 7/22/2023 |
| John Renner | Ronkonkoma | NY | 7/22/2023 |
| Donald Rowan | Freeport | NY | 7/22/2023 |
| Peter Pappas | Syosset | NY | 7/22/2023 |
| Trever Baney | Centerport | NY | 7/22/2023 |
| Jennifer Noggle | Reading | PA | 7/22/2023 |
| Donald Dodd | Eastrockaway | NY | 7/22/2023 |
| Zechariah Gregory | Brooklyn | NY | 7/23/2023 |

| Name | City | State | Signed On |
|---|---|---|---|
| Scott Savoia | New York | NY | 7/23/2023 |
| Joe Scully | Smithtown | NY | 7/23/2023 |
| Rebecca Mondonedo | Montauk | NY | 7/23/2023 |
| Thomas Mullady | New York | NY | 7/23/2023 |
| Barbara Mullady | Hicksville | NY | 7/23/2023 |
| Thomas McGrath | Bronx | NY | 7/23/2023 |
| John Acritani | Greenlawn | NY | 7/23/2023 |
| Aidan Sneath | Walled Lake | | 7/23/2023 |
| Andrew Scott | Louisville | | 7/23/2023 |
| Brandon McNerlin | Shirley | NY | 7/23/2023 |
| Henry Bach | Saugerties | | 7/23/2023 |
| Robin Goff | Fishers | | 7/23/2023 |
| Javier Garcia | Miami | | 7/23/2023 |
| Carmen Greenhut | The Bronx | NY | 7/23/2023 |
| Kyle MacInnes | Brooklyn | NY | 7/23/2023 |
| Dan Bozzo | Smithtown | NY | 7/24/2023 |
| Thomas Wrightington | New York | NY | 7/24/2023 |
| Josh Steffens | Brooklyn | NY | 7/24/2023 |
| Thomas Wrightington | Brentwood | NY | 7/24/2023 |
| Chrystal O. Thompson | | | 7/24/2023 |
| Cindy Stafford | New Castle | DE | 7/24/2023 |
| Tom Olski | Port Saint Lucie | FL | 7/24/2023 |
| TONY GUADAGNINO | Forked River | NJ | 7/24/2023 |
| Michael Marano | Philadelphia | PA | 7/25/2023 |
| Mark Humphreys | Mentor | OH | 7/25/2023 |
| Stephen Rizzi | Bay Shore | NY | 7/25/2023 |

# DRAFT MEETING SUMMARY OF THE

# ATLANTIC STATES MARINE FISHERIES COMMISSION

# EXECUTIVE COMMITTEE

**Westin Crystal City**
**Arlington, Virginia**

**May 3, 2023**

*For Review and Action by the Executive Committee August 2, 2023*

**INDEX OF MOTIONS**

1. Approval of Agenda by Consent (Page 1).

2. Approval of Meeting Summary from February 1, 202 by Consent (Page 1).

3. Move approval of the FY24 Budget. Motion by Mr. Keliher; seconded by Ms. Patterson. Motion passed unanimously.

4. Move moved to accept Option 1 of the Stipend White Paper, which states "the LGA Commissioners will continue to serve on a volunteer basis and not receive a stipend from the Commission." Motion made by Mr. Keliher; seconded by Mr. Gilmore and passed by a vote of 14 – 1.

5. Adjourn by Consent (Page 2).

## ATTENDANCE

### Committee Members

Pat Keliher, ME
Cheri Patterson, NH
Dennis Abbott, NH (LA Chair)
Dan McKiernan, MA
Jason McNamee, RI
Justin Davis, CT
Jim Gilmore, proxy for Basil Seggos, NY
Jeff Brust, proxy for Joe Cimino, NJ
Kris Kuhn, PA
Roy Miller, DE (GA Chair)
John Clark, DE
Lynn Fegley, MD
Shanna Madsen, proxy for Jamie Green, VA
Chris Batsavage, proxy for Kathy Rawls, NC
Mel Bell, SC
Spud Woodward, GA, Chair
Erika Burgess, FL

### Other Commissioners/Proxies

David Borden, RI
Lewis Gillingham, VA
Bill Hyatt, CT
Chris McDonough, SC
Nichola Meserve, MA
Renee Zobel, NH

### Staff

Bob Beal
Tina Berger
Lisa Carty
Toni Kerns
Laura Leach
Alexander Law
Chelsea Tuohy

### Guests

Debra Abercrombie, US FWS
Pat Augustine, Coram, NY
Carolyn Belcher
Jeff Brust, NJ DEP
Peter Clarke NJ DEP
Conor Davis, NJ DEP
Guy DuBeck, NOAA
Jesse Hornstein, NYS DEC
Kathy Knowlton, GA DNR
Tamara O'Connell, MD DNR
Derek Orner, NOAA
Nicole Pitts, NOAA
Erin Schnettler, NOAA
Chris Scott, NYS DEC
Ethan Simpson, VMRC
Somers Smott, VMRC
Beth Versak, MD DNR
Ann Williamson, NOAA
Chris Wright, NOAA

**CALL TO ORDER**

The Executive Committee (EC) of the Atlantic States Marine Fisheries Commission convened May 3, 2023 in the Jefferson Ballroom at The Westin in Crystal City, Virginia. The meeting was called to order at 8:00 a.m. by Chair Spud Woodward.

**APPROVAL OF AGENDA**

The agenda was approved as presented.

**APPROVAL OF SUMMARY**

The summary minutes from the February 1, 2023 meeting were approved as presented.

**PUBLIC COMMENT**

There was no public comment.

**FY24 BUDGET**

Mrs. Leach presented the proposed FY24 Commission budget which was reviewed by the Executive Committee. Mr. Keliher moved approval of the budget; seconded by Ms. Patterson. This motion passed unanimously.

**L/GA COMMISSIONER STIPENDS**

Mr. Beal presented an update on the potential for a L/GA members stipend. It was determined there is not a way for ASMFC to offer a tax break or benefit for participation in the Commission's meetings. Additionally, the determination of who is eligible and who would accept a stipend needs to be worked through. Mr. Keliher moved to accept Option 1 of the Stipend White Paper, which states "the LGA Commissioners will continue to serve on a volunteer basis and not receive a stipend from the Commission." The motion was seconded by Mr. Gilmore and passed by a vote of 14 – 1. Following the passage of this motion, the Executive Committee requested staff survey the L/GA Commissioners to determine which Commissioners are eligible to receive a stipend and of the eligible Commissioners, which ones would accept a stipend.

**CONSERVATION EQUIVALENCY POLICY**

Ms. Kerns presented the work group's recommended revisions to the Commission's Conservation Equivalency policy. There was considerable discussion on the proposed revision, and a bit of concern about the revision being too prescriptive and not flexible enough. The Chair requested Mr. Beal & Ms. Kerns work on a further revision of the policy, and set aside time at a future meeting to go through the Policy step-by-step to determine the appropriate revisions to the Policy.

**LEGISLATIVE COMMITTEE UPDATE**

Mr. Law presented on four bills that the Executive Committee should be aware of. These included: the Federally Integrated Species Health Act (FISH Act, H.R. 872), National Oceanic and Atmospheric Administration Act of 2023 (H.R. not yet assigned), Restoring Effective Science-based Conservation Under Environmental laws protecting Whales Act of 2023 (RESCUE Whales Act, H.R. 1213), and the Recovering America's Wildlife Act (S. 1149). Bill Hyatt, the Chair of the Legislative Committee, noted that the Reinvesting in Shoreline Economies and Ecosystems (RISEE, S.373 and H.R.913). Act has been reintroduced in the 118th Congress and should continue to be monitored.

**CLOSED SESSION**

The Executive Committee went into a closed session to discuss the Executive Director's Performance Review.

**ADJOURN**

The Executive Committee adjourned at 10:00 a.m.

# ATLANTIC STATES MARINE FISHERIES COMMISSION

## REVIEW OF THE INTERSTATE FISHERY MANAGEMENT PLAN

## FOR ATLANTIC COBIA
**(*Rachycentron canadum*)**

**2022 FISHING YEAR**

Prepared by the Atlantic Cobia Plan Review Team

**July 2023**

*Sustainable and Cooperative Management of Atlantic Coastal Fisheries*

**Table of Contents**

## I. Status of the Fishery Management Plan

| | |
|---|---|
| Date of FMP Approval: | Original FMP – November 2017 |
| Amendments & Addenda: | Amendment 1 – August 2019<br>Addendum 1 – October 2020 |
| Management Areas: | The distribution of the Atlantic stock of cobia from Georgia through Rhode Island |
| Active Boards/Committees: | Coastal Pelagics Management Board; Cobia Technical Committee, Plan Development Team, and Plan Review Team; South Atlantic Species Advisory Panel |

The Atlantic States Marine Fisheries Commission (ASMFC) adopted an Interstate Fishery Management Plan (FMP) for the Atlantic Migratory Group of cobia (Atlantic cobia) in 2017 (ASMFC, 2017). Prior to the FMP, federal management was through the South Atlantic Fishery Management Council's (SAFMC) Fishery Management Plan for Coastal Migratory Pelagic Resources (CMP FMP), while New York, New Jersey, Delaware, Virginia, North Carolina and South Carolina had regulations for their respective state waters.

The FMP established a complementary management approach between the ASMFC and SAFMC. Under the ASMFC, Atlantic cobia are managed as part of the Coastal Pelagics Board (Board). Through the FMP, regulations for states with a declared interest were required to reflect several measures established federally through the CMP FMP.

In March, 2019, Regulatory Amendment 31 to the CMP FMP became effective (SAFMC, 2018). This removed Atlantic cobia from the CMP FMP, resulting in management solely through the ASMFC.

In August, 2019, the Board approved Amendment 1 to reflect removal of Atlantic cobia from the CMP FMP, assume management responsibilities previously accomplished through the SAFMC and CMP FMP, and establish recommendations for measures in federal waters. Amendment 1 stated requirements were to be implemented by July, 2020.

Amendment 1 maintains many regulations of the original Commission FMP and previous CMP FMP. These include a 36-inch fork length (or 40-inch total length) recreational minimum size limit, 1 fish per person recreational bag limit, a recreational daily vessel limit not to exceed 6 fish per vessel, a 33-inch fork length (or 37-inch total length) commercial minimum size limit, and a commercial possession limit of 2 cobia per person not to exceed 6 cobia per vessel.

There are four plan objectives:

1) Provide a flexible management system to address future changes in resource abundance, scientific information, and fishing patterns among user groups or areas.

2) Promote cooperative collection of biological, economic, and social data required to effectively monitor and assess the status of the cobia resource and evaluate management efforts.
3) Manage the cobia fishery to protect both young individuals and established breeding stock.
4) Develop research priorities that will further refine the cobia management program to maximize the biological, social, and economic benefits derived from the cobia population.

In February, 2020, the Board approved an annual total harvest quota of 80,112 fish for 2020-2022, based on results from the Southeast Data, Assessment, and Review (SEDAR) 58 stock assessment for Atlantic cobia, allocated to the recreational and commercial sectors based on the Amendment 1 allocation of 92% recreational and 8% commercial. However, states with commercial harvest had an agreement to harvest a smaller portion of that amount in 2020. SEDAR 58 used updated recreational catch estimates from the Marine Recreational Information Program's (MRIP) 2018 transition and calibration to the mail-based Fishing Effort Survey effort estimates, which replaced those of the Coastal Household Telephone Survey.

Given the increased recreational catch estimates used in the SEDAR 58 assessment, the total annual quota approved by the Board also increased, resulting in increases to both the recreational and commercial quotas. As this increase in recreational harvest did not truly reflect a change in previous effort, only the estimate of that effort, Addendum I to Amendment 1 was approved by the Board in October 2020 to reconsider the percent allocations to the commercial and recreational sectors to better reflect the observed harvest. The Addendum changed the allocation of the resource between the recreational and commercial fisheries from 92% and 8%, respectively, to 96% and 4%, respectively. The calculation of the commercial trigger, which determines when an in season coastwide commercial closure occurs, was also revised. The Addendum established a commercial *de minimis* set aside of 4% of the commercial quota with a maximum cap of 5,000 pounds to account for potential landings in *de minimis* states not tracked in-season against the quota. The Addendum also allowed states that are *de minimis* for their recreational fisheries to choose to match the recreational management measures implemented by an adjacent non-de minimis state (or the nearest non-de minimis state if none are adjacent) or limit their recreational fishery to 1 fish per vessel per trip with a minimum size of 33 inches fork length (or an equivalent total length of 37 inches). Based on maturity data from the SEDAR 58 assessment, this latter regulatory option was updated from 29 inches fork length to 33 inches fork length in Addendum I to allow a greater number of females to spawn before being susceptible to harvest. Addendum I measures were effective January 1, 2021.

In May 2022, the Board changed the cobia quota timeframe from 2020-2022 to 2021-2023, thereby, maintaining the total harvest quota of 80,112 fish for the 2023 fishing season. Per the Addendum I allocation of 96% for the recreational sector, the coastwide recreational harvest target for 2021-2023 fishing seasons is 76,908 fish and results in the following state-specific soft targets:

Georgia - 7,229 fish
South Carolina - 9,306 fish
North Carolina - 29,302 fish

Virginia - 30,302 fish
*De minimis* - 769 fish

Per the Addendum I allocation of 4% to the commercial sector, the commercial fishery has a coastwide commercial quota of 73,116 pounds (3,204 fish) annually for the 2021-2023 fishing seasons. The current management measures for the commercial fishery include a 33" FL minimum size limit and 2 fish limit per person, with a 6 fish maximum vessel limit. The commercial Atlantic cobia fishery will close once the commercial quota is projected to be reached.

The Board will meet in 2023 to consider setting new specifications for the 2024-2026 fishing seasons.

## II. Status of the Stock

*SEDAR 58*

In 2020, the Board approved the SEDAR 58 Atlantic Cobia benchmark assessment for management use which continued to use the Beaufort Assessment Model (BAM), a forward-projecting statistical catch-at-age model used in the prior assessment, SEDAR 28 (SEDAR 2013). SEDAR 58 provided new reference points and determined that the stock is not overfished and overfishing is not occurring (Figures 1 and 2). This assessment had a terminal year of 2017, and used the recalibrated recreational catch data from MRIP, which yielded much higher biomass and spawning stock biomass estimates as compared to SEDAR 28 (Figure 3). Even with the large changes in biomass estimates, the trends of abundance, recruitment, and relative status were very similar between the two assessments. Stock structure also remained unchanged from the SEDAR 28 assessment which established the stock boundary between Atlantic and Gulf of Mexico cobia at the FL/GA border with the Atlantic stock extending northward to Rhode Island.

*Updated Reference Points*

The assessment proposed updated reference points of $F_{40\%}$ and 75% of $SSB_{F40\%}$ as the threshold reference points (Figures 4 and 5). The reference points were selected as the fishing rate and SSB that allows the population to reach 40% of the maximum spawning potential the stock would have obtained in the absence of harvest. These reference points serve as proxies for maximum sustainable yield-derived relationships due to insufficient data for cobia.

*Status of the Stock and Fishery*

Spawning stock biomass showed little overall trend throughout the estimated time series, but the terminal year is the lowest in the time series. Age structure estimated by the base run indicated a slight decline in the number of younger fish in the last decade, but the rest of the age structure was above the expected values in 2017. The estimated fishing mortality rates have generally increased through the assessment time frame, peaking in 1996, with the recreational fleet as the largest contributor to total F ($F_{2015\text{-}2017}/F_{40\%} = 0.29$).

## III. Status of the Fishery

Regulations, by state, for the 2022 fishing year are presented in Table 1. Total Atlantic cobia landings (commercial and recreational) are estimated at about 1.96 million pounds in 2022, which is a 27% decrease from 2021 (Figure 6, Tables 2 and 3). This decrease was driven by a decrease in recreational landings, while commercial landings slightly increased. The commercial and recreational fisheries harvested 3.8% and 96.2% of the 2022 total, respectively.

Commercial landings of Atlantic cobia in 2022 span from Rhode Island through South Carolina (Table 2). Coastwide commercial landings show an increasing trend since low harvests in the 1970s and early 1980s, but comprise a small portion of the total harvest due, in part, to the current 4% allocation of the total annual harvest quota (Figure 6); the commercial allocation was 8% in 2019 and 2020. Coastwide cobia commercial landings in 2022 were estimated at 75,418 pounds, which is a 13% increase from 2021 commercial landings. North Carolina (43%) and Virginia (51%) harvested the majority of the commercial landings (Table 2). The total non-*de minimis* commercial landings (VA, NC, SC) did reach the commercial trigger level for fishery closure, so the commercial fishery in state waters was closed from December 16 through December 31, 2022. The closure applied to all states in the management unit, including *de minimis* states. To ensure complementary management measures in federal waters, NOAA implemented the same closure in federal waters north of the Georgia-Florida border.

Recreational harvests have fluctuated widely throughout the time series, often through rapid increases and declines. Average recreational harvest for the time series is 1.1 million pounds (Figure 6, Table 3) and about 39,000 fish (Figure 7, Table 4). This fishery has grown noticeably over the time series, with average harvests over the last 10 years of 2.1 million pounds and about 74,000 fish. The 2022 recreational harvest was 1.9 million pounds (69,800 fish), which is a 28% decrease by weight from 2021 recreational landings.

Virginia (60% of pounds, 57% of fish) and North Carolina (16% of pounds, 18% of fish) harvested the majority of coastwide recreational landings by pounds and number of fish. South Carolina and Georgia each harvested about 7% by weight and 10% by number of fish of the coastwide total. Average weight (recreational harvest in pounds divided by recreational harvest in numbers) in 2022 was 27.0 pounds per fish—a decrease by an average 1.6 pounds per fish from 2021.

Per Addendum I, each state's recreational landings will be evaluated against state recreational harvest targets at the same time as the specification process, which will occur in 2023 when specifications are considered for 2024-2026.

Recreational releases of live fish have generally increased throughout the time series (Figure 7, Table 5). However, in 2022, 189,608 recreationally-caught fish were released, a 37% decrease from 2021. This aligns with the decrease in recreational landings in 2022. Over the last five years 2018-2022, an average 77% of cobia caught recreationally were released alive each year. This is higher than the average 65% released alive during the previous five-year period of 2013-2017.

## IV. Status of Assessment Advice

Current stock status information comes from SEDAR 58 (SEDAR, 2020), which determined the stock is not overfished and overfishing is not occurring. Results of this assessment were approved for management use by the Board at their February 2020 meeting, and, as such, have been incorporated into ASMFC's FMP.

The stock assessment could be improved by developing a fishery-independent sampling program for abundance of cobia and other coastal migratory pelagic species. The currently used fishery-dependent index causes notable uncertainty in part due to the lack of an effective sampling methodology. In addition, while the terminal year of the assessment was 2017, due to federal water closures, the index could only be calculated through 2015. The assessment could also benefit from improved characterization of age, reproductive, genetic, and migratory characteristics, tag-based information on natural mortality, and more precise recreational catch estimates.

The next stock assessment for the Atlantic cobia stock is an update assessment scheduled for 2025. The terminal year would likely be 2023 or 2024 and the assessment would likely be available to inform 2026 or 2027 management.

## V. Status of Research and Monitoring

There are no monitoring or research programs required annually of the states except for the submission of a compliance report. Fishery-dependent data collections (other than catch and effort data) are conducted in Maryland, Virginia, North Carolina, South Carolina, and Georgia. Data collected includes length, age, and sex data. Fishery-independent monitoring programs conducted by states that may encounter cobia are conducted in New Jersey, Delaware, Maryland, South Carolina, and Georgia.

## VI. Status of Management Measures and Issues

*Fishery Management Plan*

No management changes were required or implemented in 2022. States maintained the same management measures as 2021. In 2021, some states implemented new recreational cobia measures based on Addendum I. As approved by the Board, Virginia and North Carolina changed their measures after evaluation of previous landings against their new Addendum I recreational harvest targets. Virginia's 2021 measures were designed to reduce recreational harvest by 42% by lowering the vessel limit from 3 fish to 2 fish, and shortening the season by 30 days (changed to June 15-September 15).

North Carolina liberalized their measures in 2021 based on their harvest target, and the vessel limit was increased for private anglers only to allow 2 cobia per vessel per day in June (previously only allowed in May).

Some *de minimis* states also adjusted their 2021 recreational measures based on the updated *de minimis* requirement in Addendum I. Maryland and the Potomac River Fisheries Commission (PRFC) adjusted their vessel limit and season to maintain consistency with Virginia's, the nearest non-*de minimis* state to them.

New Jersey, Delaware, and Rhode Island have implemented the standard *de minimis* measures (1 fish per vessel/minimum size of 37 inches total length/no seasonal restrictions) rather than using the nearest non-*de minimis* state regulations. Rhode Island's measures were effective January 1, 2022 after joining the Board and declaring an interest in the cobia fishery in 2021.

In 2020, the South Carolina legislature codified the federal regulations for Cobia into the South Carolina Code of Laws. Prior to this, Cobia regulations (outside of the SCMZ) were covered by legal adherence to federal regulations for any species that did not have specific regulations in South Carolina law.

*De Minimis*

For the recreational sector, the FMP requires adherence to state harvest targets, allocated to non-*de minimis* states from the total harvest quota allocated to the recreational sector. One percent of the quota is designated to account for harvest in *de minimis* states.

The FMP allows states to request recreational *de minimis* status if their recreational landings in two of the previous three years are less than 1% of annual coastwide recreational landings during that time period. If a state qualifies for *de minimis*, the state may choose to match all FMP-related recreational management measures (including seasons and vessel limits) implemented by an adjacent non-*de minimis* state (or the nearest non-*de minimis* state if none are adjacent) or the state may choose to limit its recreational fishery to 1 fish per vessel per trip with a minimum size of 33 inches fork length (or 37 inches total length) with no seasonal restrictions. Rhode Island, New Jersey, Delaware, Maryland, and Florida requested recreational *de minimis* status through the annual reporting process. All of these states except Maryland meet the recreational *de minimis* qualifications.

Maryland in their compliance report acknowledged their recreational harvest was over the 1% recreational *de minimis* threshold in 2020 (1.8% in numbers of fish) and 2021 (5.6% in numbers of fish), but had 0 landings in 2022. Given variability in landings year to year and that 2020 landings were close to the 1% threshold, Maryland is requesting to continue under recreational *de minimis* status for another year until 2023 recreational harvest can be evaluated.

*De minimis* status for commercial fisheries may be granted to states if their commercial landings for 2 of the previous 3 years were less than 2% of the coastwide commercial landings for the same time period. Commercial regulations in *de minimis* states are also limited to a minimum size of 33 inches FL with 2 fish per person for a total of 6 fish per vessel (the same requirements as non-*de minimis* states). Commercial *de minimis* states are not required to monitor their in-season harvests. Rhode Island, New Jersey, Delaware, Maryland, Georgia, and Florida requested *de minimis* status for commercial fisheries through the annual reporting process. All of these states meet the commercial *de minimis* qualifications.

## VII. Implementation of FMP Compliance Requirements for 2022

The PRT finds no inconsistencies among states in regards to the Fishery Management Plan.

## VIII. Recommendations of the Plan Review Team

*Management*

The PRT recommends that the Board approve the 2023 FMP Review, state compliance, and all *de minimis* requests from Rhode Island, New Jersey, Delaware, Maryland, Georgia, and Florida.

The PRT agrees with the rationale provided by Maryland for their recreational fishery to continue under *de minimis* status until 2023 harvest can be evaluated next year.

The PRT emphasizes that multiple states could exceed *de minimis* thresholds over the next few years if cobia landings continue to increase in Mid-Atlantic states due to cobia potentially becoming more available in those areas. For example, New Jersey comprised 1% of recreational landings in 2022, which is the *de minimis* threshold, after landing 0% or less than 1% in previous years. New York, which has not declared an interest in Atlantic cobia to date, comprised 5% of recreational landings (numbers of fish) in 2022, after landing 0 fish in previous years. The PRT notes the management implications of this, including requiring commercial in-season monitoring in more states and adding new states to the calculation of state-specific recreational harvest targets. The PRT also notes the current allocation of recreational quota to each state is based on landings data through only 2015, which may need to be updated to reflect more recent years.

As the Board considers the next stock assessment and future specifications, the PRT recommends the Board discuss whether updates to the state-by-state recreational harvest allocations are warranted.

Finally, the PRT noted New York's recent cobia commercial landings, which were 6.9% of coastwide commercial landings in 2020, 2.6% in 2021, and 2.0% in 2022. Considering these landings, the PRT recommends New York declare an interest in Atlantic cobia. The PRT notes that New York's current commercial regulations of a 37" TL minimum size and 2 fish per vessel limit already meet (and are more restrictive than) FMP requirements for the commercial fishery. The PRT notes that in-season monitoring of New York's cobia landings may need to be implemented in the following years if New York declares an interest in the species and does not have *de minimis* status.

*Research*

The following are important research recommendations from the PRT:

Define, develop, and monitor adult and juvenile abundance estimates through the expansion of current or development of new fishery independent surveys. This recommendation is especially relevant as it is uncertain that the current abundance index will be able to be updated for the upcoming Atlantic cobia stock assessment scheduled to be completed in fall of 2025.

Continue to collect and analyze current life history data from fishery independent and dependent programs, including full size, age, maturity, histology workups and information on spawning season timing and duration. Increase spatial and temporal coverage of age samples collected regularly in fishery dependent and independent sources. Continue collection of genetic material to continue to assess the stock identification and any Distinct Population Segments that may exist within the management unit relative to recommendations made by the SEDAR 58 Stock ID Process.
Expand existing fishery independent surveys in time and space to better define and cover cobia habitats, including conducting otolith microchemistry studies to identify regional recruitment contributions and new and ongoing satellite tagging programs to help identify spawning and juvenile habitat use and regional recruitment sources. Additional work to better understand the impacts of climate change on cobia habitat and range expansion.

Additional research recommendations can be found in Section 2.8 of the SEDAR 58 stock assessment.

## IX. References

ASMFC. 2017. Interstate Fishery Management Plan for Atlantic Migratory Group Cobia. ASMFC, Arlington, VA. 85 p.

SAFMC. 2018. Amendment 31 to the Fishery Management Plan for Coastal Migratory Pelagics Resources in the Gulf of Mexico and Atlantic Region. NOAA Award # FNA10NMF441001. Charleston, SC. 209 pp.

SEDAR. 2013. SEDAR 28 – South Atlantic Cobia Stock Assessment Report. SEDAR, North Charleston SC. 420 pp. available online at: http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=28

SEDAR. 2020. SEDAR 58 – Atlantic Cobia Stock Assessment Report. SEDAR, North Charleston SC. 500 pp. available online at: http://sedarweb.org/sedar-58

## X. Figures

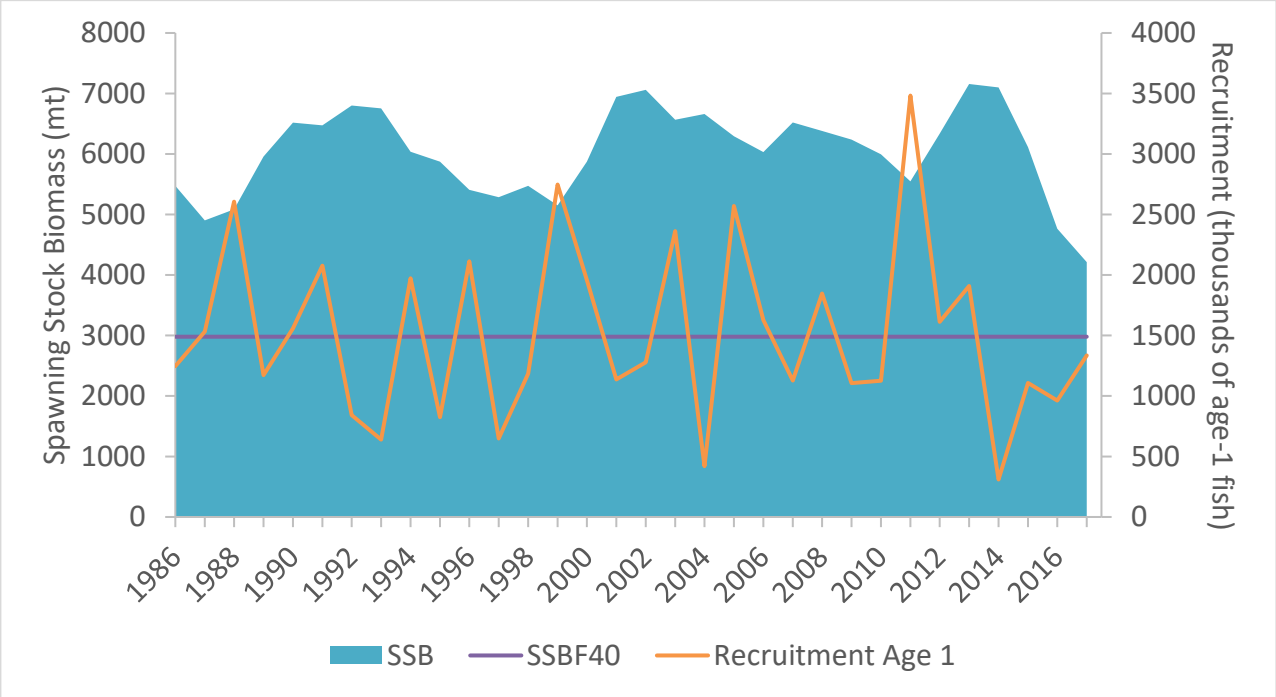



**Figure 1. Atlantic Cobia spawning stock biomass (SSB) and recruitment of year 1 fish.** (SEDAR, 2020)

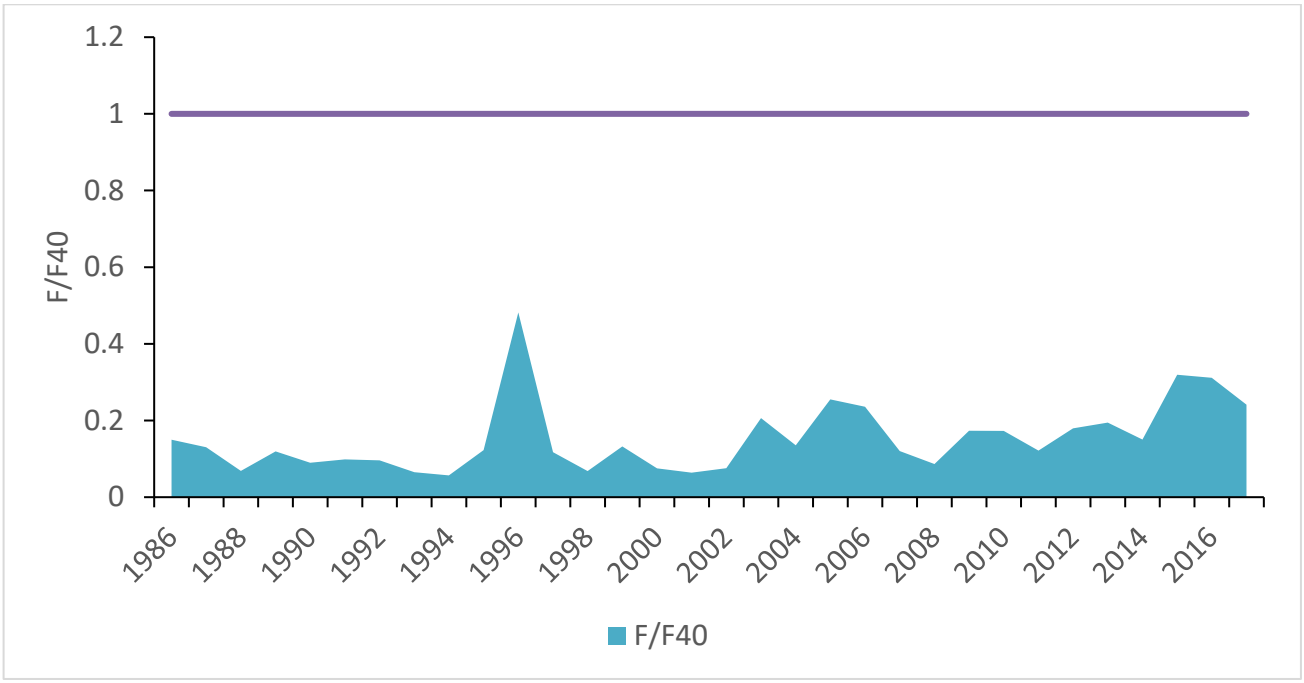



**Figure 2. Atlantic Cobia fishing mortality (F) relative to the F40 reference point from 1986-2017.** (SEDAR, 2020)

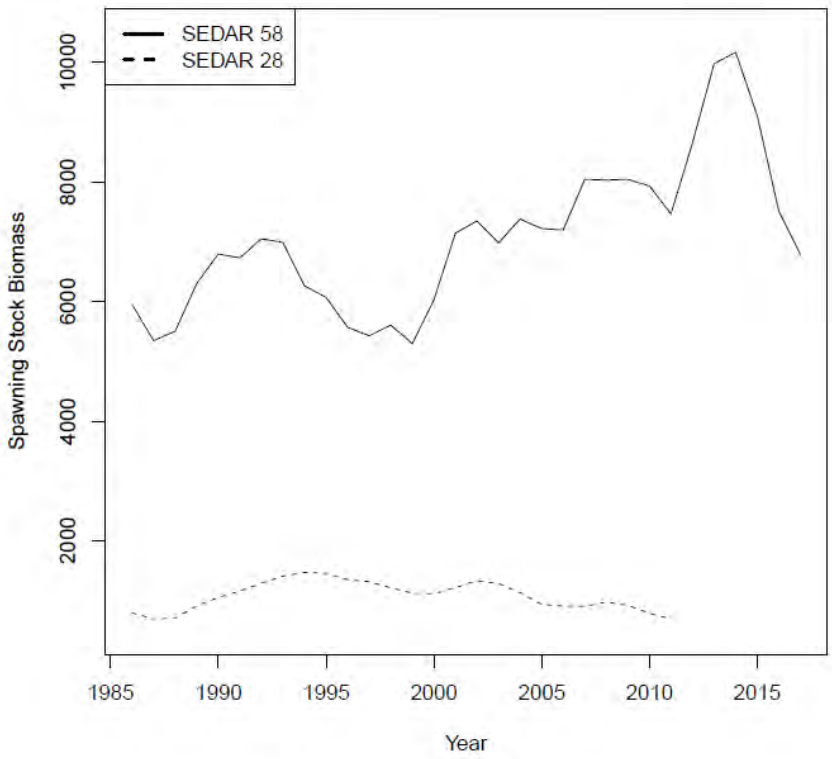



**Figure 3. Comparing spawning stock biomass from the current assessment (SEDAR 58) to the last assessment (SEDAR 28).** (SEDAR, 2020)

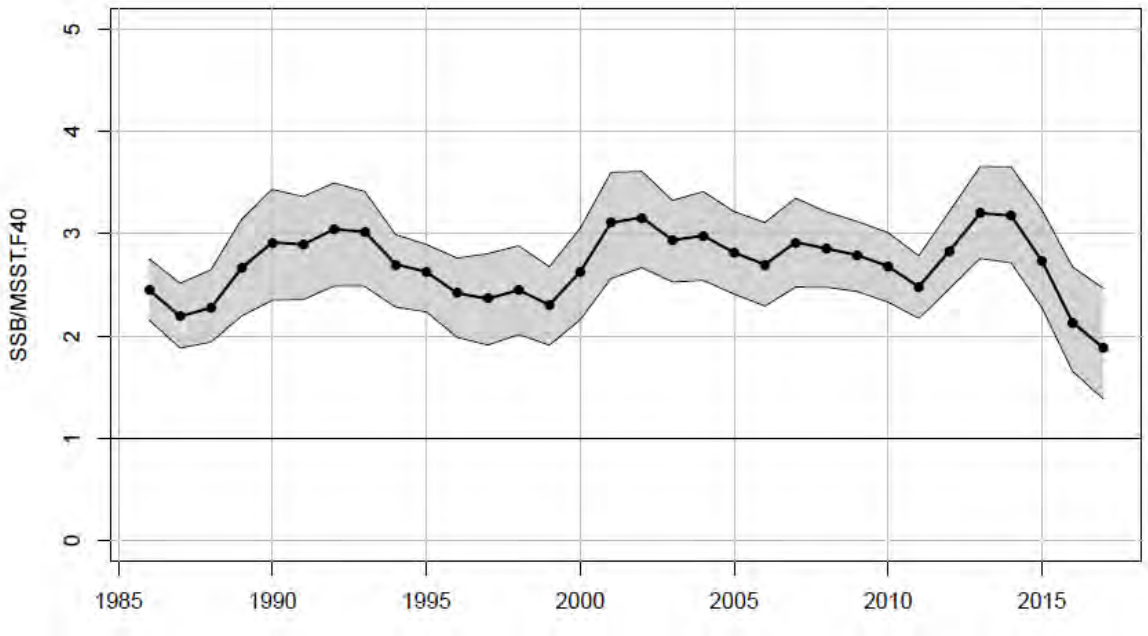



**Figure 4. Estimated time series of Spawning Stock Biomass (SSB) relative to the Minimum Stock Size Threshold (MSST)** (SEDAR, 2020).

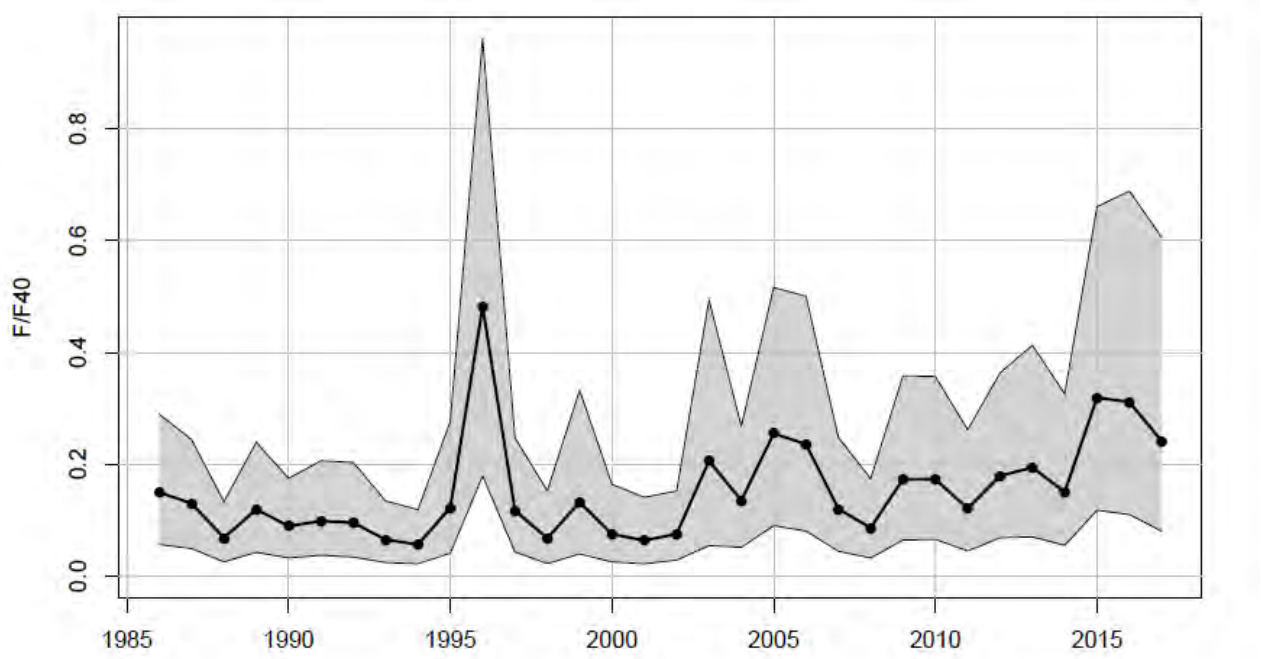



**Figure 5. Estimated time series of Fishing Mortality (F) relative to F at Maximum Sustainable Yield ($F_{40\%}$)** (SEDAR, 2020).

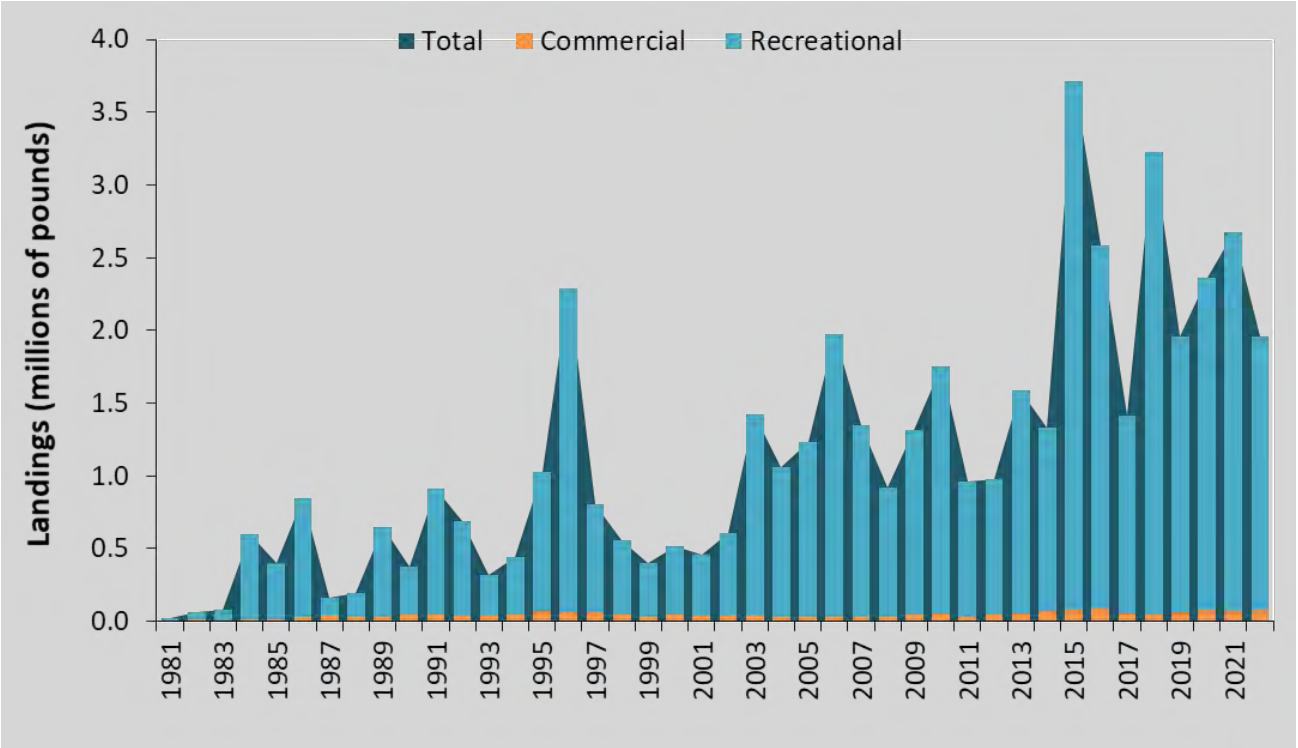



**Figure 6. Commercial and recreational landings (pounds) of Atlantic cobia.** Recreational data not available prior to 1981. See Tables 2 and 3 for data sources and values from the last ten years.

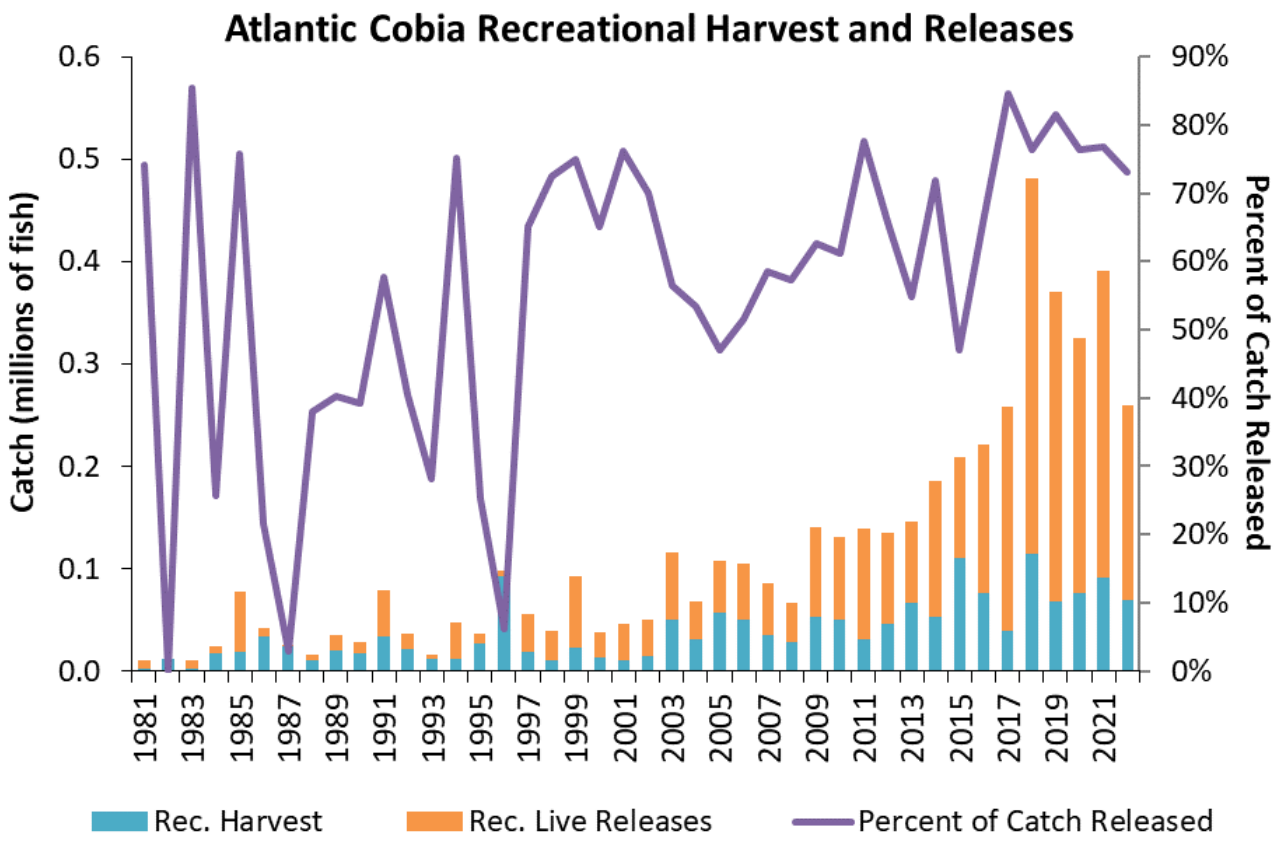



**Figure 7. Recreational catch (harvest and live releases) of Atlantic cobia (numbers) and the proportion of catch that is released.** See Tables 4 and 5 for data sources and values from the last ten years.

## XI. Tables

**Table 1. Atlantic cobia regulations for 2022.**

| State | Recreational Measures | Commercial Measures |
|---|---|---|
| RI | *De minimis*<br>Minimum Size: 37 in total length<br>Vessel Limit: 1 fish per vessel<br>Season: year-round | <u>Coastwide</u><br>Possession Limit: 2 fish per person<br>Minimum Size: 33 in fork length or 37 in total length<br>Vessel Limit: 6 fish<br>If commercial fishing in state waters is closed, commercial fishing in federal waters will be recommended to mirror state closures<br><br><u>Deviations</u><br>-Rhode Island possession limit is 2 fish per vessel<br>-Virginia possession limit is per licensee rather than per person<br>-North Carolina has 36 minimum fork length<br>-No commercial harvest in South Carolina state waters<br>-Georgia possession limit is 1 fish per person (not to exceed 6 per vessel) and minimum size is 36 in fork length |
| NJ | *De minimis*<br>Minimum Size: 37 in total length<br>Vessel Limit: 1 fish per vessel<br>Season: year-round | |
| DE | *De minimis*<br>Minimum Size: 37 in total length<br>Bag Limit: 1 fish per vessel<br>Vessel Limit: 1 fish per vessel | |
| MD | *De minimis*<br>Minimum Size: 40 in total length<br>Bag Limit: 1 fish per person<br>Vessel Limit: 2 fish per vessel<br>Season: June 15-September 15 | |
| PRFC | Minimum Size: 40 in total length (only 1 fish over 50” per vessel)<br>Bag limit: 1 per person<br>Vessel Limit: 2 fish per vessel<br>Season: June 15-September 15 | |
| VA | Minimum Size: 40 in total length (only 1 fish over 50” per vessel)<br>Bag Limit: 1 fish per person<br>Vessel Limit: 2 fish per vessel<br>Season: June 15-September 15 | |
| NC | Minimum Size: 36 in fork length<br>Bag Limit: 1 fish per person<br>Season: May 1-December 31<br><u>Private Vessel Limit</u><br>May 1- June 30: 2 fish<br>July 1-Dec 31: 1 fish<br><br><u>For-Hire Vessel Limit</u><br>May 1-Dec 31: 4 fish | |

| | | |
|---|---|---|
| SC | Bag Limit: 1 fish per person<br>Minimum Size: 36 in fork length<br>Vessel Limit: 6 fish<br>Season: Open year-round<br><br><u>Southern Cobia Management Zone:</u><br>Minimum Size: 36 in FL<br>Season: June 1-April 30 (closed in May)<br>Bag Limit: 1 fish per person<br>Vessel Limit: 3 fish<br><br>-If recreational fishing in federal waters is closed, recreational fishing in all SC state waters is also closed. | |
| GA | Bag Limit: 1 fish per person<br>Minimum Size: 36 in fork length<br>Vessel Limit: 6 fish<br>Season: March 1-October 31 | |
| ***Florida has a declared interest in the Atlantic Coastal Migratory Group, but their cobia fisheries are managed as part of the Gulf of Mexico Migratory Group due to cobia stock boundaries.** | | |

**Table 2. Commercial landings (pounds) of Atlantic cobia by state, 2013-2022.** (Sources: 2023 state compliance reports for 2022 fishing year; for years prior to 2022, personal communication with Atlantic Coastal Cooperative Statistics Program [ACCSP], Arlington, VA)

| Year | RI | CT* | NY* | NJ | DE | MD | PRFC | VA | NC | SC | GA | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **2013** | 476 | | 840 | 885 | C | C | | 10,900 | 35,456 | 3,829 | C | 53,177 |
| **2014** | C | | 311 | 359 | | C | | 21,255 | 41,798 | 3,492 | C | 68,076 |
| **2015** | C | | 235 | C | | C | | 25,352 | 52,684 | 2,487 | C | 82,117 |
| **2016** | 183 | | 114 | 282 | C | C | | 29,459 | 48,244 | 4,064 | C | 83,583 |
| **2017** | 115 | | 80 | C | C | C | | 26,748 | 16,890 | 4,261 | C | 52,376 |
| **2018** | 290 | C | 388 | 707 | | C | | 21,355 | 16,578 | 2,723 | C | 42,711 |
| **2019** | 352 | | 1,191 | C | C | C | 2,375 | 33,496 | 21,553 | 2,673 | C | 63,467 |
| **2020** | 844 | C | 5,183 | 851 | C | C | 378 | 27,768 | 38,344 | 1,588 | C | 75,303 |
| **2021** | 797 | C | 1,581 | 2,273 | | C | 816 | 29,425 | 29,301 | 2,067 | C | 66,752 |
| **2022** | 83 | | 1,509 | C | | C | 147 | 38,666 | 32,686 | 1,386 | | 75,418 |

C: confidential landings.

*CT and NY do not have a declared interest in Atlantic migratory cobia.

**Table 3. Recreational harvest (pounds) of Atlantic cobia by state, 2013-2022. Values shown are the new MRIP numbers.** (Sources: 2023 state compliance reports for 2022 fishing year; for years prior to 2022, personal communication with MRIP queried June 2023)

| Year | RI | CT* | NY* | NJ | DE | MD | VA | NC | SC | GA | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **2013** | | | | | | | 488,181 | 980,541 | 24,005 | 43,915 | 1,536,642 |
| **2014** | | | | | | | 499,218 | 645,427 | 79,171 | 42,481 | 1,266,297 |
| **2015** | | | | | | | 1,166,000 | 1,925,762 | 434,899 | 102,917 | 3,629,578 |
| **2016** | | | | | | 307 | 1,505,528 | 838,363 | 159,345 | | 2,503,543 |
| **2017** | | | | | | | 488,287 | 872,861 | | 390 | 1,361,538 |
| **2018** | | 4,136 | | | 15,053 | 4,647 | 2,259,661 | 685,962 | 205,647 | 6,081 | 3,181,187 |
| **2019** | | | | | | | 1,573,485 | 254,963 | 64,937 | 1,632 | 1,895,017 |
| **2020** | | 1,595 | | | | 38,991 | 1,541,393 | 407,883 | 247,250 | 44,976 | 2,282,088 |
| **2021** | | | | 6,060 | | 131,129 | 1,722,619 | 356,340 | 217,129 | 170,356 | 2,603,633 |
| **2022** | | | 144,715 | 20,970 | | | 1,129,258 | 306,411 | 139,599 | 142,606 | 1,883,559 |

*CT and NY do not have a declared interest in Atlantic migratory cobia.

**Table 4. Recreational harvest (numbers of fish) of Atlantic cobia by state, 2013-2022. Values shown are the new MRIP numbers.** (Sources: 2023 state compliance reports for 2022 fishing year; for years prior to 2022, personal communication with MRIP queried June 2023)

| Year | RI | CT* | NY* | NJ | DE | MD | VA | NC | SC | GA | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **2013** | | | | | | | 24,145 | 37,617 | 1,580 | 2,638 | 65,980 |
| **2014** | | | | | | | 21,585 | 24,601 | 3,883 | 2,168 | 52,237 |
| **2015** | | | | | | | 38,672 | 47,110 | 15,575 | 8,934 | 110,291 |
| **2016** | | | | | | 56 | 43,780 | 26,421 | 5,437 | | 75,694 |
| **2017** | | | | | | | 14,613 | 25,025 | | 19 | 39,657 |
| **2018** | | 569 | | | 581 | 206 | 80,679 | 25,331 | 6,340 | 233 | 113,939 |
| **2019** | | | | | | | 55,770 | 10,090 | 2,381 | 72 | 68,313 |
| **2020** | | 219 | | | | 1,360 | 50,287 | 15,067 | 7,650 | 2,203 | 76,786 |
| **2021** | | | | 250 | | 5,084 | 57,135 | 10,970 | 8,858 | 8,510 | 90,807 |
| **2022** | | | 3,462 | 711 | | | 39,668 | 12,330 | 6,988 | 6,641 | 69,800 |

*CT and NY do not have a declared interest in Atlantic migratory cobia.

**Table 5. Recreational live releases (numbers of fish) of Atlantic cobia by state, 2013-2022. Values shown are the new MRIP numbers.** (Sources: 2023 state compliance reports for 2022 fishing year; for years prior to 2022, personal communication with MRIP queried June 2023)

| Year | RI | CT* | NY* | NJ | DE | MD | VA | NC | SC | GA | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **2013** | | | | | | | 35,731 | 35,398 | 7,438 | 1,577 | 80,144 |
| **2014** | | | | | | | 58,092 | 32,184 | 42,811 | | 133,087 |
| **2015** | | | | 416 | | | 40,689 | 44,254 | 12,369 | 283 | 98,011 |
| **2016** | | | | | | 1,075 | 81,482 | 39,237 | 20,255 | 2,917 | 144,966 |
| **2017** | | | | | | | 77,184 | 125,251 | 11,359 | 4,830 | 218,624 |
| **2018** | | | | 2,879 | | 12,090 | 194,865 | 68,219 | 71,020 | 18,056 | 367,129 |
| **2019** | | | | 10,166 | 30 | 251 | 184,716 | 38,285 | 59,724 | 9,080 | 302,252 |
| **2020** | | | 2,979 | | 564 | 8,233 | 146,913 | 51,158 | 23,384 | 15,091 | 245,343 |
| **2021** | | | | | 197 | 12,344 | 187,872 | 40,136 | 39,341 | 20,578 | 300,468 |
| **2022** | | | 722 | 0 | 0 | 0 | 84,150 | 46,777 | 43,131 | 14,828 | 189,608 |

*CT and NY do not have a declared interest in Atlantic migratory cobia.

Atlantic States Marine Fisheries Commission

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

# MEMORANDUM

**TO:** **Coastal Pelagics Management Board**

**FROM:** **Cobia Technical Committee**

**DATE:** **July 24, 2023**

**SUBJECT:** **Recommendation for 2024-2026 Total Harvest Quota for Atlantic Cobia and July 2023 Technical Committee Report**

The Cobia Technical Committee (TC) met via webinar on March 29 and July 17, 2023 to discuss the 2024-2026 total harvest quota, the 2025 stock assessment, and future technical considerations for cobia, specifically trends in state-by-state landings and fisheries.

TC Members in Attendance: Angela Giuliano (Chair, MD), Nichole Ares (RI), Brian Neilan (NJ), Somers Smott (VA), Lee Paramore (NC), Justin Yost (SC), Chris Kalinowsky (GA), Michael Larkin (NOAA)

ASMFC Staff: Emilie Franke, Chelsea Tuohy, Toni Kerns, Pat Campfield

Others in Attendance*:* Erik Williams (NOAA SEFSC), Shanna Madsen (VA, Board Proxy), Chris Batsavage (NC, Board Proxy), Josh McGilly (VA), Ingrid Braun (PRFC), Will Poston

***Current 2021-2023 Total Harvest Quota***

The current total harvest quota for Atlantic cobia is 80,112 fish, which results in a coastwide recreational quota of 76,908 fish and a commercial quota of 73,116 pounds (3,204 fish)[1]. This total quota level was first approved in February 2020 for the 2020-2022 fishing seasons[2] following the Atlantic cobia benchmark stock assessment. In May 2022, based on a recommendation from the TC, the Board changed the cobia quota timeframe to 2021-2023, thereby, maintaining the harvest quota of 80,112 fish for the 2023 fishing season[3]. This change to the quota timeframe aligned with the timing of new recreational measures implemented by some states in 2021 following the change in quota allocation per Addendum I to Amendment 1 of the Interstate Fishery Management Plan (FMP) for Atlantic Cobia. The TC noted that maintaining this quota level in 2023 carried a low risk considering the low projected probability of the stock being overfished (0.25), and considering average realized harvest in recent years was below the harvest projections associated with this quota level.

[1] For the commercial portion of the quota, the average annual coastwide commercial average weight from 2015-17 (22.8 pounds) was used to convert the commercial quota from numbers to pounds.
[2] January 2020 TC Quota Recommendations and Projections: http://www.asmfc.org/uploads/file/64945ad3Jan2020CobiaTC_Memo_HarvestQuotaOptions.pdf
[3] April 2022 TC Quota Timeframe Recommendation: http://www.asmfc.org/uploads/file/63ee42c4CobiaTC_Report_Apr22.pdf

***TC Recommendation on 2024-2026 Total Harvest Quota***

Per Amendment 1 to the Interstate FMP for Atlantic Cobia, the Board may specify a new coastwide total harvest quota for up to three years after expiration of previously specified measures, or following a completed stock assessment. Since the current total harvest quota specification expires in 2023, the Board may specify a new total harvest quota for 2024 through 2026.

The TC considered available data to inform the 2024-2026 total harvest quota. The 2020-2023 total harvest quota was informed by the 2020 stock assessment (SEDAR 58) and by additional projections provided by the NOAA Southeast Fisheries Science Center (SEFSC) immediately following the 2020 assessment, which included a range of constant harvest and constant fishing mortality scenarios through 2024. In Spring 2023, the TC requested an updated set of projections from the SEFSC to inform the 2024-2026 total harvest quota. The TC requested that 2019-2022 realized harvest data be incorporated in the projections, and requested the projections be extended through 2026, if feasible.

The SEFSC indicated that new projections are not scientifically justified for two reasons. First, the nine-year forecast from the assessment terminal year of 2017 through 2026 is well beyond the current recommendation to limit analysis to five years. Second, the SEFSC noted that a large portion of cobia removals are now outside the South Atlantic, which is inconsistent with the projection model. The SEFSC recommends the Board extend current quotas since observed harvest in recent years was similar to the level used in previous projections, and the current projection model predicted relatively flat catch and abundance trends through the end of 2024, the last year of the previous projections. Given current harvest levels and the lack of trend in the previous projections, any new projections would likely produce similar advice.

The TC considered this response from the SEFSC and reviewed realized harvest data in comparison to the previous projections (Table 1). The current total harvest quota of 80,112 fish was based on projections of 2.4 million pounds constant annual harvest for 2019-forward. From 2019-2022, realized harvest only exceeded that level in one year (2.7 million pounds in 2021), and the average realized harvest from 2019-2022 was 2.2 million pounds, which is less than the projected level.

**Considering these realized harvest data, the lack of new information, and that the current total harvest quota was conservative with a low projected probability of being overfished (0.25), the TC recommends the Board set the 2024-2026 Atlantic cobia harvest quota at the status quo level of 80,112 fish. This results in a coastwide recreational quota of 76,908 fish and commercial quota of 73,116 pounds.**

The TC noted that the upcoming 2025 stock assessment should inform future total harvest quota levels. The assessment will be available to inform 2026 or 2027 quota levels, depending on the stock assessment completion date.

***2025 Stock Assessment for Atlantic Cobia***

The TC discussed initial planning and anticipated challenges for the scheduled 2025 stock assessment for Atlantic cobia. The assessment will be a collaborative effort between the SEFSC and the ASMFC Cobia Stock Assessment Subcommittee (to be formed). Although the 2025 assessment is scheduled as an update, the assessment model approach and methodology will likely need to be updated to address data challenges (e.g., lack of an abundance index) and changes in the distribution of cobia landings.

As a first step, Cobia TC members will compile information on available state datasets in late 2023-early 2024 to start preparing for the assessment. State datasets include state carcass collection programs (VA, NC, SC), which are used for length and age data in the assessment, SC charter boat logbook data, VA recreational reporting program data, and available tagging data.

The anticipated stock assessment completion date is approximately October 2025. The stock assessment schedule is subject to change and will be discussed in more detail in the coming months. If the assessment is completed early enough in 2025, the results could be used to inform the 2026 total harvest quota specification.

***Future Technical Considerations for Atlantic Cobia: Trends in State Landings and Fisheries***

The TC has previously noted the importance of monitoring year-to-year variability in state landings. In March 2023, there was initial TC discussion about the potential need to consider updating the state-specific recreational allocations since those allocations are based on dated data (50% based on harvest data from 2006-2015 and 50% based on harvest data from 2011-2015). In July 2023, the TC continued this discussion and noted that before any management action is taken, a closer look at state landings and fishery trends is warranted. State-by-state landings over time could be more closely examined, including for *de minimis* states, to characterize fishery trends. TC members noted that although cobia landings have increased in some Mid-Atlantic states, especially since 2018, landings continue to be relatively stable in southern states, which indicates a possible range expansion vs. a stock shift. Additional data and information (e.g., harvested fish size, fishery timing, tagging data) could be used to help characterize state-by-state trends.

**The TC recommends examining state-by-state landings and fishery trends more in-depth to characterize changes over time. This could inform future management discussions at the Board level (e.g., recreational harvest allocations).**

Table 1. Projected Harvest for the Current Quota vs. Realized Total Harvest

| Year | Projected Harvest for Current Quota (lbs) | Realized Total Harvest (lbs) |
|---|---|---|
| **2019** | 2,410,848 | 1,958,484 |
| **2020** | 2,410,848 | 2,357,391 |
| **2021** | 2,410,848 | 2,670,132 |
| **2022** | 2,410,848 | 1,958,977 |

# ATLANTIC STATES MARINE FISHERIES COMMISSION

## REVIEW OF THE INTERSTATE FISHERY MANAGEMENT PLAN

## FOR TAUTOG
## *(Tautoga onitis)*

## 2022 FISHING YEAR

Prepared by the Plan Review Team

August 2023

*Sustainable and Cooperative Management of Atlantic Coastal Fisheries*

**REVIEW OF THE ASMFC FISHERY MANAGEMENT PLAN AND STATE COMPLIANCE FOR TAUTOG (*Tautoga onitis*) FOR THE 2022 FISHERY**

**Management Summary**

Date of FMP: March 1996

Addenda/Amendments:

- Addendum I to FMP (May 1997)
- Addendum II to FMP (November 1999)
- Addendum III to FMP (February 2002)
- Technical Addendum I (February 2003)
- Addendum IV to FMP (January 2007)
- Addendum V to FMP (August 2007)
- Addendum VI to FMP (March 2011, revised March 2012)
- Amendment 1 to FMP (October 2017)

Management Unit: US state waters from Massachusetts through Virginia[1].

States With Declared Interest: Massachusetts-Virginia, excluding Pennsylvania

Additional Jurisdictions: National Marine Fisheries Service

Active Boards/Committees: Tautog Management Board (Board)

- Tautog Plan Development Team (PDT)
- Tautog Plan Review Team (PRT)
- Tautog Technical Committee (TC)
- Tautog Stock Assessment Subcommittee (SAS)
- Tautog Advisory Panel (AP)

Stock Assessments:

- Benchmark: 1999, 2005, 2015
- Update: 2011 (revised in 2012), 2016, 2021

[1] North Carolina was originally included in the management unit, but as of 2017 was removed due to insignificant landings. North Carolina's landings will continue to be monitored.

## I. Status of Fishery Management Plan

***Fishery Management Plan for Tautog***

The original FMP responded to concerns about the vulnerability of tautog to overfishing and increasing fishing pressure in the early 1990s. It established goals and objectives for tautog management, and adopted a fishing mortality rate (F) target of 0.15 to rebuild the stocks and prevent overfishing; however, an interim target of 0.24 was applied for two years (1997–1998). States were required to implement state-specific, Board-approved plans to reduce F from the coastwide average of 0.58 (i.e., a 55% reduction), or an alternative state-specific F, if it could be demonstrated as equivalent. Recreational and commercial minimum size limits of 13" in 1997 and 14" beginning in 1998 were required. Tautog pots and traps were also required to have degradable fasteners on one panel or door.

***Addendum I***

Addendum I modified the FMP's compliance schedule to allow all states until April 1, 1998 to implement management measures to reach the interim F target. Several states were having difficulty determining a state-specific F to meet the original compliance schedule due to data deficiencies. In addition, the compliance schedule implemented the interim F target one year earlier in the area north of Delaware Bay (April 1, 1997) than further to the south (April 1, 1998). The addendum also delayed the implementation of management measures to achieve the permanent F target from April 1, 1999 to April 1, 2000. Finally, the Addendum included *de minimis* requirements and corrected several typographical errors in the FMP.

***Addendum II***

Addendum II further extended the compliance schedule to achieve the permanent F target until April 1, 2002 because the effects of the regulations to achieve the interim F target were uncertain. It also listed four issues to be considered in subsequent revisions of the FMP: (1) development of alternative F targets that will allow states to quantify harvest reductions associated with a variety of management approaches, (2) clarification of the F targets to be met by sector or overall state program, (3) monitoring requirements to improve fisheries and biological data collection, and (4) data requirements to analyze management options by fishing modes within commercial and recreational fisheries.

***Addendum III and Technical Addendum I***

Addendum III addressed the four issues listed in Addendum II. It adopted a new F target based on achieving 40% of the spawning stock biomass ($F_{40\% SSB}$), which was estimated at 0.29 (compared to the coastwide average F estimate of 0.41). The addendum required states to maintain current or more restrictive measures for 2002 and implement measures to achieve the new F target—a 48% reduction through restrictions in the recreational fishery only—by April 1, 2003. It also updated information on tautog habitat and established monitoring requirements to support stock assessments, including the collection of 200 age and length samples per state, within the range of lengths commonly caught by the fisheries. Technical Addendum 1 corrected a typographical error in Addendum III.

***Addendum IV***

Addendum IV established SSB target and threshold reference points based on a benchmark stock assessment completed in 2005. The target was set as the average SSB over 1982–1991, and the threshold at 75% of this value. It also set a new F target of 0.20 to initiate rebuilding. States were required to implement recreational management programs to achieve a 28.6% reduction in F relative to 2005 (and maintain existing commercial management programs) by January 1, 2008.

***Addendum V***

As individual states developed management proposals to comply with Addendum IV's mandated reduction in fishing mortality, it became apparent that commercial harvest of tautog had grown in proportion to the recreational fishery in some states. The Board approved Addendum V to give states flexibility for implementing reductions in their recreational *and/or* commercial fisheries to reach the fishing mortality target rate of F = 0.20 established in Addendum IV by January 1, 2008.

***Addendum VI***

Based on the 2011 stock assessment update indicating that tautog were still overfished and experiencing overfishing, Addendum VI reduced the F target to 0.15 to rebuild the stock. States were required to implement Board-approved regulations in their commercial and/or recreational fisheries to reduce harvest by 39%. The addendum also allowed for regional considerations if a state or group of states could demonstrate that the local F is below the rates indicated in the stock assessment update.

***Amendment 1***

Amendment 1 replaced the original FMP, with an implementation date of April 1, 2018 for most measures. Major revisions to the FMP include: new goals and objectives, establishment of four tautog stocks for regional recreational and commercial management, and creation of a commercial harvest tagging program (implementation in 2020).

*Goals:*

- To sustainably manage tautog over the long-term using regional differences in biology and fishery characteristics as the basis for management.
- To promote the conservation and enhancement of structured habitat to meet the needs of all stages of tautog's life cycle.

*Objectives:*

- To develop and implement management strategies to rebuild tautog stocks to sustainable levels (reduce fishing mortality to the target and restore spawning stock biomass to the target), while considering ecological and socio-economic impacts.
- To adopt compatible management measures among states within a regional management unit.
- To encourage compatible regulations between the states and the EEZ, which includes enacting management recommendations that apply to fish landed in each state (i.e., regulations apply to fish caught both inside and outside of state waters).
- To identify important habitat and environmental quality factors that support the long-term maintenance and productivity of sustainable tautog populations throughout their range.

- To promote cooperative interstate biological, social, and economic research, monitoring and law enforcement.
- To encourage sufficient monitoring of the resource and collection of additional data, particularly in the southern portion of the species range, that are necessary for development of effective long-term management strategies and evaluation of the management program.
- To work with law enforcement to minimize factors contributing to illegal harvest.

*Regional Management:* Based on the 2016 regional stock assessment, Amendment 1 delineates the stock into four regions due to differences in biology and fishery characteristics: Massachusetts - Rhode Island (MARI); Long Island Sound (LIS); New Jersey - New York Bight (NJ-NYB); and Delaware - Maryland - Virginia (DelMarVa). The four regions are required to implement measures to achieve the regional fishing mortality target with at least a 50% probability.

The 2016 assessment found that all regions except MARI were overfished, and overfishing was occurring in the LIS and NJ-NYB regions in 2015. As such, Amendment 1 requires the LIS region to reduce harvest by at least 20.3%, and the NJ-NYB region to reduce harvest by at least 2%. The MARI and DelMarVa regions were not required to reduce harvest, but established regional measures.

*Commercial Harvest Tagging Program:* Amendment 1 also establishes a commercial harvest tagging program to address an illegal, unreported, and undocumented fishery. Coastwide implementation of the program began in 2020; more information on the current implementation can be found in Section VI. Status of Management Measures and Issues.

## II. Status of the Stocks

Current stock status is based on the 2021 stock assessment update, which uses the methodology that was approved for management use as part of the 2016 benchmark stock assessment. The assessment evaluates each of the four regions—MARI, LIS, NJ–NYB, and DelMarVa–separately using the ASAP statistical catch-at-age model with landings and index data through 2020. This is the first stock assessment for tautog to use recreational catch estimates from the Marine Recreational Information Program (MRIP) since major revisions to its methodology. The new MRIP estimates resulted in higher estimates of spawning stock biomass (SSB) and recruitment in all regions, but had less of an impact on fishing mortality.

The 2021 stock assessment update found improvements in most regions since the last assessment (2017). Overfishing was no longer occurring in any region in 2020 (a change for LIS and NJ-NYB), while only the NJ-NYB region remained overfished in 2020 (with LIS and DelMarVa moving out of this category). F was below the target in the DelMarVa and MARI regions, and between the target and threshold in the LIS and NJ-NYB regions. Strong year classes in MARI and LIS in recent years appear to have contributed to increasing trends in spawning stock biomass, while a significant decline in F in DelMarVa since 2012 has resulted in an increase in SSB there. While the NJ-NYB region remains overfished, the SSB has been trending upward since the last assessment. The current overfishing and overfished definitions for management use are shown in Table 1, and fishing mortality and spawning

stock biomass (SSB) for each region relative to the respective targets and thresholds are shown in Figures 1-8.

## IV. Status of the Fishery

Total Harvest

Between 1981 and 2022[2], total coastwide tautog harvest (recreational + commercial) peaked at 22.5 million pounds in 1986. Harvest has since declined significantly, starting before state restrictions were implemented. Total harvest during the ASMFC managed period (1996–2022) has averaged approximately 7.8 million pounds per year (Figure 9, Table 2).

Recreational Harvest

Tautog is predominantly taken by the recreational fishery: 96% on average, by weight (Table 2). Coastwide, anglers harvested historic highs of over 20 million pounds of tautog in 1986 and 1992 (Figure 9). Since then, harvest has declined, fluctuating between 3.4 million pounds (in 2018) and 13.2 million pounds (in 2021). In 2022, recreational harvest was over 8.8 million pounds, which was an approximate 33% decrease from 2021. Historically, recreational harvest occurs primarily in September–December. At the state level, Massachusetts through New Jersey account for the vast majority of recreational harvest (Tables 4 and 5), with New York, New Jersey, and Massachusetts anglers harvested the most tautog in 2022, although the highest harvesting states does vary year-to-year (Figure 10).

Recreational releases have generally increased relative to harvest over the time series. Prior to the FMP's implementation in 1996, the number of fish released alive annually was less than harvest, but since then releases have been several times greater than the harvest (Table 4). In 2022, the live releases of 24.4 million fish were more than nine times the estimated harvest of 2.7 million fish. A discard mortality rate of 2.5% is assumed for the recreational tautog fishery, resulting in an estimated 608,882 recreational dead discards in 2022. This equates to approximately 23% of recreational removals.

Commercial Landings

Historically, tautog was considered a "trash fish" until the late 1970s, when demand increased, and a directed commercial fishery developed. Landings quickly rose, peaking in 1987 at nearly 1.2 million pounds, then rapidly began to decline. In 1992, states began to implement commercial regulations, which contributed to a decline in landings (Figure 11, Table 2). Non-confidential landings in 2022 were approximately 541,950 pounds. The coastwide average ex-vessel price (dollars per pound) for tautog has increased nearly steadily from the late 1970s, peaking at $4.54 per pound in 2022 (Figure 11).

Commercial landings accounted for approximately 5.8% of total coastwide harvest in 2022. On a state level, commercial landings comprised no more than 13.2% of a state's total landings (Table 3). New York had the most commercial landings of tautog in 2022 (73% of the coastwide total), with

[2] Systematic recreational data collection for tautog began in 1981, while commercial data exists back to 1950.

Massachusetts landing the second greatest amount (approximately 13% of the coastwide total) (Table 6). Data on commercial discards are not available.

## V. Status of Research and Monitoring

All states are required to collect the following data to continue support of a coast-wide stock assessment: commercial and recreational catch estimates, and 200 age and length samples per state, within the range of lengths commonly caught by the fisheries. Table 9 lists the number and source of samples collected by states in 2022.

Ongoing fishery-independent and fishery-dependent monitoring programs performed by each state are summarized in Tables 10 and 11, respectively. Details of monitoring results are found in the state compliance reports.

## VI. Status of Management Measures and Issues

Amendment 1 to the Tautog Fishery Management Plan was approved by the Board in October 2017, with an implementation deadline of April 2018 for all mandatory measures except the commercial tagging program having a January 2019 deadline. All states adopted regulations compliant with the FMP in time for the April 2018 deadline. The Board subsequently delayed the tagging program implementation deadline to January 2020, which all states met with an exception of Connecticut and New York; these states requested an extension until 2021 due to challenges presented by the COVID-19 pandemic. Since 2021, all states have implemented the tagging program.

## VII. Implementation of FMP Compliance Requirements

### A. Submission of Compliance Report

All states in the tautog management unit submitted state compliance reports for the 2022 fishing year.

### B. *De Minimis* Status Requests

A state may apply for *de minimis* status with regards to its commercial fishery. To qualify for *de minimis* status a state must prove that its commercial landings in the most recent year for which data are available did not exceed 10,000 pounds or 1% of the regional commercial landings, whichever is greater. States must request *de minimis* status each year, and requests for *de minimis* status will be reviewed by the PRT as part of the annual FMP review process.

If *de minimis* status is granted, the *de minimis* state is still required to implement the commercial minimum size provision, the pot and trap degradable fastener provision, the commercial tagging program, and regulations consistent with those in the recreational fishery (including possession limits and seasonal closures). The state must monitor its landings on at least an annual basis. If granted *de*

*minimis* status, a state must continue to collect the required 200 age/length samples. *De minimis* status does not impact a state's compliance requirements in the recreational fishery.

The commercial landings threshold for *de minimis* status for 2022 in each region is 10,000 pounds. The states of Delaware and Maryland have requested and qualify for continued *de minimis* status for the commercial sector. The PRT recommends that the Board approve the states of Delaware and Maryland's requests.

**C. Regulatory Requirements: 14" minimum size limit for recreational and commercial fisheries; degradable fasteners on one panel or door in fish pots and traps; and regional management programs to achieve the required regional target F.**

State regulations are summarized in Tables 7 and 8. Nearly every state needed to adjust their commercial and recreational measures to comply with the provisions of Amendment 1 in 2018.

The only reported regulatory change for the 2022 fishing year occurred in Rhode Island, which implemented a change to their recreational regulations. While the possession limits and minimum size remained unchanged, a maximum size was adopted such that only one fish of the bag limit may be greater than 21-inches. (Massachusetts has implemented a complementary change for 2023.) . In 2022, Massachusetts' and Rhode Island's commercial landings exceeded their state quota; the states have adjusted their 2023 quotas to account for these overages.

The PRT finds that each state has met the regulatory requirements and recommends the Board find all states in compliance with the regulatory requirements.

**D. Biological Sampling Requirements: commercial and recreational catch estimates; and 200 age/length samples**

Due to the dispersed and inconsistent nature of the state fishery, Virginia collected 181 of the 200 age/length samples in 2022 as required (Table 9).

The PRT finds that all states met the intent of the sampling requirements and recommends the Board find all states in compliance with the sampling requirements of the FMP. In 2019, the Technical Committee reconfirmed that 200 was the minimum number of biological samples needed for adequate catch characterization. Additionally, the 2023 ASMFC Quality Assurance/Quality Control Fish Ageing Workshop recommended for states to convert from using opercula to using spines and otoliths for ageing tautog.

**Commercial Tagging Program**

All states participated in the commercial tagging program in 2022. State tagging information is summarized in Table 12. The percentage of issued tags that were returned varied between 17% and 66%, and the coastwide return rate was 31%.

The PRT noted that preliminary estimates show there were 12,992 tags unaccounted for coastwide (5.1% of tags issued), primarily in Rhode Island and New York, which is a 30% decrease from 2021 (18,417 unaccounted for tags). The PRT is still recommending that states work to reduce the number of tags unaccounted for and will be amending the compliance report template to include the necessary information in Table 12.

## VIII. Prioritized Research Needs

The following research recommendations are from the 2016 Tautog Regional Stock Assessment and Desk Review Report. The Technical Committee identified the research recommendations to improve the stock assessment and our understanding of tautog population and fishery dynamics. Research recommendations are organized by topic and level of priority. Research recommendations that should be completed before the next benchmark assessment are underlined. The Technical Committee will update these recommendations as part of the next benchmark stock assessment.

### 8.1 Fishery-Dependent Priorities

***High***

- Expand biological sampling of the commercial catch for each gear type over the entire range of the stock (including weight, lengths, age, sex, and discards).
- Continue collecting opercula from the tautog catch as the standard for biological sampling in addition to collecting paired sub-samples of otoliths and opercula.
- Increase catch and discard length sampling from the commercial and recreational fishery for all states from Massachusetts through Virginia.
- Increase collection of effort data for determining commercial and recreational CPUE.
- Increase MRIP sampling levels to improve recreational catch estimates by state and mode. Current sampling levels are high during times of the year when more abundant and popular species are abundant in catches, but much lower in early spring and late fall when tautog catches are more likely.

### 8.2 Fishery-Independent Priorities

***High***

- Conduct workshop and pilot studies to design a standardized, multi-state fishery independent survey for tautog along the lines of MARMAP and the lobster ventless trap survey.
- Establish standardized multi-state long-term fisheries-independent surveys to monitor tautog abundance and length-frequency distributions, and to develop YOY indices.
- Enhance collection of age information for smaller fish (<20 cm) to better fill in age-length keys

### 8.3 Life History, Biological, and Habitat Priorities

***Moderate***

- Define local and regional movement patterns and site fidelity in the southern part of the species range. This information may provide insight into questions of aggregation versus recruitment to artificial reef locations, and to clarify the need for local and regional assessment.
- Assemble regional reference collections of paired operculum and otolith samples and schedule regular exchanges to maintain and improve the precision of age readings between states that will be pooled in the regional age-length keys.
- Calibrate age readings every year by re-reading a subset of samples from previous years before ageing new samples. States that do not currently assess the precision of their age readings over time should do so by re-ageing a subset of their historical samples.

***Low***

- Evaluate the potential impacts of climate change on tautog range, life history, and productivity.
- Conduct a tag retention study to improve return rates, particularly in the northern region.
- Define the status (condition and extent) of optimum or suitable juvenile habitats and trends in specific areas important to the species. It is critical to protect these habitats or to stimulate restoration or enhancement, if required.
- Define the specific spawning and pre-spawning aggregating areas and wintering areas of juveniles and adults used by all major local populations, as well as the migration routes used by tautog to get to and from spawning and wintering areas and the criteria or times of use. This information is required to protect these areas from damage and overuse or excessive exploitation.
- Define larval diets and prey availability requirements. This information can be used as determinants of recruitment success and habitat function status. Information can also be used to support aquaculture ventures with this species.
- Define the role of prey type and availability in local juvenile/adult population dynamics over the species range. This information can explain differences in local abundance, movements, growth, fecundity, etc. Conduct studies in areas where the availability of primary prey, such as blue mussels or crabs, is dependent on annual recruitment, the effect of prey recruitment variability as a factor in tautog movements (to find better prey fields), mortality (greater predation exposure when leaving shelter to forage open bottom), and relationship between reef prey availability/quality on tautog condition/fecundity.
- Define the susceptibility of juveniles to coastal/anthropogenic contamination and resulting effects. This information can explain differences in local abundance, movements, growth, fecundity, and serve to support continued or increased regulation of the inputs of these contaminants and to assess potential damage. Since oil spills seem to be a too frequent coastal impact problem where juvenile tautog live, it may be helpful to conduct specific studies on effects of various fuel oils and typical exposure concentrations, at various seasonal

temperatures and salinities. Studies should also be conducted to evaluate the effect of common piling treatment leachates and common antifouling paints on YOY tautog. The synergistic effects of leaked fuel, bilge water, treated pilings, and antifouling paints on tautog health should also be studied.

- Define the source of offshore eggs and larvae (in situ or washed out coastal spawning).
- Confirm that tautog, like cunner, hibernate in the winter, and in what areas and temperature thresholds, for how long, and if there are special habitat requirements during these times that should be protected or conserved from damage or disturbance. This information will aid in understanding behavior variability and harvest availability.

**8.4 Management, Law Enforcement, and Socioeconomic Priorities**

***Moderate***

- Collect data to assess the magnitude of illegal harvest of tautog and the efficacy of the tagging program.

***Low***

- Collect basic sociocultural data on tautog user groups including demographics, location, and aspects of fishing practices such as seasonality.

## Figures & Tables

**Figure 1. Estimated spawning stock biomass, with target and threshold levels, for MARI region.**
Source: 2021 ASMFC Tautog Regional Stock Assessment Update.

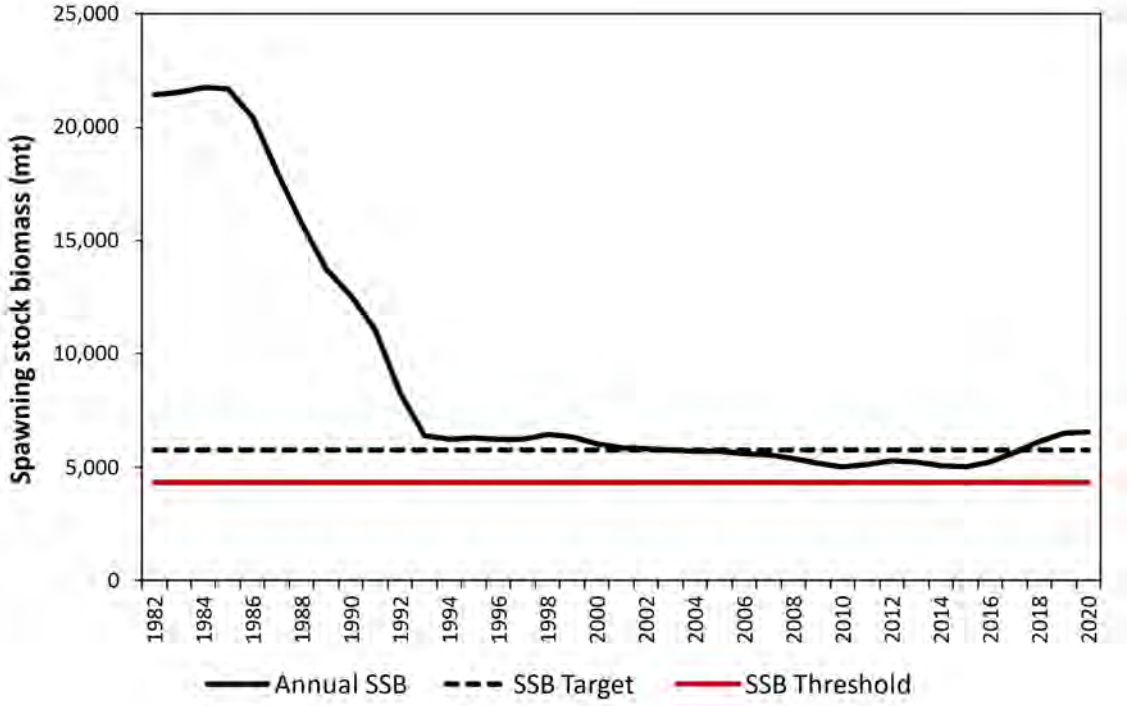



**Figure 2. Estimated spawning stock biomass, with target and threshold levels, for LIS region.**
Source: 2021 ASMFC Tautog Regional Stock Assessment Update.

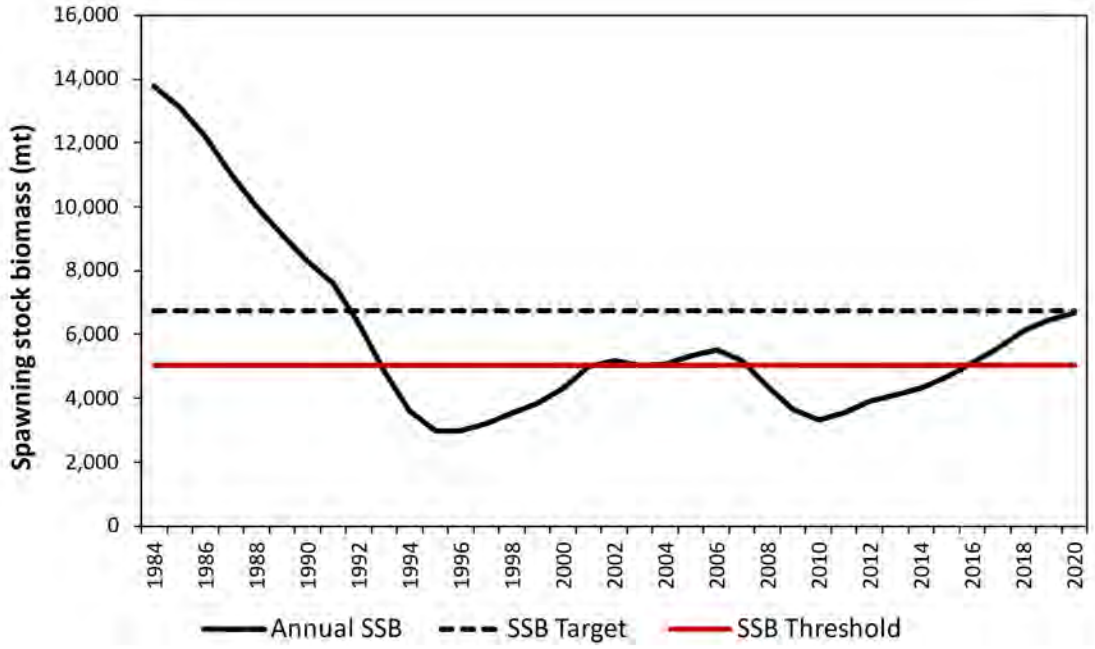


**Figure 3. Estimated spawning stock biomass, with target and threshold levels, for NJ-NYB region.**
Source: 2021 ASMFC Tautog Regional Stock Assessment Update.

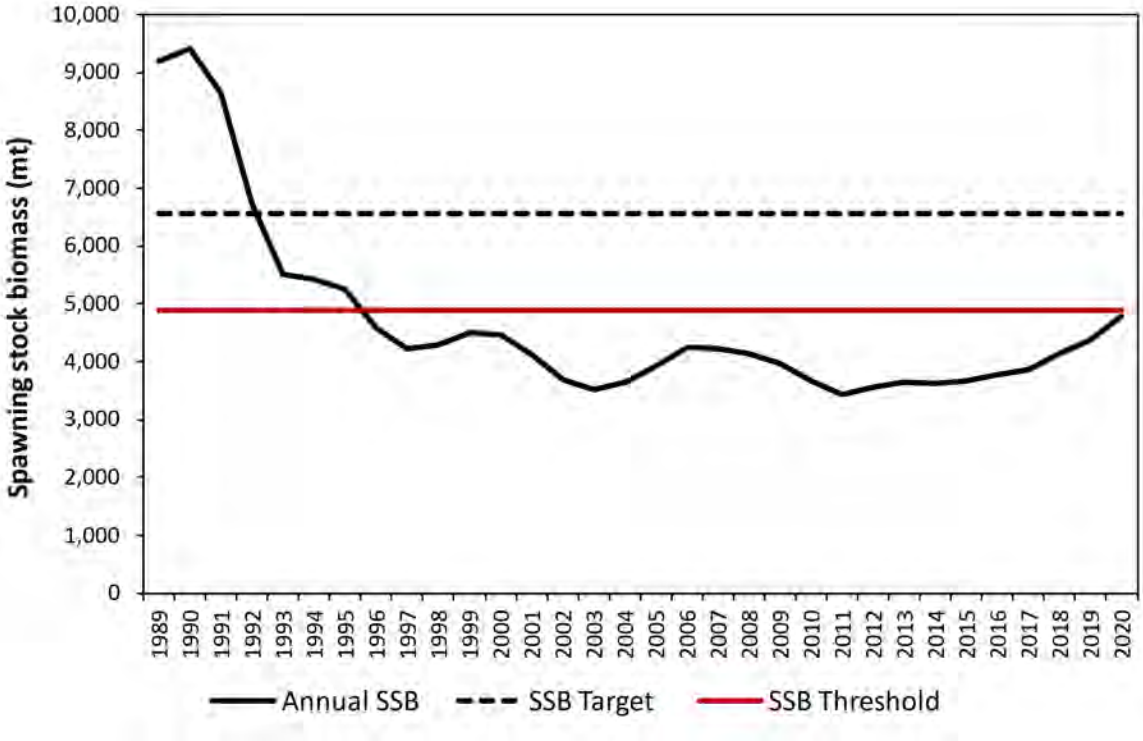



**Figure 4. Estimated spawning stock biomass, with target and threshold levels, for DelMarVa region.**
Source: 2021 ASMFC Tautog Regional Stock Assessment Update.

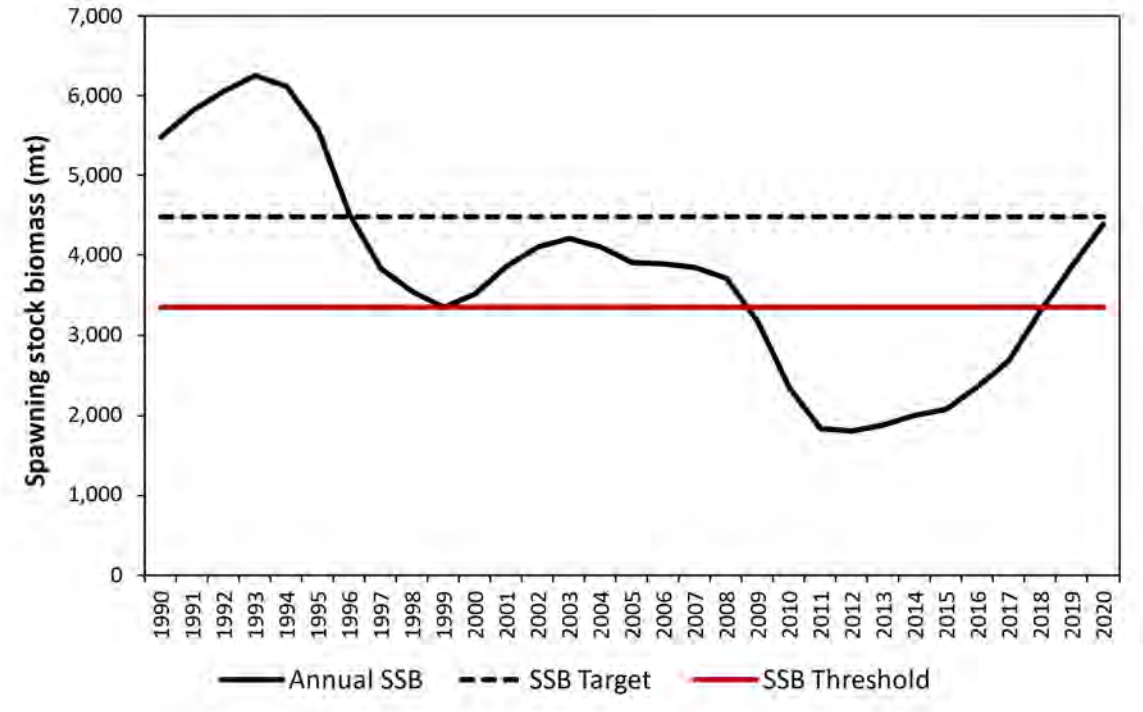


**Figure 5. Three-year average fishing mortality rate plotted with the F target and threshold, for MARI region.** Source: 2021 ASMFC Tautog Regional Stock Assessment Update.

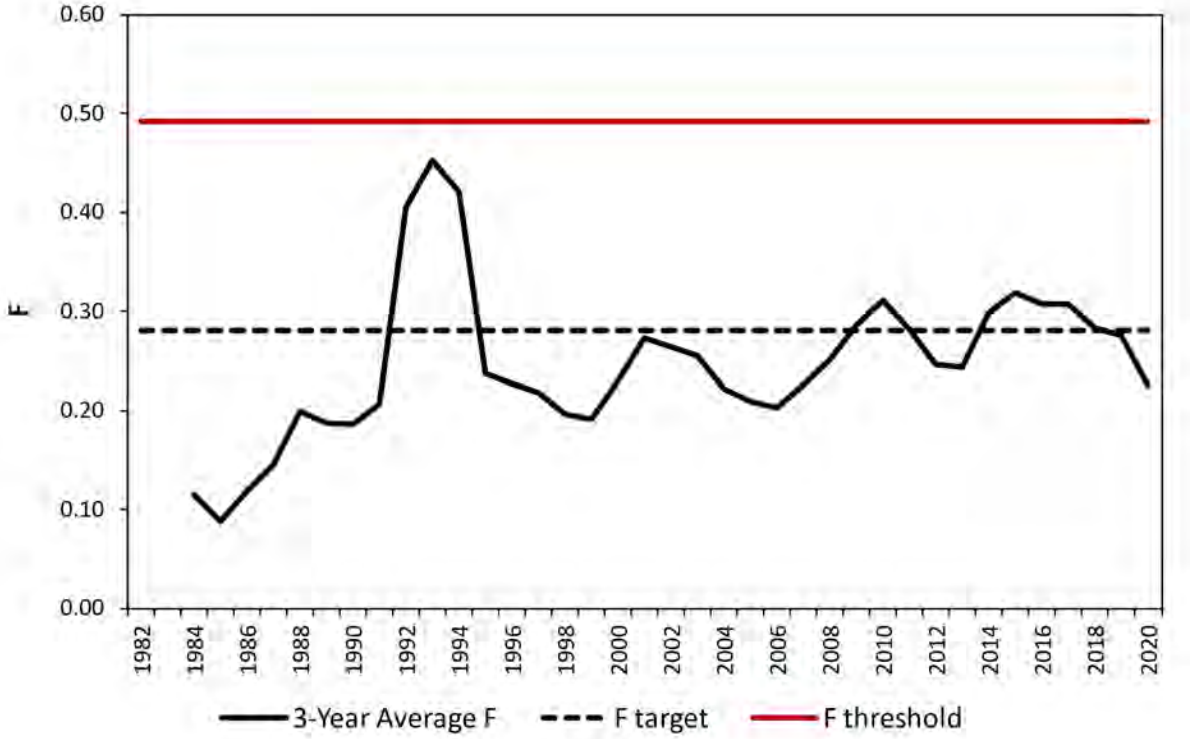



**Figure 6. Three-year average fishing mortality rate plotted with the F target and threshold, for LIS region.** Source: 2021 ASMFC Tautog Regional Stock Assessment Update.

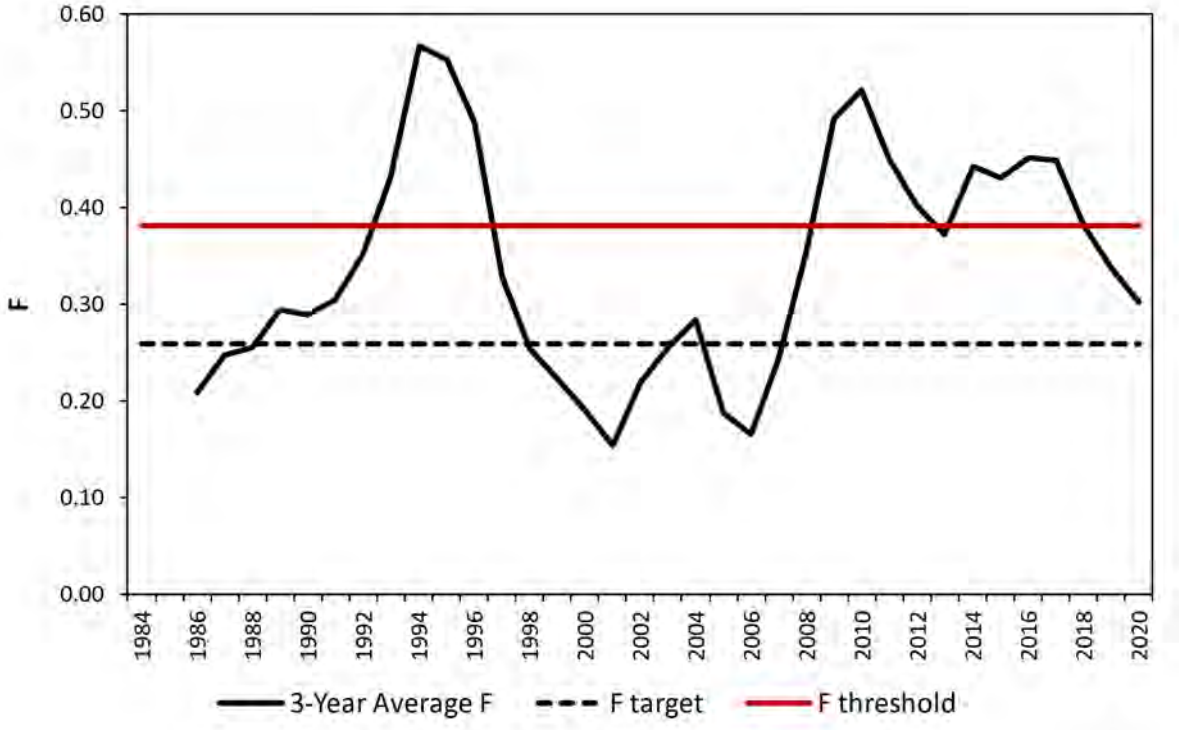


**Figure 7. Three-year average fishing mortality rate plotted with the F target and threshold, for NJ-NYB region.** Source: 2021 ASMFC Tautog Regional Stock Assessment Update.

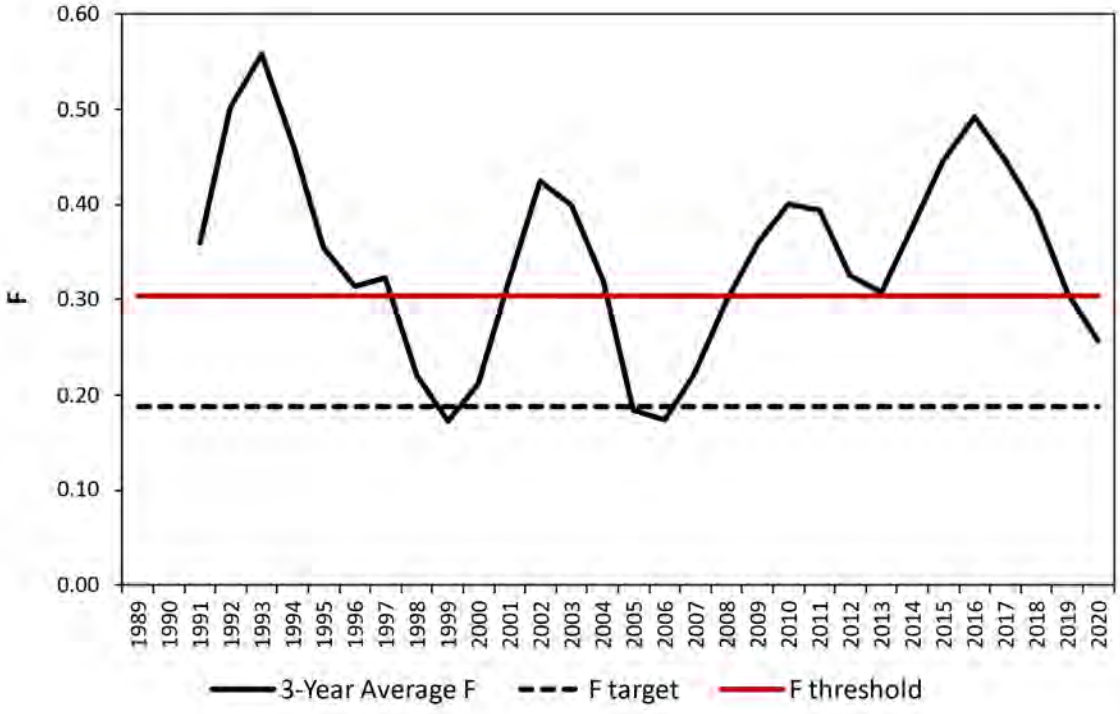



**Figure 8. Three-year average fishing mortality rate plotted with the F target and threshold, for DelMarVa region.** Source: 2021 ASMFC Tautog Regional Stock Assessment Update.

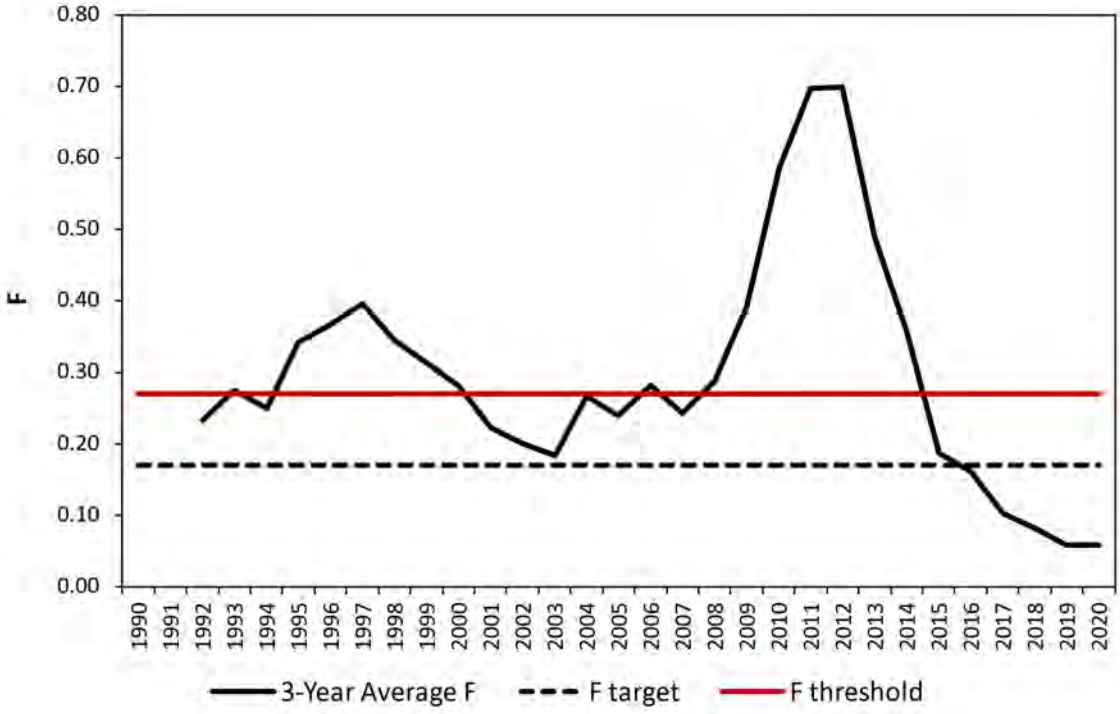


**Figure 9. Total tautog harvest (recreational and commercial) in weight, 1981–2022.** Source: State compliance reports, MRIP.

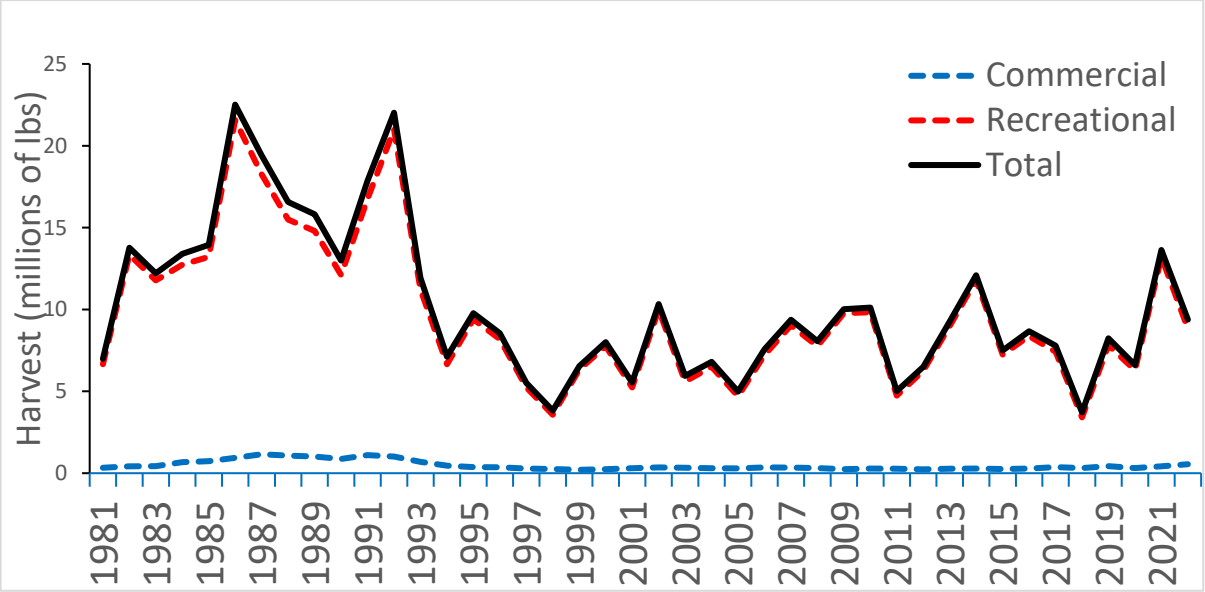



**Figure 10. Percent of annual recreational tautog harvest by state in numbers of fish (2020-2022).** Source: MRIP

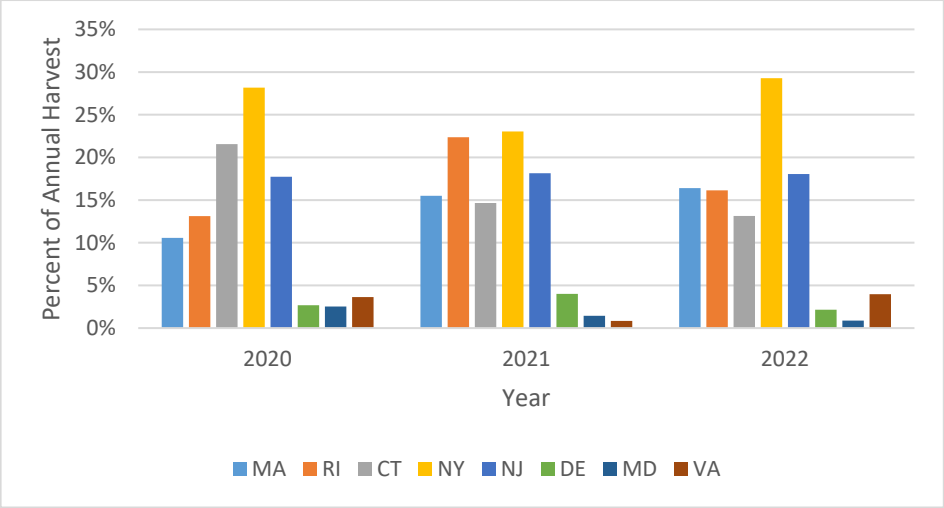


**Figure 11. Changes in tautog commercial landings (mt) and price ($/lb) over time, 1950–2022.**
Source: ACCSP. Price unadjusted for inflation.

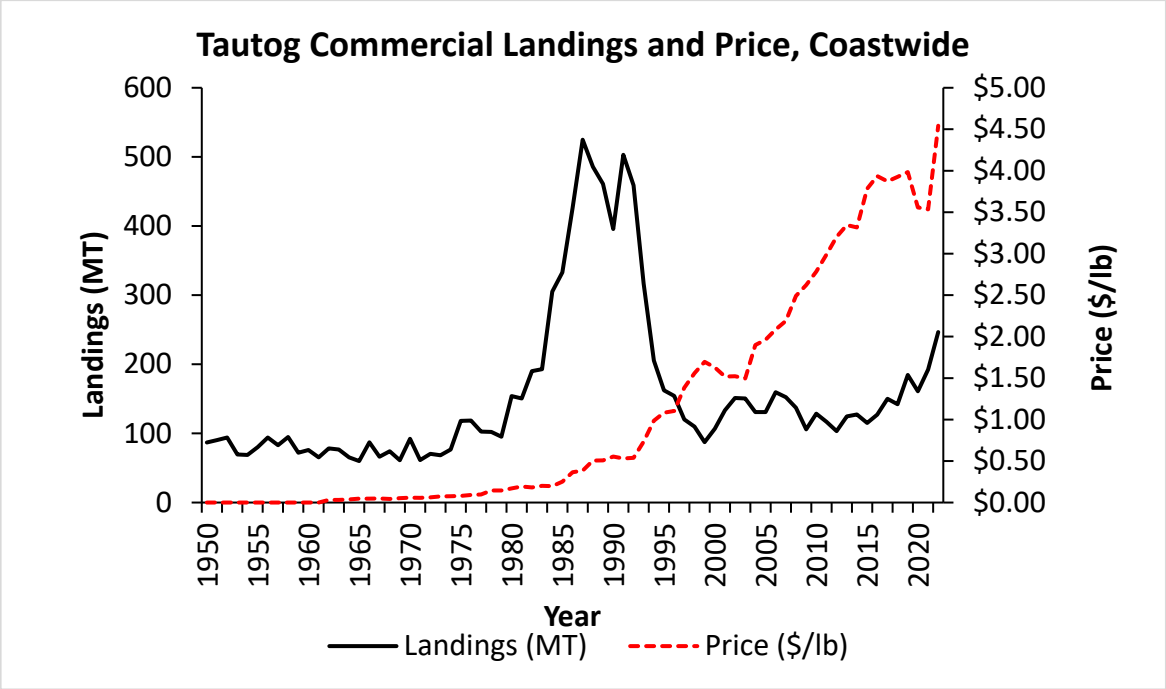


**Table 1. Tautog stock status and reference points by region, 2020.** Source: ASMFC 2021 Tautog Regional Stock Assessment Update.

| Stock Region | Spawning Stock Biomass (in millions of pounds) | | | Fishing Mortality | | | Stock Status |
|---|---|---|---|---|---|---|---|
| | Target | Threshold | 2020 Estimate | Target | Threshold | 3-year Average | 3-year Average |
| MARI | 10.09 | 7.57 | 14.90 | 0.28 | 0.49 | 0.23 | Not overfished; overfishing not occurring |
| LIS | 14.83 | 11.12 | 14.70 | 0.26 | 0.38 | 0.30 | Not overfished; overfishing not occurring |
| NJ-NYB | 14.45 | 10.78 | 10.54 | 0.19 | 0.30 | 0.26 | Overfished; overfishing not occurring |
| DelMarVa | 9.90 | 7.40 | 9.66 | 0.17 | 0.27 | 0.06 | Not overfished; overfishing not occurring |

**Table 2. Tautog recreational and commercial landings, 1996–2022, in pounds.**

Source: State Compliance Reports, MRIP, and ACCSP Data Warehouse.

| Year | Commercial Landings (lb) | Recreational Harvest (lb) | Total Harvest (lb) | % Recreational |
|---|---|---|---|---|
| **1996** | 357,434 | 8,218,590 | 8,576,024 | 95.8 |
| **1997** | 280,912 | 5,314,384 | 5,595,296 | 95.0 |
| **1998** | 254,186 | 3,611,576 | 3,865,762 | 93.4 |
| **1999** | 207,981 | 6,350,388 | 6,558,369 | 96.8 |
| **2000** | 247,177 | 7,795,564 | 8,042,741 | 96.9 |
| **2001** | 305,193 | 5,249,781 | 5,554,974 | 94.5 |
| **2002** | 350,820 | 9,998,665 | 10,349,485 | 96.6 |
| **2003** | 336,685 | 5,630,853 | 5,967,538 | 94.4 |
| **2004** | 300,749 | 6,546,309 | 6,847,058 | 95.6 |
| **2005** | 289,984 | 4,755,445 | 5,045,429 | 94.3 |
| **2006** | 355,504 | 7,219,077 | 7,574,581 | 95.3 |
| **2007** | 340,925 | 9,189,558 | 9,530,483 | 96.4 |
| **2008** | 310,940 | 7,758,609 | 8,069,549 | 96.1 |
| **2009** | 243,644 | 9,801,365 | 10,045,009 | 97.6 |
| **2010** | 286,081 | 9,863,150 | 10,149,231 | 97.2 |
| **2011** | 263,241 | 4,740,790 | 5,004,031 | 94.7 |
| **2012** | 236,974 | 6,315,699 | 6,552,673 | 96.4 |
| **2013** | 275,839 | 9,017,101 | 9,292,940 | 97.0 |
| **2014** | 282,624 | 11,831,114 | 12,113,738 | 97.7 |
| **2015** | 255,915 | 7,246,071 | 7,501,986 | 96.6 |
| **2016** | 283,906 | 8,392,901 | 8,676,807 | 96.7 |
| **2017** | 364,736 | 7,546,839 | 7,911,575 | 95.4 |
| **2018** | 309,568 | 3,413,926 | 3,723,494 | 91.7 |
| **2019** | 427,078 | 7,815,557 | 8,242,635 | 94.8 |
| **2020** | 313,467 | 6,290,648 | 6,604,115 | 95.3 |
| **2021** | 423,280 | 13,211,743 | 13,635,563 | 96.9 |
| **2022** | 543,751 | 8,835,136 | 9,378,887 | 94.2 |
| **Average** | 313,230 | 7,448,653 | 7,761,883 | 95.7 |

**Table 3. 2022 tautog landings by sector: percent recreational and commercial by weight.**

| State | Commercial Landings (%) | Recreational Harvest (%) |
|---|---|---|
| **MA** | 4.6 | 95.4 |
| **RI** | 3.1 | 96.9 |
| **CT** | 1.3 | 98.7 |
| **NY** | 13.2 | 86.8 |
| **NJ** | 0.1 | 99.9 |
| **DE** | 0.9 | 99.1 |
| **MD** | 0.3 | 99.7 |
| **VA** | 1.0 | 99.0 |
| **Coastwide** | 5.8 | 94.2 |

**Table 4. Tautog recreational harvest by state and coastwide discards, in number of fish, 1996-2022.** Source: MRIP (calibrated estimates), queried June 22, 2023. *indicates PSE above 50. Dead discards are calculated by applying a 2.5% release mortality rate to live releases.

| Year | MA | RI | CT | NY | NJ | DE | MD | VA | Coastwide Harvest | Live Releases | Dead Discards |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **1996** | 216,698 | 143,609 | 150,523 | 122,153 | 1,186,204 | 116,010 | 72,805* | 636,163 | 2,644,165 | 3,195,947 | 79,899 |
| **1997** | 78,669 | 174,516 | 83,153 | 156,487 | 573,479 | 117,773 | 193,521 | 161,549 | 1,539,147 | 2,443,176 | 61,079 |
| **1998** | 81,038 | 122,830 | 110,246 | 149,594 | 24,693* | 149,391 | 16,252* | 183,083 | 837,127 | 3,013,870 | 75,347 |
| **1999** | 302,890 | 191,287 | 44,581* | 407,886 | 279,728 | 267,875 | 23,468* | 77,898 | 1,595,613 | 5,412,630 | 135,316 |
| **2000** | 347,448 | 152,459 | 68,080* | 203,145* | 986,483 | 188,453 | 63,231* | 40,542 | 2,049,841 | 3,524,481 | 88,112 |
| **2001** | 246,811* | 86,818 | 51,941 | 118,267 | 819,588 | 69,987 | 57,984* | 39,132 | 1,490,528 | 4,239,587 | 105,990 |
| **2002** | 232,803 | 177,095 | 180,753 | 1,239,615 | 501,980 | 274,966 | 55,339 | 69,301 | 2,731,852 | 6,328,479 | 158,212 |
| **2003** | 95,969 | 328,392 | 337,867 | 245,762 | 215,920 | 100,802 | 18,223* | 126,406 | 1,469,341 | 4,027,988 | 100,700 |
| **2004** | 39,975* | 281,619* | 30,930 | 471,302 | 238,123 | 163,916 | 18,286* | 455,060 | 1,699,211 | 3,853,747 | 96,344 |
| **2005** | 155,754 | 311,966 | 75,848 | 153,333 | 110,308 | 98,542 | 63,320 | 165,204 | 1,134,275 | 3,613,609 | 90,340 |
| **2006** | 102,739 | 234,043 | 361,978 | 265,746 | 406,800 | 169,411 | 34,482* | 207,062 | 1,782,261 | 5,019,741 | 125,494 |
| **2007** | 67,432* | 234,152 | 544,712 | 509,816 | 624,915 | 203,846 | 118,459 | 155,012 | 2,458,344 | 6,687,397 | 167,185 |
| **2008** | 72,171* | 288,487 | 244,689 | 577,628 | 440,588 | 162,604 | 45,166 | 208,062 | 2,039,395 | 5,765,698 | 144,142 |
| **2009** | 66,280 | 396,835 | 356,881 | 690,545 | 420,012 | 324,157 | 107,289 | 196,142 | 2,558,141 | 7,227,056 | 180,676 |
| **2010** | 153,978 | 369,830 | 274,246 | 540,667 | 716,531 | 182,090 | 289,634 | 323,725 | 2,850,701 | 8,156,500 | 203,913 |
| **2011** | 173,101 | 79,060* | 42,289 | 322,704 | 313,745 | 117,938 | 64,295* | 153,066 | 1,266,198 | 6,386,822 | 159,671 |
| **2012** | 96,356 | 341,478 | 411,072 | 302,811 | 92,340 | 95,299 | 20,018* | 66,343* | 1,425,717 | 8,106,883 | 202,672 |
| **2013** | 239,699 | 539,788 | 307,409 | 472,562 | 442,786 | 96,733 | 22,954 | 19,721* | 2,141,652 | 10,163,182 | 254,080 |
| **2014** | 444,332 | 238,595 | 515,824 | 913,413* | 533,299 | 131,857 | 1,155* | 87,315 | 2,865,790 | 10,957,469 | 273,937 |
| **2015** | 188,145* | 295,674 | 389,139 | 581,203 | 339,357 | 29,199 | 12,442* | 24,493 | 1,859,652 | 10,660,411 | 266,510 |
| **2016** | 73,516 | 343,780 | 312,313 | 1,068,979 | 190,163 | 46,330 | 3,775* | 39,759* | 2,078,615 | 13,424,789 | 335,620 |
| **2017** | 635,828 | 141,132 | 218,410 | 405,434 | 569,177 | 32,230 | 18,751* | 22,260* | 2,043,222 | 13,641,858 | 341,046 |
| **2018** | 77,951 | 330,372* | 74,530 | 163,132 | 385,282 | 8,927 | 18,372* | 8,186 | 1,066,752 | 9,568,827 | 239,221 |
| **2019** | 168,766 | 369,450 | 503,529 | 635,866 | 311,363 | 24,065 | 779* | 27,215* | 2,041,033 | 13,348,136 | 333,703 |
| **2020** | 184,653 | 228,996 | 376,271 | 491,869 | 309,379 | 46,617 | 44,088 | 63,372 | 1,745,245 | 14,626,537 | 365,663 |
| **2021** | 518,470 | 748,308 | 490,330 | 770,796 | 606,685 | 134,448 | 48,258* | 27,948 | 3,345,243 | 21,985,594 | 549,640 |
| **2022** | 442,457 | 435,013 | 354,364 | 789,620 | 486,833 | 58,142 | 23,546 | 106,959* | 2,696,934 | 24,355,262 | 608,882 |

**Table 5. Tautog recreational harvest by state in pounds, 1996-2022**.
Source: MRIP (calibrated estimates), queried June 22, 2023. *indicates PSE above 50

| Year | MA | RI | CT | NY | NJ | DE | MD | VA | Coastwide Harvest |
|---|---|---|---|---|---|---|---|---|---|
| **1996** | 1,039,911 | 659,785 | 490,239 | 291,482 | 2,681,850 | 350,297 | 98,324* | 2,579,379 | 8,191,267 |
| **1997** | 308,098 | 666,065 | 215,724 | 749,252* | 1,712,208 | 440,518 | 497,161 | 644,872 | 5,233,898 |
| **1998** | 310,600 | 605,908 | 391,933 | 485,810 | 70,731* | 659,866 | 69,541* | 972,295 | 3,566,684 |
| **1999** | 1,489,331 | 788,279 | 153,339* | 1,509,978 | 895,556 | 1,049,562 | 42,003* | 402,028 | 6,330,076 |
| **2000** | 1,301,437 | 689,698 | 256,201* | 662,491* | 3,756,593 | 692,466 | 161,426* | 241,231 | 7,761,543 |
| **2001** | 1,052,175* | 392,503 | 205,109 | 506,301 | 2,502,115 | 240,770 | 168,595* | 168,103 | 5,235,671 |
| **2002** | 994,467 | 743,409 | 811,658 | 4,428,842 | 1,530,757 | 948,850 | 140,672 | 385,679 | 9,984,334 |
| **2003** | 527,044 | 1,388,657 | 1,180,217 | 875,271 | 639,109 | 358,999 | 59,071 | 573,623 | 5,601,991 |
| **2004** | 213,380* | 1,590,436* | 144,278 | 1,687,077 | 639,685 | 563,332 | 41,259* | 1,624,091 | 6,503,538 |
| **2005** | 744,036 | 1,575,454 | 290,848 | 566,375 | 333,101 | 357,682 | 167,633 | 663,938 | 4,699,067 |
| **2006** | 484,094 | 1,130,146 | 1,589,614 | 1,002,049 | 1,443,680 | 599,179 | 106,148* | 858,131 | 7,213,041 |
| **2007** | 260,548* | 1,173,787 | 2,109,801 | 1,923,067 | 2,073,632 | 598,291 | 270,530 | 622,935 | 9,032,591 |
| **2008** | 230,549* | 1,385,061 | 1,077,399 | 2,238,161 | 1,261,010 | 575,319 | 119,209 | 870,249 | 7,756,957 |
| **2009** | 236,974 | 1,648,614 | 1,353,957 | 3,057,551 | 1,273,529 | 1,034,484 | 277,124 | 892,873 | 9,775,106 |
| **2010** | 506,622 | 1,933,773 | 1,073,576 | 1,818,920 | 1,864,817 | 464,859 | 920,773 | 1,246,454 | 9,829,794 |
| **2011** | 803,546 | 328,959* | 137,565* | 1,284,037 | 1,008,756 | 380,758 | 189,361* | 604,361 | 4,737,343 |
| **2012** | 403,108 | 1,512,425 | 2,093,847 | 1,285,933 | 312,531 | 341,015 | 62,097* | 252,111* | 6,263,067 |
| **2013** | 860,594 | 2,602,962 | 1,290,726 | 2,207,750 | 1,530,776 | 341,896 | 81,662 | 75,449* | 8,991,815 |
| **2014** | 1,623,717 | 1,017,780 | 2,274,293 | 4,188,165* | 1,849,045 | 485,332 | 3,544* | 365,657* | 11,807,533 |
| **2015** | 1,041,058* | 1,105,259 | 1,594,233 | 2,153,150 | 1,100,117 | 100,302 | 45,067* | 100,143* | 7,239,329 |
| **2016** | 317,006 | 1,290,428 | 1,368,363 | 4,514,164 | 582,199 | 164,887 | 15,059* | 126,135* | 8,378,241 |
| **2017** | 2,883,015 | 600,869 | 908,162 | 1,393,812 | 1,381,992 | 103,000 | 59,918* | 88,229* | 7,418,997 |
| **2018** | 300,067 | 1,075,131* | 295,758 | 536,332 | 1,091,046 | 30,240 | 54,332* | 25,766 | 3,408,672 |
| **2019** | 646,031 | 1,483,123 | 2,133,656 | 2,455,837 | 908,871 | 87,348 | 2,680* | 98,011* | 7,815,557 |
| **2020** | 692,588 | 853,470 | 1,462,227 | 1,733,995 | 1,010,011 | 154,065 | 148,760 | 235,532 | 6,290,648 |
| **2021** | 1,895,685 | 2,623,172 | 2,153,889 | 3,058,499 | 2,772,464 | 479,070 | 138,986* | 89,980 | 13,211,745 |
| **2022** | 1,446,707 | 1,617,445 | 1,279,025 | 2,614,264 | 1,275,564 | 171,034 | 70,777 | 360,320* | 8,835,136 |

**Table 6. Commercial landings for tautog in pounds, by state, 1996-2022.**

Source: ACCSP Data Warehouse and State Compliance Reports. 2022 Landings are preliminary.

| Year | MA | RI | CT | NY | NJ | DE | MD | VA |
|---|---|---|---|---|---|---|---|---|
| **1996** | 32,579 | 64,817 | 33,327 | 105,466 | 89,435 | 1,599 | 3,622 | 26,137 |
| **1997** | 64,240 | 39,601 | 14,519 | 78,228 | 49,726 | 841 | 7,663 | 25,471 |
| **1998** | 91,319 | 20,304 | 6,905 | 68,892 | 42,426 | 1,715 | 5,682 | 14,770 |
| **1999** | 75,619 | 26,090 | 12,961 | 37,886 | 27,307 | confid | 6,489 | 20,901 |
| **2000** | 96,001 | 43,719 | 8,504 | 39,953 | 39,636 | confid | 3,896 | 14,794 |
| **2001** | 84,330 | 56,065 | 22,259 | 62,795 | 60,152 | confid | 4,591 | 14,587 |
| **2002** | 148,073 | 50,007 | 26,781 | 60,805 | 36,605 | confid | 5,010 | 22,834 |
| **2003** | 86,205 | 54,650 | 40,784 | 72,264 | 66,766 | confid | 5,213 | 10,705 |
| **2004** | 88,192 | 36,581 | 26,037 | 76,606 | 51,057 | 3,064 | 6,049 | 13,079 |
| **2005** | 99,344 | 42,838 | 24,053 | 52,525 | 61,163 | confid | 4,338 | 5,667 |
| **2006** | 147,609 | 47,261 | 16,841 | 71,683 | 58,119 | confid | 5,411 | 8,533 |
| **2007** | 95,820 | 63,441 | 30,002 | 73,797 | 62,979 | 2,814 | 3,297 | 8,588 |
| **2008** | 73,867 | 48,027 | 20,160 | 88,571 | 63,958 | 2,253 | 2,964 | 10,946 |
| **2009** | 54,703 | 50,920 | 21,194 | 87,289 | 14,591 | 2,116 | 1,638 | 11,132 |
| **2010** | 75,317 | 44,054 | 16,948 | 93,153 | 49,213 | confid | 1,285 | 6,077 |
| **2011** | 57,787 | 47,426 | 14,784 | 82,761 | 45,865 | confid | confid | 14,590 |
| **2012** | 67,870 | 50,126 | 6,233 | 76,373 | 20,831 | 1,444 | confid | 13,870 |
| **2013** | 70,157 | 53,428 | 5,887 | 110,849 | 22,079 | confid | 1,458 | 11,776 |
| **2014** | 63,191 | 53,384 | 5,164 | 121,538 | 31,665 | confid | confid | 7,545 |
| **2015** | 61,752 | 47,140 | 7,249 | 111,925 | 17,538 | 2,108 | 1,173 | 6,937 |
| **2016** | 58,095 | 50,680 | 7,651 | 144,650 | 13,367 | 2,083 | 1,098 | 6,252 |
| **2017** | 66,481 | 52,844 | 8,485 | 231,644 | 6,551 | 1,372 | confid | 5,165 |
| **2018** | 61,055 | 51,451 | 7,341 | 186,108 | 1,559 | 654 | 273 | 1,349 |
| **2019** | 67,021 | 46,562 | 18,651 | 289,746 | 2,512 | 646 | confid | 1,982 |
| **2020** | 63,405 | 52,651 | 11,644 | 181,639 | 1,941 | 585 | confid | 2,210 |
| **2021** | 68,865 | 50,164 | 16,504 | 283,872 | 2,219 | confid | confid | 2,196 |
| **2022** | 70,198 | 51,919 | 16,409 | 397,924 | 1,730 | confid | confid | 3,770 |

**Table 7. State recreational regulations implemented for tautog in the 2022 fishing year.**

| STATE | SIZE LIMIT | POSSESSION LIMITS (fish/person/day) | OPEN SEASONS (dates inclusive) |
|---|---|---|---|
| Massachusetts | 16” min | 3 | Apr 1-May 31 |
| | | 1<br>3 | Jun 1-Jul 31<br>Aug 1-Oct 14 |
| | | 5 | Oct 15-Dec 31 |
| | | (10 fish/day/vessel max for private/rental mode) | |
| Rhode Island | 16” min; only one fish allowed above 21” | 3 | Apr 1 – May 31 |
| | | 3 | Aug 1 – Oct 14 |
| | | 5 | Oct 15 – Dec 31 |
| | | (10 fish/day/vessel max for private/rental mode) | |
| Connecticut | 16” min | 2 | Apr 1 – Apr 30 |
| | | 2 | July 1 – Aug 31 |
| | | 3 | Oct 10 – Nov 28 |
| New York | 16” min | LIS: 2 | Apr 1- Apr 30 |
| | | LIS: 3 | Oct 11-Dec 9 |
| | | NY Bight: 2 | Apr 1- Apr 30 |
| | | NY Bight: 4 | Oct 15-Dec 22 |
| New Jersey | 15” min | 4 | Jan 1 – Feb 28 |
| | | 4 | Apr 1 – Apr 30 |
| | | 1 | Aug 1 – Nov 15 |
| | | 5 | Nov 16 – Dec 31 |
| Delaware | 16” min | 4 | Jan 1 – May 15 |
| | | | Jul 1 – Dec 31 |
| Maryland | 16” min | 4 | Jan 1- May 15 |
| | | 2 | Jul 1 – Oct 31 |
| | | 4 | Nov 1 – Dec 31 |
| Virginia | 16" min | 4 | Jan 1 – May 15 |
| | | | July 1 – Dec 31 |

**Table 8. State commercial regulations implemented for tautog in the 2022 fishing year.**

| STATE | MINIMUM SIZE LIMIT | POSSESSION LIMITS (number of fish) | OPEN SEASONS | QUOTA (pounds) | GEAR RESTRICTIONS |
|---|---|---|---|---|---|
| Massachusetts | 16" | 40 | Sept 1 – 100% of Quota | 60,986* | Mandatory pot requirements. Area/time closures for specific gear types. |
| Rhode Island | 16" | 10 | Apr 1 – May 31 (42.5%)<br>Aug 1 – Sep 15 (15%)<br>Oct 15 – Dec 31 (42.5%) | 51,348 | Mandatory pot requirements. |
| Connecticut | 16" | 3 (restricted licenses) 10 (all other) | Apr 1 – Apr 30<br>Jul 1 – Aug 31<br>Oct 8 – Dec 24 | - | Mandatory pot requirements. |
| New York | 15" | 25<br>(10 fish w/ lobster gear and when 6 lobsters are in possession) | LIS: May 7 – July 31; Sept 1- Nov 23<br>NY Bight: Apr 16 –Jan 25 | - | Mandatory pot requirements. Gill or trammel net is prohibited. |
| New Jersey | 15" | *> 100 lb requires directed fishery permit;<br><= 100 lb requires either directed or non-directed fishery permit* | Jan 1 – May 1<br>Sept 19-Dec 31 | 103,000 | Mandatory pot requirements. |
| Delaware | 16" | 4 | Jan 1 – May 15<br>July 1 – Dec 31 | - | Mandatory pot requirements. |
| Maryland | 16" | 4<br>2<br>4 | Jan 1-May 15<br>July 1 – Oct 31<br>Nov 1- Dec 31 | - | Mandatory pot requirements. |
| Virginia | 15" | - | Jan 1 – Jan 21<br>Mar 1 – May 15<br>Nov 1 – Dec 31 | - | Mandatory pot requirements. Pots prohibited in tidal waters. |

*Quotas as adjusted from their base due to overages in 2021 (Massachusetts' base quota = 64,753 lbs).

**Table 9. Number of age/length samples by state in 2022.** Amendment 1 requires all states to collect 200 samples per year. Source: State compliance reports

| State | 2022 Samples | Sample Sources |
|---|---|---|
| **MA** | 503 lengths; 314 ages | Commercial Fishery Market sampling; Pot sampling; Rod and Reel sampling; F-I trawl survey; Lobster ventless trap survey |
| **RI** | 226 lengths and ages | Recreational fishery sampling, RIDMF Trawl Survey, and Ventless Trap Survey |
| **CT** | 302 lengths and ages | Long Island Sound Trawl Survey |
| **NY** | 1,213 lengths; 267 ages | Commercial markets and recreational sampling; fishery independent surveys |
| **NJ** | 271 lengths; 269 ages | Recreational fishery; NJ Ocean Trawl Survey and Artificial Reef Ventless Trap Survey |
| **DE** | 200 lengths and ages | Recreational sampling |
| **MD** | 424 lengths; 211 ages | Recreational sampling; Resource Assessment Trawl, Coastal Bays Beach Seine, and Submerged Aquatic Vegetation Habitat surveys |
| **VA** | 181 lengths and ages | Commercial markets and recreational sampling |

**Table 10.** Ongoing fishery-independent surveys, as of 2022. Shaded cells indicate survey data used in the 2021 stock assessment update.

| State | Areas Surveyed | Survey Type | # of Survey Stations | Dates of Survey | Initial Year |
|---|---|---|---|---|---|
| MA | MA territorial waters | Trawl | 1 station per 19 square nautical miles | May and September | 1978 |
| | Buzzards Bay, south of the Elizabeth Islands, and portions of Rhode Island Sound | Trap | 42 stations twice per month | June through September | 2015 |
| | Buzzards Bay and Vineyard Sound | Rod & Reel | 48 stations per month | Spring (Apr-May)<br>Fall (Sep-Nov) | 2016 (fall) |
| RI | Narragansett Bay | Trawl | 13 stations per month | June through October | 1990 |
| | Narraganset Bay, Rhode Island Sound and Block Island Sound | Trawl | 44 stations | Spring (April-May)<br>Fall (Sept/October) | 1979 |
| | Narragansett Bay Beach | Seine | 18 stations per month | June through October | 1988 |
| | Coastal Ponds | Seine | 24 stations in 8 coastal ponds per month | May through October | 1994 |
| | Narragansett Bay | Trap | 10 5-pot trawls set per month | April through October | 2013 |
| CT | Long Island Sound (CT and NY waters) | Trawl | 40 stations per month | Spring (April-June)<br>Fall (Sept-Oct) | 1984 |
| NY | Peconic Bay | Trawl | 16 stations per week | May through October | 1987 |
| | Western Long Island (Little Neck, Manhasset Bay, Jamaica Bay) | Seine | 5-10 sites, semi-monthly | May through October | 1984 |
| | Long Island Sound | Trap | 35 stations per week | May through October | 2007 |
| | East End Seine | Seine | 30 stations per month | June through October | 2021 |
| NJ | Nearshore ocean waters between Cape May and Sandy Hook | Trawl | 30 tows in Jan; 39 tows per month in Apr, Jun, Aug & Oct | Jan, Apr, June, Aug & Oct | Aug-88 |
| | Nearshore ocean waters within Sea Girt, Manasquan Inlet and Little Egg Artificial Reefs | Trap | 48-54 traps set each Spring, Summer, Fall sampling periods | Spring (March-April); Summer (June-August); Fall (October-November) | 2016 |
| DE | Adult Finfish Abundance Trawl Survey | Trawl | 9 stations per month | March through December | 1990 |
| | Inland Bays Juvenile Trawl Survey | Trawl | 49 sites per month | April through October | 1980 |
| | Ventless Trap Survey | Trap | 13 stations per two weeks | May through December | 2018 |
| MD | Maryland Coastal Bays | Trawl | 20 stations per month | April through October | 1989 |
| | | Seine | 19 stations per month | June, September | 1989 |
| | Submerged Aquatic Habitat in Sinepuxent Bay | Seine | 5 zones | September only | 2015 |
| VA | Fisheries independent surveys do not collect tautog in quantities needed for monitoring purposes | | | | NA |

**Table 11.** Ongoing fishery-dependent monitoring in each state, as of 2022

| State | Fishery Sector | Data Collected | Data Source |
|---|---|---|---|
| MA | Commercial | Length, Weight | Market sampling |
| RI | Recreational | Age, Length | Recreational harvest sampling |
| | Commercial | Age | Fish Pot Survey |
| NY | Commercial | Age, Length | Markets and dockside sampling |
| NJ | Commercial | Age, Length, Weight, Sex | Commercial vessel sampling |
| | Recreational | Age, Length, Sex | Party/charter boat sampling (retained fish) |
| DE | Recreational | Age, Length | Recreational harvest sampling |
| MD | Recreational | Age, Length, Weight, Sex | Charter boat hook and line sampling |
| VA | Commercial | Age, Length, Weights | Samples from commercial hook-and-line gear, haul seines, pots/traps, pound nets |
| | Recreational | Age, Length, Weights | VMRC Marine Sport Fish Collection Project |
| | | Tagging data | Game Fish Tagging Program |

*Surveys as part of MRIP occur in all states and are not included in the table. All commercial landings monitoring systems are also excluded.

**Table 12.** Tagging Data collected in 2022. Amendment 1 requires all states to implement a commercial harvest tagging program. Source: state Compliance reports.

| State | Number of Participants Receiving Tags | Number of Tags Issued | Number of Tags Returned | Number of Tags Used | Tags Reported Lost | Tags Reported Damaged | Number of Tags Unaccounted for |
|---|---|---|---|---|---|---|---|
| MA | 145 | 33,850 | 10,788 | 21,527* | N/A | N/A | 1,535 |
| RI | 285 | 29,136 | 11,145 | 12,886 | 542 | 29 | 4,534 |
| CT | 79 | 6,850 | 2,802 | 3,680 | 126** | N/A | 242 |
| NY | 481 | 182,950 | 52,020 | 122,411 | 1,986 | 41 | 6,492 |
| NJ | 9 | 1,275 | 721 | 529^ | | | 25^ |
| DE | 2 | C | C | C | N/A | N/A | C |
| MD | 2 | C | C | C | N/A | N/A | C |
| VA | 30 | 2,675 | 1,752 | 759 | N/A | N/A | 164 |

*Estimate (based on average weight of reported landings).
**Reported number is mostly lost tags but also includes damaged and stolen tags.
^Preliminary estimate due to some tags pending return.

Atlantic States Marine Fisheries Commission

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

# MEMORANDUM

July 21, 2023

**Tautog Technical Committee (TC) Meeting Summary**

**TC Attendees**: Craig Weedon (MD, Chair), Sam Truesdell (MA, Vice Chair), Lindy Barry (NJ), Sandra Dumais (NY), Josh McGilly (VA), Dave Ellis (CT), and Coly Ares (RI)

**Staff**: James Boyle and Katie Drew

**Other Attendees**: Rachel Sysak (NY DEC)

The Commission's Tautog Technical Committee (TC) met via conference call on Friday, July 21st, to review the results of the NY feasibility study on alternative commercial tag types and placements.

Background

The purpose of this Technical Committee meeting was the continued discussion of reported live market fish quality and mortality issues presumably associated with the commercial tagging requirements. During the previous Technical Committee meeting on May 16th, the TC discussed the recent Policy Board approval for NY to tag tautog in various locations on the fish for the commercial season, and to conduct tagging experiments with different tags.

Review NY Feasibility Study Results

Rachel Sysak presented the findings of the experiments, which focused on three different tag types: the current commercial tag from National Band and Tag (NBT), a smaller version of the commercial tag from the same supplier, and a cinch tag purchased from Floy Tag and Manufacturing. Additionally, three tagging locations were considered: the base of the caudal fin, the dorsal fin rays, and the flesh just below the caudal fin rays. The study was done on a sample of 10 fish, with all 10 receiving the cinch tag and the others receiving different combinations of national band tags in the caudal peduncle and fin rays. The fish were held for 15 days in a cage anchored to a dock at a marine pier. The results of the study showed that all of the tag treatments resulted in damage that was equal to greater than the current tagging system. NY recommended that the smaller version of the NBT tag be evaluated for further consideration. After discussing potential methods to reduce the unique characters needed on each tag, the TC is recommending that the Board consider tasking the TC with evaluating the feasibility of converting to the smaller tag. If feasible, NY plans to conduct a study with industry to evaluate the effectiveness of the tag in current commercial holding tanks to be presented to the Board at the Annual Meeting.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Marine Resources
123 Kings Park Blvd. (Nissequogue River State Park), Kings Park, NY 11754
P: (631) 444-0430 | F: (631) 444-0434 | FW.Marine@dec.ny.gov
www.dec.ny.gov

# 2023 Commercial Tautog Tag Feasibility Study

In response to reported issues with the commercial tautog tagging program, the New York State Department of Environmental Conservation (NYDEC) conducted feedback surveys after the 2021 and 2022 seasons. The surveys revealed that problems such as tags falling out, fish damage, and necrotic lesions were negatively affecting the commercial tautog industry. To address these concerns, a feasibility study was conducted to explore alternative tag types and tagging locations in preparation for a potential full study during the fall of 2023. The tag types and locations in this study were approved for exploration by Atlantic States Marine Fisheries Commission via conference call on 4/12/2023.

The feasibility study focused on three different tag types: the current commercial tag from national band and tag, a smaller version of the commercial tag from the same supplier, and a cinch tag purchased from Floy Tag and Manufacturing. Additionally, three tagging locations were considered: the base of the caudal fin, the dorsal fin rays, and the flesh just below the caudal fin rays.

Ten tautog specimens were purchased from a commercial NY market, comprising 5 males and 5 females, with sizes ranging from 376mm to 428mm. All fish had been previously tagged by the harvester with a commercial tag in their gillplate. The tautog were collected on 6/8/2023 after being at the market for roughly ten days prior, tagged as indicated in Table 1, and kept in a submerged fish cage attached to a dock in Mattituck, NY, until 6/22/2023 for a total of 15 days.

Table 1. Tag Treatments

| | **Cinch Tag** | **Dorsal Tag** | **Caudal Tag** |
|---|---|---|---|
| Fish 1 | X | Small Tag | |
| Fish 2 | X | Large Tag | |
| Fish 3 | X | Large Tag | |
| Fish 4 | X | Small Tag | |
| Fish 5 | X | Large Tag | Large Tag |
| Fish 6 | X | Large Tag | Large Tag |
| Fish 7 | X | | Small Tag |
| Fish 8 | X | | Large Tag |
| Fish 9 | X | | Large Tag |
| Fish 10 | X | | Small Tag |

Results from the study showed that all of the tag treatments resulted in damage to the fish after being held for 15 days. The cinch tag caused significant damage to all fish, rendering it unsuitable for further exploration. Out of the six fish tagged in the dorsal fin, two tags tore out

entirely, and the other four fish experienced minor to moderate damage from the tags. Similarly, all six fish with caudal fin tags displayed minor to moderate damage, and some seemed to be developing potential lesions. The current commercial tag used in the gillplate also caused minor damage in eight of the fish. Results for each fish are shown in the table below.

Table 2. Tag Status at End of Feasibility Study

| | Cinch Tag Status | Dorsal Tag Status | Caudal Tag Status |
|---|---|---|---|
| Fish 1 | Present, dug in both sides | Missing, damage minor | |
| Fish 2 | Present, dug in both sides | Missing, damage moderate | |
| Fish 3 | Present, dug in both sides | Present, damage minor | |
| Fish 4 | Present, dug in both sides | Present, damage minor | |
| Fish 5 | Present, dug in both sides | Present, damage moderate | Present, damage moderate |
| Fish 6 | Present, dug in both sides | Present, damage minor | Present, damage moderate |
| Fish 7 | Present, dug in both sides | | Present, damage minor |
| Fish 8 | Present, dug in both sides | | Present, damage moderate |
| Fish 9 | Present, dug in both sides | | Present, damage moderate |
| Fish 10 | Present, dug in both sides | | Present, damage moderate |

Given these findings, none of the tag treatments or locations used in this feasibility study accomplished the goals of the tautog tagging program, causing equivalent or greater harm than the current tag. As a result, we seek recommendations from the technical committee on how best to proceed. Further assessment and analysis are required to identify more suitable tagging methods, or alternatives to the program, that will safeguard the health of the tautog population while ensuring the sustainability of the commercial tautog industry.

Below are pictures demonstrating a sample of the results: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# Atlantic States Marine Fisheries Commission

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


**Law Enforcement Committee**
**Meeting Summary**

July 19, 2023

**Committee Members:** Jason Snellbaker, Chair, NJ; Delayne Brown, NH; Keith Williams, CT; Sean Reilly / Thomas Gadomski, NY; Chris Baker, MA; Nicholas Couch, DE; Jeff Mercer, RI; Matthew Corbin, MD; Jason Walker, NC; Robert Hogan, NOAA GC; Lennie Day, USCG; Wayne Hettenbach, USDOJ; Eric Marek, USFW

**ASMFC Staff:** Kurt Blanchard; Emilie Franke, James Boyle, Madeline Musante

**Other Participants:** Raymond Kane

The Law Enforcement Committee (LEC) conducted a virtual meeting on July 19, 2023, to discuss the following topics.

## Species Issues

**Atlantic Striped Bass** – The LEC discussed the emergency action taken under Amendment 7 of the Atlantic Striped Bass fishery management plan. Staff presented the results of the subsequent four public hearings in reference to this action. Members of the LEC commented on their observed findings of this action. The consensus was that there was confusion by our constituents on the implementation of the emergency rule between the time of the ASMFC action and state implementation. Further comments were that once the states implemented the rule and with sufficient public outreach the confusion diminished. Generally, members felt that they had experienced good compliance by the fishing community with this rule change. There was repeated concern that some jurisdictions had promulgated and advertised rules for the current fishing year. This has caused an enforcement concern with the inability to effectively enforce the regulatory change.

Staff also briefed the LEC on proposed management changes under draft Addendum II for the 2024 fishing year. Measures such as season and bag limits along with slot limits were discussed. Staff also presented on regional management measures being considered along with the potential for a different set of measures for the For-Hire sector, no-targeting with seasonal closures, fillet rules and mesh restrictions in the gill net fishery.

**Tautog Tagging Study** – The LEC was briefed by staff on state harvester surveys that were completed by the Technical Committee (TC), as well as an assessment by the State of New York to review the tags currently being used and test other types of tags that may be offered as alternative tags for this program. The New York assessment is a three phased approach to assessing the tags considered for use. The first phase is complete and will be presented to the

TC with recommendations for phase 2. The goal behind this study is to identify a tag for use that will not damage a fish in the live market and hold the appropriate information necessary for tracking in the fishery.

In an effort to up update the January 2022 LEC Report to the Tautog Management Board, staff proposed the following questions to the LEC for consideration:

1. **Is the program working to reduce illegal harvest?**

   - **Is there a quantitative or qualitative way to evaluate?**

The consensus was that the tautog tagging requirement is effective in reducing the illegal sale of unreported fish. The rational for this opinion is that officers are seeing fewer fish and violations in the live market, which is attributed to a reduction in the illicit sale of recreationally caught fish. The tagging program has closed a path for illegal distribution and provided a means of accountability with dealers and fisherman. Officers still pursue and document the illegal so called "Back Door" sales of fish, but the main path for distribution has been reduced. The group also discussed the possibility that increased penalties, as implemented in New Jersey, and/or a potential decrease in consumer demand are possible explanations for the reduction in fish and violations.

These findings are subjective in nature as most states do not collect species-specific data. The inability to have consistent data points across all jurisdictions creates a false narrative in our deliberations. Many states can provide the number of citations and or warnings issued for documented violations, but not all states can show the number of inspections or license checks, either commercial or recreational, specific to a species.

2. **What are the areas of concern for compliance?**

   - **Are these outweighing the benefits of the program?**

The main concern for compliance was the specific time of tagging fish. This issue is not new to the tautog tagging requirement and was considered at the time of implementation of the program. Most regulations have identified that commercially caught fish must be tagged at the time of "offload". This was in consideration of having a fisherman required to tag a fish at the time of take, while in the middle of handling gear and/or navigating weather conditions. This becomes problematic when an inspection is being conducted at sea or near shore and the fish are not required to be tagged. Rhode Island recently changed their law to fish needing to be tagged at time of "landing". There was some discussion about a shore-based fishery where neither "Offload nor "Landing" apply, and how time of possession should be considered. There was an additional comment that dealer tagging verses fisher tagging should be considered. The striped bass fishery was used as an example.

The consensus was that any compliance concerns did not outweigh the benefit of the program.

**3. Are the tag issues causing non-compliance?**

The LEC does not think that tag issues are causing non-compliance. A small amount of non-compliance has been observed based on fisherman not respecting the rule. In both New York and New Jersey, officers have witnessed untagged fish at dealers with matching tags adjacent to the respective fish. An additional violation was documented by Rhode Island of a dealer who was in possession of untagged fish. The belief was that this was a three-day limit of fish, sold at one time. With the lack of tags, officers had difficulty in tracing the fish back to the fisherman. Officers commented that they are not seeing the level of damage to fish that are being reported by industry.

**Other Issues**

**Update on the ISFMP Policy Board Meeting –** The LEC was briefed by staff on the July 11, 2023, meeting of the ISFMP Policy Board. Specifically, information about the MAFMC / RSA Program presentation was shared with the committee members. Staff provided a general overview of the discussion and actions taken by this board. At this time, there is no action necessary.

# ATLANTIC STATES MARINE FISHERIES COMMISSION

## REVIEW OF THE INTERSTATE FISHERY MANAGEMENT PLAN

### FOR SPINY DOGFISH
### (*Squalus acanthias)*

### 2021/2022 FISHING YEAR

Prepared by the Plan Review Team

**August 2023**

*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

| | |
|---|---|
| Date of FMP Approval: | November 2002 |
| Amendments: | None |
| Addenda: | Addendum I (November 2005)<br>Addendum II October 2008)<br>Addendum III (April 2011)<br>Addendum IV (August 2012)<br>Addendum V (October 2014)<br>Addendum VI (October 2019) |
| Management Unit: | Entire coastwide distribution of the resource from the estuaries eastward to the inshore boundary of the EEZ |
| States with Declared Interest: | Maine – North Carolina |
| Active Boards/Committees: | 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** | ½ 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 2021 fishing year (May 1, 2021 – April 30, 2022), total U.S. commercial landings based on state compliance reports were estimated at 9.87 million pounds (4,476 metric tons). 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) and is reported by calendar year rather than fishing year. In 2021, recreational harvest of spiny dogfish on the Atlantic coast was estimated at 97,904 fish or an estimated 471,864 pounds[1] (214 metric tons) which is a 79% increase relative to 2020. Calendar year landings estimates for the U.S. commercial and recreational sectors are provided in Table 2.

For 2021, dead discards from the U.S. commercial fishery were not available at the time of this report. Recreational releases for the 2021 calendar year (fish caught by recreational anglers and released back to the water) were estimated at 13.1 million pounds (5,924 metric tons). Applying a 20% post-release mortality rate (NEFSC 2018), 2021 recreational dead discards were estimated at 2.6 million pounds (1,101 metric tons), which is a 52% increase relative to 2020 levels (1.7 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 2021/2022 season was set at 29.56 million pounds. For the northern region, the maximum possession limit was set at 6,000 pounds. Possession limits for states of New York-North Carolina vary by state and are detailed in Table 6.

*Quotas*
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 2021/2022 commercial quotas by region and state. All regions and states harvested within their quota the previous fishing year, therefore no deductions were applied to 2021/2022 quotas. Quota transfers are allowed under Addendum III

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

and until recently have been uncommon. For the 2021/2022 season, North Carolina transferred 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.

Based on compliance report data, commercial landings from the 2021/2022 fishing year were estimated at 9.87 million pounds (4,476 metric tons), which is approximately 33% of the coastwide quota and a 20.7% decrease 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).

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 (2012-2019), 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 2021, Maine issued six EFPs for research and educational purposes. Maine's Department of Marine Resources also used one permit for the 2022 trawl survey, and results will be available in 2023. Rhode Island issued ten EFPs for scientific, educational, and/or biomedical research on spiny dogfish, and two spiny dogfish were collected. New Jersey issued two scientific collection permits that collected 82 spiny dogfish and retained zero.

## 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 requested and qualified for *de minimis* status for the 2022/2023 fishing season (Table 6). New York also requested for *de minimis* status, but their commercial landings (112,070 pounds) represent about 1.14% of the coastwide total.

## VII. Plan Review Team Recommendations

In evaluating compliance with the FMP, the Plan Review Team (PRT) notes that while all states within the management unit satisfied the weekly reporting requirements through either the Standard Atlantic Fisheries Information System (SAFIS) or NOAA Fisheries, the following states did not clearly provide their reporting regulations: Connecticut, New York, 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.

The PRT also noted a concern that Connecticut's regulations are not consistent with the finning prohibition required under Addendum V. Specifically, Addendum V states that "removing any fin of spiny dogfish at-sea is prohibited (including the tail)" and "All spiny dogfish must be landed with fins-naturally-attached to the corresponding carcass." Connecticut's regulations state, "the possession of spiny dogfish fins in the absence of the fish from which removed is prohibited." The PRT believes this language is inconsistent in that it allows fins to be detached at sea as long as the body of the fish is also maintained in possession.

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 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.

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## 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. 2019-2021 U.S. Commercial landings provided through State Compliance Reports and SAFIS. 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 | 17,547,473 | 116,376 | 17,663,849 |
| 2020 | NA | NA | 17,406,324 | 263,594 | 17,669,918 |
| 2021 | NA | NA | 11,847,675 | 471,864 | 12,319,539 |

**Table 3. Total 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 |

**Table 4. Commercial quotas and landings estimates in pounds for May 1, 2021-April 30, 2022 by region and state. There was no adjustment to quotas due to the biomass estimate was below the target.** Due to confidentiality, DE landings have been redacted. Source: State Compliance Reports.

| State | Fixed Percent Allocation | Preliminary Quota | Adjusted Quota | Estimated Landings |
|---|---|---|---|---|
| **Northern Region** | 58.00% | 17,144,556 | 17,144,556 | 4,039,075 |
| **NY** | 2.71% | 800,413 | 800,413 | 112,070 |
| **NJ** | 7.64% | 2,259,728 | 2,259,728 | 1,612,473 |
| **DE** | 0.90% | 264,866 | 264,866 | Confidential |
| **MD** | 5.92% | 1,749,935 | 1,749,935 | 511,959 |
| **VA** | 10.80% | 3,191,020 | 3,691,020 | 3,534,287 |
| **NC** | 14.04% | 4,149,062 | 3,649,062 | 58,634 |
| **Total** | **100%** | | | **9,868,498** |
| | | | **% of quota harvested** | **33%** |
| | | | **% diff. relative to 2020/2021 fishing year landings (12,757,583 lbs.)** | **-23%** |

**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 | 371 | 2021 spring survey caught 1 spiny dogfish at a total weight of 0.36 kg. 2021 fall survey caught 370 spiny dogfish at a total weight of 583.73 kg. |
| RI DFW, Coastal Trawl Survey | 0 | Includes 2021 Fall Survey, Monthly Survey data from months corresponding to FY 2021-FY2022, and preliminary 2022 Spring Survey |
| CT Long Island Sound Trawl Survey | 0 | During 2021 the Long Island Sound Trawl Survey caught no spiny dogfish in either the spring or fall. |
| NY DEC Multispecies Ocean Trawl Survey | 149.9 lbs | |
| NJ Ocean Stock Assessment (trawl) Survey | NA | Did not sample due to COVID-19 pandemic. |
| DE Bay Bottom Trawl (30- and 16-foot) | 225 | Due to restrictions associated with the COVID-19 pandemic, the 16-ft trawl survey was not conducted during May of 2020. |
| NC DMF Gill Net Survey | 0 | 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 | 5,000 |
| New Hampshire | Y | NA | NA | Y | 7,000 |
| Massachusetts | Y | NA | NA | Y | 6,000 |
| Rhode Island | Y | NA | Y | Y | 6,000 |
| Connecticut | Y | NA | NA | Y* | 6,000 |
| New York | Y | Y | NA | Y | 5,000 |
| New Jersey | Y | NA | NA | Y | 6,000 |
| Delaware | Y | Y | NA | Y | 10,000[#] |
| Maryland | Y | NA | NA | Y | up to 10,000 |
| Virginia | Y | NA | NA | Y | 6,000 |
| 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.

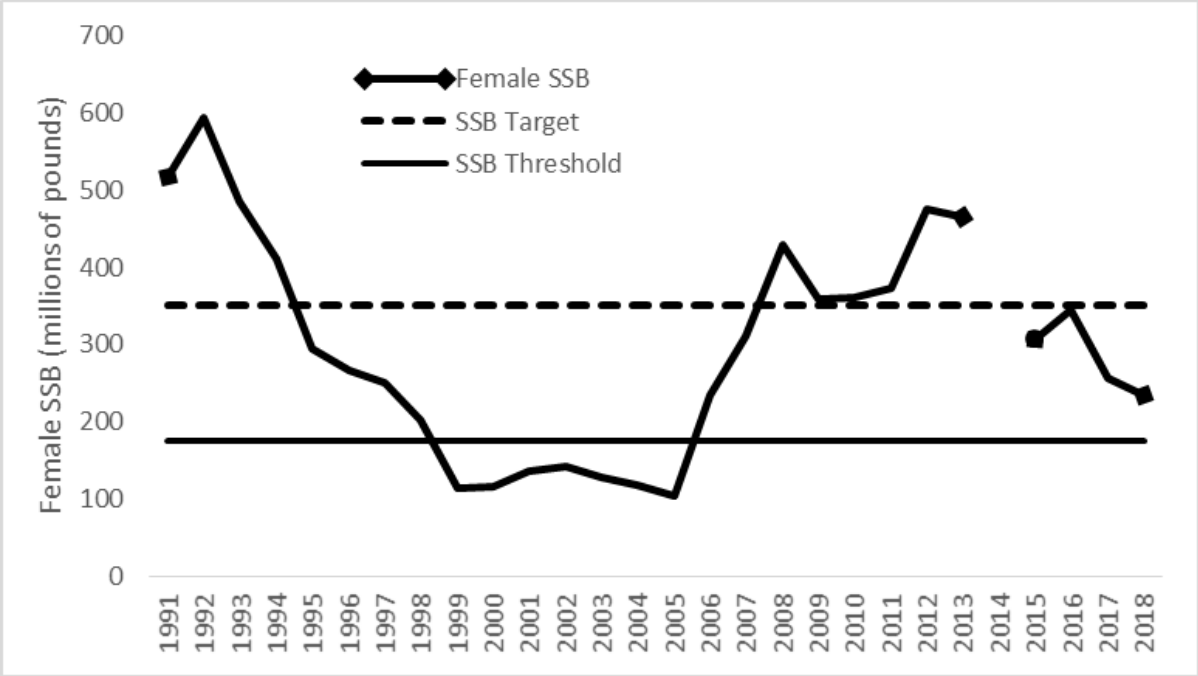
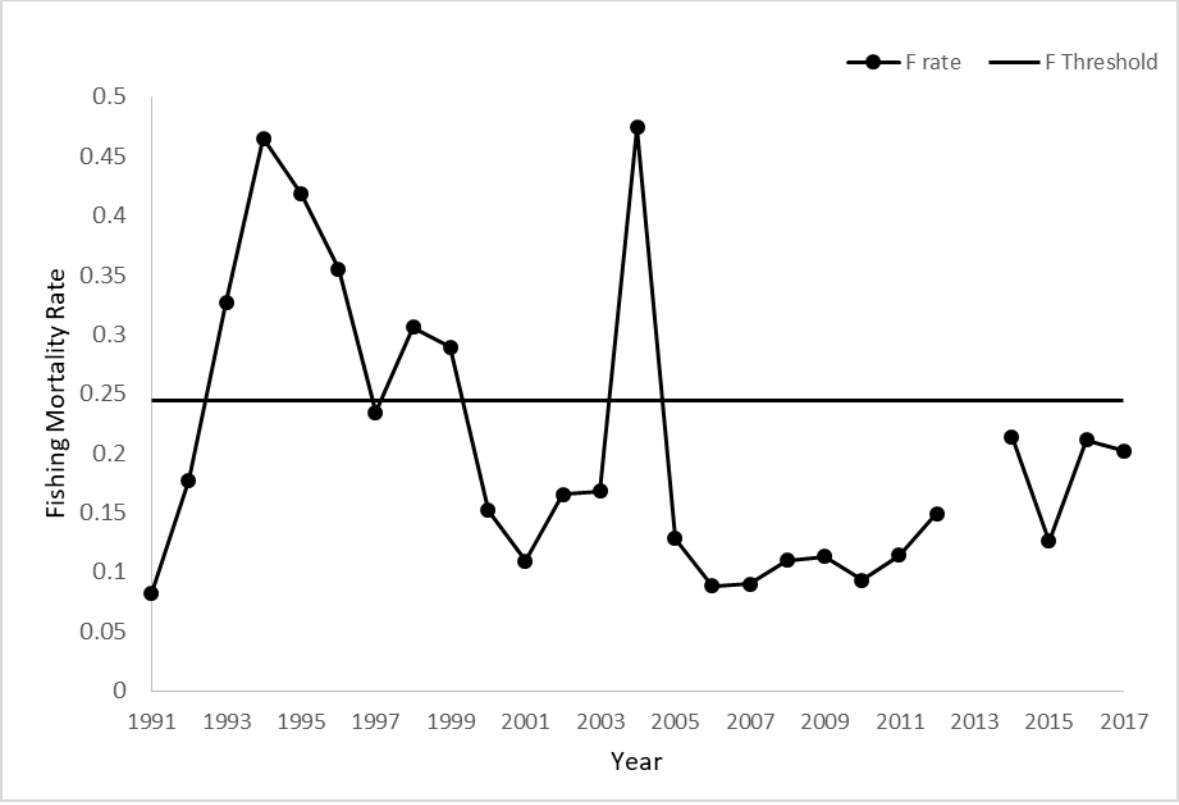



**Figure 2. Fishing mortality rates in the spiny dogfish fishery, 1991-2017**. Source: NEFSC 2018.



# Atlantic States Marine Fisheries Commission

## ISFMP Policy Board

*August 3, 2023*
*9:15 -10:45 a.m.*
*Hybrid Meeting*

## Draft Agenda

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

| | | |
|---|---|---|
| 1. | Welcome/Call to Order *(S. Woodward)* | 9:15 a.m. |
| 2. | Board Consent *(S. Woodward)*<br>• Approval of Agenda<br>• Approval of Proceedings from May 2023 | 9:15 a.m. |
| 3. | Public Comment | 9:20 a.m. |
| 4. | Executive Committee Report (*S. Woodward*) | 9:30 a.m. |
| 5. | Review and Consider Changes to Conservation Equivalency: Policy and Technical Guidance Document (*T. Kerns*) **Possible Action** | 9:40 a.m. |
| 6. | Update on the Risk and Uncertainty Policy Development (*J. Patel*) | 10:15 a.m. |
| 7. | Report from the Atlantic Coast Fish Habitat Partnership (*S. Kaalstad*) | 10:25 a.m. |
| 8. | Review Noncompliance Findings, if necessary **Action** | 10:35 a.m. |
| 9. | Other Business | 10:40 a.m. |
| 10. | Adjourn | 10:45 a.m. |

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

# MEETING OVERVIEW

**ISFMP Policy Board**
**Thursday August 3, 2023**
**9:15-10:45 a.m.**
**Hybrid Meeting**

| | | |
|---|---|---|
| Chair: Spud Woodward (GA)<br>Assumed Chairmanship: 10/21 | Vice Chair: Joe Cimino (NJ) | Previous Board Meetings:<br>May 3, 2023 |
| Voting Members: ME, NH, MA, RI, CT, NY, NJ, PA, DE, MD, DC, PRFC, VA, NC, SC, GA, FL, NMFS, USFWS (19 votes) | | |

**2. Board Consent**

- Approval of Agenda
- Approval of Proceedings from May 3, 2023

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

**4. Executive Committee Report (9:30- 9:40 a.m.)**

**Background**

- The Executive Committee will meet on August 2, 2023

**Presentations**

- S. Woodward will provide an update of the Executive Committee's work

**Board action for consideration at this meeting**

- none

**5. Review and Consider Changes to Conservation Equivalency: Policy and Technical Guidance Document (9:40-10:20 a.m.) Possible Action**

**Background**

- The Executive Committee (EC) tasked the Management and Science Committee (MSC) to review the *Conservation Equivalency: Policy and Technical Guidance Document*. The Executive Committee requested a series of question regarding conservation equivalency. A sub group of the MSC members and others addressed the EC*'s questions. Based on these questions and guidance from the EC staff has revised the*

| |
|---|
| *guidance document (**supplemental materials**). The changes provide more structure and details to the document.* |
| **Presentations**<br>• T. Kerns will review changes to the *Conservation Equivalency: Policy and Technical Guidance Document*. |
| **Board action for consideration at this meeting**<br>• Approve changes to the *Conservation Equivalency: Policy and Technical Guidance Document*. |

| **6. Update on the Risk and Uncertainty Policy Development (10:15-10:25 a.m.)** |
|---|
| **Background**<br>• The Policy Board has supported the development of the Risk and Uncertainty Policy Decision Tool. The Risk and Uncertainty Policy Workgroup refined the criteria for the Risk and Uncertainty Decision Tool by testing it with both striped bass and tautog as examples.<br>• The was Board was not ready to approve a draft Risk and Uncertainty Policy and asked for an additional a test run. At the time, it was determined cobia would be the best species candidate. After review of the red drum stock assessment progress, the WG has found red drum could be a species candidate to test run the decision tool. The red drum assessment will be completed at least a year a head of cobia. |
| **Presentations**<br>• J. Patel will present an update on the policy development |
| **Board action for consideration at this meeting**<br>• None |

| **7. Committee Reports (10:25-10:35 a.m.)** |
|---|
| **Background**<br>• The Atlantic Coast Fish Habitat Partnership will meet the week of July 24, 2023. |
| **Presentations**<br>• S. Kaalstad will provide an update of the ACFHP's work |
| **Board action for consideration at this meeting**<br>• None |

**8. Review Non-Compliance Findings, if necessary Action**

**9. Other Business**

**10. Adjourn**

Atlantic States Marine Fisheries Commission

# DRAFT CONSERVATION EQUIVALENCY:
## Policy and Technical Guidance Document

First Edition Approved May 2004
Revised and Approved October 2016
Draft Revisions for Review August 2023

## Introduction

The purpose of this document is to provide policy and technical guidance on the application of conservation equivalency in interstate fisheries management programs developed by the Atlantic States Marine Fisheries Commission. The document provides specific guidance on development, submission, review and approval of conservation equivalency proposals.

## Background

The Atlantic States Marine Fisheries Commission (Commission) employs the concept of conservation equivalency in a number of interstate fishery management programs. Conservation equivalency allows states/jurisdictions (hereafter states) flexibility to develop alternative regulations that address specific state or regional differences while still achieving the goals and objectives of Interstate Fishery Management Plans (FMPs). Allowing states to tailor their management programs in this way avoids the difficult task of developing one-size-fits-all management measures while still achieving equivalent conservation benefits to the resource.

Conservation equivalency is currently defined in the Interstate Fisheries Management Program (ISFMP) Charter as:

> *"Actions taken by a state which differ from the specific requirements of the FMP, but which achieve the same quantified level of conservation for the resource under management. One example can be, various combinations of size limits, gear restrictions, and season length can be demonstrated to achieve the same targeted level of fishing mortality. The appropriate Management Board/Section will determine conservation equivalency." The application of conservation equivalency is described in the document Conservation Equivalency Policy and Technical Guidance Document*

In practice, the Commission frequently uses the term "conservation equivalency" in different ways depending on the language included in the plan. Due to concerns over the lack of guidance on the use of conservation equivalency and the lack of consistency between fishery management programs, the ISFMP Policy Board approved a policy guidance document on conservation equivalency in 2004. In 2016, the Policy Board recognized some of the practices of the Commission regarding conservation equivalency had changed and revised the guidance. The Policy Board is again considering revision to the guidance to include requirements in how conservation equivalency is used.

## General Policy Guidance

The use of conservation equivalency is an integral part of the Commission management process~~. Conservation equivalency is used in 2 ways: (1) in the development of the FMP~~

**Commented [TK1]:** While this path was used in the past it is not something that has been used in the last 10 years or more because of the additional time it adds to the process (needs time for states to develop measures that would be equivalent to the coastwide options in the document)

~~(including implementation plans) and (2)~~ as alternative management programs outside of the FMP process.

During the development of a management document the Plan Development Team (PDT) should recommend if conservation equivalency should be permitted for that species. The board ~~should~~ will provide a specific determination if conservation equivalency is an approved option for the ~~fishery management plan~~FMP, since conservation equivalency may not be appropriate or necessary for all management programs. The PDT should consider stock status, stock structure, data availability, range of the species, socio-economic information, and the potential for more conservative management when stocks are overfished or overfishing is occurring when making a recommendation on conservation equivalency. During the approval of a management document the Board will make the final decision on the inclusion of conservation equivalency.

**Commented [TK2]:** If this is a requirement will need to change

If conservation equivalency is determined to be appropriate, the conservation equivalency process ~~should~~ will be clearly defined and specific guidance ~~should~~ will be supplied in the fishery management documents. Each of the new fishery management plans, amendments, or addenda ~~should~~ will include the details of the conservation equivalency program, if applicable. The guidance ~~should~~ will include, at a minimum, a list of management measures that can be modified through conservation equivalency, evaluation criteria, review process, and monitoring requirements. ~~If possible, tables including the alternative management measures should be developed and included in the management documents. The development of the specific guidance is critical to the public understanding and the consistency of conservation equivalency implementation.~~

**Commented [TK3]:** If we modify #1 above, I recommend this section is deleted.

Conservation equivalency proposals and Board approval are not required when states adopt a single more restrictive measures than those required in the FMP (e.g., higher minimum size, lower bag limit, lower quota, lower trip limit, closed or shorter seasons). These changes to the management program ~~should~~ will be included in a state's annual compliance report or state implementation plan. If states intend to change more than one regulation where one is more restrictive but the other is less restrictive, even if the combined impact is more restrictive, states must submit a conservation equivalency proposal for Board approval due to unexpected consequences that may arise (e.g., a larger minimum size limit could increase discards).

States have the responsibility of developing conservation equivalency proposals for submission to the Plan Review Team (see standards detailed below). Upon receiving a conservation equivalency proposal, the PRT will initiate a formal review process as detailed in this guidance document. The state submitting the proposal has the obligation to ensure proposed measures are enforceable. If the PRT has a concern regarding the enforceability of a proposed measure it can task the Law Enforcement Committee with reviewing the proposal. Upon approval of a conservation equivalency proposal, the implementation of the program becomes a compliance requirement for the state. Each of the approved programs ~~should~~ will be described and evaluated in the

annual compliance review and included in annual FMP Reviews, unless different timing is approved by the board.

The management programs ~~should~~ will place a limit on the length of time that a conservation equivalency program can remain in place without re-approval by the Board. Some approved management programs may require additional data to evaluate effects of the management measures. The burden of collecting the data falls on the state that has implemented such a conservation equivalency program. Approval of a conservation equivalency program may be terminated if the state is not completing the necessary monitoring to evaluate the effects of the program.

The Plan Review Team (PRT) will serve as the "clearing house" for ~~approval~~ review of conservation equivalency proposals. All proposals will be submitted to the PRT for review. The PRT will collect all necessary input from the appropriate committee (e.g. the technical committee, Law Enforcement Committee, Committee on Economics and Social Sciences and the Advisory Panel). The PRT will compile input and forward a recommendation to the management board.

**When Conservation Equivalency will not be Permitted**

*Stock Status Conditions*

**Option 1. Conservation Equivalency is not permitted if the stock is overfished**

**Option 2. Conservation Equivalency is not permitted if overfishing is occurring**

**Option 3. Conservation Equivalency is not permitted if overfishing is occurring and the stock is overfished**

**Option 4 Board Discretion:** Each species Board will consider which, if any, of the stock status CE options above are appropriate. If a species Board implements a stock status restriction for CE, it may choose to apply that restriction to the entire fishery or to some parts of the fishery (e.g., specific sector). If a species Board decides not to implement a stock status restriction for CE, the Board will provide rationale (via meeting proceedings) as to why such a CE restriction is not needed for that species.

*Measures that cannot be Quantified*

Measures that cannot be quantified are not be permitted under CE if their sole purpose is for credit in the reduction**.** The state submitting a proposed measure for credit must be able to demonstrate, to the satisfaction of the TC, a measurable reduction in harvest. Measures that are non-quantifiable can be encouraged and considered as a buffer but not used as direct credit for a reduction in harvest. The TC will determine if a measure is quantifiable or non-quantifiable. Non-quantifiable measures could include circle hooks, non-targeting zones/period, no gaffing, outreach promoting best practices for release, and other measures expected to reduce release mortality or overall discards.

*Combining Coastwide and Conservation Equivalency*
If there is a target coastwide reduction needed it cannot be achieved through a combination of some states implementing the coastwide measure and some states implementing the coastwide percent reduction at the state level. If a state proposes CE, that CE proposal must demonstrate equivalency with the state-specific reduction that would have been achieved if the coastwide measure were implemented. For example, a coastwide measure may be projected to achieve a 10% coastwide reduction. In a particular state, that coastwide measure may be projected to achieve a 15% reduction in that state alone. If that state wants to propose a CE program, that CE program must demonstrate a 15% reduction, not a 10% reduction.

**Standards for state conservation equivalency proposals**

Each state seeking to implement a conservation equivalency program must submit a proposal for review and approval. Proposals will keep the number of options to a reasonable limit, those proposals that include an excessive number of options may delay timely review by the PRT and other groups and may ultimately delay the report to the Board. Boards may set a cap on the number of options submitted.

State conservation equivalency proposals ~~should~~ will contain the following information:

1. Rationale: Why or how an alternate management program is needed in the state. Rationale may include, but are not limited to, socio-economic grounds, fish distribution considerations, size of fish in state waters, interactions with other fisheries, protected resource issues and enforcement efficiency.

2. Description of how the alternative management program meets all relevant FMP objectives and management measures (FMP standards, targets, and reference points). States are responsible for supplying adequate detail and analysis to confirm conservation equivalency based on the most recent stock assessment.

3. A description of:
    - Available datasets used in the analysis and data collection method, including sample size and coefficient of variation, explicitly state any assumptions used for each data set.
    - Limitations of data and any data aggregation or pooling.
        - If data allows, the TC should establish minimum standards for the types and quality of data that can be used in a proposal. Examples include, but should not be limited to: minimum sample size, amount of imputed/borrowed data points, limit on PSE, types of data allowed and minimum number of years, survey design, data caveats and analytical assumptions, and consider previous CE proposals and

build on their strengths (e.g., length of closed season). Some states may not be able to participate in CE because their data will not meet the standards established by the TC. The TC could consider alternative criteria, or states could consider alternatives, such as submitting a joint proposal with neighboring states.

- When evaluating closed periods, availability will be considered. Even within a month, availability can be very different, particularly when comparing the beginning and end. Any closed period must come from a period of high availability and include at least two consecutive weekend periods (Friday, Saturday and Sunday). Pooling of several years' worth of data should be encouraged for evaluation.

- The length of time the state is requesting conservation equivalency and a review schedule for the length of the program. Proposals ~~should~~ will identify the length of time measures are intended to be in place and the timing of the review of the specific measures which is required annually, it is encouraged to review the measures in conjunction with the FMP Review. If an approved CE program consistently meets program objectives, achieves the proposed measures with the management actions implemented, and if stock conditions remain favorable, a request for an extension should be made to the species management board at the end of the project period. Extensions for successful conservation equivalency programs should not exceed the next scheduled benchmark stock assessment.

-

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4. Each proposal must justify any deviations from the conservation equivalency procedures detailed in the FMP of this document. The state should conduct analyses to compare new procedures to procedures included in the plan, as appropriate, including corroborative information where available.

5. Include a plan describing the monitoring schedule, reporting requirements and documentation process of evaluating the impacts of the conservation equivalency measures.

**Review Process**

Implementation of new amendments/FMPs ~~should~~ will include timelines and a review process for conservation equivalency proposals. However, the review process and timeline needs to be established for all conservation equivalency proposals that are submitted outside of the implementation of a new management document.

The following is a list of the steps and timelines for review and approval of conservation equivalency proposals. Any deviations from the following process ~~should~~ must be included in the FMP.

1. Conservation equivalency ~~should~~ will be approved by the Management Board and where possible implemented at the beginning of the fishing year.

2. If a state is submitting a proposal outside of an implementation plan process, it ~~must~~ will provide the proposal at least two months in advance of the next board meeting to allow committees sufficient time to review the proposal and to allow states to respond to any requests for additional data or analyses. States may submit conservation equivalency proposals less than two months in advance of the next board meeting, but the review and approval at the upcoming board meeting is at the discretion of the Species Management Board Chair. Proposals submitted less than ~~two~~ three weeks before a meeting will not be considered for approval at that meeting. The board chair will submit proposal to the Plan Review Team (PRT) for review.

3. The PRT should notify the state that the proposal is complete.

4. Upon receipt of the proposal, the PRT will determine what additional input will be needed from: the Technical Committee (TC), Law Enforcement Committee (LEC), ~~and~~ or Committee on Economic and Social Sciences (CESS). The PRT will distribute the proposal to all necessary committees for comment. The review should include a description of the impacts on or from adjoining jurisdictions or other management entities (Councils and/or NMFS). If possible, this description should include qualitative descriptions addressing enforcement, socio-economic issues and expectations from other states perspective (shifts in effort). The review should highlight efforts to make regulations consistent across waterbodies.

5. The PRT will compile all of the input and forward the proposal and comments to the Advisory Panel when possible. However, when there are time limitations, the AP may be asked for comments on a proposal prior to completion of other committee reviews. The Chair of the Advisory Panel (AP) will compile the AP Comments and provide a report to the Management Board.

6. The PRT will forward to the Board the proposal and all committee reviews, including any minority reports. The PRT will provide comment on whether the proposal is or is not equivalent to the standards within the FMP. If possible, the PRT ~~should~~ will identify potential cumulative effects of all conservation equivalency plans under individual FMPs (e.g. impacts on stock parameters).

**Commented [TK4]:** I am concerned 2 months would not be enough time with some of the additional data requirements

7. The PRT reviews ~~should~~ will address whether a state's proposal followed the CE standards outlined in this policy, and any additional specifications included in the FMP.

8. The Board will decide whether to approve the conservation equivalency proposal and will set an implementation date, taking into account the requested implementation date in the proposal. Board action should be based on the PRT recommendation as well as other factors such as impacts to adjoining states and federal management programs. When a board cannot meet in a timely manner and at the discretion of the board and Commission Chair, the boards have the option to have the ISFMP Policy Board approve the conservation equivalency plan.

**Plan Review Following Approval and Implementation**

1. Annually thereafter, states ~~should~~ will describe and evaluate the approved conservation equivalency programs in their compliance reports submitted for annual FMP Reviews, unless otherwise specified.

2. The PRT is responsible for evaluating all conservation equivalency programs during annual FMP reviews to determine if the conditions and goals of the FMP are maintained, unless a different timeline was established through board approval. If the state is not completing the necessary monitoring to evaluate their approved conservation equivalency program, this may be grounds for termination of the plan. The PRT will report to the Board on the performance of the conservation equivalency program, and can make recommendations to the Board if changes are deemed necessary.

**Coordination Guidance**

The Commission's interstate management program has a number of joint or complementary management programs with NOAA Fisheries, US Fish and Wildlife Service and the Fishery Management Councils. Conservation equivalency creates additional burden on the Commission to coordinate with our federal fishery management partners. To facilitate cooperation among partners, the Commission should observe the following considerations.

- The Commission's FMPs may include recommendations to NOAA Fisheries for complementary EEZ regulations. Conservation equivalency measures may alter some of the recommendations contained in the FMPs, which would require the Commission notify NOAA Fisheries of any changes. The Commission needs to consider the length of time that it will take for regulations to be implemented in the EEZ and try to minimize the frequency of requests to the federal government.

- The protocol for NOAA fisheries implementing changes varies for the different species managed by the Commission. The varying protocols need to be considered as conservation equivalency proposals are being developed and reviewed.

- When necessary for complementary management of the stock, the Commission Chair will request federal partners to consider changes to federal regulations.

**Tina Berger**

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**From:** Tom Lilly <foragematters@aol.com>
**Sent:** Monday, July 24, 2023 12:40 PM
**To:** Tina Berger; James Boyle
**Cc:** PHILIP ZALESAK
**Subject:** [External] Fw: "Fact Checking" Statement of MD DNR Lynn Fegley
**Attachments:** Fegley mail March28.pdf; Caucus and Bressman .pdf; Sierra-Shore Rivers.pdf; SR02 docs.pdf; TRFC Minutes.pdf

**Follow Up Flag:** Flag for follow up
**Flag Status:** Flagged

# Tina please place this comment in the supplemental materials and also distribute to the Policy and Menhaden Board. Please advise receipt thanks Tom

To Bob Beal, Mel Bell and Spud Woodward and the Policy Board

I expect the statement Lynn Fegley, director of MD DNR fisheries, (see below) made to you opposing a meeting was seriously considered in your final decision to not have a menhaden board meeting. She said:

" Once again, Mr. Zalesak's comments do not represent the position on the State of Maryland at this time and are not representative of the input we receive from a diverse array of constituents across the state."

I have done some fact checking and I find:

(1) Maryland DNR has a Tidal and Coastal Recreational Fisheries Committee whose members are chosen by her department to represent the " diverse array" she spoke of. On June 29, 2023, Phil Zalesak, a member of the committee, spoke to them about menhaden and the DNR Committee passed the following motion: " The Maryland Delegation to the ASMFC Atlantic Menhaden Management Board needs to put forth a motion that states "The Atlantic Menhaden reduction fishery shall be limited to federal waters east of the westerly boundary of the Exclusive Economic Zone..." and the motion passes with no objection. (scan). Dr Fegley did not mention this in her mail. ( minutes on scan)

(2) In March 2022 and 2023, as Dr Fegley knows, 30 Maryland State Legislators of the MD Legislative Sportsmen's Caucus supported a Senate Resolution asking that this Commission determine whether factory fishing should continue in Chesapeake Bay. These legislators represent the interests of over a million Marylanders. On March 28, 2022, Lynn Fegley received a summary of the organizations and groups of Marylanders supporting the Resolution and their comments. (scan) These groups included,

Maryland Sierra Club with 73,000 members. Shore Rivers with 3,000 members, ten state wide fishing clubs that represent at least 300,000 Maryland recreational fishermen, all of the Charter Captains operating from Solomons and Deal Island MD who, represent the 32,000 charter clients a year that have quit fishing with them because the fishing is so poor. There are also well over 30,000 Marylanders whose jobs in recreational fishing, boating and marinas depend on fishing success. These are just some of the Marylanders that support what Mr Zalesak supports.

We suggest the Commission's decision not to hold an August Menhaden Board meeting may have been influenced by the inaccuracy of Dr Fegley's statement about the level of support and

opposition to moving the factory fishing from Virginia actually received by Dr Fegley. It would seem incumbent on her to respond to this in detail naming names and providing the written evidence as we have of " the input we receive from a diverse array of constituents across the state " (opposed to moving the factory fishing) " as she put it. Then the Commission can consider this matter further. Depending on that timely review justice may require the Commission reverse its decision and hold the hearing.

We might add that calling Mr. Zalesak's statement that he was considering his legal options a "threat" was out of line and prejudicial. Mr. Zalesak, as every American, is protected by the judicial system and due process of law. He had every right to advise the Chairman he was considering exercising that right in a lawsuit without being abused verbally by Dr Fegley.

Respectfully Tom Lilly

**Sent:** Friday, July 21, 2023 7:39 AM
**To:** Robert Beal; Spud Woodward; Mel Bell
**Cc:** Josh Kurtz -DNR-; David Goshorn -DNR-; Allison Colden; DAVID SIKORSKI; rr; flypax; Michael Luisi -DNR-; Russel Dize
**Subject:** email RE menhaden and threat of legal action

Good Evening Bob, Spud and Mel,

I am hoping that you can distribute this to the menhaden board, I would appreciate it.

*Dear Menhaden Management Board*

*This is in response to an email sent on the afternoon of 12/20 by Phil Zalesak. Once again, Mr. Zalesak's comments do not represent the position of the State of Maryland at this time and are not representative of the input we receive from a diverse array of constituents across the state. Further, while we welcome and value public comment around all of the complex issues we manage, we feel it is important to stress that we do not condone the use of threats against Commissioners who volunteer their time and expertise to maintain the critical function of the Atlantic States Marine Fisheries Commission. We have noted the inappropriate tone of Mr. Zalesak's correspondence.*

*Sincerely,*

*Lynn F.*

---

Lynn Waller Fegley
Director, Fishing and Boating Services
Maryland Department of Natural Resources
410-260-8285 (office)
443-223-9279 (cell)
lynn.fegley@maryland.gov
Website | Facebook | Twitter

-----Original Message-----
From: Tom Lilly <foragematters@aol.com>
To: lynn.fegley@maryland.gov <lynn.fegley@maryland.gov>
Sent: Mon, Mar 28, 2022 9:30 am
Subject: Fwd: Senate Resolution 06 Testimony

Lynn

I thought you might be interested in looking over the written testimony and public comments on State Senate Resolution 06 from the EHE hearing March 2nd. This was an effort to bring to your attention the importance of asking the ASMFC whether to continue the factory fishing in Virginia and then to urge that board to base their menhaden allocations to Virginia on the ecologic, social and economic impact/benefits of the factory fishing on the Maryland Bay and Maryland public. (as required by Charter section 6. scan allocation law). The current state reallocation process that is based entirely on historic landings is not following the law and is ignoring what is in the best interest of the ecology of Chesapeake Bay and the social and economic interests of many millions of Marylanders. There was no public opposition to this Resolution but the Chair of the EHE committee Sen Paul Pinsky, did not allow it to come to a committee vote. If there was opposition to this Resolution it was behind closed doors so the proponents were not given an opportunity to rebut what was said.

Lynn, please review the endorsements of Maryland Sierra Club and Shore Rivers that represent 73,000 Marylanders concerned with the environment and conservation. Also the information letter from DNR ....The Legislative Sportsmen's Caucus adopted the opinions of Dr Noah Bressman which supported spatial changes in the factory fishing. ( that is requiring the factory fishing be in the US Atlantic zone only as every state but Virginia does) The Caucus members are the legislators concerned with protecting our Maryland hunting and fishing traditions..they represent over a million constituents. Ten state wide fishing club leaders endorsed the Resolution. We believe they represent at least 300,000 Maryland anglers and 100,000 children who would love to see fishing improve, While all Charter captains were not polled the Solomons Charter Captains and all the Charter Captains fishing out of Wenona ( Deal Island) endorsed this. We think these captains represent the charter clients that would be fishing more if fishing improved. From 2009 to 2019 charter trips decreased from 17,000 to 10,000*. With the usual 6 customers a trip this is at least 42,000* absent fishermen a year who I am quite sure would want to see better fishing. There are only half the charter

businesses in Deal Island and Crisfield that there were 10 years ago. The anglers, conservationists, the Sierra Club, Shore Rivers,the charter captains and the Legislator's constituents that add up to over one and a half million Marylanders, by representation, that want the ASMFC to do its job and decide the merits of the Virginia factory fishing controversy after allowing all parties be heard. I would be glad to discuss this further or listen to your comments.

Thanks for your attention Tom Lilly menhadenproject.org 443 235 4465

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

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

Senate Co-Chair
KATIE FRY HESTER
*Legislative District 9*

House Chair
NED CAREY
*Legislative District 31A*
Anne Arundel County

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

House Co-Chair
WENDELL BEITZEL
*Legislative District 1A*

# The Maryland Legislative Sportsmen's Caucus

*The Sportsmen's Best Friend in Annapolis*

October 21, 2021

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

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

Mr. Bowman:

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

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

Here's what Dr. Bressman stated:

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

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

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

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

Senator Jack Bailey, Senate Co-Chair

Delegate Ned Carey, House Co-Chair

Cc:

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

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

Dear Secretary Riccio and DNR Menhaden Delegates,

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

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

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

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

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

Begin forwarded message:

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

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

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

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

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

**Tina Berger**

SIERRA CLUB

P.O. Box 278
Riverdale, MD 20738

**Committee: Education, Health, and Environmental Affairs**

**Testimony on: SJ6 "Atlantic States Marine Fisheries Commission – Atlantic Menhaden – Prohibition on Commercial Reduction Fishing"**

**Position: Support**

**Hearing Date: March 1, 2022**

The Maryland Chapter of the Sierra Club urges a favorable report on SJ6. This resolution asks the Atlantic States Marine Fisheries Commission to exercise its authority regarding the management of the menhaden fishery to consider prohibiting commercial reduction fishing of Atlantic menhaden, including the use of purse seines and spotter planes, in the Chesapeake Bay.

Atlantic menhaden are a keystone species for the Chesapeake Bay. As noted by this resolution, Atlantic menhaden form a critical connection between the bottom and the top of the food chain. Menhaden are filter feeders, eating plankton and rotifers and helping clear the water of nutrient-pollution.[1] They are also a vital source of food to predators, including predatory fish, dolphins, whales, osprey, and bald eagles. While this is incredibly important to the ecosystem of the Bay, it is also important to the fishing industry. Many species of fish that we harvest from the Bay rely on the menhaden as a food source, including rockfish (striped bass), bluefish, and weakfish.

The Chesapeake Bay is an important nursery for the menhaden that helps sustain the population along the entire Atlantic coast. It is deeply concerning that the number of menhaden juveniles have decreased significantly since 1976 and has stayed low in the last 20 years.[2]

In order to protect the natural wonders of the Chesapeake Bay, it is important that action be taken now. We urge the Committee to issue a favorable report.

Marc Imlay
Endangered Species Workgroup Coordinator
marc.imlay@mdsierra.org

Josh Tulkin
Chapter Director
Josh.Tulkin@MDSierra.org

[1] https://www.vims.edu/research/units/projects/menhaden/research/modeling.php
[2] Durrell, E. Q. & Weedon, C. (2019). Striped Bass Seine Survey Juvenile Index Web Page. DNR.Maryland.gov/Fisheries/Pages/Juvenile-Index.ASPX. Maryland Department of Natural Resources, Fisheries Service.



ONE DRIVE CAROZZA-MAIL PDF

SHORERIVERS

**Testimony in SUPPORT of SJ6 – Atlantic States Marine Fisheries Commission - Atlantic Menhaden - Prohibition on Commercial Reduction Fishing**

March 1, 2022

Dear Chairman Pinsky and Members of the Committee,

Thank you for this opportunity to submit testimony in **SUPPORT of SJ6** on behalf of ShoreRivers. ShoreRivers is a river protection group on Maryland's Eastern Shore with 3,500 members. Our mission is to protect and restore our Eastern Shore waterways through science-based advocacy, restoration, and education.

This bill sets forth a resolution by the Maryland General Assembly asking the Atlantic States Marine Fisheries Commission to take further action to prohibit the commercial reduction fishing of Atlantic Menhaden, including the use of purse seines and spotter planes in the Chesapeake Bay in order to maintain a sustainable fishery. This reduction fishery poses a major threat to many Bay species every year, and when these other fisheries suffer it increases the pressure on other fisheries, including crabs and oysters. Thus, it is of critical importance to protect a foundational species like menhaden as much as possible.

Menhaden are incredibly valuable to the Chesapeake Bay and the many other commercial and recreational fisheries that occur in the rivers of the Eastern Shore. As a vital part of the ecosystem, menhaden filter plankton from the water and help to improve water quality, and they are a necessary food source for other aquatic species like striped bass and bluefish, but also for ospreys and bald eagles. The Department of Natural Resources noted in their 2021 Striped Bass survey that while the stiped bass young-of-year showed a slight increase in population from 2020, what was of note was the increased numbers of menhaden in the rivers, notable the Choptank River. When the menhaden population thrives, so do our other fisheries. And when our fisheries are healthy, we know that water quality and habitat are at healthy levels to support those populations, which means that our economies and local communities will see a benefit.

For these reasons stated above, ShoreRivers urges the Committee to adopt a **FAVORABLE** report on SJ6.

Sincerely,

Matt Pluta,
Choptank Riverkeeper, on behalf of:


***ShoreRivers***
Isabel Hardesty, Executive Director
Annie Richards, Chester Riverkeeper | Matt Pluta, Choptank Riverkeeper
Elle Bassett, Miles-Wye Riverkeeper | Zack Kelleher, Sassafras Riverkeeper

**Main Office**
114 S. Washington St.
Suite 301
Easton, MD 21601
443.385.0511

**Regional Office**
111A North Main St.
Galena, MD 21635
410.810.7556

**Regional Office**
207 S. Water St.
Unit B
Chestertown, MD 21620
410.810.7556

**shorerivers.org**

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

Maryland Legislative Sportsmen's Caucus
James Senate Office Building, Room 401
410-841-3673 or 301-858-3673
1-800-492-7122 Ext. 3673

Senate Co-Chair
KATIE FRY HESTER
*Legislative District 9*

House Chair
KEVIN HORNBERGER
*Legislative District 35B*
Cecil County

Maryland Legislative Sportsmen's Caucus
Lowe House Office Building, Room 325
410-841-3284 or 301-858-3284
1-800-492-7122 Ext. 3284

House Co-Chair
DANA JONES
*Legislative District 30A*

# The Maryland Legislative Sportsmen's Caucus

*The Sportsmen's Best Friend in Annapolis*

March 8, 2023

**SUPPORT FOR SJ 2 - Atlantic States Marine Fisheries Commission – Atlantic Menhaden – Prohibition on Commercial Reduction Fishing**

Dear Chairman Feldman and Members of the EEE Committee,

Each year the number of menhaden surviving the Virginia netting gauntlet to successfully reach Maryland's portion of the Chesapeake Bay is declining. This scientifically documented fact is detrimental to both avian and marine species dependent upon the "Most Important Fish in the Sea". This must change; what is happening to the "Most Important Fish in the Sea" is intolerable. SJ 2 will send a bold, strong statement that Maryland wants ASFMC to take action as reflected therein.

On October 15, 2021, a fishery biology professor from Salisbury University (Dr. Noah Bressman, PhD) formally addressed the dire menhaden issue in a statement to Maryland's DNR Secretary, et al. For the record, the Maryland's Legislative Sportsmen's Caucus within the Maryland General Assembly fully supports the position taken by Dr. Bressman as evidence of the importance of passing SJ 2. Dr. Bressman stated:

*"Currently, the Virginia-based menhaden fishery is [highly likely] overfishing the stock of Atlantic Menhaden in and around the Chesapeake Bay, which is preventing this important forage fish from making its way into the bay and its tributaries. As an important prey item for many important species in the bay, such as Striped Bass and Osprey, the disappearance of most of the menhaden from the bay is contributing to the disappearance of many species that rely on menhaden.*

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

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

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

We appreciate your consideration and ask for a favorable report on SJ2.

Senator Jack Bailey, Senate Co-Chair

Senator Katie Fry-Hester, Senate Co-Chair

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JACK BAILEY
*Legislative District 29*
Calvert and St. Mary's Counties

Budget & Taxation Committee

THE SENATE OF MARYLAND
ANNAPOLIS, MARYLAND 21401

*Annapolis Office*
James Senate Office Building
11 Bladen Street, Room 401
Annapolis, Maryland 21401
410-841-3673 · 301-858-3673
800-492-7122 Ext. 3673
Jack.Bailey@senate.state.md.us

*District Office*
Dorsey Professional Park
23680 Three Notch Road, Unit 101
Hollywood, Maryland 20636
240-309-4238

March 8, 2023

**Senate Joint Resolution 2 – Atlantic States Marine Fisheries Commission – Atlantic Menhaden –Prohibition on Commercial Reduction Fishing**

Dear Chairman Feldman and Members of the Committee,

I am writing to introduce Senate Joint Resolution 2 – Atlantic States Marine Fisheries Commission – Atlantic Menhaden – Prohibition on Commercial Reduction Fishing. This Joint Resolution recommends that, in order to maintain a sustainable Atlantic menhaden fishery, the Atlantic States Marine Fisheries Commission consider prohibiting the commercial reduction fishing of Atlantic menhaden, primarily the use of purse seines and spotter planes, in the Chesapeake Bay.

The policy changes requested by this resolution would prohibit the large vessels owned by a foreign country from overharvesting the bait fish that are vital to the future of our fish populations in the Bay as they have done in the past. While this form of fishing is illegal in Maryland, it is still permitted in our neighboring Virginia waters of the Chesapeake Bay. Reduction fishing in the Bay is done by the Omega Fish Oil Company, which used to be a Virginia-based company but was sold to Cooke, Inc., in 2017 for $500 million. Omega currently has eight fishing boats that work in the Virginia portion of the Chesapeake Bay. The reduction fishery has the ability to take 26% of the total Atlantic Coast menhaden quota from Maine to Florida from the Chesapeake Bay. This poses a substantial threat to the $6.8 billion dollars in economic impact and the 68,000 jobs that are associated with both commercial and recreational fishing of striped bass. The Chesapeake Bay is the nursery for the Atlantic Coast striped bass and should be recognized as such. The reduction fishery in the Chesapeake Bay threatens the population of fish species like striped bass, trout, drum, shad, and bluefish, all of which have seen alarming trends in their populations.

It is important to be aware that Maryland does not allow this type of reduction fishing, nor the bycatch allowed with reduction fishing in Virginia. Menhaden are principally harvested in this State to use as bait for other fish or crabs. Therefore, this resolution would not impact any of our local Maryland watermen, sport fishermen, or outdoorsmen. It is important that the General Assembly recognizes that the commercial watermen, the charter boat captains, and the sport fishermen are on the same page in supporting this resolution. The detrimental impact of the overharvesting of menhaden by this large corporation has a serious impact on our entire ecosystem and is a grave concern for all Marylanders.

I respectfully request a favorable report on Senate Joint Resolution 2. Thank you for your consideration.

Sincerely,

Senator Jack Bailey

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SIERRA CLUB

P.O. Box 278
Riverdale, MD 20738

**Committee: Education, Energy, and the Environment**
**Testimony on: SJ2 "Atlantic States Marine Fisheries Commission – Atlantic Menhaden – Prohibition on Commercial Reduction Fishing"**
**Position: Support**
**Hearing Date: March 8, 2023**

The Maryland Chapter of the Sierra Club urges a favorable report on SJ2. This resolution asks the Atlantic States Marine Fisheries Commission to exercise its authority regarding the management of the menhaden fishery to consider prohibiting commercial reduction fishing of Atlantic menhaden, including the use of purse seines and spotter planes, in the Chesapeake Bay.

Atlantic menhaden are a keystone species for the Chesapeake Bay. As noted by this resolution, Atlantic menhaden form a critical connection between the bottom and the top of the food chain. Menhaden are filter feeders, eating plankton and rotifers and helping clear the water of nutrient pollution.[1] They are also a vital source of food to predators, including other fish, dolphins, whales, osprey, and bald eagles. While this is incredibly important to the ecosystem of the Bay, it is also important to the fishing industry. Many species of fish that we harvest from the Bay rely on the menhaden as a food source, including rockfish (striped bass), bluefish, and weakfish.

The Chesapeake Bay is an important nursery for the menhaden that helps sustain the population along the entire Atlantic coast. It is deeply concerning that the number of menhaden juveniles have decreased significantly since 1976 and has stayed low in the last 20 years.[2]

To protect the natural vitality of the Chesapeake Bay, it is important that action be taken now. We urge the Committee to issue a favorable report.

Marc Imlay
Endangered Species Workgroup Coordinator
marc.imlay@mdsierra.org

Josh Tulkin
Chapter Director
Josh.Tulkin@MDSierra.org

[1] https://www.vims.edu/research/units/projects/menhaden/research/modeling.php
[2] Durrell, E. Q. & Weedon, C. (2019). Striped Bass Seine Survey Juvenile Index Web Page. DNR.Maryland.gov/Fisheries/Pages/Juvenile-Index.ASPX. Maryland Department of Natural Resources, Fisheries Service.

March 8, 2023

To the Maryland Senate Education, Energy and Environment Committee

Currently, the Virginia-based menhaden fishery is very likely overfishing the stock of Atlantic Menhaden in and around the Chesapeake Bay, which is preventing this important forage fish from making its way into the bay and its tributaries. As the base an important prey item for many important species in the bay, such as Striped Bass and Osprey, the disappearance of most of the menhaden from the bay is contributing to the disappearance of many species that rely on menhaden. Furthermore, Striped Bass have had 4 terrible reproductive years in a row and the lower levels of menhaden (I.e., their favorite, energy-rich and dense prey) in the bay are very likely a contributing factor. Instead of foraging on Menhaden, an absence of these fish means striped bass and predators need to rely more on blue crabs, white perch, and other prey items that are not as easy to consume in large quantities. This means striped bass need to likely spend more energy searching and acquiring prey, so they need even more prey to support them and their reproductive efforts, leading to reduced reproductive output. Therefore, a decline in menhaden is very problematic for many predators in the Chesapeake, including our state fish.

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

Therefore, I am strongly in favor of Senate Resolution 02 and action by the ASMFC to ensure that enough menhaden persist in the bay to sustain a healthy ecosystem. I also strongly suggest either delaying the start of the menhaden commercial season until after a significant amount of menhaden have migrated north along the Virginia coast into the Chesapeake bay (which occurs in spring/early summer), by pushing these factory fishing efforts out of the Chesapeake Bay at least 3 miles offshore into federal waters instead of along the coastline in state waters (as the fish in the state waters are most likely to migrate along the coast into the bay), pushing the commercial menhaden fishery north of the entrance to the Chesapeake bay during their migration, and/or significantly reducing the quotas of menhaden in and around the mouth of the Chesapeake bay.

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

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Sincerely,

Dr. Noah Bressman, PhD
Assistant Professor of Physiology
Department of Biology
Salisbury University
Noahbressman.wixsite.com/noah
@NoahwithFish

# The Center for Conservation Biology

William & Mary

P.O. Box 8795
Williamsburg, VA
23187-8795

Phone
(757) 221-1645

Fax
(757) 221-1650

E-mail
info@ccbbirds.org

Dr. Bryan D. Watts
Director
(757) 221-2247

Dr. Mitchell A. Byrd
Director Emeritus
(757) 221-2236

www.ccbbirds.org

20 August 2020

The Honorable Ralph Northam
Governor, State of Virginia
PO Box 1475
Richmond, VA 23218

Dear Governor Northam,

The menhaden is a keystone fish within the Chesapeake Bay ecosystem. Many of our most iconic species including the bald eagle, osprey, great blue heron and brown pelican depend on menhaden stocks to sustain their breeding populations within the Bay. Other species such as common loons and northern gannets that stage within the Chesapeake also depend on menhaden to fuel their migrations. Approximately 30% of the North Atlantic gannet population comes into the Bay during the spring to feed on menhaden before flying north to breeding grounds in Newfoundland.

Deep withdraws of menhaden stocks for the reduction fishery is having an impact on consumer species. We have conducted fieldwork with osprey throughout the lower Chesapeake Bay for 50 years and data demonstrate ongoing impacts. Through three generations of graduate students (1975-2006) we have observed shifts in diet and an associated reduction in productivity. Fish delivery rates were more than three times higher in 1975 compared to 2006. Menhaden, once the dominant fish in the diet now represents less than 30%. Shifts in diet away from menhaden have been coincident with a 90% reduction in menhaden stocks (Maryland, DNR haul surveys). No other fish species available to consumers provides the energy content of menhaden. Reductions in menhaden stocks have caused osprey productivity to decline to below DDT-era rates. These rates are insufficient to support the osprey population within the main stem of the Bay.

Menhaden provide critical ecosystem services within the Chesapeake Bay. We request that the needs of the broader ecosystem be considered when setting harvest policy and that menhaden stocks be maintained at levels that support a healthy Chesapeake Bay ecosystem.

Sincerely,

Bryan Watts

Bryan D. Watts, Ph.D.
*Mitchell A. Byrd Professor of Conservation Biology*
*Director, Center for Conservation Biology*
*College of William and Mary*

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# FOOD SUPPLEMENTATION INCREASES REPRODUCTIVE PERFORMANCE OF OSPREYS IN THE LOWER CHESAPEAKE BAY

MICHAEL H. ACADEMIA[1] AND BRYAN D. WATTS

*Center for Conservation Biology, College of William & Mary, Williamsburg, VA 23185*

ABSTRACT.--The Atlantic States Marine Fisheries Commission (ASMFC), the governing body responsible for managing fisheries on the U.S. East Coast, formally adopted the use of Ecological Reference Points (ERPs) for Atlantic menhaden, *Brevoortia tyrannus*. Scientists and stakeholders have long recognized the importance of menhaden and predators such as ospreys, *Pandion haliaetus*, that support the valuable ecotourism industry and hold cultural significance. Landings in the reduction fishery are at their lowest levels and menhaden is facing potential localized depletion. Mobjack Bay, located within the lower Chesapeake Bay, has been a focus of Osprey research since 1970 and represents a barometer for the relationship between Osprey breeding performance and menhaden availability. Since local levels of menhaden abundance were not available, we conducted a supplemental feeding experiment on osprey pairs during the 2021 breeding season. Our main objective was to determine if the delivery rate of menhaden had an influence on nest success and productivity. Nest success ($\chi 2 = 5.5$, df = 1, P = 0.02) and productivity ($\beta = 0.88$, SE = 0.45, CI = 0.049, 1.825, P = 0.048) were significantly higher within the treatment group. 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.

**Supplemental Information (Definitions & Conclusions):**

- ASMFC defined localized depletion in Chesapeake Bay "as a reduction in menhaden population density below the level of abundance that is sufficient to maintain its basic ecological, economic, and social/cultural functions" (Annis et al. 2009).
- Ecosystem Based Fisheries Management evolves when ERPs are consistently monitored (Pikitch et. al. 2004). According to Amendment 3 of the Interstate Fishery Management Plan (FMP) for Atlantic menhaden (Southeast Data Assessment and Review [SEDAR] 2020, Anstead et al. 2021), ERPs are described as "a method to assess the status of menhaden not only with regard to the sustainability of human harvest, but also with the

regard to their interaction with predators and the status of other prey species." The ERP working group is tasked with developing ERPs that are menhaden-specific that can account for the abundance of menhaden and their species role as a forage fish (Amendment 3 to the FMP, Anstead et al. 2021). Ospreys are a non-finfish predator and can serve this role which can allow management to practice informed decisions to develop harvest targets, assess menhaden's role as prey for upper trophic levels, and advance an ecosystem approach to fisheries management (EAFM) which considers multiple components of the ecosystem than just the target species (Patrick and Link 2015). The menhaden population within Mobjack Bay is not currently adequate to sustain the osprey breeding population.

## LITERATURE CITED


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Patrick, W. S. and J. S. Link, J.S. 2015. Myths that continue to impede progress in ecosystem based fisheries management. Fisheries, 40(4), pp.155-160.

Pikitch, E. K., C. Santora, E. A. Babcock, A. Bakun, R. Bonfil, D. O. Conover, P. Dayton, P. Doukakis, D. Fluharty, B. Heneman and E. D. Houde. 2004. Ecosystem based fishery management. Science, 305(5682), pp.346-347.

Southeast Data Assessment and Review [SEDAR]. 2020. SEDAR 69 – Atlantic Menhaden Benchmark Stock Assessment Report. SEDAR, North Charleston SC.

**Delaware-Maryland Synod**
**Evangelical Lutheran Church in America**
God's work. Our hands.

Testimony Prepared for the
Education, Energy, and the Environment Committee
on
**Senate Joint Resolution 2**
March 8, 2023
Position: **Favorable**

Mr. Chairman and members of the Committee, thank you for the opportunity to speak for a flourishing creation. I am Lee Hudson, assistant to the bishop for public policy in the Delaware-Maryland Synod, Evangelical Lutheran Church in America. We are a faith community with three synods in every part of our State.

Our community expressed concern for a healthy environment to sustain life in "Caring for Creation" (ELCA, 1993). Among its perspectives is stewardship of natural resources and processes. Nature is simply not ours. It is a universal given, not traded goods.

Human activity has consequences; some threaten the abundance of life on earth. We must discern, to be wise; we must respect to flourish. Because communities of faith reverence a Maker, their traditions typically approach providence with gratitude and awe. Through created gifts—provided, not earned or owned—the holiness of life, time and human experience may be glimpsed. We are not merely all in this together; we are all *of this*, together.

Mechanized industrial fishing threatens the naturally occurring scales of habitat, species, and generation that have made the garden of earth plentifully good. Technology-aided trawling collapsed the super-abundant Grand Banks fishery decades ago. The Bay's oyster stock never recovered after about 1905. Horseshoe crabs have been teetering on the brink for years because they are cheap to harvest and saleable at market. With them an entire cadre of long-migrant shorebirds are threatened. Any notion that we know what we're doing, or that some benevolent market force will do the right thing for us is a fantasy. We live in a depleted natural world; we depleted it; the material historical record tells us this truth.

And so, also menhaden, a critical resource in the entire East Coast aquatic food chain. Mechanized fishing is reducing its stock below a population sufficient for sustainability, let alone for commercial demand. To avoid crashing another building-block of life on the planet we will have to stop doing what we are doing. To return to the Grand Banks fishery, a jury-rigged regime of quotas and regulation have made it possible to save some commercial fishing there. It never recovered a thriving stock. We are essentially fish-farming the open ocean to save commerce, but not natural wildlife.

Banning industrial equipment meant to take more fish faster is the only way to save multiple tiers of aquatic life along the East Coast, leave aside any idea of "profit." We support **Senate Joint Resolution 2** to add Maryland's to voices calling for the Atlantic Marine Fisheries Commission to restrict the menhaden harvest. It's necessary, urgent, and calls for your favorable report.

Lee Hudson

5699 Meridale Rd. Baltimore, MD 21228 410-230-2860 800-869-5492 fax 410-230-2871

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MARYLAND
DEPARTMENT OF
NATURAL RESOURCES

*Wes Moore, Governor*
*Aruna Miller, Lt. Governor*
*Josh Kurtz, Secretary*
*David Goshorn, Deputy Secretary*

**Meeting of the Tidal and Coastal Recreational Fisheries Committee**
**June 29, 2023**

**Summary**

**Committee Members in Attendance:** Members on the call included Co-Chair Lenny Rudow, Co-Chair Vince Cannuli; Committee members present included the following (in alphabetical order, by region – **Tidal:** Gregory Allen, Sewell "Toby" Frey, Albert Hoffman, Jr, Jesse Howe, Rudolph Lukacovic, Kevin McMenamin, Eric Packard, Alan Polk, Phil F Zalesak; **Coastal:** Christopher Mack.

**Committee Members Not in Attendance (Absent): Tidal:** Chris Buchleitner, Frank Carver, Patrick A Cazalet, Jeff Cleland, Mark Curl, Lawrence Darlington Burkindine, James E Deriu, Brian Hardman, Donald Johnson, Richard Kuhlman, James McCarter, Cyrus S. Picken, Mustafa Sidik, Felipe Urquilla, Walter N. Vieser II, Damon K Williams; **Coastal:** Scott Lenox, Beverly Fleming, Wesley Muller.

**Department of Natural Resources Staff Participating:** Erik Zlokovitz, Mike Luisi, Paul Genovese, Jim Uphoff, Alexis Park

**Non-committee Members Participating:** Tom Lily

**Motions** - Note: The department does not vote on motions.

- 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.

- Motion from Kevin McMenamin, Second by Alan Polk - *The TCRFC moves to end the trophy striped bass season in its current format (one fish per person per day, with a minimum size of 35 inches, May 1-15, is the current trophy season regulation and dates) and implement a 31-inch maximum size for the spring striped bass season starting on May 1 and lasting for the entire season.* No objections, motion passes.

- Motion from Toby Frey, Second by Lenny Rudow - *The second place winners from the votes for co-chairpersons will be vice-chairs.* No objections. Motion passes.
  - Jesse Howe and Chris Mack are now vice-chairs for the tidal and coastal regions respectively. (They won the second place vote in their respective regions).

| | |
|---|---|
| **From:** | Robert Beal |
| **To:** | Tina Berger |
| **Subject:** | Fwd: [External] "Public Comments" Before the ISFMP Policy Board Meeting on August 3rd |
| **Date:** | Tuesday, July 25, 2023 12:54:17 PM |
| **Attachments:** | image003.png<br>2023-0724 Localized Depletion of Atlantic Menhaden - Position Paper.pdf<br>2023-0724 Localized Depletion of Atlantic Menhaden - Power Point.pdf |

---

**From:** Phil Zalesak <flypax@md.metrocast.net>
**Sent:** Sunday, July 23, 2023 7:28:02 AM
**To:** 'Robert Beal' <Rbeal@asmfc.org>; 'LYNN FEGLEY' <lynn.fegley@maryland.gov>; 'Spud Woodward' <swoodward1957@gmail.com>; 'Mel Bell' <bellm@dnr.sc.gov>
**Cc:** 'Josh Kurtz -DNR-' <josh.kurtz@maryland.gov>; 'DAVE GOSHORN' <david.goshorn@maryland.gov>; 'Allison Colden' <acolden@cbf.org>; 'DAVID SIKORSKI' <davidsikorski@ccamd.org>; 'THOMAS LILLY' <foragematters@aol.com>; 'MICHAEL LUISI' <michael.luisi@maryland.gov>; 'Russel Dize' <mjdize@verizon.net>; bdwatt@wm.edu <bdwatt@wm.edu>; 'MICHAEL ACADEMIA' <macademia@email.wm.edu>; 'THOMAS LILLY' <foragematters@aol.com>; 'Steve Atkinson' <steveatkinson52@verizon.net>; playinhookeychartersvb@gmail.com <playinhookeychartersvb@gmail.com>; 'Jon Hurdle' <jonhurdle@gmail.com>; 'David Reed' <david@chesapeakelegal.org>; Leaddog@rockfishing.com <Leaddog@rockfishing.com>; 'Noah Bressman' <noahbressman@gmail.com>; 'Albert Hoffman' <downbackshore@outlook.com>; 'F.A. Antinori' <btf25@aol.com>; 'Brian Hardman' <Leaddog@rockfishing.com>; 'Chris Buchleitner' <CHRIS.BUCHLEITNER@GMAIL.COM>; 'Christopher Mack' <chefchrismack@gmail.com>; 'Cyrus S. Picken Jr' <cspicken@gmail.com>; 'Damon K Williams' <chesapeakebayoutdoors@gmail.com>; 'Donald Johnson' <captdonj@gmail.com>; 'Eric Packard' <ericp669@gmail.com>; 'Frank Carver' <loosenupcharters@gmail.com>; 'Gregory Allen' <g.allendds@comcast.net>; 'James E Deriu' <james@deriu.com>; 'James McCarter' <jfm5152@yahoo.com>; 'Jeff Cleland' <jjclelan@syr.edu>; 'Jesse Howe' <jessekhowe@gmail.com>; 'Kevin McMenamin' <kevin_mcmenamin@keysight.com>; 'Lawrence Burkindine' <lburkindine@aol.com>; 'Lenny Rudow' <ultangler@gmail.com>; 'Mark Curt' <markcurl@aol.com>; 'Mustafa Sidik' <mussidik1@gmail.com>; 'Patrick A Cazalet' <patrickcazalet@yahoo.com>; 'Richard Alan Polk' <alanpolk09@gmail.com>; 'Richard Kuhlman' <rtkuhlman@msn.com>; 'Rudolph Lukacovic' <rlukacovic@yahoo.com>; 'SCOTT LENOX' <fishinoc@hotmail.com>; 'Vince Cannul' <cannulia@gmail.com>; 'Walter N. Vieser II' <WALT.VIESER@GMAIL.COM>; 'Wesley Muller' <wesley8808@gmail.com>; 'ATLANTIC MENHADEN BOARD' <atlmen_bd@asmfc.org>
**Subject:** [External] "Public Comments" Before the ISFMP Policy Board Meeting on August 3rd

Bob,

First, I will be attending ISFMP Policy Board on Thursday, August 3rd at 9:15 for the "Public Comments" portion of the meeting.

Second, my comments will address "Localized Depletion of Atlantic Menhaden in Virginia Waters." I have attached a position paper and a Power Point presentation in pdf format for review by members of the ISFMP Policy Board and the Atlantic Menhaden Management Board in preparation for the meeting. Please distribute accordingly. Further, I will confine my comments to 3 minutes.

Regards, Phil

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**From:** Phil Zalesak [mailto:flypax@md.metrocast.net]
**Sent:** Friday, July 21, 2023 3:40 PM
**To:** 'Robert Beal'; 'LYNN FEGLEY'; 'Spud Woodward'; 'Mel Bell'
**Cc:** 'Josh Kurtz -DNR-'; 'DAVE GOSHORN'; 'Allison Colden'; 'DAVID SIKORSKI'; 'THOMAS LILLY'; 'MICHAEL LUISI'; 'Russel Dize'; 'bdwatt@wm.edu'; 'MICHAEL ACADEMIA'; 'THOMAS LILLY'; 'Steve Atkinson'; 'playinhookeychartersvb@gmail.com'; 'Jon Hurdle'; 'David Reed'; 'Leaddog@rockfishing.com'; 'Noah Bressman'; 'Albert Hoffman'; 'F.A. Antinori'; 'Brian Hardman'; 'Chris Buchleitner'; 'Christopher Mack'; 'Cyrus S. Picken Jr'; 'Damon K Williams'; 'Donald Johnson'; 'Eric Packard'; 'Frank Carver'; 'Gregory Allen'; 'James E Deriu'; 'James McCarter'; 'Jeff Cleland'; 'Jesse Howe'; 'Kevin McMenamin'; 'Lawrence Burkindine'; 'Lenny Rudow'; 'Mark Curt'; 'Mustafa Sidik'; 'Patrick A Cazalet'; 'Richard Alan Polk'; 'Richard Kuhlman'; 'Rudolph Lukacovic'; 'SCOTT LENOX'; 'Vince Cannul'; 'Walter N. Vieser II'; 'Wesley Muller'; 'ATLANTIC MENHADEN BOARD'
**Subject:** RE: [External] Friday Update to Proposed "Public Comment" Agenda Item for the Atlantic Menhaden Management Board Meeting on August 3rd at 1130

2nd try! Back at my computer . . .

Bob,

So the Management Board meetings shall be called by the Executive Director with the approval of the Commission Chair.

How did you and the Commission Chair determine that there was no need for an Atlantic Menhaden Management Board meeting in August? What was the rationale?

Regards, Phil

---

**From:** Robert Beal [mailto:Rbeal@asmfc.org]
**Sent:** Friday, July 21, 2023 1:50 PM
**To:** PHILIP ZALESAK; LYNN FEGLEY; Spud Woodward; Mel Bell
**Cc:** 'Josh Kurtz -DNR-'; DAVE GOSHORN; Allison Colden; 'DAVID SIKORSKI'; THOMAS LILLY; MICHAEL LUISI; 'Russel Dize'; bdwatt@wm.edu; MICHAEL ACADEMIA; THOMAS LILLY; Steve Atkinson; playinhookeychartersvb@gmail.com; 'Jon Hurdle'; David Reed; Leaddog@rockfishing.com; Noah Bressman; 'Albert Hoffman'; F.A. Antinori; 'Brian Hardman'; 'Chris Buchleitner'; 'Christopher Mack'; 'Cyrus S. Picken Jr'; 'Damon K Williams'; 'Donald Johnson'; 'Eric Packard'; Frank Carver; 'Gregory Allen'; 'James E Deriu'; 'James McCarter'; 'Jeff Cleland'; 'Jesse Howe'; 'Kevin McMenamin'; 'Lawrence Burkindine'; 'Lenny Rudow'; 'Mark Curt'; 'Mustafa Sidik'; 'Patrick A Cazalet'; PHILIP ZALESAK; 'Richard Alan Polk'; 'Richard Kuhlman'; 'Rudolph Lukacovic'; SCOTT LENOX; 'Vince Cannul'; 'Walter N. Vieser II'; 'Wesley Muller'; ATLANTIC MENHADEN BOARD
**Subject:** RE: [External] Friday Update to Proposed "Public Comment" Agenda Item for the Atlantic Menhaden Management Board Meeting on August 3rd at 1130

Mr. Zalesak,

In light of your recent threat of legal action, I wanted to let you know about the Commission's process for scheduling meetings. Management Board meetings "shall be called by the Executive Director with the approval of the Commission Chair". Individual species

management board chairs don't schedule meetings for their boards. With that said, the Commission Chair, the Board Chair and I have conferred and we all agree a Menhaden Board meeting is not necessary at this time. This decision was noted in an earlier email from Chair Woodward.

Regarding public input, the Commission provides multiple opportunities for in-person, virtual, and written public comment. You have used all of these opportunities in the past.

If a stakeholder would like to comment in person about menhaden or other issues, there is a public comment period at the beginning of the ISFMP Policy Board on Wednesday, August 3rd. As a reminder the Policy Board sets the Commission's priorities for science and management. It is also worth noting the Policy Board membership is nearly identical to that of the Menhaden Management Board.

If a stakeholder provides public comment to the Commission by 5:00pm on Tuesday, July 25th, it will be provided to all Commissioners in supplemental briefing materials for the Summer Meeting.

If a stakeholder wants to email anything directly to the Commissioners, the email lists are available on the Commission's website: https://asmfc.org/about-us/boards-committees-panels

Regards,
Bob

*Bob Beal*
*Executive Director*
*Atlantic States Marine Fisheries Commission*
*Phone: 703.842.0740*
*www.ASMFC.org*

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**From:** Phil Zalesak <flypax@md.metrocast.net>
**Sent:** Friday, July 21, 2023 9:18 AM
**To:** LYNN FEGLEY <lynn.fegley@maryland.gov>; Robert Beal <Rbeal@asmfc.org>; Spud Woodward <swoodward1957@gmail.com>; Mel Bell <bellm@dnr.sc.gov>
**Cc:** 'Josh Kurtz -DNR-' <josh.kurtz@maryland.gov>; DAVE GOSHORN <david.goshorn@maryland.gov>; Allison Colden <acolden@cbf.org>; 'DAVID SIKORSKI' <davidsikorski@ccamd.org>; THOMAS LILLY <foragematters@aol.com>; MICHAEL LUISI <michael.luisi@maryland.gov>; 'Russel Dize' <mjdize@verizon.net>; bdwatt@wm.edu; MICHAEL ACADEMIA <macademia@email.wm.edu>; THOMAS LILLY <foragematters@aol.com>; Steve Atkinson <steveatkinson52@verizon.net>; playinhookeychartersvb@gmail.com; 'Jon Hurdle' <jonhurdle@gmail.com>; David Reed <david@chesapeakelegal.org>; Leaddog@rockfishing.com; Noah Bressman <noahbressman@gmail.com>; 'Albert Hoffman' <downbackshore@outlook.com>; F.A. Antinori <btf25@aol.com>; 'Brian Hardman' <Leaddog@rockfishing.com>; 'Chris Buchleitner' <CHRIS.BUCHLEITNER@GMAIL.COM>; 'Christopher Mack' <chefchrismack@gmail.com>; 'Cyrus S. Picken Jr' <cspicken@gmail.com>; 'Damon K Williams' <chesapeakebayoutdoors@gmail.com>; 'Donald Johnson' <captdonj@gmail.com>; 'Eric Packard' <ericp669@gmail.com>; Frank Carver

<loosenupcharters@gmail.com>; 'Gregory Allen' <g.allendds@comcast.net>; 'James E Deriu' <james@deriu.com>; 'James McCarter' <jfm5152@yahoo.com>; 'Jeff Cleland' <jjclelan@syr.edu>; 'Jesse Howe' <jessekhowe@gmail.com>; 'Kevin McMenamin' <kevin_mcmenamin@keysight.com>; 'Lawrence Burkindine' <lburkindine@aol.com>; 'Lenny Rudow' <ultangler@gmail.com>; 'Mark Curt' <markcurl@aol.com>; 'Mustafa Sidik' <mussidik1@gmail.com>; 'Patrick A Cazalet' <patrickcazalet@yahoo.com>; PHILIP ZALESAK <flypax@md.metrocast.net>; 'Richard Alan Polk' <alanpolk09@gmail.com>; 'Richard Kuhlman' <rtkuhlman@msn.com>; 'Rudolph Lukacovic' <rlukacovic@yahoo.com>; SCOTT LENOX <fishinoc@hotmail.com>; 'Vince Cannul' <cannulia@gmail.com>; 'Walter N. Vieser II' <WALT.VIESER@GMAIL.COM>; 'Wesley Muller' <wesley8808@gmail.com>
**Subject:** [External] Friday Update to Proposed "Public Comment" Agenda Item for the Atlantic Menhaden Management Board Meeting on August 3rd at 1130

Lynn,

That is truly laughable.

So, you think that demanding that the Public (credible scientists and credible recreational fishermen) be given the right to express their urgent concerns regarding localized depletion of Atlantic Menhaden Management Board in Virginia waters is outrageous?

I am pretty sure that Dr. Bryan Watts, Dr. Noah Bressman, Michael Academia, Steve Atkinson (VSSA President), Captain Bill Pappas and Captain Brian Hardman would disagree with you.

This is so simple. All Mel Bell has to do is give the Public 30 minutes to express their concerns about localized depletion of Atlantic menhaden in Virginia waters. It would add a whole 30 minutes to the summer ASMFC meeting. And it wouldn't interfere with the proposed preliminary agenda.

What's the big deal?

The Monday noon deadline stands. It's not a threat. It's a statement of fact.

Have nice weekend.

Phil

**From:** Lynn Fegley -DNR- [mailto:lynn.fegley@maryland.gov]
**Sent:** Friday, July 21, 2023 7:39 AM
**To:** Robert Beal; Spud Woodward; Mel Bell
**Cc:** Josh Kurtz -DNR-; David Goshorn -DNR-; Allison Colden; DAVID SIKORSKI; rr; flypax; Michael Luisi -DNR-; Russel Dize
**Subject:** email RE menhaden and threat of legal action

Good Evening Bob, Spud and Mel,
I am hoping that you can distribute this to the menhaden board, I would appreciate it.

*Dear Menhaden Management Board*
*This is in response to an email sent on the afternoon of 12/20 by Phil Zalesak. Once again,*

*Mr. Zalesak's comments do not represent the position of the State of Maryland at this time and are not representative of the input we receive from a diverse array of constituents across the state. Further, while we welcome and value public comment around all of the complex issues we manage, we feel it is important to stress that we do not condone the use of threats against Commissioners who volunteer their time and expertise to maintain the critical function of the Atlantic States Marine Fisheries Commission. We have noted the inappropriate tone of Mr. Zalesak's correspondence.*
*Sincerely,*
*Lynn F.*

---

Lynn Waller Fegley
Director, Fishing and Boating Services
Maryland Department of Natural Resources
410-260-8285 (office)
443-223-9279 (cell)
lynn.fegley@maryland.gov


Website | Facebook | Twitter

Localized Depletion of Atlantic Menhaden in the Chesapeake Bay and
Its Impact on the Virginia and Maryland Economies and Marine Environment by
Phil Zalesak, President of www.smrfo.org
July 24, 2023

**The Problem**

Striped Bass are dependent on Atlantic menhaden for survival based on the latest science as documented in reference (a). Although there are plenty of Atlantic menhaden in the Atlantic Ocean, there are insufficient numbers in the Chesapeake Bay and its entrance during the period of industrial reduction harvesting of Atlantic menhaden.

Localized depletion of Atlantic menhaden occurs when there is very little migration into and out of the Chesapeake Bay and intense industrial reduction fishing is occurring at the same time. There is little migration at the entrance of the Chesapeake Bay from June until October which is the prime season for the Atlantic menhaden reduction fishery (b). See Figure 1.

An industrial reduction fishery located in Reedville, Virginia is harvesting over 3/4 of a billion Atlantic menhaden from the Chesapeake Bay and waters just outside the Bay. See the table below and references (c), (d), and (e). This has increased the mortality rate of Striped Bass in the Chesapeake Bay and has impacted the recreational fishing industry in Virginia and Maryland.

| Allocation | Percentage | Metric Tons | Pounds | Fish* |
|---|---|---|---|---|
| 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 | | | | |

**The Data**

**Striped Bass Metrics**

The latest science has determined that there is a direct relationship between the mortality rate of Atlantic menhaden and the mortality rate of striped bass. The morality rate of striped bass increases when the mortality rate of Atlantic menhaden increases.

Up until 2006 there was no harvesting quota for the Atlantic menhaden reduction fishery in the Chesapeake Bay. The first quota was 110,400 metric tons. It was then lowered to 87,216 metric tons from 2014 to 2018. Finally, the quota was lowered to 51,000 metric tons in 2018 where it remains today. See reference (c).

51,000 metric tons of Atlantic menhaden is over 112,434,600 pounds or a total **244,423,043** fish at .46 pounds per fish.

Currently, the reduction fishery is allocated 158,137 metric tons. 51,000 metric tons or **244,423,043** fish are being harvested from the Chesapeake Bay (e). The remaining 107,137 metric tons or **513,479,173 fish** are being harvested from just outside the Bay along the Atlantic Coast. That's a total of 348,628,592 pounds or **757,888,761** fish.

**There is no science which supports removing three quarters of a billion Atlantic menhaden from the Chesapeake Bay and its entrance**.

The **recreational harvest of Striped Bass** in the Chesapeake Bay has **declined over 60%** from a high in 2006 of over 2 million fish to a little over 750,000 fish in 2020. See Figure 2.

The **commercial harvest of Striped Bass** in the Chesapeake Bay has **declined over 50%** from a high of over 1 million fish in 2000 to around 500,000 fish in 2020. See Figure 3.

The purse seine nets used by the reduction fishery can be up 1,400 feet long and 65 feet deep (NOAA) and often scrape the bottom of the Bay floor when harvesting Atlantic menhaden. The Chesapeake Bay **reduction fishery Striped Bass bycatch** could easily be **greater than total Chesapeake Bay commercial harvest for the year** as the striped bass feeding on the menhaden can't escape when the nets are scraping the bottom.

In 2020 the **Striped Bass** commercial harvest in the Chesapeake Bay was **492,400 fish** (Figure 3). The total **Atlantic menhaden** reduction harvest was **244,423,043 fish**. If the bycatch of Striped Bass is greater than to .2 % of the total number of fish caught by the reduction industry, then the **reduction fishery is killing more Striped Bass than is being harvested by the Striped Bass commercial fishermen in the Chesapeake Bay.** This is further complicated by the fact that reduction fishery spotter pilots are unable to see predator fish in around that Atlantic menhaden schools they are harvesting. Go to **2:35:40** for the testimony of **Forest Brand** reduction fishery spotter pilot https://www.youtube.com/watch?app=desktop&v=Cn-ow-dNfsE&t=5900s .

We know that striped bass pursue schools of menhaden during the reduction harvesting process. So, the striped bass bycatch is more likely to be larger than .2 % or **2 fish out of 1000** caught in their nets. This could account for a significant reduction in the striped Young-of-Year index for the last 4 years. See Figure 4.

**Striped Bass Economic Impact**

Virginia

- In 2016 the GDP associated with recreational fishing for Striped Bass in Virginia was over $241.551 million dollars and accounted for over 3,420 jobs. See Figure 5.
- In 2016 the GDP associated with the commercial sector for Striped Bass in Virginia was $1.379 million dollars and accounted for 42 jobs.

Maryland

- In 2016 the GDP associated with recreational fishing of Striped Bass in Maryland was over $802.791 million dollars and accounted for 10,193 jobs. See Figure 6.
- In 2016 the GDP associated with the commercial sector was $10.9 million dollars and responsible for 584 jobs.

Summary for Virginia and Maryland

- From a **dollars** standpoint the economic impact of Striped Bass **recreational fishing** was over **90 times more significant** than commercial fishing. See the table below.
- From a **jobs** standpoint the economic impact of Striped Bass **recreational fishing** was **22 times more significant** than the commercial fishing.

| | Recteational GDP | Commercial GDP | Recreational Jobs | Commercial Jobs |
|---|---|---|---|---|
| **Virginia** | **$241,551,000** | **$1,379,000** | **3,420** | **42** |
| **Maryland** | **$802,791,200** | **$10,191,000** | **10,193** | **584** |
| | | | | |
| **Total** | **$1,044,342,200** | **$11,570,000** | **13,613** | **626** |

**Bluefish and Weakfish Metrics**

Commercial harvest data for Bluefish and Weakfish, which are dependent on Atlantic menhaden for their survival, are shown in figures 7 and 8. The **Bluefish** commercial harvest has been **devastated** and the **Weakfish** have been **depleted** in the Chesapeake Bay.

**For-Hire Fishing Decline**

During the period of 2000 – 2019, the **number of Virginia For-Hire active vessels** declined from a high of 390 in 2009 to 269 in 2019 for a **31% decline**, and the number of **fishing trips** went from a high of 108,631 in 2001 to 33,197 for a **70% decline.** The decline in Virginia the For-Hire business base is documented in Figures 9 and 10.

During the period of 2000 – 2019, the **number of Maryland For-Hire active vessels declined** from a 428 high to 212 for a **51% decline**, and the number of **fishing trips** went from 18,199 to 9,571 for a **47% decline**. The decline in Maryland For-Hire business base is documented in Figures 11 and 12.

**Osprey Metrics**

According to Dr. Bryan Watts of the College of William and Mary reductions in menhaden stocks have caused osprey productivity to decline to below DDT-era rates. These rates are insufficient to support the osprey population within the main stem of the Bay. This is based on 50 years of research. See reference (f).

Michael Academia, a graduate assistant at the College of William and Mary, updated this data set in 2021 and documented his findings in a paper he presented at the International Raptor Research Foundation Conference. This paper was awarded the prestigious Andersen Memorial Award at that meeting. His research can be viewed via video at https://youtu.be/IKR-DHwlZlU

**Conclusion**

Localized depletion of Atlantic menhaden in the Chesapeake Bay and the entrance to the Bay is devastating to the Virginia and Maryland recreational fishing industries and the Chesapeake Bay marine environment.

**Recommendation**

End the Atlantic menhaden reduction fishery in Virginia waters and limit reduction fishing to federal waters east of the 3 nautical mile Exclusive Economic Zone.

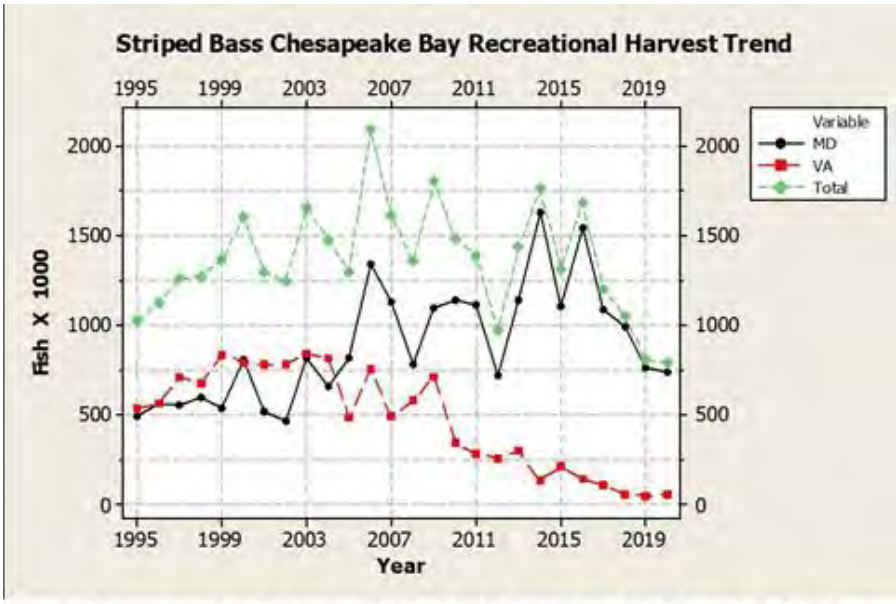
References:

(a) SEDAR 69 Ecological Reference Points Stock Assessment Report on Atlantic Menhaden dated January 2020, pages iii and 375
(b) Estimation of movement and mortality of Atlantic menhaden during 1966–1969 using a Bayesian multi-state mark-recovery model Emily M. Liljestrand, Michael J. Wilberg, Amy M. Schueller, Published online 2/2019
(c) Amendment 3 to the Interstate Fishery Management Plan for Atlantic Menhaden November 2017, page v
(d) ASMFC Press Release: Atlantic Menhaden Board Sets 2023 TAC at 233,550 MT & Approves Addendum to Address Commercial Allocations, Episodic Event Set Asides, and Incidental Catch/Small-scale Fisheries
(e) Virginia Administrative Code, Chapter 1270, Pertaining to Atlantic Menhaden
(f) Dr. Bryan Watts Letter to Virginia Governor Ralph Northam, 8/20/2020

## Omega Protein Purse Seine Settings and Migration


Ref: SEDAR 40 Stock Assessment Report Atlantic Menhaden, January 2015, page 10

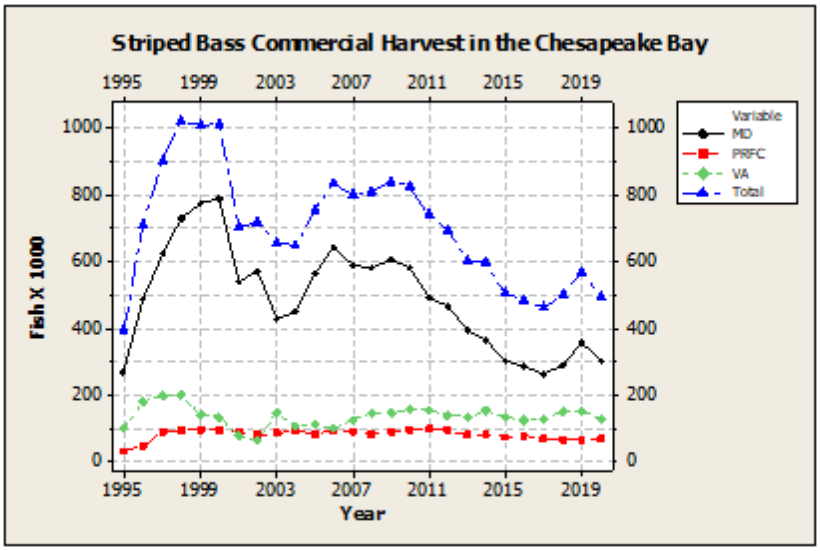
Figure 1




Draft Amendment 7 to the Interstate FMP for Atlantic Striped Bass, Table 18, page 135 - 2/2022

Figure 2

**Decline in Striped Bass Chesapeake Bay Commercial Harvest**




Draft Amendment 7 to the Interstate FMP for Atlantic Striped Bass, Table 15 page 132 - 2/2022

Figure 3

**Chesapeake Bay 2022 Young-of-Year Survey Results**

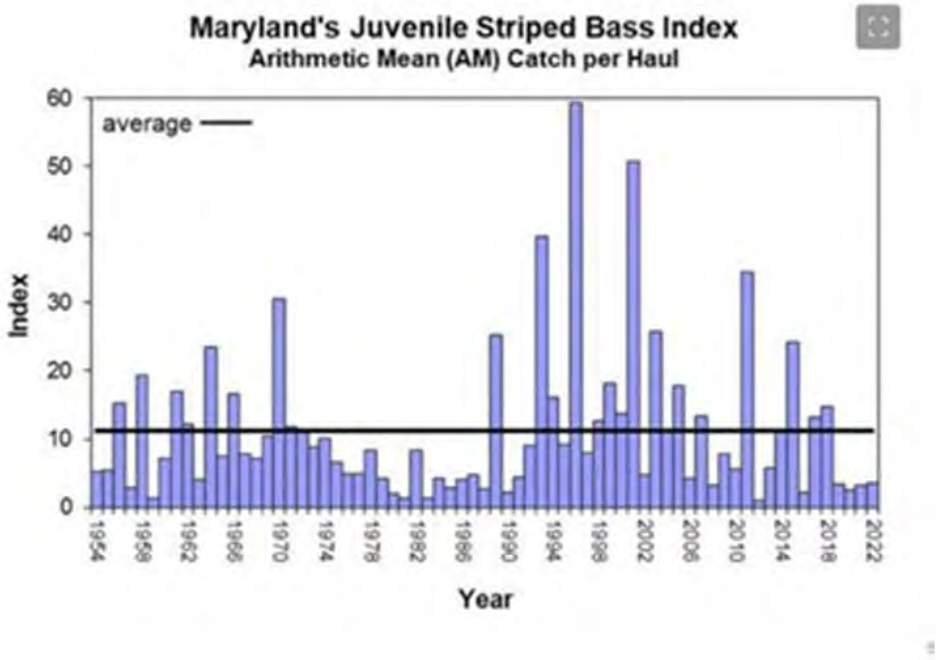



Figure 4

## Striped Bass Economic Impact to Virginia (2016)

**Commercial GDP:** $1,379,900
**Commercial Jobs:** 42

**Recreational GDP:** $241,551,000
**Recreational Jobs:** 3,420

*Comparisons Between the Fisheries*

*Table RI-8. Comparison of commercial and recreational impacts: Rhode Island 2016*

| | Commercial Fishery | Recreational Fishery | Total | Commercial Fishery | Recreational Fishery | Total |
|---|---|---|---|---|---|---|
| Pounds landed (000s) | 174.7 | 1,775.6 | 1950.3 | 9% | 91% | 100% |
| Jobs supported | 42 | 3,410 | 3452 | 1% | 99% | 100% |
| Income ($000s) | $984.6 | $155,293.5 | $156,278.1 | 1% | 99% | 100% |
| GDP ($000s) | $1379.9 | $241,551.0 | $242,930.9 | 1% | 99% | 100% |

Ref: The Economic Contributions of Recreational and Commercial Srtiped Bass Fishing, Southwick Associates, page 42

Figure 5

## Striped Bass Economic Impact to Maryland (2016)

**Commercial GDP:** $10,919,100
**Commercial Jobs** 584

**Recreational GPD:** $802,791,200
**Recreational Jobs** 10,193

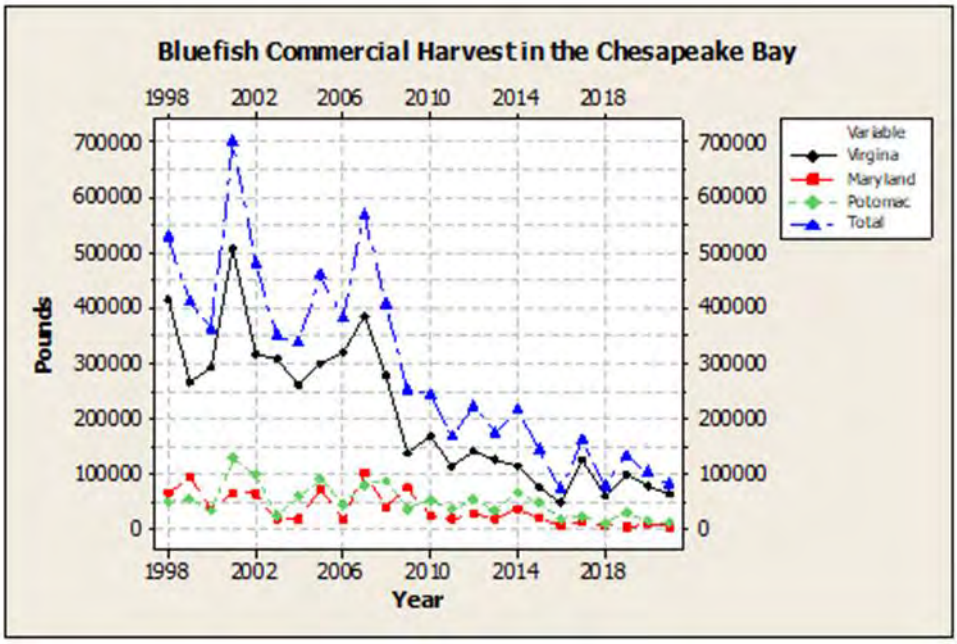
*Comparisons Between the Fisheries*

*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% |

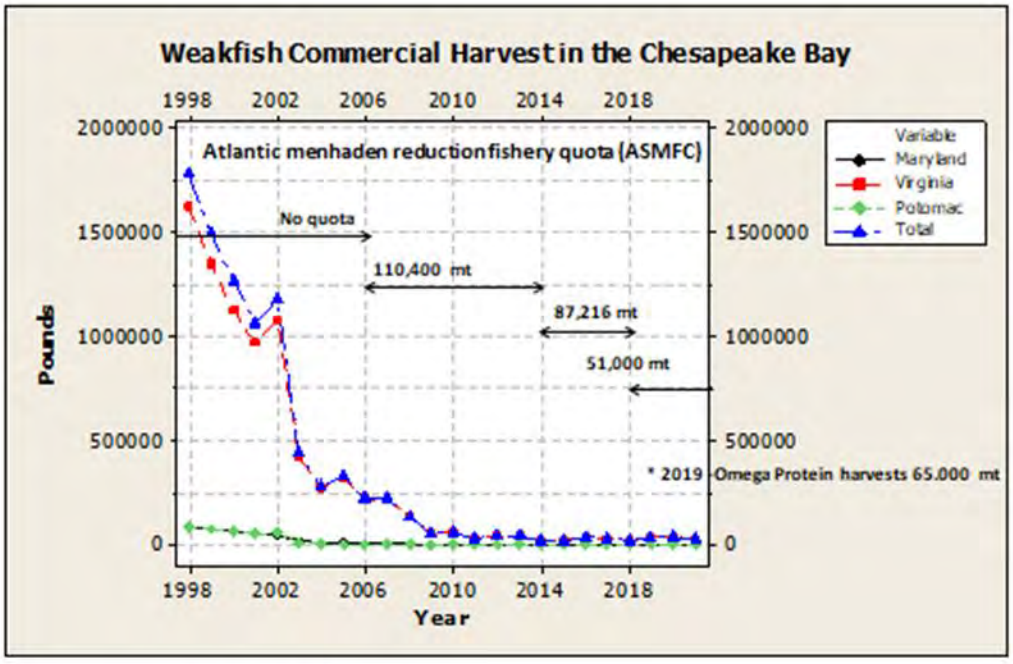
Ref: The Economic Contributions of Recreational and Commercial Striped Bass Fishing, Southwick Associates, page 26, 4/12/19

Figure 6




References: MD DNR, VMRC, PRFC

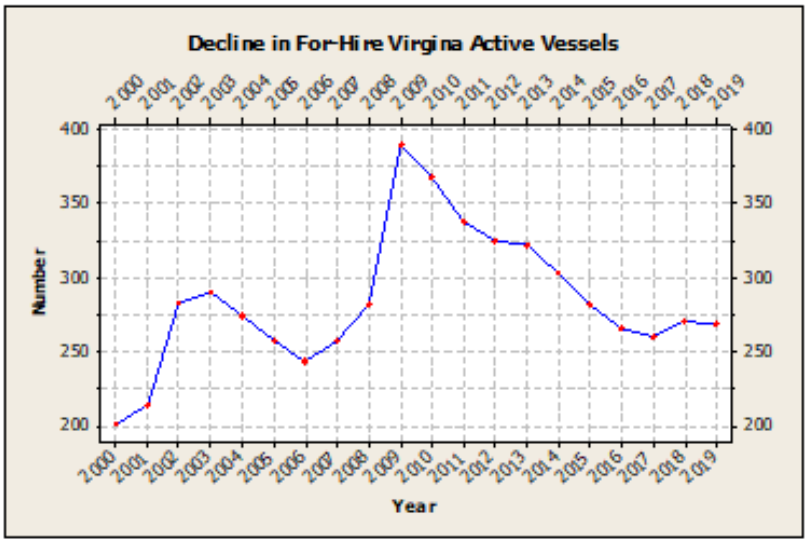
Figure 7




References: MD DNR, VMRC, PRFC, ASMFC

Figure 8

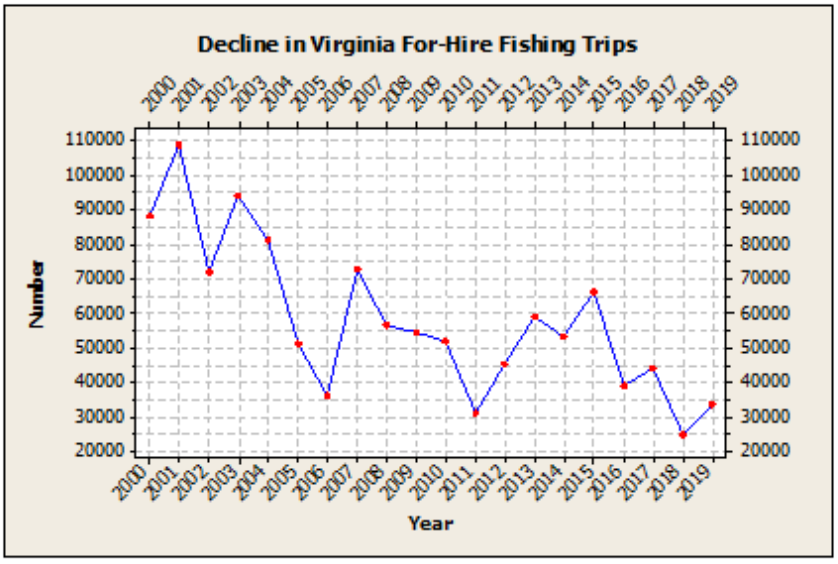
## Decline in Virginia For-Hire Active Vessels




VMRC. Stephanie Iverson-Cason, 1/10/23

Figure 9

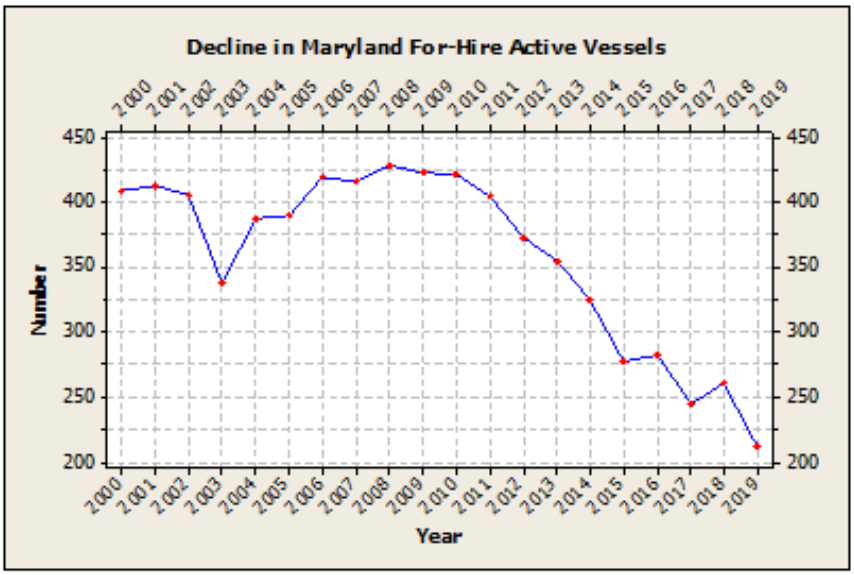
## Decline in Virginia For-Hire Fishing Trips




VMRC, Stephanie Inverson-Cason 1/10/23

Figure 10

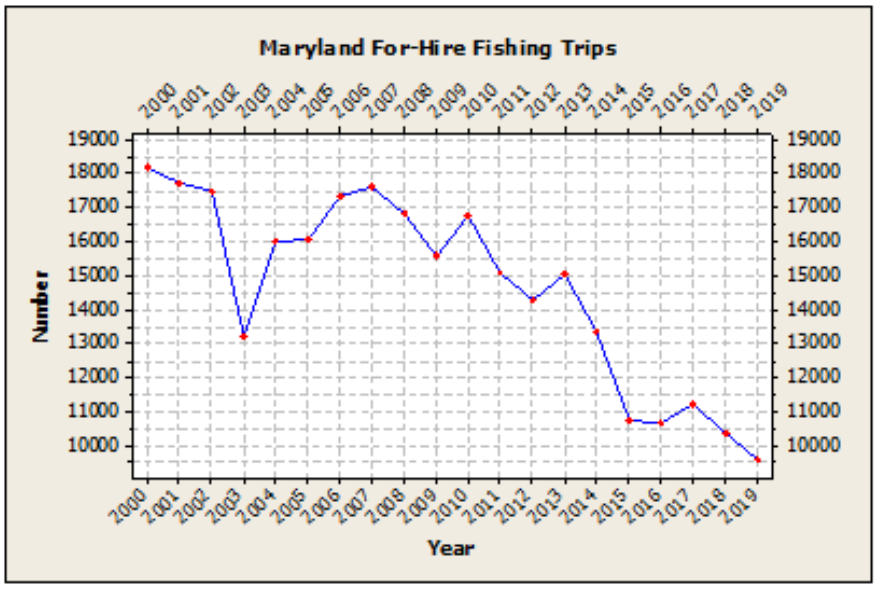
## Decline in Maryland For-Hire Active Vessels




MD DNR, Gina Hunt email of 2/28/2020

Figure 11

## Decline in Maryland For-Hire Fishing Trips




**MD DNR, Gina Hunt email of 2/28/2020**

Figure 12

**Southern Maryland Recreational Fishing Organization**
**https://www.smrfo.org/**

# Localized Depletion of Atlantic Menhaden in Virginia Waters

**July 24, 2023**

**Phil Zalesak**
**President of SMRFO**

# Overview

- **History of Atlantic Menhaden Harvesting**
- **The Problem**
- **The Data**
- **The Solution**
- **Action Required**

# History of Atlantic Menhaden Reduction Fishery in Atlantic Waters and the Chesapeake Bay

# Allocation of
# Atlantic Menhaden Reduction Fishery in the Chesapeake Bay

| | Metric Tons | # of Fish * |
|---|---|---|
| • 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

# Allocation of
# Atlantic Menhaden on the Atlantic Coast

| | Metric Tons | # of Fish* |
|---|---|---|
| • 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)**

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

# The Problem

# Localized Depletion Definition (2009)

**The Technical Committee of the Atlantic States Marine Fisheries Commission defined localized depletion as:**

**"Localized depletion in the Chesapeake Bay is defined as a reduction in menhaden population size or density below the level of abundance that is sufficient to maintain its basic ecological (e.g. forage base, grazer of plankton), economic and social/cultural functions. It can occur as a result of fishing pressure, environmental conditions, and predation pressures on a limited spatial and temporal scale."**

https://www.st.nmfs.noaa.gov/Assets/Quality-Assurance/documents/peer-review-reports/2009/2009_05_08%20Maguire%20Chesapeake%20Bay%20menhaden%20program%20review%20report.pdf, page 4

# 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-%20specific%20fishing%20mortality%2C%20and%20monthly%20movement.

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

# 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.


**Ref: SEDAR 40 Stock Assessment Report Atlantic Menhaden, January 2015, page 10**

# Previous Allocation of Atlantic Menhaden by State

| | | 2021-2022 | | |
|---|---|---|---|---|
| Allocation | Percentage | Metric Tons | Pounds | Fish* |
| 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 | | | | |

https://asmfc.org/uploads/file/5f8f5e30pr23AtlMenhaden2021-2022TAC.pdf

# Current Allocation of Atlantic Menhaden by State

| | | 2023 - 2024 | | |
|---|---|---|---|---|
| Allocation | Percentage | Metric Tons | Pounds | Fish* |
| 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 | | | | |

https://www.asmfc.org/uploads/file/636e6629pr32AtlMenhaden2023TAC_AddendumIApproval.pdf

# 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

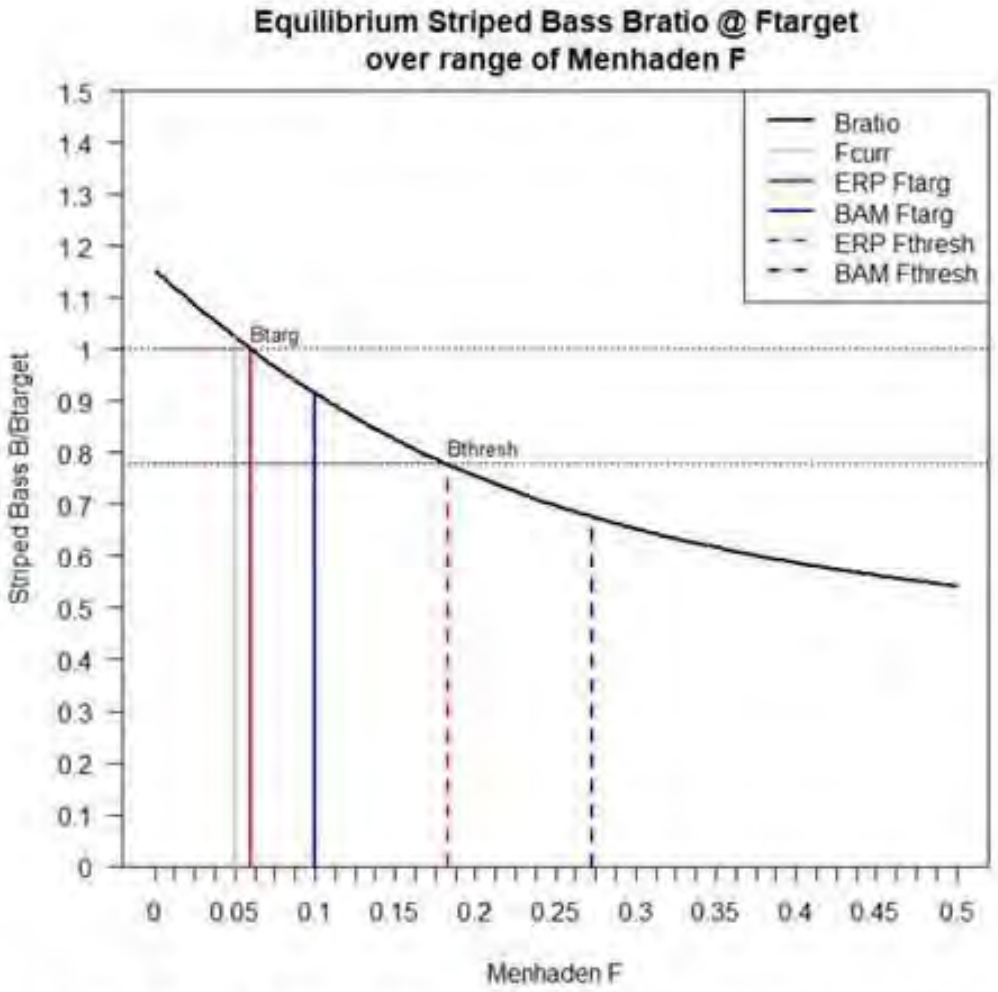
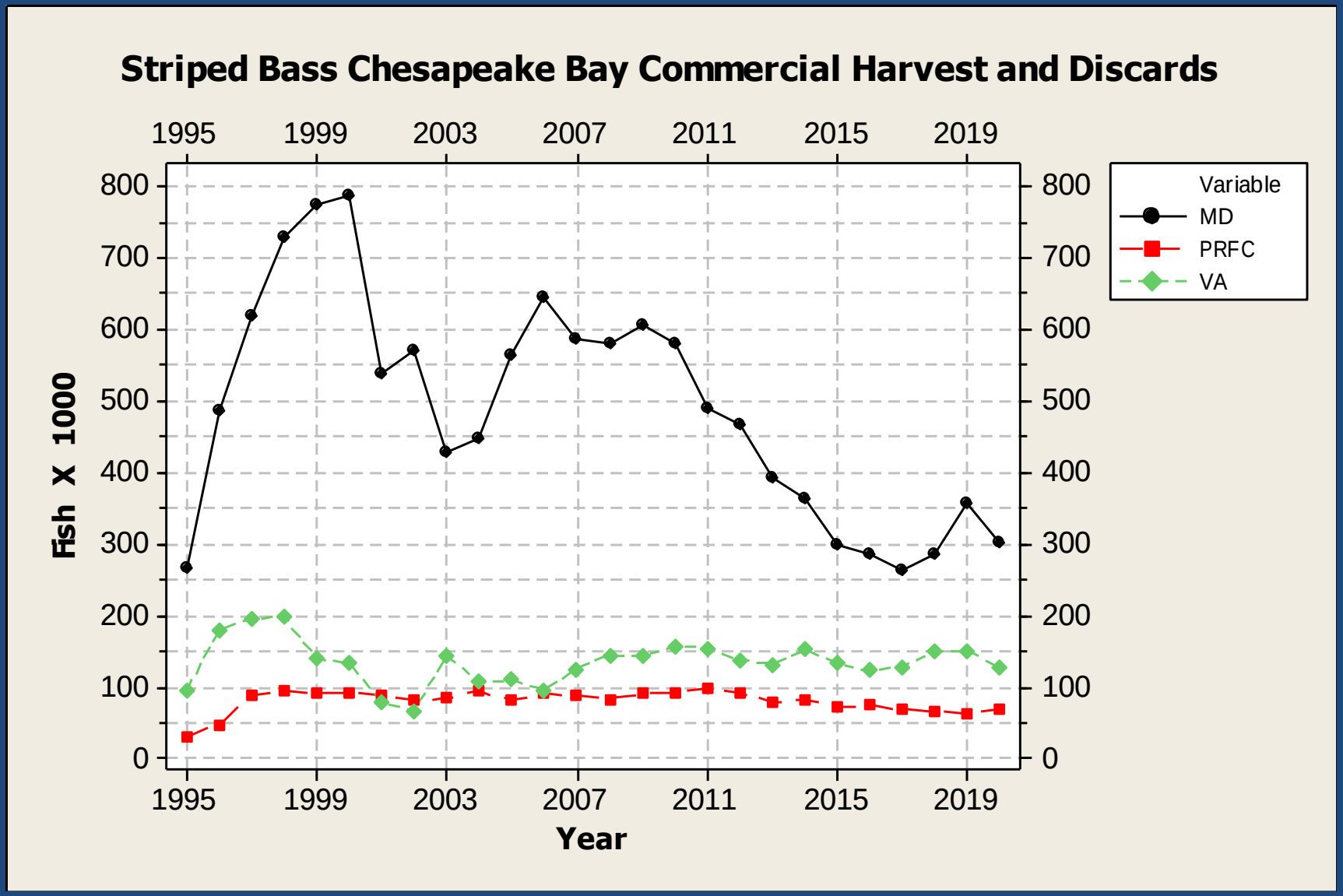



**Figure 148.** Terminal year biomass ratio ($B/B_{TARGET}$) from the NWACS-MICE model for age 6+ striped bass over a range of Atlantic menhaden *F* with striped bass fished at their *F* target. Vertical solid and dotted lines indicate the BAM single-species target and threshold *F* as well as the current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

http://www.asmfc.org/uploads/file/6436c5022019AtlMenhadenERPStockAssessmentReport.pdf page 375

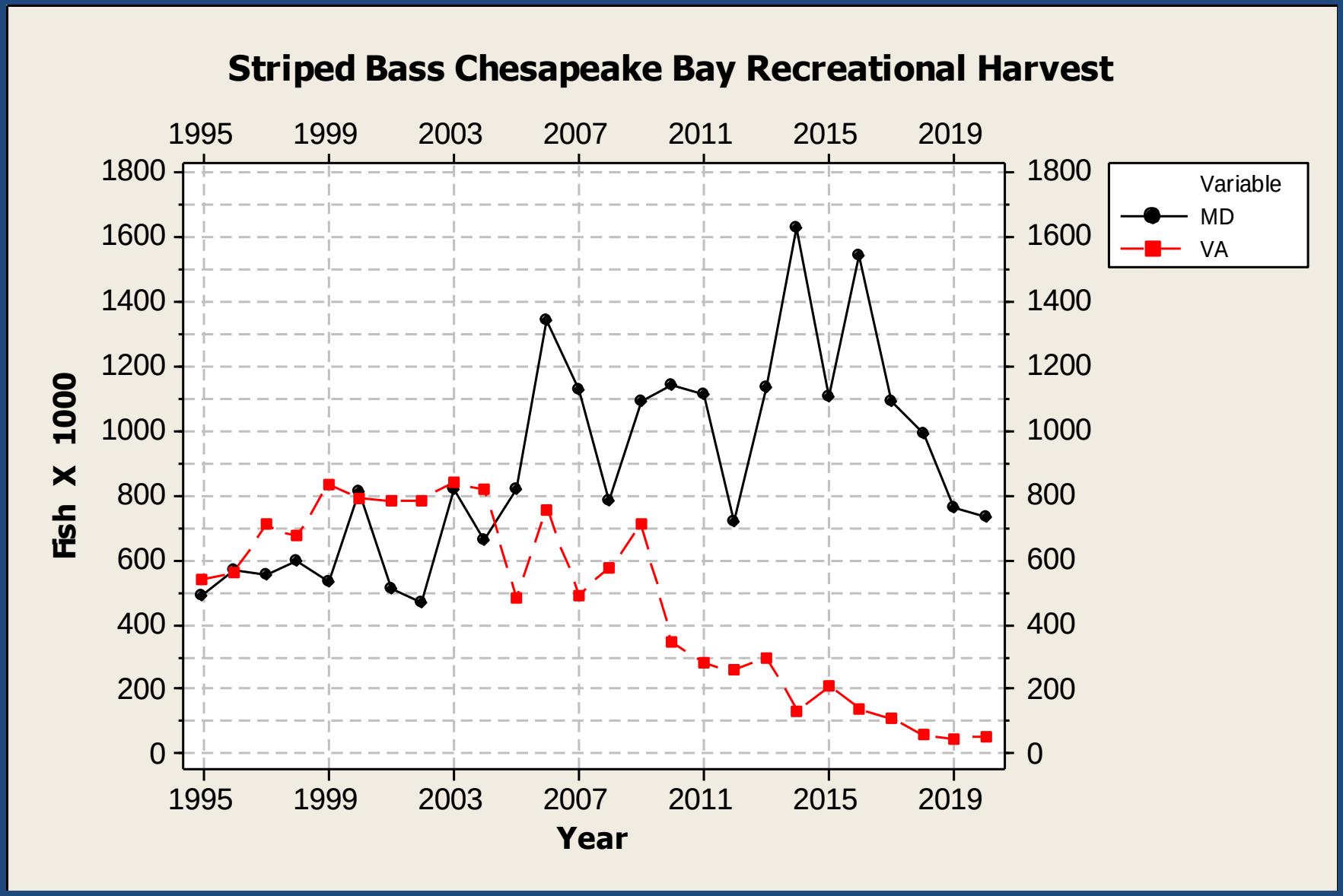
# The Data

# Striped Bass Chesapeake Bay Commercial Harvest and Discards Trends

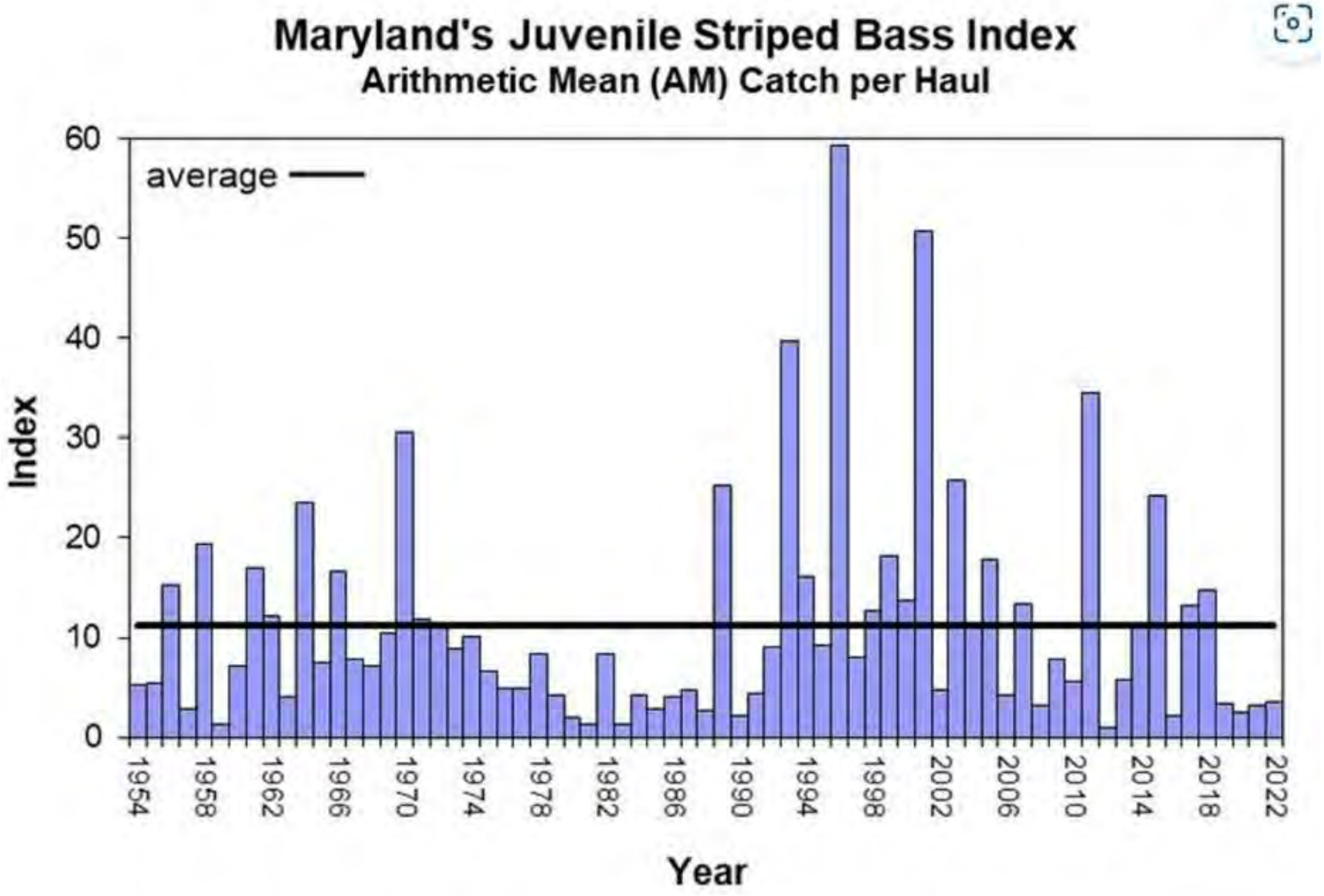



Ref: Draft Amendment 7 Striped Bass FMP, table 15, page 132, 2/4/2022

# Striped Bass Chesapeake Bay Recreational Harvest Trend




Ref: Draft Amendment 7 Striped Bass FMP, table 18, page 135, 2/4/2022




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

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

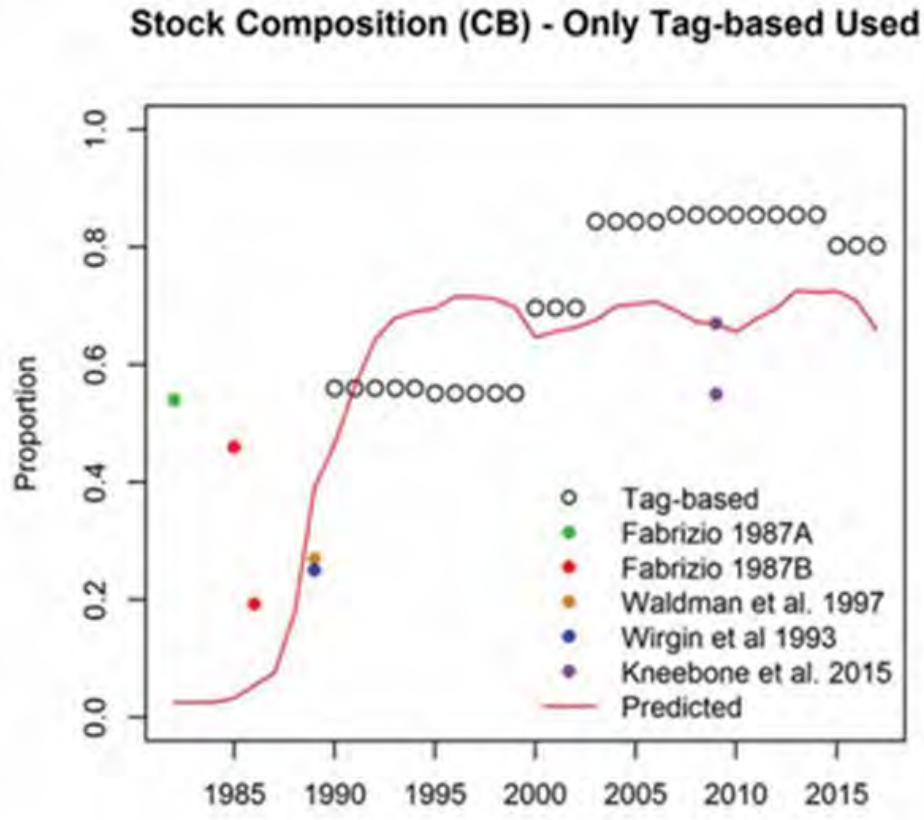



Figure B7.9. Observed versus predicted stock composition for the Chesapeake Bay stock. Literature values not used in the model fitting are indicted by the solid circles for comparison.

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**

# Striped Bass Economic Impact to Maryland (2016)

**Commercial GDP:** **$10,919,100**
**Commercial Jobs** **584**

**Recreational GPD:** **$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**

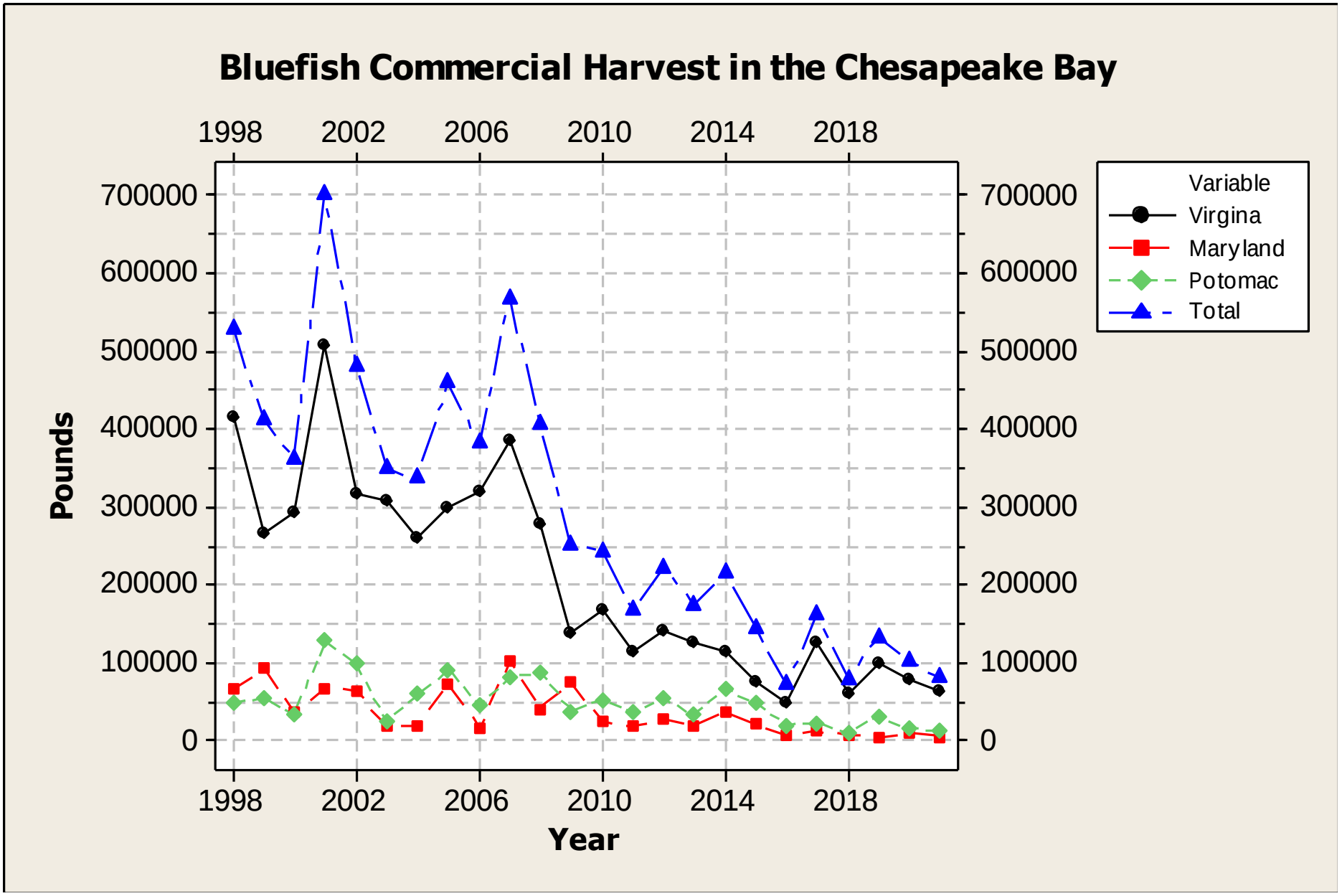
**Recreational GPD:** **$106,623,300**
**Recreational Jobs** **1,444**

*Comparisons Between the Fisheries*

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

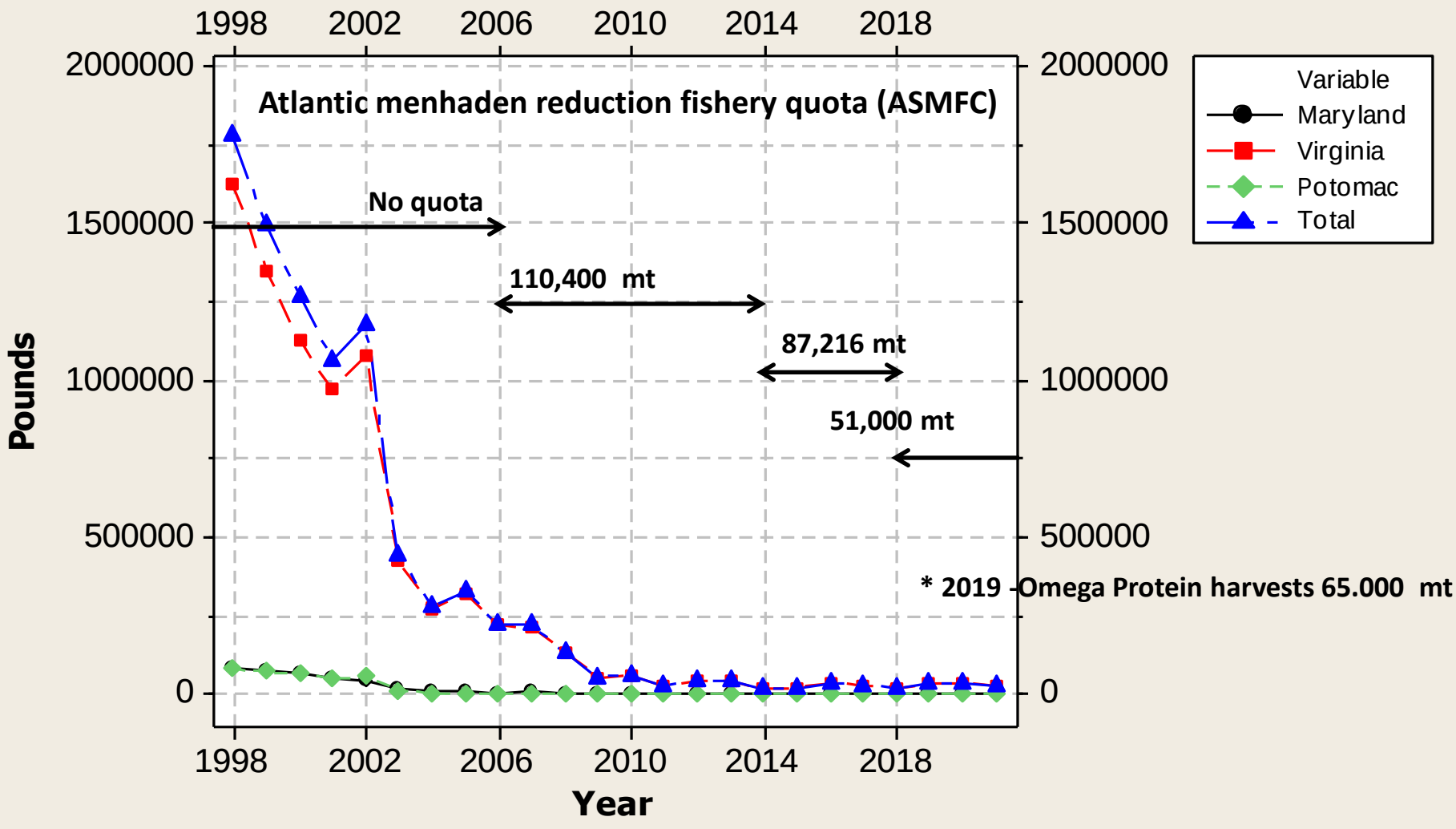
| | Commercial Fishery | Recreational Fishery | Total | Commercial Fishery | Recreational Fishery | Total |
|---|---|---|---|---|---|---|
| Pounds landed (000s) | 1,333.6 | 1,024.4 | 2358.0 | 57% | 43% | 100% |
| Jobs supported | 384 | 1,444 | 1828 | 21% | 79% | 100% |
| Income ($000s) | $9,016.0 | $67,550.7 | $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**




References: MD DNR, VMRC, PRFC

# Weakfish Commercial Harvest in the Chesapeake Bay



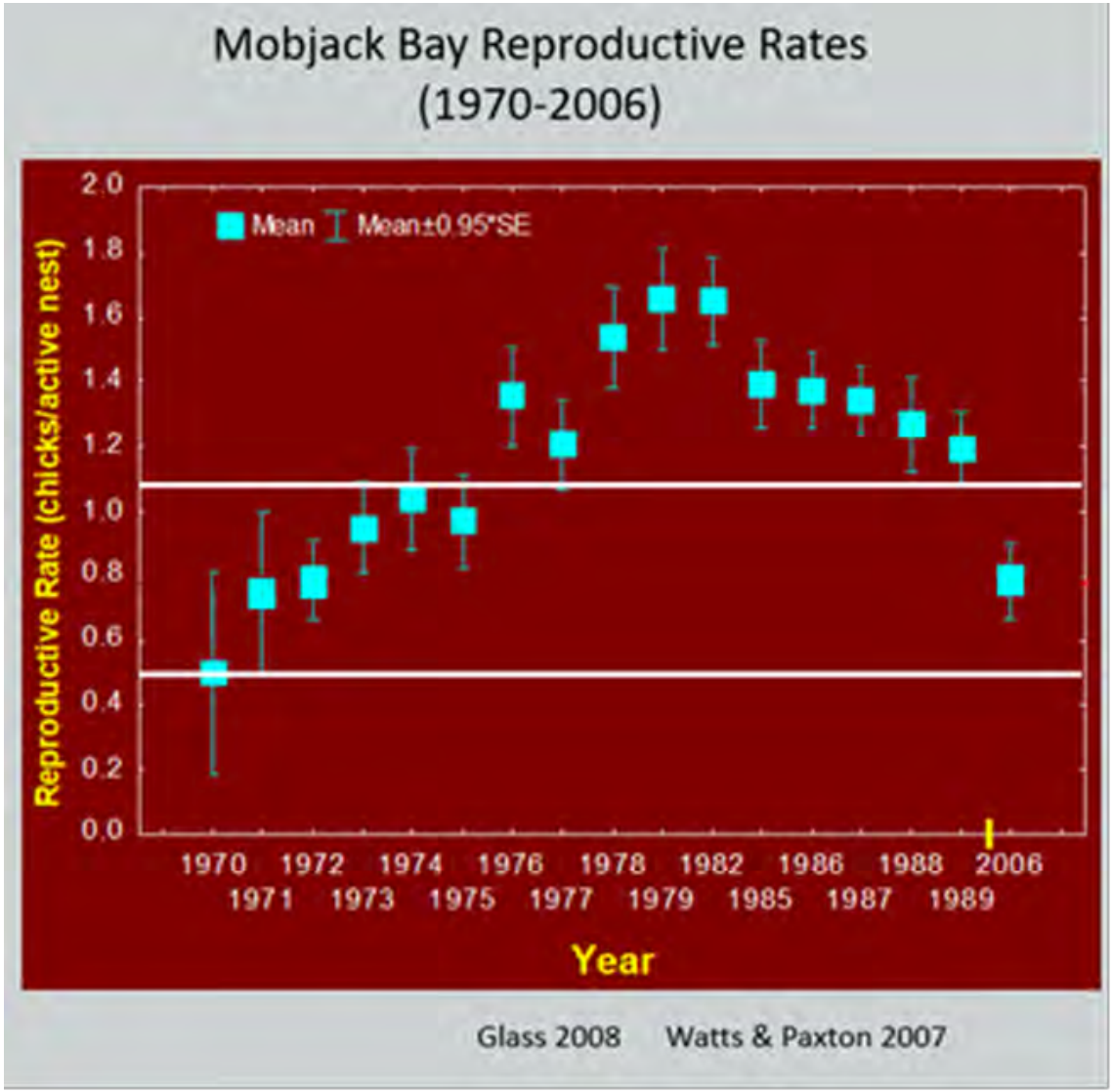

**References: MD DNR, VMRC, PRFC, ASMFC**

**Dr. Bryan Watts**
**College of William and Mary**

**“Reductions in menhaden stocks have caused osprey productivity to decline to below DDT-era rates. These rates are insufficient to support the osprey population within the main stem of the Bay.”**

**Ref: Letter to Virginia Governor Ralph Northam, 8/20/2020**

# Osprey Reproductive Rate (Chicks/Active Nest)




https://youtu.be/IKR-DHwlZlU Michael Academia, College of William & Mary, 10/6/2022

# Osprey Reproductive Performance Data

The CENTER for CONSERVATION BIOLOGY

## Food Supplementation Increases Reproductive Performance of Ospreys

| Results |

### 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

# 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 | Addt'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

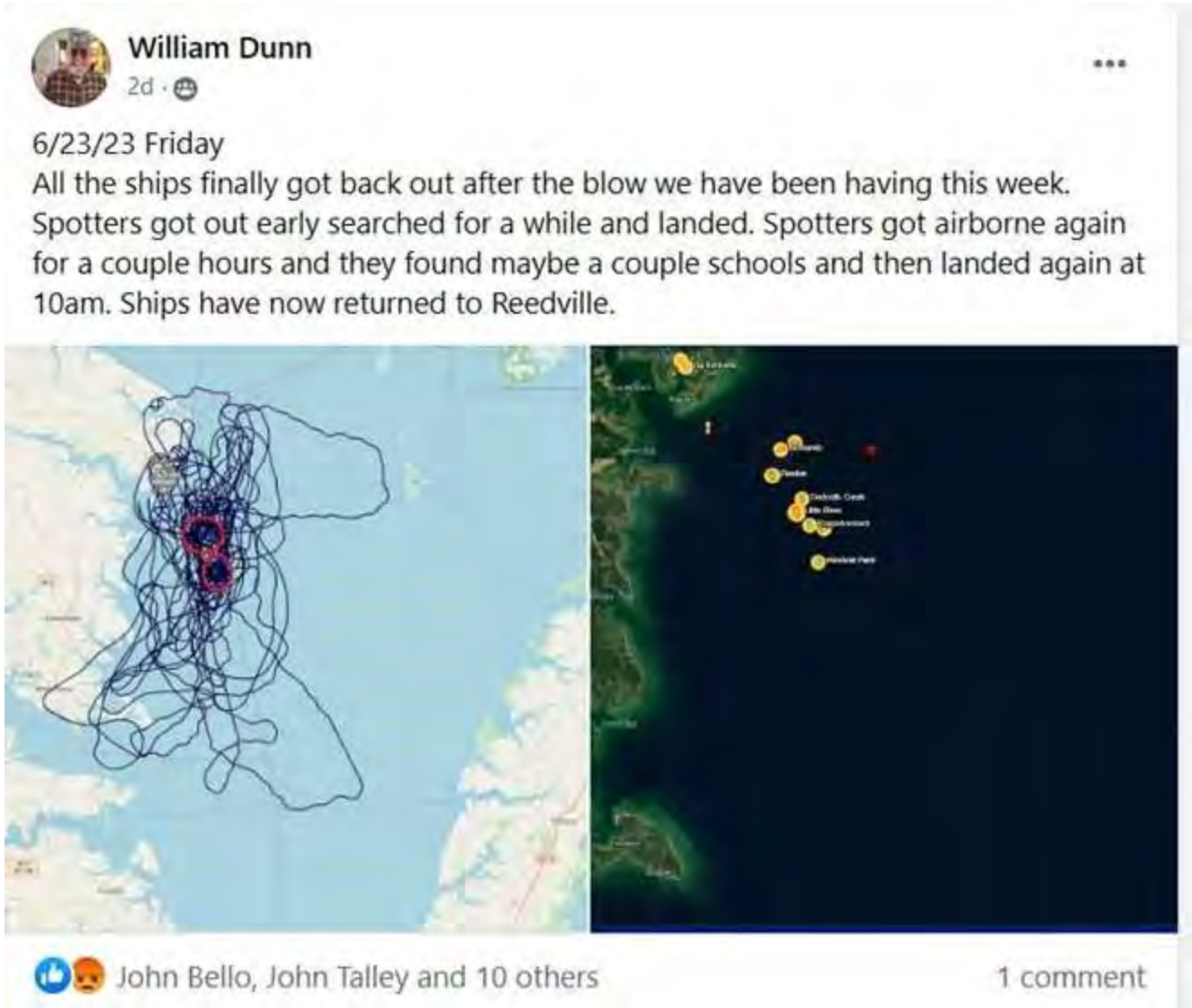
**: Existing data could provide information on MD and VA separately from the rest of the coast, but not Chesapeake Bay itself.

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

**Ref: Ecological Reference Point Work Group and Atlantic Menhaden Technical Committee Memo of 4/26/21**

# 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**



# 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

# 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/

# 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**

| | |
|---|---|
| **From:** | Academia, Michael |
| **To:** | Comments |
| **Cc:** | Watts, Bryan; Pitts, Marie |
| **Subject:** | [External] Public Comment - ASMFC ISMP Meeting |
| **Date:** | Monday, July 24, 2023 1:18:44 PM |
| **Attachments:** | Outlook-ivqcqb4q.png<br>Watts-Press Release-2023.pdf<br>fmars-10-1172787.pdf |

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Good Afternoon,

My name is Michael Academia, Osprey Researcher, and I will be representing the Center for Conservation Biology (William & Mary) on August 3rd at the ASMFC ISMP public comment section. Attached is a press release from Dr. Bryan Watts, Director of the Center for Conservation Biology, and our peer-reviewed publication from the Frontiers of Marine Science highlighting ospreys as ERPs.

Regards,
Michael

---

**Michael Academia, M.Sc Biology | Osprey Researcher**

Center for Conservation Biology | William & Mary

Mailing Address: PO Box 8795, Williamsburg, VA 23187

Non-USPS Shipments: 205 Ironbound Rd, Williamsburg, VA 23188

macademia@wm.edu | ccbbirds.org | osprey-watch.org

WILLIAM & MARY

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THE CENTER FOR CONSERVATION BIOLOGY

For release: July 14, 2023

Williamsburg, VA – In 2023, The Center for Conservation Biology has documented the highest rate of osprey nest failure ever recorded within the lower Chesapeake Bay. Only 17 of 167 nests monitored during the season produced any young. The nesting population produced only 21 young resulting in a reproductive rate of 0.13 young per pair. This rate is below that recorded during the height of the DDT era. In order for the population to sustain itself, pairs should produce 1.15 young per pair.

The poor reproductive performance documented during 2023 is a trend that has been observed for the past fifteen years. In Mobjack Bay, productivity peaked during the 1980s and has declined to the present day. Researchers within The Center believe that the ongoing decline in young production is driven by overharvest of Atlantic menhaden. Forage fish such as menhaden, anchovy, sardine, capelin and herring play significant roles in marine ecosystems throughout the world. These small schooling fish are responsible for transferring energy from plankton to higher-level predators such as osprey. When forage fish are overharvested the marine food web is broken and higher-level predators suffer.

Within Mobjack Bay young osprey are starving in nests because the decades-long overharvest of menhaden has caused local depletion. Within osprey pairs, males are responsible for hunting and providing fish to broods. Between 1985 and 2021, the rate of menhaden captures by male osprey declined from 2.4 fish per 10 hours to only 0.4 fish per 10 hours, a decline of more than 80 percent. Although osprey do feed on other fish species within the lower Chesapeake Bay none of these species offer comparable nutrient content. Atlantic menhaden is the keystone species that osprey depend on during the nesting season.

An experimental study conducted by Center biologists during the 2021 nesting season supplemented diets of osprey broods by providing menhaden and demonstrated that reproductive rates could be driven back to sustainable levels. On a broad scale, recovery of reproductive rates will require the restoration of menhaden stocks. Menhaden harvest policy has become a political mine field with special interests on all sides. Osprey within the lower Bay are increasingly demonstrating that our choices about harvest policy are having consequences for the broader Chesapeake Bay ecosystem.

**Contact:**
Dr. Bryan D. Watts, Director
The Center for Conservation Biology
William & Mary

bdwatt@wm.edu • (757) 221-2247

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EDITED BY
Salvatore Siciliano,
Fundação Oswaldo Cruz (Fiocruz), Brazil

REVIEWED BY
Carlos Matias,
Federal Rural University of Rio de Janeiro, Brazil
Miguel Ferrer,
Spanish National Research Council (CSIC), Spain
Flavio Monti,
University of Siena, Italy

*CORRESPONDENCE
Michael H. Academia
macademia@wm.edu

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# Food supplementation increases reproductive performance of ospreys in the lower Chesapeake Bay

Michael H. Academia* and Bryan D. Watts

Center for Conservation Biology, College of William & Mary, Williamsburg, VA, United States

The Atlantic States Marine Fisheries Commission (ASMFC), the governing body responsible for managing fisheries on the U.S. East Coast, formally adopted the use of Ecological Reference Points (ERPs) for Atlantic menhaden, *Brevoortia tyrannus*. Scientists and stakeholders have long recognized the importance of menhaden and predators such as ospreys, *Pandion haliaetus*, that support the valuable ecotourism industry and hold cultural significance. Landings in the reduction fishery are at their lowest levels and menhaden is facing potential localized depletion. Mobjack Bay, located within the lower Chesapeake Bay, has been a focus of osprey research since 1970 and represents a barometer for the relationship between osprey breeding performance and the availability of their main prey, menhaden. Since local levels of menhaden abundance were not available, we conducted a supplemental menhaden feeding experiment on osprey pairs during the 2021 breeding season. Our main objective was to determine if the delivery rate of menhaden had an influence on nest success and productivity. Nest success ($\chi 2 = 5.5$, df = 1, P = 0.02) and productivity ($\beta$ = 0.88, SE = 0.45, CI = 0.049, 1.825, P = 0.048) were significantly higher within the treatment group. 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.

KEYWORDS

**osprey, *Pandion haliaetus*, menhaden, *Brevoortia tyrannus*, localized depletion, ecological reference points, food supplementation**

## 1 Introduction

World fisheries landings since the late 1980s have been steadily declining (Pauly and Zeller, 2016, FAO, 2020). With mounting concern over the state of our fisheries, management strategies have shifted focus from single-species to ecosystem-based objectives (Pauly et al., 2008). This style of management attempts to integrate ecological,

economic, and social factors to secure and protect the sustainability of our fisheries and the ecosystems within which they reside (Einoder, 2009). Thus, United States federal policy firmly reinforces the implementation of Ecosystem-Based Fisheries Management (EBFM) which is an approach that considers trophic interactions and aims to promote the health and resilience of the ecosystem (McLeod and Leslie, 2009; Link, 2010, NMFS (National Marine Fisheries Service), 2016). Apex predators are essential indicators within this management approach and may provide more sensitive measures of changing fish populations because of their dietary dependencies (Furness, 1982; Diamond and Devlin, 2003). Monitoring fish-eating bird populations may be both more cost effective and better suited to the problem of understanding fish populations within an ecosystem (Cairns, 1988). Bird metrics may play an increasing role in the assessment of prey availability, especially in areas where conventional fisheries data are insufficient (Cairns, 1988). Bird populations may serve as an early warning system for changes in fish populations that have ecosystem implications (Kabuta and Laane, 2003; Cury et al., 2005).

The Atlantic States Marine Fisheries Commission (ASMFC), the governing body responsible for managing fisheries on the U.S. East Coast, formally adopted the use of Ecological Reference Points (ERPs) for Atlantic menhaden, *Brevoortia tyrannus*. Historical estimates of menhaden were limited and the harvest effects did not produce sufficient information on important predator species. Therefore, the ASMFC developed an interest in establishing ERPs to set quotas and evaluate menhaden's status and role as a forage species (Drew et al., 2021). Scientists and stakeholders have long recognized the importance of predators, such as bottlenose dolphins, *Tursiops truncates*, and humpback whales, *Megaptera novaeanglia*, that support a valuable ecotourism industry and hold cultural significance (Gannon and Waples, 2004; Glass and Watts, 2009; Butler et al., 2010; Smith et al., 2015; Drew et al., 2021).

Atlantic menhaden are a schooling fish that can be found along nearshore coasts along the Atlantic Ocean from Nova Scotia, CAN, to Florida, USA and go through large age- and size-dependent seasonal migrations (Dryfoos et al., 1973; Nicholson, 1978; Liljestrand et al., 2019). As indeterminate spawners, adults are capable of spawning multiple times in a season and inhabit estuarine and coastal areas such as Chesapeake Bay (Ahrenholz, 1991, Southeast Data Assessment and Review [SEDAR], 2020). As juveniles, they spend their first spring and summer in estuaries and by late fall, they join with other subadults and adults and migrate to nearshore coastal waters (Southeast Data Assessment and Review [SEDAR], 2020; Anstead et al., 2021).

Menhaden support the largest fishery in the U.S. East Coast by volume and is used for bait and reduced to fish oil and meal which are used for animal feed, fertilizer, and human health supplements (Anstead et al., 2021). The reduction fishery began in the mid-1800s with the use of purse seine gear and peaked in 1956 with over 20 menhaden reduction factories along the Atlantic Coast (Southeast Data Assessment and Review [SEDAR], 2020). Currently, landings in the reduction fishery are at their lowest levels (Southeast Data Assessment and Review [SEDAR], 2020) and at Chesapeake Bay, populations of menhaden are facing potential localized depletion. ASMFC defined localized depletion in Chesapeake Bay "as a reduction in menhaden population density below the level of abundance that is sufficient to maintain its basic ecological, economic, and social/cultural functions" (Annis et al., 2009). Localized depletion has not been officially defined or evaluated by managers because estimates of the standing stock within Chesapeake Bay have been unavailable and thresholds for exploitation cannot be resolved.

Known as the fish hawk, we selected the osprey as an appropriate non-finfish ERP to evaluate localized depletion of menhaden and food limitation within Chesapeake Bay. The ERP Work Group emphasized the research need for diet data collection and demographic responses of non-finfish predators (Atlantic States Marine Fisheries Commission [ASMFC], 2017). According to Buccheister et al. (2017), the nearshore piscivorous birds such as ospreys are sensitive to the overfishing of menhaden. Ecologically, ospreys are generalized specialists (Beirregaard et al., 2014). Specialized in that they are obligate piscivores and generalized in that they predate upon many species of fish. Ospreys surface plunge at a maximum depth of one meter and are more susceptible to a decrease in fish density than other birds such as pursuit divers that search for prey while swimming on the water surface and dive to deeper depths (Ashmole, 1971; Cramp and Simmons, 1979). Piscivory and plunge diving influences an ecological indicator's response to fish supply perturbations (Einoder, 2009). Reduced prey availability and fluctuations in environmental conditions are more evident in the foraging behavior and breeding success of a specialist (Furness and Ainley, 1984; Montevecchi, 1993). Moreover, shallow divers and surface feeders are more vulnerable, are considered more sensitive indicators than pursuit divers, and show greater variation in breeding performance (Montevecchi, 1993, Monaghan et al., 1994; Scott et al., 2006). As one of the more recognized raptors, ospreys have been used as an ecotoxicological sentinel species of environmental health due to their reproductive responses to natural and anthropogenic pressures and life history traits (Henny et al., 2008; Johnson et al., 2008; Grove et al., 2009). Ospreys exhibit strong nest fidelity and their reproductive status is observable by ground, boat, or aerial surveys which makes them a valuable and efficient sentinel of the ecosystem (Ogden et al., 2014) and an appropriate ERP for menhaden (Buccheister et al., 2017).

The Chesapeake Bay supports one of the largest osprey breeding populations in the world (Henny, 1983; Watts and Paxton, 2007). As with many similar populations, ospreys in the Chesapeake Bay experienced dramatic declines in the post-World War II era due to reproductive suppression (Truitt, 1969; Kennedy, 1971; Wiemeyer, 1971; Reese, 1977) induced by environmental contaminants (Via, 1975; Wiemeyer et al., 1975). The population sustained a low point by 1973 when Henny et al. (1974) estimated its size to be 1,450 breeding pairs. From 1973 to 1995, the population more than doubled in size to nearly 3,500 pairs (Watts et al., 2004) and believed to be between 8,000-10,000 pairs in 2020. However, the population has experienced spatial variation in recovery (Watts et al., 2004; Watts and Paxton, 2007). For example, average doubling time for the population on low-salinity, upper reaches of tributaries, was less than four years while doubling time on higher-salinity reaches of the lower Chesapeake Bay exceeded 40 years (Watts et al., 2004). This variation reflects the extent of the

earlier decline, immigration from other regions of the Chesapeake Bay, and the local demography of pairs that may have been influenced by prey availability.

Mobjack Bay has been a focus of osprey research since 1970 and represents a barometer for the relationship between osprey breeding performance and menhaden availability (Glass, 2008). During the mid-1970s, there was little evidence of food limitation reflected in osprey reproductive performance and brood sizes within the higher salinity zones of the lower Chesapeake Bay (Stinson, 1976). However by the early 2000s, the proportion of menhaden in the diet had dropped by 40% and reproductive rates had dropped to precarious levels (Glass, 2008). We conducted a supplemental feeding experiment for osprey pairs nesting in Mobjack Bay during the 2021 breeding season. A clear barrier in resolving the relationship between osprey productivity and menhaden consumption is the lack of menhaden abundance data that can be scaled down to the local level. If such data were available, we could monitor osprey foraging, provisioning, and productivity, and assess the functional response to available menhaden. Since such data are not available, a food manipulative experiment in the wild was performed (Piatt et al., 2007). Our secondary objective was to determine prey composition and the dietary importance of menhaden.

# 2 Methods

## 2.1 Study species

Ospreys are large, long-winged raptors with a nearly global distribution that feed exclusively on fish (Poole, 2019). Most osprey populations across North America are migratory, spend the winter months in Central or South America and begin breeding at the age of three (Henny & Wight, 1969) Age-at-first-reproduction in Chesapeake Bay ospreys was recorded from 4 years (Kinkead, 1985) to 5.7 years (Poole, 1989; Poole et al., 2002). As the population reaches carrying capacity, age-at-first-reproduction increases (Spitzer, 1980; Poole, 1989). Poole (1989) estimated that pairs within the Chesapeake Bay must produce 1.15 young per year in order to offset adult mortality. On average, if the population consistently meets or exceeds this rate (demographic source) then the population would be expected to be stable to increasing (Pulliam, 1988). If the reproductive rate consistently falls below this threshold (demographic sink) the population would be expected to decline in the absence of compensatory immigration.

## 2.2 Food addition experiment

We established treatment (fish addition) and control (no fish addition) nests to assess the effect of increased provisioning on demography. We added 472 g ± 7.9 (SE) of menhaden every 3.5d ± 0.2 to treatment nests from the time of hatching to six weeks of age. We delivered menhaden to nests using a telescopic pole with a mounted delivery device. We sourced fresh or previously frozen menhaden from a local fishing supply company and the fish were counted, weighed, coded, and separated into packages for easy deployment. We selected study nests based on accessibility and randomly assigned accessible nests to treatments. We conducted an initial survey (late March to mid-April) of the study area for osprey nests (N = 114) and recorded location (latitude, longitude), accessibility by boat, nesting stage, nest substrate, height over water, and water depth. We screened nests for initial inclusion in the study based on accessibility, height over water (to allow for ready access to the nest) and water depth (to allow for boat access and maneuverability). We only included nests within the study that survived to hatching stage. We monitored all nests included within the initial draw until clutches hatched. Nests that hatched eggs were randomly assigned to two treatment groups (Figure 1) including a control group (N = 15) and a food addition group (N = 16). The nests in the East River were limited in boat accessibility and therefore assigned to the control group.

## 2.3 Demography

We monitored nests twice per week from clutch completion to fledging to quantify demographic parameters including clutch size, brood size, and the number of young fledged. From observations, we determined brood reduction (number of young lost between hatching and fledging). We noted the age that nestlings died and the stage when nests failed. We consider a nest to be successful if the pair produced at least one young to fledging age. We consider productivity to be the number of young that reached fledging age (7 wks) per active nest (Steenhof and Newton, 2007). We used a telescopic mirror pole to facilitate the examination of nest contents for nests that were >2 m above the water line.

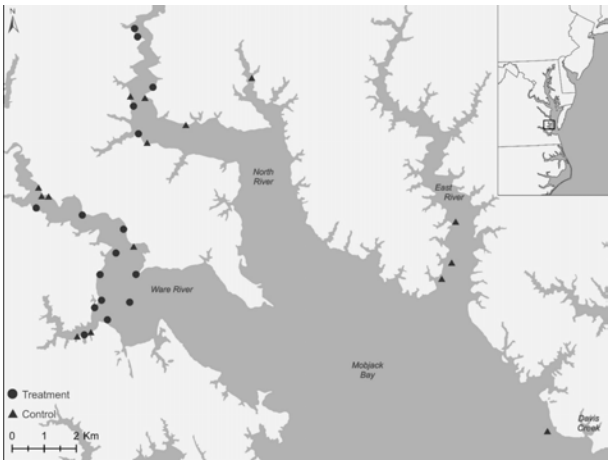


FIGURE 1
Map of the experimental area of Mobjack Bay on the lower eastern region of Chesapeake Bay, VA, USA. The locations of the control group (N = 15) represented by black triangles and the food addition group (N = 16) represented by black circles.

## 2.4 Provisioning

We used trail cams (Browning Strike Force HD Pro X - BTC-5HDPX) to quantify nest provisioning rates including the average number of fish (n/day), biomass (g/day) and energy (kcal/day) for a subsample of treatment (N = 7) and control (N = 4) nests. We deployed cameras on nest structures that would accommodate them. We fastened trail cams to 1.91 cm (3/4 inch) diameter conduit and mounted conduit to the nesting structure such that cameras were positioned approximately 1 m above the nest. Cameras were programmed to record an image every 5 min during daylight hours (05:00 to 22:00). We extracted images from the photo set that depicted fish delivered to nests and identified all fish to the lowest taxonomic level possible. Most fish were identified to the species level but others could only be identified to the genus or family level. We estimated fish length from photos within an image processing program, ImageJ with Java (https://imagej.nih.gov/ij/index.html) and compared to known lengths from reference structures (Poole et al., 2002) including adult bill (male =32.5, female = 34.6 mm) and talon (male = 28.9, female = 30.0 mm). We estimated the biomass (g) of each fish using species-specific length-mass equations from published literature and FishBase (https://fishbase.in/, Appendix 2). We converted biomass to energy (kcal) using published species-specific energy density values (Appendix 3). For species that could not be identified to species, we used length-mass equations and energy density from a representative species of the taxonomic group. We consider the provisioning of control nests to include fish provided by adults and for treatment nests to include fish provided by adults and menhaden that we added to nests. It is important to note that treatment nests that did not have trail cameras were observed by boat and consumption of supplemented fish by the adults and young were verified.

## 2.5 Statistical analysis

Data were not independent, not normally distributed, and non-homogenous therefore, we used appropriate tests. We investigated the influence of treatment (control vs food addition) on demographic parameters including nest success, clutch size, the number of young hatched, brood reduction, and productivity. We constructed a two-by-two contingency table and used Pearson's Chi-squared analysis to compare the relationship between treatment type and nest success. We used Generalized Linear Models (GLMs) to determine if there were the average differences in clutch size, the number of young hatched, brood reduction, and productivity between the treatment types. For provisioning (fish/d, biomass/d, energy content/d), we analyzed data from trail cameras to evaluate the relationship between provisioning and demographic parameters. It is important to note that our models were based on totals and/or average provisioning rates including naturally provisioned and supplemental fish.

We used Generalized Linear Mixed Models (GLMMs) with a negative binomial distribution and log link, nest and treatment type as the random effects, and food addition and total provisioning (natural and supplemented) as the fixed effects. For the influence of provisioning on demographics, we used GLMs with a negative binomial distribution and log link and compared the effects of the mean fish/d, biomass/d, and energy content/d (natural and supplemented) on productivity (both treatment groups combined, N = 11). We calculated the supplemented average biomass/d/nest and energy content/d/nest threshold needed for the production of 1.15 fledglings per nest-season (estimated break-even rate). All analyses were performed in RStudio 4.02 and we used the MASS and glmmTMB packages for model development and validated by the DHARMa package for residual diagnostics on hierarchical regression models (Venables and Ripley, 2002; Brooks et al., 2017; R Core Team, 2020; Hartig, 2021).

# 3 Results

## 3.1 Food addition and demography

For the food addition group, 13 of the 16 nests (81%) succeeded with an average productivity rate of 1.13 + 0.18 (SE) young/active nest. The three nests that failed in this group failed on average during the first 1.38 + 0.5 wks. or when young were 10 d old. For the control group, five of the 15 nests (33%) succeeded with an average productivity rate of 0.47 young/active nest. The ten nests that failed in this group failed on average during the first 2.2 + 0.5 wks. The age at failure (d) between the food addition and control groups was not statistically significantly different ($\beta$ = -0.47, SE = 0.41, P = 0.25). The age at failure for the control group ranged from 3 - 42 d with the highest mortality experienced during the first 15.5 d + 3.4 of the nestling period. Nest success and productivity were significantly different between the control and food addition groups (Table 1, Figure 2). Clutch size, the number of young hatched, and brood

TABLE 1 Two-way contingency table used for the Pearson's Chi-squared analysis that summarizes the relationship between treatment types and nest success during the 2021 osprey breeding season in the lower Chesapeake Bay, VA, USA ($\chi 2$ = 5.5, df = 1, P = 0.02).

| | NEST SUCCESS (NESTS) | | |
|---|---|---|---|
| TREATMENT | SUCCESSFUL | FAILED | TOTAL |
| FISH ADDITION | 13 | 3 | 16 |
| CONTROL | 5 | 10 | 15 |
| TOTAL | 18 | 13 | 31 |

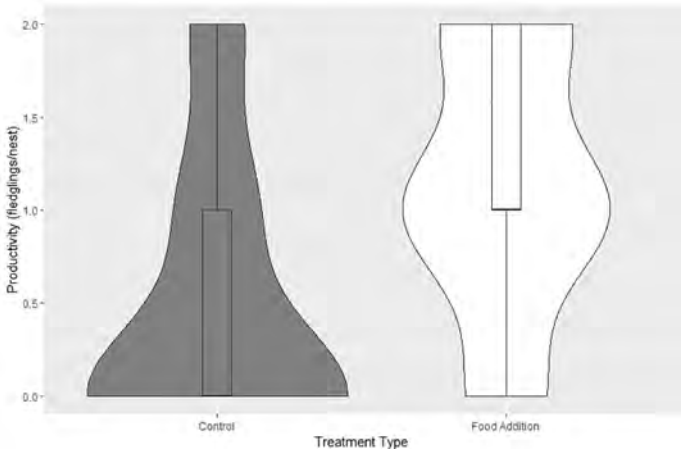


FIGURE 2
Productivity between the control group (N = 15) and the treatment group (N = 16) of ospreys during the 2021 breeding season in the lower Chesapeake Bay, VA, USA (β = 0.88, SE = 0.45, pseudo $R^2$ = 0.14, CI =0.049, 1.825, *P*= 0.048). Violin shapes represent the density of data distribution and the middle horizonal line of the box plots represent the median values.

reduction were not significantly different between the control and food addition groups (Table 2).

## 3.2 Provisioning and productivity

Food supplementation had a significant influence on the number of fish and amount of energy available to osprey broods (Table 3). A total of 241 Atlantic menhaden was supplemented to the food addition group and contributed 32,384 g that represented an estimated 61,206 kcal. This increased the average total prey biomass and energy content within the food addition group to 226.5 g/d/nest and 396.2 kcal/d/nest. The average biomass that was delivered to the control group was 166.8 g/d/nest and the average energy content was 242.2 kcal/d/nest (Appendix 1). For the control group, adult osprey delivered an average of 1.2 fish/d/nest compared to 1.1 fish/d/nest for the supplemented group.

Food supplementation had a significant influence on the likelihood that pairs reached the threshold reproductive rate of 1.15 young/nest (Figure 3). The estimated average fish biomass and energetic content needed for a pair to produce the threshold reproductive rate was 202.7 g/d and 338.6 kcal/d respectively. Within the study area, pairs required supplementation of 63.4 g/d of menhaden or 121 kcal/d in order to reach the productivity threshold.

Diet composition included a diverse list of fish species (Appendix 1). A total of 600 fish were documented as prey by ospreys in which 81% of taxa were identified to 21 species or to at least family. Atlantic menhaden (39%) dominated prey composition. Other known species included Atlantic herring (*Clupea harengus*) (10.3%), Atlantic croaker (*Micropogonias undulatus*) (5.8%), gizzard shad (*Dorosoma cepedianum*) (5.7%), and spot (*Leiostomus xanthurus*) (5%).

TABLE 2 Results for GLMs used to compare demographic parameters between treatment types during the 2021 osprey breeding season in the lower Chesapeake Bay, VA, USA.

| DEMOGRAPHIC PARAMETERS | β | SE | PSEUDO $r^2$ | CI | *P* |
|---|---|---|---|---|---|
| CLUTCH SIZE | 0.07 | 0.21 | 0.75 | -0.34, 0.48 | 0.75 |
| No. of YOUNG HATCHED | 0.12 | 0.24 | 0.04 | -0.33, 0.62 | 0.57 |
| BROOD REDUCTION | 0.20 | 0.31 | 0.02 | -0.81, 0.40 | 0.50 |

TABLE 3 Results of GLMMs with treatment effects on provisioning rates per d of nests under trail camera surveillance (N = 11) during the 2021 osprey breeding season in the lower Chesapeake Bay, VA, USA.

| TREATMENT EFFECTS | β | SE | z VALUE | CI | *P* |
|---|---|---|---|---|---|
| FISH (number of fish/d) | 0.25 | 0.02 | 13.4 | 0.21, 0.29 | < 0.001 |
| BIOMASS (g of fish/d) | 0.002 | 0.0004 | 4.65 | 0.001, 0.003 | < 0.001 |
| ENERGY CONTENT (kcal of fish/d) | 0.001 | 0.0002 | 5.22 | 0.008,0.002 | < 0.001 |

# 4 Discussion

Supplementation of osprey nests with menhaden had a significant influence on the ability of nesting pairs to reach reproductive rates required for population maintenance. Our study shows that productivity was food limited as previous studies have substantiated (Simons and Martin, 1990; Richner, 1992; Wiehn and Korpimaki, 1997; Ferrer et al., 2018). Osprey pairs that did not receive supplementation had reproductive rates (0.47 young/nest) that were less than half of threshold levels. Within Mobjack Bay, productivity rates have shifted from reproductive surplus to reproductive deficit since the 1980s. For example, populations at various locations along the main stem of Chesapeake Bay were considered strongholds (McLean, 1986; Byrd, 1988). During 1983 and 1984, the average reproductive rate was 1.39 young/pair (Byrd, 1987). By 1988 and 1990, average productivity had dropped to 0.91 young/pair (Byrd, 1988, Byrd, 1990) and by 2005 and 2006 productivity had dropped further to 0.75 young/pair (Glass, 2008). If fishing pressure on menhaden within Chesapeake Bay persists, osprey productivity rates could decline precipitously, threaten population stability, and eventually lead to widespread population collapse. 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.

Our research suggests that food addition significantly influenced osprey provisioning rates and these rates impacted reproductive performance. Specifically, daily average biomass and energy content of the prey composition significantly influenced productivity. Lind (1976) used a model developed by Wiens and Innis (1974) and calculated that each adult osprey required 286 kcal/d and each nestling at 11-16 d old needed at least 113 – 170 kcal/d. Based on calculations in which fish with an energy content of 1 kcal/g, a nest with two young plus the female would require 794 g of fish/d in order to successfully fledge and a nest with three young would require 1048 g of fish/d (Winberg, 1960). Along the U.S. Eastern Coast, Poole (1982) determined that male ospreys delivered 816 – 1426 g/d to nests that had young and nests that produced three – four young. In our study, menhaden consisted of 39% of the total diet composition and these fish have a high energy content of 1.89 kcal/g (June and Nicholson, 1964). Based on the calculations of Winberg (1960), if a nest fledged two young that was supplied with 39% or 309.7 g/d or 585.3 kcal/d of menhaden, the estimated additional biomass and energy content required would be 648.2 g/d or 1,225.1 kcal/d. Similarly if a nest fledged three young and was supplied with 39% or 408.7 g/d or 772.4 kcal/d of menhaden, the estimated additional biomass and energy content required would be 855.5 g/d or 1,616.9 kcal/d. For the nests in our study, the added average biomass and energetic threshold needed for a nest to reach the reproductive break-even point are 63.4 g/d and 121 kcal/d which would be a total average of 208.1 g/d and 347.6 kcal/d (Figure 3).

When we directly compared the provisioning rates in this study to historical studies in Mobjack Bay and the higher salinity areas of Chesapeake Bay, declines in daily fish deliveries were made evident. In 1975 and 1985, the fish delivery rate was 0.53 fish/hr/nest and 0.35 fish/hr/nest (McLean and Byrd, 1991). In 2006 and 2007, ospreys in the higher salinity areas delivered an average of 0.26 fish/h/nest (Glass, 2008). Our study revealed that in 2021, the fish delivery rate diminished to a mean of 0.11 fish/hr/nest. The average daily biomass delivered per nest fell from 237.1g and 172.3g in 1975 and 2007 to 144.7g in 2021 (Appendix 1, McLean and Byrd, 1991; Glass, 2008).

Brood reduction has been an effective parameter linking reproductive performance to food limitation in osprey (Glass, 2008). In a 5-yr study, Reese (1977) determined nestling loss rates in the upper Chesapeake Bay ranged from 8-23%. Nestling mortality rates were 47% and 78% for the supplementation and control groups respectively in this study. Poole (1984) conducted a

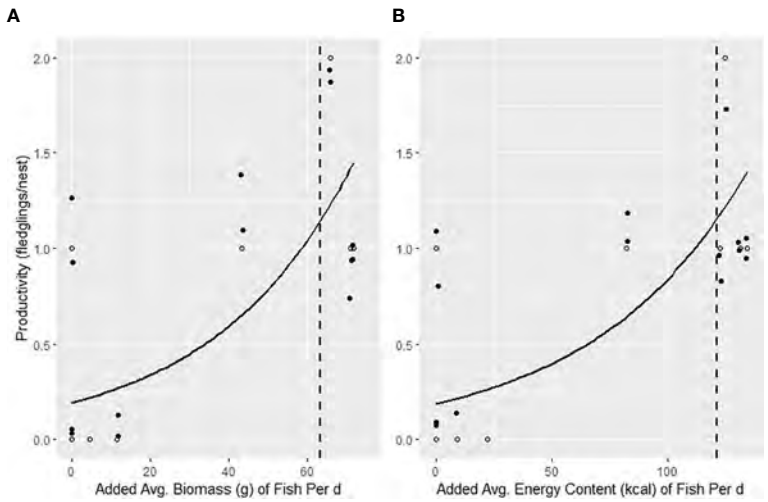


FIGURE 3
GLM's of the influence of the added **(A)** avg. biomass/d/nest (β = 0.03, SE = 0.01, Pseudo $R^2$ = 0.60, CI = 0.01, 0.05, P = 0.02) and **(B)** avg. energy content/d/nest (kcal) (β = 0.02, SE = 0.005, Pseudo $R^2$ = 0.64, CI = 0.006, 0.03, P = 0.02) for osprey pairs under trail camera surveillance after seven weeks post hatch of the first egg in 2021 breeding season in the lower Chesapeake Bay, VA, USA. The data points represented by white circles have been "jittered" along with random points represented in black circles for improved visibility of model fit. The dotted lines indicate the supplemented average biomass (63.4 g) and energy content (121 kcal) thresholds needed per d to produce 1.15 young per nest-season.

4-yr study in New England and determined that 75% of nestling mortality was caused by starvation. Glass and Watts (2009) determined that brood reduction was highly significant between nests in the lower estuarine sites compared to the higher estuarine sites and these data suggested that ospreys in the higher salinity areas were experiencing more food limitation than the lower salinity areas. Brood reduction has generally been linked with the lack of food availability in other study areas (Poole, 1982; Jamieson et al., 1983; Eriksson, 1986; Hagan, 1986; Forbes, 1991; Glass and Watts, 2009). Although brood reduction was higher in the control group, differences were not found to be significant in our study. This discrepancy could have been attributed to treatment effects in which the timing and intensity of the protocol was not strong enough to detect a significant signal. Perhaps if we supplemented more fish in greater frequency, we would have observed significant differences in the average brood reduction between the experimental groups.

The most compelling explanation for lower provisioning and productivity rates is localized depletion of the primary prey base. Although proximate causes of lower productivity may include storms, inter- and intraspecies competition, predation, as well as age-related care by parents, the ultimate cause of lower productivity may often be food shortage (Steenhof and Newton, 2007). Atlantic menhaden has a higher lipid content compared to other species with a nearly a 2:1 energy content/biomass ratio (June and Nicholson, 1964). Ospreys depend on menhaden and their reproductive performance is inextricably linked to the availability and abundance of this fish. In fact, previous studies have substantiated that menhaden are a vital prey item for ospreys during the breeding season particularly in the mid-Atlantic and northeastern United States (Spitzer and Poole, 1980; Poole, 1989; McLean and Byrd, 1991, Steidl et al., 1991, Glass and Watts, 2009). In 1985, this fish species consisted of 75% of the prey composition of ospreys in the lower Chesapeake Bay (McLean and Byrd, 1991). Then in 2006 and 2007, menhaden declined to 32% of the prey composition (Glass, 2008). In our study menhaden comprised of 39% of the total prey composition (Appendix 1). Assuming that the prey composition of ospreys reflects prey availability on a local level (Greene et al., 1983; Edwards, 1988; Glass, 2008), the current percentage of menhaden could indicate that this species has diminished in availability compared to the later portion of the 20th century.

Potential localized depletion of menhaden populations is one of the major sources of concern and conflict within Chesapeake Bay. According to the ASMFC, the coastwide stock assessment has determined that menhaden is not overfished and that no overfishing is occurring (Southeast Data Assessment and Review [SEDAR], 2020). However, a coastwide assessment does not capture spatial variation in menhaden availability for locations with persistent depletion such as Chesapeake Bay. Seine surveys of juvenile menhaden in Maryland and Virginia indicate that low levels of abundance and recruitment have been happening since the early 1990's and 2000's (Atlantic States Marine Fisheries Commission [ASMFC], 2004, Southeast Data Assessment and Review [SEDAR], 2020). Our data suggests that the reliable metric that links osprey population decline and food limitation is the osprey productivity rate. During the population decline in northern Florida, Bowman et al. (1989) determined that the productivity rate was 0.56 young/nest and this was due to insufficient food availability. When the Florida Bay population was healthy and food was abundant (Henny and Ogden, 1970), the productivity rate was 1.22 young/nest which is similar to the rate acquired by the food addition group of our study at 1.13 young/nest.

## 5 Conclusion

EBFM evolves when ERPs are consistently monitored (Pikitch et al., 2004). According to Amendment 3 of the Interstate Fishery Management Plan (FMP) for Atlantic menhaden (Southeast Data Assessment and Review [SEDAR], 2020; Anstead et al., 2021), ERPs are described as "a method to assess the status of menhaden not only with regard to the sustainability of human harvest, but also with the regard to their interaction with predators and the status of other prey species." The ERP working group is tasked with developing ERPs that are menhaden-specific that can account for the abundance of menhaden and their species role as a forage fish (Amendment 3 to the FMP, Anstead et al., 2021). Ospreys are non-finfish predators and can serve the ERP role which can allow management to practice informed decisions to develop harvest targets, assess menhaden's role as prey for upper trophic levels, and advance an ecosystem approach to fisheries management (EAFM) which considers multiple components of the ecosystem than just the target species (Patrick and Link, 2015). The menhaden population within Mobjack Bay is not currently adequate to sustain the osprey breeding population and we recommend that industrial purse seine fishing occur outside Chesapeake Bay.

## Data availability statement

The original contributions presented in the study are included in the article/Supplementary Material. Further inquiries can be directed to the corresponding author.

## Ethics statement

The animal study was reviewed and approved by Institutional Animal Care and Use Committee (IACUC-2021-05-03-14981-bjpaxt).

## Author contributions

MA and BW designed and conducted the research. MA and BW performed the experiment, statistical analysis, and wrote the paper. All authors contributed to the article and approved the submitted version.

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## Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

## Publisher's note



## Supplementary material

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fmars.2023.1172787/full#supplementary-material

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**From:** Andy CORTEZ
**To:** Comments
**Subject:** [External] osprey deaths
**Date:** Monday, July 24, 2023 1:44:36 PM
**Importance:** High

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July 24, 2023
Dear Chairman Bell:
The current management strategy in Lower Chesapeake Bay is insufficient and on a collision course with state and federal agencies responsible for the protection of osprey. The Lower Chesapeake Bay osprey population is stressed - due to concentrated, industrial menhaden fishing. Starvation is causing nest failures.
The evidence shows that the purse seine fleet is simply not leaving enough menhaden in the lower bay to maintain a balanced ecosystem. Currently, there is a nationwide groundswell of public interest and heated calls for action. This is a matter of extraordinary importance that compels your full attention and leadership.
So, in the cooperative spirit of the ASMFC Compact, and as a fellow American, I respectfully call on your leadership to please commence fact-finding and deliberation regarding this urgent issue.
Kind regards,
Andy Cortez
6457 Lakeway Drive
Mechanicsville, VA 23111
(804) 572-8770