



## AUGUST 2018 MEETING AGENDA

**August 13-16, 2018**  
Hilton Virginia Beach Oceanfront  
3001 Atlantic Ave.  
Virginia Beach, VA 23451  
Telephone 757-213-3000

### Monday, August 13<sup>th</sup>

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- |                              |  |
|------------------------------|--|
| <b>1:00 p.m.</b>             | <b>Council Convenes</b>  |
| <b>1:00 p.m. – 1:15 p.m.</b> | <b>Swearing in of New and Reappointed Council Members (Tab 1)</b>  |
| <b>1:15 p.m. – 1:30 p.m.</b> | <b>Election of Officers (Tab 2)</b>  |
| <b>1:30 p.m.- 2:30 p.m.</b>  | <b><i>Illex</i> Control Date and 2018 and 2019 Fishery (Tab 3)</b> <ul style="list-style-type: none"><li>- Consider a new or existing (August 2, 2013) control date.</li><li>- Review and consider adjustment to 2018 and 2019 <i>Illex</i> specifications</li></ul> |
| <b>2:30 p.m. – 5:30 p.m.</b> | <b>Atlantic Mackerel Framework and Specifications (Tab 4)</b> <ul style="list-style-type: none"><li>- Approve rebuilding plan and associated 2019-2021 specifications including river herring and shad cap</li></ul>   |

### Tuesday, August 14<sup>th</sup>

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- |                                |  |
|--------------------------------|--|
| <b>9:00 a.m.</b>               | <b>Council Meeting with the Atlantic States Marine Fisheries Commission's Summer Flounder, Scup, and Black Sea Bass and Bluefish Boards</b>  |
| <b>9:00 a.m. – 11:00 a.m.</b>  | <b>MRIP Presentation on New Estimates (Tab 5)</b><br><i>NMFS</i>   |
| <b>11:00 a.m. – 12:30 p.m.</b> | <b>Summer Flounder, Scup, and Black Sea Bass Framework and Addendum on Conservation Equivalency, Block Island Sound Transit, and Slot Limits (Tab 6)</b> <ul style="list-style-type: none"><li>- Framework meeting 1 - review draft alternatives</li><li>- Review and approve draft addendum</li></ul> |
| <b>12:30 p.m. – 1:30p.m.</b>   | <b>Lunch</b>   |

1:30 p.m. – 3:30 p.m.

**Black Sea Bass Specifications (Tab 7)**

- Review SSC, Monitoring Committee, Advisory Panel, and staff recommendations for 2019 specifications
- Adopt 2019 specifications

3:30 p.m. – 5:00 p.m.

**Black Sea Bass Wave 1 Fishery and Letter of Authorization (LOA) (Tab 8)**

- Consider a potential February 2019 opening of the recreational Wave 1 fishery
- Discuss the continued development of the LOA Framework

**Wednesday, August 15<sup>th</sup>**

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9:00 a.m.

**Council Meeting with the Atlantic States Marine Fisheries Commission's Summer Flounder, Scup, and Black Sea Bass and Bluefish Boards**

9:00 a.m. – 10:30 a.m.

**Summer Flounder Specifications (Tab 9)**

- Review SSC, Monitoring Committee, Advisory Panel, and staff recommendations for 2019 specifications
- Adopt 2019 specifications

10:30 a.m. – 12:00 p.m.

**Scup Specifications (Tab 10)**

- Review SSC, Monitoring Committee, Advisory Panel, and staff recommendations regarding previously implemented 2019 specifications
- Recommend changes to 2019 specifications if necessary

12:00 p.m. – 1:00 p.m.

**Lunch**

1:00 p.m. – 3:00 p.m.

**Bluefish Specifications (Tab 11)**

- Review SSC, Monitoring Committee, Advisory Panel, and staff recommendations for 2019 specifications
- Adopt 2019 specifications

3:00 p.m. – 5:00 p.m.

**Bluefish Allocation Amendment (Tab 12)**

- Review scoping comments and discuss next steps
- Determine issues to be included in public hearing document

5:00 p.m. – 5:30 p.m.

**ASMFC Bluefish FMP Review (Tab 13)**

**Thursday, August 16<sup>th</sup>**

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9:00 a.m. – 9:30 a.m.

**Responsible Offshore Development Alliance (Tab 14)**

*Anne Hawkins*

9:30 a.m. – 10:00 a.m.

**Draft Amendment 11 to the 2006 Consolidated Atlantic HMS FMP for Management of Shortfin Mako Sharks (Tab 15)**

*NMFS*

10:00 a.m. - 1:00 p.m.

**Business Session**

## **Committee Reports (Tab 16)**

- SSC Report

## **Executive Director's Report (Tab 17)**

*Chris Moore*

## **Organization Reports (Tab 18)**

- NMFS Greater Atlantic Regional Office
- NMFS Northeast Fisheries Science Center
- NOAA Office of General Counsel
- NOAA Office of Law Enforcement
- US Coast Guard
- Atlantic States Marine Fisheries Commission

## **Liaison Reports (Tab 19)**

- New England Council
- South Atlantic Council
- Regional Planning Body

## **Continuing and New Business**

June Council Motions

### **SCOO Motions**

Move that the minimum size limit be suspended for 2019.  
Heins/Nolan - 1 abstention, motion carries with no opposition.

Move to have SSC members work with NEFSC to refine the OFL method provided so it can be considered for use with a P\* approach to estimating an ABC. A joint SSC/NEFSC working group will be established for this project with delivery of the results at a future SSC meeting, no later than February 2019.

Mann/Heins 16/0/0  
Motion carries

### **Mackerel Closure Framework**

Move that the post 100% mackerel trip limit be changed from zero to 5,000 pounds for all permits.

Winslow for the Committee (18/0/1)

Motion carries

Move to advance and submit the mackerel closure framework action to NMFS.

Nolan/O'Reilly (18/0/0)

Motion carries

### **Chub mackerel**

Move that under goal 1, objective 1.2, change "consider" to "determine" and remove "to the extent practicable"

Shiels/DiLernia

Move to amend the above motion to change "determine" to "consider and account for"

DiLernia/O'Reilly (11/8/0)

Motion carries

Amended motion: Under goal 1, objective 1.2, change "consider" to "consider and account for" and remove "to the extent practicable"

Move to amend to strike "and remove 'to the extent practicable'"

Pentony/Heins (13/5/0)

Motion carries

Main motion as amended twice: Under goal 1, objective 1.2, change "consider" to "consider and account for"

18/0/1

Motion carries

Move to approve goal 1, objectives 1.1 and 1.2 as modified today  
Pentony/Heins (16/0/0)  
Motion carries

Move to approve goal 2 and objectives 2.1, 2.2, and 2.3 as modified today  
Pentony/Heins (17/0/0)  
Motion carries

Move to amend objective 2.2 to read “to the extent practicable, minimize additional limiting restrictions to the Illex fishery”  
Nowalsky/Babb (16/1/0)  
Motion carries

Move to approve goal 3 and objectives 3.1 and 3.2 as presented today  
Pentony/Heins  
Motion passes by consent

**Summer Flounder**

Move to submit the Summer Flounder Commercial Issues Amendment DEIS to NMFS for review.  
O’Reilly/Batsavage (12/5/1)  
Motion carries









**Regulatory Review Results**







Move to approve the list of regulations to comply with the “Streamlining Regulatory Processes and Reducing Regulatory Burden” notice as modified.  
Elliott/Heins  
Motion carries by consent with 1 abstention

The above agenda items may not be taken in the order in which they appear and are subject to change as necessary. Other items may be added, but the Council cannot take action on such items even if the item requires emergency action without additional public notice. Non-emergency matters not contained in this agenda may come before the Council and / or its Committees for discussion, but these matters may not be the subject of formal Council or Committee action during this meeting. Council and Committee actions will be restricted to the issues specifically listed in this agenda. Any issues requiring emergency action under section 305(c) of the Magnuson-Stevens Act that arise after publication of the Federal Register Notice for this meeting may be acted upon provided that the public has been notified of the Council’s intent to take final action to address the emergency. The meeting may be closed to discuss employment or other internal administrative matters.

## Stock Status of MAFMC-Managed Species

(as of August 2, 2018)

SPECIES	STATUS DETERMINATION CRITERIA		OVERFISHING	OVERFISHED	REBUILDING PROGRAM / STOCK STATUS
	Overfishing $F_{\text{threshold}}$	Overfished $\frac{1}{2} B_{\text{MSY}}$			
 <b>Summer Flounder</b>	$F_{35\%MSP}=0.31$	69 million lbs	Yes	No	Most recent benchmark assessment was 2013. Most recent assessment update was 2016.
 <b>Scup</b>	$F_{40\%MSP}=0.22$	96.23 million lbs	No	No	Most recent benchmark assessment was 2015. Most recent assessment update was 2017.
 <b>Black Sea Bass</b>	$F_{40\%MSP}=0.36$	10.7 million lbs	No	No	Most recent benchmark assessment was 2016.
 <b>Bluefish</b>	$F_{35\%SPR}=0.19$	111.7 million lbs	No	No	Most recent benchmark assessment was 2015.
 <b>Illex Squid (short finned)</b>	Unknown	Unknown	Unknown	Unknown	Most recent benchmark assessment was 2006; not able to determine current exploitation rates or stock biomass.
 <b>Longfin Squid</b>	Unknown	46.7 million lbs	Unknown	No	Most recent assessment update was 2017; not able to determine current exploitation rates.
 <b>Atlantic Mackerel</b>	$F_{40\%}=0.26$	217.0 million pounds	Yes	Yes	Most recent benchmark assessment was 2017
 <b>Butterfish</b>	$F_{\text{Proxy}}=2/3M=0.81$	50.3 million lbs	No	No	Most recent assessment update was 2017.

SPECIES	STATUS DETERMINATION CRITERIA		OVERFISHING	OVERFISHED	REBUILDING PROGRAM / STOCK STATUS
	Overfishing $F_{\text{threshold}}$	Overfished $\frac{1}{2} B_{\text{MSY}}$			
<b>Surfclam</b> 	$F/F_{\text{threshold}} = 1^a$	$SSB/SSB_{\text{threshold}} = 1^b$	No	No	Most recent benchmark assessment was 2016.
<b>Ocean Quahog</b> 	$F/F_{\text{threshold}} = 1^c$	$SSB/SSB_{\text{threshold}} = 1^d$	No	No	Most recent benchmark assessment was 2017.
<b>Golden Tilefish</b> 	$F_{38\%MSP} = 0.310$	10.46 million lbs	No	No	Most recent assessment update was 2017.
<b>Blueline Tilefish</b> 	Unknown	Unknown	South of Cape Hatteras: No North of Cape Hatteras: Unknown	South of Cape Hatteras: No North of Cape Hatteras: Unknown	Most recent benchmark assessment was 2017.
<b>Spiny Dogfish</b> (Joint mgmt with NEFMC) 	$F_{\text{MSY}} = 0.2439$	175.6 million lbs Female SSB	No	No	Most recent assessment update was 2015. Most recent benchmark assessment was 2010.
<b>Monkfish</b> (Joint mgmt with NEFMC) 	NFMA & SFMA $F_{\text{MAX}} = 0.2$	NFMA - 1.25 kg/tow SFMA - 0.93 kg/tow (autumn trawl survey)	Unknown	Unknown	Most recent benchmark assessment was 2010. Most recent operational assessment was in 2016.

SOURCES: Office of Sustainable Fisheries - Status Report of U.S. Fisheries; SAW/SARC, SEDAR, and TRAC Assessment Reports.

<sup>a</sup>  $F_{\text{threshold}}$  is calculated as 4.136 times the mean F during 1982 - 2015

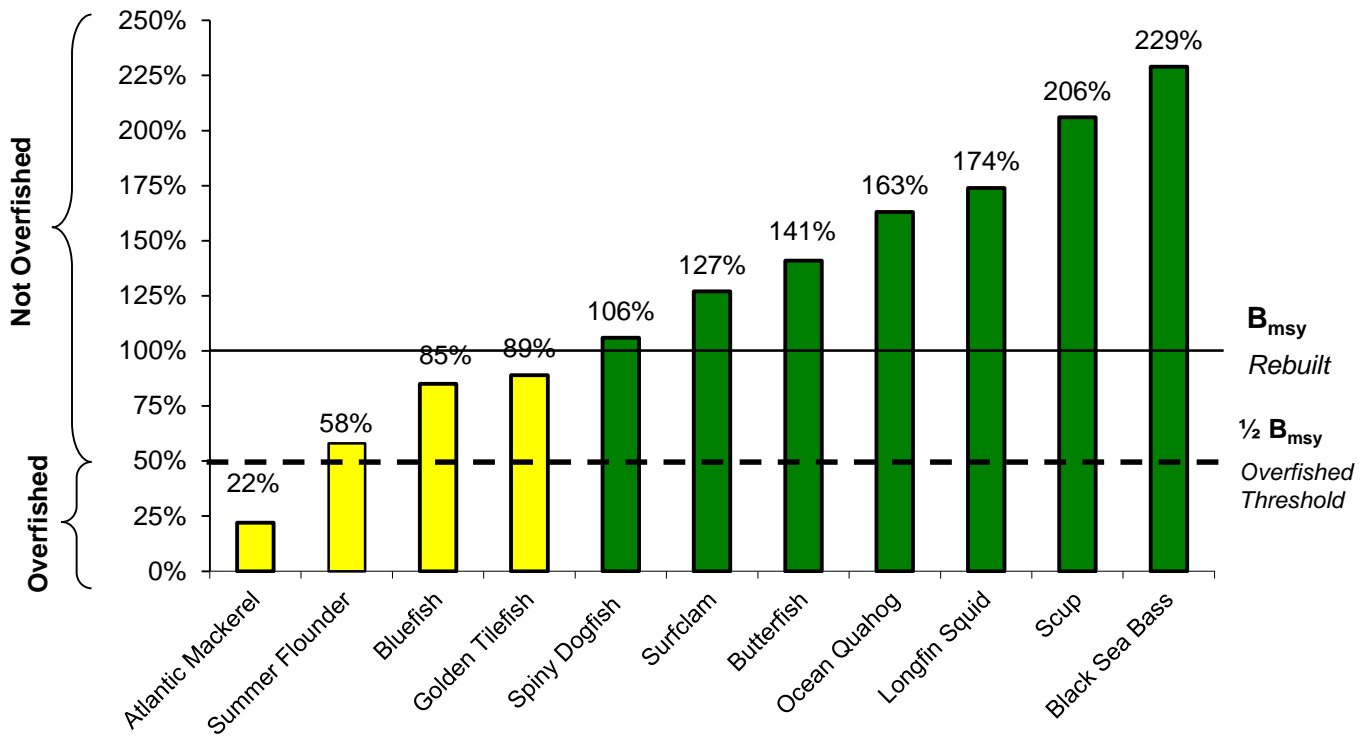
<sup>b</sup>  $SSB_{\text{threshold}}$  is calculated as  $SSB_0/4$

<sup>c</sup>  $F_{\text{threshold}}$  is 0.019

<sup>d</sup>  $SSB_{\text{threshold}}$  is calculated as  $0.4 * SSB_0$

# Stock Size Relative to Biological Reference Points

(as of August 2, 2018)



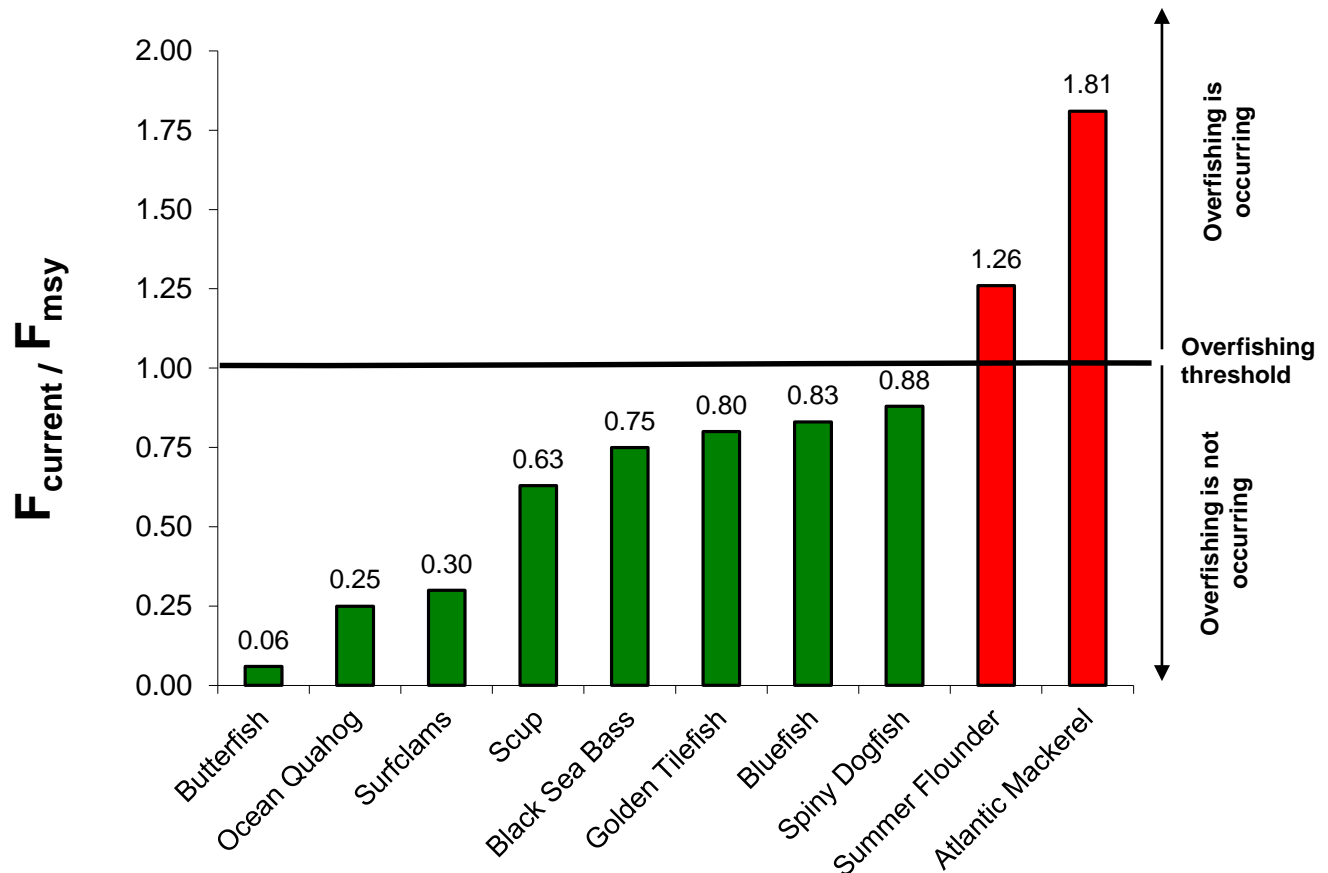
**Notes:**

- Unknown  $B_{msy}$  - *Illex* squid, monkfish (NFMA & SFMA), and blueline tilefish (North of Cape Hatteras)
- Of the 14 stocks managed by the Council, 7 are above  $B_{msy}$ , 4 are below  $B_{msy}$ , and 3 are unknown.

Year of data used to determine stock size	
Atlantic Mackerel	2016
Black Sea Bass	2015
Bluefish	2014
Butterfish	2016
Golden Tilefish	2016
Longfin Squid	2016
Ocean Quahog	2016
Spiny Dogfish	2015
Surfclam	2015
Scup	2016
Summer Flounder	2015

## Fishing Mortality Ratios for MAFMC-Managed Species

(as of August 2, 2018)



**Note:**

- Unknown fishing mortality: *Illex* squid, Longfin squid, monkfish (NFMA and SFMA), and blueline tilefish (North of Cape Hatteras).

Year of data used to determine stock size	
Atlantic Mackerel	2016
Black Sea Bass	2015
Bluefish	2014
Butterfish	2016
Golden Tilefish	2016
Ocean Quahog	2016
Spiny Dogfish	2014
Surfclam	2015
Scup	2016
Summer Flounder	2015



## 2.2 Oath of Office

As trustees of the nation's fishery resources, all voting members must take an oath specified by the Secretary as follows:

I, [name of the person taking oath], as a duly appointed member of a Regional Fishery Management Council established under the Magnuson-Stevens Fishery Conservation and Management Act, hereby promise to conserve and manage the living marine resources of the United States of America by carrying out the business of the Council for the greatest overall benefit of the Nation. I recognize my responsibility to serve as a knowledgeable and experienced trustee of the Nation's marine fisheries resources, being careful to balance competing private or regional interests, and always aware and protective of the public interest in those resources. I commit myself to uphold the provisions, standards, and requirements of the Magnuson-Stevens Fishery Conservation and Management Act and other applicable law, and shall conduct myself at all times according to the rules of conduct prescribed by the Secretary of Commerce. This oath is given freely and without mental reservation or purpose of evasion.

## **2.4 OFFICERS AND TERMS OF OFFICE**

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### **2.4.1 General**

- (a) A Chair and a Vice Chair shall be elected annually at the first Council meeting following the seating of new Council members (on or after August 11 of each year) by the voting members of the Council present and voting; each such officer shall serve for a period of one year and until a successor is elected.
- (b) Officers may succeed themselves.
- (c) The Council may elect other officers as it deems necessary.

### **2.4.2 Nominations**

The Chair shall appoint a Nominating Committee, who shall make its nominations (at least two for each office) at the beginning of the election process. Following the Committee's nomination, any voting member may nominate additional candidates from the floor. When nominations are closed the election shall be held.

### **2.4.3 Elections**

- (a) The election of Chair will be held first, followed by the election for Vice Chair. If only one candidate accepts the nomination for an office, the Chairman of the Nominating Committee shall cast all votes for that candidate. If there are two or more candidates, the election shall be by a secret ballot with the votes tabulated by two or more Tellers appointed by the Council Chair.
- (b) The Tellers shall use the following rules to determine the winning candidate:
  - (1) To win, a candidate must receive a majority of the votes cast.
  - (2) If no candidate receives a majority of the votes, the Tellers shall declare no election. If there are more than two candidates, the candidate receiving the lowest number of vote shall be dropped from consideration and a vote will be taken for the remaining candidates. This process will continue until a candidate receives a majority of the vote cast.
  - (3) Those preferring not to vote for any candidate shall check "ABSTAIN" on the ballot.
  - (4) The number of ballots cast for an individual shall not be announced. Any Council member who questions the result may review the ballots. The ballots will not identify which Council member cast a particular ballot.

### **2.4.4 Special Elections**

In the event that the Chair cannot fulfill the Chair's obligations for the balance of the Chair's term, a special election will be held at the next scheduled Council meeting to fill the position of Chair. In the event that the Vice Chair cannot fulfill the Vice Chair's obligations for the balance of the Vice Chair's term, a special election will be held at the next scheduled Council meeting to fill the position of Vice Chair. The procedures for nominations and elections set forth above will be followed for special elections.

### **2.4.5 Authority of the Chair**

- (a) The Council Chair shall be the chief executive officer of the Council. Subject only to the authority of the Council, the Chair shall have general charge and supervision over, and responsibility for the business and affairs of the Council. Unless otherwise directed by the Council, the Chair may enter into and execute in the name of the Council, contracts or other instruments in the regular course of business or contract or other instruments not in the regular course of business which are authorized, either generally or specifically, by the Council. The Council Chair shall have the general powers and

duties of management usually vested in the office of the Chair of the Board of a corporation.

(b) The Council Chair shall have the authority to appoint and dissolve committees of Council members, name their officers and membership, and describe their functions, duties, and responsibilities consistent with the Charter of the Council, the Act, and other applicable law.

(c) The Council Chair shall also have the full authority to call meetings as necessary for the conduct of the Council's business.

(d) The Council Chair shall have the authority to authorize reimbursement of travel expenses and/or compensation of any eligible members of the Council, its committees or subpanels except that proper notification, at the direction of the Chair, in the Federal Register of a regular meeting of the Council or one of its committees or subpanels shall constitute authorization for travel expenses and/or compensation to be paid to eligible members.

(e) The Council Chair shall have the authority to authorize, approve, or disapprove all meetings of Council subpanels or committees.

(f) In the event of the absence or inability of the Council Chair to serve or fulfill the Chair's obligations, the Council Vice-Chair shall assume authority and duties of the Chair.



**Mid-Atlantic Fishery Management Council**  
800 North State Street, Suite 201, Dover, DE 19901  
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Michael P. Luisi, Chairman | G. Warren Elliott, Vice Chairman  
Christopher M. Moore, Ph.D., Executive Director

## MEMORANDUM

**Date:** August 1, 2018  
**To:** Council  
**From:** Staff  
**Subject:** *Illex* Issues

There are several *Illex* fishery issues for the August 2018 meeting:

1. The Council indicated in its 2018 Implementation Plan that if time allows, staff should begin development of an action to review and potentially modify the current limited access/moratorium permit system for the *Illex* fishery. Staff may be able to begin work on this action in late 2018, likely with several scoping hearings as a first step. The 2021 fishing year would be the implementation goal. At the request of the Council, NMFS previously published a new control date of August 2, 2013 notifying the public that the Council may consider an action to limit the number of participants in the *Illex* fishery. If the Council intends to potentially use this control date for *Illex*, re-notifying the public of this intent preserves the function of the control date (to discourage speculative entry and investment). The Council does not have to use a control date when taking final action, but the alternatives may treat landings after a control date differently, or not use them for permit qualification purposes.
2. Some industry participants have asked NMFS and Council staff whether the current *Illex* quota could be increased in **2018**. Current regulations state that NMFS may make in-season adjustments to the MSB specifications, in consultation with the Council during the fishing year by publishing notification in the Federal Register. Potential rationales for increasing the *Illex* quota that have been put forth to staff include the SSC's rationale for the current 24,000 MT Acceptable Biological Catch (ABC) ("landings of 24,000-26,000 mt do not appear to have caused harm to the *Illex* stock, based on indices and landings in years following..."), the rapid pace of landings in 2017/2018 (Figures 1 and 2 below), and the high NEAMAP survey indices in 2017/2018 (Figure 3 below). The August 2018 Council meeting would serve as an opportunity for NMFS to consult with the Council, but NMFS would ultimately have to determine there was sufficient justification to diverge from the current ABC. The Council should consider recommending an in-season adjustment/increase to the *Illex* ABC to 26,000 MT. Increasing the ABC to 26,000 MT would increase the quota by 1,910 MT to 24,825 MT (worth about \$1.9 million based on 2018 prices to date) after discards are deducted. Any action would unlikely be completed before mid-September at the earliest.

3. Some industry participants have also asked whether the *Illex* quota could be increased for **2019**. Related to the same observations for 2018 noted above, the Council could remand the 2019 ABC for *Illex* back to the SSC for reconsideration. Depending on the SSC's review, a decision to make such a request could involve a moderate amount of extra staff time, possibly pushing back commencement (and completion) of the *Illex* permit action (i.e. #1 above).

Figure 1. 2016 (Orange) and 2017 (Blue) *Illex* Fishery week by week preliminary monitoring.

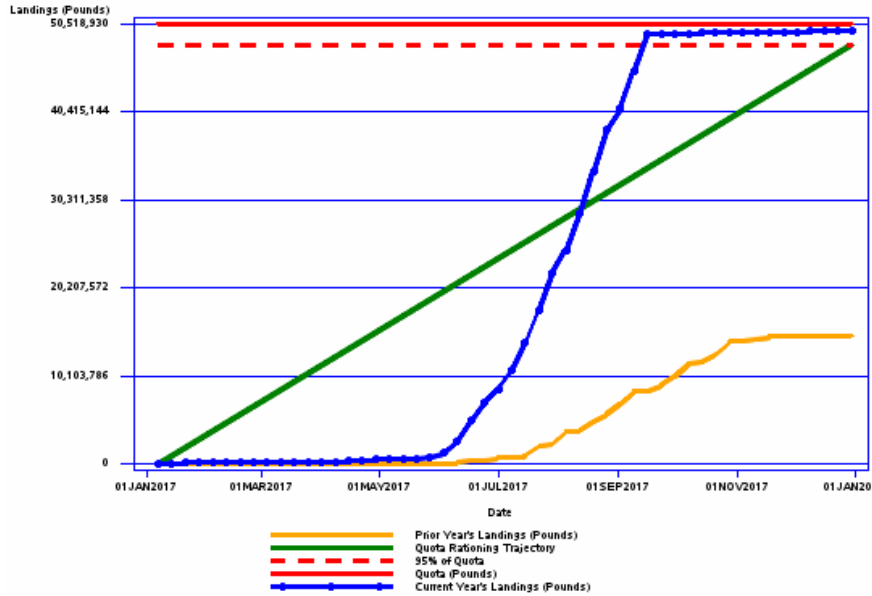


Figure 2. 2017 (Orange) and 2018 (Blue—through late-July) *Illex* Fishery week by week preliminary monitoring. 2018 landings are about 3 weeks ahead of 2017 landings.

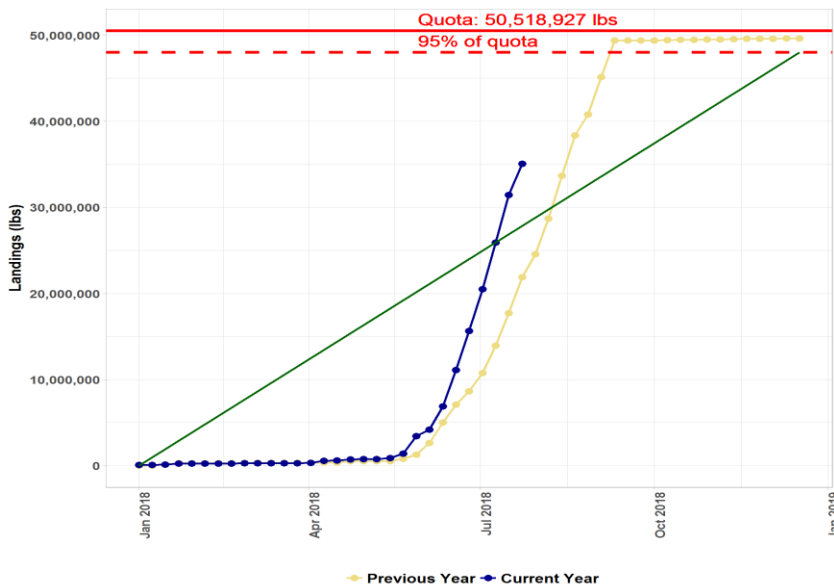
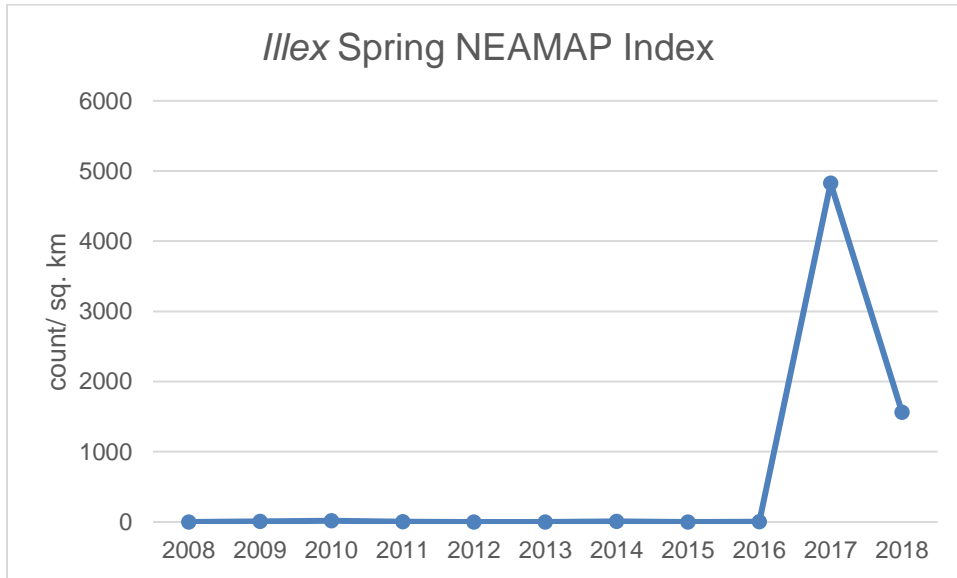


Figure 3. Spring NEAMAP Index for *Illex* Squid



Notes from VIMS/NEAMAP staff: Includes all survey regions in which *Illex* have ever been caught on a NEAMAP spring cruise (Rhode Island Sound down to the mouth of the Delaware Bay), so no positive tows for *Illex* were thrown out. The index is a CPUE, where catch is in count, and effort is area swept (in square km) for each tow. So the CPUE is count/sq km. The CVs are very high (all greater than 250%). The 2008-2016 count numbers are all less than 17/sq km.



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Michael P. Luisi, Chairman | G. Warren Elliott, Vice Chairman  
Christopher M. Moore, Ph.D., Executive Director

## MEMORANDUM

**Date:** August 3, 2018  
**To:** Council  
**From:** Jason Didden  
**Subject:** Mackerel Rebuilding and River Herring/Shad (RH/S) Cap Framework Tab

In this tab please find attached the following documents:

1. An updated Framework Document for Mackerel Rebuilding, Specifications, and the RH/S Cap
2. Input from the Mackerel, Squid, and Butterfish (MSB) and RH/S Advisory Panels
3. Public Comments received for the Briefing Book

The MSB and RH/S Committees met jointly on July 18, 2018, reviewed a draft framework document, and passed the following motions:

(For Mackerel Rebuilding by MSB Committee)

***Move to recommend that the Council adopt for 2019-2021 Alternative 1 C with Canada 2 and include the FMAT recommended ABC Cap of 33,474 MT for 2021. 7/4/1***

(For the RH/S Cap by RH/S Committee)

***I move to recommend the staff recommendation of 3b in combination with 3d. 7/4/1***

These alternatives are highlighted in the updated Framework Document, which is included in this tab.

The RH/S Committee also reviewed the annual “RH/S Update” document; a slightly updated version may be found at <http://www.mafmc.org/briefing/august-2018>.

(Note: in the printed version of the briefing book this tab is printed as a separate binder)





# Mackerel Rebuilding Framework

## ATLANTIC MACKEREL, SQUID, AND BUTTERFISH FISHERY MANAGEMENT PLAN

---

Measures to Rebuild the Atlantic Mackerel Stock, Including  
2019-2021 Specifications and the River Herring and Shad Cap

Includes Text for DRAFT Environmental Assessment



**Atlantic Mackerel**  
*Scomber scombus*

**Prepared by the**

**Mid-Atlantic Fishery Management Council (Council) in collaboration with the**

**National Marine Fisheries Service (NMFS)**

**Council Address**

Mid-Atlantic Fishery Management Council  
800 North State Street, Suite 201  
Dover, DE 19901

**NMFS Address**

NMFS Greater Atlantic Regional Fisheries Office  
55 Great Republic Drive  
Gloucester, MA 01930

**Submitted to NOAA:**

## 1.0 EXECUTIVE SUMMARY AND TABLE OF CONTENTS

In this Framework Adjustment to the Atlantic Mackerel, Squid, and Butterfish Fishery Management Plan (MSB FMP) the Mid-Atlantic Fishery Management Council (Council) considers measures to rebuild the Atlantic mackerel (“mackerel” hereafter) stock, including setting 2019-2021 mackerel specifications with the fishery’s accompanying river herring and shad (RH/S) cap.

The purposes of this action are to rebuild the mackerel stock so that Optimum Yield (OY) can be achieved on an ongoing basis and implement associated specifications including the RH/S cap. The action is needed because the recent benchmark mackerel assessment found the mackerel stock to be overfished, with overfishing occurring based on 2016 data (which was the most recent data available for the assessment) (NEFSC 2018). Also, previously-set specifications were for 2016-2018 so new specifications are generally needed for 2019 and beyond regardless of the assessment findings.

After the results of the assessment, the Council deliberated on the issue at its April 2018 meeting and will take final action at its August 2018 meeting. The Council also received or will receive input from the MSB Advisory Panel (AP) on April 13, 2018, and input from the combined MSB and RH/S APs on July 17. The MSB and RH/S Committees will meet jointly on July 18, 2018 to develop recommendations for the Council. A Fishery Management Action Team has met several times to help develop possible alternatives and related analyses.

The Council accepted (or will accept) comments at both Council meetings and will select the preferred alternatives in August 2018 to recommend to NOAA Fisheries for approval and implementation. NOAA Fisheries will publish a proposed rule along with this Environmental Assessment for public comment. After considering public comments on the proposed rule, NOAA Fisheries will publish a final rule with implementation details, as long as the action is ultimately approved by NOAA Fisheries.

The purposes of this document, which will likely become an Environmental Assessment (EA), are to explain the potential actions and analyze their impacts on the human environment, including any impacts to Endangered Species Act (ESA) listed species and marine mammals. The proposed alternatives are expected to result in positive benefits to the nation by restoring the sustainability of the mackerel resource and achieving OY on an ongoing basis. This action should not result in significant impacts on any valued ecological components from the perspective of the National Environmental Policy Act (NEPA). Because none of the preferred alternatives are associated with significant impacts to the biological, social, economic, or physical environment, a "Finding of No Significant Impact" (FONSI) may be made and an EA would satisfy the impact analysis requirements of NEPA. Summaries of the preferred alternative and expected impacts will be added below once preferred alternatives are selected by the Council. Details of all alternatives and their impacts are in Sections 5 and 7, respectively.

Summary of Preferred Alternatives X, Y, and Z – To be completed once the Council selects preferred alternatives.

Target Species Impact Summary – To be completed once the Council selects preferred alternatives.

Non-Target Species Impact Summary – To be completed once the Council selects preferred alternatives.

Habitat Impact Summary - To be completed once the Council selects preferred alternatives.

Protected Resources Impact Summary – To be completed once the Council selects preferred alternatives.

Human Communities Impact Summary – To be completed once the Council selects preferred alternatives.

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## 2.0 LIST OF COMMON ACRONYMS AND ABBREVIATIONS

<b>ABC</b>	<b>Acceptable Biological Catch</b>
<b>ACL</b>	<b>Annual Catch Limit</b>
<b>ACT</b>	<b>Annual Catch Target</b>
<b>ASMFC</b>	<b>Atlantic States Marine Fisheries Commission or Commission</b>
<b>B</b>	<b>Biomass</b>
<b>CFR</b>	<b>Code of Federal Regulations</b>
<b>CPH</b>	<b>Confirmation of Permit History</b>
<b>CV</b>	<b>coefficient of variation</b>
<b>DAH</b>	<b>Domestic Annual Harvest</b>
<b>DAP</b>	<b>Domestic Annual Processing</b>
<b>EA</b>	<b>Environmental Assessment</b>
<b>EEZ</b>	<b>Exclusive Economic Zone</b>
<b>EFH</b>	<b>Essential Fish Habitat</b>
<b>EIS</b>	<b>Environmental Impact Statement</b>
<b>ESA</b>	<b>Endangered Species Act of 1973</b>
<b>F</b>	<b>Fishing Mortality Rate</b>
<b>FMP</b>	<b>Fishery Management Plan</b>
<b>FR</b>	<b>Federal Register</b>
<b>GB</b>	<b>Georges Bank</b>
<b>GOM</b>	<b>Gulf of Maine</b>
<b>M</b>	<b>Natural Mortality Rate</b>
<b>MAFMC</b>	<b>Mid-Atlantic Fishery Management Council</b>
<b>MMPA</b>	<b>Marine Mammal Protection Act</b>
<b>MSA</b>	<b>Magnuson-Stevens Fishery Conservation and Management Act (as currently amended)</b>
<b>MSB</b>	<b>Atlantic Mackerel, Squid, Butterfish</b>
<b>MSY</b>	<b>Maximum Sustainable Yield</b>
<b>MT (or mt)</b>	<b>Metric Tons (1 mt equals about 2,204.62 pounds)</b>
<b>NE</b>	<b>Northeast</b>
<b>NEFMC</b>	<b>New England Fishery Management Council</b>
<b>NEFSC</b>	<b>Northeast Fisheries Science Center</b>
<b>NEPA</b>	<b>National Environmental Policy Act</b>

<b>NMFS</b>	<b>National Marine Fisheries Service (NOAA Fisheries)</b>
<b>NOAA</b>	<b>National Oceanic and Atmospheric Administration</b>
<b>OFL</b>	<b>Overfishing Level</b>
<b>OY</b>	<b>Optimum Yield</b>
<b>PBR</b>	<b>Potential Biological Removal</b>
<b>SARC</b>	<b>Stock Assessment Review Committee</b>
<b>SAW</b>	<b>Stock Assessment Workshop</b>
<b>SNE</b>	<b>Southern New England</b>
<b>SSC</b>	<b>Scientific and Statistical Committee</b>
<b>U.S.</b>	<b>United States</b>
<b>T1, T2, T3</b>	<b>Trimesters 1, 2, and/or 3 of the Longfin Squid Fishery</b>
<b>VTR</b>	<b>Vessel Trip Report</b>

Notes: "Mackerel" refers to "Atlantic mackerel" unless otherwise noted. Likewise "herring" alone refers to Atlantic herring.

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## 4.0 INTRODUCTION, BACKGROUND, AND PROCESS

### 4.1 Introduction and Background

The mackerel fishery is currently managed with an annual quota, in-season proactive accountability measures, and reactive accountability measures requiring paybacks of catches that exceed the Annual Catch Limit (ACL). The stock's Total Acceptable Biological Catch (ABC) in 2018 is 19,898 metric tons (MT), and after Canadian catch is deducted, the U.S. ABC is 11,009 MT. There is a 683 MT recreational allocation (6.2%) and a 10,327 MT commercial allocation (93.8%). There is a 10% management uncertainty buffer of 1,033 MT, resulting in a commercial annual catch target (ACT) of 9,294 MT. The management uncertainty buffer exists in case this high volume fishery overshoots its ACT before a closure. 1.26% is set aside for expected discards, leaving a commercial quota or Domestic Annual Harvest (DAH) of 9,177 MT (20,231,356 pounds). There are no recreational regulations other than angler registration through a state or federal registry/license.

When the fishery starts each year, the various commercial mackerel permit categories start with different trip limits. Tier 1 has an unlimited trip limit, Tier 2 has a 135,000 pound trip limit, and Tier 3 has a 100,000 pound trip limit. The open access incidental permit has a 20,000 pound trip limit. When the fishery reaches 95% of the DAH, all permits have 20,000 pound trip limits. When the fishery reaches 100% of the DAH, there is zero possession allowed by vessels with federal mackerel permits (which are required to fish for or possess mackerel in federal waters), though a separate action could change that to 5,000 pounds in late 2018 before this current action would be implemented.

The mackerel fishery also operates under a river herring and shad catch cap (RH/S), which closes the directed mackerel fishery and implements a 20,000 pound trip limit for all permits once 82 MT of RH/S has been projected to be caught in the directed mackerel fishery. In 2018, the RH/S cap closed the mackerel fishery effective February 27, 2018, at which point approximately 88% of the mackerel DAH had been harvested. The RH/S cap is currently 82 mt, which is a 0.89% ratio of RH/S to the mackerel DAH ( $9,177 \text{ MT} \times 0.0089 = 82 \text{ MT}$ ). Other fish, primarily Atlantic herring (herring) are also retained on trips that catch mackerel. All kept fish on mackerel trips are counted against the cap. This means that the approximate ratio that the fishery must stay below to catch the full mackerel quota is 0.64% of RH/S to all kept catch on mackerel trips (defined as trips that catch more than 20,000 pounds of mackerel).

Based on a recent benchmark assessment (NEFSC 2018), the mackerel stock has recently been declared overfished, with overfishing occurring in 2016. Related reports have been posted to the Northeast Regional Stock Assessment Workshop (SAW) report webpage: <https://www.nefsc.noaa.gov/saw/reports.html>. F40% was recommended as the proxy for FMSY (fishing mortality at "maximum sustainable yield") and was estimated to be 0.26. F40% was selected as a proxy for FMSY due to consistency with the Canadian reference point and ability to prevent stock collapse for stocks with similar life histories. F40% produces 40% of the "spawning stock biomass per recruit" (equivalent to lifetime egg production) relative to an unfished condition. Fishing mortality (F) in 2016 was estimated to be 0.47, so overfishing was occurring in 2016. The 2016 spawning stock biomass (SSB) was estimated to be 43,519 metric tons (MT), or 22% of the SSB target so mackerel is "overfished" (below 50% of the target). The biomass target is the SSB associated with the FMSY proxy or "SSBmsyproxy," and is estimated to be 196,894 MT. Once rebuilt, the MSYproxy is estimated to be 41,334 MT (combined U.S. and Canadian catch).



## The MSA on Ending Overfishing and Rebuilding

Section 304(e)(3) of the MSA states:

“Within 2 years after...notification...the appropriate Council...shall prepare and implement a fishery management plan, plan amendment, or proposed regulations...to end overfishing immediately in the fishery and to rebuild affected stocks of fish...”

All options under consideration would end or prevent overfishing according to the best available scientific information (i.e. the 2018 mackerel benchmark assessment) in 2019 and beyond. The projection methodology reviewed and accepted as part of the mackerel benchmark assessment indicates that overfishing should also not occur in 2018 if the U.S. and Canada catch less than 22,000 MT, which is expected. The Council was notified of mackerel’s overfishing status on July 19, 2018, so such regulations would technically need to be completed by July 18, 2020, but they should be implemented substantially earlier (early 2019) if this action is approved.

Section 304(e)(4) of the MSA also states:

“For a fishery that is overfished, any fishery management plan, amendment, or proposed regulations...shall...specify a time period for rebuilding the fishery that shall--

(i) be as short as possible, taking into account the status and biology of any overfished stocks of fish, the needs of fishing communities,...and the interaction of the overfished stock of fish within the marine ecosystem; and

(ii) not exceed 10 years, except in cases where the biology of the stock of fish, other environmental conditions...dictate otherwise;

...allocate both overfishing restrictions and recovery benefits fairly and equitably among sectors of the fishery...”

All options currently under consideration are projected to rebuild mackerel in 7 or less years so (i) is not an issue. Recreational catches have been relatively low in this fishery, and are expected to remain relatively low relative to annual catch limits (ACLs). Pending revisions to historical recreational catch estimates will be integrated into the next assessment update.

That means that the primary considerations are that the stock should be rebuilt in a time period as short as possible, taking into account 1) the status and biology of any overfished stocks, 2) the needs of fishing communities, and 3) the interaction of mackerel within the marine ecosystem. Information on the status and biology of mackerel and interactions within the marine ecosystem (e.g. predation) is provided in Section 6.1. There is some interaction of the mackerel fishery with red hake, which is overfished, but those interactions are relatively small compared to other gear types (additional information is presented in the document below). River herring and shad (RH/S) interactions with the mackerel fishery are also a concern, and are addressed through the RH/S cap on the mackerel fishery. The Council can use the information in this document to weigh these various considerations as required by the MSA.

The alternatives in this document seek to rebuild mackerel to SSBmsyproxy as defined in the recent mackerel assessment (196,894 MT). The Council’s Ecosystem Approach to Fisheries Management (EAFM) Guidance Document states “It shall be the policy of the Council to support the maintenance of

an adequate forage base in the Mid-Atlantic to ensure ecosystem productivity, structure and function and to support sustainable fishing communities” and “the Council could adopt biological reference points (overfishing levels or OFL) for forage stocks that are more conservative than the required MSA standard of Fmsy.” Acknowledging that the science to evaluate the biological and socioeconomic tradeoffs of more precautionary management is lacking, the Council adopted a policy that it would promote data collection and development of analyses to get to the point where the Council could evaluate the relevant tradeoffs and “establish an optimal forage fish harvest policy.”

Views vary on the precaution inherent in using the recommended F40% as a proxy for FMSY (and for the resulting SSBmsyproxy target). Clark 1993, Mace 1994, Gabriel and Mace 1999, and Legault and Brooks 2013 generally recommended F40% for typical stocks. Clark 2002 notes that for typical stocks, fishing at F40% would be expected to result in a target biomass that is 20%-35% of an unfished biomass. Pikitch et al 2012 recommended more conservative approaches for forage species to support predators, and this has spawned ongoing debate (e.g. Hilborn et al 2017 to the contrary).

While the rebuilding target is based on F40%, the Council’s risk policy produces catches less than fishing at this overfishing reference point. If the catch from the standard P\* approach recommended by the SSC (i.e. 100% C.V. and typical life history) when the stock is at 100% of rebuilt is used for future catch (33,474 MT, 19% lower than MSY), the mackerel assessment and associated projections indicate the mackerel spawning stock should increase to approximately 150% of the target/rebuilt spawning biomass (MAFMC 2018). This would apply to all rebuilding alternatives. When biomass is above the 100% rebuilt level then P\* will return higher ABCs and if those ABCs are caught the biomass will not increase as much. The FMAT is calculating these values and they will be available by the Council meeting.

The Council’s current risk policy states that the Scientific and Statistical Committee (SSC) should provide Acceptable Biological Catches (ABCs) that are the lesser of rebuilding ABCs or standard risk policy (P\*) ABCs. In some alternatives being considered by the Council, the rebuilding ABCs would be higher than the standard P\* ABCs. In these cases, the alternatives (1c and 1d) also contain a temporary adjustment of the Council’s risk policy to indicate that the Council does want to use the considered rebuilding ABCs. Alternative 1b uses the current, unmodified risk policy. The risk policy adjustment would only apply to this instance of initiating rebuilding for mackerel to consider the effects of rebuilding timelines on fishing communities and would not affect management decisions regarding future ABCs once the stock is rebuilt.

The alternatives also address other management measures needed to implement annual specifications, including the RH/S cap that restricts RH/S catch in the mackerel fishery.

## 4.2 Process

The Council accepted (or will accept) comments at both Council meetings and select the preferred alternative in August 2018 to recommend to NOAA Fisheries for approval and implementation. The Council also received or will receive input from the MSB AP on April 13, 2018, and input from the combined MSB and RH/S APs on July 17. The combined MSB and RH/S Committees meet on July 18 to provide recommendations to the Council.

Pending Council action, NOAA Fisheries will publish a proposed rule along with this Environmental Assessment for public comment. After considering public comments on the proposed rule, NOAA Fisheries will publish a final rule with implementation details, as long as the action is ultimately approved by NOAA Fisheries.

## 4.3 Purpose and Need

The purposes of this action are to end overfishing and rebuild the mackerel stock so that Optimum Yield (OY) can be achieved on an ongoing basis and to implement associated specifications to regulate the catch of Atlantic mackerel and non-target species consistent with the Magnuson-Stevens Act and the objectives of the FMP.

The action is needed because the recent benchmark mackerel assessment found the mackerel stock to be overfished, with overfishing occurring based on 2016 data (which was the most recent data available for the assessment) (NEFSC 2018). Also, previously-set specifications were for 2016-2018 so new specifications are generally needed for 2019 and beyond regardless of the assessment findings.

## 4.4 Regulatory Authority

The MSA states that Fishery Management Plans (FMPs) shall “contain the conservation and management measures... necessary and appropriate for the conservation and management of the fishery to prevent overfishing and rebuild overfished stocks, and to protect, restore, and promote the long-term health and stability of the fishery.” As discretionary provisions of Fishery Management Plans (FMPs), the MSA also allows restriction of fishing by gear/area/time/season. Seasonal management based on attainment of quotas has been previously incorporated into the MSB FMP and this action could modify the existing provisions regarding how the fishery closes due to attainment of the DAH or a portion of the DAH. The RH/S cap was implemented under the discretionary MSA provisions providing for conservation of non-target species.

The Council’s risk policy was implemented previously via Amendment 13 (<http://www.mafmc.org/msb/>), which stated that the system would need to be “adaptive” and that “Flexibility is imperative and must allow for timely modifications given the dynamic nature of fisheries and the environment.” Changing the desired probabilities of overfishing was contemplated as something that could be accomplished through even the annual specifications process. Major departures from the original risk policy were contemplated as needing to go through either an FMP framework adjustment or FMP amendment. An FMP Amendment would be required for measures not previously contemplated in the FMP. Since all of the measures in this action have been contemplated in the FMP before, a framework adjustment appears appropriate, consistent with the intent of the Omnibus Amendment that implemented the risk policy, and in fact was explicitly provided for and

anticipated by that action. See also implementing regulations at Title 50, Chapter VI, Part 648, Subpart B, §648.25(a)(1)(ii).

#### 4.5 FMP History and Management Objectives

Management of the MSB fisheries began through the implementation of three separate FMPs (one each for mackerel, squid, and butterfish) in 1978. The plans were merged in 1983. Over time a wide variety of management issues have been addressed including stock rebuilding, habitat conservation, bycatch minimization, and limiting participation in the fisheries. The history of the plan and its amendments can be found at <http://www.mafmc.org/fisheries/fmp/msb>.

The management goals and objectives, as described in the current FMP are listed below.

1. Enhance the probability of successful (i.e., the historical average) recruitment to the fisheries.
2. Promote the growth of the U.S. commercial fishery, including the fishery for export.
3. Provide the greatest degree of freedom and flexibility to all harvesters of these resources consistent with the attainment of the other objectives of this FMP.
4. Provide marine recreational fishing opportunities, recognizing the contribution of recreational fishing to the national economy.
5. Increase understanding of the conditions of the stocks and fisheries.
6. Minimize harvesting conflicts among U.S. commercial, U.S. recreational, and foreign fishermen.

The MSA defines Optimum Yield (OY) generally as the amount of fish which A) “will provide the greatest overall benefit to the Nation, particularly with respect to food production and recreational opportunities, and taking into account the protection of marine ecosystems”; B) “is prescribed as such on the basis of the maximum sustainable yield from the fishery, as reduced by any relevant economic, social, or ecological factor;” and C) “in the case of an overfished fishery, provides for rebuilding to a level consistent with producing the maximum sustainable yield in such fishery.”

The Omnibus ACL/AM Amendment (Amendment 13 to the MSB FMP) defined OY specifically for mackerel as: “The long-term average amount of desired yield from a stock or fishery. OY cannot exceed MSY. For Atlantic Mackerel, OY is the quantity of catch that is less than or equal to the ABC in U.S. waters.”

#### 4.6 Management Unit and Geographic Scope

The management unit (fish stock definition) for the MSB FMP is all Atlantic mackerel (*Scomber scombrus*), longfin inshore squid (*Doryteuthis (Amerigo) pealeii*),<sup>1</sup> Northern shortfin squid (*Illex illecebrosus*), and Atlantic butterfish (*Peprilus triacanthus*) under U.S. jurisdiction in the Northwest Atlantic, with a core fishery management area from Maine to North Carolina.

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<sup>1</sup> For longfin squid there was a scientific name change from *Loligo pealeii* to *Doryteuthis (Amerigo) pealeii*. To avoid confusion, this document will utilize the common name “longfin squid” wherever possible, but this squid is still often referred to as “*Loligo*” by interested parties.

## 5.0 WHAT ALTERNATIVES ARE CONSIDERED IN THIS DOCUMENT?

**Note:** All of the mackerel projections in this document (e.g. Alternatives 1b, 1c, and 1d) utilize the 2018 mackerel benchmark assessment. The projection methods in the benchmark assessment were peer reviewed and accepted by the 64th Northeast Regional Stock Assessment Review Committee (SARC 64 - <https://www.nefsc.noaa.gov/saw/reports.html>). The Council’s SSC also reviewed these specific projections in May 2018 and endorsed them as constituting the best available scientific information (<http://www.mafmc.org/s/May-2018-SSC-Report.pdf>). The benchmark assessment also indicates that all alternatives will avoid overfishing in all years. No components of these projections utilize anecdotal information.

### 5.1 ALTERNATIVE SET 1: Rebuilding timelines, Risk policies, OFL, Total ABC, Canadian catch deduction, U.S. ABC, Recreational/Commercial allocation, ACT, and DAH.<sup>2</sup>

#### Alternative 1a. No action/Status Quo (current specifications roll over with no action)

With no action, no rebuilding plan would be implemented, no changes to the current risk policy would occur, and the current specifications would remain in place, as described in the table below. The fishery’s operational details would stay as described in 4.1 1a’s Total ABC, 19,898 MT, was 50% of the 1978-2014 median mackerel catch, which a data limited simulation exercise suggested came closest to meeting, while not exceeding, the acceptable probability of overfishing from the MAFMC risk policy. See [https://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&SID=1e9802ffddb05d0243d9c657fade956c&rgn=div5&view=text&node=50:12.0.1.1.5&idno=50#se50.12.648\\_120](https://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&SID=1e9802ffddb05d0243d9c657fade956c&rgn=div5&view=text&node=50:12.0.1.1.5&idno=50#se50.12.648_120) (§648.20 and §648.21) for additional details on the risk policy and ABC control rules).

A total of 8,889 MT (45%) is set aside to cover Canadian catches (this was set before Canada increased its quota to 10,000 MT). It was based on a Canadian quota of 8,000 MT plus 889 MT for uncertainty. This leaves 11,009 MT for the U.S. ABC/ACL, split 6.2% recreational (683 MT) and 93.8% commercial (10,327 MT) per the FMP. 10% of the commercial allocation is set aside as a management uncertainty buffer (in case this high-volume fishery is not closed at the exact right time) for an annual catch target (ACT) of 9,294 MT. 1.26% of the ACT is set aside for discards based on previous assessment discard estimates, leaving 9,177 MT for landings or “domestic annual harvest (DAH).”

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<sup>2</sup> OFL = Overfishing level, ABC = Acceptable Biological Catch, ACT = Annual Catch Target, DAH = Domestic Annual Harvest, which is the commercial quota.

Table 1. Current Mackerel Specifications (1a)

Current (all numbers are in metric tons)	
Specification	Mackerel 2019 (MT)
Overfishing Limit (OFL)	Unknown
Total Acceptable Biological Catch (ABC) from SSC	19,898
Canadian Deduction (Quota and 10% Management Uncertainty)	8,889
U.S. ABC = Annual Catch Limit (ACL) (Canadian catch deducted)	11,009
Recreational Allocation (6.2% of ACL)	683
Recreational Annual Catch Target (10% less than allocation to account for management uncertainty)	614
Commercial Allocation (93.8% of ACL)	10,327
Commercial Annual Catch Target (10% less than allocation to account for management uncertainty)	9,294
Landings or "Domestic Annual Harvest" (1.26% less than Annual Catch Target to account for expected discards)	9,177

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### Alternative 1b. 3-Year Rebuilding based on P\* with no risk policy change.

With Alternative 1b, the Council would begin a 3-year rebuilding program based on the Council's current "P\*" risk policy, which coincidentally happens to be projected<sup>3</sup> to rebuild mackerel in 3 years (by June 2021). A table (Table 2) on the next page summarizes the various specifications, which are determined by a series of decisions described next. The benchmark stock assessment, indicates that this alternative would be expected to rebuild mackerel to slightly above the SSBmsyproxy as defined in the recent mackerel assessment (196,894 MT) within 3 years.

For a species with a quantitative assessment, the Council has charged its SSC with providing catch advice (the Total ABC) that has a certain probability of overfishing based on stock size, the species life history, and the SSC's judgement of the uncertainty involved in calculating the overfishing level (OFL). Applying this to mackerel, the SSC noted the recent and predicted stock sizes, determined mackerel has a typical life history, and increased the measures of uncertainty to a 100% coefficient of variation (C.V.) on the overfishing level (the SSC determined the C.V. coming directly out of the model does not account for some sources of uncertainty).

As part of the Council's risk policy, the Council has a sliding scale of acceptable probability of overfishing for a species with a typical life history where lower stock sizes trigger a lower probability of overfishing. For a typical rebuilt stock, the Council uses a 40% probability of overfishing. For mackerel, with its low but projected increasing stock size, the required probabilities of overfishing are 24% (F=0.14) for 2019, 29% (F=0.19) for 2020, and 34%<sup>4</sup> (F=0.18) for 2021. All projected Fs would be below the overfishing threshold.

To calculate the various specifications Canadian catch must be deducted. To date the Council has endorsed an option where 50% of the Total ABC would be set aside to cover Canadian catch. Canadian quotas have been increasing somewhat in recent years, and if the U.S. increases ABCs then Canada may follow suit and a 50% set-aside would allow for increases in Canadian quotas. An MSB Advisory Panel member requested that the FMAT consider whether deducting the current Canadian quota, 10,000 MT, would be justifiable, as this is similar to approaches applied in setting previous specifications. The FMAT concluded that doing so would be justifiable, though it will usually deduct less for Canada than a 50%-50% split, theoretically increasing the chance of exceeding the total ABC (which could make overfishing more likely). However, given the current status of Canadian management (a more pessimistic assessment and beginning development of a rebuilding plan) a 10,000 MT deduction is justifiable because rapid increases in Canadian quotas seem unlikely. In the table below, sub-alternatives exist for either a 50% (Canada1) or 10,000 MT (Canada2) deduction (the 10,000 MT deduction option is a suggested addition by staff based on the FMAT evaluation and can be added or removed if desired). The Council will need to identify their preferred approach. This is handled similarly under all specification options. This is not modifying the FMP's requirements to account for Canadian catch, only operationalizing the requirement for this particular set of specifications (i.e. it can be changed in future specifications). There has been discussion about undocumented Canadian catch, speculated previously to possibly be around 5,000 MT. The 2018 benchmark assessment considered this question and decided it was not appropriate to tack on some extra unknown catch to the time series. This is also consistent with previous recent evaluations by the

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<sup>3</sup> All projections in this document utilize the final assessment model that found mackerel to be overfished, and assume that the ABC is caught for future years, typical recruitment (i.e. similar to 1975-2016 median) occurs, and natural mortality remains constant (same as the assessment model).

<sup>4</sup> The previous year's stock size determines the acceptable percentage of overfishing, in this case 2020 stock size for the 2021 ABC. This is why the 2021 percentage is only 34% and not 40% even though under this alternative mackerel is predicted to rebuild in 2021 (it's not quite rebuilt in 2020).

SSC and MSB Monitoring Committee that it was not appropriate to add in and then deduct out an unknown amount of undocumented Canadian catch (MAFMC 2015a, MAFMC 2015b).

The Commercial/Recreational allocation must also be addressed to calculate the specifications. Currently the recreational fishery is allocated 6.2%. The total median recreational catch 2013-2017 has been 1,209 MT (range of 767 MT to 1,611 MT). However only 8%-26% of recreational catch comes from federal waters and can be impacted by federal regulations. There is also no long-term recreational total catch trend (see Figure 9). Closing federal waters could may drive more recreational catch into state waters, with no impact on total catch. Given the lack of control over this fishery, this alternative moves away from a percentage allocation to a deduction of 1,209 MT for total recreational catch to avoid substantial ACL overages under all specification options.

Currently there is a 10% management uncertainty buffer set aside to create a reduced Annual Catch Target (ACT) in case the fishery cannot be closed at the exact right time. Mackerel is a high volume fishery, which makes precise closures difficult. However, because the Council is considering moving to a system of phased trip limits (see Alternative Set 2) that incorporate their own buffering system, a 3% management uncertainty is proposed for this alternative. The phased trip limits should slow the fishery so a 10% buffer will not be needed. Finally, the last step in calculating the commercial quota is accounting for discards. 2012-2016 discards accounted for 0.37% of catch in the recent benchmark, and is set aside similarly under all specification options.

Table 2. Specifications for a 3-year rebuilding (1b)

Proposed Option 1b						
All numbers are in metric tons (MT)						
Specification	Mackerel 2019 (MT)		Mackerel 2020 (MT)		Mackerel 2021 (MT)	
	Canada1	Canada2	Canada1	Canada2	Canada1	Canada2
Overfishing Limit (OFL) (only available for 2019)	31,764	31,764	na	na	na	na
Total Acceptable Biological Catch (ABC) from	19,025	19,025	26,183	26,183	33,001	33,001
Canadian Deduction (1/2 of ABC or ABC-10,000)	9,513	10,000	13,092	10,000	16,501	10,000
U.S. ABC = ACL (Canadian catch deducted)	9,513	9,025	13,092	16,183	16,501	23,001
Recreational Allocation	1,209	1,209	1,209	1,209	1,209	1,209
Commercial Allocation (rest of ACL)	8,304	7,816	11,883	14,974	15,292	21,792
Management Uncertainty Buffer = 3%	249	234	356	449	459	654
Commercial ACT (97% of ACL)	8,054	7,582	11,526	14,525	14,833	21,138
DAH (0.37% discards)	8,025	7,553	11,483	14,471	14,778	21,060



### Alternative 1c. 5-Year Rebuilding based on projections from recent benchmark assessment.

With 1c, the Council would begin a 5-year<sup>5</sup> rebuilding program based on the catches that are projected to rebuild the mackerel stock within 5 years, by June 2023. The first three years' specifications would be set as described below. Because these catches are higher than the P\* catches described in 1b, the Council would also adjust its risk policy for this rebuilding plan only. The Council's current risk policy states that the SSC should provide Acceptable Biological Catches (ABCs) that are the lesser of rebuilding ABCs or standard risk policy (P\*) ABCs (1b follows the current P\* approach). The P\* catches in 1b are lower than 1c. In absence of a risk policy adjustment, ABCs prescribed under 1b would override those in 1c. So for this alternative, the Council would adjust its risk policy to indicate that in this, and only this, specific case of mackerel rebuilding initiation, the risk policy of the Council is adjusted to use this 5-year rebuilding timeline (thus limiting this adjustment both temporally and by species). This is the only way that the Council can consider a rebuilding plan longer than three years and allow the higher associated catches. As discussed in Section 4.4, flexibility to adjust the risk policy through specifications or a framework was explicitly anticipated and provided for in the Omnibus ACL/AM Amendment and implementing regulations.

The SSC has provided Total ABCs to match this risk policy modification for 2019-2021 and certified them as the best available scientific information. Allowing a longer rebuilding timeline allows increased ABCs, and those increases affect many of the other specifications. Approaches for Canadian catch, the Commercial/Recreational allocation, the management uncertainty buffer/ACT, and discards are identical to Alternative 1b and are not repeated here, but the resulting specifications are detailed in the table below.

The SSC recommended an ABC of 35,195 MT for 2021. However, the FMAT noted that some SSC rebuilding ABCs like this one are higher/riskier than the ABCs that would result from applying the Council's standard risk policy to a fully rebuilt stock. The standard risk policy ABC for a 100% rebuilt mackerel stock, assuming a 100% C.V. and typical life history, is 33,474 metric tons (MT), or 81% of the Maximum Sustainable Yield for a rebuilt stock (MSY=41,334 MT). Accordingly, the FMAT recommends that no ABCs for 2019-2021 be initially set higher than 33,474 MT. Otherwise rebuilt ABCs might be lower than rebuilding ABCs. The table below uses 33,474 MT for 2021's ABC, but the ABC could be modified back to 35,195 MT, depending on the Council's preference and evaluation of the FMAT's recommendation. The MSB Committee recommended this alternative with this modification.

The base rebuilding fishing mortality rate for this alternative is 0.237 (i.e. below the overfishing threshold). If the ABCs in this option as modified above were fully harvested, there should be a slightly greater than 50% chance that the stock would be rebuilt in 5 years because the 33,474 MT cap is lower than the catch actually used in the projections.

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<sup>5</sup> It is likely that this plan will be implemented around February 15, 2019. The SSB projections technically are for June biomass, so a "by June of 2023" rebuilding program is technically a 4 year and 4 month rebuilding timeline. Since it extends beyond 4 years it's being called a 5-year rebuilding program for sake of simplicity.

Table 3. Specifications for a 5-year rebuilding (1c)

Proposed Option 1c						
All numbers are in metric tons (MT)						
Specification	MackereI 2019 (MT)		MackereI 2020 (MT)		MackereI 2021 (MT)	
	Canada1	Canada2	Canada1	Canada2	Canada1	Canada2
Overfishing Limit (OFL) (only available for 2019)	31,764	31,764	na	na	na	na
Total Acceptable Biological Catch (ABC) from	29,184	29,184	32,480	32,480	33,474	33,474
Canadian Deduction (1/2 of ABC or ABC-10,000)	14,592	10,000	16,240	10,000	16,737	10,000
U.S. ABC = ACL (Canadian catch deducted)	14,592	19,184	16,240	22,480	16,737	23,474
Recreational Allocation	1,209	1,209	1,209	1,209	1,209	1,209
Commercial Allocation (rest of ACL)	13,383	17,975	15,031	21,271	15,528	22,265
Management Uncertainty Buffer = 3%	401	539	451	638	466	668
Commercial ACT (97% of ACL)	12,982	17,436	14,580	20,633	15,062	21,597
DAH (0.37% discards)	12,933	17,371	14,526	20,557	15,006	21,517

***\*\*This is the option recommended by the MSB Committee on 7/18/18***

***\*\*Council Staff recommends this (1c) alternative, as modified with the 10,000 MT deduction for Canadian catch (“Canada2”) and the FMAT-recommended 33,474 ABC maximum in 2021 (highlighted in table above) on the basis it balances the MSA rebuilding timing requirement considerations, by allowing for mackerel to rebuild relatively quickly (technically less than half of the typical maximum) and for catches to increase moderately.\*\****

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### Alternative 1d. 7-Year Rebuilding based on projections from recent benchmark assessment.

With 1d, the Council would begin a 7-year<sup>6</sup> rebuilding program based on the catches that are projected to rebuild the mackerel stock within 7 years. The first three years' specifications would be set as described below. Because these catches are higher than the P\* catches described in 1b, the Council would also adjust its risk policy for this rebuilding plan only. The Council's current risk policy states that the SSC should provide Acceptable Biological Catches (ABCs) that are the lesser of rebuilding ABCs or standard risk policy (P\*) ABCs (1b follows the current P\* approach). The P\* catches in 1b are lower than 1d. In absence of a risk policy adjustment, ABCs prescribed under 1b would override those in 1d. So for this alternative, the Council would adjust its risk policy to indicate that in this, and only this, specific case of mackerel rebuilding initiation, the risk policy of the Council is adjusted to use this 7-year rebuilding timeline (thus limiting this adjustment both temporally and by species). This is the only way that the Council can consider a rebuilding plan longer than three years and allow the higher associated catches. As discussed in Section 4.4, flexibility to adjust the risk policy through specifications or a framework was explicitly anticipated and provided for in the Omnibus ACL/AM Amendment and implementing regulations.

The SSC has provided Total ABCs to match this risk policy modification for 2019-2021 and certified them as the best available scientific information. Allowing a longer rebuilding timeline allows increased ABCs, and those increases affect many of the other specifications. Approaches for Canadian catch, the Commercial/Recreational allocation, the management uncertainty buffer/ACT, and discards are identical to Alternative 1b and are not repeated, but the resulting specifications are detailed in the table below.

The SSC recommended an ABC of 34,016 MT for 2020 and 36,551 MT for 2021. However, the FMAT noted that some SSC rebuilding ABCs like these are higher/riskier than the ABCs that would result from applying the Council's standard risk policy to a fully rebuilt stock. The standard risk policy ABC for a 100% rebuilt mackerel stock, assuming a 100% C.V. and typical life history, is 33,474 metric tons (MT), or 81% of the Maximum Sustainable Yield for a rebuilt stock (MSY=41,334 MT). Accordingly, the FMAT recommends that no ABCs for 2019-2021 be initially set higher than 33,474 MT. Otherwise rebuilt ABCs might be lower than rebuilding ABCs. The table below uses 33,474 MT for 2020 and 2021 ABCs, but these ABCs could be modified back to 34,016 MT for 2020 and 36,551 MT for 2021, depending on the Council's preference and evaluation of the FMAT's recommendation.

The base rebuilding fishing mortality rate for this alternative is 0.252 (i.e. below the overfishing threshold). If the ABCs in this option as modified above were fully harvested, there should be a slightly greater than 50% chance that the stock would be rebuilt in 7 years because the 33,474 MT cap is lower than the catch actually used in the projections.

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<sup>6</sup> It is likely that this plan will be implemented around February 15, 2019. The SSB projections technically are for June biomass, so a "by June of 2025" rebuilding program is technically a 6 year and 4 month rebuilding timeline. Since it extends beyond 6 years it's being called a 7-year rebuilding program for sake of simplicity.

Table 4. Specifications for a 7-year rebuilding (1d)

Proposed Option 1d						
All numbers are in metric tons (MT)						
Specification	Mackerel 2019 (MT)		Mackerel 2020 (MT)		Mackerel 2021 (MT)	
	Canada1	Canada2	Canada1	Canada2	Canada1	Canada2
Overfishing Limit (OFL) (only available for 2019)	31,764	31,764	na	na	na	na
Total Acceptable Biological Catch (ABC) from	30,868	30,868	33,474	33,474	33,474	33,474
Canadian Deduction (1/2 of ABC or ABC-10,000)	15,434	10,000	16,737	10,000	16,737	10,000
U.S. ABC = ACL (Canadian catch deducted)	15,434	20,868	16,737	23,474	16,737	23,474
Recreational Allocation	1,209	1,209	1,209	1,209	1,209	1,209
Commercial Allocation (rest of ACL)	14,225	19,659	15,528	22,265	15,528	22,265
Management Uncertainty Buffer = 3%	427	590	466	668	466	668
Commercial ACT (97% of ACL)	13,798	19,069	15,062	21,597	15,062	21,597
DAH (0.37% discards)	13,747	18,999	15,006	21,517	15,006	21,517

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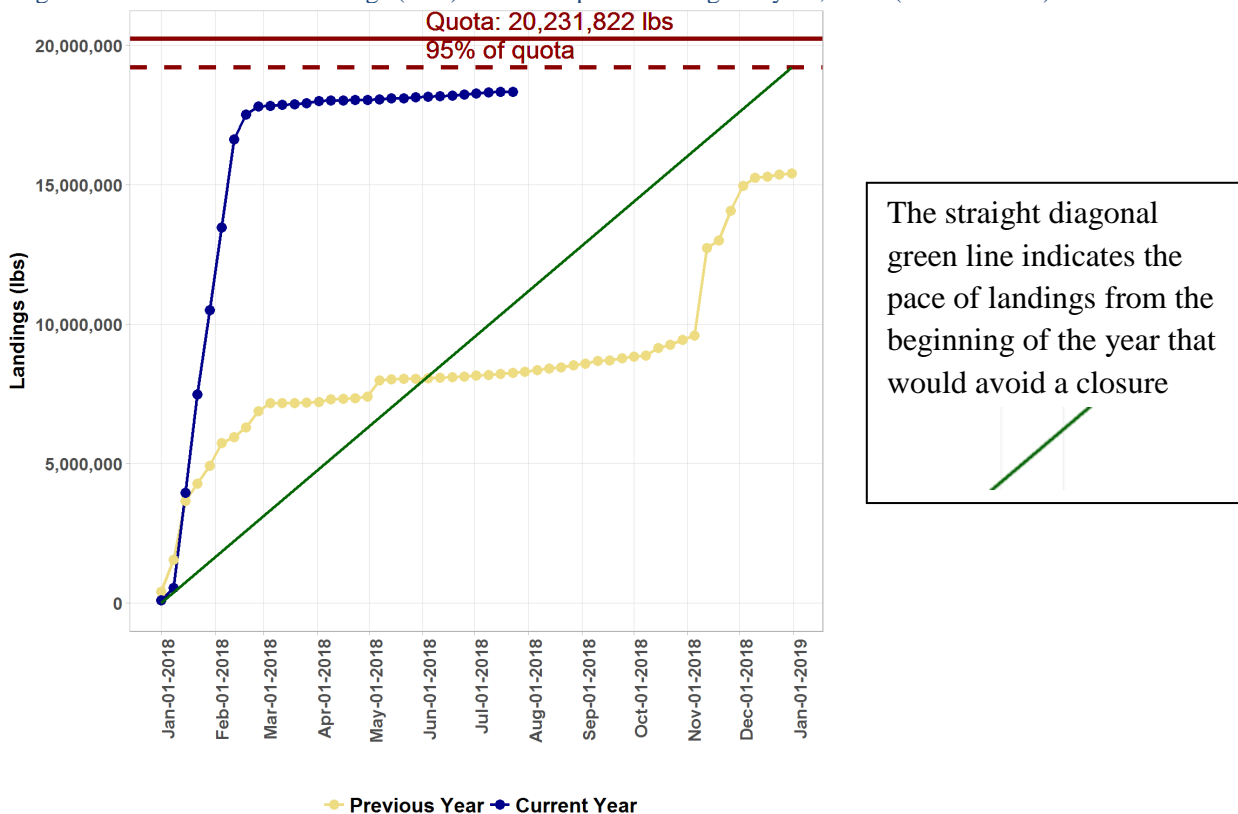
## 5.2 ALTERNATIVE SET 2: In Season Management

### Introduction

There is minimal information available to predict how the mackerel fishery will operate under any buffer/trigger/closure/trip limit combination. NMFS has never had to close this high-volume fishery due to mackerel landings, so it is unknown how effective NMFS will be at closing the fishery at any exact threshold. NMFS does have experience closing similar high volume fisheries (longfin squid, *Illex* squid, and Atlantic herring), and a number of reporting and monitoring provisions are in place to facilitate effective closures. There is also naturally high variation in the production of the mackerel fishery, especially given its mixed-fishery nature with Atlantic herring. Accordingly, either leaving a higher than expected amount of quota uncaught or exceeding an ACL is a possibility under all scenarios. Larger buffers and lower percentage catch triggers will be more likely to avoid ACL overages (which must be paid back) but also more likely to leave quota uncaught. Smaller buffers and higher percentage catch triggers will be more likely to catch the quota but also more likely to lead to ACL overages.

Staff has been able to examine mackerel landings under a 20,000 pound trip limit after the 2018 closure due to the RH/S cap. This is the first closure of the modern mackerel fishery. Landings under this trip limit after March 1, 2018 have averaged under 13 MT per week (Figure 1), or about 600 MT for a 10-month closure. Handgear auto-jig fishermen have been landing approximately 700-900 MT in the last three years, mostly in summer and later in the year so total post closure landings at a 20,000 pound trip limit for a 10-month closure might be expected to total roughly around 1,400 MT.

Figure 1. 2018 Mackerel Landings (blue) for data reported through July 25, 2018 (91% of DAH)



Alternative 2a. No action/Status Quo (current closure measures roll over with no action)

The directed fishery closes at 95% of the DAH, and then a 20,000 pound trip limit is implemented for limited access permits. Incidental permits have a 20,000 pound trip limit regardless of fishery closure status. Limited access permits consist of 3 categories, Tier 1 with no initial trip limits, Tier 2 with a 135,000-pound initial trip limit, and Tier 3 with a 100,000-pound initial trip limit. To restrict Tier 3 participants to their historical participation levels, their trip limit falls to 20,000 pounds once they approach 7% of the DAH – this is a limit for them and not a set-aside. Additional details can be found at <https://www.greateratlantic.fisheries.noaa.gov/sustainable/species/msb/index.html#e1111022>. At 100% of the DAH, possession is prohibited in federal waters. Another action will change this to a 5,000 pound trip limit for all permits once 100% of the DAH is landed for the remainder of the 2018 fishing year. The RH/S cap can also close the directed fishery and implement a 20,000 pound trip limit for Tier 1-3 permits (see Alternative Set 3 for RH/S cap). Between the current (2018) 10% management uncertainty buffer (1,033 MT) and the 95% closure trigger (leaving 459 MT for after the closure), there is an effective reserve of 1,492 MT in place for the period after closure of the directed fishery.

In 2018 the gap between the 1st closure at 95% and the 2nd closure at 100% is 459 MT, which translates into about 51 trips at the existing 20,000 pound trip limit in this alternative. A run of 20,000 pound trips is not expected, but this information is provided to consider potential monitoring challenges and evaluation of impacts.

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Alternative 2b. 80% of DAH Initial Trigger

When 80% of the DAH is projected to be landed, trip limits of 40,000 pounds would be implemented for Tier 1-3 directed permits and 5,000 pounds for incidental/open access permits. When 98% of the DAH is projected to be landed, a 5,000 pound trip limit would be implemented for all permits for the rest of the fishing year to cover remaining incidental catches. The initial Tier 2 and Tier 3 trip limits would remain the same, as would the Tier 3 7% limit. Recall from above there is also an additional 3% management uncertainty buffer that can accommodate any catches beyond 100% of the DAH. The RH/S cap could also still close the directed fishery and implement a 20,000 pound trip limit for Tier 1-3 permits. Once the RH/S cap has been triggered, additional changes to trip limits are only reductions; for example, the trip limit would not increase to 40,000 pounds at 80% of the DAH if the RH/S cap has already been triggered. All possible combinations of triggers and DAHs will be provided in an Appendix in the EA. The triggers applicable for the committee-recommended rebuilding option DAHs (1c) combined with Alternative 2b are in a table below.

Table 5. Example of 2b closures combined with 1c rebuilding

Proposed Option 1c + 2b In-Season Measures			
All numbers are in metric tons (MT)			
Specification	Mackerel 2019 (MT)	Mackerel 2020 (MT)	Mackerel 2021 (MT)
	Canada2	Canada2	Canada2
Total Acceptable Biological Catch (ABC) from	29,184	32,480	33,474
Canadian Deduction (1/2 of ABC or ABC-10,000)	10,000	10,000	10,000
DAH (Commercial Quota)	17,371	20,557	21,517
1st Close at 80% of DAH	13,897	16,445	17,214
Quota between 1st and 2nd close	3,127	3,700	3,873
2nd Close at 98% of DAH	17,024	20,145	21,087
Quota after 2nd close	347	411	430
Extra Management Uncertainty Buffer	539	638	668

The question of adaptive management came up at the last meeting, and the FMAT came up with the following provision that may or may not be added to this alternative: *To facilitate adaptive management, if in November and December of each year NMFS determines that keeping the mackerel fishery open longer than the set percentage triggers (in any phase of the fishery) is unlikely to cause a DAH overage, then NMFS shall have the discretion, based on a projection to not close (or not further close) the fishery so that optimum yield can be harvested.* Predicting catch can be difficult, but this provision allows for some flexibility and further development of optimizing the closure process. NMFS might end up going slightly over the DAH in an effort to optimize catch, but that is the purpose of the ACT management uncertainty buffer. The Council would need a motion to add this into any alternative.

For 2019, between the 3% management uncertainty buffer proposed in Alternative 1c (539 MT), and the 80% closure trigger (leaving 3,474 MT total for after the closure) under this Alternative 2b, there is an effective reserve of 4,013 MT in place for the period after closure of the directed fishery. Since the DAHs go up somewhat in 2020 and 2021, the effective reserve also increases somewhat in those years.

In 2019 the gap between the 1st closure at 80% and the 2nd closure at 98% is 3,127 MT, which translates into about 172 trips at the proposed 40,000 pound trip limit in this alternative. A run of 40,000 pound trips is not expected, but this information is provided to consider potential monitoring

challenges. With the somewhat increasing DAHs in 2020 and 2021, the buffers get somewhat bigger and the landings from slightly more trips could be absorbed.

### Alternative 2c. 85% of DAH Initial Trigger

When 85% of the DAH is projected to be landed, trip limits of 20,000 pounds would be implemented for Tier 1-3 directed permits and 5,000 pounds for incidental/open access permits. When 98% of the DAH is projected to be landed, a 5,000 pound trip limit would be implemented for all permits for the rest of the fishing year to cover remaining incidental catches. Recall from above there is also an additional 3% management uncertainty buffer that can accommodate any catches beyond 100% of the DAH. The initial Tier 2 and Tier 3 trip limits would remain the same, as would the Tier 3 7% limit. The RH/S cap could also still close the directed fishery and implement a 20,000 pound trip limit for Tier 1-3 permits. Once the RH/S cap has been triggered, additional changes to trip limits would only be further reductions from 20,000 pounds. All possible combinations of triggers and DAHs will be provided in an Appendix in the EA. The triggers applicable for the committee-recommended rebuilding option DAHs (1c) combined with Alternative 2c are in a table below.

Table 6. Example of 2c closures combined with 1c rebuilding

Proposed Option 1c + 2c In-Season Measures All numbers are in metric tons (MT)			
Specification	Mackerel 2019 (MT)	Mackerel 2020 (MT)	Mackerel 2021 (MT)
	Canada2	Canada2	Canada2
Total Acceptable Biological Catch (ABC) from SSC	29,184	32,480	33,474
Canadian Deduction (1/2 of ABC or ABC-10,000)	10,000	10,000	10,000
DAH (Commercial Quota)	17,371	20,557	21,517
1st Close at 85% of DAH	14,766	17,473	18,290
Quota between 1st and 2nd close	2,258	2,672	2,797
2nd Close at 98% of DAH	17,024	20,145	21,087
Quota after 2nd close	347	411	430
Extra Management Uncertainty Buffer	539	638	668

The question of adaptive management came up at the last meeting, and the FMAT came up with the following provision that may or may not be added to this alternative: *To facilitate adaptive management, if in November and December of each year NMFS determines that keeping the mackerel fishery open longer than the set percentage triggers (in any phase of the fishery) is unlikely to cause a DAH overage, then NMFS shall have the discretion, based on a projection to not close (or not further close) the fishery so that optimum yield can be harvested.* Predicting catch can be difficult, but this provision allows for some flexibility and further development of optimizing the closure process. NMFS might end up going slightly over the DAH in an effort to optimize catch, but that is the purpose of the ACT management uncertainty buffer. The Council would need a motion to add this into any alternative.

For 2019, between the 3% management uncertainty buffer proposed in Alternative 1c (539 MT), and the 85% closure trigger (leaving 2,605 MT total for after the closure) under this Alternative 2c, there is



an effective reserve of 3,144 MT in place for the period after closure of the directed fishery. Since the DAHs go up somewhat in 2020 and 2021, the effective reserve also increases somewhat in those years.

In 2019 the gap between the 1<sup>st</sup> closure at 85% and the 2<sup>nd</sup> closure at 98% is 2,258 MT, which translates into about 249 trips at the proposed 20,000 pound trip limit in this alternative. A run of 20,000 pound trips is not expected, but this information is provided to consider potential monitoring challenges and evaluation of impacts. With the somewhat increasing DAHs in 2020 and 2021, the buffers get somewhat bigger and the landings from slightly more trips could be absorbed.

Alternative 2d. 95% of DAH Trigger (Committee requested addition)

The fishery would close at 95% of the DAH, at which point trip limits of 20,000 pounds would be implemented for Tier 1-3 directed permits and 5,000 pounds for incidental/open access permits. When 100% of the DAH is projected to be landed, a 5,000 pound trip limit would be implemented for all permits for the rest of the fishing year to cover remaining incidental catches, and the 3% management uncertainty buffer would cover any DAH overages. All possible combinations of triggers and DAHs will be provided in an Appendix in the EA. The Triggers applicable for the committee-recommended rebuilding option DAHs (1c) combined with Alternative 2d are in a table below. The RH/S cap could also still close the directed fishery and implement a 20,000 pound trip limit for Tier 1-3 permits.

Table 7. Example of 2d closures combined with 1c rebuilding

Proposed Option 1c + 2d In-Season Measures			
All numbers are in metric tons (MT)			
Specification	Mackerel 2019 (MT)	Mackerel 2020 (MT)	Mackerel 2021 (MT)
	Canada2	Canada2	Canada2
Total Acceptable Biological Catch (ABC) from SSC	29,184	32,480	33,474
Canadian Deduction (1/2 of ABC or ABC-10,000)	10,000	10,000	10,000
DAH (Commercial Quota)	17,371	20,557	21,517
1st Close at 95% of DAH	16,503	19,529	20,441
Quota between 1st and 2nd close	869	1,028	1,076
2nd Close at DAH	17,371	20,557	21,517
Quota after 2nd close	0	0	0
Extra Management Uncertainty Buffer	539	638	668

The question of adaptive management came up at the last meeting, and the FMAT came up with the following provision that may or may not be added to this alternative: *To facilitate adaptive management, if in November and December of each year NMFS determines that keeping the mackerel fishery open longer than the set percentage triggers (in any phase of the fishery) is unlikely to cause a DAH overage, then NMFS shall have the discretion, based on a projection to not close (or not further close) the fishery so that optimum yield can be harvested.* Predicting catch can be difficult, but this provision allows for some flexibility and further development of optimizing the

closure process. NMFS might end up going slightly over the DAH in an effort to optimize catch, but that is the purpose of the ACT management uncertainty buffer. The Council would need a motion to add this into any alternative.

For 2019, between the 3% management uncertainty buffer (539 MT), and the 95% closure trigger (leaving 869 MT total for after the closure) under this Alternative 2d, there is an effective reserve of 1,409 MT in place for the period after closure of the directed fishery. Since the DAHs go up somewhat in 2020 and 2021, the effective reserve also increases somewhat in those years. A difference between this alternative and 1b, 1c, and 1e is that the final closure occurs at 100% of the DAH versus 98% of the DAH. Closing once at 95% and again at 98% is unlikely to be practicable from an operational perspective.

In 2019 the gap between the 1<sup>st</sup> closure at 95% and the 2<sup>nd</sup> closure at 100% is 869 MT, which translates into about 96 trips at the proposed 20,000 pound trip limit in this alternative. A run of 20,000 pound trips is not expected, but this information is provided to consider potential monitoring challenges and evaluation of impacts. With the somewhat increasing DAHs in 2020 and 2021, the buffers get somewhat bigger and the landings from slightly more trips could be absorbed.

#### Alternative 2e. 90% of DAH Initial Trigger (Committee requested addition)

When 90% of the DAH is projected to be landed, trip limits of 40,000 pounds would be implemented for Tier 1-3 directed permits and 5,000 pounds for incidental/open access permits. When 98% of the DAH is projected to be landed, a 5,000 pound trip limit would be implemented for all permits for the rest of the fishing year to cover remaining incidental catches. The initial Tier 2 and Tier 3 trip limits would remain the same, as would the Tier 3 7% limit. Recall from above there is also an additional 3% management uncertainty buffer than can accommodate any catches beyond 100% of the DAH. The RH/S cap could also still close the directed fishery and implement a 20,000 pound trip limit for Tier 1-3 permits. Once the RH/S cap has been triggered, additional changes to trip limits are only reductions, for example the trip limit would not increase to 40,000 pounds at 90% of the DAH if the RH/S cap has already been triggered. All possible combinations of triggers and DAHs will be provided in an Appendix in the EA. The Triggers applicable for the committee-recommended rebuilding option DAHs (1c) combined with Alternative 2e are in a table below. Comparing the tables for Alternatives 2b and 2c shows the key difference is in how quickly the fishery moves to the initial lower trip limit, which affects the amount of quota available for fishing under the initial lower trip limit.

Table 8. Example of 2e closures combined with 1c rebuilding

Proposed Option 1c + 2e In-Season Measures			
Specification	Mackerel 2019 (MT)	Mackerel 2020 (MT)	Mackerel 2021 (MT)
	Canada2	Canada2	Canada2
Total Acceptable Biological Catch (ABC) from SSC	29,184	32,480	33,474
Canadian Deduction (1/2 of ABC or ABC-10,000)	10,000	10,000	10,000
DAH (Commercial Quota)	17,371	20,557	21,517
1st Close at 90% of DAH	15,634	18,501	19,365
Quota between 1st and 2nd close	1,390	1,645	1,721
2nd Close at 98% of DAH	17,024	20,145	21,087
Quota after 2nd close	347	411	430
Extra Management Uncertainty Buffer	539	638	668

The question of adaptive management came up at the last meeting, and the FMAT came up with the following provision that may or may not be added to this alternative: *To facilitate adaptive management, if in November and December of each year NMFS determines that keeping the mackerel fishery open longer than the set percentage triggers (in any phase of the fishery) is unlikely to cause a DAH overage, then NMFS shall have the discretion, based on a projection, to not close (or not further close) the fishery so that optimum yield can be harvested.* Predicting catch can be difficult, but this provision allows for some flexibility and further development of optimizing the closure process. NMFS might end up going slightly over the DAH in an effort to optimize catch, but that is the purpose of the ACT management uncertainty buffer. **The Council would need a motion to add this into any alternative. Staff recommends adoption of this language to give NMFS this discretion.**

For 2019, between the 3% management uncertainty buffer proposed in Alternative 1c (539 MT), and the 90% closure trigger (leaving 1,737 MT total for after the closure) under this Alternative 2c, there is an effective reserve of 2,276 MT in place for the period after closure of the directed fishery. Since the DAHs go up somewhat in 2020 and 2021, the effective reserve also increases somewhat in those years.

In 2019 the gap between the 1<sup>st</sup> closure at 90% and the 2<sup>nd</sup> closure at 98% is 1,390 MT, which translates into about 77 trips at the proposed 40,000 pound trip limit in this alternative. A run of 40,000 pound trips is not expected, but this information is provided to consider potential monitoring challenges and evaluation of impacts. With the somewhat increasing DAHs in 2020 and 2021, the buffers get somewhat bigger and the landings from slightly more trips could be absorbed.

Closing the directed fishery at 90% (sooner than the current 95%) is attractive to staff because it should avoid substantial overruns by the directed fishery, which seems important in the context of rebuilding given the uncertainty that the realized rebuilding path will match the rebuilding path projected by the assessment. The 40,000 pound post-closure trip limit is also likely to cover a few more incidental mackerel catches (but not all) in the Atlantic herring fishery based on recent landings data. Industry reports, which is really all we can use to predict behavior under a 40,000 pound trip limit, that the directed fishery will mostly not operate with even a 40,000 pound trip limit but some smaller vessels may, especially late in the year. The universal 5,000 pound backstop trip limit at 98% of the DAH also further minimizes the chance of a DAH overage while allowing some incidental catch. The lowering of the open access/incidental trip limit to 5,000 pounds at the 90% threshold will

also limit the rate of landings after the directed closure. And there is still a 3% overall management uncertainty buffer.

The table below summarizes the closure options. Given the lack of data/experience with how the fishery will close during directed fishing and the limited data/experience after a closure in 2018, under any alternative the fishery will need to be closely monitored to determine the appropriateness of any closure system. 2b and 2c would be more conservative options, and 2d would be a more aggressive option, and 2e is somewhere in between. The tradeoffs involved are two-fold. First, there's the issue of precaution about going over the DAH and possibly the ACL, and second there's the issue of maximizing catch for the early-season directed fishery versus preserving some quota for incidental or late-season directed fishing. Alternative 2b seems most likely to leave a substantial amount of quota uncaught, and 2d seems most likely to lead to overages. 2c or 2e (or something similar) seem most likely to balance the various trade-offs involved, but without data on operation of the fishery under various closure scenarios it is difficult to determine the optimal option. **Based on the relatively slow pace of landings to date after the RH/S closure in 2018 with a 20,000 pound limit, 2c may leave substantial quota uncatchable, so Staff recommends 2e.**

Table 9. Closure Options Summary

	2a (no action) with 2018 DAH of 9,177	2b with DAH of 17,371 (Alt 1c 2019)	2c with DAH of 17,371 (Alt 1c 2019)	2d with DAH of 17,371 (Alt 1c 2019)	2e with DAH of 17,371 (Alt 1c 2019)
1st closure directed	95% trigger, 20,000 pound trip limit	80% trigger, 40,000 pound trip limit	85% trigger, 20,000 pound trip limit	95% trigger, 20,000 pound trip limit	90% trigger, 40,000 pound trip limit
1st closure incidental	na, always 20,000 pound trip limit	5,000 pound trip limit	5,000 pound trip limit	5,000 pound trip limit	5,000 pound trip limit
2nd closure directed	100%, 5000 pound trip limit	98% trigger, 5000 pound trip limit	98% trigger, 5000 pound trip limit	100% trigger, 5000 pound trip limit	98% trigger, 5000 pound trip limit
2nd closure incidental	100%, 5000 pound trip limit	no change, 5,000 pound trip limit	no change, 5,000 pound trip limit	no change, 5,000 pound trip limit	no change, 5,000 pound trip limit
Overall difference/reserve between commercial allocation and directed fishery closure	1,492 MT	4,013 MT	3,144 MT	1,409 MT	2,276 MT
Trips supported at the trip limit proposed for each alternative between 1st and 2nd closure	51	172	249	96	77

### 5.3 ALTERNATIVE SET 3: River Herring and Shad (RH/S) Cap

Before alternatives are considered, a history of the RH/S cap is presented. The caps are monitored based on observer data and landings data, and were set by looking at historical catch estimates based on observer and landings data. Since the caps are not based on the biology of RH/S, if RH/S abundance increases it will be harder for the fishery to operate within the cap, and if RH/S abundance decreases it will be easier for the fishery to operate within the cap.

2014 was the first year of the cap. The cap was set at **236 MT** and the mackerel DAH was 33,821 MT. 236 MT was the median of the values generated when the annual RH/S catch to all retained catch ratios on mackerel trips 2005-2012 (from observer data) were applied to the quota (33,821 MT). The critical ratio of cap to mackerel was 0.70% and the ratio of cap to all catch on mackerel trips (accounting for mostly Atlantic herring) was 0.50%. This approach and the 236 MT cap was preferred because it created “a strong incentive for the fleet to avoid RH/S, allows for the possibility of the full mackerel quota to be caught if the fleet can avoid RH/S, and would likely reduce RH/S catches over time compared to what would occur without a cap” (MAMFC 2013a). The initial implementation of the cap rests on the assumption that a reduction of RH/S catch in the mackerel fishery, due either avoidance or a closure, might have a “potentially positive impact” on RH/S stocks, noting that the “connection between catch in the mackerel fishery (or other ocean fisheries) and RH/S populations is unknown (MAMFC 2013b).” Above those ratios the fishery would have had an early shut down. The estimated cap catch was 6 MT.

In 2015 there was a slight adjustment to identifying cap trips made, but the same basic procedure was used to generate a cap of **155 MT** for a mackerel DAH of 20,872 MT. The Council included a provision that the cap starts out lower, at **89 MT** (the median of actual RH/S catches by the mackerel fishery 2005-2012) until 10,000 MT of mackerel landings, so that there was still a strong incentive to avoid RH/S catches even at the low levels of mackerel catch then occurring. Until landings got above 10,000 MT the critical ratio of cap to mackerel was 0.89% and the ratio of cap to all catch on mackerel trips (accounting for mostly Atlantic herring) was 0.64%. To catch the full mackerel quota the critical ratio of cap to mackerel was 0.74% and the ratio of cap to all catch on mackerel trips (accounting for mostly Atlantic herring) was 0.53%. The estimated cap catch was 13 MT. If the 89 MT RH/S cap had been reached before 10,000 MT of mackerel had been landed, the fishery would be closed for the rest of the year, and based on past performance this would be expected to occur slightly less than 50% of years.

For 2016-2018 the mackerel DAH dipped below 10,000 MT to 9,177 MT. The Council applied the 0.89% ratio to that quota to get a cap of **82 MT**. The ratio of cap to all catch on mackerel trips (accounting for mostly Atlantic herring) would be 0.64%. The estimated cap catch was 13 MT in 2016 and 39 MT in 2017. In 2018, the directed fishery caught 109 MT of RH/S when it was shut down and 8,072 MT of mackerel, for a ratio of 1.35% cap to mackerel or about 0.90% cap to all catch. In 2018 the cap operated as designed – the fishery was closed early due to the relatively high RH/S ratio. The overage was not large relative to the pace of mackerel landings and the precision of RH/S estimates.

The tolerated ratio for 2016-2018 is higher than previous years, but because the mackerel quota is lower, the total RH/S that could be caught is lower in 2016-2018 (82 MT) than previous years.

The following discussion in this paragraph is consistent with the current cap, but NMFS quota-monitoring staff noted it was worth highlighting: The RH/S cap is estimated by extrapolating RH/S catch rates to **everything** kept on mackerel trips. If the proportion of herring:mackerel catch increases relative the RHS cap reference years (2005-2012), the cap could potentially be exceeded sooner than

anticipated (ex. higher amounts of herring on mackerel trips increases the total kept, thereby increasing RH/S the extrapolation). This effect is due to anchoring the catch cap to mackerel DAH that uses a static RHS:mackerel rate (.0074). Alternatively, the inverse could be observed if the herring:mackerel catch ratio decreased. Since the mix of herring and mackerel was taken into account when setting the cap this effect is anticipated; issues would only arise if there was a substantial change in the proportions.

Also, discussions between Council and NMFS quota-monitoring staff highlighted a concern that under low caps, monitoring is increasingly difficult due to data availability and the seasonality of the fishery. For example when the fishery closed in 2018 only four observed trips had occurred (though observer coverage also depends on the overall allocation of coverage).

Given the RH/S encounter rate during all but one of the five 2014-2018 cap years (2018) has been well below the median rate during the base years (2005-2012), it appears the cap has had the desired effect of encouraging avoidance behavior, though changing RH/S abundances can also drive the encounter rate. Setting the RH/S Cap really depends on how much pressure the Council wants to put on the mackerel fishery and how the Council evaluates the potential impacts. The approaches endorsed by the Council at the first framework meeting, and further developed by the FMAT for this action, are below.

#### Alternative 3a. No action/Status Quo (current measures roll over with no action)

With no action, the current cap of 82 MT would roll over for whichever mackerel quotas are implemented. If the cap is fixed, then the critical ratio before a shutdown is likely to occur fluctuates with the mackerel DAH. The Committee-recommended mackerel DAHs for 2019-2021 are 17,371 MT, 20,557 MT, and 21,517 MT. With an 82 MT fixed cap, the critical ratios of RH/S cap to the mackerel quota, with the approximate effective ratio of RH/S to all catch to account for mixed Atl. Herring catches in parentheses, would be 2019: 0.47% (0.34%), 2020: 0.40% (0.29%), and 2021: 0.38% (0.27%).

#### Alternative 3b. Scale RH/S based on the 2015 ratio of 0.74% of mackerel DAH

Under 3b the RH/S cap would scale with the mackerel DAH based on the 0.74% ratio used in 2015. The ratio of cap to all catch on mackerel trips (accounting for mostly Atlantic herring) would be about 0.53% (depends on how much Atl. Herring is caught – the more Atl. Herring that is landed on “mackerel trips” [above 20,000 pounds mackerel], the lower the ratio must be in any given year). All possible combinations of caps and DAHs are provided in Appendix 2. The caps for the committee-recommended rebuilding option (1c) have been added in a table below, but can be calculated by multiplying any DAH by 0.0074.

Table 10. Example Scaled RH/S Cap 0.74% ratio and 1c

Proposed Option 1c + 3b RH/S Cap Option			
All numbers are in metric tons (MT)			
Specification	Mackerel 2019 (MT)	Mackerel 2020 (MT)	Mackerel 2021 (MT)
	Canada2	Canada2	Canada2
Total Acceptable Biological Catch (ABC) from	29,184	32,480	33,474
Canadian Deduction (1/2 of ABC or ABC-10,000)	10,000	10,000	10,000
DAH (Commercial Quota)	17,371	20,557	21,517
RH/S Cap	129	152	159

***\*\*This is the option, combined with 3d, recommended by the MSB Committee on 7/18/18***

***\*\*Council Staff recommends this (3b) alternative (combined with 3d), on the basis that it appears consistent with previous Council caps with DAH's over 10,000 MT. \*\****

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Alternative 3c. Scale RH/S based on current ratio of 0.89% of mackerel DAH

Under this alternative the RH/S cap would scale with the mackerel DAH based on the current 0.89% ratio. The ratio of cap to all catch on mackerel trips (accounting for mostly Atlantic herring) would be about 0.64% (depends on how much Atl. Herring is caught – the more Atl. Herring that is landed on “mackerel trips” [above 20,000 pounds mackerel], the lower the ratio must be in any given year). All possible combinations of caps and DAHs are provided in Appendix 2. The caps for the committee-recommended rebuilding option (1c) have been added in a table below, but can be calculated by multiplying any DAH by 0.0089.

Table 11. Example Scaled RH/S Cap 0.89% ratio and 1c

Proposed Option 1c + 3c RH/S Cap Option			
All numbers are in metric tons (MT)			
Specification	Mackerel 2019 (MT)	Mackerel 2020 (MT)	Mackerel 2021 (MT)
	Canada2	Canada2	Canada2
Total Acceptable Biological Catch (ABC) from	29,184	32,480	33,474
Canadian Deduction (1/2 of ABC or ABC-10,000)	10,000	10,000	10,000
DAH (Commercial Quota)	17,371	20,557	21,517
RH/S Cap	155	183	192

Alternative 3d (can be combined with 3b or 3c). Add a low-catch trigger to 3b or 3c as was done in 2015

Under this alternative, when mackerel quotas are above 10,000 MT and the associated RH/S cap is above 89 MT, the cap starts out lower, at 89 MT (the median of actual RH/S catches by the mackerel fishery 2005-2012) until 10,000 MT of mackerel landings so that there is still a strong incentive to avoid RH/S catches even at the low levels of mackerel catch. Once 10,000 MT of mackerel is landed, then the full cap becomes available. If the quota is at or above 10,000 MT, the cap will be at least 89 MT. Under this alternative the fishery would have to stay below a 0.89% cap to mackerel landings ratio (about 0.64% cap to all catch ratio) or the fishery will be shutdown before landing 10,000 MT (how much depends on how high the ratio is) and the fishery would then be closed for the rest of the year, except for incidental-level landings (20,000 pounds or less).

***\*\*This is the option, combined with 3b, recommended by the MSB Committee on 7/18/18***

***\*\*Council Staff recommends this (3d) alternative (combined with 3b), on the basis that it appears consistent with previous Council caps with DAH’s over 10,000 MT. \*\****



## 5.4 Considered But Rejected Alternatives

1. 10-year Rebuilding Plan. The MSA typically allows up to a 10-year rebuilding timeline. In this case, a 10-year plan only provides slightly more ABC (2% more in 2019) than the 7-year timeline, so it would be hard to justify that 7 years wouldn't be as short as possible after accounting for other considerations such as socioeconomic impacts, especially given the upward trend in possible catches. Accordingly, only timeframes up to 7 years were considered.

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## 6.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT AND FISHERIES

This section identifies and describes the *valued ecosystem components* (VECs) (Beanlands and Duinker 1984) that comprise the affected environment and may be affected by the alternatives proposed in this document. The valued ecosystem components are identified and described here as a means of establishing the context for the impact analysis that will be presented in Section 7's "Analysis of Impacts." The significance of the various impacts of the proposed alternatives on the valued ecosystem components are also assessed from a cumulative effects perspective at the end of Section 7. The valued ecosystem components are:

1. Managed resources (Atlantic mackerel, longfin squid and *Illex* squid, and butterfish) and non-target species.
2. Habitat including EFH for the managed resources and non-target species
3. Endangered and other protected resources
4. Human communities

The affected environment consists of those physical, biological, and human components of the environment that are or will be meaningfully connected to mackerel fishing operations, and are described below. Overviews of the managed species in the FMP and of the physical environment are described first, to establish the context for the valued ecosystem components. While butterfish, longfin squid, and *Illex* squid should be negligibly affected by this action, summaries are provided since they are in the FMP. A summary for Atlantic herring is also included given the overlap with the mackerel and Atlantic herring fisheries. Impacts of the alternatives on the physical environment are addressed through analysis of impacts on habitat, as most of the impacted physical environment comprises EFH for various species.

### 6.1 Description of the Managed Resources and Non-target Fish Species

#### Mackerel

Atlantic mackerel is a semi-pelagic/semi-demersal (may be found near the bottom or higher in the water column) schooling fish species primarily distributed between Labrador (Newfoundland, Canada) and North Carolina. Based on the work of Sette (1943, 1950) and confirmed in the recent assessment, the stock is considered to comprise two spawning contingents: a northern contingent spawning primarily in the southern Gulf of St. Lawrence and a southern contingent spawning in the Mid-Atlantic Bight, Southern New England and the western Gulf of Maine. The two contingents mix during winter months on the Northeast U.S. shelf; however, the degree of mixing and natal homing is unknown. Mackerel in the northwest Atlantic were modeled as one stock for the recent assessment. The Canadian fishery catches largely the northern contingent while the U.S. fishery likely catches both contingents.

Mackerel Spawning occurs during spring and summer and progresses from south to north as the surface waters warm. Atlantic mackerel are serial, or batch spawners. Eggs and pelagic. Post-

larvae gradually transform from planktonic to swimming and schooling behavior at about 30-50 mm. 50% of fish are mature at age 2 and about 98% are mature at age 3.

Atlantic mackerel are opportunistic feeders that can ingest prey either by individual selection of organisms or by passive filter feeding.

A wide variety of fish and other animals are predators of mackerel. In the recent benchmark assessment, Predator food habits have been systematically sampled during the NEFSC bottom trawl surveys since 1973. These food habits data were evaluated for the top 17 mackerel predators based on the percent occurrence of mackerel in predator diets (Assessment Appendix A4). The presence of Atlantic mackerel in fish stomachs was generally low from 1973-2016. A total of 1,284 out of 619,637 stomachs (~0.2%) contained mackerel, including unidentified mackerel Scombridae and Scomber spp. Spiny dogfish was the most dominant mackerel predator sampled by the trawl surveys, but the frequency of occurrence for mackerel in spiny dogfish diets only average 1%.

Additional potentially important predators of mackerel are not sampled in the NEFSC trawl surveys, including highly migratory species, marine mammals, and seabirds. Consumption from these predators is more difficult to estimate due to incomplete information on population levels and annual diet information. Furthermore, predator food habits were not available for the months the northern contingent was outside of the area sampled by the NEFSC trawl survey. Given this incomplete sampling, the low occurrence of mackerel in predator stomachs, and the resulting interannual variability in consumption estimates, the final model did not incorporate predator diets as an index of abundance. It should be noted though that observed temporal trends in consumption were consistent with trends from the range-wide egg index as well as abundance estimates.

Additional life history information is detailed in the Essential Fish Habitat (EFH) document for the species, located at: <http://www.nefsc.noaa.gov/nefsc/habitat/efh/>.

The current status of Atlantic mackerel is overfished with overfishing occurring as of data through 2016 based on the results of SAW 64 (NEFSC 2018), and the Council has initiated this rebuilding action. However, because of a median-level recruitment year-class in 2014 (eggs spawned in 2014) and a relatively high-level recruitment year-class in 2015, the stock was growing at the end of the assessed time period and is projected to rebuild to target levels relatively quickly. Projections also indicate there will likely be no overfishing in 2018 and that the stock should have climbed above the overfished threshold in 2018 (see projection figures in Section 7.1). Additional information on the mackerel fishery can be found in the EA for the 2016-2018 mackerel specifications, available at: <https://www.greateratlantic.fisheries.noaa.gov/regs/2016/January/16msb2016specspr.html> and in the recent assessment, available at <https://www.nefsc.noaa.gov/saw/>.

While the terminal year recruitment estimates are generally among the most uncertain outputs of any assessment, they are part of the assessment that has been accepted as the best available scientific information. Some 2018 data on the likely ages of the 2018 catch is included in Appendix 3.

## Butterfish

Atlantic butterfish is a semi-pelagic/semi-demersal schooling fish species primarily distributed between Nova Scotia, Canada and Florida. They are most abundant from the Gulf of Maine to Cape Hatteras and are fast-growing, short-lived, and form loose schools. Additional life history information is detailed in the EFH document for the species, located at:

<http://www.nefsc.noaa.gov/nefsc/habitat/efh/>.

The status of butterfish is not overfished (above target biomass) with no overfishing occurring according to a recent assessment update (NEFSC 2017a – available at <http://www.mafmc.org/ssc-meetings/2017/may-17-18>). The assessment update found that butterfish was at 141% of the target biomass in 2016. However, the update integrated recent trawl survey information that indicates recent recruitment has been poor, so biomass is expected to decline to below the SSBmsy target in 2017, but not below the overfished threshold. Fishing mortality appears to have been very low in recent years, so the decline is not a result of overfishing but rather poor recruitment. If recruitment returns to average levels, then the stock is predicted to build above the SSBmsy target by 2020

([http://www.mafmc.org/s/butterfish\\_projections\\_2018-2020.xlsx](http://www.mafmc.org/s/butterfish_projections_2018-2020.xlsx)). Butterfish recruitment is variable, and the terminal year recruitment was underestimated the last time the assessment model was run (2014), so it is not unreasonable to expect recruitment to be closer to average levels over the course of the projection.

## Longfin Squid

Longfin squid is a neritic (from the shore to the edge of the continental shelf), semi-pelagic schooling cephalopod species primarily distributed between Georges Bank and Cape Hatteras, NC. The squid, and the fishery, generally occur offshore in the winter and inshore during the summer, with mixing and migrations from one to the other in spring and fall. Additional life history information is detailed in the EFH document for the species (Jacobson 2005), located at: <http://www.nefsc.noaa.gov/nefsc/habitat/efh/>. Information about the fishery, management and life history is presented in Arkhipkin et al. (2015). Based on a new biomass reference point from the 2010 stock assessment, the longfin squid stock was not overfished in 2009, but overfishing status was not determined because no overfishing threshold was recommended (though the assessment did describe the stock as “lightly exploited”). The most recent stock assessment document (NEFSC 2011) is available at: <http://www.nefsc.noaa.gov/saw/reports.html>. Longfin squid relative abundance and biomass indices from the NEFSC fall bottom trawl surveys are highly variable, and are graphed in the “NEFSC Biological Update” that is created as part of the annual quota setting process. These are available at: <http://www.mafmc.org/ssc-meeting-documents/> (see May 2016 Meeting Materials). Longfin had a stock assessment update in 2017, which found the stock biomass to be at 174% of the target in 2016, even higher than the 128% of target biomass in 2009 in the 2011 benchmark assessment. The assessment update is available at <http://www.mafmc.org/ssc-meetings/2017/may-17-18>. ABCs are set by the Council’s SSC to avoid overfishing given the best available science. See <http://www.mafmc.org/ssc> for details on how ABCs are set for this species.

### Illex squid

*Illex* squid is an oceanic, semi-pelagic schooling cephalopod species distributed between Newfoundland and the Florida Straits. Additional life history information is detailed in the EFH document for the species (Hendrickson and Holmes 2004), located at: <http://www.nefsc.noaa.gov/nefsc/habitat/efh/>. Information about the fishery, management and life history is presented in Arkhipkin et al. (2015). The status of *Illex* is unknown with respect to being overfished and is unknown with respect to overfishing. *Illex* squid relative abundance and biomass indices from the NEFSC fall bottom trawl surveys are highly variable and without trend, and are graphed in the “NEFSC Biological Update” that is created as part of the annual quota setting process. These are available at: <http://www.mafmc.org/ssc-meeting-documents/> (see May 2016 Meeting Materials). According to the latest NEFSC “*Illex* Data Update” provided in April 2017 (available at <http://www.mafmc.org/ssc-meetings/2017/may-17-18>), relative abundance was near the long-term median during 2014-2016. ABCs are set by the Council’s SSC to avoid overfishing given the best available science. See <http://www.mafmc.org/ssc> for details on how ABCs are set for this species. There has been a downward trend in *Illex* mean body weight in the survey since 1981, but squid size is likely highly influenced by environmental conditions.

### Atlantic herring

Atlantic herring are migratory fish that live in large schools along the continental shelf from Labrador, Canada through Cape Hatteras, Virginia. Atlantic herring have supported an important commercial fishery since the late 19<sup>th</sup> century and play a very important role in the ecosystem as forage fish for many predators including marine mammals, larger fish, and seabirds, which support additional commercial, recreational, and ecotourism industries. Atlantic herring also provide effective and affordable bait to the lobster fishery, as well as other commercial and recreational fisheries. Finally, a smaller component of herring is landed and sold for human consumption, typically overseas. The status of herring is not overfished with overfishing not occurring, but an ongoing assessment is suggesting biomass declines due to low recruitment, which may affect future management. Additional life history information is detailed in the EFH document for the species (Reid et al 1999), located at: <http://www.nefsc.noaa.gov/nefsc/habitat/efh/>. Additional management and population status information can be found in the last herring specifications EA (NEFMC 2016).

### Non-Target Species

Non-target interactions in the longfin squid, *Illex* squid, and butterfish fisheries were recently described in the EA for the 2018-2020 specifications for those species (MAFMC 2017). Nothing in this action should affect the operation of those fisheries or their impact on non-target species.

### **Mackerel Non-Target Species**

Various species are caught incidentally by the mackerel fishery. For non-target species that are managed under their own FMP, incidental catch/discards are also considered as part of the management of that fishery. These species will be impacted to some degree by the prosecution of the mackerel fishery. Mackerel non-target interactions were described in the EA for 2016-2018

mackerel specifications (MAFMC 2016). As described in that document, non-target interactions constitute a relatively small part of the catch in the mackerel fishery – discards are less than 1% of catch. The primary non-target species of current concern for mackerel are river herrings (alewife and blueback herring) and shads (American and hickory). Their populations are depleted in most river systems, and the RH/S cap limits catch of RH/S in the mackerel fishery. The text and table below update similar analysis on incidental catch and discards in the mackerel fishery from the 2016-2018 EA with more recent data (2015-2017 now vs 2011-2013 then).

The primary database used to assess discarding is the NMFS Observer Program database, which includes data from trips that had trained observers onboard to document discards. One critical aspect of using this database to describe discards is to correctly define the trips that constitute a given directed fishery. Presumably some criteria of what captains initially intend to target, how they may adjust targeting over the course of a trip, and what they actually catch would be ideal. Thus to begin this process, staff first reviewed 2015-2017 trips in the dealer weighout database to see if a certain trip definition could account for most mackerel landed. The result of this review resulted in the following definition for mackerel trips using landings: All trips that had at least 50% mackerel by weight and all trips over 100,000 pounds of mackerel regardless of the ratio of other species. This definition results in capturing 90% of all mackerel landings in the dealer weighout database 2015-2017. The other trips with lower mackerel landings landed a variety of species, mostly Atlantic herring, silver hake, longfin squid, and scup. The set of trips in the observer database with the same mackerel criteria included 9 on average for each year 2015-2017. These trips made 124 hauls of which 89% were observed. Hauls may be unobserved for a variety of reasons, for example transfer to another vessel without an observer, observer not on station, haul slipped (dumped) in the water, etc.

Information on catch and discards is provided for observed hauls in the table below for species with at least 500 pounds of observed catch, with 500 pounds used as a proxy for catch that might be more than negligible. Since there were so few observed trips, extrapolations are not made but the total observed values are provided. Also, fishermen and processors on the Council's MSB Advisory Panel have also reported that mackerel caught in recent years are often caught incidental to Atl. herring fishing rather than during directed mackerel fishing because of the lack of fishable mackerel concentrations. This updated information is generally consistent with the previous analysis.

Table 12. Incidental catch in the mackerel fishery

NE Fisheries Science Center Common Name	Pounds Observed Caught	Pounds Observed Discarded	Of all discards observed, percent that comes from given species	Percent of given species that was discarded
MACKEREL, ATLANTIC	3,654,528	1,205	3%	0%
HERRING, ATLANTIC	1,294,838	1,577	4%	0%
BUTTERFISH	113,021	1,676	4%	1%
HAKE, SILVER (WHITING)	49,095	16,729	37%	34%
HERRING, NK	15,505	865	2%	6%
DOGFISH, SPINY	11,498	11,498	26%	100%
SQUID, ATL LONG-FIN	10,426	493	1%	5%
ALEWIFE	6,797	2,682	6%	39%
FISH, NK	3,567	3,567	8%	100%
HERRING, BLUEBACK	2,853	29	0%	1%
SHAD, AMERICAN	1,830	1,578	4%	86%
HADDOCK	899	323	1%	36%
HAKE, RED (LING)	575	324	1%	56%
SKATE, WINTER (BIG), WINGS	510	.	.	.
DORY, BUCKLER (JOHN)	506	481	1%	95%

An auto-jig fishery has developed in recent years. This fishery, while lightly observed 2015-2017 (13 trips targeting mackerel with handline or auto-jig handline), had minimal bycatch (primarily spiny dogfish).

For the mackerel fishery based on cap trips, from 2005-2012 (the base years for setting the cap) the average RH/S catch was 242 MT with a median of 89 MT. For the years when the cap has been in operation (2014-2018), the average was 36 MT of RH/S and the median was 13 MT. Overall mackerel and Atlantic herring effort, RH/S abundance and distribution, distribution and mixing of mackerel and Atlantic herring, and fishery behavior combine to result in the RH/S catch for any given year.

Atlantic herring are not non-target species since the directed fishery targets mackerel and Atlantic herring. Non-negligible non-target species therefore include silver hake, spiny dogfish, alewife, blueback herring, American shad, haddock, red hake, winter skate, and John Buckler Dory. Of these red hake is experiencing overfishing and is overfished (<https://www.nefsc.noaa.gov/publications/crd/crd1802/crd1802.pdf>), but catch was barely above the “more than negligible” threshold. There is no assessment for john dory buckler. Alewife, blueback herring, and American shad have been found to be depleted by the ASMFC, and assessment information is available at [www.asmfc.org](http://www.asmfc.org). Assessments for silver hake, spiny dogfish, haddock, and winter skate (not overfished, no overfishing) can be found at <https://www.nefsc.noaa.gov/saw/>.

## 6.2 Physical Environment and Habitat, Including EFH

Climate, physiographic, and hydrographic differences separate the Atlantic Ocean from Maine to Florida into the New England-Middle Atlantic Area and the South Atlantic Area (division/mixing at Cape Hatteras, NC). The MSB fisheries are prosecuted in the New England-Middle Atlantic Area. The inshore New England-Middle Atlantic area is relatively uniform physically, and is influenced by many large coastal rivers and estuarine areas. The continental shelf (characterized by water less than 650 ft. in depth) extends seaward approximately 120 miles off Cape Cod, narrows gradually to 70 miles off New Jersey, and is 20 miles wide at Cape Hatteras. Surface circulation is generally southwesterly on the continental shelf during all seasons of the year, although this may be interrupted by coastal indrafting and some reversal of flow at the northern and southern extremities of the area. Water temperatures range from less than 33 °F from the New York Bight north in the winter to over 80 °F off Cape Hatteras in summer.

Within the New England-Middle Atlantic Area, the principal area within which the MSB fisheries are prosecuted, is the Northeast Shelf Ecosystem which includes the area from the Gulf of Maine to Cape Hatteras, extending from the coast seaward to the edge of the continental shelf, including the slope sea offshore to the Gulf Stream. A number of distinct subsystems comprise the region. The Gulf of Maine is an enclosed coastal sea, characterized by relatively cold waters and deep basins, with various sediment types. Georges Bank is a relatively shallow coastal plateau that slopes gently from north to south and has steep submarine canyons on its eastern and southeastern edge. It is characterized by highly productive, well-mixed waters and fast-moving currents. The Mid-Atlantic Bight is comprised of the sandy, relatively flat, gently sloping continental shelf from southern New England to Cape Hatteras, NC. Detailed information on the affected physical and biological environments inhabited by the managed resources is available in Stevenson et al. (2006).

### Ecosystem Considerations

The Council recently adopted an Ecosystem Approach to Fisheries Management (EAFM) Guidance Document, available at <http://www.mafmc.org/eafm/>. It is anticipated that the EAFM Guidance Document will serve through a transitional period where ecosystem considerations are introduced into Council management in an evolutionary fashion. Some highlights from the EAFM Guidance Document that could apply to MSB management include:

- It is the policy of the Council to support the maintenance of an adequate forage base in the Mid-Atlantic to ensure ecosystem productivity, structure and function and to support sustainable fishing communities.
- The Council could adopt biological reference points (overfishing levels or OFL) for forage stocks that are more conservative than the required MSA standard of  $F_{MSY}$ .
- The Council could modify the existing risk policy to accommodate ecosystem level concerns for forage species by reducing the maximum tolerance for risk of overfishing.
- The Council will promote the timely collection of data and development of analyses to support the biological, economic and social evaluation of ecosystem-level connections, tradeoffs, and risks, including those required to establish an optimal forage fish harvest policy.
- Habitat and climate change considerations will be more fully integrated into fishery management decisions.



The NEFSC also produces regular updates on conditions of the Northeast Shelf Ecosystem, which may be accessed via <https://www.nefsc.noaa.gov/ecosys/>. Highlights from the Spring 2017 Update include:

- Sea surface temperatures (SSTs) in the Northeast Shelf Large Marine Ecosystem during 2016 continue to be above average; in some season/area time series, 2016 was the second warmest year on record.
- The fall bloom on the Northeast Shelf was well developed in the Gulf of Maine, and, though chlorophyll concentrations on Georges Bank were elevated, a distinct bloom was not detected.
- Cool water habitats (5-15°C), which form the core thermal habitats of the Northeast Shelf, were at average levels in 2016, whereas warm habitats (16-27°C) were at high levels reflecting the trend of increasing warm habitat in recent years.
- The variability of daily sea surface temperature has increased over recent decades as indicated by the trends in standard deviation of daily temperature.
- The fall distribution of fish and invertebrate species sampled by the NEFSC shows that most species have moved to the Northeast and into deeper water.
- The strength of temperature fronts has increased over much of the Northeast Shelf; the 2016 frontal magnitudes for Northeast Shelf ecoregions moderated compared to recent years.

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Habitat, Including Essential Fish Habitat (EFH)

Pursuant to the Magnuson-Stevens Act / EFH Provisions (50 CFR Part 600.815 (a)(1)), an FMP must describe EFH by life history stage for each of the managed species in the plan. This information was updated via Amendment 11 to the MSB FMP. EFH for the four species managed under this FMP is described using fundamental information on habitat requirements by life history stage that is summarized in a series of EFH source documents produced by NMFS and available at: <http://www.nefsc.noaa.gov/nefsc/habitat/efh/>. The updated EFH designations (text and maps) are available at <http://www.habitat.noaa.gov/protection/efh/efhmapper/>. In general, EFH for the MSB species is the water column itself, and the species have temperature and prey preferences/needs that determine the habitat suitability of any particular area/depth, thus fishing activity has minimal impacts. Longfin squid also use hard bottom, submerged vegetation, other natural or artificial structure, and sand or mud to attach/anchor eggs, but there are no known preferences for different types of substrates or indications that fishing activity may negatively impact longfin squid egg EFH. Impacts to EFH are separate from impacts to longfin squid eggs themselves, which are considered in the alternative impact analysis in Section 7.

There are other lifestages of federally-managed species that have designated EFH that may be susceptible to adverse impacts from bottom trawls used in MSB fisheries, depending on the geographic distribution of their essential habitats in relation to the footprint of MSB bottom trawl fishing activity. Most directed fishing for mackerel fishing uses bottom trawl and mid-water trawl, though there is a growing auto-jig fishery. Mid-water trawl and the auto-jig fishery should not affect the bottom, but bottom trawling does. EFH for all the federally-managed species in the region that could potentially be affected by mackerel bottom trawling activity is described in the following table (see Stevenson et al 2004):

Table 13. EFH descriptions for species vulnerable to trawl gear

Species	Life Stage	Geographic Area	Depth (meters)	Habitat Type and Description
Acadian redfish	Juveniles	Gulf of Maine and the continental slope north of 37°38'N	50-200 in Gulf of Maine, to 600 on slope	Sub-tidal coastal and offshore rocky reef substrates with associated structure-forming epifauna (e.g., sponges, corals), and soft sediments with cerianthid anemones
Acadian redfish	Adults	Gulf of Maine and the continental slope north of 37°38'N	140-300 in Gulf of Maine, to 600 on slope	Offshore benthic habitats on finer grained sediments and on variable deposits of gravel, silt, clay, and boulders
American plaice	Juveniles	Gulf of Maine and bays and estuaries from Passamaquoddy Bay to Saco Bay, Maine and from Massachusetts Bay to Cape Cod Bay, Massachusetts Bay	40-180	Sub-tidal benthic habitats on mud and sand, also found on gravel and sandy substrates bordering bedrock
American plaice	Adults	Gulf of Maine, Georges Bank and bays and estuaries from Passamaquoddy Bay to Saco Bay, Maine and from Massachusetts Bay to Cape Cod Bay, Massachusetts Bay	40-300	Sub-tidal benthic habitats on mud and sand, also gravel and sandy substrates bordering bedrock
Atlantic cod	Juveniles	Gulf of Maine, Georges Bank, and Southern New England, including nearshore waters from eastern Maine to Rhode Island	Mean high water-120	Structurally-complex intertidal and sub-tidal habitats, including eelgrass, mixed sand and gravel, and rocky habitats (gravel pavements,

Species	Life Stage	Geographic Area	Depth (meters)	Habitat Type and Description
		and the following estuaries: Passamaquoddy Bay to Saco Bay; Massachusetts Bay, Boston Harbor, Cape Cod Bay, and Buzzards Bay		cobble, and boulder) with and without attached macroalgae and emergent epifauna
Atlantic cod	Adults	Gulf of Maine, Georges Bank, Southern New England, and the Mid-Atlantic to Delaware Bay, including the following estuaries: Passamaquoddy Bay to Saco Bay; Massachusetts Bay, Boston Harbor, Cape Cod Bay, and Buzzards Bay	30-160	Structurally complex sub-tidal hard bottom habitats with gravel, cobble, and boulder substrates with and without emergent epifauna and macroalgae, also sandy substrates and along deeper slopes of ledges
Atlantic halibut	Juveniles & Adults	Gulf of Maine, Georges Bank, and continental slope south of Georges Bank	60-140 and 400-700 on slope	Benthic habitats on sand, gravel, or clay substrates
Atlantic herring	Eggs	Coastal Gulf of Maine, Georges Bank, and Southern New England	5-90	Sub-tidal benthic habitats on coarse sand, pebbles, cobbles, and boulders and/or macroalgae
Atlantic sea scallop	Eggs	Gulf of Maine coastal waters and offshore banks, Georges Bank, and the Mid-Atlantic, including the following estuaries: Passamaquoddy Bay to Sheepscot River; Casco Bay, Massachusetts Bay, and Cape Cod Bay	18-110	Inshore and offshore benthic habitats (see adults)
Atlantic sea scallop	Larvae	Gulf of Maine coastal waters and offshore banks, Georges Bank, and the Mid-Atlantic, including the following estuaries: Passamaquoddy Bay to Sheepscot River; Casco Bay, Massachusetts Bay, and Cape Cod Bay	No information	Inshore and offshore pelagic and benthic habitats: pelagic larvae ("spat"), settle on variety of hard surfaces, including shells, pebbles, and gravel and to macroalgae and other benthic organisms such as hydroids
Atlantic sea scallop	Juveniles	Gulf of Maine coastal waters and offshore banks, Georges Bank, and the Mid-Atlantic, including the following estuaries: Passamaquoddy Bay to Sheepscot River; Casco Bay, Great Bay, Massachusetts Bay, and Cape Cod Bay	18-110	Benthic habitats initially attached to shells, gravel, and small rocks (pebble, cobble), later free-swimming juveniles found in same habitats as adults
Atlantic sea scallop	Adults	Gulf of Maine coastal waters and offshore banks, Georges Bank, and the Mid-Atlantic, including the following estuaries: Passamaquoddy Bay to Sheepscot River; Casco Bay, Great Bay, Massachusetts Bay, and Cape Cod Bay	18-110	Benthic habitats with sand and gravel substrates
Atlantic surfclams	Juveniles and adults	Continental shelf from southwestern Gulf of Maine to Cape Hatteras, North Carolina	Surf zone to about 61, abundance low >38	In substrate to depth of 3 ft
Atlantic wolffish	Eggs	U.S. waters north of 41°N latitude and east of 71°W longitude	<100	Sub-tidal benthic habitats under rocks and boulders in nests
Atlantic wolffish	Juveniles	U.S. waters north of 41°N latitude and east of 71°W longitude	70-184	Sub-tidal benthic habitats
Atlantic wolffish	Adults	U.S. waters north of 41°N latitude and east of 71°W longitude	<173	A wide variety of sub-tidal sand and gravel substrates once they leave

Species	Life Stage	Geographic Area	Depth (meters)	Habitat Type and Description
				rocky spawning habitats, but not on muddy bottom
Barndoor skate	Juveniles and adults	Primarily on Georges Bank and in Southern New England and on the continental slope	40-400 on shelf and to 750 on slope	Sub-tidal benthic habitats on mud, sand, and gravel substrates
Black sea bass	Juveniles and adults	Continental shelf and estuarine waters from the southwestern Gulf of Maine and Cape Hatteras, North Carolina	Inshore in summer and spring	Benthic habitats with rough bottom, shellfish and eelgrass beds, man-made structures in sandy-shelly areas, also offshore clam beds and shell patches in winter
Clearnose skate	Juveniles	Inner continental shelf from New Jersey to the St. Johns River in Florida and certain bays and certain estuaries including Raritan Bay, inland New Jersey bays, Chesapeake Bay, and Delaware Bays	0-30	Sub-tidal benthic habitats on mud and sand, but also on gravelly and rocky bottom
Clearnose skate	Adults	Inner continental shelf from New Jersey to the St. Johns River in Florida and certain bays and certain estuaries including Raritan Bay, inland New Jersey bays, Chesapeake Bay, and Delaware Bays	0-40	Sub-tidal benthic habitats on mud and sand, but also on gravelly and rocky bottom
Deep-sea red crab	Eggs	Outer continental shelf and slope throughout the region, including two seamounts	320-640	Benthic habitats attached to female crabs
Deep-sea red crab	Juveniles	Outer continental shelf and slope throughout the region, including two seamounts	320-1300 on slope and to 2000 on seamounts	Benthic habitats with unconsolidated and consolidated silt-clay sediments
Deep-sea red crab	Adults	Outer continental shelf and slope throughout the region, including two seamounts	320-900 on slope and up to 2000 on seamounts	Benthic habitats with unconsolidated and consolidated silt-clay sediments
Golden tilefish	Juveniles and adults	Outer continental shelf and slope from U.S.-Canada boundary to the Virginia-North Carolina boundary	100-300	Burrows in semi-lithified clay substrate, may also utilize rocks, boulders, scour depressions beneath boulders, and exposed rock ledges as shelter
Haddock	Juveniles	Inshore and offshore waters in the Gulf of Maine, on Georges Bank, and on the continental shelf in the Mid-Atlantic region	40-140 and as shallow as 20 in coastal Gulf of Maine	Sub-tidal benthic habitats on hard sand (particularly smooth patches between rocks), mixed sand and shell, gravelly sand, and gravel
Haddock	Adults	Offshore waters in the Gulf of Maine, on Georges Bank, and on the continental shelf in Southern New England	50-160	Sub-tidal benthic habitats on hard sand (particularly smooth patches between rocks), mixed sand and shell, gravelly sand, and gravel and adjacent to boulders and cobbles along the margins of rocky reefs
Little skate	Juveniles	Coastal waters in the Gulf of Maine, Georges Bank, and the continental shelf in the Mid-Atlantic region as far south as Delaware Bay, including certain bays and estuaries in the Gulf of Maine	Mean high water-80	Intertidal and sub-tidal benthic habitats on sand and gravel, also found on mud

Species	Life Stage	Geographic Area	Depth (meters)	Habitat Type and Description
Little skate	Adults	Coastal waters in the Gulf of Maine, Georges Bank, and the continental shelf in the Mid-Atlantic region as far south as Delaware Bay, including certain bays and estuaries in the Gulf of Maine	Mean high water-100	Intertidal and sub-tidal benthic habitats on sand and gravel, also found on mud
Longfin inshore squid	Eggs	Inshore and offshore waters from Georges Bank southward to Cape Hatteras	Generally <50	Bottom habitats attached to variety of hard bottom types, macroalgae, sand, and mud
Monkfish	Juveniles	Gulf of Maine, outer continental shelf in the Mid-Atlantic, and the continental slope	50-400 in the Mid-Atlantic, 20-400 in the Gulf of Maine, and to 1000 on the slope	Sub-tidal benthic habitats on a variety of habitats, including hard sand, pebbles, gravel, broken shells, and soft mud, also seek shelter among rocks with attached algae
Monkfish	Adults	Gulf of Maine, outer continental shelf in the Mid-Atlantic, and the continental slope	50-400 in the Mid-Atlantic, 20-400 in the Gulf of Maine, and to 1000 on the slope	Sub-tidal benthic habitats on hard sand, pebbles, gravel, broken shells, and soft mud, but seem to prefer soft sediments, and, like juveniles, utilize the edges of rocky areas for feeding
Ocean pout	Eggs	Georges Bank, Gulf of Maine, and the Mid-Atlantic, including certain bays and estuaries in the Gulf of Maine	<100	Sub-tidal hard bottom habitats in sheltered nests, holes, or rocky crevices
Ocean pout	Juveniles	Gulf of Maine, on the continental shelf north of Cape May, New Jersey, on the southern portion of Georges Bank, and including certain bays and estuaries in the Gulf of Maine	Mean high water-120	Intertidal and sub-tidal benthic habitats on a wide variety of substrates, including shells, rocks, algae, soft sediments, sand, and gravel
Ocean pout	Adults	Gulf of Maine, Georges Bank, on the continental shelf north of Cape May, New Jersey, and including certain bays and estuaries in the Gulf of Maine	20-140	Sub-tidal benthic habitats on mud and sand, particularly in association with structure forming habitat types; i.e. shells, gravel, or boulders
Ocean quahogs	Juveniles and adults	Continental shelf from southern New England and Georges Bank to Virginia	9-244	In substrate to depth of 3 ft
Offshore hake	Juveniles	Outer continental shelf and slope from Georges Bank to 34° 40'N	160-750	Pelagic and benthic habitats
Offshore hake	Adults	Outer continental shelf and slope from Georges Bank to 34° 40'N	200-750	Pelagic and benthic habitats
Pollock	Juveniles	Inshore and offshore waters in the Gulf of Maine (including bays and estuaries in the Gulf of Maine), the Great South Channel, Long Island Sound, and Narragansett Bay, Rhode Island	Mean high water-180 in Gulf of Maine, Long Island Sound, and Narragansett Bay; 40-180 on Georges Bank	Intertidal and sub-tidal pelagic and benthic rocky bottom habitats with attached macroalgae, small juveniles in eelgrass beds, older juveniles move into deeper water habitats also occupied by adults
Pollock	Adults	Offshore Gulf of Maine waters, Massachusetts Bay and Cape Cod Bay, on the southern edge of Georges Bank, and in Long Island Sound	80-300 in Gulf of Maine and on Georges Bank; <80 in Long Island Sound, Cape Cod Bay, and Narragansett Bay	Pelagic and benthic habitats on the tops and edges of offshore banks and shoals with mixed rocky substrates, often with attached macro algae

Species	Life Stage	Geographic Area	Depth (meters)	Habitat Type and Description
Red hake	Juveniles	Gulf of Maine, Georges Bank, and the Mid-Atlantic, including Passamaquoddy Bay to Cape Cod Bay in the Gulf of Maine, Buzzards Bay and Narragansett Bay, Long Island Sound, Raritan Bay and the Hudson River, and lower Chesapeake Bay	Mean high water-80	Intertidal and sub-tidal soft bottom habitats, esp those that provide shelter, such as depressions in muddy substrates, eelgrass, macroalgae, shells, anemone and polychaete tubes, on artificial reefs, and in live bivalves (e.g., scallops)
Red hake	Adults	In the Gulf of Maine, the Great South Channel, and on the outer continental shelf and slope from Georges Bank to North Carolina, including inshore bays and estuaries as far south as Chesapeake Bay	50-750 on shelf and slope, as shallow as 20 inshore	Sub-tidal benthic habitats in shell beds, on soft sediments (usually in depressions), also found on gravel and hard bottom and artificial reefs
Rosette skate	Juveniles and adults	Outer continental shelf from approximately 40°N to Cape Hatteras, North Carolina	80-400	Benthic habitats with mud and sand substrates
Scup	Juveniles	Continental shelf between southwestern Gulf of Maine and Cape Hatteras, North Carolina and in nearshore and estuarine waters between Massachusetts and Virginia	No information	Benthic habitats, in association with inshore sand and mud substrates, mussel and eelgrass beds
Scup	Adults	Continental shelf and nearshore and estuarine waters between southwestern Gulf of Maine and Cape Hatteras, North Carolina	No information, generally overwinter offshore	Benthic habitats
Silver hake	Juveniles	Gulf of Maine, including certain bays and estuaries, and on the continental shelf as far south as Cape May, New Jersey	40-400 in Gulf of Maine, >10 in Mid-Atlantic	Pelagic and sandy sub-tidal benthic habitats in association with sand-waves, flat sand with amphipod tubes, shells, and in biogenic depressions
Silver hake	Adults	Gulf of Maine, including certain bays and estuaries, the southern portion of Georges Bank, and the outer continental shelf and some shallower coastal locations in the Mid-Atlantic	>35 in Gulf of Maine, 70-400 on Georges Bank and in the Mid-Atlantic	Pelagic and sandy sub-tidal benthic habitats, often in bottom depressions or in association with sand waves and shell fragments, also in mud habitats bordering deep boulder reefs, on over deep boulder reefs in the southwest Gulf of Maine
Smooth skate	Juveniles	Offshore Gulf of Maine, some coastal bays in Maine and New Hampshire, and on the continental slope from Georges Bank to North Carolina	100-400 offshore Gulf of Maine, <100 inshore Gulf of Maine, to 900 on slope	Benthic habitats, mostly on soft mud in deeper areas, but also on sand, broken shells, gravel, and pebbles on offshore banks in the Gulf of Maine
Smooth skate	Adults	Offshore Gulf of Maine and the continental slope from Georges Bank to North Carolina	100-400 offshore Gulf of Maine, to 900 on slope	Benthic habitats, mostly on soft mud in deeper areas, but also on sand, broken shells, gravel, and pebbles on offshore banks in the Gulf of Maine
Summer flounder	Juveniles	Continental shelf and estuaries from Cape Cod, Massachusetts, to Cape Canaveral, Florida	To maximum 152	Benthic habitats, including inshore estuaries, salt marsh creeks, seagrass beds, mudflats, and open bay areas
Summer flounder	Adults	Continental shelf from Cape Cod, Massachusetts, to Cape Canaveral, Florida, including shallow coastal and estuarine waters during warmer months	To maximum 152 in colder months	Benthic habitats

Species	Life Stage	Geographic Area	Depth (meters)	Habitat Type and Description
Spiny dogfish	Juveniles	Primarily the outer continental shelf and slope between Cape Hatteras and Georges Bank and in the Gulf of Maine	Deep water	Pelagic and epibenthic habitats
Spiny dogfish	Female sub-adults	Throughout the region	Wide depth range	Pelagic and epibenthic habitats
Spiny dogfish	Male sub-adults	Primarily in the Gulf of Maine and on the outer continental shelf from Georges Bank to Cape Hatteras	Wide depth range	Pelagic and epibenthic habitats
Spiny dogfish	Female adults	Throughout the region	Wide depth range	Pelagic and epibenthic habitats
Spiny dogfish	Male adults	Throughout the region	Wide depth range	Pelagic and epibenthic habitats
Thorny skate	Juveniles	Offshore Gulf of Maine, some coastal bays in the Gulf of Maine, and on the continental slope from Georges Bank to North Carolina	35-400 offshore Gulf of Maine, <35 inshore Gulf of Maine, to 900 on slope	Benthic habitats on a wide variety of bottom types, including sand, gravel, broken shells, pebbles, and soft mud
Thorny skate	Adults	Offshore Gulf of Maine and on the continental slope from Georges Bank to North Carolina	35-400 offshore Gulf of Maine, <35 inshore Gulf of Maine, to 900 on slope	Benthic habitats on a wide variety of bottom types, including sand, gravel, broken shells, pebbles, and soft mud
White hake	Juveniles	Gulf of Maine, Georges Bank, and Southern New England, including bays and estuaries in the Gulf of Maine	Mean high water - 300	Intertidal and sub-tidal estuarine and marine habitats on fine-grained, sandy substrates in eelgrass, macroalgae, and un-vegetated habitats
White hake	Adults	Gulf of Maine, including coastal bays and estuaries, and the outer continental shelf and slope	100-400 offshore Gulf of Maine, >25 inshore Gulf of Maine, to 900 on slope	Sub-tidal benthic habitats on fine-grained, muddy substrates and in mixed soft and rocky habitats
Windowpane flounder	Juveniles	Estuarine, coastal, and continental shelf waters from the Gulf of Maine to northern Florida, including bays and estuaries from Maine to Maryland	Mean high water - 60	Intertidal and sub-tidal benthic habitats on mud and sand substrates
Windowpane flounder	Adults	Estuarine, coastal, and continental shelf waters from the Gulf of Maine to Cape Hatteras, North Carolina, including bays and estuaries from Maine to Maryland	Mean high water - 70	Intertidal and sub-tidal benthic habitats on mud and sand substrates
Winter flounder	Eggs	Eastern Maine to Absecon Inlet, New Jersey (39° 22'N) and Georges Bank	0-5 south of Cape Cod, 0-70 Gulf of Maine and Georges Bank	Sub-tidal estuarine and coastal benthic habitats on mud, muddy sand, sand, gravel, submerged aquatic vegetation, and macroalgae
Winter flounder	Juveniles	Coastal Gulf of Maine, Georges Bank, and continental shelf in Southern New England and Mid-Atlantic to Absecon Inlet, New Jersey, including bays and estuaries from eastern Maine to northern New Jersey	Mean high water - 60	Intertidal and sub-tidal benthic habitats on a variety of bottom types, such as mud, sand, rocky substrates with attached macroalgae, tidal wetlands, and eelgrass; young-of-the-year juveniles on muddy and sandy sediments in and adjacent to eelgrass and macroalgae, in bottom debris, and in marsh creeks

<b>Species</b>	<b>Life Stage</b>	<b>Geographic Area</b>	<b>Depth (meters)</b>	<b>Habitat Type and Description</b>
Winter flounder	Adults	Coastal Gulf of Maine, Georges Bank, and continental shelf in Southern New England and Mid-Atlantic to Absecon Inlet, New Jersey, including bays and estuaries from eastern Maine to northern New Jersey	Mean high water - 70	Intertidal and sub-tidal benthic habitats on muddy and sandy substrates, and on hard bottom on offshore banks; for spawning adults, also see eggs
Winter skate	Juveniles	Coastal waters from eastern Maine to Delaware Bay, including certain bays and estuaries from eastern Maine to Chincoteague Bay, Virginia, and on Georges Bank and the continental shelf in Southern New England and the Mid-Atlantic	0-90	Sub-tidal benthic habitats on sand and gravel substrates, are also found on mud
Winter skate	Adults	Coastal waters from eastern Maine to Delaware Bay, including certain bays and estuaries in Maine and New Hampshire, and on Georges Bank and the continental shelf in Southern New England and the Mid-Atlantic	0-80	Sub-tidal benthic habitats on sand and gravel substrates, are also found on mud
Witch flounder	Juveniles	Gulf of Maine and outer continental shelf and slope	50-400 and to 1500 on slope	Sub-tidal benthic habitats with mud and muddy sand substrates
Witch flounder	Adults	Gulf of Maine and outer continental shelf and slope	35-400 and to 1500 on slope	Sub-tidal benthic habitats with mud and muddy sand substrates
Yellowtail flounder	Juveniles	Gulf of Maine, Georges Bank, and the Mid-Atlantic, including certain bays and estuaries in the Gulf of Maine	20-80	Sub-tidal benthic habitats on sand and muddy sand
Yellowtail flounder	Adults	Gulf of Maine, Georges Bank, and the Mid-Atlantic, including certain bays and estuaries in the Gulf of Maine	25-90	Sub-tidal benthic habitats on sand and sand with mud, shell hash, gravel, and rocks



## Fishery Impact Considerations

Actions implemented that affect species with overlapping EFH were assessed in Amendment 9 to the MSB FMP in 2008 (<http://www.mafmc.org/fmp/history/smb-hist.htm>). Amendment 9 summarized Stevenson et al. 2004's findings on bottom-trawling's habitat impacts as:

“In studies examining the effect of bottom otter trawling on a variety of substrate types, it was demonstrated that the physical effects of trawl doors contacting the bottom produced furrows and some shifts in surface sediment composition, although there is a large variation in the duration of these impacts. Typically the more dynamic environment and less structured bottom composition, the shorter the duration of impact. This type of fishing was demonstrated to have some effects on composition and biomass of benthic species in the affected areas, but the directionality and duration of these effects varied by study and substrate types.”

Some mackerel fishing does use bottom-tending trawl gear. Industry contacts report that MSB effort is generally over sand/mud bottoms that will not damage nets and that “hangs” or areas with structure have been mapped over the years and are avoided. Amendment 9 included an analysis of the adverse impacts of the MSB fisheries on EFH (per section 303(a)(7) of the MSA). In Amendment 9 the Council determined that bottom trawls used in MSB fisheries do have the potential to adversely affect EFH for some federally-managed fisheries in the region and closed portions of two offshore canyons (Lydonia and Oceanographer) to squid trawling. Subsequent closures were implemented in these and two other canyons (Veatch and Norfolk) to protect tilefish EFH by prohibiting all bottom trawling activity. The Council has also taken action for protections for deep-sea corals on the outer continental shelf and slope via Amendment 16 to the MSB FMP.

Because there have been no significant changes to the manner in which the MSB fisheries are prosecuted, and because none of the alternatives being considered in this document should have more than a minimal and/or temporary adverse impact (see section 7.0), no additional alternatives to minimize adverse effects on EFH are considered as part of this management action.

## 6.3 Human Communities and Economic Environment

This section describes the socio-economic importance of the mackerel fishery. The recent squid and butterfish specifications EA (MAFMC 2017) can be consulted for information on those species, but those fisheries are not expected to be impacted by this action. Recent Amendments to the MSB FMP contain additional information about the MSB fisheries, especially demographic information on ports that land MSB species. See Amendments 11 and 14 at <http://www.mafmc.org/msb/> for more information or visit NMFS' communities page at: [http://www.nefsc.noaa.gov/read/socialsci/community\\_profiles/](http://www.nefsc.noaa.gov/read/socialsci/community_profiles/). In general, the MSB fisheries saw high foreign landings in the 1970s followed by a domestication of the fishery, and domestic landings have been variable, but lower than the peak foreign landings. The current regulations for the MSB fisheries are summarized by NMFS at <https://www.greateratlantic.fisheries.noaa.gov/regs/info.html>, and detailed in the Federal Register at <http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&SID=1e9802ffddb05d0243d9c657fade956c&rgn=div5&view=text&node=50:12.0.1.1.5&idno=50>.

### 6.3.1 Atlantic Mackerel

The figure below (next page) illustrates that foreign catches dominated the early fishery, with total catch peaking at over 430,000 MT in 1973. Foreign catches declined and then were eliminated by the MSA, though there was also some joint venture activity from the mid-1980s through 1991. From 1992 through 2001, total catches averaged only 35,222 MT before increasing to peaks of just over 110,000 MT in 2004 and 2006. Total catch then declined and since 2011 has averaged 14,122 MT per year. Preliminary estimated 2017 total catch was the highest since 2010 and equaled 17,508 MT. U.S. commercial discards represented an average of 4.2% of U.S. commercial catch over the time series, and 1.7% of commercial catch since 2000. U.S. recreational catch represented an average of 26.4% of total U.S. catch in the 1980's, decreased to an average of 5.2% during the 1990's and 2000's, and has averaged 17.0% since 2010.

Most landings in recent years are from mid-water trawl gear, with lower levels from bottom trawl, handline (including auto-jig), and other (see figure next page). A substantial portion of mackerel landings in recent years have come incidental to herring fishing.

Figure 2. Total annual mackerel catch (mt) by the U.S., Canada and other countries for 1960-2017.

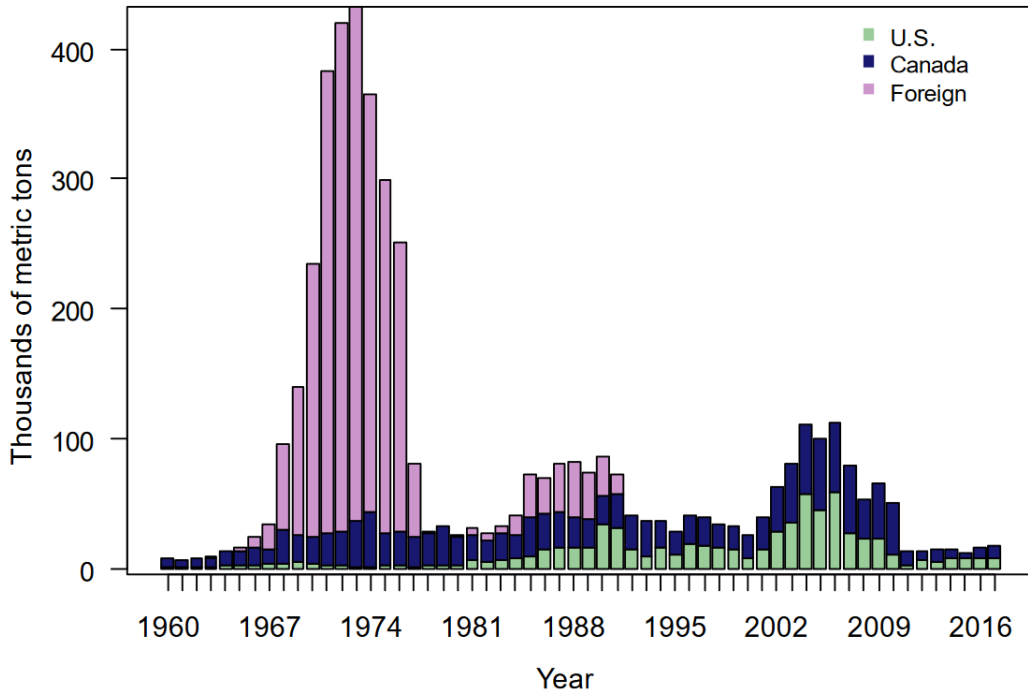
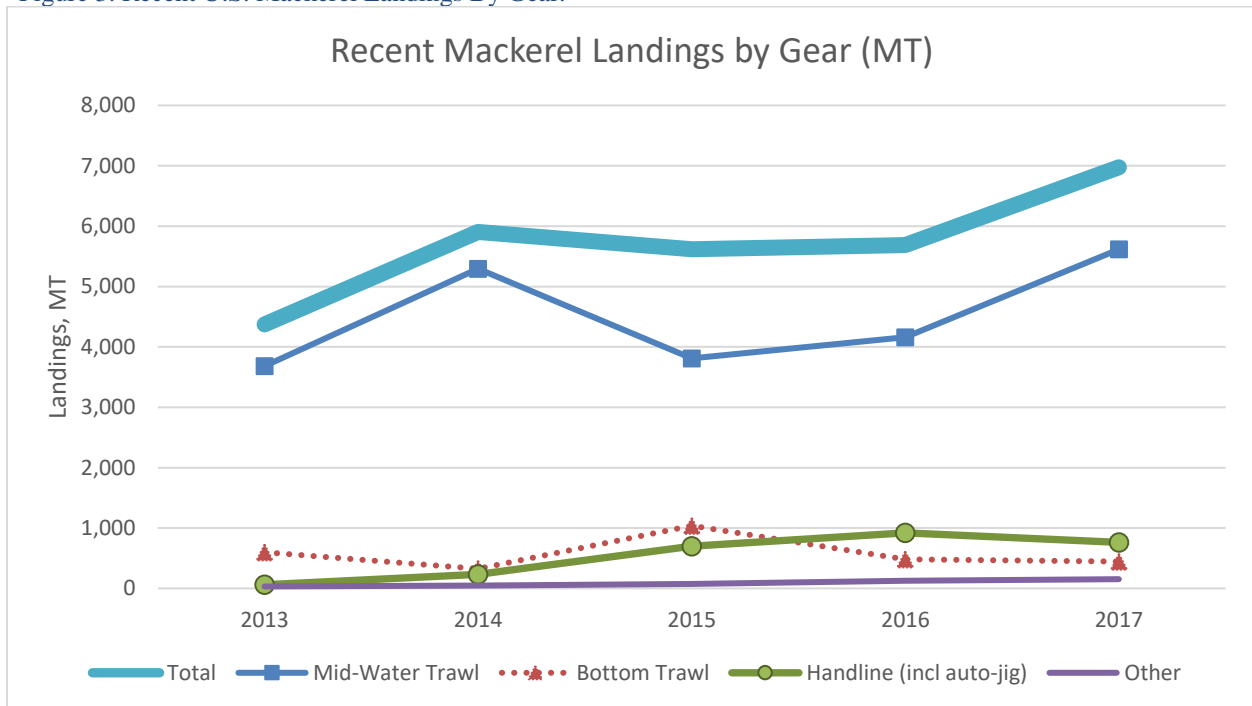


Figure 3. Recent U.S. Mackerel Landings By Gear.



For almost the entire time series, catches have been well below the limits placed on the fishery, as summarized in the table below.

Table 14. Annual stock-wide ABCs (mt), total catch from all sources (mt) and the proportion of the annual ABC caught.

<b>Year</b>	<b>Stock ABC</b>	<b>Total Catch</b>	<b>Proportion</b>
1995	850,000	28,418	0.03
1996	1,175,500	40,322	0.03
1997	1,178,000	38,920	0.03
1998	382,000	34,376	0.09
1999	383,000	31,998	0.08
2000	369,000	25,338	0.07
2001	369,000	39,364	0.11
2002	369,000	62,962	0.17
2003	369,000	80,311	0.22
2004	369,000	111,377	0.30
2005	335,000	99,603	0.30
2006	335,000	112,425	0.34
2007	238,000	79,733	0.34
2008	211,000	53,008	0.25
2009	211,000	65,676	0.31
2010	211,000	49,648	0.24
2011	80,000	13,147	0.16
2012	80,000	12,601	0.16
2013	80,000	14,360	0.18
2014	80,000	13,971	0.18
2015	40,165	11,950	0.30
2016	19,898	15,316	0.77
2017	19,898	17,508	0.88

The figures below show ex-vessel revenues (nominal) and ex-vessel prices (inflation adjusted) for mackerel from 1982-2017 based on dealer data from the Northeast Commercial Fisheries Database.

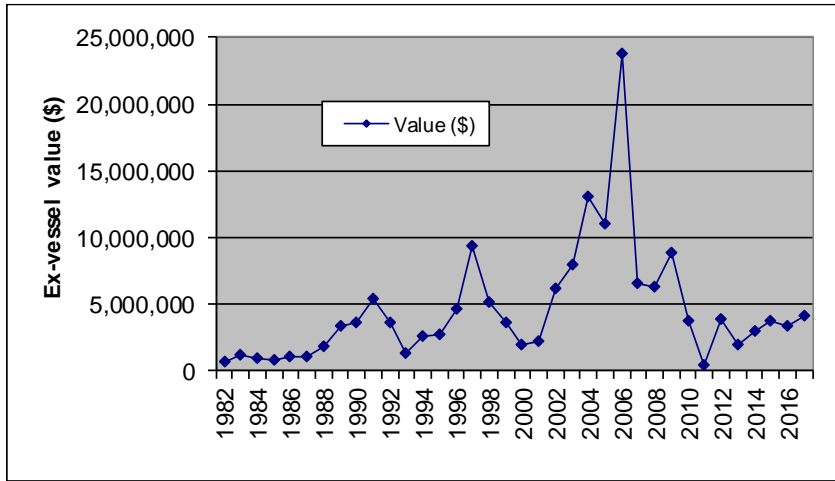


Figure 4. Nominal Ex-Vessel Revenues for mackerel landings during 1982-2017.

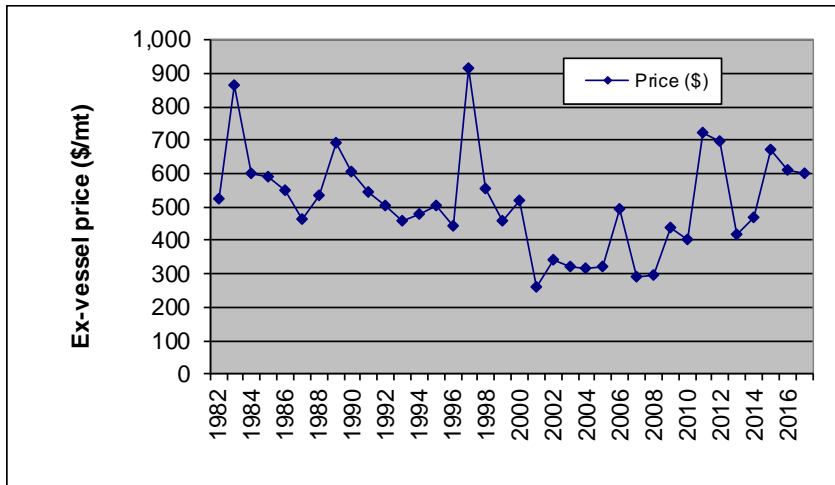


Figure 5. Inflation-adjusted ex-vessel Prices for mackerel landings during 1982-2017.

The mackerel fishery takes place in shelf waters as described in the figures below. Landings for all gears other than paired midwater trawl were reported via dealer reports matched to a vessel trip report (VTR) when possible (only VTR for 2017). Landings for paired midwater trawl vessels were reported via VTRs. From 2007-2011 80% of landings had location data, from 2012-2016 84% of landings had location information, and in 2017 99% of VTR reports had location information.

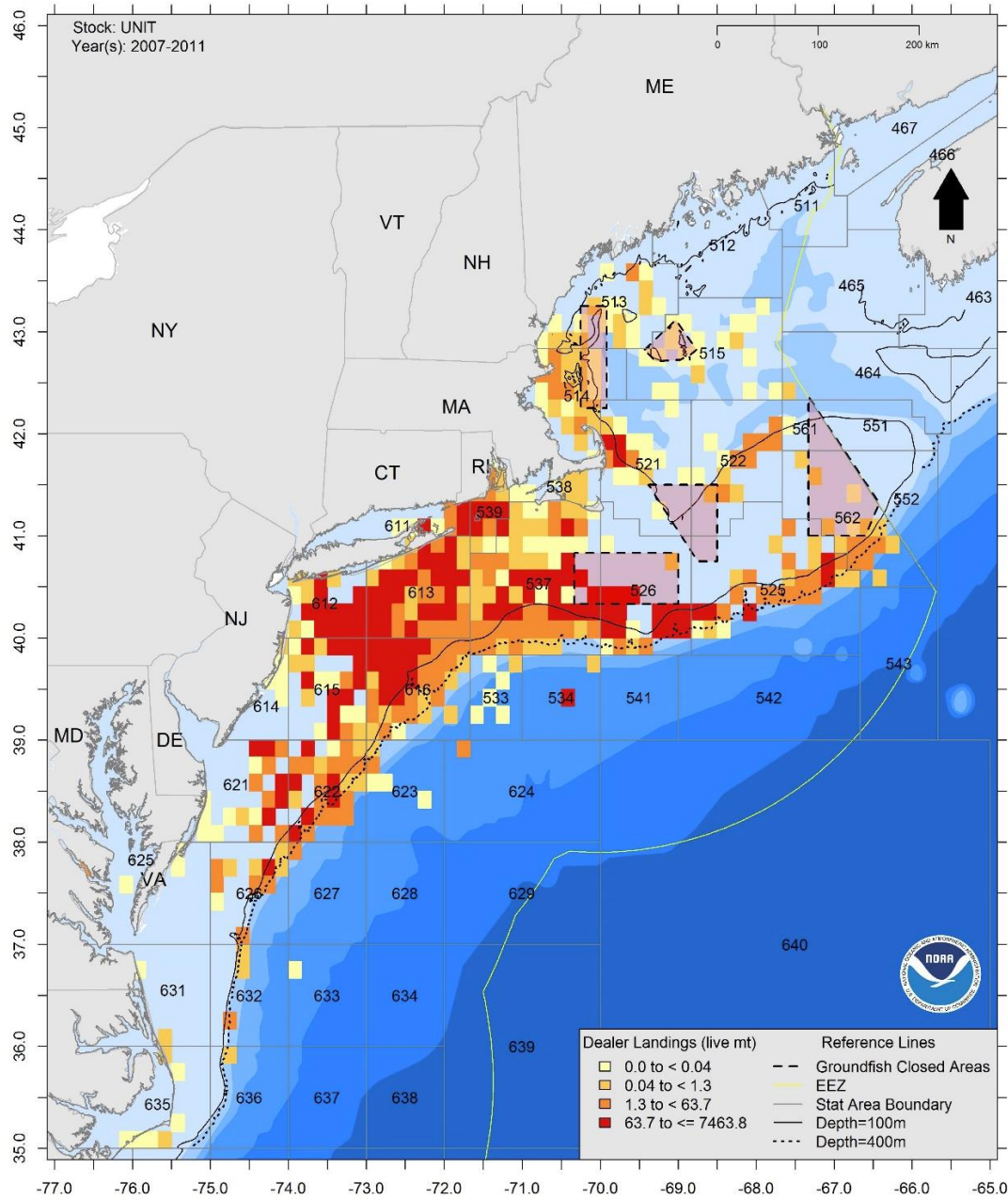


Figure 6. Spatial distribution of landings (mt) by ten-minute square, during 2007-2011.

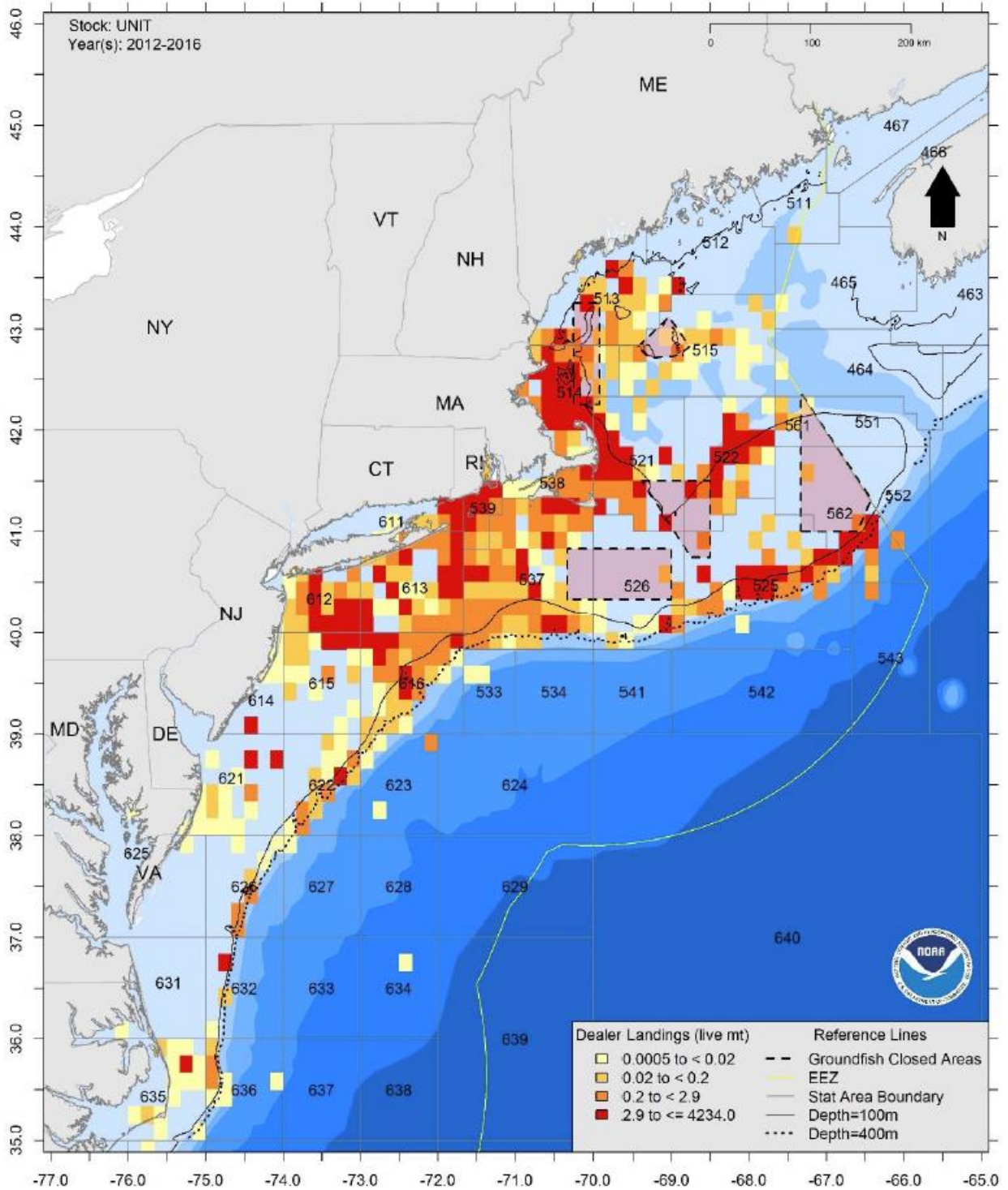


Figure 7. Spatial distribution of landings (mt) by ten-minute square, during 2012-2016.

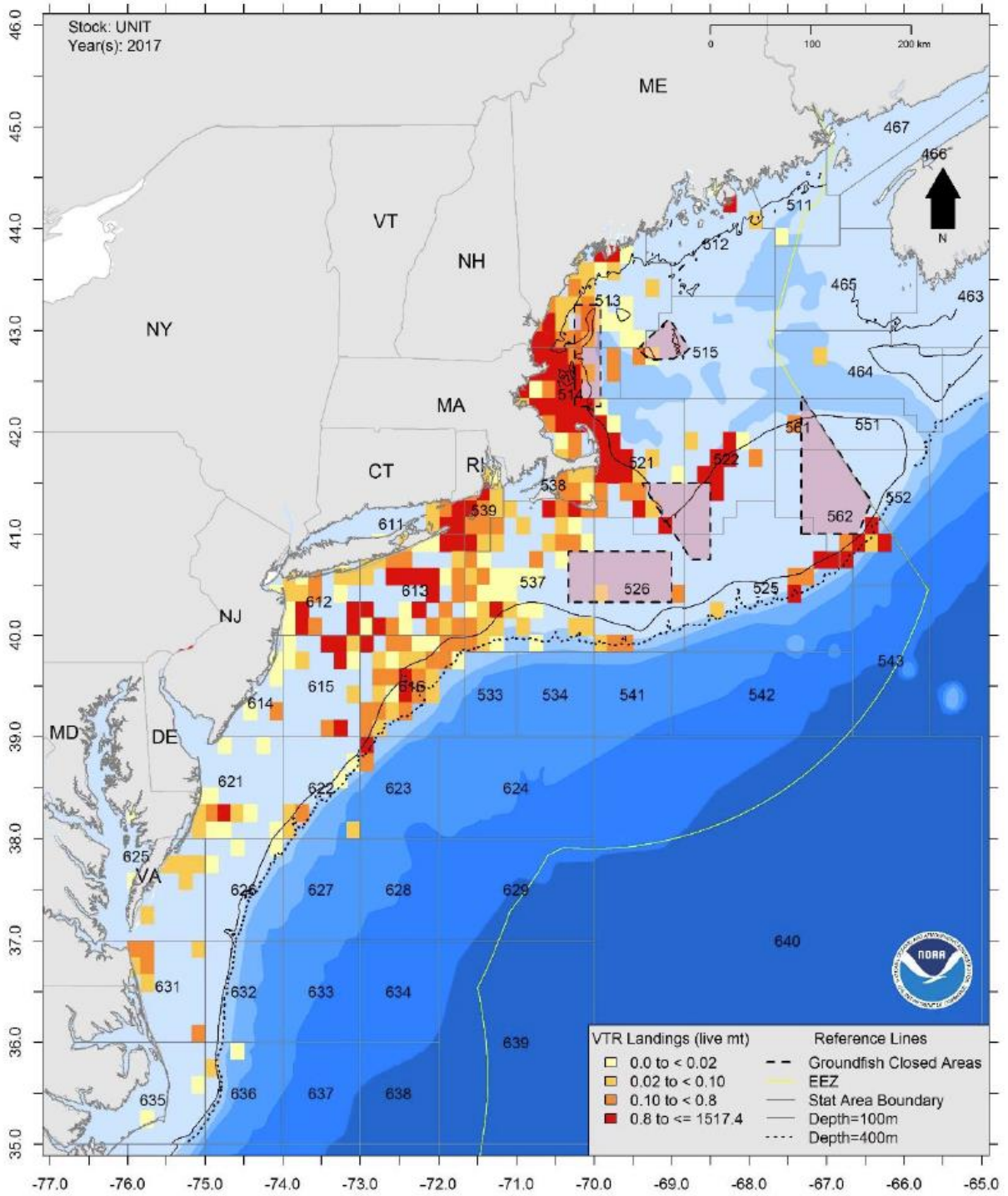


Figure 8. Spatial distribution of landings (mt) by ten-minute square, during 2017.



In recent years most mackerel landings have occurred in Massachusetts and New Jersey (see table below). Further breakdowns of landings by port may violate the spirit of data confidentiality rules. The subsequent table describes the numbers of vessels that have fished for mackerel over time.

Table 15. Recent Mackerel Landings by State (mt)

YEAR	MA	NJ	RI	ME	NY	Other	Total
2015	3,175	1,006	865	510	35	26	5,591
2016	4,833	139	519	169	21	7	5,681
2017	4,710	1,275	315	633	28	13	6,962

Table 16. Numbers of vessels that actively fished for mackerel, by landings (lbs) category, during 1982-2017.

YEAR	Vessels 1 mil +	Vessels 100,000 - 1mil	Vessels 50,000 - 100,000	Vessels 10,000 - 50,000	Total
1982	0	10	10	43	63
1983	0	10	5	26	41
1984	0	11	14	29	54
1985	0	12	10	28	50
1986	1	10	5	37	53
1987	1	15	8	31	55
1988	2	20	8	40	70
1989	6	17	8	27	58
1990	6	16	7	39	68
1991	13	18	1	38	70
1992	9	17	13	48	87
1993	0	16	11	55	82
1994	2	27	14	44	87
1995	4	24	11	50	89
1996	7	45	15	53	120
1997	6	30	20	46	102
1998	9	16	6	39	70
1999	6	15	9	36	66
2000	5	3	0	26	34
2001	5	3	2	20	30
2002	12	3	1	22	38
2003	14	6	5	23	48
2004	18	6	1	14	39
2005	16	12	4	15	47
2006	21	12	5	10	48
2007	16	12	2	20	50
2008	15	5	1	17	38
2009	15	6	6	18	45
2010	10	9	2	13	34
2011	0	3	3	17	23
2012	3	9	1	9	22
2013	4	3	3	13	23
2014	6	5	1	13	25
2015	5	9	10	12	36
2016	3	16	7	26	52
2017	6	7	14	28	55

Recreational harvest has been variable without much trend over the 1981-2017 Marine Recreational Information Program (MRIP) time series (see figure below). In recent years most fish have been caught in New England states' waters (primarily Massachusetts, Maine, and New Hampshire) in May-October. Pending revisions to this time series will likely be incorporated into the next assessment update. There are no recreational regulations except for license/registry requirements.

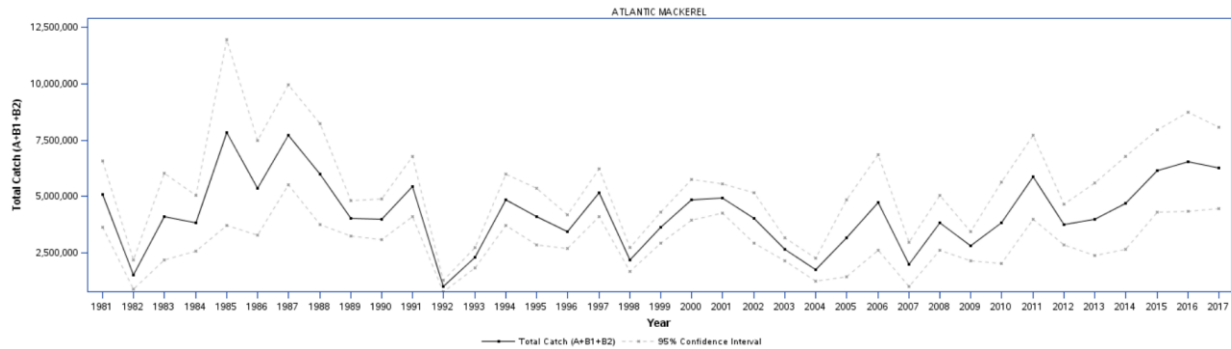


Figure 9. MRIP mackerel time series 1981-2017, total catch, numbers of fish.

### 6.3.2 Atlantic Herring

Detailed information on the herring fishery can be found in the most recent specifications Environmental Assessment (NEFMC 2016). Atlantic herring landings have been variable in the last decade, averaging about 90,000 mt, with the highest amount in 2009 (about 104,000 mt) and lowest in 2017 (about 50,000 mt). The herring fishery uses predominantly single and paired mid water trawl, bottom trawl, purse seine, and to a lesser extent, gillnet gear. Most landings are by midwater trawl gear (about 70%), followed by purse seine gear used exclusively in the Gulf of Maine (about 25%), and then bottom trawl gear (5-10%). The average dockside price of herring increased over the last decade, from \$238 per mt in 2007 to \$552 per mt in 2017. Total revenues for the fishery have been above \$20 million dollars per year for some time, peaking above \$30 million in 2013. 40 vessels landed over 10,000 pounds of herring in 2017.

## 6.4 Protected Species

Protected species are those afforded protections under the Endangered Species Act (ESA; species listed as threatened or endangered under the ESA) and/or the Marine Mammal Protection Act (MMPA). The table below provides a list of protected species that occur in the affected environment of the MSB fisheries and the potential for the fishery to impact the species, specifically via interactions with MSB fishing gear (i.e., mid-water trawl and bottom trawl gear). Marine mammal species (cetaceans and pinnipeds) italicized and in bold are considered MMPA strategic stocks. Shaded rows indicate species who prefer continental shelf edge/slope waters (i.e., >200 meters). The recently-developed bait-less auto jig fishery is not known to interact with any protected species, and interactions would not be predicted given the nature of that fishery and its gear type.

Table 17. Species Protected Under the ESA and/or MMPA that May Occur in the Affected Environment of the MSB FMP

Species	Status <sup>2</sup>	Observed/documentated interactions with bottom trawl and/or mid-water trawl gear?
<b>Cetaceans</b>		
<i>North Atlantic right whale (Eubalaena glacialis)</i>	<i>Endangered</i>	<i>No</i>
Humpback whale, West Indies DPS, ( <i>Megaptera novaeangliae</i> )	Protected (MMPA)	<i>No</i>
<i>Fin whale (Balaenoptera physalus)</i>	<i>Endangered</i>	<i>No</i>
<i>Sei whale (Balaenoptera borealis)</i>	<i>Endangered</i>	<i>No</i>
<i>Blue whale (Balaenoptera musculus)</i>	<i>Endangered</i>	<i>No</i>
<i>Sperm whale (Physeter macrocephalus)</i>	<i>Endangered</i>	<i>No</i>
Minke whale ( <i>Balaenoptera acutorostrata</i> )	Protected (MMPA)	Yes
<i>Pilot whale (Globicephala spp.)<sup>3</sup></i>	<i>Protected (MMPA)</i>	<i>Yes</i>
Pygmy sperm whale ( <i>Kogia breviceps</i> )	Protected (MMPA)	No
Dwarf sperm whale ( <i>Kogia sima</i> )	Protected (MMPA)	No
Risso's dolphin ( <i>Grampus griseus</i> )	Protected (MMPA)	Yes
Atlantic white-sided dolphin ( <i>Lagenorhynchus acutus</i> )	Protected (MMPA)	Yes
Short Beaked Common dolphin ( <i>Delphinus delphis</i> )	Protected (MMPA)	Yes
Atlantic Spotted dolphin ( <i>Stenella frontalis</i> )	Protected (MMPA)	No
Striped dolphin ( <i>Stenella coeruleoalba</i> )	Protected (MMPA)	No
Beaked whales ( <i>Ziphius and Mesoplodon spp</i> ) <sup>4</sup>	Protected (MMPA)	No
<i>Bottlenose dolphin (Tursiops truncatus)<sup>5</sup></i>	<i>Protected (MMPA)</i>	<i>Yes</i>
Harbor porpoise ( <i>Phocoena phocoena</i> )	Protected (MMPA)	Yes
<b>Pinnipeds</b>		
Harbor seal ( <i>Phoca vitulina</i> )	Protected (MMPA)	Yes
Gray seal ( <i>Halichoerus grypus</i> )	Protected (MMPA)	Yes
Harp seal ( <i>Phoca groenlandicus</i> )	Protected (MMPA)	Yes

Species	Status <sup>2</sup>	Observed/documentated interactions with bottom trawl and/or mid-water trawl gear?
Hooded seal ( <i>Cystophora cristata</i> )	Protected (MMPA)	No
<b>Sea Turtles</b>		
Leatherback sea turtle ( <i>Dermochelys coriacea</i> )	Endangered	Yes
Kemp's ridley sea turtle ( <i>Lepidochelys kempii</i> )	Endangered	Yes
Green sea turtle, North Atlantic DPS ( <i>Chelonia mydas</i> )	Threatened	Yes
Loggerhead sea turtle ( <i>Caretta caretta</i> ), Northwest Atlantic Ocean DPS	Threatened	Yes
Hawksbill sea turtle ( <i>Eretmochelys imbricate</i> )	Endangered	No
<b>Fish</b>		
Atlantic salmon	Endangered	Yes
Atlantic sturgeon ( <i>Acipenser oxyrinchus</i> )		
Gulf of Maine DPS	Threatened	Yes
New York Bight DPS, Chesapeake Bay DPS, Carolina DPS & South Atlantic DPS	Endangered	Yes
Cusk ( <i>Brosme brosme</i> )	Candidate	Yes
Alewife ( <i>Alosa pseudoharengus</i> )	Candidate	Yes
Blueback herring ( <i>Alosa aestivalis</i> )	Candidate	Yes
<b>Critical Habitat</b>		
Northwest Atlantic DPS of Loggerhead Sea Turtle	ESA (Protected)	No
North Atlantic Right Whale Critical Habitat	ESA (Protected)	No
<p><i>Notes:</i></p> <p><sup>1</sup> A strategic stock is defined under the MMPA as a marine mammal stock for which: (1) the level of direct human-caused mortality exceeds the potential biological removal level; (2) based on the best available scientific information, is declining and is likely to be listed as a threatened species under the ESA within the foreseeable future; and/or (3) is listed as a threatened or endangered species under the ESA, or is designated as depleted under the MMPA (Section 3 of the MMPA of 1972).</p> <p><sup>2</sup> Status is defined by whether the species is listed under the ESA as endangered (i.e. at risk of extinction) or threatened (i.e. at risk of endangerment), or protected under the MMPA. Marine mammals listed under the ESA are also protected under the MMPA. Candidate species are those species for which ESA listing may be warranted.</p> <p><sup>3</sup> There are 2 species of pilot whales: short finned (<i>G. melas melas</i>) and long finned (<i>G. macrorhynchus</i>). Due to the difficulties in identifying the species at sea, they are often referred to as <i>Globicephala spp.</i></p> <p><sup>4</sup> There are multiple species of beaked whales in the Northwest Atlantic. They include the cuvier's (<i>Ziphius cavirostris</i>), blainville's (<i>Mesoplodon densirostris</i>), gervais' (<i>Mesoplodon europaeus</i>), sowerbys' (<i>Mesoplodon bidens</i>), and trues' (<i>Mesoplodon mirus</i>) beaked whales. Species of <i>Mesoplodon</i> are difficult to identify at sea, therefore, much of the available characterization for beaked whales is to the genus level only.</p> <p><sup>5</sup> This includes the Western North Atlantic Offshore, Northern Migratory Coastal, and Southern Migratory Coastal Stocks of Bottlenose Dolphins.</p>		

Cusk, alewife, and blueback herring are NMFS "candidate species" under the ESA. Candidate species are those petitioned species for which NMFS has determined that listing may be warranted under the ESA and those species for which NMFS has initiated an ESA status review through an announcement in the Federal Register. If a species is proposed for listing the conference provisions under Section 7 of the ESA apply (see 50 CFR 402.10); however, candidate species receive no substantive or procedural protection under the ESA. As a result, these species will not be discussed further in this and the following sections; however, NMFS recommends that project proponents consider implementing conservation actions to limit the potential for adverse effects on candidate species from any proposed action. Additional information on cusk, alewife, and blueback herring can be found at: <http://www.nmfs.noaa.gov/pr/species/esa/candidate.htm>.

#### **6.4.1. Protected Species and Critical Habitat Not Likely to be Affected (via interactions with gear or destruction of essential features of critical habitat) by the MSB fisheries**

Based on available information, it has been determined that this action is not likely to affect (via interactions with gear or destruction of essential features of critical habitat) some ESA listed and/or marine mammal protected species or their designated critical habitat (see table above). This determination has been made because either the occurrence of the species is not known to overlap with the area primarily affected by the action and/or there have never been documented interactions between the species and the primary gear type used to prosecute the MSB fisheries (i.e., bottom otter and mid-water trawls); Waring *et al.* 2014a, 2015, 2016; Hayes *et al.* 2017; Hayes *et al.* 2018; NMFS NEFSC FSB 2015, 2016, 2017; [http://www.nefsc.noaa.gov/fsb/take\\_reports/nefop.html](http://www.nefsc.noaa.gov/fsb/take_reports/nefop.html)). In the case of critical habitat, this determination has been made because operation of the MSB fisheries will not affect the essential physical and biological features of North Atlantic right whale or loggerhead (NWA DPS) critical habitat and therefore, will not result in the destruction or adverse modification of any species critical habitat (NMFS 2014; NMFS 2015a,b).

#### **6.4.2. Protected Species Potentially Affected by the Proposed Action**

Table 17 also provides a list of protected species of sea turtle, marine mammal, and fish species present in the affected environment of the MSB fishery, and that may also be affected by the operation of this fishery; that is, have the potential to become entangled or bycaught in the fishing gear used to prosecute the fishery. To aid in the identification of MMPA protected species potentially affected by the action, the MMPA List of Fisheries and marine mammal stock assessment reports for the Atlantic Region were referenced (<http://www.nmfs.noaa.gov/pr/sars/region.htm>; <http://www.nmfs.noaa.gov/pr/interactions/fisheries/lof.html>). To aid in identifying ESA listed species potentially affected by the action, the 2013 Biological Opinion issued by NMFS on the operation of seven commercial fisheries, including the MSB FMP, and its impact on ESA listed

species was referenced (NMFS 2013) was referenced. The 2013 Opinion, which considered the best available information on ESA listed species and observed or documented ESA listed species interactions with gear types used to prosecute the 7 FMPs (e.g., gillnet, bottom trawl, and pot/trap), concluded that the seven fisheries may adversely affect, but was not likely to jeopardize the continued existence of any ESA listed species. The Opinion included an incidental take statement (ITS) authorizing the take of specific numbers of ESA listed species of sea turtles, Atlantic salmon, and Atlantic sturgeon. Reasonable and prudent measures and terms and conditions were also issued with the ITS to minimize impacts of any incidental take.

Up until recently, the 2013 Opinion remained in effect; however, new information on North Atlantic right whales has been made available that may reveal effects of the fisheries analyzed in the 2013 Opinion that may not have been previously considered. As a result, per an October 17, 2017, ESA 7(a)(2)/7(d) memo issued by NMFS, the 2013 Opinion has been reinitiated. However, the October 17, 2017, memo concludes that allowing these fisheries to continue during the reinitiation period will not increase the likelihood of interactions with ESA listed species above the amount that would otherwise occur if consultation had not been reinitiated, and therefore, the continuation of these fisheries during the reinitiation period would not be likely to jeopardize the continued existence of any ESA listed species. Until replaced, the MSB FMP is currently covered by the incidental take statement authorized in NMFS 2013 Opinion.

As the primary concern for both MMPA protected and ESA listed species is the potential for the fishery to interact (e.g., bycatch, entanglement) with these species it is necessary to consider (1) species occurrence in the affected environment of the fishery and how the fishery will overlap in time and space with this occurrence; and (2) data and observed records of protected species interaction with particular fishing gear types, in order to understand the potential risk of an interaction. Information on species occurrence in the affected environment of the MSB FMP is provided below, while information on protected species interactions with specific fishery gear is provided in section 6.4.3.

#### **6.4.2.1. Sea Turtles**

This section contains a brief summary of the occurrence and distribution of sea turtles in the affected environment of the MSB fisheries. Additional background information on the range-wide status of affected sea turtles species, as well as a description and life history of each of these species, can be found in a number of published documents, including sea turtle status reviews and biological reports (NMFS and USFWS 1995; Hirth 1997; TEWG 1998, 2000, 2007, 2009; NMFS and USFWS 2007a, 2007b; Conant et al. 2009; NMFS and USFWS 2013), and recovery plans for the loggerhead sea turtle (Northwest Atlantic DPS; NMFS and USFWS 2008), leatherback sea turtle (NMFS and USFWS 1992, 1998a), Kemp's ridley sea turtle (NMFS et al. 2011), and green sea turtle (NMFS and USFWS 1991, 1998b).

***Hard-shelled sea turtles:*** In U.S. Northwest Atlantic waters, hard-shelled turtles commonly occur throughout the continental shelf from Florida to Cape Cod, MA, although their presence

varies with the seasons due to changes in water temperature (Braun-McNeill et al. 2008; Braun & Epperly 1996; Epperly et al. 1995a,b; Mitchell et al. 2003; Shoop & Kenney 1992; TEWG 2009; Blumenthal et al. 2006; Braun-McNeill & Epperly 2004; Griffin et al. 2013; Hawkes et al. 2006; Hawkes et al. 2011; Mansfield et al. 2009; McClellan & Read 2007; Mitchell et al. 2003; Morreale & Standora 2005). As coastal water temperatures warm in the spring, loggerheads begin to migrate to inshore waters of the southeast United States and also move up the Atlantic Coast (Braun-McNeill & Epperly 2004; Epperly et al. 1995a,b,c; Griffin et al. 2013; Morreale & Standora 2005), occurring in Virginia foraging areas as early as late April and on the most northern foraging grounds in the Gulf of Maine (GOM) in June (Shoop & Kenney 1992). The trend is reversed in the fall as water temperatures cool. The majority leave the Gulf of Maine by September, but some remain in Mid-Atlantic and Northeast areas until November. By December, sea turtles have migrated south to waters offshore of North Carolina, particularly south of Cape Hatteras, and further south, although hard-shelled sea turtles can occur year-round in waters off Cape Hatteras and south (Epperly et al. 1995b; Griffin et al. 2013; Hawkes et al. 2011; Shoop & Kenney 1992).

**Leatherback sea turtles:** Leatherbacks, a pelagic species, are known to use coastal waters of the U.S. continental shelf and to have a greater tolerance for colder water than hard-shelled sea turtles (James et al. 2005; Eckert et al. 2006; Murphy et al. 2006; NMFS and USFWS 2013; Dodge et al. 2014). Leatherback sea turtles engage in routine migrations between northern temperate and tropical waters (NMFS and USFWS 1992; James et al. 2005; James et al. 2006; Dodge et al. 2014). They are found in more northern waters (i.e., Gulf of Maine) later in the year (i.e., similar time frame as hard-shelled sea turtles), with most leaving the Northwest Atlantic shelves by mid-November (James et al. 2005; James et al. 2006; Dodge et al. 2014).

#### **6.4.2.2. Large Whales**

Multiple species of whales occur in the Northwest Atlantic, with the minke whale being the only whale species potentially affected by the proposed action. In general, large whales, such as minke whales, follow an annual pattern of migration between low latitude (south of 35°N) wintering/calving grounds and high latitude spring/summer foraging grounds (primarily north of 41°N; Hayes et al. 2018; NMFS 1991, 2005, 2010b, 2011a, 2012b). This, however, is a simplification of whale movements, particularly as it relates to winter movements. It remains unknown if all individuals of a population migrate to low latitudes in the winter, although, increasing evidence suggests that for some species (e.g. right and humpback whales), some portion of the population remains in higher latitudes throughout the winter (Hayes et al. 2017; Khan et al. 2009, 2010, 2011, 2012; Brown et al. 2002; NOAA 2008; Cole et al. 2013; Clapham et al. 1993; Swingle et al. 1993; Vu et al. 2012). Although further research is needed to provide a clearer understanding of large whale movements and distribution in the winter, the distribution and movements of large whales to foraging grounds in the spring/summer is well understood. Movements of whales into higher latitudes coincide with peak productivity in these waters. As a result, the distribution of large whales in higher latitudes is strongly governed by prey availability and distribution, with large numbers of whales coinciding with dense patches of preferred forage (Mayo and Marx 1990; Kenney et al. 1986, 1995; Baumgartner et al. 2003; Baumgartner and Mate 2003; Payne et al. 1986, 1990; Brown et al. 2002; Kenney and Hartley 2001; Schilling et al. 1992). For additional information on the biology, status, and range wide distribution of whale species, such as the minke whale,

please refer to marine mammal stock assessment reports provided at: <http://www.nmfs.noaa.gov/pr/sars/region.htm>.

#### **6.4.2.3. Small Cetaceans and Pinnipeds**

Table 13 lists the small cetaceans and pinnipeds that may occur in the affected environment of the MSB fisheries. Small cetaceans can be found throughout the year in the Northwest Atlantic Ocean; however, within this range, there are seasonal shifts in species distribution and abundance. Pinnipeds are primarily found throughout the year or seasonally from New Jersey to Maine; however, increasing evidence indicates that some species (e.g., harbor seals) may be extending their range seasonally into waters as far south as Cape Hatteras, North Carolina (35°N). For additional information on the biology and range wide distribution of each species of small cetacean and pinniped considered in this section, please refer to the marine mammal stock assessment reports provided at: <http://www.nmfs.noaa.gov/pr/sars/region.htm>.

#### **6.4.2.4. Atlantic Sturgeon**

The marine range of U.S. Atlantic sturgeon extends from Labrador, Canada, to Cape Canaveral, Florida. All five DPSs of Atlantic sturgeon have the potential to be located anywhere in this marine range (ASSRT 2007; Dovel and Berggren 1983; Dadswell et al. 1984; Kynard et al. 2000; Stein et al. 2004a; Dadswell 2006; Laney et al. 2007; Dunton et al. 2010, 2015; Erickson et al. 2011; Wirgin et al. 2012; Waldman et al. 2013; O’Leary et al. 2014; Wirgin et al. 2015a,b). Based on fishery-independent and dependent data, as well as data collected from tracking and tagging studies, in the marine environment, Atlantic sturgeon appear to primarily occur inshore of the 50 meter depth contour (Stein et al. 2004 a,b; Erickson et al. 2011; Dunton et al. 2010); however, Atlantic sturgeon are not restricted to these depths, as excursions into deeper continental shelf waters have been documented (Timoshkin 1968; Collins and Smith 1997; Stein et al. 2004a,b; Dunton et al. 2010; Erickson et al. 2011). Data from fishery-independent surveys and tagging and tracking studies also indicate that Atlantic sturgeon may undertake seasonal movements along the coast (Dunton et al. 2010; Erickson et al. 2011; Wipplehauser 2012); however, there is no evidence to date that all Atlantic sturgeon make these seasonal movements and therefore, may be present throughout the marine environment throughout the year. For additional information on the biology, status, and range wide distribution of each distinct population segment (DPS) of Atlantic sturgeon please refer to 77 FR 5880 and 77 FR 5914, as well as the Atlantic Sturgeon Status Review Team’s (ASSRT) 2007 status review of Atlantic sturgeon (ASSRT 2007).

#### **6.4.2.5 Atlantic Salmon**

The wild populations of Atlantic salmon are listed as endangered under the ESA. Their freshwater range occurs in the watersheds from the Androscoggin River northward along the Maine coast to the Dennys River, while the marine range of the Gulf of Maine DPS extends from the Gulf of Maine (primarily northern portion of the Gulf of Maine) to the coast of Greenland (NMFS and USFWS 2005, 2016; Fay *et al.* 2006). In general, smolts, post-smolts, and adult Atlantic salmon may be present in the Gulf of Maine and coastal waters of Maine in the spring (beginning in April), and adults may be present throughout the summer and fall months (Baum



1997; Fay *et al.* 2006; USASAC 2004; Hyvarinen *et al.* 2006; Lacroix and McCurdy 1996; Lacroix *et al.* 2004, 2005; Reddin 1985; Reddin and Short 1991; Reddin and Friedland 1993, Sheehan *et al.* 2012; NMFS and USFWS 2005, 2016; Fay *et al.* 2006). For additional information on the on the biology, status, and range-wide distribution of the Gulf of Maine DPS of Atlantic salmon please refer to NMFS and USFWS 2005, 2016; Fay *et al.* 2006.

### **6.4.3. Gear Interactions with Protected Species**

Several protected species are vulnerable to interactions with various types of fishing gear. Interaction risks vary by gear type, quantity, and soak or tow time. Available information on gear interactions with a given protected species (or species group) is provided in the sections below. These sections are not a comprehensive review of all fishing gear types known to interact with a given species; focus is placed on interaction risks associated with bottom trawls or midwater trawls, the primary gear types used in the MSB fisheries.

#### **6.4.3.1. Gear Interactions with Sea Turtles**

##### ***Bottom Otter Trawl***

Sea turtle interactions with bottom trawl gear have been observed on Georges Bank, and in the Mid-Atlantic; however, most of the observed interactions have occurred in the Mid-Atlantic (Warden 2011a,b; Murray 2015). As no sea turtle interactions with bottom trawl gear have been observed in the Gulf of Maine, and few sea turtle interactions have been observed on Georges Bank, there is insufficient data available to conduct a robust model-based analysis on sea turtle interactions with bottom trawl gear in these regions or produce a bycatch estimate for these regions. As a result, the bycatch estimates and discussion below are for bottom trawl gear in the Mid-Atlantic.

Bottom trawl gear poses an injury and mortality risk to sea turtles, specifically due to forced submergence (Sasso and Epperly 2006). Green, Kemp's ridley, leatherback, loggerhead, and unidentified sea turtles have been documented interacting (e.g., bycaught) with bottom trawl gear. However, estimates are available only for loggerhead sea turtles. Warden (2011a,b) estimated that from 2005-2008, the average annual loggerhead interactions in bottom trawl gear in the Mid-Atlantic<sup>7</sup> was 292 (CV=0.13, 95% CI=221-369), with an additional 61 loggerheads (CV=0.17, 95% CI=41-83) interacting with trawls, but released through a Turtle Excluder Device (TED).<sup>8</sup> The 292 average annual observable loggerhead interactions equates to approximately 44 adult equivalents (Warden 2011a,b). Most recently, Murray (2015) estimated

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<sup>7</sup> Warden (2011a) defined the Mid-Atlantic as south of Cape Cod, Massachusetts, to approximately the North Carolina/South Carolina border.

<sup>8</sup> TEDs allow sea turtles to escape the trawl net, reducing injury and mortality resulting from capture in the net. Approved TEDs are required in the shrimp and summer trawl fishery. For further information on TEDs see 50 CFR 223.206 and 68 FR 8456 (February 21, 2003).

that from 2009-2013, the total average annual loggerhead interactions in bottom trawl gear in the Mid-Atlantic<sup>9</sup> was 231 (CV=0.13, 95% CI=182-298); this equates to approximately 33 adult equivalents (Murray 2015). Bycatch estimates provided in Warden (2011a) and Murray (2015) are a decrease from the average annual loggerhead bycatch in bottom otter trawls during 1996-2004, which Murray (2008) estimated at 616 sea turtles (CV=0.23, 95% CI over the nine-year period: 367-890). This decrease is likely due to decreased fishing effort in high-interaction areas (Warden 2011a, b).

#### Mid-Water Trawl

NEFOP and ASM observer data from 1989 to 2015 show five leatherback sea turtle interactions with mid-water trawl gear; the primary species landed during these interactions was tuna (NMFS NEFSC FSB 2015, 2016, 2017). These takes were in the early 1990s in an experimental HMS fishery that no longer operates. No takes have been documented in other mid-water trawl fisheries operating in the Greater Atlantic Region. Based on this and the best available information, sea turtle interactions in mid-water trawl gear in the Greater Atlantic Region are expected to be rare.

### **6.4.3.2. Gear Interactions with Atlantic Sturgeon**

#### Bottom Otter Trawl

Atlantic sturgeon interactions (i.e., bycatch) with bottom trawl gear have been observed since 1989; these interactions have the potential to result in the injury or mortality of Atlantic sturgeon (NMFS NEFSC FSB 2015, 2016, 2017). Three documents, covering three time periods, that use data collected by the Northeast Fisheries Observer Program to describe bycatch of Atlantic sturgeon in bottom trawl gear: Stein et al. (2004b) for 1989-2000; ASMFC (2007b) for 2001-2006; and Miller and Shepard (2011) for 2006-2010; none of these documents provide estimates of Atlantic sturgeon bycatch by Distinct Population Segment. Miller and Shepard (2011), the most recent of the three documents, analyzed fishery observer data and VTR data in order to estimate the average annual number of Atlantic sturgeon interactions in otter trawl in the Northeast Atlantic that occurred from 2006 to 2010. This timeframe included the most recent, complete data and as a result, Miller and Shepard (2011) is considered to represent the most accurate predictor of annual Atlantic sturgeon interactions in the Northeast bottom trawl fisheries (NMFS 2013).

Based on the findings of Miller and Shepard (2011), NMFS (2013) estimated that the annual bycatch of Atlantic sturgeon in bottom trawl gear to be 1,342 sturgeon. Miller and Shepard (2011) reported observed Atlantic sturgeon interactions in trawl gear with small (< 5.5 inches)

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<sup>9</sup> Murray 2015b defined the Mid-Atlantic as the boundaries of the Mid-Atlantic Ecological Production; roughly waters west of 71°W to the North Carolina/South Carolina border)

and large ( $\geq 5.5$  inches) mesh sizes and concluded that, based on NEFOP observed sturgeon mortalities, relative to gillnet gear, bottom trawl gear posed less risk of mortality to Atlantic sturgeon. Estimated mortality rates in gillnet gear were 20.0%, while those in otter trawl gear were 5.0% (Miller and Shepard 2011; NMFS 2013). Similar conclusions were reached in Stein *et al.* (2004b) and ASMFC (2007b) reports; after review of observer data from 1989-2000 and 2001-2006, both studies concluded that observed mortality is much higher in gillnet gear than in trawl gear. However, an important consideration to these findings is that observed mortality is considered a minimum of what actually occurs and therefore, the conclusions reached by Stein *et al.* (2004b), ASMFC (2007b), and Miller and Shepard (2011) are not reflective of the total mortality associated with either gear type. To date, total Atlantic sturgeon mortality associated with gillnet or trawl gear remains uncertain.

#### Mid-Water Trawl

To date, there have been no observed/documentated interactions with Atlantic sturgeon in mid-water trawl gear (NMFS NEFSC FSB 2015, 2016, 2017). Based on this information, mid-water trawl gear is not expected to pose an interaction risk to any Atlantic sturgeon and therefore, is not expected to be source of injury or mortality to this species.

### **6.4.3.3. Gear Interaction with Atlantic Salmon**

#### Bottom Otter Trawl

Atlantic salmon interactions (i.e., bycatch) with bottom trawl have been observed since 1989; in many instances, these interactions have resulted in the injury and mortality of Atlantic salmon (NMFS NEFSC FSB 2015, 2016, 2017). According to the Biological Opinion issued by NMFS Greater Atlantic Regional Fisheries Office on December 16, 2013, NMFS Northeast Fisheries Science Center's (NEFSC) Northeast Fisheries Observer and At-Sea Monitoring Programs documented a total of 15 individual salmon incidentally caught on more than 60,000 observed commercial fishing trips from 1989 through August 2013 (NMFS 2013; Kocik *et al.* 2014); of those 15 salmon, four were observed caught in bottom trawl gear (Kocik (NEFSC), pers. comm (February 11, 2013) in NMFS 2013). The genetic identity of these captured salmon is unknown; however, the NMFS 2013 Biological Opinion considers all 15 fish to be part of the Gulf of Maine Distinct Population Segment, although some may have originated from the Connecticut River restocking program (i.e., those caught south of Cape Cod, Massachusetts). Since 2013, no additional Atlantic salmon have been observed in bottom trawl gear (NMFS NEFSC FSB 2015, 2016, 2017). Based on the above information, bottom trawl interactions with Atlantic salmon are likely rare (NMFS 2013; Kocik *et al.* 2014).

### Mid-Water Trawl

To date, there have been no observed/documentated interactions with Atlantic salmon and mid-water trawl gear (NMFS NEFSC FSB 2015, 2016, 2017). Based on this information, mid-water trawls or purse seines are not expected to pose an interaction risk to any Atlantic salmon and therefore, are not expected to be source of injury or mortality to this species.

#### **6.4.3.4. Gear Interactions with Marine Mammals**

Depending on species, marine mammal interactions have been observed in bottom trawl, purse seine, and/or mid-water trawl gear. Pursuant to the MMPA, NMFS publishes a List of Fisheries (LOF) annually, classifying U.S. commercial fisheries into one of three categories based on the relative frequency of incidental serious injuries and/or mortalities of marine mammals in each fishery (i.e., Category I=frequent; Category II=occasional; Category III=remote likelihood or no known interactions). In the Northwest Atlantic, the 2018 LOF (83 FR 5349 (February 7, 2018)) categorizes the commercial MSB fisheries, which are primarily prosecuted with bottom and mid-water trawl gears, as a Category II bottom trawl (Northeast and Mid-Atlantic) or Category II mid-water (Northeast and Mid-Atlantic) fishery.

#### **Large Whales**

##### Bottom Otter and Mid-Water Trawls

With the exception of one species, there have been no observed interactions with large whales and trawl (bottom or mid-water) gear. The one exception is minke whales, which have been observed seriously injured and killed in both types of trawl gear. Over the past 10 years, there have been two (2) observed minke whales incidentally taken in mid-water trawl gear. These occurred in 2009 and 2013, with the 2009 incident resulting from entanglement in NOAA research mid-water trawl gear (whale released alive, but seriously injured), and the 2013 incident resulting from entanglement in a Northeast mid-water trawl (including pair trawl) fishery (whale was dead, moderately decomposed) (see [http://www.nefsc.noaa.gov/fsb/take\\_reports/nefop.html](http://www.nefsc.noaa.gov/fsb/take_reports/nefop.html); Waring *et al.* 2016; Henry *et al.* 2015). Based on the latter incident, as provided in Waring *et al.* (2016), the estimated annual average minke whale mortality and serious injury from the Northeast mid-water trawl (including pair trawl) fishery from 2009 to 2013 is 0.2. Most recently, Hayes *et al.* (2018) estimated the annual average minke whale mortality and serious injury from the Northeast mid-water trawl (including pair trawl) fishery from 2011 to 2015 to be zero.

In bottom trawl gear, to date, interactions have only been observed in the northeast bottom trawl fisheries. From the period of 2008-2012, the estimated annual mortality attributed to this fishery was 7.8 minke whales for 2008 and zero minke whales from 2009-2012; no serious injuries were reported during this time (Waring *et al.* 2015). Based on this information, from 2008-2012, the estimated annual average minke whale mortality and serious injury attributed to the northeast bottom trawl fishery was 1.6 (CV=0.69) whales (Waring *et al.* 2015). Lyssikatos (2015) estimated that from 2008-2013, mean annual serious injuries and mortalities from the northeast bottom trawl fishery were 1.40 (CV=0.58) minke whales. Serious injury and mortality records

for minke whales in U.S. waters from 2010-2015 showed zero interactions with bottom trawl (northeast or Mid-Atlantic) gear (Henry et al. 2016; Hayes et al. 2017; Hayes et al. 2018). Based on above information, trawl gear is likely to pose a low interaction risk to any large whale species. Should an interaction occur, serious injury or mortality to any large whale is possible; however, relative to other gear types, such as fixed gear, trawl gear represents a low source serious injury or mortality to any large whale (Henry et al. 2016; Hayes et al. 2017; Hayes et al. 2018).

## Small Cetaceans and Pinnipeds

### Bottom and Mid-Water Trawl Gear

Small cetaceans and pinnipeds are vulnerable to interactions with bottom and/or mid-water trawl gear (Read et al. 2006; Lyssikatos 2015; Chavez-Rosales et al. 2017; Waring et al. 2014a; Waring et al. 2015; Waring et al. 2016; Hayes et al. 2017; Hayes et al. 2018; 83 FR 5349 (February 7, 2018)). Based on the most recent Marine Mammal List of Fisheries (LOF) issued on February 7, 2018 (83 FR 5349 ), Table 18 provides a list of species that have been observed (incidentally) seriously injured and/or killed by List of Fisheries Category II trawl fisheries that operate in the affected environment of the MSB fisheries (83 FR 5349 (February 7, 2018)).

Table 18. Small cetacean and pinniped species observed seriously injured and/or killed by Category II trawl fisheries in the affected environment of the MSB fisheries.

Fishery	Category	Species Observed or reported Injured/Killed
Mid-Atlantic Mid-Water trawl (including pair trawl)	II	Gray seal
		Harbor seal
Northeast Midwater Trawl- Including Pair Trawl	II	Short-beaked common dolphin
		Long-finned pilot whales
		Gray seal
		Harbor seal
Northeast Bottom Trawl	II	Harp seal
		Harbor seal
		Gray seal
		Long-finned pilot whales
		Short-beaked common dolphin
		White-sided dolphin
		Harbor porpoise
		Bottlenose dolphin (offshore)
Risso's dolphin		
Mid-Atlantic Bottom Trawl	II	White-sided dolphin
		Short-beaked common dolphin
		Risso's dolphin
		Bottlenose dolphin (offshore)
		Gray seal
		Harbor seal
<i>Sources: MMPA LOF 83 FR 5349 (February 7, 2018).</i>		

In 2006, based on observed mid-water trawl interactions with long-finned pilot whales, short-finned pilot whales, common dolphins, and white sided dolphins, the Atlantic Trawl Gear Take Reduction Team (ATGTRT) was convened to address the incidental mortality and serious injury of these species incidental to bottom and mid-water trawl fisheries operating in both the New England and Mid-Atlantic regions. Because none of the marine mammal stocks of concern to the ATGTRT are classified as a “strategic stock”, nor do they currently interact with a Category I fishery,<sup>10</sup> it was determined that development of a take reduction plan was not necessary. In lieu of a take reduction plan, the ATGTRT agreed to develop an Atlantic Trawl Gear Take Reduction Strategy (ATGTRS). The ATGTRS identifies informational and research tasks, as well as education and outreach needs the ATGTRT believes are necessary to provide the basis for decreasing mortalities and serious injuries of marine mammals to insignificant levels approaching zero. The ATGTRS also identifies several voluntary measures that can be adopted by certain trawl fishing sectors to potentially reduce the incidental capture of marine mammals.<sup>11</sup>

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<sup>10</sup> Category I fisheries have frequent incidental mortality and serious injury of marine mammals.

<sup>11</sup> For additional details on the ATGTRS, visit: <http://www.greateratlantic.fisheries.noaa.gov/Protected/mmp/atgtrp/>

## 7.0 Biological and Human Community Impacts

The alternatives considered are fully described in section 5. A descriptive label is included for each alternative below when considering impacts.

For habitat, protected resource, and non-target species impacts, the key determinant is not so much the catch itself but the amount and character of the related effort. A decrease in effort may result in positive impacts (+) as a result of fewer encounters and/or fewer habitat impacts from fishing gear, while an increase in effort may result in a negative impact (-). Similar effort likely results in neutral impacts (0). The table immediately below illustrates that the availability of the target species can drive effort as much as any quota change, and as effort changes so would impacts on habitat, protected resources, and non-target species. This is noted for the habitat, protected resource, and non-target species sections since the MSB fisheries often experience large swings in availability and therefore effort, independent of any regulatory changes. Since limits on catch do cap effort, catch limits are a factor related to effort and impacts but many other factors are at least somewhat beyond the control of the Council (such as fish abundance, availability of other opportunities, weather, climate, fish movements/ availability, variable productivity, etc.).

The final EA will generally analyze impacts on each valued ecosystem component alternative by alternative, but this draft version provides general directional impact information.

National Oceanic and Atmospheric Administration Administrative Order 216-6A and the Companion Manual contains criteria for determining the significance of the impacts of a proposed action and it includes the possibility of introducing or spreading a nonindigenous species. This potential impact does not fit into the sections below so it is addressed in this introduction. There is no evidence or indication that these fisheries have ever resulted or would ever result in the introduction or spread of nonindigenous species.

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Table 19. Changes in effort as a result of adjustments to quota and/or fish availability.

Change in quota	Fish abundance/availability		
	Decrease in availability	No change in availability	Increase in availability
<b>Decrease in quota</b>	<u>Fishing effort may decrease, increase, or stay the same depending on a combination of factors<sup>12</sup>.</u>	<u>Effort likely to decrease or stay the same.</u> If per trip catch stays the same, the fishery will be closed earlier with fewer trips taken (reducing effort). However managers may reduce trip limits or adjust regulations that extend the fishing season (keeping effort the same).	<u>Effort likely to decrease or stay the same.</u> A lower quota plus higher catch per unit of effort (CPUE) from higher availability should decrease effort. However, managers may reduce trip limits or adjust regulations that extend the fishing season which may keep effort relatively even.
<b>No change in quota</b>	<u>Effort may increase or decrease.</u> While the quota has not changed, fishermen may try to take more trips to catch the same amount of fish (increasing effort) or may stop targeting a stock of fish if availability is low enough to decrease profitability (decreasing effort).	Fishing effort may remain the same given the quota has not changed and availability is expected to be similar.	<u>Effort should decrease.</u> While the quota has not changed, fishermen should be able to take fewer trips to catch the same amount of fish (decreasing effort).
<b>Increase in quota</b>	<u>Fishing effort likely to increase or stay the same.</u> A higher quota plus lower catch per unit of effort from lower availability should increase effort. However, managers may increase trip limits or adjust regulations to allow more efficient fishing (keeping effort the same).	<u>Effort likely to increase or stay the same.</u> If per trip catch stays the same, the fishery will be closed later with more trips taken (increasing effort). However managers may increase trip limits or adjust regulations to allow more efficient fishing (keeping effort the same).	<u>Fishing effort may decrease, increase, or stay the same depending on a combination of factors.</u>

<sup>12</sup> Factors affecting fishing effort include other species abundance, availability of other opportunities, weather, climate, fish movements/availability, variable productivity, and market forces/price changes.



Environmental impacts are described both in terms of their direction (negative, positive, or no impact) and their magnitude (slight, moderate, or high). The table below summarizes the guidelines used for each VEC to determine the magnitude and direction of the impacts described in this section.

Table 20. General definitions for impacts and qualifiers relative to resource condition (i.e., baselines)

General Definitions				
VEC	Resource Condition	Impact of Action		
		Positive (+)	Negative (-)	No Impact (0)
Target and non-target Species	Overfished status defined by the MSA	Alternatives that maintain or are projected to result in a stock status above an overfished condition*	Alternatives that maintain or are projected to result in a stock status below an overfished condition*	Alternatives that do not impact stock / populations
ESA-listed protected species (endangered or threatened)	Populations at risk of extinction (endangered) or endangerment (threatened)	Alternatives that contain specific measures to ensure no interactions with protected species (i.e., no take)	Alternatives that result in interactions/take of listed species, including actions that reduce interactions	Alternatives that do not impact ESA listed species
MMPA protected species (not also ESA listed)	Stock health may vary but populations remain impacted	Alternatives that maintain takes below PBR and approaching the Zero Mortality Rate Goal	Alternatives that result in interactions with/take of marine mammals that could result in takes above PBR	Alternatives that do not impact MMPA protected species
Physical environment / habitat / EFH	Many habitats degraded from historical effort and slow recovery time (see condition of the resources table)	Alternatives that improve the quality or quantity of habitat or allow for recovery	Alternatives that degrade the quality/quantity or increase disturbance of habitat	Alternatives that do not impact habitat quality
Human communities (socioeconomic)	Highly variable but generally stable in recent years (see condition of the resources table for details)	Alternatives that increase revenue and social well-being of fishermen and/or communities	Alternatives that decrease revenue and social well-being of fishermen and/or communities	Alternatives that do not impact revenue and social well-being of fishermen and/or communities
Impact Qualifiers				
A range of impact qualifiers is used to indicate any existing uncertainty	Negligible		To such a small degree to be indistinguishable from no impact	
	Slight (sl), as in slight positive or slight negative		To a lesser degree / minor	
	Moderate (M) positive or negative		To an average degree (i.e., more than "slight", but not "high")	
	High (H), as in high positive or high negative		To a substantial degree (not significant unless stated)	
	Significant (in the case of an EIS)		Affecting the resource condition to a great degree, see 40 CFR 1508.27.	
	Likely		Some degree of uncertainty associated with the impact	
*Actions that will substantially increase or decrease stock size, but do not change a stock status may have different impacts depending on the particular action and stock. Meaningful differences between alternatives may be illustrated by using another resource attribute aside from the MSA status, but this must be justified within the impact analysis.				

The table below summarizes the baseline conditions of the VECs considered in this action, as described in Section 6.

Table 21. Summary Baseline conditions of VECs considered in this action

VEC		Baseline Condition	
		Status/Trends, Overfishing?	Status/Trends, Overfished?
<b>Target stocks (section 6.1)</b>	<b>Atl. mackerel</b>	Yes through 2016, projected to be below overfishing threshold in 2017 and beyond.	Yes in 2016. Projected to be above overfished threshold in 2018 and beyond. A rebuilding program is being developed.
	<b>Butterfish</b>	No	No
	<b>Longfin Squid</b>	Unknown, believed lightly exploited.	No
	<b><i>Illex</i> Squid</b>	Unknown	Unknown, NEFSC fall bottom trawl surveys are highly variable and without trend
<b>Non-target species (principal species listed in section 6.1)</b>	silver hake	no	no
	spiny dogfish	no	no
	alewife	Unknown	depleted
	blueback herring	Unknown	depleted
	American shad	Unknown	depleted
	haddock	no	no
	red hake	yes	yes
	winter (big) skate	no	no
john dory buckler	Unknown	Unknown	
<b>Habitat (section 6.2)</b>		Commercial fishing impacts are complex and variable and typically adverse; Recreational fishing impacts are typically minimal. Non-fishing activities had historically negative but site-specific effects on habitat quality.	
<b>Protected resources (section 6.4)</b>	<b>Sea turtles</b>	Leatherback and Kemp’s ridley sea turtles are classified as endangered under the ESA; loggerhead (NW Atlantic DPS) and green (North Atlantic DPS) sea turtles are classified as threatened.	
	<b>Fish</b>	Atlantic salmon, shortnose sturgeon, and the New York Bight, Chesapeake, Carolina, and South Atlantic DPSs of Atlantic sturgeon are classified as endangered under the ESA; the Atlantic sturgeon Gulf of Maine DPS is listed as threatened; cusk, alewife, and blueback herring are candidate species	
	<b>Large whales</b>	All large whales in the Northwest Atlantic are protected under the MMPA. North Atlantic right, fin, blue, sei, and sperm whales are also listed as endangered under the ESA. Pursuant to section 118 of the MMPA, the Large Whale Take Reduction Plan was implemented to reduce humpback, North Atlantic right, and fin	

		whale entanglement in vertical lines associated with fixed fishing gear (sink gillnet and trap/pot) and sinking groundlines.
	<b>Small cetaceans</b>	Pilot whales, dolphins, and harbor porpoise are all protected under the MMPA. Pursuant to section 118 of the MMPA, the HPTRP and BDTRP was implemented to reduce bycatch of harbor porpoise and bottlenose dolphin stocks, respectively, in gillnet gear.
	<b>Pinnipeds</b>	Gray, harbor, hooded, and harp seals are protected under the MMPA.
<b>Human communities (section 6.3)</b>		The MSB stocks support substantial fisheries and related support services.

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## 7.1 Managed Resources

### 7.1.1 Impacts on Mackerel

Current resource condition: mackerel are overfished with overfishing occurring in 2016. Any of the proposed alternatives or alternative combinations (including no action) are projected to rebuild mackerel in 7 years or less. As such, they should all have a positive impact on the mackerel stock. Alternatives that result in lower catches and therefore lower fishing mortality will have a faster positive impact (1a fastest, 1d slowest in order). While it may seem unusual that catches can increase initially during the rebuilding period, there is also the context that catch limits (or their historical equivalent) had already been reduced 82% from 1997-2009 and then an additional 91% from 2009-2016, for a total reduction of more than 98% from 1997 until now. The typical 2014 recruitment and good 2015 recruitment in the recent benchmark assessment drive the rebuilding projections and allow the catch increases from the already substantially lowered catch limits. Typical, i.e. near median, recruitment in future years is also assumed. As is normal for terminal years in an assessment, recruitment estimates in the last couple of years are generally the most uncertain (but no consistent retrospective trends are apparent). The resulting stock size under all options is very similar after three years, i.e. all are more than 90% of the SSBmsyproxy target.

#### Alternative Set 1- Rebuilding

1a. No specific projections were run for the no-action alternative, but since 1a has the lowest ABCs it would be expected to lead to the fastest increases in the mackerel stock and rebuild it within 3 years.

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1b. The projection methodology reviewed and approved during the most recent mackerel benchmark assessment indicates 1b should rebuild the mackerel stock in three years, i.e. the stock would be slightly above 100% of the SSBmsyproxy target in three years. The figure below shows the rebuilding trajectory for 1b over 2019-2021.

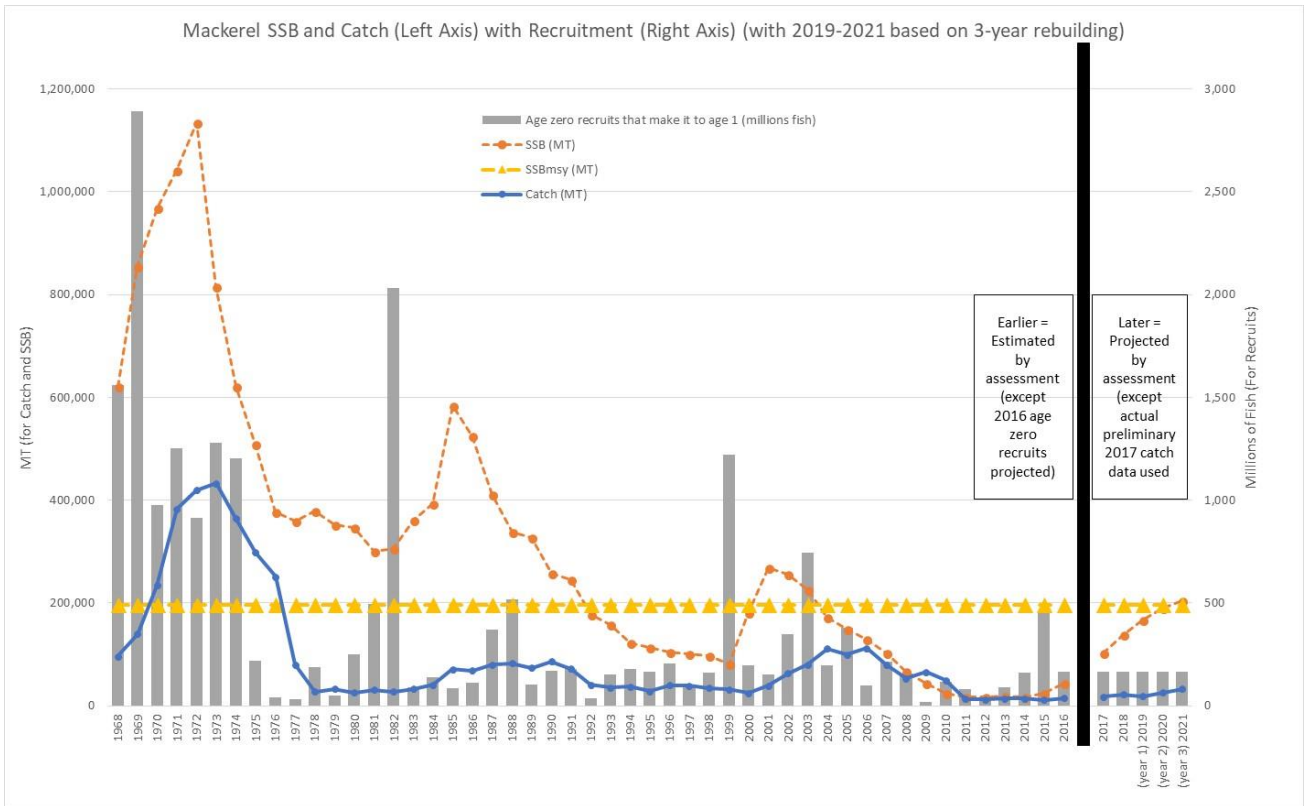


Figure 10. Mackerel SSB and catch including 2019-2021 projections under 1b (3-year rebuilding)

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1c. The projection methodology reviewed and approved during the most recent mackerel benchmark assessment indicates 1c should rebuild the mackerel stock in five years, i.e. the stock would be slightly above 100% of the SSBmsyproxy target in five years. In three years it would be at 94% of the SSBmsyproxy target. The figure below shows the rebuilding trajectory for 1c over 2019-2021. If the Council caps 2021 catch at 33,474 MT then catch would be slightly lower in 2021 and biomass very slightly higher. From 2022-2023 biomass would continue to increase slightly up to the SSBmsyproxy target under a 5-year rebuilding plan.

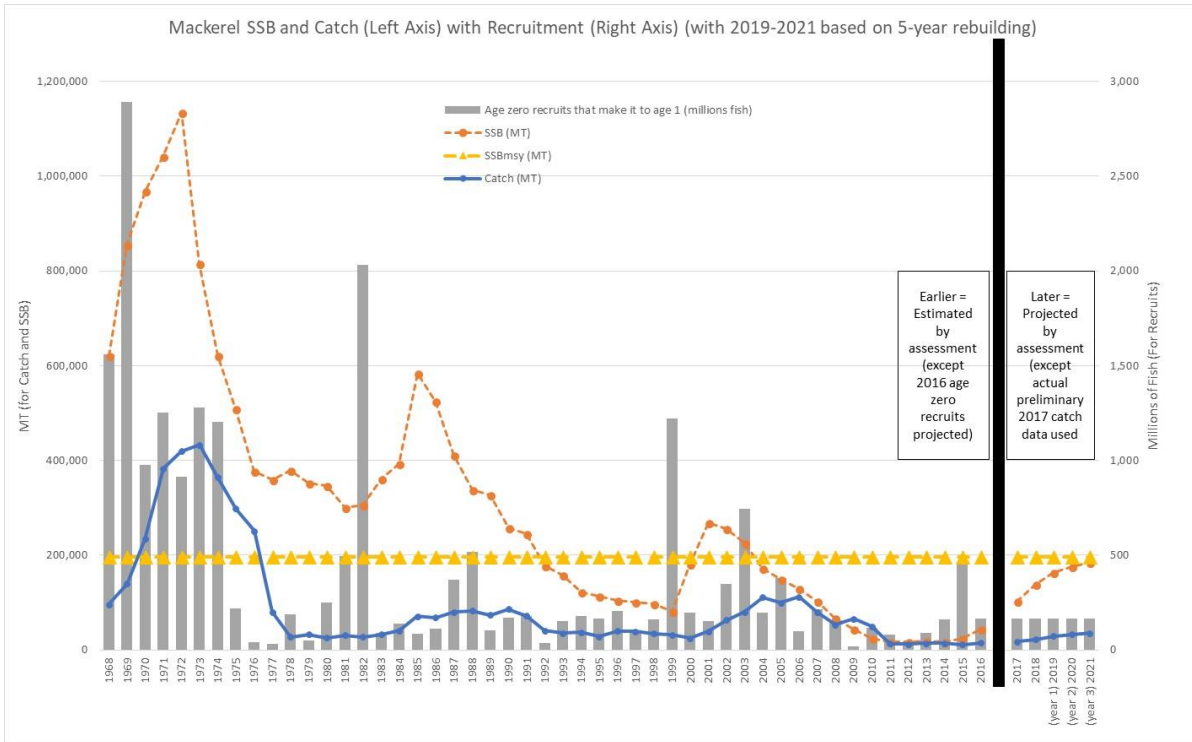


Figure 11. Mackerel SSB and catch including 2019-2021 projections under 1c (5-year rebuilding)

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1d. The projection methodology reviewed and approved during the most recent mackerel benchmark assessment indicates 1d should rebuild the mackerel stock in seven years, i.e. the stock would be slightly above 100% of the SSBmsyproxy target in seven years. In three years it would be at 92% of the SSBmsyproxy target. The figure below shows the rebuilding trajectory for 1d over 2019-2021. If the Council caps 2020 and 2021 catch at 33,474 MT then catch would be slightly lower in 2020 and 2021 and biomass very slightly higher. From 2022-2025 biomass would continue to increase slightly up to the SSBmsyproxy target under a 7-year rebuilding plan.

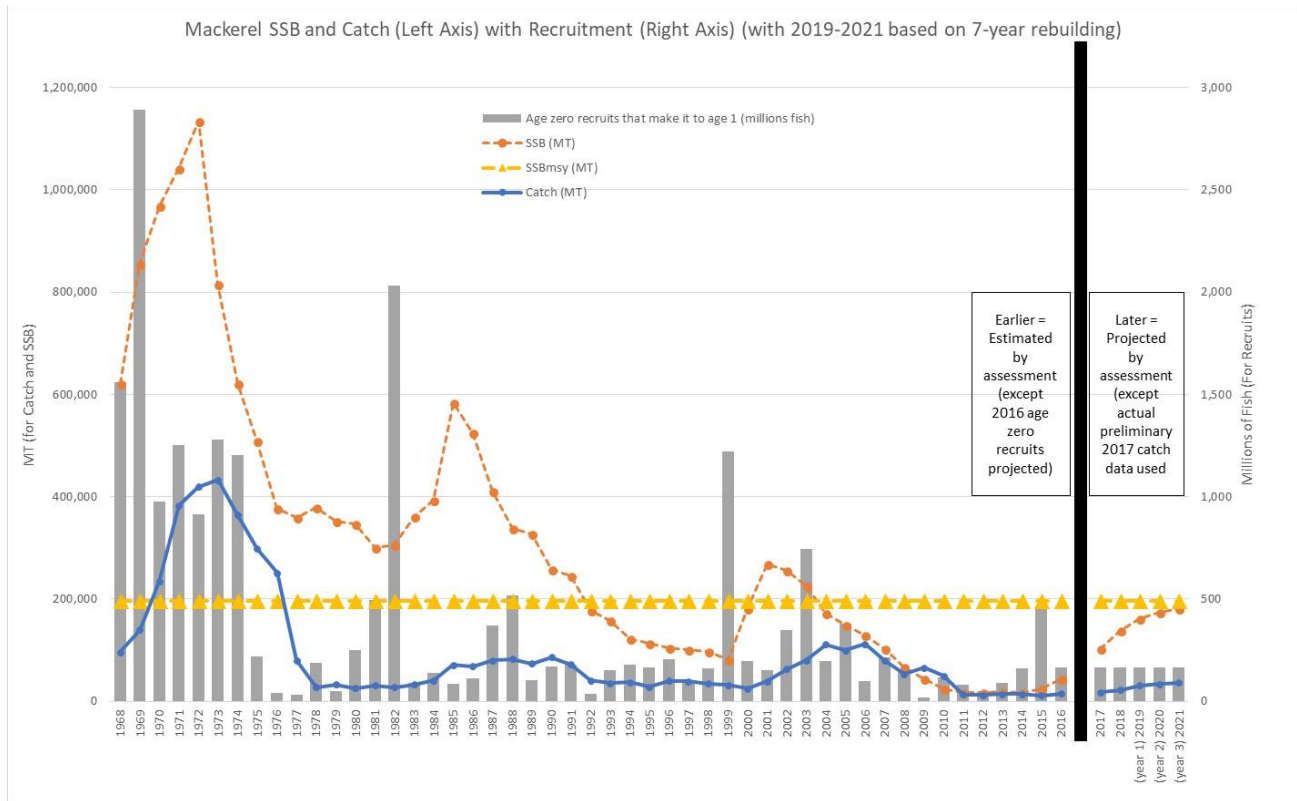


Figure 12. Mackerel SSB and catch including 2019-2021 projections under 1d (7-year rebuilding)

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## Alternative Set 2- Closure Alternatives

The action closure alternatives should provide for efficient operation of the fishery. All of the closure options should result in roughly the same outcome – most of the DAH will be caught without a high risk of exceeding the ACL. Larger buffers will reduce the risk of exceeding ACLs, but there may not be ACL overages with any of the options.

## Alternative Set 3- RH/S Cap

If the RH/S cap closes the fishery, the stock may rebuild faster than anticipated. Lower caps may therefore slightly benefit the mackerel stock since it should rebuild within 7 years at most even without any closures due to the cap.

### 7.1.2 Impacts on Butterfish

Current resource condition: butterfish are not overfished (141% of target biomass in 2016), overfishing is not occurring, and catches are limited to maintain a sustainable fishery. Recent projections suggest a short-term decline (but not to an overfished condition). Butterfish are relatively short-lived and recruitment is variable so substantial year to year populations changes are expected. In general, the Council will seek management that achieves OY, which should be sustainable and maintain the butterfish stock at a non-overfished level. None of the alternatives in this action should affect butterfish catches, which are separately and directly controlled. As such, existing management measures will ensure that catch stays at or below the ABC, maintaining stock size above an overfished condition. While there is some butterfish catch in mackerel fishing, the levels of catch are not substantial enough relative to the butterfish ABC to impact the butterfish stock.

### 7.1.3 Impacts on Longfin Squid

Current resource condition: longfin squid are not overfished (174% of target biomass in 2016). Overfishing status is unknown but likely low according to the most recent assessment, and catches are limited to maintain a sustainable fishery. In general, the Council will seek management that achieves OY, which should be sustainable and maintain the longfin squid stock at a non-overfished level. None of the alternatives in this action should affect longfin squid catches, which are separately and directly controlled. As such, existing management measures will ensure that catch stays at or below the ABC, maintaining stock size above an overfished condition. While there is some longfin squid catch in mackerel fishing, the levels of catch are not substantial enough relative to the longfin squid ABC to impact the longfin squid stock.

### 7.1.4 Impacts on *Illex* Squid

Current resource condition: while there is no assessment for *Illex* squid, catches have been limited to an amount deemed sustainable by the SSC based on the best available scientific information. In general, the Council will seek management that achieves OY, which should be sustainable and maintain the *Illex* squid stock at a non-overfished level. None of the alternatives in this action should affect *Illex* squid catches, which are separately and directly controlled. As such, existing management measures will ensure that catch stays at or below the ABC, maintaining stock size above an overfished condition.



## 7.2 Habitat

As discussed at the start of Section 7, the availability of the targeted species may drive effort (and habitat impacts) as much as quotas and other regulations. Impacts on the habitat for the managed species (7.2.1) and other species (7.2.2) are addressed separately. The word “habitat” encompasses essential fish habitat (EFH) for the purposes of this analysis. The Council has already minimized to the extent practicable impacts to habitat from the MSB fisheries through closure of several canyon areas in MSB Amendment 9 (<http://www.mafmc.org/fmp/history/smb-hist.htm>) and Tilefish Amendment 1 (<http://www.mafmc.org/fmp/history/tilefish.htm>), and protections for Deep Sea Corals via Amendment 16 (<http://www.mafmc.org/fmp/history/smb-hist.htm>). As an overall current resource condition, many habitats in the area of operation of the MSB fisheries are degraded from historical fishing effort (both MSB and other) and from non-fishing activities (Stevenson et al. 2004). Ongoing fishing, and ongoing and new non-fishing activities may also hinder recovery.

### 7.2.1 Impacts on Managed Species Habitat

As described in Section 6.2, most MSB fishing takes place with bottom otter trawling on sand/mud substrate or with mid-water trawl for mackerel. Potential impacts of the alternatives on MSB EFH are discussed below, followed by discussion of impacts on other federally managed species habitat.

Habitat for the managed species (MSB) generally consists of the water column, which is not significantly impacted by fishing activity. The exception to the habitat location being the water column is longfin squid eggs, which are attached to sand, mud, or bottom structure (manmade or natural). However, as determined in Amendment 9, there is no indication that squid eggs are preferentially attached to substrates that are vulnerable to disturbance from fishing/bottom trawling, so no impacts on habitat for longfin squid eggs are expected from any increase or decrease in fishing effort by bottom trawls. Bottom trawling or mid-water trawling won't impact the water column itself and there is no information to suggest that MSB bottom trawling impacts on substrate will degrade it for purposes of longfin squid egg laying or survival.

### 7.2.2 Impacts on Other Federally Managed Species Habitat

The in-season management alternatives and RH/S cap alternatives are unlikely to directly increase fishing effort or the nature of that effort. Most rebuilding plan/specifications alternatives allow an increase in mackerel landings/effort, though even the largest increase is moderate in the context of historical quotas that were much higher and overall fishing effort in the region.

Mid-water trawling and auto-jigging should not impact habitat. Expanded quota/opportunities for mackerel could lead to a moderate increase in bottom trawling activity for mackerel. However, existing restrictions on trawling in sensitive areas (e.g. New-England EFH restrictions, Tilefish and deep-water coral closures) would remain in place. All of the higher quotas are also substantially lower than historical quotas. Also, most MSB fishing with bottom-trawl gear takes place on sand/mud substrate with limited vulnerable hard bottom to avoid net damage. These areas are also subject to bottom trawl fishing already from other fisheries. Taking these factors into consideration, the limited increase in bottom trawling that could result from any options that increase quotas should not have adverse effects on habitat that are more than minimal and/or temporary in nature.

## 7.3 Protected Resources

### 7.3.1 Introduction

Current resource condition: Affected endangered species and marine mammals (MMPA protected) are described in Section 6.4. How the current MSB fisheries impact these species can be considered as if the no action alternatives were selected for all alternatives (because no action will continue the current regulations) and is further described below. The impacts on protected resources may vary between ESA-listed and MMPA-protected species. For ESA-listed species, any action that has the risk to result in take (including ongoing take) of ESA-listed species is expected to have negative impacts, including actions that reduce interactions (because some take is still occurring and the population is at a critical level). Under the MMPA, the impacts from an action vary based on the stock condition of each marine mammal species and the potential for an action to impact fishing effort. For marine mammal stocks/species that have their potential biological removal (PBR) level reached or exceeded, negative impacts would be expected from any action that has the potential to interact with these species or stocks. For marine mammal stocks/species that are at more sustainable levels (i.e., PBR levels have not been exceeded), any action not expected to change fishing behavior or effort such that interaction risks increase relative to what has been in the fishery previously, may have positive impacts by maintaining takes below the PBR level and approaching the Zero Mortality Rate Goal. Taking the latter into consideration, the overall impacts on the protected resources VEC account for impacts on ESA-listed species, impacts on marine mammal stocks in good condition (i.e., PBR level has not been exceeded), and marine mammal stocks that have reached or exceeded their PBR level.

For no-action and similar to Section 6.4, impacts reference both bottom and mid-water trawl gear since Atlantic mackerel are targeted with both bottom and mid-water trawl gear.

### 7.3.1 General No-Action Impacts

#### *General No-action: MMPA (Non-ESA Listed) Species Impacts*

The MSB FMP fisheries do overlap with the distribution of non-ESA listed species of marine mammals (cetaceans and pinnipeds). As a result, marine mammal (non-ESA listed species) interactions with bottom or mid-water trawl gear are possible (see section 6.4); however, ascertaining the risk of an interaction and the resultant potential impacts of the No Action on cetaceans and pinnipeds (marine mammals) are difficult and somewhat uncertain, as quantitative analysis has not been performed.

However, we have considered, to the best of our ability, the most recent (2010-2014) information on marine mammal interactions with commercial fisheries, of which, the MSB FMP is a component (Hayes *et al.* 2017). Aside from pilot whales and several stocks of bottlenose dolphin, there has been no indication that takes of non-ESA listed species of marine mammals in commercial fisheries has gone above and beyond levels which would result in the inability of each species population to sustain itself (Hayes *et al.* 2017). Specifically, aside from pilot whales and several stocks of bottlenose dolphin, potential biological removal (PBR) has not been exceeded for any of the non-ESA listed marine mammal species identified in section 6.4 (Hayes *et al.* 2017). Although pilot whales and several stocks of bottlenose dolphin have experienced levels of take that have resulted in the exceedance of each species PBR, take reduction strategies and/or plans have been implemented to reduce bycatch in the fisheries affecting these species (Atlantic Trawl Gear Take Reduction Strategy,

Pelagic Longline Take Reduction Plan effective May 19, 2009 (74 FR 23349); Bottlenose Dolphin Take Reduction Plan (BDTRP), effective April 26, 2006 (71 FR 24776)). These efforts are still in place and are continuing to assist in decreasing bycatch levels for these species. Although the most recent five years of information presented in Hayes et al. (2017) is a collective representation of commercial fisheries interactions with non-ESA listed species of marine mammals, and does not address the effects of the MSB FMP specifically, the information does demonstrate that thus far, operation of the MSB FMP, or any other fishery, has not resulted in a collective level of take that threatens the continued existence of non-ESA listed marine mammal populations.

Taking into consideration the above information, and the fact that there are non-listed marine mammal stocks/species whose populations may or may not be at optimum sustainable levels, impacts of the No Action on non-ESA listed species of marine mammals are likely to range from low negative to slight positive. Impacts would be low negative for pilot whales and bottlenose dolphin because they are experiencing levels of interactions that have resulted in exceedance of their PBR levels. These stocks/populations are not at an optimum sustainable level and therefore, the continued existence of these stocks/species is at risk. As a result, any potential for an interaction is a detriment to the species/stocks ability to recover from this condition.

Alternatively, there are also many non-ESA listed marine mammals that, even with continued fishery interactions, are maintaining an optimum sustainable level (i.e., PBR levels have not been exceeded) over the last several years. For these stocks/species, it appears that the fishery management measures that have been in place over this timeframe have resulted in levels of effort that equate to interaction levels that are not expected to impair the stocks/species ability to remain at an optimum sustainable level. These fishery management measures, therefore, have resulted in indirect slight positive impacts to these non-ESA listed marine mammal species/stocks. Should future fishery management actions maintain similar operating condition as they have over the past several years, it is expected that these slight positive impacts would remain. Thus, given that the No Action will not substantially change fishing effort, the impacts of the No Action on these non-ESA listed species of marine mammals (all besides pilot whales and bottlenose dolphin) are expected to be slight positive (i.e., continuation of current operating conditions is not expected to result in exceedance of any of these stocks/species PBR level).

#### *General No-action: ESA Listed Species Impacts*

The MSB fishery is prosecuted with bottom and mid-water trawl gear. As provided in section 6.4, these gear types are known to interact with ESA listed species of sea turtles, whales, Atlantic sturgeon, and Atlantic salmon, with interactions often resulting in the serious injury or mortality to the species. The risk of an interaction; however, is strongly associated with the amount of gear in the water, the time the gear is in the water (e.g., soak time, tow time), and the presence of listed species in the same area and time as the gear, with risk of an interaction increasing with increases in of any or all of these factors. Based on this, the MSB fishery is likely to result in some level some level of negative impacts to ESA listed species. Taking into consideration fishing behavior/effort under the No Action, as well as the factors that affect the risk of an interaction with a listed species, we determined the level of negative impacts to ESA listed species to be low. Below, we provide support for this determination.

Under the No Action, fishing behavior and effort in the MSB fishery is expected to remain similar to what has been observed in the fishery over the last 5 or more years. Specifically, the amount of trawl gear, tow times, and area fished are not expected change significantly from current operating

conditions. As provided above, interactions risks with ESA listed species are strongly associated with the amount of gear in the water, gear soak or tow time, as well as the area of overlap, either in space or time, of the gear and listed species, with vulnerability of an interaction increasing with increases in any of these factors. Continuation of “status quo” fishing behavior/effort is not expected to change any of these operating conditions and therefore, relative to current conditions, new or elevated (e.g., more gear, longer tow times) interaction risks to listed species are not expected. Based on this, impacts of the No Action on ESA listed species is expected to be low negative.

*General Action Alternative Impact Considerations:*

Impacts to protected resources (ESA and MMPA species) should generally follow impacts to effort. Interactions with and therefore risks to protected species are strongly associated with amount, time, and location of gear in the water (components of effort), with vulnerability of an interaction increasing with increases in any or all of these factors. These are the components of effort that are considered in making impact determinations for protected species. If there are potential increases in any of these factors, then the potential for interactions will also increase. If none of these factors will be met, then interactions with protected species are not expected to be no greater than status quo. If there are potential decreases in any of these factors, then the potential for interactions will decrease.

Since ESA listed species have negative impacts from any potential interactions, impacts from any alternatives will be negative to some degree because there is risk of some interactions with the MSB fisheries. If interactions are likely to increase then impacts will be even more negative than no action, and if interactions are likely to decrease then impacts will be less negative than no action but still somewhat overall negative.

Since pilot whales and bottlenose dolphins are above PBR and it’s not possible to conclusively know whether any measure in this action could reduce them below PBR, the same is true for them as with ESA listed species. If interactions are likely to increase then impacts will be even more negative than no action, and if interactions are likely to decrease then impacts will be less negative than no action but still somewhat overall negative.

For other MMPA species, they are starting out with slight positive impacts from no action, so if interactions are likely to increase then impacts will be negative compared to no action, and if interactions are likely to decrease then impacts will be more positive. The overall impact will depend on the degree of expected change to interactions. However, since no alternatives are expected to drastically reduce effort, overall impacts when interactions are expected to decrease are still likely to be only slightly positive for these other MMPA species.

### 7.3.2 Impacts from Specific Alternatives

The in-season management alternatives and RH/S cap alternatives are unlikely to directly affect fishing effort or protected species impacts in a substantial manner. RH/S cap options that require a lower RH/S encounter ratio (3a or 3b require lower encounter rates than 3c; 3c would increase the absolute value of the cap but maintain the current encounter ratio), will make it less likely that the fishery can land the full DAH, thus further minimizing any potential for interactions with protected species to increase with any potential DAH increases described below.

Most of the rebuilding plan/specifications alternatives allow an increase in mackerel landings/effort in each year and all allow an increase by 2020. The amount of DAH is the primary influence on potential commercial effort for mackerel, which is the key determinant of impacts. The no action DAH is 9,177 MT. If the Council uses the 10,000 MT deduction for Canada (which overall results in the highest U.S. DAHs), the action alternatives would change the DAH under Alternative 1b to 7,553 MT for 2019, 14,471 MT for 2020, and 21,060 MT for 2021. If the Council uses the 10,000 MT deduction for Canada, the action alternatives would change the DAH under Alternative 1c to 17,371 MT for 2019, 20,557 MT for 2020, and 21,517 MT for 2021. If the Council uses the 10,000 MT deduction for Canada, the action alternatives would change the DAH under Alternative 1d to 18,999 MT for 2019, 21,517 MT for 2020, and 21,517 MT for 2021. So the largest potential increase in any year is  $21,517\text{MT} - 9,177\text{MT} = 12,340$  MT of potential extra DAH. In Jan/Feb of 2018 when there was directed mackerel fishing, 31 trips landed slightly over 80% of the mackerel that were landed through July of 2018, with average landings of 217 MT per trip. These are the kinds of trips that would be likely to take advantage of additional mackerel quota. At 217 MT per trip, an extra 12,340 MT of DAH might therefore translate into around an extra 57 directed trips (a mix of bottom trawl and mid-water trawl). This is likely negligible compared just to the 15,071 total bottom trawl trips in 2017 in NMFS dealer data and 262 mid-water trawl trips in 2017 in NMFS VTR data (pers com Kiersten Curti, NEFSC, also MAFMC 2018b).

Based on the above, relative to current operating conditions, the potential increase in effort is not expected to be significant. Further, it is not expected that the area fished, the amount of trawl gear in the water, or the tow times to change under any of the action alternatives. For these reasons, and given the existing Atlantic Trawl Gear Take Reduction Strategy, impacts to protected species from any of the action alternatives are expected to be slight negative. Relative to the no action, any of the action alternatives are expected to result in low negative impacts given the slight potential increase in effort. Relative to each other, impacts of any action alternative compared to another is expected to be negligible.

## 7.4 Non-Target Resources

### Current Resource Condition:

Bycatch in the mackerel fishery is described in Section 6.1 and is relatively low, less than 1%. Atlantic herring are not non-target species since the directed fishery targets mackerel and Atlantic herring. Non-negligible non-target species therefore include silver hake, spiny dogfish, alewife, blueback herring, American shad, haddock, red hake, winter skate, and John Buckler Dory. Of these red hake is experiencing overfishing and is overfished

(<https://www.nefsc.noaa.gov/publications/crd/crd1802/crd1802.pdf>). There is no assessment for john dory buckler. Alewife, blueback herring, and American shad have been found to be depleted by the ASMFC, and assessment information is available at [www.asmfc.org](http://www.asmfc.org). Assessments for silver hake, spiny dogfish, haddock, and winter skate (not overfished, no overfishing) can be found at <https://www.nefsc.noaa.gov/saw/>. Mortality from bycatch is accounted for with species that are managed under a fishery management plan. For unmanaged species, we have no data to indicate the impact that these measures would have on them.

The in-season management alternatives and RH/S cap alternatives are unlikely to directly change fishing effort or non-target impacts in a substantial manner.

Most rebuilding plan/specifications alternatives allow an increase in mackerel landings/effort, though even the largest increase is moderate in the context of historical quotas that were much higher and overall fishing effort in the region. The measures should also not appreciably change the spatial-temporal distribution of effort. As such, a moderate increase in mackerel effort is unlikely to appreciably change the total type, amount, or time that fishing gear is in the water, especially since additional mackerel effort may mean that somewhat less effort will be expended in some other fishery. The mackerel fishery also has relatively low bycatch and the primary bycatch of concern is controlled through the RH/S cap. Taking these factors into consideration, the limited increase in mackerel fishing effort that could result from any options that increase quotas should only have at most a low negative impact on non-target species that maintains the impacts described above, and would not be likely to change the status of any non-target species. While red hake is overfished, most red hake discards are in the small mesh bottom trawl SBRM fleet, which is not the fleet that would be expected to increase effort in pursuit of mackerel (see SBRM estimates for 2015-2017 at <https://www.nefsc.noaa.gov/fsb/SBRM/>). The New England Fishery Management Council will also have to develop a rebuilding plan specifically for red hake that will take all catch into consideration.

The Council can also control RH/S impacts by its choice of not scaling or how it scales the RH/S cap to the mackerel quota. Lower caps will lessen negative impacts on RH/S.

## 7.5 Socioeconomic Impacts

**Current Condition:** This action could affect the mackerel and herring fisheries, and separate summary is provided for each fishery. The performance of each fishery is further described above in Section 6.3. As discussed above, the availability of the targeted species may drive effort (and catch and revenues) as much as any regulations.

**Mackerel fishery Current Condition:** Due to the year to year variation in catch and effort in the fishery, it is difficult to fully quantify human community impacts but the current fishery supports a number of vessels, as described in Section 6.3, and provides a variety of jobs related directly to fishing and also in associated support services. 55 vessels landed over 10,000 pounds of mackerel in 2017, with total mackerel landings valued at \$4.1 million. The current conditions of the fishery should generally be maintained in the short and long run since the ABCs and catch should be sustainable given the Council's risk policy and implementation of that risk policy in specifications. While a rebuilding plan is being developed, it is not expected to result in substantial negative economic impacts relative to recent fleet operations.

### Mackerel Fishery-Related Impacts

1. **Rebuilding Alternatives:** Most of the action rebuilding alternatives allow increases in landings and so should have positive long-term socioeconomic benefits compared to no action depending on the amount of increased landings and any price fluctuations. The only alternative and year combination that involves a quota reduction is Alternative 1b for 2019. Even under alternative 1b quotas are higher than their current levels in 2020 and 2021. Alternative 1d has the highest quotas (and potential revenues) and Alternative 1c is in between. Assuming a lower catch for Canada has a positive impact for potential U.S. fisheries, and a 10,000 MT deduction versus a 50%-50% split, leads to a higher U.S. quota in all cases except for 2019 for Alternative 1b.

The catch trajectories for the options can be compared to consider possible revenue differences assuming the 2017 average price of \$600/MT. These options use the 33,474 maximum ABC for 1c and 1d, as recommended to be modified by the FMAT and MSB Committee for 1c.

The tables below, one for each Canadian catch option (Canada1 and Canada2) show the product of the DAH multiplied by the assumed price (the 2017 average price \$600/MT) to estimate discounted (3% discount rate) present value potential revenues over three years under the options. There is a substantial gain in potential revenues moving from 1b (3-year rebuilding) to 1c (5-year rebuilding) but much less so moving from 1c (5-year rebuilding) to 1d (7-year rebuilding). There is also a substantial gain from using a 10,000 MT deduction for Canada.

Table 22. Potential revenues from mackerel rebuilding options when deducting 50% of ABC for Canada (Canada1)

Canada1 - 50% deduction for Canada.				
	2019	2020	2021	Total 2019-2021
1a	\$5,506,200	\$5,345,825	\$5,190,122	\$16,042,147
1b	\$4,814,756	\$6,689,347	\$8,357,738	\$19,861,841
1c	\$7,760,087	\$8,461,820	\$8,487,000	\$24,708,906
1d	\$8,248,318	\$8,741,610	\$8,487,000	\$25,476,927

Table 23. Potential revenues from mackerel rebuilding options when deducting 10,000 MT of ABC for Canada (Canada2)

Canada2 - 10,000 MT deduction for Canada.				
	2019	2020	2021	Total 2019-2021
1a	\$5,506,073	\$5,345,702	\$5,190,002	\$16,041,777
1b	\$4,532,081	\$8,429,731	\$11,910,658	\$24,872,470
1c	\$10,422,743	\$11,974,677	\$12,169,181	\$34,566,601
1d	\$11,399,204	\$12,534,257	\$12,169,181	\$36,102,643

The FMAT is also analyzing 10-year projected revenues and these will be available by the Council meeting.

2. Closure Alternatives: The action closure alternatives should provide for efficient operation of the fishery. All of the closure options should result in roughly the same outcome – most of the DAH will be caught without a high risk of exceeding the ACL. Given the lack of data on fishery performance during closures it is difficult to quantitatively assess the exact outcomes. Closing the directed fishery earlier with larger trip limits will benefit smaller scale operators later in the year, but of course reduces available quota for the primary directed fishery.

One change common among all action alternatives compared to the no-action is limiting incidental landings to 5,000 pounds once the directed fishery closes. While this will reduce the possibility of DAH/ACL overages, there is a small-scale late-season directed mackerel jig/handline fishery that has developed in recent years by vessels with open access/incidental permits. If July-December handline/jig landings are examined from 2015-2017, a 5,000 pound trip limit would have impacted 21 federally-permitted vessels. Had they been limited to 5,000 pounds, their combined mackerel landings would have been reduced by 15%. Individual vessel mackerel landings for these 21 vessels would have been impacted in the 1%-37% range with an average and median reduction of 13%. Based on the average 2015-2017 price from July-Dec handline trips of \$0.45 per pound, individual vessels would have approximately lost (total 3 years) between \$104 and \$108,917 in ex-vessel revenues with an average reduction of \$14,773 and a median reduction of \$5,171. The proportion of total revenues from mackerel for these 21 vessels ranged from 1% to 93% with a mean of 23% and a median of 20%.



3. RH/S Cap: Lower caps can lead to less landings and mackerel revenues (and vice versa for higher caps). At a low cap and a high RH/S encounter rate, a relatively small portion of the mackerel quota might be landed before a closure, potentially resulting in forgoing most of the revenues in the tables above. The initial 89 MT trigger option (3d) will preclude landings greater than 10,000 MT if catch rates activate the trigger. Consistent with previous evaluations, if the caps assist recovery of RH/S, then lower caps might result in additional long term benefits related to commercial revenues, recreational opportunities, ecosystem services, cultural values for RH/S, and/or other non-market existence values (i.e. value gained by the public related to the knowledge that these species are being conserved successfully). Since it is not possible to determine the effects of the caps on RH/S populations, such potential benefits can only be described qualitatively.

Atlantic Herring fishery Current Condition: Due to the year to year variation in catch and effort in the fishery, it is difficult to fully quantify human community impacts but the current fishery supports a number of vessels, as described in Section 6.3, and provides a variety of jobs related directly to fishing and also in associated support services. 40 vessels landed over 10,000 pounds of herring in 2017, with total herring landings valued at \$27.4 million. The current conditions of the fishery should generally be maintained in the short and long run since the ABCs and catch should be sustainable given the New England Fishery Management Council's risk policy and implementation of that risk policy in specifications. Preliminary indications from a recent assessment do suggest that quotas may be lowered substantially in the near future due to low recruitment.

#### Herring Fishery-Related Impacts

The mackerel closure provisions are the primary measures that impact the herring fishery, and all of the proposed closure provisions allow for some incidental catch of mackerel in the herring fishery and therefore should not cause substantial operational problems for the herring fishery.

## 7.6 Cumulative Impacts

To be added upon selection of preferred alternatives, but not expected to be significant from a NEPA perspective (i.e. an EA should be appropriate)

## 8.0 WHAT LAWS APPLY TO THE ACTIONS CONSIDERED IN THIS DOCUMENT?

### 8.1 Magnuson-Stevens Fishery Conservation and Management Act

#### 8.1.1 NATIONAL STANDARDS

Section 301 of the Magnuson-Stevens Fishery Conservation and Management Act requires that fishery management plans contain conservation and management measures that are consistent with the ten National Standards:

*In General. – Any fishery management plan prepared, and any regulation promulgated to implement any such plan, pursuant to this title shall be consistent with the...national standards for fishery conservation and management.*

*(1) Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry.*

The proposed measures would increase yield while preventing overfishing, thus helping to achieve optimum yield.

*(2) Conservation and management measures shall be based upon the best scientific information available.*

The data sources considered and evaluated during the development of this action include, but are not limited to: permit data, landings data from vessel trip reports, information from resource trawl surveys, sea sampling (observer) data, data from the dealer weighout purchase reports, peer-reviewed assessments and original literature, and descriptive information provided by fishery participants and the public. To the best of the Council's knowledge these data sources constitute the best scientific information available. All analyses based on these data have been reviewed by National Marine Fisheries Service and the public.

*(3) To the extent practicable, an individual stock of fish shall be managed as a unit throughout its range, and interrelated stocks of fish shall be managed as a unit or in close coordination.*

The fishery management plan addresses management of the mackerel, squid, and butterfish stocks throughout the range of the species in U.S. waters, in accordance with the jurisdiction of U.S. law.

*(4) Conservation and management measures shall not discriminate between residents of different States. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (A) fair and equitable to all such fishermen; (B) reasonably calculated to promote conservation; and (C) carried out in such manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.*

There is nothing in the proposed measures that would be expected to discriminate between residents of different States.

*(5) Conservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources; except that no such measure shall have economic allocation as its sole purpose.*

There is no allocation proposed. The proposed actions are efficient in that they should facilitate full utilization of the mackerel and herring quotas.

*(6) Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.*

Changes in fisheries occur continuously, both as the result of human activity (for example, new technologies or shifting market demand) and natural variation (for example, oceanographic perturbations). In order to provide the greatest flexibility possible for future management decisions, the fishery management plan includes a framework adjustment mechanism with an extensive list of possible framework adjustment measures that can be used to quickly adjust the plan as conditions in the fishery change.

*(7) Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.*

As always, the Council considered the costs and benefits associated with the management measures proposed in the action when developing this action. This action should not create any duplications related to managing the MSB resources.

*(8) Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.*

The human community impacts of the action are described above in Section 7.5. The proposed measures would likely increase yield and revenues to human communities.

*(9) Conservation and management measures shall, to the extent practicable, (A) minimize bycatch and (B) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.*

The Magnuson-Stevens Act defines “bycatch” as fish that are harvested in a fishery, but are not retained (sold, transferred, or kept for personal use), including economic discards and regulatory discards. Incidentally landed catch are fish, other than the target species, that are harvested while fishing for a target species and retained and/or sold. Previous actions have reduced bycatch to the extent practicable, as described elsewhere in this document. The RH/S cap should continue to control catch of those species in the mackerel fishery.

*(10) Conservation and management measures shall, to the extent practicable, promote the safety of human life at sea.*

Fishing is a dangerous occupation; participants must constantly balance the risks imposed by weather against the economic benefits. According to the National Standard guidelines, the safety of the fishing vessel and the protection from injury of persons aboard the vessel are considered the same as “safety of human life at sea.” The safety of a vessel and the people aboard is ultimately the responsibility of the master of that vessel. Each master makes many decisions about vessel maintenance and loading and about the capabilities of the vessel and crew to operate safely in a variety of weather and sea conditions. This national standard does not replace the judgment or relieve the responsibility of the vessel master related to vessel safety. No measures in this action are expected to negatively impact safety at sea.

## 8.1.2 OTHER REQUIRED PROVISIONS OF THE MAGNUSON-STEVENSON ACT

Section 303 of the MSA contains 15 additional required provisions for FMPs, which are listed and discussed below. Nothing in this action is expected to contravene any of these required provisions.

*(1) contain the conservation and management measures, applicable to foreign fishing and fishing by vessels of the United States, which are-- (A) necessary and appropriate for the conservation and management of the fishery to prevent overfishing and rebuild overfished stocks, and to protect, restore, and promote the long-term health and stability of the fishery; (B) described in this subsection or subsection (b), or both; and (C) consistent with the National Standards, the other provisions of this Act, regulations implementing recommendations by international organizations in which the United States participates (including but not limited to closed areas, quotas, and size limits), and any other applicable law*

The MSB FMP has evolved over time through 20 Amendments and currently uses Acceptable Biological Catch recommendations from the Council's Scientific and Statistical Committee to sustainably manage the Mackerel, Squid, and Butterfish fisheries. Under the umbrella of limiting catch to the Acceptable Biological Catch, a variety of other management and conservation measures have been developed to meet the goals of the fishery management plan and remain consistent with the National Standards. The current measures are codified in the Code of Federal Regulations (50 C.F.R. § 648 Subpart B - <http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&SID=1e9802ffddb05d0243d9c657fade956c&rgn=div5&view=text&node=50:12.0.1.1.5&idno=50>) and summarized at <http://www.greateratlantic.fisheries.noaa.gov/regs/infodocs/msbinfosheet.pdf>. This action proposes measures that should continue to promote the long-term health and stability of the fisheries, consistent with the MSA.

*(2) contain a description of the fishery, including, but not limited to, the number of vessels involved, the type and quantity of fishing gear used, the species of fish involved and their location, the cost likely to be incurred in management, actual and potential revenues from the fishery, any recreational interest in the fishery, and the nature and extent of foreign fishing and Indian treaty fishing rights, if any*

Every Amendment to the Atlantic Mackerel, Squid, and Butterfish Fishery Management Plan provides this information. This document updates this information as appropriate in Section 6.

*(3) assess and specify the present and probable future condition of, and the maximum sustainable yield and optimum yield from, the fishery, and include a summary of the information utilized in making such specification*

This provision is addressed via assessments that are conducted through a peer-reviewed process at the NMFS Northeast Fisheries Science Center. The available information is summarized in every

Amendment and Specifications document – see Section 6. Full assessment reports are available at: <http://www.nefsc.noaa.gov/saw/>.

*(4) assess and specify-- (A) the capacity and the extent to which fishing vessels of the United States, on an annual basis, will harvest the optimum yield specified under paragraph (3); (B) the portion of such optimum yield which, on an annual basis, will not be harvested by fishing vessels of the United States and can be made available for foreign fishing; and (C) the capacity and extent to which United States fish processors, on an annual basis, will process that portion of such optimum yield that will be harvested by fishing vessels of the United States*

Based on past performance and capacity analyses (e.g. Amendment 11 and the pending Squid Amendment), if Atlantic mackerel, squid, and butterfish are sufficiently abundant and available, the domestic fishery has the desire and ability to fully harvest the available quotas, and domestic processors can process the fish/squid.

*(5) specify the pertinent data which shall be submitted to the Secretary with respect to commercial, recreational, and charter fishing in the fishery, including, but not limited to, information regarding the type and quantity of fishing gear used, catch by species in numbers of fish or weight thereof, areas in which fishing was engaged in, time of fishing, number of hauls, and the estimated processing capacity of, and the actual processing capacity utilized by, United States fish processors*

Previous Amendments have specified the data that must be submitted to NMFS in the form of vessel trip reports, vessel monitoring system trip declarations and catch reports, and dealer reports.

*(6) consider and provide for temporary adjustments, after consultation with the Coast Guard and persons utilizing the fishery, regarding access to the fishery for vessels otherwise prevented from harvesting because of weather or other ocean conditions affecting the safe conduct of the fishery; except that the adjustment shall not adversely affect conservation efforts in other fisheries or discriminate among participants in the affected fishery*

There are no such requests pending, but the plan contains provisions for framework actions to make modifications regarding access/permitting if necessary.

*(7) describe and identify essential fish habitat for the fishery based on the guidelines established by the Secretary under section 305(b)(1)(A), minimize to the extent practicable adverse effects on such habitat caused by fishing, and identify other actions to encourage the conservation and enhancement of such habitat*

Section 6.3 of this document summarizes essential fish habitat (EFH). Amendments 9 and 11 evaluated habitat impacts, updated essential fish habitat designations, and implemented measures to reduce habitat impacts (primarily related to tilefish essential fish habitat). Amendment 16 implemented measures to protect deep-sea corals. An upcoming review of EFH will review EFH designations and potential adverse impacts to EFH from Council-managed fisheries.

*(8) in the case of a fishery management plan that, after January 1, 1991, is submitted to the Secretary for review under section 304(a) (including any plan for which an amendment is submitted to the Secretary for such review) or is prepared by the Secretary, assess and specify the nature and extent of scientific data which is needed for effective implementation of the plan*

The preparation of this action included a review of the scientific data available to assess the impacts of all alternatives considered. No additional data was deemed needed for effective implementation of the plan at this time.

*(9) include a fishery impact statement for the plan or amendment (in the case of a plan or amendment thereto submitted to or prepared by the Secretary after October 1, 1990) which shall assess, specify, and describe the likely effects, if any, of the conservation and management measures on-- (A) participants in the fisheries and fishing communities affected by the plan or amendment; and (B) participants in the fisheries conducted in adjacent areas under the authority of another Council, after consultation with such Council and representatives of those participants;*

Section 7.5 of this document provides an assessment of the likely effects on fishery participants and communities from the considered actions.

*(10) specify objective and measurable criteria for identifying when the fishery to which the plan applies is overfished (with an analysis of how the criteria were determined and the relationship of the criteria to the reproductive potential of stocks of fish in that fishery) and, in the case of a fishery which the Council or the Secretary has determined is approaching an overfished condition or is overfished, contain conservation and management measures to prevent overfishing or end overfishing and rebuild the fishery*

Amendments 8 and 9 to the fishery management plan established biological reference points for the species in the plan, and Amendment 10 contained measures for butterfish rebuilding. Mackerel was recently declared overfished and a rebuilding action is under development through this action. If a fishery is declared overfished or if overfishing is occurring, another Amendment or appropriate action would be undertaken to implement effective corrective measures. A recent omnibus framework also streamlined incorporation of new overfished/overfishing reference points.

*(11) establish a standardized reporting methodology to assess the amount and type of bycatch occurring in the fishery, and include conservation and management measures that, to the extent practicable and in the following priority-- (A) minimize bycatch; and (B) minimize the mortality of bycatch which cannot be avoided*

NMFS has implemented an omnibus amendment to implement a revised standardized reporting methodology since the previous methodology was invalidated by court order. See <http://www.greateratlantic.fisheries.noaa.gov/mediacenter/2013/09/draftsbrmamendment.html> for details.

*(12) assess the type and amount of fish caught and released alive during recreational fishing under catch and release fishery management programs and the mortality of such fish, and include conservation and management measures that, to the extent practicable, minimize mortality and ensure the extended survival of such fish*

The Atlantic mackerel, squid, and butterfish fisheries are primarily commercial. There are some discards in the recreational mackerel fishery, but these are minimal related to the overall scale of the mackerel fishery. There are no size limits that would lead to regulatory recreational discarding of mackerel. There are no specific catch and release fishery management programs. There is some recreational longfin squid fishing, but it is thought to be relatively minor and the Council can consider if a survey is appropriate to further investigate longfin squid recreational fishing.

*(13) include a description of the commercial, recreational, and charter fishing sectors which participate in the fishery and, to the extent practicable, quantify trends in landings of the managed fishery resource by the commercial, recreational, and charter fishing sectors*

This document updates this information as appropriate in Section 6. There is minimal recreational and charter fishing for squid, and no measures in this action would restrict such activity.

*(14) to the extent that rebuilding plans or other conservation and management measures which reduce the overall harvest in a fishery are necessary, allocate any harvest restrictions or recovery benefits fairly and equitably among the commercial, recreational, and charter fishing sectors in the fishery.*

Substantial harvest reductions are not anticipated as part of this rebuilding plan for mackerel.



*(15) establish a mechanism for specifying annual catch limits in the plan (including a multiyear plan), implementing regulations, or annual specifications, at a level such that overfishing does not occur in the fishery, including measures to ensure accountability.*

The annual specifications process addresses this requirement. Acceptable Biological Catch recommendations from the Council's Scientific and Statistical Committee are designed to avoid overfishing and form the upper bounds on catches. There are a variety of proactive and reactive accountability measures for these fisheries, fully described at: <http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&SID=1e9802ffddb05d0243d9c657fade956c&rgn=div5&view=text&node=50:12.0.1.1.5&idno=50#50:12.0.1.1.5.2>.

### 8.1.3 DISCRETIONARY PROVISIONS OF THE MAGNUSON-STEVENS ACT

Section 303b of the Magnuson-Stevens Act contains 14 additional discretionary provisions for Fishery Management Plans. They may be read on pages 59 and 60 of the National Marine Fisheries Service's redline version of the Magnuson-Stevens Act at:

[http://www.nmfs.noaa.gov/msa2007/MSA\\_Amended%20by%20Magnuson-Stevens%20Reauthorization%20Act%20%281-31-07%20draft%29.pdf](http://www.nmfs.noaa.gov/msa2007/MSA_Amended%20by%20Magnuson-Stevens%20Reauthorization%20Act%20%281-31-07%20draft%29.pdf).

### 8.1.4 ESSENTIAL FISH HABITAT ASSESSMENT

The measures under the preferred alternatives proposed in this action are not expected to result in substantial changes in effort that impacts habitat, as described in Section 7. Therefore, the Council concluded in section 7 of this document that the proposed measures will have no additional adverse impacts on EFH that are more than minimal or temporary. Thus no mitigation is necessary. The adverse impacts of bottom trawls used in MSB fisheries on other managed species (not MSB), which were determined to be more than minimal and not temporary in Amendment 9, were minimized to the extent practicable by the Lydonia and Oceanographer canyon closures to squid fishing. In addition, Amendment 1 to the Tilefish FMP closed those canyons plus Veatch's and Norfolk Canyons to all bottom trawling. Deepwater corals were also protected in Amendment 16. Therefore, the adverse habitat impacts of MSB fisheries "continue to be minimized." Amendment 11 revised the MSB EFH designations and EFH impacts will continue to be monitored and addressed as appropriate.

## 8.2 NEPA

To be added upon selection of preferred alternatives, but not expected to be significant from a NEPA perspective (i.e. an EA should be appropriate). All of the alternatives involve relatively small changes to quotas or other measures relative to other changes that have been implemented before and found to not be expected to have a significant impact.

## 8.3 Marine Mammal Protection Act

To be added upon selection of preferred alternatives, but expected to be consistent with the provisions of the MMPA and would not alter existing measures to protect the species likely to inhabit the management units of the subject fisheries. For further information on the potential marine mammal impacts of the fishery and the proposed management action, see Sections 6 and 7 of this Environmental Assessment.

## 8.4 Endangered Species Act

To be added upon selection of preferred alternatives, but do not expect the proposed action, in conjunction with other activities, to result in jeopardy to any ESA listed species.

## 8.5 Administrative Procedures Act

To be added upon selection of preferred alternatives, but at this time, the Council is not requesting any abridgement of the rulemaking process for this action.

## 8.6 Paperwork Reduction Act

The purpose of the Paperwork Reduction Act is to control and, to the extent possible, minimize the paperwork burden for individuals, small businesses, nonprofit institutions, and other persons resulting from the collection of information by or for the Federal Government. This action would not modify existing collections or require new collections.

## 8.7 Coastal Zone Management Act

Section 307(c)(1) of the Federal Coastal Zone Management Act of 1972 requires that all Federal activities that directly affect the coastal zone be consistent with approved state coastal zone management programs to the maximum extent practicable. Pursuant to the Coastal Zone Management Act regulations at 15 CFR 930.35, a negative determination may be made if there are no coastal effects and the subject action: (1) Is identified by a state agency on its list, as described in ' 930.34(b), or through case-by-case monitoring of unlisted activities; or (2) which is the same as or is similar to activities for which consistency determinations have been prepared in the past; or (3) for which the Federal agency undertook a thorough consistency assessment and developed initial findings on the coastal effects of the activity. NMFS is reviewing applicable coastal policies of affected states and will make an appropriate determination as part of the rulemaking process.

## 8.8 Section 515 (Data Quality Act)

Pursuant to NOAA guidelines implementing section 515 of Public Law 106-554 (the Data Quality Act), all information products released to the public must first undergo a Pre-Dissemination Review to ensure and maximize the quality, objectivity, utility, and integrity of the information (including statistical information) disseminated by or for Federal agencies. The following section addresses these requirements.

### *Utility*

The information presented in this document should be helpful to the intended users (the affected public) by presenting a clear description of the purpose and need of the proposed action, the measures proposed, and the impacts of those measures. A discussion of the reasons for selecting the proposed action is included so that intended users may have a full understanding of the proposed action and its implications, as well as the Council's rationale.

Until a proposed rule is prepared and published, this document is the principal means by which the information contained herein is available to the public. The information provided in this document is based on the most recent available information from the relevant data sources. The development of this document and the decisions made by the Council to propose this action are the result of a multi-stage public process. Thus, the information pertaining to management measures contained in this document has been improved based on comments from the public, the fishing industry, members of the Council, and NMFS.

The Federal Register notice that announces the proposed rule and the final rule and implementing regulations will be made available in printed publication, on the website for the Greater Atlantic Regional Fisheries Office, and through the Regulations.gov website. The Federal Register documents will provide metric conversions for all measurements.

### *Integrity*

Prior to dissemination, information associated with this action, independent of the specific intended distribution mechanism, is safeguarded from improper access, modification, or destruction, to a degree commensurate with the risk and magnitude of harm that could result from the loss, misuse, or unauthorized access to or modification of such information. All electronic information disseminated by NOAA Fisheries adheres to the standards set out in Appendix III, Security of Automated Information Resources,<sup>6</sup> of OMB Circular A-130; the Computer Security Act; and the Government Information Security Act. All confidential information (e.g., dealer purchase reports) is safeguarded pursuant to the Privacy Act; Titles 13, 15, and 22 of the U.S. Code (confidentiality of census, business, and financial information); the Confidentiality of Statistics provisions of the Magnuson-Stevens Act; and NOAA Administrative Order 216-100, Protection of Confidential Fisheries Statistics.

## *Objectivity*

For purposes of the Pre-Dissemination Review, this document is considered to be a Natural Resource Plan. Accordingly, the document adheres to the published standards of the Magnuson-Stevens Act; the Operational Guidelines, FMP Process; the EFH Guidelines; the National Standard Guidelines; and NOAA Administrative Order 216-6A, Compliance with the National Environmental Policy Act and its Companion Manual.

This information product uses information of known quality from sources acceptable to the relevant scientific and technical communities. Stock status (including estimates of biomass and fishing mortality) reported in this product are based on either assessments subject to peer-review through the Stock Assessment Review Committee or on updates of those assessments prepared by scientists of the Northeast Fisheries Science Center. Landing and revenue information is based on information collected through the Vessel Trip Report and Commercial Dealer databases. Information on catch composition, by tow, is based on reports collected by the NOAA Fisheries observer program and incorporated into the sea sampling or observer database systems. These reports are developed using an approved, scientifically valid sampling process. In addition to these sources, additional information is presented that has been accepted and published in peer-reviewed journals or by scientific organizations. Original analyses in this document were prepared using data from accepted sources, and the analyses have been reviewed by members of the Mackerel, Squid and Butterfish Monitoring Committee or other NMFS staff with expertise on the subject matter.

Despite current data limitations, the conservation and management measures proposed for this action were selected based upon the best scientific information available. The analyses conducted in support of the proposed action were conducted using information from the most recent complete calendar years, generally through 2017 except as noted. The data used in the analyses provide the best available information on the number of seafood dealers operating in the northeast, the number, amount, and value of fish purchases made by these dealers. Specialists (including professional members of plan development teams, technical teams, committees, and Council staff) who worked with these data are familiar with the most current analytical techniques and with the available data and information relevant to these fisheries.

The policy choices are clearly articulated in Section 5 of this document as well as the management alternatives considered in this action. The supporting science and impact analyses, upon which the policy choices are based, are described in Sections 6 and 7 of this document. All supporting materials, information, data, and analyses within this document have been, to the maximum extent practicable, properly referenced according to commonly accepted standards for scientific literature to ensure transparency.

The review process used in preparation of this document will involve the responsible Council, the Northeast Fisheries Science Center, the Greater Atlantic Regional Fisheries Office, and NOAA Fisheries Headquarters. The Center's technical review is conducted by senior level scientists with specialties in population dynamics, stock assessment methods, demersal resources, population biology, and the social sciences. The Council review process involves public meetings at which affected stakeholders have opportunity to provide comments on the document. Review by staff at the Regional Office is conducted by those with expertise in fisheries management and policy, habitat conservation, protected species, and compliance with the applicable law. Final approval of the action proposed in this document and clearance of any rules prepared to implement resulting regulations is conducted by

staff at NOAA Fisheries Headquarters, the Department of Commerce, and the U.S. Office of Management and Budget.

### 8.9 Regulatory Flexibility Analysis

The purpose of the Regulatory Flexibility Act is to reduce the impacts of burdensome regulations and recordkeeping requirements on small businesses. To achieve this goal, the Regulatory Flexibility Act requires Federal agencies to describe and analyze the effects of proposed regulations, and possible alternatives, on small business entities. Section 12.0 at the end of this document will include the Regulatory Flexibility Act Analysis.

### 8.10 Executive Order (E.O.) 12866 (Regulatory Planning and Review)

To be added upon selection of preferred alternatives.

### 8.11 Executive Order (E.O.) 13132 (Federalism)

This Executive Order established nine fundamental federalism principles for Federal agencies to follow when developing and implementing actions with federalism implications. The Executive Order also lists a series of policy making criteria to which Federal agencies must adhere when formulating and implementing policies that have federalism implications. However, no federalism issues or implications have been identified relative to the measures proposed measures. This action does not contain policies with federalism implications sufficient to warrant preparation of an assessment under Executive Order 13132. The affected states have been closely involved in the development of the proposed management measures through their representation on the Council (all affected states are represented as voting members of at least one Regional Fishery Management Council). No comments were received from any state officials relative to any federalism implications that may be associated with this action

## 9.0 LITERATURE CITED AND SELECTED OTHER BACKGROUND DOCUMENTS

- Adelman, W.J., Jr., Arnold, J.M., and Gilbert, D.L. 2013. Squid as Experimental Animals. Springer Science & Business Media, N.Y., NY.
- Arkhipkin, Alexander, I., Paul G. K. Rodhouse, Graham J. Pierce, Warwick Sauer, Mitsuo Sakai, Louise Allcock, Juan Arguelles, John R. Bower, Gladis Castillo, Luca Ceriola, Chih-Shin Chen, Xinjun Chen, Mariana Diaz-Santana, Nicola Downey, Angel F. González, Jasmin Granados Amores, Corey P. Green, Angel Guerra, Lisa C. Hendrickson, Christian Ibáñez, Kingo Ito, Patrizia Jereb, Yoshiki Kato, Oleg N. Katugin, Mitsuhsa Kawano, Hideaki Kidokoro, Vladimir V. Kulik, Vladimir V. Laptikhovskiy, Marek R. Lipinski, Bilin Liu, Luis Mariátegui, Wilbert Marin, Ana Medina, Katsuhiko Miki, Kazutaka Miyahara, Natalie Moltshaniwskyj, Hassan Moustahfid, Jaruwat Nabhitabhata, Nobuaki Nanjo, Chingis M. Nigmatullin, Tetsuya Ohtani, Gretta Pecl, J. Angel A. Perez, Uwe Piatkowski, Pirochana Saikiang, Cesar A. Salinas-Zavala, Michael Steer, Yongjun Tian, Yukio Ueta, Dharmamony Vijai, Toshie Wakabayashi, Tadanori Yamaguchi, Carmen Yamashiro, Norio Yamashita & Louis D. Zeidberg. 2015. World squid fisheries. Rev. in Fish. Sci. & Aquacult., 23:2, 92-252.
- Atlantic States Marine Fisheries Commission (ASMFC). 2007a. American Shad Stock Assessment Report for Peer Review. Stock Assessment Report No. 07-01. Available at: <http://www.asmfc.org/shadRiverHerring.htm>.
- Atlantic States Marine Fisheries Commission (ASMFC). 2007b. Special Report to the Atlantic Sturgeon Management Board: Estimation of Atlantic sturgeon bycatch in coastal Atlantic commercial fisheries of New England and the Mid-Atlantic. August 2007. 95 pp.
- Atlantic Sturgeon Status Review Team (ASSRT). 2007. Status review of Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*). Report to National Marine Fisheries Service, Northeast Regional Office. February 23, 2007. 174 pp.
- Atlantic States Marine Fisheries Commission. 2012. River Herring Benchmark Stock Assessment. Stock Assessment Report No. 12-02. Available at: <http://www.asmfc.org/shadRiverHerring.htm>.
- Bain, M. B., N. Haley, D. Peterson, J. R. Waldman, and K. Arend. 2000. Harvest and habitats of Atlantic sturgeon *Acipenser oxyrinchus* Mitchill, 1815, in the Hudson River Estuary: Lessons for Sturgeon Conservation. Instituto Espanol de Oceanografia. Boletín 16: 43-53.
- Baum, E.T. 1997. Maine Atlantic Salmon - A National Treasure. Atlantic Salmon Unlimited, Hermon, Maine.
- Beanlands, G.E. and Duinker, P.N. (1984) 'An Ecological Framework for Environmental Impact Assessment', Journal of Environmental Management, 18: 267-277.
- Beardsall, J.W., M. F. McLean, S. J. Cooke, B. C. Wilson, M. J. Dadswell, A. M. Redden, and M. J. W. Stokesbury. 2013. Consequences of Incidental Otter Trawl Capture on Survival and

Physiological Condition of Threatened Atlantic Sturgeon. Transactions of the American Fisheries Society 142:1202–1214.

Birkenbach, Anna, Kaczan, David, and Smith, Martin. 2017. Catch shares slow the race to fish. Nature volume 544, pages 223–226.

Blumenthal, J.M., J.L. Solomon, C.D. Bell, T.J. Austin, G. Ebanks-Petrie, M.S. Coyne, A.C. Broderick, and B.J. Godley. 2006. Satellite tracking highlights the need for international cooperation in marine turtle management. Endangered Species Research 2:51-61.

Branch et. al. 2006. Fleet dynamics and fishermen behavior: lessons for fisheries managers. Canadian Journal of Fisheries and Aquatic Sciences, 2006, Vol. 63, No. 7 : pp. 1647-1668.

Boletzky Sv, Hanlon RT. 1983. A review of the laboratory maintenance, rearing and culture of cephalopod molluscs. Mem Natl Mus Vic 44:147–187

Braun, J., and S.P. Epperly. 1996. Aerial surveys for sea turtles in southern Georgia waters, June 1991. Gulf of Mexico Science 1996(1):39-44.

Braun-McNeill, J., and S.P. Epperly. 2002. Spatial and temporal distribution of sea turtles in the western North Atlantic and the U.S. Gulf of Mexico from Marine Recreational Fishery Statistics Survey (MRFSS). Marine Fisheries Review 64(4):50-56.

Braun-McNeill, J., C.R. Sasso, S.P.Epperly, C. Rivero. 2008. Feasibility of using sea surface temperature imagery to mitigate cheloniid sea turtle–fishery interactions off the coast of northeastern USA. Endangered Species Research: Vol. 5: 257–266, 2008.

Cetacean and Turtle Assessment Program (CeTAP). 1982. Final report or the cetacean and turtle assessment program, University of Rhode Island, to Bureau of Land Management, U.S. Department of the Interior. Ref. No. AA551-CT8-48. 568 pp.

Chavez-Rosales S, Lyssikatos MC, Hatch J. 2017. Estimates of cetacean and pinniped bycatch in Northeast and Mid-Atlantic bottom trawl fisheries, 2011-2015. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 17-16; 18 p. Available from: <http://www.nefsc.noaa.gov/publications/>

Christensen, D.J., W.J. Clifford, P.G. Scarlett, R.W. Smith, and D. Zachea. 1979. A survey of the 1978 spring recreational fishery for the Atlantic mackerel, *Scomber scombrus*, in the Middle Atlantic region. NMFS Sandy Hook Lab Report No. 78-43. 22 p.

Chetrick, Joel. 2006. Record Six-Month Exports of U.S. Frozen Mackerel to EU Eclipse 2005 Sales. FAS Worldwide. United States Department of Agriculture, Foreign Agricultural Service. Available online at: <http://www.fas.usda.gov/info/fasworldwide/2006/10-2006/EUMackerel.pdf>.

Cross, J.N., C.A. Zetlin, P.L. Berrien, D.L. Johnson, and C. McBride. 1999. Essential fish habitat source document: Butterfish, *Peprilus triacanthus*, life history and habitat characteristics, NOAA Tech. Memo. NMFS NE-145. 50 p.

- Clapham, P.J., L.S. Baraff, C.A. Carlson, M.A. Christian, D.K. Mattila, C.A. Mayo, M.A. Murphy and S. Pittman. 1993. Seasonal occurrence and annual return of humpback whales, *Megaptera novaeangliae*, in the southern Gulf of Maine. *Can. J. Zool.* 71: 440-443.
- Collins, M. R. and T. I. J. Smith. 1997. Distribution of shortnose and Atlantic sturgeons in South Carolina. *North American Journal of Fisheries Management.* 17: 995-1000.
- Conant, T.A., P.H. Dutton, T. Eguchi, S.P. Epperly, C.C. Fahy, M.H. Godfrey, S.L. MacPherson, E.E. Possardt, B.A. Schroeder, J.A. Seminoff, M.L. Snover, C.M. Upite, and B.E. Witherington. 2009. Loggerhead sea turtle (*Caretta caretta*) 2009 status review under the U.S. Endangered Species Act. Report of the Loggerhead Biological Review Team to the National Marine Fisheries Service, August 2009. 222 pp.
- Curry, B. E. and Smith, J. 1997. Phylogeographic structure of the bottlenose dolphin (*Tursiops truncatus*): stock identification and implications for management. In: A. E. Dizon, S. J. Chivers and W. F. Perrin (eds), *Molecular genetics of marine mammals*, pp. 227-247. The Society of Marine Mammalogy, Allen Press, Lawrence.
- Dadswell, M. 2006. A review of the status of Atlantic sturgeon in Canada, with comparisons to populations in the United States and Europe. *Fisheries* 31: 218-229.
- Dadswell, M. J., B. D. Taubert, T. S. Squiers, D. Marchette, and J. Buckley. 1984. Synopsis of Biological Data on Shortnose Sturgeon, *Acipenser brevirostrum*, LeSuer 1818.
- Dodd, C.K., Jr. 1988. Synopsis of the biological data on the loggerhead sea turtle *Caretta caretta* (Linnaeus 1758). Fish and Wildlife Service Biological Report 88(14). 110pp. Available at: [http://www.seaturtle.org/documents/Dodd\\_1988\\_Loggerhead.pdf](http://www.seaturtle.org/documents/Dodd_1988_Loggerhead.pdf).
- Dodge, K.L., B. Galuardi, T. J. Miller, and M. E. Lutcavage. 2014. Leatherback Turtle Movements, Dive Behavior, and Habitat Characteristics in Ecoregions of the Northwest Atlantic Ocean. *PLOS ONE* 9 (3) e91726: 1-17.
- Dovel, W.L. and T.J. Berggren. 1983. Atlantic sturgeon of the Hudson River Estuary, New York. *New York Fish and Game Journal* 30: 140-172.
- Dunton, K.J., A. Jordaan, K.A. McKown, D.O. Conover, and M.J. Frisk. 2010. Abundance and distribution of Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) within the Northwest Atlantic Ocean, determined from five fishery-independent surveys. *Fishery Bulletin* 108:450-465.
- Dunton, K.J., D. Chapman, A. Jordaan, K. Feldheim, S. J. O'Leary, K. A. McKown, and M. G. Frisk. 2012. Brief Communications: Genetic mixed-stock analysis of Atlantic sturgeon *Acipenser oxyrinchus oxyrinchus* in a heavily exploited marine habitat indicates the need for routine genetic monitoring. *Journal of Fish Biology* 80: 207–217.
- Dunton, K.J., A. Jordaan, D. O. Conover, K.A. McKown, L. A. Bonacci, and M. G. Frisk. 2015. Marine Distribution and Habitat Use of Atlantic Sturgeon in New York Lead to Fisheries Interactions and Bycatch. *Marine and Coastal Fisheries: Dynamics, Management, and Ecosystem Science* 7:18–32.



- Eckert, S.A., D. Bagley, S. Kubis, L. Ehrhart, C. Johnson, K. Stewart, and D. DeFreese. 2006. Interesting and postnesting movements of foraging habitats of leatherback sea turtles (*Dermochelys coriacea*) nesting in Florida. *Chel. Cons. Biol.* 5(2): 239-248.
- Ecosystem Assessment Program (EAP). 2009. Ecosystem Assessment Report for the Northeast U.S. Continental Shelf Large Marine Ecosystem. U.S. Dept Commer, Northeast Fish Sci Cent Ref Doc. 09-11; 61 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026, or online at <http://www.nefsc.noaa.gov/publications/crd/crd0911/crd0911.pdf>.
- Epperly, S.P., J. Braun, and A.J. Chester. 1995a. Aerial surveys for sea turtles in North Carolina inshore waters. *Fishery Bulletin* 93:254-261.
- Epperly, S.P., J. Braun, A.J. Chester, F.A. Cross, J.V. Merriner, and P.A. Tester. 1995b. Winter distribution of sea turtles in the vicinity of Cape Hatteras and their interactions with the summer flounder trawl fishery. *Bulletin of Marine Science* 56(2):547-568.
- Epperly, S.P., J. Braun, and A. Veishlow. 1995c. Sea turtles in North Carolina waters. *Conservation Biology* 9(2):384-394.
- Erickson, D. L., A. Kahnle, M. J. Millard, E. A. Mora, M. Bryja, A. Higgs, J. Mohler, M. DuFour, G. Kenney, J. Sweka, and E. K. Pikitch. 2011. Use of pop-up satellite archival tags to identify oceanic-migratory patterns for adult Atlantic Sturgeon, *Acipenser oxyrinchus oxyrinchus* Mitchell, 1815. *J. Appl. Ichthyol.* 27: 356–365.
- Fay, C., M. Bartron, S. Craig, A. Hecht, J. Pruden, R. Saunders, T. Sheehan, and J. Trial. 2006. Status Review for Anadromous Atlantic Salmon (*Salmo salar*) in the United States. Report to the National Marine Fisheries Service and U.S. Fish and Wildlife Service. 294 pages.
- Fujita, R. & Bonzon, K. *Rev Fish Biol Fisheries* (2005) 15: 309. Kluwer Academic Publishers
- Griffin, D.B., S. R. Murphy, M. G. Frick, A. C. Broderick, J. W. Coker, M. S. Coyne, M. G. Dodd, M. H. Godfrey, B. J. Godley, L. A. Hawkes, T. M. Murphy, K. L. Williams, and M. J. Witt. 2013. Foraging habitats and migration corridors used by a recovering subpopulation of adult female loggerhead sea turtles: implications for conservation. *Mar. Biol.* 160: 3071–3086.
- Haas, H.L. 2010. Using observed interactions between sea turtles and commercial bottom-trawling vessels to evaluate the conservation value of trawl gear modifications. *Mar. Coast. Fish.* 2, 263-276.
- Hain, J.H.W., M.J. Ratnaswamy, R.D. Kenney, and H.E. Winn. 1992. The fin whale, *Balaenoptera physalus*, in waters of the northeastern United States continental shelf. *Reports of the International Whaling Commission* 42: 653-669.
- Hanlon RT. 1990. Maintenance, rearing and culture of teuthoid and sepioid squids. In: Gilbert DL,

- Adelman Jr WJ, Arnold JM (eds) Squid as experimental animals. Plenum Press, New York, pp 35–62.
- Hawkes, L.A., A.C. Broderick, M.S. Coyne, M.H. Godfrey, L.-F. Lopez-Jurado, P. Lopez-Suarez, S.E. Merino, N. Varo-Cruz, and B.J. Godley. 2006. Phenotypically linked dichotomy in sea turtle foraging requires multiple conservation approaches. *Current Biology* 16: 990-995.
- Hawkes, L.A., M.J. Witt, A.C. Broderick, J.W. Coker, M.S. Coyne, M. Dodd, M.G. Frick, M.H. Godfrey, D.B. Griffin, S.R. Murphy, T.M. Murphy, K.L. Williams, and B.J. Godley. 2011. Home on the range: spatial ecology of loggerhead turtles in Atlantic waters of the USA. *Diversity and Distributions* 17:624–640.
- Hayes, S.A., E. Josephson , K. Maze-Foley , and P. E. Rosel. 2017. U.S. Atlantic and Gulf of Mexico marine mammal stock assessments 2016. NOAA Technical Memorandum NMFS-NE-241.
- Hayes, S.A, E. Josephson, K. Maze-Foley, and P. Rosel. 2018. US Atlantic and Gulf of Mexico Marine Mammal Stock Assessment-2017. NOAA Technical Memorandum NMFS-NE-245.
- Hendrickson, L. C. 2017. Longfin Inshore Squid (*Doryteuthis (Amerigo) pealeii*) Stock Assessment Update for 2017 (available at <http://www.mafmc.org/ssc-meetings/2017/may-17-18>), 11 pp.
- Hendrickson, L. 2016. Report to the Mid-Atlantic Fishery Management Council: Fishery and Survey Data Updates Regarding the Northern Shortfin Squid (*Illex illecebrosus*) and Longfin Inshore Squid (*Doryteuthis (Amerigo) pealeii*) stocks through 2015. 29 pp.
- Hendrickson, L. C., and E. M. Holmes. Essential fish habitat source document: northern shortfin squid, *Illex illecebrosus*, life history and habitat characteristics, 2nd Ed. NOAA Tech. Memo. NMFS-NE-191.
- Iglesias, José, Fuentes, Lidia, Villanueva, Roger, Editors. 2014. Cephalopod Culture. Springer Netherlands. Chapter: Vidal, Erica et al. *Loligo vulgaris* and *Doryteuthis opalescens*.
- Henry AG, Cole TVN, Hall L, Ledwell W, Morin D, Reid A. 2015. Mortality and serious injury determinations for baleen whale stocks along the Gulf of Mexico, United States east coast and Atlantic Canadian provinces, 2009-2013. U.S. Dept Commer, Northeast Fish Sci Cent Ref Doc. 15-10; 45 p. doi: [10.7289/V5C53HTB](https://doi.org/10.7289/V5C53HTB)
- Hilborn, R. (2007), Managing fisheries is managing people: what has been learned?. *Fish and Fisheries*, 8: 285–296.
- Hirth, H.F. 1997. Synopsis of the biological data of the green turtle, *Chelonia mydas* (Linnaeus 1758). USFWS Biological Report 97(1):1-120.
- Holland, Daniel and Ginter, Jay. 2001. Common property institutions in the Alaskan groundfish fisheries. *Marine Policy* 25 (2001) 33-42.
- Hyvarinen, P., P. Suuronen and T. Laaksonen. 2006. Short-term movement of wild and reared

Atlantic salmon smolts in brackish water estuary – preliminary study. *Fish. Mgmt. Eco.* 13(6): 399 -401.

- Jacobson, L.D. 2005. Essential fish habitat source document: Longfin inshore squid, *Loligo Pealei*, life history and habitat characteristics (2nd edition) NOAA Tech. Memo. NMFS NE-193. 52 p.
- James, M.C., R.A. Myers, and C.A. Ottenmeyer. 2005. Behaviour of leatherback sea turtles, *Dermochelys coriacea*, during the migratory cycle. *Proc. R. Soc. B*, 272: 1547-1555.
- James, M.C., S.A. Sherrill-Mix, K. Martin, and R. A. Myers. 2006. Canadian waters provide critical foraging habitat for leatherback sea turtles. *Biological Conservation* 133: 347-357.
- Jefferson, T.A., D. Fertl, J. Bolanos-Jimenez and A.N. Zerbini. 2009. Distribution of common dolphins (*Delphinus spp.*) in the western North Atlantic: a critical re-examination. *Mar. Biol.* 156:1109-1124.
- Johnson, M.R., C. Boelke, L.A. Chiarella, P.D. Colosi, K. Greene, K. Lellis-Dibble, H. Ludemann, M. Ludwig, S. McDermott, J. Ortiz, D. Rusanowsky, M. Scott, J. Smith 2008. Impacts to marine fisheries habitat from nonfishing activities in the Northeastern United States. NOAA Tech. Memo. NMFS-NE-209, 328 p.
- Jones, Nicholas, and McCarthy, Ian, Editors. 2013. Aquaculture rearing techniques for the common cuttlefish *Sepia officinalis* and the Atlantic bobtail squid *Sepioloatlantica*. SEAFARE project (project number 2009-1/123). Work Funded under the European Union Atlantic Area Transitional Programme (2007-2013).
- Kocik, J.F., S.E. Wigley, and D. Kircheis. 2014. Annual Bycatch Update Atlantic Salmon 2013 U.S. Atlantic Salmon Assessment Committee Working Paper 2014:05. Old Lyme, CT. 6 pp.(cited with permission of authors).
- Kynard, B., M. Horgan, M. Kieffer, and D. Seibel. 2000. Habitat used by shortnose sturgeon in two Massachusetts rivers, with notes on estuarine Atlantic sturgeon: A hierarchical approach. *Transactions of the American Fisheries Society* 129: 487-503.
- Lacroix, G.L. and McCurdy, P. 1996. Migratory behavior of post-smolt Atlantic salmon during initial stages of seaward migration. *J. Fish Biol.* 49, 1086-1101.
- Lacroix, G. L, McCurdy, P., Knox, D. 2004. Migration of Atlantic salmon post smolts in relation to habitat use in a coastal system. *Trans. Am. Fish. Soc.* 133(6): pp. 1455-1471.
- Lacroix, G.L. and D. Knox. 2005. Distribution of Atlantic salmon (*Salmo salar*) postsmolts of different origins in the Bay of Fundy and Gulf of Maine and evaluation of factors affecting migration, growth, and survival. *Can. J. Fish. Aquat. Sci.* 62: 1363–1376.
- Laney, R.W., J.E. Hightower, B.R. Versak, M.F. Mangold, W.W. Cole Jr., and S.E. Winslow 2007. Distribution, habitat use, and size of Atlantic sturgeon captured during cooperative winter tagging cruises, 1988–2006. Pages 167-182. In: J. Munro, D. Hatin, J. E. Hightower, K. McKown, K. J. Sulak, A. W. Kahnle, and F. Caron, (editors), *Anadromous sturgeons: Habitats,*

threats, and management. Am. Fish. Soc. Symp. 56, Bethesda, MD.

Lenfest 2012. Pikitch, E. et al. 2012. Little Fish, Big Impact: Managing a Crucial Link in Ocean Food Webs. Lenfest Ocean Program. Washington, DC. 108 pp. Available at: <http://www.oceanconservationsscience.org/foragefish/>.

Leos 1998. The Biological Characteristics fo the Monterey Bay Squid Catch and the Effect of a Two-Day-Per-Week Fishing Closure. CalCOFI Report, Volume 39.

Lyssikatos MC. 2015. Estimates of cetacean and pinniped bycatch in Northeast and mid-Atlantic bottom trawl fisheries, 2008-2013. U.S. Dept Commer, Northeast Fish Sci Cent Ref Doc. 15-19.

Macy, W.K., and J.K.T. Brodziak. 2001. Seasonal maturity and size at age of *Loligo pealeii* in waters of southern New England. ICES J. Mar. Sci. 58: 852-864.

MAFMC 2008. Amendment 9 to the Atlantic Mackerel, Squid, and Butterfish Fishery Management Plan. Available at: <http://www.mafmc.org/fisheries/fmp/msb>.

MAFMC 2010. Amendment 10 to the Atlantic Mackerel, Squid, and Butterfish Fishery Management Plan. Available at: <http://www.mafmc.org/fisheries/fmp/msb>.

MAFMC 2013a. 2014 Atlantic Mackerel, Squid, and Butterfish Specifications and Management Measures Environmental Assessment. Available at <https://www.greateratlantic.fisheries.noaa.gov/regs/2014/January/14smb2014specsprea.pdf>.

MAFMC 2013b. EIS for Amendment 14 to the MSB FMP. Available at <http://www.mafmc.org/msb/>.

MAFMC 2014. Report of May 2014 SSC, available at <http://www.mafmc.org/s/SSC-2014-May-Report.pdf>.

MAFMC 2015a. Report of May 2015 SSC, available at <http://www.mafmc.org/ssc-meetings/2015/may-13-14>.

MAFMC 2015b. Report of May 2015 MSB Monitoring Committee, available at [https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/5568b8dbe4b0e4f916c033d7/1432926427055/Tab+02\\_MSBSB.pdf](https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/5568b8dbe4b0e4f916c033d7/1432926427055/Tab+02_MSBSB.pdf).

MAFMC 2016. EA for 2016-2016 MSB Specifications, available at <https://www.greateratlantic.fisheries.noaa.gov/regs/2016/January/16msb2016specspr.html>.

MAFMC 2016b. Mid-Atlantic Fishery Management Council Ecosystem Approach to Fisheries Management Guidance Document. Available at [http://www.mafmc.org/s/EAFM\\_Guidance-Doc\\_2017-02-07.pdf](http://www.mafmc.org/s/EAFM_Guidance-Doc_2017-02-07.pdf).

MAFMC 2017. EA for 2018-2020 MSB Specifications, available at MAFMC 2016. EA for 2016-2016 MSB Specifications, available at <https://www.greateratlantic.fisheries.noaa.gov/regs/2016/January/16msb2016specspr.html>.

- MAFMC 2018. March 29, 2018 FMAT Summary. Available at [http://www.mafmc.org/s/Tab02\\_MSB-Issues-Apr2018.pdf](http://www.mafmc.org/s/Tab02_MSB-Issues-Apr2018.pdf).
- MAFMC 2018b. 2018 RH/S Update. Available at <http://www.mafmc.org/council-events/2018/joint-msb-rhs-committee-meeting>.
- Mansfield, K.L., V.S. Saba, J. Keinath, and J.A. Musick. 2009. Satellite telemetry reveals a dichotomy in migration strategies among juvenile loggerhead sea turtles in the northwest Atlantic. *Marine Biology* 156:2555-2570.
- McClellan, C.M., and A.J. Read. 2007. Complexity and variation in loggerhead sea turtle life history. *Biology Letters* 3:592-594
- Miller T., Adams, C., and Rago, P. 2013. Feasible Bounds on Historic Butterfish Stock Size and Fishing Mortality Rates from Survey and Catch Data. Report to the MAFMC SSC. Available at: <http://www.mafmc.org/ssc-meetings/2013/april-may>.
- Miller, T. and G. Shepard. 2011. Summary of Discard Estimates for Atlantic Sturgeon. Northeast Fisheries Science Center, Population Dynamics Branch, August 2011.
- Murawski S.A. and G.T. Waring. 1979. A population assessment of butterfish, *Peprilus triacanthus*, in the Northwest Atlantic Ocean. *Tran. Am. Fish. Soc.* 108(5): 427-439.
- Miller, T. and G. Shepard. 2011. Summary of Discard Estimates for Atlantic Sturgeon. Northeast Fisheries Science Center, Population Dynamics Branch, August 2011.  
Miller and Shepard 2016?
- Mitchell, G.H., R.D. Kenney, A.M. Farak, and R.J. Campbell. 2003. Evaluation of occurrence of endangered and threatened marine species in naval ship trial areas and transit lanes in the Gulf of Maine and offshore of Georges Bank. NUWC-NPT Technical Memo 02-121A. March 2003. 113 pp.
- Moltschaniwskyj et al 2002. An assessment of the use of short-term closures to protect spawning southern calamary aggregations from fishing pressure in Tasmania, Australia, *Bulletin of Marine Science*, 2002, vol. 71 (pg. 501-514).
- Morreale, S.J. and E.A. Standora. 2005. Western North Atlantic waters: Crucial developmental habitat for Kemp's ridley and loggerhead sea turtles. *Chel. Conserv. Biol.* 4(4):872-882.
- Murphy, T.M., S.R. Murphy, D.B. Griffin, and C. P. Hope. 2006. Recent occurrence, spatial Distribution, and temporal variability of leatherback turtles (*Dermochelys coriacea*) in nearshore waters of South Carolina, USA. *Chel. Cons. Biol.* 5(2): 216-224.
- Murray, K.T., 2008. Estimated Average Annual Bycatch of Loggerhead Sea Turtles (*Caretta caretta*) in U.S. Mid-Atlantic Bottom Otter Trawl Gear, 1996–2004, second ed. U.S. Dep. Commer., Northeast Fish Sci. Cent. Ref. Doc. 08-20, p. 32.  
<<http://www.nefsc.noaa.gov/publications/crd/crd0820>>.

- Murawski S.A. and G.T. Waring. 1979. A population assessment of butterfish, *Peprilus triacanthus*, in the Northwest Atlantic Ocean. *Tran. Am. Fish. Soc.* 108(5): 427-439.
- Murray, K.T. 2015. The importance of location and operational fishing factors in estimating and reducing loggerhead turtle (*Caretta caretta*) interactions in U.S. bottom trawl gear. *Fisheries Research* 172: 440–451.
- NEFSC 2004. Northeast Fisheries Science Center. 2004. Report of the 38th Northeast Regional Stock Assessment Workshop (38th SAW): advisory report. Northeast Fish. Sci. Cent. Ref. Doc. 04-04; 24 p. Available at: <http://www.nefsc.noaa.gov/nefsc/publications/>.
- NEFSC 2005. 42nd Northeast Regional Stock Assessment Workshop (42nd SAW): 42nd SAW assessment summary report. U.S. Dep Commer, Northeast Fish Sci Cent Ref Doc. 06-01; 61 p. Available at: <http://www.nefsc.noaa.gov/publications/crd/crd0601/>.
- NEFSC 2010. Northeast Fisheries Science Center. 2010. 49th Northeast Regional Stock Assessment Workshop (49th SAW) Assessment Report. U.S. Dept Commer, Northeast Fish Sci Cent Ref Doc. 10-01; 383 p. Available at: <http://www.nefsc.noaa.gov/nefsc/publications/>
- NEFSC 2011. 51st Northeast Regional Stock Assessment Workshop (51st SAW) Assessment Report. U.S. Dept Commer, Northeast Fish. Sci. Cent. Ref. Doc. 11-01; 70 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026, or online at <http://nefsc.noaa.gov/publications/>
- NEFSC 2011b. Ecosystem Status Report for the Northeast Shelf Large Marine Ecosystem – 2011. Northeast Fisheries Science Center Reference Document 12-07. Available at <https://www.nefsc.noaa.gov/publications/crd/crd1207/crd1207.pdf>.
- NEFSC. 2014. 58th Northeast Regional Stock Assessment Workshop (58th SAW) Assessment Report. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 14-04; 784 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026, or online at <http://nefsc.noaa.gov/publications/crd/crd1404/>.
- NEFSC. 2017. Butterfish Assessment Update. Available at <http://www.mafmc.org/ssc-meetings/2017/may-17-18>.
- NEFSC 2018. 64th Northeast Regional Stock Assessment Workshop (64th SAW) Assessment Summary Report. U.S. Dept Commer, Northeast Fish Sci Cent Ref Doc. 18-03; 27 p.
- NMFS 1991. Final recovery plan for the humpback whale (*Megaptera novaeangliae*). Prepared by the Humpback Whale Recovery Team for the National Marine Fisheries Service, Silver Spring, MD. 105 pp.
- NMFS. 1994. Report of 17th NEFSC Stock Assessment Workshop. NEFSC, Woods Hole Lab. Ref. Doc. 94-03.
- NMFS. 1996. Draft Report of the 20th Northeast Regional Stock Assessment Workshop, Northeast Fishery Science Center. Woods Hole, MA.

- NMFS. 1996. Report of the 21th Northeast Regional Stock Assessment Workshop, Northeast Fishery Science Center. Woods Hole, MA. June 1996.
- NMFS. 1998. Guidelines for Regulatory Analysis of Fishery Management Actions. Office of Sustainable Fisheries, National Marine Fisheries Service, Silver Spring, Maryland 20910. Revised April 15, 1998.
- NMFS. 1999. Report of the 29th Northeast Regional Stock Assessment Workshop, Northeast Fishery Science Center. Woods Hole, MA. June 1999.
- NMFS 1999. Essential Fish Habitat Source Document: Butterfish, *Peprilus triacanthus*, Life History and Habitat Characteristics. NOAA Technical Memorandum NMFS-NE-145. Available at: <http://www.nefsc.noaa.gov/nefsc/publications/tm/tm145/tm145.pdf>.
- NMFS. 2001. Report of the 34th Northeast Regional Stock Assessment Workshop, Northeast Fishery Science Center. Woods Hole, MA. June 1999.
- NMFS 2005. Final Environmental Impact Statement for Minimizing Impacts of the Atlantic Herring Fishery on Essential Fish Habitat. NOAA/NMFS NE Regional Office, Gloucester, MA, 273 pp.
- NMFS 2010. NMFS Marine Mammal List of Fisheries. 2010. Available at: <http://www.nmfs.noaa.gov/pr/interactions/lof/#lof>.
- NMFS 2010. IMPORTS AND EXPORTS OF FISHERY PRODUCTS ANNUAL SUMMARY, 2010. Available at: <http://www.st.nmfs.noaa.gov/st1/trade/documents/TRADE2010.pdf>.
- NMFS. 2010. Final recovery plan for the fin whale (*Balaenoptera physalus*). Prepared by the Office of Protected Resources National Marine Fisheries Service, Silver Spring, MD. 121 pp.
- NMFS. 2011. Final recovery plan for the sei whale (*Balaenoptera borealis*). Prepared by the Office of Protected Resources National Marine Fisheries Service, Silver Spring, MD. 108 pp.
- NMFS 2012. Year-end Butterfish Mortality Cap Report for the 2011 Fishing Year. Available at: [http://www.mafmc.org/meeting\\_materials/SSC/2012-05/3-2011-Butterfish-Cap-Report%28May%202012%29.pdf](http://www.mafmc.org/meeting_materials/SSC/2012-05/3-2011-Butterfish-Cap-Report%28May%202012%29.pdf).
- NMFS. 2013. NMFS-Greater Atlantic Region Endangered Species Act Section 7 Consultation on the Continued Implementation of Management Measures for the Northeast Multispecies, Monkfish, Spiny Dogfish, Atlantic Bluefish, Northeast Skate Complex, Mackerel/Squid/Butterfish, and Summer Flounder/Scup/Black Sea Bass Fisheries.
- NMFS. 2014. NMFS-Greater Atlantic Region (GARFO). Memo to the record: Determination regarding reinitiation of Endangered Species Act section 7 consultation on 12 GARFO fisheries and two Northeast Fisheries Science Center funded fisheries research surveys due to critical habitat designation for loggerhead sea turtles. Memo issued September 17, 2014.
- NMFS 2015. Northeast Fisheries Science Center Fisheries Statistics Branch (NEFSC FSB). Northeast Fisheries Observer Program: Incidental Take Reports. Omnibus data request + supplemental

data for 2014 from [http://www.nefsc.noaa.gov/fsb/take\\_reports/nefop.html](http://www.nefsc.noaa.gov/fsb/take_reports/nefop.html).

- NMFS. 2015a. Endangered Species Act Section 4(b)(2) Report: Critical Habitat for the North Atlantic Right Whale (*Eubalaena glacialis*). Prepared by National Marine Fisheries Service Greater Atlantic Regional Fisheries Office and Southeast Regional Office, December 2015.  
[http://www.greateratlantic.fisheries.noaa.gov/regs/2016/January/16narwchsection4\\_b\\_\\_2\\_report012616.pdf](http://www.greateratlantic.fisheries.noaa.gov/regs/2016/January/16narwchsection4_b__2_report012616.pdf)
- NMFS. 2015b. North Atlantic Right Whale (*Eubalaena glacialis*). Source Document for the Critical Habitat Designation: A review of information pertaining to the definition of “critical habitat” Prepared by National Marine Fisheries Service Greater Atlantic Regional Fisheries Office and Southeast Regional Office, July 2015.
- NMFS 2016. Northeast Fisheries Science Center Fisheries Statistics Branch (NEFSC FSB). Northeast Fisheries Observer Program: Incidental Take Reports. Omnibus data request + supplemental data for 2015 from [http://www.nefsc.noaa.gov/fsb/take\\_reports/nefop.html](http://www.nefsc.noaa.gov/fsb/take_reports/nefop.html).
- NMFS 2017. NMFS NEFSC FSB (Northeast Fisheries Science Center, Fisheries Sampling Branch). Northeast Fisheries Observer Program (NEFOP) and At-Sea Monitoring (ASM) Program: Incidental Take Reports for Sea Turtles, Sturgeon, and Salmon. Omnibus data request + supplemental data from 1989-2016. Data compiled on May 10 and 15, 2017.
- NMFS and U.S. Fish and Wildlife Service (USFWS). 1991. Recovery plan for U.S. population of Atlantic green turtle (*Chelonia mydas*). National Marine Fisheries Service, Washington, D.C. 58 pp.
- NMFS and U.S. Fish and Wildlife Service (USFWS). 1992. Recovery plan for leatherback turtles (*Dermochelys coriacea*) in the U.S. Caribbean, Atlantic, and Gulf of Mexico. National Marine Fisheries Service, Washington, D.C. 65 pp.
- NMFS and USFWS (U.S. Fish and Wildlife Service). 1995. Status reviews for sea turtles listed under the Endangered Species Act of 1973. Silver Spring, Maryland: National Marine Fisheries Service. 139 pp.
- NMFS and USFWS (U.S. Fish and Wildlife Service). 1998a. Recovery Plan for U.S. Pacific Populations of the Leatherback Turtle (*Dermochelys coriacea*). Silver Spring, Maryland: National Marine Fisheries Service. 65 pp.
- NMFS USFWS (U.S. Fish and Wildlife Service). 1998b. Recovery Plan for U.S. Pacific Populations of the Green Turtle (*Chelonia mydas*). Silver Spring, Maryland: National Marine Fisheries Service. 84 pp.
- NMFS and U.S. Fish and Wildlife Service (USFWS). 2005. Recovery plan for the Gulf of Maine distinct population segment of the Atlantic salmon (*Salmo salar*). National Marine Fisheries Service, Silver Spring, MD.
- NMFS and U.S. Fish and Wildlife Service (USFWS). 2016. Draft recovery plan for the Gulf of Maine distinct population segment of the Atlantic Salmon (*Salmo salar*).  
[http://www.fisheries.noaa.gov/pr/pdfs/20160329\\_atlantic\\_salmon\\_draft\\_recovery\\_plan.pdf](http://www.fisheries.noaa.gov/pr/pdfs/20160329_atlantic_salmon_draft_recovery_plan.pdf)



- NMFS and USFWS (U.S. Fish and Wildlife Service). 2007a. Kemp's ridley sea turtle (*Lepidochelys kempii*) 5 year review: summary and evaluation. Silver Spring, Maryland: National Marine Fisheries Service. 50 pp.
- NMFS and USFWS (U.S. Fish and Wildlife Service). 2007b. Green sea turtle (*Chelonia mydas*) 5 year review: summary and evaluation. Silver Spring, Maryland: National Marine Fisheries Service. 102 pp.
- NMFS and USFWS (U.S. Fish and Wildlife Service). 2008. Recovery plan for the Northwest Atlantic population of the loggerhead turtle (*Caretta caretta*), Second revision. Washington, D.C.: National Marine Fisheries Service. 325 pp.
- NMFS and USFWS (U.S. Fish and Wildlife Service). 2013. Leatherback sea turtle (*Dermochelys coriacea*) 5 year review: summary and evaluation. Silver Spring, Maryland: National Marine Fisheries Service. 91 pp.
- NMFS and USFWS (U.S. Fish and Wildlife Service). 2015. Kemp's ridley sea turtle (*Lepidochelys kempii*) 5 year review: summary and evaluation. Silver Spring, Maryland: National Marine Fisheries Service. 62 pp.
- NMFS and USFWS (U.S. Fish and Wildlife Service). 2016. Draft Recovery Plan for the Gulf of Maine Distinct Population Segment of Atlantic Salmon (*Salmo salar*).  
[http://www.fisheries.noaa.gov/pr/pdfs/20160329\\_atlantic\\_salmon\\_draft\\_recovery\\_plan.pdf](http://www.fisheries.noaa.gov/pr/pdfs/20160329_atlantic_salmon_draft_recovery_plan.pdf)
- NMFS and USFWS (U.S. Fish and Wildlife Service), and SEMARNAT. 2011. Bi-National Recovery Plan for the Kemp's Ridley Sea Turtle (*Lepidochelys kempii*), Second Revision. National Marine Fisheries Service. Silver Spring, MD. 156 pp. + appendices.
- Okutani, T. 1977. Stock assessment of cephalopod resources fished by Japan. U.N. Food and Agriculture Organization Fish. Tech. paper No. 173. 62 p.
- Oliver, M.J., M. W. Breece, D. A. Fox, D. E. Haulsee, J. T. Kohut, J. Manderson, and T. Savoy. 2013. Shrinking the Haystack: Using an AUV in an Integrated Ocean Observatory to Map Atlantic Sturgeon in the Coastal Ocean. *Fisheries* 38(5): 210-216.
- O'Leary, S.J., K. J. Dunton, T. L. King, M. G. Frisk, and D.D. Chapman. 2014. Genetic diversity and effective size of Atlantic sturgeon, *Acipenser oxyrinchus oxyrinchus*, river spawning populations estimated from the microsatellite genotypes of marine-captured juveniles. *Conserv Genet*: DOI 10.1007/s10592-014-0609-9; ISSN 1566-0621.
- Overholtz, W.J. 1989. Density-dependent growth in the Northwest Atlantic stock of Atlantic mackerel (*Scomber scombrus*). *J. Northw. Atl. Fish. Sci.* (9):115-121.
- W.J. Overholtz, J.A. Hare & C.M. Keith (2011): Impacts of Interannual Environmental Forcing and Climate Change on the Distribution of Atlantic Mackerel on the U.S. Northeast Continental Shelf, *Marine and Coastal Fisheries*, 3:1, 219-232
- Patterson, K. (1992). *Fisheries for small pelagic species: an empirical approach to management*

targets. *Reviews in Fish and Fisheries* 2:321-338.

- Payne, P.M. and D.W. Heinemann. 1993. The distribution of pilot whales (*Globicephala sp.*) in shelf/shelf edge and slope waters of the northeastern United States, 1978-1988. *Rep. Int. Whal. Comm. (Special Issue)* 14: 51- 68.
- Payne, P.M., L. A. Selzer, and A. R. Knowlton. 1984. Distribution and density of cetaceans, marine turtles, and seabirds in the shelf waters of the northeastern United States, June 1980 - December 1983, based on shipboard observations. *National Marine Fisheries Service-NEFSC, Woods Hole, MA.* 294pp.
- Payne, P.M., J.R. Nicholas, L. O'Brien and K.D. Powers 1986. The distribution of the humpback whale, *Megaptera novaeangliae*, on Georges Bank and in the Gulf of Maine in relation to densities of the sand eel, *Ammodytes americanus*. *Fish. Bull.* 84: 271-277.
- Payne, P.M., D.N. Wiley, S.B. Young, S. Pittman, P.J. Clapham and J.W. Jossi 1990. Recent fluctuations in the abundance of baleen whales in the southern Gulf of Maine in relation to changes in selected prey. *Fish. Bull.* 88: 687-696.
- Pierce and Guerra 1994. *Stock Assessment Methods Used for Cephalopod Fisheries.* Fisheries Research. Elsevier.
- Read, A.J., P. Drinker, and S. Northridge. 2006. Bycatch of Marine Mammals in the U.S. and Global Fisheries. *Conservation Biology* 20(1): 163-169.
- Reddin, D.G. 1985. Atlantic salmon (*Salmo salar*) on and east of the Grand Bank. *J. Northwest Atl. Fish. Soc.* 6(2):157-164.
- Reddin, D.G and P.B. Short. 1991. Postmolt Atlantic salmon (*Salmo salar*) in the Labrador Sea. *Can. J. Fish Aquat. Sci.* 48:2-6.
- Reddin, D.G and K.D. Friedland. 1993. Marine environmental factors influencing the movement and survival of Atlantic salmon. 4th Int. Atlantic Salmon Symposium. St. Andrews, N.B. Canada.
- Risch, D., C. W. Clark, P. J. Dugan, M. Popescu, U. Siebert, and S. M. Van Parijs. 2013. Minke whale acoustic behavior and multi-year seasonal and diel vocalization patterns in Massachusetts Bay, USA. *Mar Ecol Prog Ser* 489: 279–295.
- SARC 34. 2002. Stock Assessment Review Committee Report. Available at: <http://www.nefsc.noaa.gov/saw/>.
- SARC 38. 2004. Stock Assessment Review Committee Report. Available at: <http://www.nefsc.noaa.gov/saw/>.
- SARC 42. 2006. Stock Assessment Review Committee Report. Available at: <http://www.nefsc.noaa.gov/saw/>.
- SARC 49. 2010. Stock Assessment Review Committee Report. Available at:

<http://www.nefsc.noaa.gov/saw/>.

- Sasso, C.R., and S.P. Epperly. 2006. Seasonal sea turtle mortality risk from forced submergence in bottom trawls. *Fisheries Research* 81:86-88.
- Savoy, T., and D. Pacileo. 2003. Movements and important habitats of subadult Atlantic sturgeon in Connecticut waters. *Transactions of the American Fisheries Society*. 132: 1-8.
- Schevill, W.E., W.A. Watkins, and K.E. Moore. 1986. Status of *Eubalaena glacialis* off Cape Cod. Report of the International Whaling Commission, Special Issue 10: 79-82.
- Schilling, M. R., I. Seipt, M. T. Weinrich, S. E. Frohock, A. E. Kuhlberg, and P. J. Clapham. 1992. Behavior of individually-identified sei whales *Balaenoptera borealis* during an episodic influx into the southern Gulf of Maine in 1986. *Fishery Bulletin* 90:749-755.
- Seminoff, J.A., C.D. Allen, G.H. Balazs, P.H. Dutton, T. Eguchi, H.L. Hass, S.A. Hargrove, M. Jensen, D.L. Klemm, A.M. Lauritsen, S.L. MacPherson, P. Opay, E.E. Possardt, S. Pultz, E. Seney, K.S. Van Houtan, and R.S. Waples. 2015. Status Review of the Green Turtle (*Chelonia mydas*) Under the Endangered Species Act. NOAA Technical Memorandum: NOAA-TM-NMFS-SWFSC-539. NMFS Southwest Fisheries Science Center, March 2015.
- Shashar, Nadav and Hanlon, Rodger. 2013. Spawning behavior dynamics at communal egg beds in the squid *Doryteuthis (Loligo) pealeii*. *Journal of Experimental Marine Biology and Ecology* 447 (2013) 65-74. Available at: [https://www.researchgate.net/profile/Roger\\_Hanlon/publication/275163046\\_Spawning\\_behavior\\_or\\_dynamics\\_at\\_communal\\_egg\\_beds\\_in\\_the\\_squid\\_Doryteuthis\\_Loligo\\_pealeii/links/56b216fd08aed7ba3fedb656.pdf?origin=publication\\_list](https://www.researchgate.net/profile/Roger_Hanlon/publication/275163046_Spawning_behavior_or_dynamics_at_communal_egg_beds_in_the_squid_Doryteuthis_Loligo_pealeii/links/56b216fd08aed7ba3fedb656.pdf?origin=publication_list).
- Sheehan, T.F., D.G. Reddin, G. Chaput and M.D. Renkawitz. 2012. SALSEA North America: A pelagic ecosystem survey targeting Atlantic salmon in the Northwest Atlantic. *ICES Journal of Marine Science*, doi:10.1093/icesjms/fss052.
- Shoop, C.R., and R.D. Kenney. 1992. Seasonal distributions and abundance of loggerhead and leatherback sea turtles in waters of the northeastern United States. *Herpetological Monographs* 6:43-67.
- Schuller, P. and D. L. Peterson. 2006. Population status and spawning movements of Atlantic sturgeon in the Altamaha River, Georgia. Presentation to the 14th American Fisheries Society Southern Division Meeting, San Antonio, February 8-12th, 2006.
- Stein, A. B., K. D. Friedland, and M. Sutherland. 2004a. Atlantic sturgeon marine distribution and habitat use along the northeastern coast of the United States. *Transactions of the American Fisheries Society* 133: 527-537.
- Stein, A. B., K. D. Friedland, and M. Sutherland. 2004b. Atlantic sturgeon marine bycatch and mortality on the continental shelf of the Northeast United States. *North American Journal of Fisheries Management* 24: 171-183.
- Stevenson D, Chiarella L, Stephan D, Reid R, Wilhelm K, McCarthy J, Pentony M. 2004.

Characterization of the fishing practices and marine benthic ecosystems of the Northeast U.S. Shelf, and an evaluation of the potential effects of fishing on essential fish habitat. Woods Hole (MA): National Marine Fisheries Service, Northeast Fisheries Science Center, NOAA Technical Memorandum NMFS-NE-181. 179 p.

- Swingle, W.M., S.G. Barco, T.D. Pitchford, W.A. McLellan and D.A. Pabst. 1993. Appearance of juvenile humpback whales feeding in the nearshore waters of Virginia. *Mar. Mamm. Sci.* 9: 309-315.
- TEWG (Turtle Expert Working Group). 1998. An assessment of the Kemp's ridley (*Lepidochelys kempii*) and loggerhead (*Caretta caretta*) sea turtle populations in the Western North Atlantic. NOAA Technical Memorandum NMFS-SEFSC-409:1-96.
- TEWG (Turtle Expert Working Group). 2000. Assessment update for the Kemp's ridley and loggerhead sea turtle populations in the western North Atlantic. NOAA Technical Memorandum NMFS-SEFSC-444:1-115.
- TEWG (Turtle Expert Working Group). 2007. An assessment of the leatherback turtle population in the Atlantic Ocean. NOAA Technical Memorandum NMFS-SEFSC-555:1-116.
- TEWG (Turtle Expert Working Group). 2009. An assessment of the loggerhead turtle population in the Western North Atlantic Ocean. NOAA Technical Memorandum NMFS-SEFSC-575:1-131.
- Timoshkin, V. P. 1968. Atlantic sturgeon (*Acipenser sturio* L.) caught at sea. *Prob. Ichthyol.* 8(4):598.
- TRAC 2010. Transboundary Resources Assessment Committee (TRAC). TRAC Summary Report (TSR). Available online at: <http://www.mar.dfo-mpo.gc.ca/science/trac/tsr.html>.
- U.S. Atlantic Salmon Assessment Committee (USASAC). 2004. Annual Report of the U.S. Atlantic Salmon Assessment Committee.
- Vidal, Erica. 2002. Optimizing rearing conditions of hatchling loligid squid. *Marine Biology*. January 2002.
- Vu, E., D. Risch, C. Clark, S. Gaylord, L. Hatch, M. Thompson, D. Wiley, and S. Van Parijs. 2012. Humpback whale song occurs extensively on feeding grounds in the western North Atlantic Ocean. *Aq. Biol.* 14(2):175–183.
- Waldman, J.R., T. King, T. Savoy, L. Maceda, C. Grunwald, and I. Wirgin. 2013. Stock Origins of Subadult and Adult Atlantic Sturgeon, *Acipenser oxyrinchus*, in a Non-natal Estuary, Long Island Sound. *Estuaries and Coasts* 36:257–267.
- Warden, M.L. 2011a. Modeling loggerhead sea turtle (*Caretta caretta*) interactions with U.S. Mid-Atlantic bottom trawl gear for fish and scallops, 2005–2008. *Biological Conservation* 144: 2202–2212.
- Warden, M.L. 2011b. Proration of loggerhead sea turtle (*Caretta caretta*) interactions in U.S.

- Mid-Atlantic bottom otter trawls for fish and scallops, 2005-2008, by managed species landed. NEFSC Reference Document 11-04; 8 pp. <http://www.nefsc.noaa.gov/publications/crd/>.
- Waring, G. T., C. P. Fairfield, C. M. Ruhsam, and M. Sano. 1992. Cetaceans associated with Gulf Stream features off the northeastern USA shelf. ICES C.M. 1992/N:12 29 pp
- Waring G.T., E. Josephson, C.P. Fairfield-Walsh , K. Maze-Foley K, editors. 2007. U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments -- 2007. NOAA Tech Memo NMFS-NE- 205. 415 pp.
- Waring, G.T., E. Josephson, K. Maze-Foley, and P.E. Rosel, editors. 2014a. U.S. Atlantic and Gulf of Mexico marine mammal stock assessments—2013. NOAA Tech Memo NMFS- NE-228. 475 pp.
- Waring, G.T, F. Wenzel, E. Josephson, M.C. Lyssikatos. 2014b. Serious Injury Determinations for Small Cetaceans and Pinnipeds Caught in Commercial Fisheries off the Northeast U.S. Coast, 2007-2011. U.S. Dept Commer, Northeast Fish Sci Cent Ref Doc. 14-13; 26 p. doi: 10.7289/V5QN64QH
- Waring, G.T., E. Josephson, K. Maze-Foley, and P.E. Rosel, editors. 2015. U.S. Atlantic and Gulf of Mexico marine mammal stock assessments 2014. [http://www.nmfs.noaa.gov/pr/sars/pdf/atl2014\\_final.pdf](http://www.nmfs.noaa.gov/pr/sars/pdf/atl2014_final.pdf)
- Waring, G.T. , E. Josephson , K. Maze-Foley , and P. E. Rosel. 2016. U.S. Atlantic and Gulf of Mexico marine mammal stock assessments 2015. NOAA Technical Memorandum NMFS-NE-238. [http://www.nmfs.noaa.gov/pr/sars/pdf/atlantic2015\\_final.pdf](http://www.nmfs.noaa.gov/pr/sars/pdf/atlantic2015_final.pdf)
- Wiedenmann, J. 2015. Application of data-poor harvest control rules to Atlantic mackerel. Report to the Mid-Atlantic Fishery Management Council. 52pp. Available at: <http://www.mafmc.org/ssc-meetings/2015/may-13-14>.
- Wippelhauser, G.S. 2012. A Regional Conservation Plan For Atlantic Sturgeon in the U. S. Gulf of Maine. Prepared on behalf of Maine Department of Marine Resources, Bureau of Science. NOAA Species of Concern Grant Program Award #NA06NMF4720249A.
- Wippelhauser, G.S., and T.S. Squiers. 2015. Shortnose Sturgeon and Atlantic Sturgeon in the Kennebec River System, Maine: a 1977–2001 Retrospective of Abundance and Important Habitat. Transactions of the American Fisheries Society 144:591–601
- Wirgin, I., L. Maceda, J.R. Waldman, S. Wehrell, M. Dadswell, and T. King. 2012. Stock origin of migratory Atlantic sturgeon in the Minas Basin, Inner Bay of Fundy, Canada, determined by microsatellite and mitochondrial DNA analyses.
- Wirgin, I., M. W. Breece , D. A. Fox , L. Maceda , K. W. Wark, and T. King. 2015a. Origin of Atlantic Sturgeon Collected off the Delaware Coast during Spring Months. North American Journal of Fisheries Management 35: 20–30.
- Wirgin, I., L. Maceda, C. Grunwald, and T. L. King. 2015b. Population origin of Atlantic sturgeon *Acipenser oxyrinchus oxyrinchus* by-catch in U.S. Atlantic coast fisheries. Journal of Fish Biology 86(4):1251–1270.

## **10.0 LIST OF AGENCIES AND PERSONS CONSULTED**

In preparing this document the Council consulted with the NMFS, New England and South Atlantic Fishery Management Councils, Fish and Wildlife Service, Department of State, and the states of Maine through Florida through their membership on or participation with the Mid-Atlantic, New England and/or South Atlantic Fishery Management Councils. In addition, states that are members within the management unit were consulted through the Coastal Zone Management Program consistency process.

## **11.0 LIST OF PREPARERS AND POINT OF CONTACT**

This environmental assessment was prepared by the following member of the Council staff: Jason Didden. Review and document improvement was conducted by NMFS staff at the Greater Atlantic Regional Office in Gloucester, MA and the Northeast Fisheries Science Center in Woods Hole, MA. Questions about this environmental assessment or additional copies may be obtained by contacting Jason Didden, Mid-Atlantic Fishery Management Council, 800 N. State Street, Dover, DE 19901 (302-674-2331). This Environmental Assessment may also be accessed by visiting the NMFS Greater Atlantic Region website at <http://www.greateratlantic.fisheries.noaa.gov/regs/>.

## **12.0 REGULATORY FLEXIBILITY ANALYSIS AND IMPACT REVIEW**

To be added once preferred alternatives are selected.

## **13.0 APPENDIX 1: MATRIX OF CLOSURE TRIGGER THRESHOLDS FOR ALL DAHS**

To be added once preferred alternatives are selected.

## 14.0 APPENDIX 2: MATRIX OF RH/S CAPS FOR ALL DAH OPTIONS

### A. 3b/3c combined with 1b

Proposed Option 1b + 3b RH/S Cap Option (0.74%)						
All numbers are in metric tons (MT)						
Specification	Mackerel 2019 (MT)		Mackerel 2020 (MT)		Mackerel 2021 (MT)	
	Canada1	Canada2	Canada1	Canada2	Canada1	Canada2
Total Acceptable Biological Catch (ABC) from	19,025		26,183		33,001	
Canadian Deduction (1/2 of ABC or ABC-10,000)	9,513	10,000	13,092	10,000	16,501	10,000
DAH (Commercial Quota)	8,025	7,553	11,483	14,471	14,778	21,060
RH/S Cap	59	56	85	107	109	156
Proposed Option 1b + 3c RH/S Cap Option (0.89%)						
All numbers are in metric tons (MT)						
Specification	Mackerel 2019 (MT)		Mackerel 2020 (MT)		Mackerel 2021 (MT)	
	Canada1	Canada2	Canada1	Canada2	Canada1	Canada2
Total Acceptable Biological Catch (ABC) from	19,025		26,183		33,001	
Canadian Deduction (1/2 of ABC or ABC-10,000)	9,513	10,000	13,092	10,000	16,501	10,000
DAH (Commercial Quota)	8,025	7,553	11,483	14,471	14,778	21,060
RH/S Cap	71	67	102	129	132	187

### B. 3b/3c combined with 1c

Proposed Option 1c + 3b RH/S Cap Option (0.74%)						
All numbers are in metric tons (MT)						
Specification	Mackerel 2019 (MT)		Mackerel 2020 (MT)		Mackerel 2021 (MT)	
	Canada1	Canada2	Canada1	Canada2	Canada1	Canada2
Total Acceptable Biological Catch (ABC) from	29,184		32,480		33,474	
Canadian Deduction (1/2 of ABC or ABC-10,000)	14,592	10,000	16,240	10,000	16,737	10,000
DAH (Commercial Quota)	12,933	17,371	14,526	20,557	15,006	21,517
RH/S Cap	96	129	107	152	111	159
Proposed Option 1c + 3c RH/S Cap Option (0.89%)						
All numbers are in metric tons (MT)						
Specification	Mackerel 2019 (MT)		Mackerel 2020 (MT)		Mackerel 2021 (MT)	
	Canada1	Canada2	Canada1	Canada2	Canada1	Canada2
Total Acceptable Biological Catch (ABC) from	29,184		32,480		33,474	
Canadian Deduction (1/2 of ABC or ABC-10,000)	14,592	10,000	16,240	10,000	16,737	10,000
DAH (Commercial Quota)	12,933	17,371	14,526	20,557	15,006	21,517
RH/S Cap	115	155	129	183	134	192

C. 3b/3c combined with 1d

Proposed Option 1d + 3b RH/S Cap Option (0.74%)						
All numbers are in metric tons (MT)						
Specification	Mackerel 2019 (MT)		Mackerel 2020 (MT)		Mackerel 2021 (MT)	
	Canada1	Canada2	Canada1	Canada2	Canada1	Canada2
Total Acceptable Biological Catch (ABC) from	30,868		33,474		33,474	
Canadian Deduction (1/2 of ABC or ABC-10,000)	15,434	10,000	16,737	10,000	16,737	10,000
DAH (Commercial Quota)	13,747	18,999	15,006	21,517	15,006	21,517
RH/S Cap	102	141	111	159	111	159
Proposed Option 1d + 3c RH/S Cap Option (0.89%)						
All numbers are in metric tons (MT)						
Specification	Mackerel 2019 (MT)		Mackerel 2020 (MT)		Mackerel 2021 (MT)	
	Canada1	Canada2	Canada1	Canada2	Canada1	Canada2
Total Acceptable Biological Catch (ABC) from	30,868		33,474		33,474	
Canadian Deduction (1/2 of ABC or ABC-10,000)	15,434	10,000	16,737	10,000	16,737	10,000
DAH (Commercial Quota)	13,747	18,999	15,006	21,517	15,006	21,517
RH/S Cap	122	169	134	192	134	192



## 15.0 APPENDIX 3: 2018 MACKEREL DATA

One key uncertainty of the recent mackerel benchmark assessment is the magnitude of the 2015 year class recruitment estimate. It was the 4<sup>th</sup> highest over the last 30 years, and its magnitude drives the rebuilding projections, which suggest that rebuilding should occur quickly. As accepted in the assessment, the projections also assume typical (roughly the median) recruitment from the 2016 year class and beyond. It will not be until 2021 at the earliest that we have a full assessment update to provide holistic integration of the various data sources used in the assessment to generate updated recruitment and biomass estimates. However, Council staff worked with NMFS staff to obtain what data are currently available to provide some clues about the 2015 and 2016 year classes, which would be age 3s and age 2s respectively in 2018.

Given the age truncation seen in the assessment, catches in 2018 would be expected to be mostly comprised of young fish simply because older fish are rare. The mackerel fishery closed on February 27, 2018 and effectively operated for 6 weeks. It steadily averaged approximately 3 million pounds per week during that time, which was the most robust landing period since early 2009.

Portside and observer data suggests most fish that were being caught in 2018 were likely from the 2015 and 2016 year classes. Figure A4 from the benchmark assessment indicates that age 2 fish have a mean length of approximately 27 cm and age 3 fish have a mean length of approximately 31.5 cm. Small fish of one age class can overlap with large fish of the younger age class (Figure A6 from benchmark assessment). Of the 2,576 mackerel measured portside in early 2018, 79.5% were between 26 cm and 32 cm, which are predominately going to be age 2 and 3 fish (figure M.A1). Quite similarly, 79.4% of measured mackerel in early 2018 observer data were in the 26-32 cm range (figure M.A2). Aged catch data from the Spring 2018 NMFS NEFSC Bigelow trawl survey have also become available (Figure M.A3) and show a relatively high proportion of age 3s (the 2015 year class) but relatively few age 2s (the 2016 year class) or age 1s (the 2017 year class).

Figure M.A1. NMFS Early 2018 Mackerel Port Sampling Data

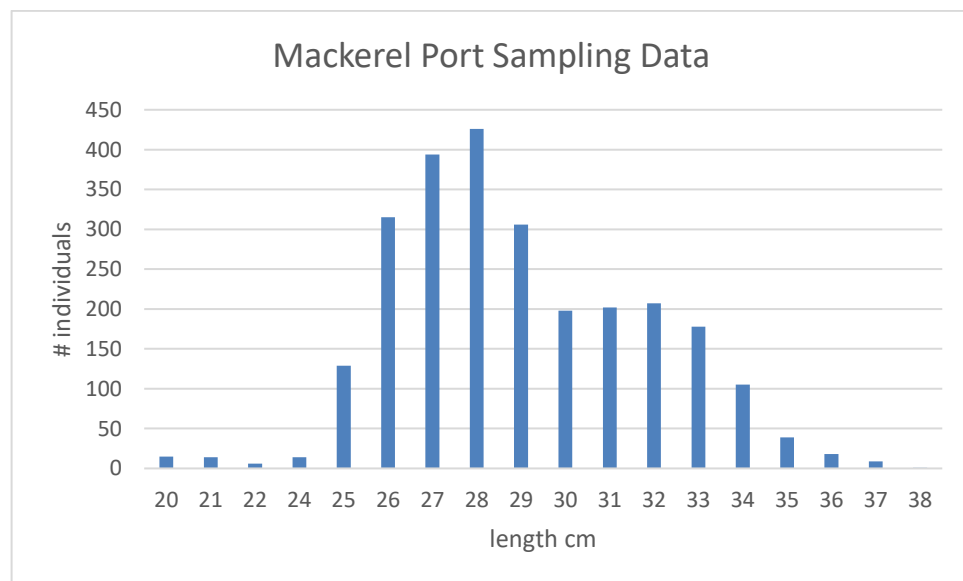


Figure M.A2. NMFS Early 2018 Mackerel Observer Sampling Data

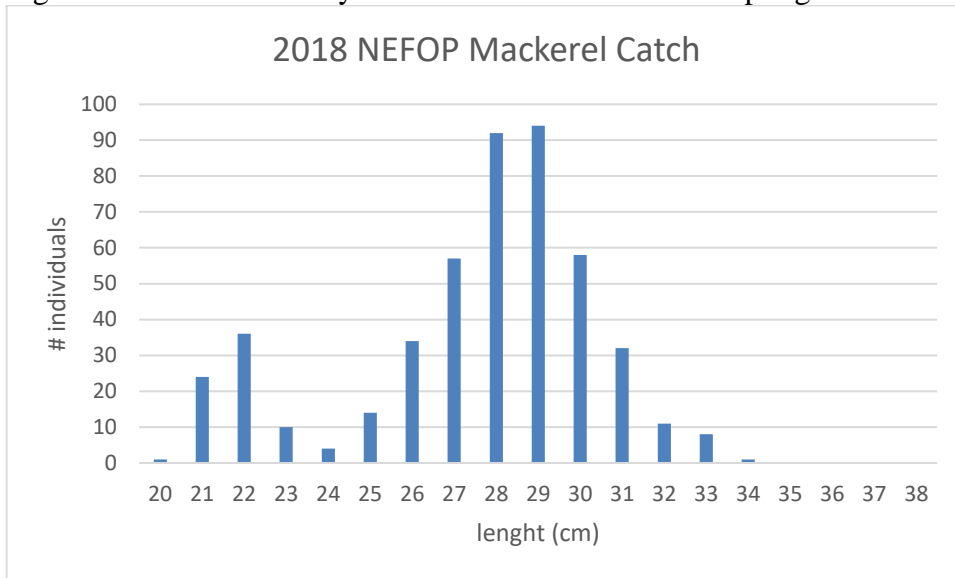
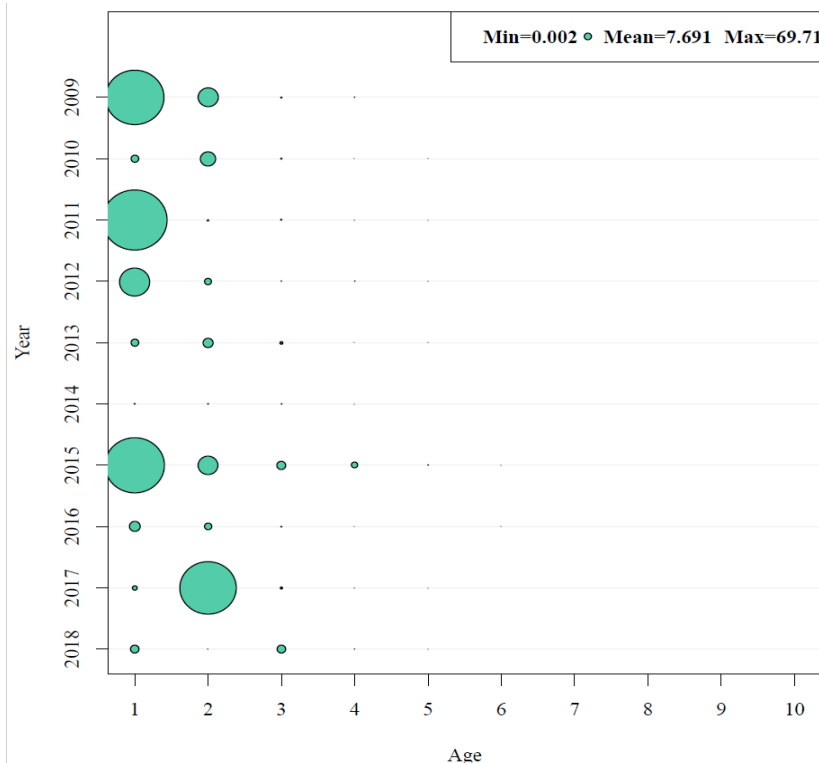


Figure M.A3. Atlantic mackerel catch-at-age in the NEFSC spring Bigelow 2009-2018.



Overall, these data sources seem consistent with what would be predicted based on the benchmark assessment, that fish caught in 2018 would be expected to mostly be age 2-3. While the data generally suggest that recruitment from the 2015 and 2016 year classes is entering the fishery, they are not sufficient to indicate whether the actual magnitude of recruitment from the 2015-2017 year classes may be lower or higher than anticipated.

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## MEMORANDUM

**Date:** July 18, 2018  
**To:** Mackerel, Squid, and Butterfish (MSB) and River Herring and Shad (RH/S) Committees  
**From:** Jason Didden  
**Subject:** 7/17/18 MSB + RH/S Joint AP Meeting Summary

MSB-Only AP Members in Attendance: Meghan Lapp, Bill Bright, Jim Lovgren, Hank Lackner, Gerry O' Neill, Howard King, Mark Krause, Leif Axelsson, Sam Martin, Stephen Weiner.

Members of both APs in Attendance: Katie Almeida, Joseph Gordon, Emerson Hasbrouck, Jeff Kaelin, Pam Lyons Gromen, Peter Moore, Eleanor Bochenek.

RH/S-Only AP Members in Attendance: Shawn Kimbro, Frank Florio, Fred Akers.

Other: Jason Didden, Peter Hughes, Sara Winslow, JM, Erica Fuller, Kiersten Curti, Eric Reid, Vinny Florio, Steve Weiner, Douglas Christel, Aly Pitts, Zack Greenberg, Megan Rodrigo, Christian Berardi.

J. Didden first provided a summary of the recent mackerel assessment followed by technical questions and answers (Q&A). J. Didden then provided a summary of each alternative set, followed by technical Q&A and then the AP members provided input on the alternatives. Recent RH/S information was also reviewed before discussion of the RH/S cap alternatives. Input from the APs and others is summarized below.

### Alternative Set 1 – MSB AP Members

Joseph Gordon (for self and PEW): We need to be cautious about projections particularly given the uncertainty in the terminal year. The fishery has declined by about 90%-95% since Magnuson and there's been overfishing for at least the past decade. None of the major recent recruitment events, including ones much higher than 2015 have materialized into a substantial enduring increases in biomass. Some options would really increase risk and catch. We support 1b with a 50-50 split with Canada. My read of the Magnuson Act is that this is the only approvable option due to the requirement to rebuild as quickly as possible and the other options are slower than what's possible. I haven't seen any economic analyses but it's hard to see what the damage of not

increasing would be. Mackerel's role as forage also should be factored in and suggests a lower catch/faster rebuilding.

Jeff Kaelin (Lunds): The assessment considers mackerel's role as forage. The 10,000 MT deduction for Canada makes a lot of sense. I like the reduction of the management uncertainty buffer reduction but might also like status quo on the closure triggers. Are they linked? (Staff: yes, from staff's perspective) We support the staff recommendation 1c at this time. The boats have been maintained and can harvest substantial quotas. This assessment seems to be getting to what the productivity of this stock is and we've been the victim of historical misestimation of the quotas. There's been no 50-50 history of sharing this fishery with Canada.

Pam Lyons Gromen (Wild Oceans): We support 1b with the 50% Canadian reduction. It follows the Council's risk policy and it's troubling that the Council would move the line when the risk policy kickstarts an action. 1b rebuilds biomass and will increase biomass to 150% of Bmsy. The 50% Canadian deduction involves more precaution which is warranted given the state of the stock and can be adjusted lower later depending on Canadian actions. The Council should consider that Atlantic herring stocks appear to be in decline, and mackerel may soon be more important as forage, further warranting caution.

Emerson Hasbrouck: I would go with the staff recommendation (1c) given the available analyses. It rebuilds in a timely manner and considers the needs of fishing communities.

Gerry O'Neil: I prefer 1c with the 10,000 MT Canadian deduction. It provides for timely rebuilding but allows the fishery to get what it can, and mackerel will be more important to this fishery given what appears to be coming with herring (much lower quotas).

Bill Bright: I represent the fishing vessels Enterprise and Retriever and we support 1c, the staff recommendation with the 10,000 MT Canadian deduction. Need to remember that there are large areas in the Gulf of Maine that we don't have access to. We would have definitely caught the full quota last year (Staff: the RH/S cap shut the fishery slightly before the quota would have).

Peter Moore: I support the staff recommendation. The limitations on the fleet in terms of spatial access are really important to keep in mind. The 50-50 split with the Canadians seems unprecedented.

Katie Almeida: I support the staff recommendation.

Howard King: I prefer the staff recommendation.

Leif Axelsson: I support the 1C option with the 10,000 MT Canada allocation

#### Alternative Set 1 – RH/S AP Members and Public

Fred Akers (via email): It is not clear in the existing documents how any of the options would rebuild mackerel. Based on those the best alternative offered by staff is "Alternative 1b. 3-Year Rebuilding based on P\* with no risk policy change" with the 2019 catch reductions, but the 2020

and 2021 DAH catch increases under 1b appear just as arbitrary and capricious as in the other alternatives. Discussion on the call provided more explanation of how the projections were done and how they might rebuild mackerel.

#### Alternative Set 2 – MSB AP Members

Gerry O’Neil: Is there a provision where underages roll over? (Staff: No) At 80% or 85% it seems like we’ll be leaving a lot of quota on the table. At a 40,000 pound or 30,000 pound trip limit the traditional directed fishery won’t do anything with that and you’ll leave a lot of fish uncaught from year to year. Also need to avoid repeat of possible total closure.

Jeff Kaelin: I agree with Gerry and we like the status quo closure at 95%. Could we close at 95% and have incidental permits go to 5,000 pounds at that point (Tiers would still go to 20,000 pounds)? (Staff: the Council could do that). I suggest a modification to closing at 95% with a 5% management uncertainty buffer and have incidental permits go to 5,000 pounds at the 95% closure buffer. At 100% everyone would go to a 5,000 pound trip limit. More of the quota will not be caught under the current alternatives versus this modified approach.

Leif: Could use the system proposed by staff but close initially at 90% and have a 40,000 pound trip limit. I think that would get the directed fishery closer to the quota and leave a enough of a buffer without fear of going over. You could also reduce the trip limits for the different Tiers.

Pam Lyons-Gromen: It was troubling that we had to change this year to allow harvest over the DAH so these options seek to avoid that. I’m very interested in the jig fishery and think that the Council should consider ways to encourage this fishery and should not select options that would discourage this fishery or take them out of the system.

Emerson Hasbrouck: I support Jeff’s proposed modified option.

Peter Moore: I also support Jeff’s proposed modified option.

#### Alternative Set 2 – RH/S AP Members and Public

Fred Akers (via email): I agree with the staff recommendation for this 2c. alternative, but modified with a 30,000 pound trip limit for directed permits after the 1st closure on the basis that it should allow landings to get near DAH and cover most incidental catch during closures.

### Alternative Set 3 – RH/S AP Members

Peter Moore: Is there a way to show a satellite photo of these river systems to show how the rivers interface with the ocean and how this relates to spawning habitat. I'm thinking about Mike Armstrong's work on the importance of sufficient precipitation and outflow for juveniles. People need to be aware of the habitat and other issues (predation) while they are making decisions about caps limiting fisheries. As the RH/S stocks recover, there will be more in the ocean, and there needs to be a mechanism that allows industry to operate given the efforts they are making. I would support an approach of allowing the cap to increase as RH/S stocks increase. Of the available options and given the lack of assessment information, I would go with 3c.

Shawn Kimbro 2: I am in support of 3a based on severe depletion.

Jeff Kaelin (Lunds): Most offshore surveys are as high as they've been. Maine has increased spawning areas that have seemed to help. The Southern state surveys aren't as positive as the federal surveys and I was surprised by NEAMAP. The mid-water trawl fishery is taking a small fraction of these fish overall. In the offshore region we see what the Federal surveys are seeing that there are more river herring, though we're trying to avoid them. We'd like the Council to consider individual vessel accountability because only a few bad actors can negatively impact the whole fishery. Initially supported staff recommendations. Industry deserves credit for implementing the shore-side monitoring program and avoidance. The RH/S cap should be responsive to both the mackerel quota and RH/S being very hard to avoid. Upon further reflection only 3c is the fairest way to go in order to catch the quota. I'm concerned about 3d – what happens if we trigger the lower cap before 10,000 MT – are we then shut down for the rest of the year (Staff: Yes). That doesn't make sense to me. 3c is conservative enough.

Pan Lyons-Gromen (Wild Oceans): When looking at the river herring landings, need to remember that's mostly from Maine alewives, but the SNE and M-A alewife and particularly blueback herring stocks are of great concern and in poor shape and are under review for endangered species status. We support 3A. The high catch level of "Herring, NK" in 2017 also calls into question whether the cap is fully limiting RH/S catch so we need to stay as conservative as possible. Would like more information on the Herring, NK data. It's also troubling that we can't fully bin RH/S into fisheries so we're not sure if we're being equitable in which fisheries are reducing RH/S catch. Especially American Shad and small-mesh bottom trawl. If the staff recommendation is used, would strongly support 3d to still limit RH/S catch at low mackerel landings.

Joseph Gordon (PEW): The Maine alewives are genetically distinct so the landings information, dominated by Maine, doesn't accurately represent the populations that this Council is looking at. We support 3a. The two protective measures in place are the anti-slippage provisions and the cap. Taking out Maine alewives we are at a very low stock status for the other genetically distinct stocks, blueback in particular, and a large portion of the catch is SNE and Mid-Atlantic. There's no science that suggests if mackerel increase in abundance you'd expect RH/S to increase in abundance. If you stick with a scaling approach and mackerel rebuilds, you're looking at doubling the amount of RH/S being taken out of the ocean and there's no science to suggest that's sustainable so we suggest keeping the cap where it is to drive a reduction in bycatch. There's no evidence that there is a widespread increase in abundance driving higher cap catches. If we're committed to RH/S rebuilding to support fisheries, can't just look at them as bycatch in the

mackerel fishery. RH/S should be managed under Magnuson so that catch limits do get tied to abundance. Absent that we support 3a.

Fred Akers (Greater Egg Harbor Watershed Association): We recommend 3a (keeping the cap where it is). We're hoping the cap results this year are an outlier and in future years the RH/S are avoided and it's not a problem. By email: After participating in today's webinar and hearing the discussion and comments, I think that adding some background information about Amendment 15 would be helpful in informing newer folks how the Council considered and rejected making river herring and shad stocks in the fishery which would have required the building of the abundance information, while at the same time adding conservation measures like catch caps, 100% observer coverage, and voting to address additional conservation measures for river herring and shad through an interagency working group. (I was there, and I recall that John Bullard cast the deciding vote against stocks in the fishery). I think it is important for the Council to recall, and stakeholders to be informed, that the RH/S catch caps in the mackerel fishery and increased observer coverage to conserve RH/S were not some "whim" by the Council, but were instead compromise measures to avoid designating RH/S as stocks in the fishery with abundance estimates, stock assessments, EFH determinations, and the development of an FMP that could have been even more restrictive than adjustable bycatch caps.

Emerson Hasbrouck: Cornell also runs a RH/S bycatch avoidance program and mackerel fishermen can and should report to that program also to help everyone avoid RH/S and it is easy to report on BOATTRACS. Contact Emerson for more information ([ech12@cornell.edu](mailto:ech12@cornell.edu)).

Gerry O'Neil: I would support 3c. We need to tie the cap to the fishery or else you'll close the fishery that much earlier. Need to move to a biologically-based cap – the federal trawl survey is showing more fish and there will be more interactions. It doesn't seem right to shut the fishery down with all the effort we've put in to avoid RH/S.

#### Alternative Set 3 – MSB AP Members and Public

Mark Krause: I support 3A

Meghan Lapp: I support either 3b or 3c. The cap was scaled down when the quota went down and if we're going to have a sliding scale down we need to have one up that is not punitive to the fishery. It won't be possible to achieve optimum yield otherwise.

Leif Axelsson: I will also be in support of 3c, and share Jeff's concerns regarding 3d.







## The Great Egg Harbor Watershed Association & River Council

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**Dick Colby**  
GEHWA

August 1, 2018

Dr. Chris Moore, Executive Director  
Mid-Atlantic Fishery Management Council  
800 N. State Street, Suite 201  
Dover, DE 19901  
(Sent via email)

Re. Mackerel Rebuilding Framework (Including River Herring and Shad Catch Cap)

Dear Dr. Moore:

The Great Egg Harbor River Council and the Great Egg Harbor Watershed Association strongly urge the MAFMC to decrease the removal of river herring and shad from federal waters, and to adopt the following Mackerel Framework measure at the August 13 MAFMC meeting in Virginia Beach:

**Alternative 3a. No action/Status Quo: The current river herring and shad cap of 82 MT would roll over for whichever mackerel quotas are implemented. This is the best alternative in this Framework to protect river herring and shad.**

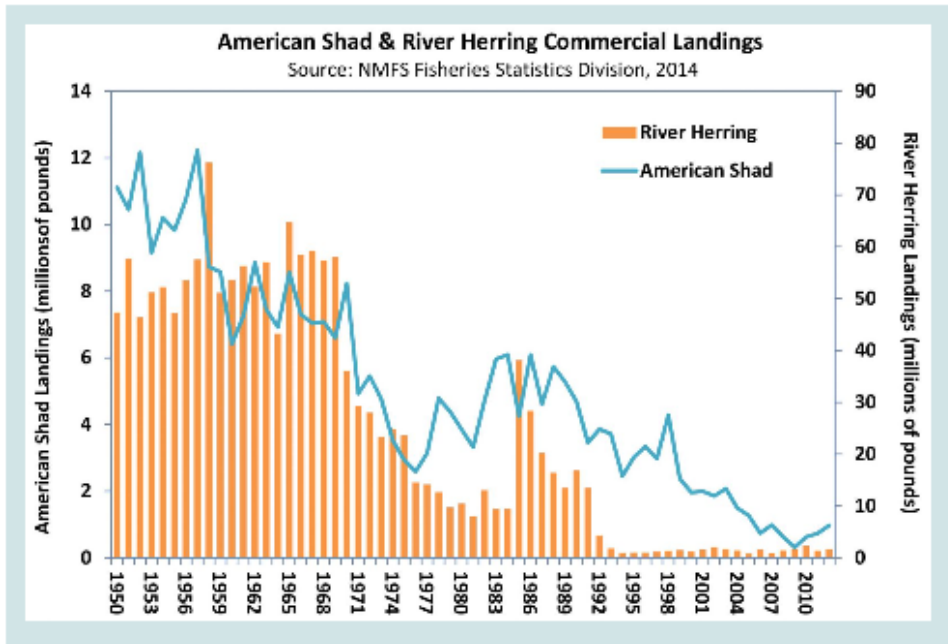
The few existing federal regulatory mechanisms to conserve and manage river herring and shad in their ocean phase in federal waters are totally inadequate, so the very least the Council and NMFS can do is to not increase the rate and quantity of removal of these species from federal waters, and to provide as much observer coverage as possible to monitor the bycatch.

The 2017 RH assessment update by ASMFC has determined that **the coastwide meta-complex of river herring stocks on the US Atlantic coast remains depleted to near historic lows.** <http://www.asmfc.org/species/shad-river-herring> And to respond to that, the ASMFC has enacted closures of river herring and shad fisheries coastwide in state waters, with a few limited exceptions.

We suggest that the Council take a close look at the entire time series of American Shad and River Herring Commercial Landings going back to 1950 in the graph on page 2. For a period of 30 years from 1950 to 1970, annual commercial landings were around 50,000,000 pounds per year before the fishery began to collapse in the 1970's.

[www.gehwa.org](http://www.gehwa.org) – The Official Website of the Great Egg Harbor Watershed Assoc.

Now that the river herring and shad fisheries have collapsed from those historic highs, and these unique forage and ecosystem species are at risk of extinction 40+ years later, the MAFMC should not be allowed to simply write these species off as a “choke species” that interfere with the commercial over fishing of other small forage species like Atlantic Mackerel and Atlantic Herring.



And regarding the frequent anecdotal talk about habitat concerns such as dams and water quality, we would like to point out that most dams were already built by 1950 prior to the 30 year commercial river herring run of 50,000,000 pounds per year, and that water quality was historically very bad leading up to the creation of the Environmental Protection Agency in 1970 and the Clean Water Act in 1972.

Furthermore, inshore river herring and shad habitat overlap significantly with shell fishing waters which have historically received extra water quality protection to support the inshore shell fish industry, and according to the American Rivers Dam Removal Database, 684 dams in total have been removed from the 15 ASMFC states to expand migratory fish habitat, at great public cost.

[https://figshare.com/articles/\\_/5234068](https://figshare.com/articles/_/5234068)

Regarding Atlantic Mackerel, we urge the Council to adopt the following measures:

**Alternative 1b. 3-Year Rebuilding based on P\* with no risk policy change,**

**Alternative 2c. 85% of DAH Initial Trigger modified with a 30,000 pound trip limit for directed permits after the 1st closure on the basis that it should allow landings to get near DAH and cover most incidental catch during closures,**

While Atlantic mackerel stocks have not quite collapsed as much as river herring and shad, the current catch trends are in the down direction with over fishing occurring. Given that all the alternatives increase quota by 2020 based on a single year class in “counting your chickens before they hatch” quota scenarios, we think it would be a serious mistake for the Council to abandon its current conservative risk policy for rebuilding the Atlantic mackerel stock.

Respectfully,

Fred Akers



July 17, 2018

Chris Moore, Executive Director  
Peter Hughes, Chair Mackerel, Squid, Butterfish Committee  
Sara Winslow, Chair River Herring Shad Committee  
Mid-Atlantic Fishery Management Council  
800 N. State St, Suite 201  
Dover, DE 19901

Re. Mackerel Rebuilding Framework (Including River Herring Shad Catch Cap)

Dear Mr. Moore, Mr. Hughes, and Ms. Winslow:

I am writing to express a number of concerns regarding the Draft Framework Adjustment to the Atlantic Mackerel, Squid, and Butterfish Fishery Management Plan (MSB FMP), which includes measures intended to rebuild the Atlantic mackerel stock, set the 2019-2021 mackerel specifications, and change the fishery's accompanying river herring and shad (RH/S) cap.

The recent benchmark mackerel stock assessment (NEFSC 2018) confirmed that mackerel are overfished with overfishing occurring. As a result, under the Magnuson-Stevens Act the MAFMC is required to end overfishing immediately and prepare and implement a rebuilding plan. 16 U.S.C. § 1854(e). To our surprise given the condition of the mackerel resource, the draft plan contains alternatives recommended for adoption by staff that would increase catch as part of the rebuilding plan. This would be achieved through a number of legally suspect changes that would be arbitrary and capricious or contrary to law if adopted. Of specific concern are the following:

- 1) Length of the Rebuilding Plan. Staff recommends adoption of a 5-year rebuilding plan (Alternative 1c), which would likely violate the MSA's rebuilding requirements and be arbitrary and capricious in violation of the APA. The MSA requires that the time period for rebuilding "be as short as possible, taking into account the status and biology of any overfished stocks of fish, the needs of the fishing communities, ... and the interaction of the overfished stock within the ecosystem." As explained further below, Alternative 1c does not reflect a time frame that would be "as short as possible" under the law.
- 2) Changes to the Existing Risk Policy. Alternative 1c (and 1d) would require the Council to change its risk policy to allow for increased catch, and such a change would be arbitrary and capricious. The risk policy was adopted to deal with precisely the type of this situation where stocks are found to be overfished or overfishing is occurring, as well as to help ensure a precautionary management approach is taken. The Council's current Risk Policy states that the SSC should provide an ABC that is the lower of an ABC from the standard P\* approach or the ABC consistent with a rebuilding plan. In this case, applying the existing policy would require implementation of Alternative 1b and would exclude Alternatives 1c and 1d because the standard P\* approach would result in lower

ABCs. In order to work around this result, staff simply recommends changing the risk policy through this framework action and seeks to justify the change and resulting lengthier rebuilding timeline as necessary to “consider the needs of the fishing community.” However, fishing community needs are only one factor to be considered under the law when specifying a time period for rebuilding that is as short as possible. It is not a free pass to be used to the exclusion of all other articulated factors, and instead must be considered in conjunction with them. The other factors include the status and biology of any overfished stock (which in this case would include mackerel, blueback herring, alewife, and red hake),<sup>1</sup> and the interactions of the overfished stock within the marine ecosystem. 16 U.S.C. § 1854(4)(A)(i). Changing the risk policy in order to produce a preferred result (higher and riskier ABCs), and seeking to justify the result by pointing to an isolated factor in the law, contradicts the very purpose of establishing the risk policy and would be arbitrary and capricious and contrary to law.

- 3) Changes to Canadian Catch Accounting. To date the Council has set aside 50 percent of the Total ABC to account for Canadian catch. The “Canada2” options in Alternatives 1a, 1b, and 1c would decrease the amount of ABC attributed to Canadian catch to 10,000 metric tons, the current Canadian quota. The only justification offered appears to be the unsubstantiated belief that Canada will not increase its quota, despite the fact that Canadian Quotas have been increasing in recent years and Canada has started development of new quotas based on the same data that is being looked to by Council staff to justify its recommended increases in mackerel catch. Historically, Canadian landings have paralleled U.S. Domestic landings and there is no reason to believe that Canada won’t also seek to increase their catch given they are relying on the same information as the MAFMC. Additionally, there is an approximate 5,000 mt unreported bait fishery in Canada that is not considered in this decision, and 126 mt of estimated discards in that fishery. *See 2014 Staff Memorandum on MSB specifications*, p. 4. To prevent overfishing and maintain compliance with the requirements of the MSA, the Council must maintain the 50 percent Canadian set aside and account for *all* catch.
- 4) Best Available Science. The Council must base conservation and management measures, including rebuilding plans, on the best available science. 16 U.S.C. §1851(2). The best available science for this action is the 2018 benchmark stock assessment. Despite this, many of the framework alternatives, included staff recommended preferred alternatives, appear to be based on limited and anecdotal information about a potentially robust 2015 year class, which has yet to be scientifically substantiated. Not only is there limited information available on the 2015 year class, but the class is not fully recruited into the population, and we do not know if it will result in a significant increase in biomass. Additionally, staff stated today in the joint MSA and RH/S Advisory Panel meeting, that there have been 4 major recruitment events since 1976, all followed by increased catch in

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<sup>1</sup> The Mackerel Rebuilding Framework states “Non-negligible non-target species therefore include silver hake, spiny dogfish, alewife, blueback herring, American shad, haddock, red hake, winter skate, and John Buckler Dory.” Of these red hake is experiencing overfishing and is overfished (<https://www.nefsc.noaa.gov/publications/crd/crd1802/crd1802.pdf>). There is no assessment for John Buckler Dory. Alewife, blueback herring, and American shad are overfished and have been found to be depleted by the ASMFC (assessment information is available at [www.asafc.org](http://www.asafc.org)).

the mackerel fishery. In turn, none of the major recruitment events materialized into an enduring biomass increase, likely due to overfishing. Some of these events are estimated to have been 2 to 4 times as large as the projected 2015 year class. Increased quotas based on the limited existing information about the 2015 year class would not be based on the best available science.

- 5) River Herring and Shad Catch Cap. Both staff recommendations for the RH/S cap (3b and 3d) would scale up the RH/S catch cap with increases in mackerel catch. There is no scientific data supporting such increases in the catch of RH/S in the mid-Atlantic, and the increases cannot be justified based on increases in mackerel catch limits. Instead, any increase in the catch caps for RH/S must be based on the biology of these species. The best available science shows that RH/S stocks remain severely overfished at or near historic low population levels, particularly the distinct population segment of blueback herring in the mid-Atlantic and southern New England that are being caught in this fishery. As a result, increased catch of these species cannot be justified. Further, this Council, NMFS, and the Department of Justice have sought to defend decisions not to add RH/S as stocks managed through an FMP based on the efficacy of the existing RH/S catch cap. Increasing the cap based on mackerel catch would be arbitrary and capricious, contrary to law, and would undermine the (faulty) basis for failing to develop an FMP for RH/S. The Council should take no action (Alternative 3a) on the RH/S catch cap.
- 6) NEPA Compliance. Most rebuilding plans nationwide are developed through a plan amendment and Environmental Impact Statement (EIS) because of the potential environmental impacts of overfishing and rebuilding plans. Staff has drafted this action as a framework adjustment and Environmental Assessment. Mackerel is one of the East Coast's most significant forage stocks and the contemplated changes to the length of the rebuilding timeline, Canadian catch accounting, risk policy, and RH/S caps would have potentially significant impacts on the environment. Adhering to the shortest possible rebuilding timeline, current Canadian catch accounting, risk policy, and RH/S catch cap would reduce the environmental impacts of this action and could obviate the need for a full Amendment and EIS.

We urge you to adopt a rebuilding plan for mackerel that is based on the best available science and that will immediately end overfishing and rebuild this important forage stock as quickly as possible, with the appropriate amount of precaution consistent with existing risk policy.

Thank you for considering these comments in your deliberations on the mackerel rebuilding framework.

Sincerely,

/s/ Roger Fleming

Roger Fleming, Staff Attorney  
Earthjustice

Cc Jason Didden, Atlantic Mackerel, Squid, and Butterfish Plan Coordinator

**From:** Jean Public <[jeanpublic1@yahoo.com](mailto:jeanpublic1@yahoo.com)>

**Sent:** Monday, July 2, 2018 4:10 PM

**To:** Contact MAFMC <[contact@mafmc.org](mailto:contact@mafmc.org)>; [info@pewtrusts.org](mailto:info@pewtrusts.org); SIERRA SIERRA CLUB  
<[information@sierraclub.org](mailto:information@sierraclub.org)>

**Subject:** Fw: public comment on federal registger wouldnt needa meeting on rebuilding mackeral ifyou protected it in the firrtst place

so yuou have allowed the mackeral to become so depleted that now they need rebuilding. that shows that you are not enforcing quotas. yhou spend none of our tax dollars on enforcing the law and the poaching and taking more than allowed is rampant. when there is money to be made, clearly they take all they can, regardless of quotas, which are too high anyway. we need lower quotas - lowe them by 50% immediately. this comment is for the public record. please receipt. jean publiee [jeanpublic1@yahoo.com](mailto:jeanpublic1@yahoo.com)

this agency is a tool of the commercial fish industry and not protecting the peole of this country

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**From:** Capt. Paul Eidman <[paulyfish@reeltherapy.com](mailto:paulyfish@reeltherapy.com)>

**Sent:** Monday, July 30, 2018 2:48 PM

**To:** Moore, Christopher <[cmoore@mafmc.org](mailto:cmoore@mafmc.org)>

**Subject:** Mackerel Rebuilding Framework comment

**Importance:** High

July 29, 2018

Chris Moore, Executive Director

Mid-Atlantic Fishery Management Council

800 N. State Street, Suite 201

Dover, DE 19901

Re. Mackerel Rebuilding Framework (Including River Herring and Shad Catch Cap)

Dear Mr. Moore:

According to the recent benchmark stock assessment (NEFSC 2018), the Atlantic mackerel stock has been declared overfished, with overfishing occurring in 2016. In addition to the mackerel stocks currently being overfished, the 2017 River Herring assessment update by ASMFC has determined that the coastwide meta-complex of river herring stocks on the US Atlantic coast remains depleted to near historic lows.

Given that sound science reports that these fish populations are all in serious trouble, the Mid-Atlantic Fisheries Management Council needs to apply the

following most conservative management measures possible to protect these forage fish from further decline under the Mackerel Rebuilding Framework:  
Alternative 1b. 3-Year Rebuilding based on P\* with no risk policy change,  
Alternative 2c. 85% of DAH Initial Trigger modified with a 30,000 pound trip limit for directed permits after the 1st closure on the basis that it should allow landings to get near DAH and cover most incidental catch during closures,  
Alternative 3a. No action/Status Quo: The current river herring and shad cap of 82 MT would roll over for whichever mackerel quotas are implemented. This is the best alternative to protect river herring and shad.

*Given the Council's Ecosystem Approach to Fisheries Management for forage fish, the next 3 years are not the time to increase the removals of these over fished and depleted species.*

Respectfully,  
Paul

Capt. Paul Eidman  
Concerned recreational angler  
Owner of NJ based Recreational fishing charter boat business  
Founder of River Herring Rescue

Capt. Paul Eidman  
732.614.3373

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[www.reeltherapy.com](http://www.reeltherapy.com)  
[www.menhadendefenders.org](http://www.menhadendefenders.org)  
[www.anglersconservationnetwork.org](http://www.anglersconservationnetwork.org)

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**From:** Germain Cloutier <[stripedbassking@yahoo.com](mailto:stripedbassking@yahoo.com)>  
**Sent:** Monday, July 30, 2018 5:15 PM  
**To:** Moore, Christopher <[cmoore@mafmc.org](mailto:cmoore@mafmc.org)>  
**Subject:** Mackerel Rebuilding stock

Hello Mr. Moore,

The science and numbers are there, and with the Stock being declared as overfished I please urge there to be a closer look into this proposed quota increase, up and down the East coast Mackerel have been tough to come by and it would be a shame if this trend continues. Not to mention the bycatch of Herring, Menhaden, and other baitfish that will occur in larger numbers if this quota is increased. So please with Baitfish being the building blocks to the East Coast fisheries we need to keep them around, they are more valuable alive then dead to the ecosystem for the tuna, striped bass, bluefish and other fisheries. Thanks for your time and I hope that there will be a closer look taken at this proposal and see that making a few quick dollars now will not payoff in the long run.

Thank you,  
Germain

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**From:** Ron Hoff <[bronh22@yahoo.com](mailto:bronh22@yahoo.com)>  
**Sent:** Tuesday, July 31, 2018 9:37 AM  
**To:** Moore, Christopher <[cmoore@mafmc.org](mailto:cmoore@mafmc.org)>  
**Subject:** River Herring

Dear Mr. Moore:

According to the recent benchmark stock assessment (NEFSC 2018), the Atlantic mackerel stock has been declared overfished, with overfishing occurring in 2016. In addition to the mackerel stocks currently being over fished, the 2017 River Herring assessment update by ASMFC has determined that the coastwide meta-complex of river herring stocks on the US Atlantic coast remains depleted to near historic lows.

Given that sound science reports that these fish populations are all in serious trouble, the Mid-Atlantic Fisheries Management Council needs to apply the following most conservative management measures possible to protect these forage fish from further decline under the Mackerel Rebuilding Framework:

Alternative 1b. 3-Year Rebuilding based on P\* with no risk policy change,

Alternative 2c. 85% of DAH Initial Trigger modified with a 30,000 pound trip limit for directed permits after the 1st closure on the basis that it should allow landings to get near DAH and cover most incidental catch during closures, Alternative 3a. No action/Status Quo: The current river herring and shad cap of 82 MT would roll over for whichever mackerel quotas are implemented. This is the best alternative to protect river herring and shad.

Given the Council's Ecosystem Approach to Fisheries Management for forage fish, the next 3 years are not the time to increase the removals of these over fished and depleted species.

Ronald Hoff  
806 E Chester St  
Long Beach, NY 11561

---



**From:** Matthew Herzog <[matthew.herzog@gmail.com](mailto:matthew.herzog@gmail.com)>  
**Sent:** Tuesday, July 31, 2018 9:36 AM  
**To:** Moore, Christopher <[cmoore@mafmc.org](mailto:cmoore@mafmc.org)>  
**Subject:** river herring

Please don't vote to increase the bycatch limits for river herring. Too many high value species depend on them.

Thanks.

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"Wanting a president to fail is like wanting a plane to crash because you don't like the pilot." -Dave Chappell

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**From:** Tim Corlis <[tcorlis@gmail.com](mailto:tcorlis@gmail.com)>  
**Sent:** Tuesday, July 31, 2018 11:29 AM  
**To:** Moore, Christopher <[cmoore@mafmc.org](mailto:cmoore@mafmc.org)>  
**Subject:** Mackerel Rebuilding Framework (Including River Herring and Shad Catch Cap)

Dear Mr. Moore:

According to the recent benchmark stock assessment (NEFSC 2018), the Atlantic mackerel stock has been declared overfished, with overfishing occurring in 2016. In addition to the mackerel stocks currently being over fished, the 2017 River Herring assessment update by ASMFC has determined that the coastwide meta-complex of river herring stocks on the US Atlantic coast remains depleted to near historic lows. Given that sound science reports that these fish populations are all in serious trouble, the Mid-Atlantic Fisheries Management Council needs to apply the following most conservative management measures possible to protect these forage fish from further decline under the Mackerel Rebuilding Framework:

Alternative 1b. 3-Year Rebuilding based on P\* with no risk policy change,  
Alternative 2c. 85% of DAH Initial Trigger modified with a 30,000 pound trip limit for directed permits after the 1st closure on the basis that it should allow landings to get near DAH and cover most incidental catch during closures,  
Alternative 3a. No action/Status Quo: The current river herring and shad cap of 82 MT would roll over for whichever mackerel quotas are implemented. This is the best alternative to protect river herring and shad.

Given the Council's Ecosystem Approach to Fisheries Management for forage fish, the next 3 years are not the time to increase the removals of these over fished and depleted species.

--

Tim Corlis - Rutgers University  
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848-932-6146 & 848-932-6147 voice

732/932-7012 fax

\*\*\*This message was dictated with voice-recognition software.

Please excuse any inadvertent word substitutions.

ten fingers all the way! ... ;)

[tcorlis@gmail.com](mailto:tcorlis@gmail.com)

[tcorlis@rutgers.edu](mailto:tcorlis@rutgers.edu)

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**From:** Chris Lish <[lishchris@yahoo.com](mailto:lishchris@yahoo.com)>

**Sent:** Tuesday, July 31, 2018 2:19 PM

**To:** Moore, Christopher <[cmoore@mafmc.org](mailto:cmoore@mafmc.org)>

**Subject:** Protect River Herring and Shad -- Adopt Alternative 1a and 3a

Tuesday, July 31, 2018

Mid-Atlantic Fishery Management Council  
Suite 201, 800 North State St.  
Dover, DE 19901

Subject: Protect River Herring and Shad -- Adopt Alternative 1a and 3a

Dear Chairwoman Winslow, Chairman Hughes, and Dr. Moore,

Please do not support any increase in the catch limit for Atlantic mackerel or river herring and shad, which were once among the premier forage species in the western Atlantic. As the Mid-Atlantic Fishery Management Council (Council) debates the rebuilding framework for Atlantic mackerel, its associated 2019-2021 specifications, and the river herring and shad bycatch cap, I urge you to not allow any increase on these depleted forage species.

*“Our duty to the whole, including to the unborn generations, bids us to restrain an unprincipled present-day minority from wasting the heritage of these unborn generations. The movement for the conservation of wildlife and the larger movement for the conservation of all our natural resources are essentially democratic in spirit, purpose and method.”*

*-- Theodore Roosevelt*

Specifically, I strongly urge you to support “Alternative 1a. No action/Status Quo (current specifications roll over with no action)” and “Alternative 3a. No action/Status Quo (current measures roll over with no action)” as part of the Mackerel Rebuilding Framework. These are the only alternatives supported by the best available science and consistent with the Council’s risk policy and ecosystem approach to fisheries management.

*“Then I say the Earth belongs to each generation during its course, fully and in its own right, no generation can contract debts greater than may be paid during the course of its own existence.”*

*-- Thomas Jefferson*

Atlantic mackerel have declined for decades and have been reduced by over 90 percent. As a result, in recent years the Council has responded with justified catch reductions. Despite those measures, a new benchmark stock assessment, utilizing the best available science, found that mackerel have been subject to overfishing for decades and are now considered overfished, triggering the legal requirement to rebuild the species to abundance as quickly as possible under the Magnuson-Stevens Fishery Conservation and Management Act.

*“As we peer into society’s future, we—you and I, and our government—must avoid the impulse to live only for today, plundering for our own ease and convenience the precious resources of tomorrow. We cannot mortgage the material assets of our grandchildren without risking the loss also of their political and spiritual heritage. We want democracy to survive for all generations to come, not to become the insolvent phantom of tomorrow.”*

*-- Dwight D. Eisenhower*

Similarly, river herring and shad populations have declined by up to 96 percent, and after a decade of ad hoc management by the Council, they remain at or near historic lows and are in even more dire need of conservation and management in federal waters. River herring and shad should be managed under the Magnuson-Stevens Act’s conservation protections that have successfully rebuilt dozens of other species. Unfortunately, the Council voted twice instead for an incidental catch cap in the mackerel fishery. Despite no biological basis for the cap, it’s the only conservation measure for river herring and shad in federal waters.

*“It is our task in our time and in our generation, to hand down undiminished to those who come after us, as was handed down to us by those who went before, the natural wealth and beauty which is ours.”*

*-- John F. Kennedy*

After nearly half a decade, this weak approach has failed to incentivize avoidance, reduce the amount of mackerel, river herring, and shad taken out of the ocean, or result in any significant improvement in coastwide populations. Now the Council is considering

ill-advised alternatives that could increase the catch of mackerel, and double the allowed catch of river herring and shad, as mackerel rebuild. Any increase in the catch of these imperiled forage fish species would be a serious and ongoing threat, undermining efforts to restore these depleted species.

*“Every man who appreciates the majesty and beauty of the wilderness and of wild life, should strike hands with the farsighted men who wish to preserve our material resources, in the effort to keep our forests and our game beasts, game-birds, and game-fish—indeed, all the living creatures of prairie and woodland and seashore—from wanton destruction. Above all, we should realize that the effort toward this end is essentially a democratic movement.”*

*-- Theodore Roosevelt*

The best available science does not support any increase in mackerel, river herring, or shad catch in the Atlantic. Catch limits for mackerel, river herring, and shad should be based on the best available science, species ecology, and the conservation needs of other fisheries, predators, and the ecosystem. Until such strong and responsible ecosystem-based measures are in place, and the best available science demonstrates significant rebuilding of their populations, no catch increases should be allowed.

*“A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise.”*

*-- Aldo Leopold*

Thank you for your consideration of my comments. Please do NOT add my name to your mailing list. I will learn about future developments on this issue from other sources.

Sincerely,  
Christopher Lish  
San Rafael, CA

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

From: Edward Marsh <[marshnj1@aol.com](mailto:marshnj1@aol.com)>

Sent: Thursday, August 2, 2018 9:46 AM

To: Moore, Christopher <[cmoore@mafmc.org](mailto:cmoore@mafmc.org)>

Subject: Mackerel Rebuilding Framework (including River Herring and Shad catch cap)

To Chris Moore at MAFMC:

Please don't increase the Mackerel quota! With stock depleted and at all time lows, now is not the time to Bycatch kill more River herring and American Shad!

Ed Marsh  
Piscataway, NJ

7/27/18

Dear Members of the Mid-Atlantic Fisheries Council,

After attending both meetings, and reviewing all data regarding mackerel, I cannot see how a vote can go forward increasing the catch limits on this very important species. We have no solid data showing a substantial prolonged increase in the mackerel population and we must proceed with caution as to limit increases that would be detrimental to future stocks. How is an increase in quotas a rebuilding plan?

Until we see actual numbers and research stating the recovery of mackerel, the overall take in this fishery should remain conservative. The graphs show no steady growth to biomass and the mackerel stock has been declared overfished, so I advise council to hold off on any increases in quotas, until we have a better mackerel population assessment. My biggest worry is fish data and how accurate it really is. Rebuilding this fishery is imperative.

I believe in keeping catch limits at the current rate, leaving this fishery to rebound on its own given time to replenish in a few years. Council can always adjust catch limits going forward with new data. The main reasoning behind this proposal is the graphs pertaining to catch limits should show a more stable fishery, increasing over time, not spikes in landings. We don't need to increase catch limits every time there is a spike in landing data. I would like to see a gradual increase in population along with a gradual increase in quotas. Management wants to keep this great fishery strong, healthy and thriving for our future generations of fishermen and forage for all predators in the oceans, not a catch more now mentality and hope for the best.

A total acceptable biological catch of 20,000 MT a year should be more than enough to satisfy all involved in this already depleted fishery.

**Alternative set 1:**

**I support 1A, No Action, Status Quo  
(adding a 10,000 MT reduction to Canada's quota if possible)**

**Alternative set 2:**

**I support 2A, No Action, Status Quo**

**Alternative set 3:**

**I support 3A, No Action, Status Quo**

Alewife, blueback herring and American shad should be proposed status quo or even have the fishery closed due to the dramatic low numbers for years of these species and to allow rebuilding. They are all considered depleted and should definitely be protected.

My comment on butterflyfish, according to recent data, this species has not been overfished and must be monitored closely because of poor recruitment. Hopefully these fish will return to average levels and not become a concern in the near future, proving the data to be correct.

My comment for Longfin and Illex squid, it appears that overfishing status was not determined because no overfishing threshold was ever recommended. We do not have enough data to provide us with a solid assessment of squid populations. The fisheries staff should research and recommend, setting a threshold to protect squid from becoming another species on the overfished watch list.

Why risk increasing metric ton limits inflicting more damage to already depleted stocks. I believe giving these fish time to rebuild in a few years we can then make an educated decision on allocating these great resources. It will be a positive effect to the overall fishing community to restore these fish, achieving optimal yield on an ongoing basis.

Remember, our goal, as a fisheries management is to prevent overfishing, rebuild overfished stocks and to protect, restore, and promote the long-term health and stability of the fishery for years to come. Hopefully, council will consider my proposals of no increase in catch limits until these fisheries have been restored and then we can move forward discussing increases in quotas. We can make a difference.

Thank you council.

Best,

Mark Krause

An Advisor to the Mid-Atlantic Fishery Management Council  
Atlantic Mackerel, Squid and Butterfish

August 1, 2018

100 Davisville Pier  
North Kingstown, R.I. 02852 U.S.A.  
Tel: (401)295-2585

Dear Mid Atlantic Council Members,

We would like to submit the following comments regarding both illex and mackerel, for consideration at the August 2018 Council meeting.

### Illex

**1. Illex Control Date.** We support reaffirming the August 2, 2013 illex control date to protect historic fishery participants. Seafreeze vessels have harvested illex every year for the past 30 years, and over that time period have accounted for a significant percentage of all illex landings. Recent fishing years 2017-2018 have caused an increase in non-historic participation and speculation in this fishery, and we support the Council taking action to protect the historic participants who have built this fishery, built these markets, and have relied and continue to rely on this fishery as a significant part of their annual income. Reaffirming the control date will send a clear message to non-historic participants that they may be treated differently under potential new regulations than historic participants.

**2. Illex 2018 and 2019 Specifications.** For the past two illex seasons, 2017 and 2018, illex abundance has been extremely high. This availability has driven increased participation in the fishery, initiating early closures. The fishery has been spread out along the shelf, with large bodies of squid widely distributed throughout its range.<sup>1</sup> This indicates a much larger population than is even available to the Mid Atlantic fishery, as the continental shelf comprises only a small part of illex habitat and a portion of the stock resides out of the range of both the surveys and fishery.<sup>2</sup> Considering the increase in stock size, as evidenced by the fishery itself as well as survey data over the past two years, we believe an increase to both the 2018 and 2019 illex quotas is warranted.<sup>3</sup> The SSC has already stated that

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<sup>1</sup> Quickly reproducing illex, dying after they spawn, have even been washing up on the shores of Nova Scotia in 2018. See <https://www.cbc.ca/news/canada/nova-scotia/squids-dying-nova-scotia-1.4699593>.

<sup>2</sup> "I. illecebrosus is an oceanic squid species and a portion of the stock resides outside the range of NEFSC surveys....In addition, the survey bottom trawl gear may not sample all sizes of this semipelagic species efficiently...Therefore, the NEFSC survey indices may represent a measure of the on shelf availability of I. illecebrosus rather than a measure of relative abundance or biomass. (NEFSC 2006)." See [https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/572ce5fd555986e106faf6fd/1462560255781/squid\\_data\\_update\\_2016.pdf](https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/572ce5fd555986e106faf6fd/1462560255781/squid_data_update_2016.pdf), page 3.

<sup>3</sup> As the R/V Bigelow was unable to conduct a fall survey in 2017 and dropped over 100 Mid Atlantic survey stations in its spring 2018 survey, reliable data is unavailable from this survey. However, NEAMAP spring survey data shows an increase in survey CPUE from a range of 0-16 over the years 2008-2016, to CPUEs of 4,826 in 2017 and 1,563 in 2018. Since the 2017 NEAMAP survey took place later in the season than normal, illex seasonal availability was higher than if the survey had taken place at its normal time. Regardless, the availability for both 2017-2018 is orders of magnitude higher than average and is clear confirmation of the abundance being encountered by the fishery.

landings up to 26,000 mt have not caused harm to the illex stock,<sup>4</sup> and average sizes of squid harvested by the fishery have increased over the past two years.<sup>5</sup> The Mid Atlantic Council's Ecosystem Approach to Fisheries Management is designed to take ecosystem considerations into account while managing single species, and Council analysis has shown that illex climate exposure is both high and positive.<sup>6</sup> Harvests of up to 26,000 mt have not caused harm to the illex stock over time, even in past regimes, which may not have been as favorable to illex production as the current climate. We believe all of these factors warrant an in-season adjustment to increase the ABC to 26,000 mt for 2018, and an adjustment to the illex specifications to allow a 26,000 mt ABC for 2019. We would request that the Council recommend the 2018 in season change to NMFS, and request the SSC review an increase in ABC for 2019.

**3. Illex Capacity Amendment.** In 2017, due to an influx of previously latent effort and high availability of fish, the fishery experienced an unprecedented early closure in mid-September. In 2018, the fishery will close even earlier. Prior to these two years, Seafreeze vessels harvested illex into November. With last year's early closure, our vessels were tied to the dock for months. We cannot afford to have this as a regular occurrence due to an influx of previously non-active participants. With NMFS' recent removal of the tonnage restriction on GARFO permits, speculation of illex permit transfers to high tonnage vessels which would have been previously prohibited is high. This would result in an even earlier closure and introduction of additional non-historic participants to the fishery, as well as a transformation of characteristics of the fishery itself. During most of the years from 1996-2015, the majority of landings have been harvested by 6-15 vessels, which increased to 20 in 2017.<sup>7</sup> The numbers are increasing in 2018 and should speculation of permit transfers continue to increase and go ahead, historic vessels, particularly Seafreeze vessels which are limited in daily freezing capacity, will be crowded out of the fishery they created. We therefore encourage the Council to take action to address these issues and protect historic illex fishery participants by reaffirming the 2013 control date and initiating an illex capacity amendment. Vessels which have fished illex consistently for 30 years should not be tied to the dock because of new entrants jumping into the fishery.

## **Mackerel**

**1. Canada 1 vs Canada 2 Options.** We support the Canada 2 approach to mackerel rebuilding specifications. To date, the documents have contained a 50%/50% split of TAC between the United States and Canada, to account for Canadian harvest. However, we do not support giving Canada more than its actual quota of 10,000 mt. The FMAT has confirmed that this approach is justifiable. Should

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<sup>4</sup> See

[https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/5af5a8051ae6cf4b30f1d3fb/152604877620/0/03\\_Presentation\\_Squids+and+Butterfish+review.pdf](https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/5af5a8051ae6cf4b30f1d3fb/152604877620/0/03_Presentation_Squids+and+Butterfish+review.pdf). and <https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/555e328de4b0e15bc3f35256/1432236685060/May+2015+SSC+Report.pdf>.

<sup>5</sup> See 2018 Fishery Performance Report at

[https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/5ae0f65c03ce640610318d99/1524692572962/2018+MSB\\_FPR.pdf](https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/5ae0f65c03ce640610318d99/1524692572962/2018+MSB_FPR.pdf), as well as dealer data.

<sup>6</sup> See the Council's EAFM Guidance document,

[https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/589a2b61d2b8575c64fe05ff/1486498674225/EAFM\\_Guidance+Doc\\_2017-02-07.pdf](https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/589a2b61d2b8575c64fe05ff/1486498674225/EAFM_Guidance+Doc_2017-02-07.pdf), pages 22 and 24.

<sup>7</sup> See

[https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/5ad7b1f8562fa75adb8ba50a/1524085242200/Illex+illecebrosus\\_data\\_update\\_report\\_for\\_2018\\_MAFMC\\_SSC\\_ABC\\_meeting.pdf](https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/5ad7b1f8562fa75adb8ba50a/1524085242200/Illex+illecebrosus_data_update_report_for_2018_MAFMC_SSC_ABC_meeting.pdf).



Canada change its quota, the Council would also be able to modify the Canadian deduction at its annual specification setting process.

**2. Mackerel Rebuilding Options.** We support the staff recommendation of Alternative 1c, combined with Canada 2. Alternative 1c a 5- year rebuilding plan, which is a quick timeline half of that currently required by the Magnuson Stevens Act. Although Alternative 1c would require a modification to the Council risk policy, 5 years is still an aggressive, proactive approach to rebuilding, more stringent than Magnuson Act requirements.

Some Council members have expressed concern about the certainty of the 2015 year class in lending support for this approach. We remind the Council that the reason a 100% CV was chosen over a 60% CV by the SSC for all mackerel Alternatives was primarily the 2015 year class, “Furthermore, lack of confirmation of the strength of the 2015 year class in commercial landings or bottom trawl surveys suggests that a CV of 100% is appropriate for estimation of ABC”.<sup>8</sup> Unfortunately, the SSC did not consider dealer grading reports in its deliberations, as there was in fact ample evidence of the 2015 year class in commercial catches. Nor did they consider that the peer reviewers of the mackerel assessment stated during the assessment process that the trawl survey was so unreliable (and therefore downweighted) as an index of abundance that it would not matter if the trawl survey were left in or taken out of the assessment.

Regardless of the disconnect between the CV reasoning and assessment, Council members should be aware that the SSC has already incorporated substantial caution in the CV assigned. The reduction in quota due to that incorporation of uncertainty was over 10,000 metric tons in 2019 and 2020, and over 7,000 mt in 2021.<sup>9</sup> Any potential uncertainty over the 2015 year class has been more than considered and accounted for by this CV assignment, and we do not believe that a further accounting of uncertainty of the 2015 year class by the Council is warranted.

Alternative 1c would allow for the needs of the fishery while simultaneously rebuilding the stock in a short timeline. As mackerel rebuilds, the fleet will need the flexibility to continue to operate as the 2015 and 2016 year classes recruit into the fishery. In the early spring of 2018, following the closure of the fishery, an abundance of mackerel on the shelf forced Seafreeze vessels to tie up rather than operate in other fisheries and be forced to discard mackerel. We therefore request that the Council adopt the 1c Alternative, which would allow for that flexibility to operate, prevent discards in the fishery overall, and rebuild the stock at the same time.

**3. In Season Management Options.** The mackerel fishery in Southern New England follows a natural fishery year, rather than a calendar year as mackerel is currently managed. Therefore, the fishery begins in November rather than January. Due to this dynamic, and short of changing the fishery year start date to follow the fishing year instead of the calendar year (which we would support), it is imperative to our vessels that mackerel quota be saved for later in the calendar year to allow Southern New England vessels the opportunity to harvest mackerel in November and December. Therefore, we support Alternative 2b or 2c, which would essentially leave fish on the table for later in the year.

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<sup>8</sup> See

<https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/5afee24b352f530714f16112/1526653516434/May+2018+SSC+Report.pdf>, page 4.

<sup>9</sup> At 100% CV, and current risk policy, the quotas would be as follows: 2019- 19,025 mt; 2020- 26,183 mt; 2021- 33,001 mt. At 60% CV, and current risk policy the quotas would have been as follows: 2019- 31, 764 mt; 2020- 36,790 mt; 2021- 40,766 mt. See mackerel projections P\* file at <http://www.mafmc.org/ssc-meetings/2018/may-8-9>, and May 2018 SSC meeting summary at <https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/5afee24b352f530714f16112/1526653516434/May+2018+SSC+Report.pdf>.

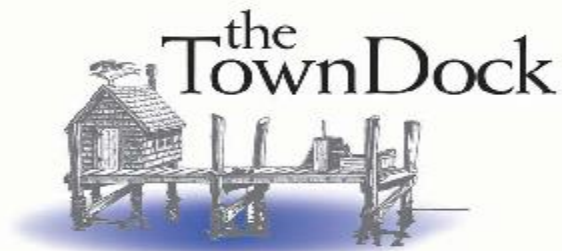
However, we support the 40,000 lb trip limit following the trigger associated with Alternative 2b rather than the staff recommendation of a 30,000 lb trip limit. Seafreeze vessels, unlike most mackerel vessels, do not have 1-3 day trips. Our trips last 1-2 weeks on average. Therefore, a lower trip limit does not work for us as it would work for a tank boat making shorter trips. We need a higher trip limit that accounts for that longer amount of time, consistent with our operations. In 2018, following the mackerel closure, a 20,000 lb trip limit was not even enough to allow our vessels to leave the dock. A 40,000 lb trip limit would still be restrictive for our vessels, but much more workable.

**4. RH/S Cap Options.** We support Alternative 3c, scaling of the RH/S catch cap based on the ratio used in specifications for the past 3 years. The Council should be consistent in its processes, and if RH/S catch caps were scaled down to match mackerel quota, they must also be scaled up to match mackerel quota. Any attempt to scale down but not scale back up accordingly is punitive to the fishery and would prevent the mackerel fishery from achieving optimum yield, contrary to the Magnuson Act. The Council should keep in mind that Alternative 3c is still more restrictive relative to the mackerel quota than the original catch cap. In 2014, the first year of the catch cap, mackerel DAH was 33,821 mt and the catch cap was 236 mt. Under Alternative 3c, when the mackerel DAH reaches 33,474 mt in 2021, the catch cap would be 192 mt, much lower than the original catch cap at virtually the same quota.

We have concerns with the staff recommended Alternative 3d, which would add a low catch trigger whereby the catch cap would remain lower until landings reach a certain level. There is no substantive discussion of what would occur if, prior to the fishery landing 10,000 mt, the lower 89 mt catch cap was met. As RH/S incidental catch can occur unexpectedly, an accidental encounter has the potential to shut down the fishery at low levels, prohibiting the rest of the quota from being utilized. As with other catch caps, the more trips that occur over time, the more smoothed out the data becomes, and catch cap species encounters are usually averaged out over time. By not allowing that to occur, a lower catch cap/harvest trigger could effectively prohibit the majority of the quota from being utilized, which would seem contrary to the mandate to achieve optimum yield from the fishery. Therefore, we continue to support a stand alone 3c Alternative.

Thank you for the opportunity to comment.

Sincerely,  
Meghan Lapp  
Fisheries Liaison, Seafreeze Ltd.



July 31st, 2018

Chris Moore  
Executive Director  
Mid-Atlantic Fishery Management Council  
Suite 201, 800 North State St.  
Dover, DE 19901

Dear Director Moore,

The Town Dock supports the following alternatives in the Mackerel Rebuilding Framework:

Council staff recommended Alternative 1c. 5-year rebuilding based on projections from recent benchmark assessment with the 10,000 MT deduction for Canadian catch. This allows for a reasonable time frame for rebuilding without having to cut catches so dramatically.

Council staff recommended Alternative 2c. 85% of the DAH initial trigger with a 30,000-pound trip limit. This increased limited from 20,000 will make it economically feasible for both a vessel to make a trip out to fish and for a truck to pick up enough product for the travel and fuel to be worthwhile.

Thank you for the opportunity to comment.

Sincerely,  
Katie Almeida  
Fishery Policy Analyst



August 1, 2018

Dr. Chris Moore, Executive Director  
Mid-Atlantic Fishery Management Council  
Suite 201, 800 North State St.  
Dover, DE 19901

**RE: Atlantic Mackerel Rebuilding Framework**

Dear Dr. Moore,

*Wild Oceans* is a non-profit organization founded by anglers 45 years ago to promote conservation of our nation's marine fishery resources. *Conservation Law Foundation* is a nonprofit, member-supported organization founded in 1966 that protects New England's environment for the benefit of all people. We are pleased to provide joint comments for the Atlantic Mackerel Rebuilding Framework. The framework was initiated in response to a 2018 benchmark stock assessment, which concluded that Atlantic mackerel are overfished with overfishing occurring in the terminal year of the assessment.<sup>1</sup>

Atlantic mackerel, prey for a wide array of fish, seabird and marine mammal predators,<sup>2</sup> are an important component of the forage base that supports the Northeast Shelf Large Marine Ecosystem (NES LME). A broader look at the NES LME forage base reveals other depleted forage species. The recent benchmark for Atlantic herring demonstrates that the stock is experiencing poor recruitment and declining in abundance, and an overfished status is likely if the 2015 year class does not recruit into the fishery. In addition, river herring and shad populations remain depleted to historic lows with prohibitions or severe restrictions on directed harvest in all of the mid-Atlantic states.<sup>3</sup>

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<sup>1</sup> Northeast Fisheries Science Center (NEFSC). 2018. 64<sup>th</sup> Northeast Regional Stock Assessment Workshop (64th SAW) Assessment Report. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 18-06; 529 p.

<sup>2</sup> Moustahfid, H., Link, J. S., Overholtz, W. J., and Tyrrell, M. C. 2009. The advantage of explicitly incorporating predation mortality into age structured stock assessment models: an application for Atlantic mackerel. – ICES Journal of Marine Science, 66: 000–000.

<sup>3</sup> ASMFC. 2017. Review of The Atlantic States Marine Fisheries Commission Fishery Management Plan for Shad and River Herring (*Alosa spp.*) for the 2016 fishing year. Available at [http://www.asmfmc.org/uploads/file/59f1f5c0SRH\\_FMPReview2017.pdf](http://www.asmfmc.org/uploads/file/59f1f5c0SRH_FMPReview2017.pdf).

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) is clear regarding requirements to rebuild an overfished stock:

For a fishery that is overfished, any fishery management plan, amendment, or proposed regulations prepared...for such fishery shall specify a time period for rebuilding the fishery that shall be *as short as possible*, taking into account the status and biology of any overfished stocks of fish, the needs of fishing communities, recommendations by international organizations in which the United States participates, and *the interaction of the overfished stock of fish within the marine ecosystem*.

16 U.S.C. § 1854 (e)(4)(A)(i) (emphasis added). Because of Atlantic mackerel’s prominent role in the food web, interactions within the marine ecosystem are considerable, and must be taken into account when complying with the mandate to rebuild the fishery in a time frame that is “as short as possible.”

To incorporate ecosystem approaches into management of its stocks, consistent with guidance from NOAA Fisheries, the Mid-Atlantic Fishery Management Council established a policy “to support the maintenance of an adequate forage base in the Mid-Atlantic to ensure ecosystem productivity, structure and function and to support sustainable fishing communities.”<sup>4</sup> Many of the alternatives in this framework are inconsistent with this policy. Considering both the state of the Atlantic mackerel stock and the other forage species that comprise the aggregate forage base, Wild Oceans and Conservation Law Foundation strongly recommend the following alternatives for the Rebuilding Framework:

- **Alternative 1b combined with Canada 1.** 3-Year Rebuilding Plan for Atlantic Mackerel based on P\* with no risk policy change, using a 50% ABC set-aside for Canada.
  - Alternative 1b is the only alternative that adheres to the MSA’s requirement to rebuild the species in a time frame that is “as short as possible.”
  - Alternative 1b is the only alternative that adheres to the Council’s existing risk policy. For a stock that is in a rebuilding plan, the Council’s risk policy directs the SSC to provide Acceptable Biological Catches (ABCs) that are the lesser of rebuilding ABCs or standard risk policy ABCs. This risk policy was developed carefully through a deliberative process that involved numerous stakeholders. The intent of the risk policy is to safeguard vulnerable stocks that have reached an overfished condition. The SSC, in its report to the Council, noted that both the 5 and 7-year rebuilding options “suggest a more aggressive harvest policy than the Council would use under the P\* approach for both an overfished stock and for a stock at or above its target biomass. Both options result in a smaller difference between the ABC and OFL than the SSC would recommend under the standard risk policy for a stock above its target

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<sup>4</sup> MAFMC 2016. Mid-Atlantic Fishery Management Council Ecosystem Approach to Fisheries Management (EAFM) Guidance Document. Available at [http://www.mafmc.org/s/EAFM\\_Guidance-Doc\\_2017-02-07.pdf](http://www.mafmc.org/s/EAFM_Guidance-Doc_2017-02-07.pdf).

biomass.”<sup>5</sup> We are concerned that the Council would readily dismiss this progressive policy in favor of a risky, short-term bump in quota.

- Alternative 1b is the only alternative that appropriately accounts for the scientific uncertainty regarding the 2015 year class, although assumptions about the size of this year class are the primary drivers of rebuilding projections and their associated catch limits. More precaution is warranted until solid information about the 2015 year class is available in the assessment update scheduled for 2021.
  - Alternative 1b is the only alternative that leaves more mackerel in the water for predators and most quickly achieves biomass levels of 150%  $B_{MSY}$ , consistent with the National Standard 1 Guidelines and scientific literature.<sup>6,7,8,9</sup> It is appropriate because there are no ecosystem considerations addressing mackerel’s role as forage incorporated into either the assessment model or selection of reference points.
  - The Canada 1 sub-alternative is appropriate because Canadian catch has historically kept pace with U.S. catch, warranting a 50% set-aside.<sup>10</sup> Canada’s Atlantic mackerel rebuilding plan is still in development, and it is risky to assume that Canada will hold its quotas at 10,000 metric tons (mt) given projected biomass increases and this action to increase the quota for the U.S. fishery.
- **Alternative 3a.** No action/Status Quo, to maintain the current river herring and shad cap of 82 metric tons.
    - Alternative 3a affords the greatest protection to the most at-risk river herring population groups. Recent studies have found that a disproportionate amount of river herring bycatch in Atlantic mackerel and Atlantic herring fisheries is from the Southern New England alewife group and the Mid-Atlantic blueback herring group, regional genetic groups that have experienced severe recent population declines.<sup>11</sup>

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<sup>5</sup> [Report of the May 2018 SSC.](#)

<sup>6</sup> “Consideration should be given to managing forage stocks for higher biomass than  $B_{MSY}$  to enhance and protect the marine ecosystem.” (50 CFR § 600.310).

<sup>7</sup> Marine Stewardship Council. 2011. Technical Advisory Board D-036: Assessment of Low Trophic Level (LTL) Fisheries. 15 August 2011.

<sup>8</sup> Pikitch, E., Boersma, P.D., Boyd, I.L., Conover, D.O., Cury, P., Essington, T., Heppell, S.S., Houde, E.D., Mangel, M., Pauly, D., Plagányi, É., Sainsbury, K., and Steneck, R.S. 2012. Little Fish, Big Impact: Managing a Crucial Link in Ocean Food Webs. Lenfest Ocean Program. Washington, DC. 108 pp.

<sup>9</sup> FAO. 2003. The ecosystem approach to fisheries. FAO Technical Guidelines for Responsible Fisheries. Food and Agriculture Organization of the United Nations. Rome 2003.

<sup>10</sup> Mackerel Rebuilding Framework, Figure 2, p.40.

<sup>11</sup> Reid, K., Palkovacs, E.P., Hasselman, D.J., Baetscher, D., Kibele, J., Gahagan, B., Bentzen, P., McBride, M.C. and Garza, J.C., 2018. Comprehensive evaluation of genetic population structure for anadromous river herring with single nucleotide polymorphism data. Fisheries Research, 206, pp.247-258.

A new status review for both alewife and blueback herring and new Endangered Species Act (ESA) listing determinations are expected to be completed by January 31, 2019. Unfortunately, when alewife and blueback herring are grouped together in the annual coast-wide landings report, as they are in the Council's recent River Herring and Shad Progress and Cap Review (see Figure 2, p. 15), alewife landings from Maine mask the continuing dire condition of the Southern New England/Mid-Atlantic river herring stocks.<sup>12</sup> Given their status as "species of concern"<sup>13</sup> for more than a decade and impending ESA determinations, the catch cap should not be increased until a biological basis is established.

- Alternative 3a best constrains river herring and shad catch in the mackerel mid-water trawl fishery until the Council fully understands and addresses why overall river herring/shad catch from federal waters is increasing. Since the mackerel fishery cap was implemented in 2014, total river herring/shad extrapolated catch has increased by nearly 100 mt (from 177.55 to 270.65 mt).<sup>14</sup>
- "Not known herring" catch (i.e., Herring, NK) rose significantly in 2017 (a more than four-fold increase from 2015), and it is unclear why since additional observer training was implemented to address this issue in high volume fisheries. This trend is disturbing because Herring, NK are not counted toward either the mackerel fishery or Atlantic herring fishery cap, even though unidentified alosids (i.e., river herring and shad species) are included in this category. We urge you to address this issue with the NEFSC Observer Program as soon as possible.
- Alternative 3a is the most appropriate option to safeguard American shad as the Atlantic States Marine Fisheries Commission completes its new American shad benchmark assessment due to be published in 2019. The previous benchmark assessment concluded that American shad stocks were at historic lows and did not appear to be recovering. The new benchmark assessment may help shed light on the effectiveness of the Atlantic mackerel and herring fisheries caps and whether more needs to be done to address at-sea bycatch of juvenile shad. For example, there is increasing evidence that significant amounts of shad are caught on Georges Bank where there is no federal fisheries cap.

In closing, we reiterate that the ecological importance of Atlantic mackerel, as well as river herring and shad must not be overlooked in the Mid-Atlantic Council's Atlantic Mackerel Rebuilding Plan. Atlantic mackerel are overfished and alewife, blueback herring and American

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<sup>12</sup> Maine 2017 alewife landings totaled 1.68 million pounds, constituting the great majority of total state-reported landings. <https://www.maine.gov/dmr/commercial-fishing/landings/documents/alewife.table.pdf>

<sup>13</sup> See, "Species of Concern in the Greater Atlantic Region." <https://www.greateratlantic.fisheries.noaa.gov/protected/pcp/soc/index.html>

<sup>14</sup> See the 2018 Annual RH/S Progress and Cap Review, Table 7.

shad are severely depleted. Now is not the time to relax the Council's risk policy or to liberalize the river herring and shad cap. Now is the time for the Council to uphold the law and its commitment to valuing the ecosystem by rebuilding mackerel in a time frame that is as short as possible.

Sincerely,



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<https://www.fisheries.noaa.gov/recreational-fishing-data/effort-survey-improvements>

(overview webinar available at that link)



RECREATIONAL FISHING DATA

## Effort Survey Improvements

In its [2006 review](#) of NOAA Fisheries' methods for gathering, estimating, and reporting recreational fishing activity, the independent National Research Council recommended fundamental changes to how we conduct our surveys, and how we engage with our partners and stakeholders. Over the past several years, we have been working on ways to improve our fishing effort estimates on the Atlantic and Gulf coasts. This is the information about how many fishing trips people make.

### Why We Made the Change

NOAA Fisheries surveys households in coastal states to estimate recreational fishing effort. This information is coupled with our complementary on-site surveys of angler catch rates to come up with an overall picture of recreational fishing activity.

Since 1979, NOAA had estimated effort on the Atlantic and Gulf coasts through the Coastal Household Telephone Survey. The CHTS used a method called random-digit dialing (RDD) to target households in coastal counties. For years, RDD had been widely accepted as an effective survey method, and focusing on the coastline had been the best way to find saltwater anglers. However, there are also several well-known shortcomings with this approach:

**RDD was inefficient at identifying anglers.** Many calls went to households where no anglers lived, and we did not contact anglers who lived inland.

With more people abandoning landlines for cell phones, which were not included in the telephone survey, a growing number of potential anglers had become unreachable. Currently, only 45% U.S. households have a landline phone, down from nearly 100 percent as recently as 1998.<sup>1</sup>

**Response rates**, or the number of people who actually pick up the phone and answer the questions, have been declining for all telephone surveys. This is true whether for fishing effort, public opinion polls, or attitudes about a commercial product or service.

In addition, our research suggests that people may not do as well remembering all their fishing activity when asked over the phone.

All of these issues can skew survey results and result in bias. Possible sources of bias include **undercoverage** (not reaching all anglers), **nonresponse** (people not answering the survey), and **measurement error** (inaccurate answers by respondents). MRIP conducted a series of pilot studies to determine the best way to redesign our effort survey to reduce these potential biases.

<sup>1</sup>Blumberg, SJ and Luke, JV. [Wireless substitution: Early release of estimates from the National Health Interview Survey](#), January-June 2017.. National Center for Health Statistics. December 2017

## Pilot Studies

From 2008 to 2015, MRIP conducted six pilot studies to determine the most accurate and efficient survey to estimate marine recreational fishing effort on the Atlantic and Gulf coasts. A 2012 study conducted in Massachusetts, New York, North Carolina, and Florida compared a mail survey design for estimating recreational shore and private boat fishing effort with the Coastal Household Telephone Survey design that had been in use on the Atlantic Coast and Gulf of Mexico since 1979. MRIP subjected the [final report](#) from the pilot project to external peer review in 2014, and certified the new survey design in February 2015 as a suitable replacement for the CHTS. The pilot studies showed that the FES is much less susceptible to potential sources of bias than the CHTS. The mail survey design reaches more anglers, achieves higher response rates, and is less prone to possible recall errors. Survey estimates from the pilot study were 2.6 times higher than CHTS estimates for private boat fishing and 6.1 times higher for shore fishing.

### Goals of the Pilot Studies

- Identify a better method than random digit dialing (RDD) to survey anglers.
- Determine the best way to use license and registration information in our surveys.
- Establish the most effective methods for maximizing angler response.

### What the Pilot Studies Tested

The following methods were tested (for shore and private boat fishing only):

- Telephone survey using license information only, in place of RDD.
- Telephone survey using RDD and license info together.
- Mixed-mode telephone and mail survey.
- Mail-only survey using license info and U.S. Postal Service database.

### Key Results of the Pilot Studies

- In the four states included in the pilot study, mail survey estimates of total effort were 2-6 times higher than Coastal Household Telephone Survey (CHTS) estimates.
- More people responded to the mail surveys than the telephone surveys.

- Estimates using mail surveys can be produced in a timely fashion.
- Licenses and registrations cannot be our only source of contact information because there are too many anglers who are unlicensed, introducing potential bias.
- However, using license and registration lists to identify potential anglers from the samples drawn from the postal address list increases the mail survey efficiency and lowers costs.

## Transition Process

The FES allows us to contact more anglers, including anglers who were not covered in the telephone survey, which has had an impact on the estimates. From the results of our extensive series of pilot studies, we knew the mail survey would produce higher estimates of fishing effort. Because of the complex relationship between effort estimates and other data that go into determining fishery health, higher effort estimates alone do not necessarily mean that overfishing has occurred or is occurring.

To develop a transparent, inclusive means of converting to the new methods, MRIP created a cross-disciplinary [Transition Team](#) consisting of managers, stock assessors, scientists, and state partners. The charge of the team was to produce a comprehensive strategy to transition from the Coastal Household Telephone Survey (CHTS) to the Fishing Effort Survey (FES). After in-depth discussions, the team developed a [three-year plan](#) (PDF, 34 pages) to ensure that potentially significant impacts to the science and management processes were well thought out and accounted for, to the best of our ability, before transitioning to this new methodology for estimating effort.

## Transition and Implementation Timeline

1. **Planning (2014):** MRIP established a Transition Team consisting of members from states, councils, commissions, and NOAA Fisheries. The Atlantic and Gulf Subgroup of the Transition Team developed a plan for the transition from the telephone survey design, or Coastal Household Telephone Survey (CHTS), to the mail survey design, or Fishing Effort Survey (FES).
2. **Benchmarking (2015-2017):** The mail survey design was conducted side-by-side with the telephone survey design for three years. This allowed for measurement and evaluation of consistent differences in the statistical estimates produced from each.
3. **Development of a calibration model (2016-2017):** MRIP staff and expert consultants evaluated consistent differences between estimates produced by the new mail design and the legacy telephone design to determine possible sources of bias in the legacy design that could explain those differences. Experts from NOAA Fisheries used this information to develop a calibration model for re-estimating recreational catch statistics.
4. **Discontinuation of the CHTS and full implementation of the FES (2018):** After the three-year benchmarking period, NOAA Fisheries discontinued the use of the telephone survey. All future estimates will be based on the new mail-based FES.

5. **Re-estimation of historical catches (2018):** After the final 2017 estimates were available and a calibration model was peer reviewed and approved, revised catch and effort statistics for the entire time series (1981-2017) were produced. The calibration was based on the combined FES/CHTS benchmarking comparison and the revised APAIS adjustment outputs.
6. **Incorporation of revised statistics into stock assessments (2018-2020):** The revised catch statistics will be incorporated into key stock assessments as soon as possible. It will take several years to update all managed stocks with new data. Managed stocks were ranked and assessments prioritized with input and guidance from the Atlantic and Gulf Subgroup.
7. **Incorporation of revised statistics and new ACLs into management actions (2018-2021):** Once both revised catch statistics and new assessment results become available, management actions will begin to use both for decision-making as soon as possible.

## Calibration Model Development and Review

Calibration is a critical step in the transition to a new survey design. When survey designs or sampling methods are changed, the new methods may produce results that consistently differ from those derived from the replaced methods. Because stock assessments and fisheries management depend on comparable time series of recreational catch statistics, historical catch statistics produced from a previous design need to be converted to what they would have been had the new survey method been used all along (i.e., into the same “currency” as those produced from the new method). Calibrating the data is the technical process that converts legacy estimates and allows scientists and fishery managers to make apples-to-apples comparisons. It also provides a framework that decision-makers can use for integrating new catch statistics into science and management activities.

A team of NOAA Fisheries staff and consultants created a calibration model to re-estimate the fishing effort statistics back to 1981 from the CHTS “currency” to FES “currency.” The model accounts for the change in survey methods and the shift from landline telephone use to cell phone-only households. The model was peer reviewed and accepted by a panel of independent experts.

We completed a similar process to adjust historical catch rate estimates produced by the Access Point Angler Intercept Survey, the shoreside survey conducted by the states that collects information on angler catch from Maine to Mississippi. This adjustment accounted for any effects of the 2013 change to an improved sampling design for the intercept survey. The approach was peer reviewed and accepted by a panel of independent experts.

[Learn more about the FES Calibration Peer Review.](#)

[Learn more about the APAIS Calibration Peer Review.](#)

## **Implications**

One might assume that higher effort numbers would automatically mean that there are fewer fish out there to catch, but this is not necessarily the case. Our studies indicate that the increase in effort estimates is due to the fact that the FES does a better job of estimating fishing activity, not a sudden rise in fishing. In other words, the CHTS under-estimated fishing activity. After three years of side-by-side comparison, we were able to evaluate differences between FES and CHTS estimates and develop a mathematical model to re-estimate past fishing activity. Now we can look back at historical estimates, calibrate the variance, and predict how much higher past fishing activity was than originally estimated. Because the number of fish being caught is an indicator of fishery health, if effort rates were actually higher in the past than we estimated, then it is possible we were underestimating the number of fish in the population to begin with.



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## MEMORANDUM

**Date:** August 3, 2018

**To:** Council and ASMFC Summer Flounder, Scup, and Black Sea Bass Management Board

**From:** Julia Beaty (MAFMC staff) and Caitlin Starks (ASMFC staff)

**Subject:** Summer flounder, scup, and black sea bass framework and addendum

During their joint meeting on August 14, 2018, the Council and the Atlantic States Marine Fisheries Commission's (ASMFC's) Summer Flounder, Scup and Black Sea Bass Management Board (Board) will consider a joint framework action and addendum (Draft Addendum XXXI) which includes alternatives for conservation equivalency for black sea bass and summer flounder, Block Island Sound transit provisions, and slot limits for all three species.

The objectives of this meeting are for the Council and Board to review and approve the range of alternatives and for the Board to approve the draft addendum for public comment.

This will be the first of two required framework meetings for the Council. The second framework meeting will take place when the Council and Board meet jointly in December 2018 to consider taking final action on this framework/addendum.

The following documents are included behind this tab for Council and Board consideration:

1. A table summarizing the alternatives under consideration in the framework and addendum
2. A memo summarizing the alternatives included in the Council's framework and a draft summary of the potential impacts of the alternatives

The Commission's Draft Addendum XXXI has been posted as a supplemental material in the online version of the briefing book (<http://www.mafmc.org/council-events/2018/august-2018-council-meeting>).

The Council received several public comments regarding summer flounder specifications which also address slot limits. These comments can be found under Tab 9 of the briefing book. Similar comments received after the briefing book deadline will be posted online as supplemental materials under the agenda item for summer flounder 2019 specifications.

**Options and alternatives included in Draft Addendum XXXI (ASMFC) and complementary Council Framework (MAFMC)**

Under each issue or alternative set, only one option or alternative can be selected, unless otherwise noted.

<b>Addendum</b>	<b>Framework</b>	<b>Option/Alternative Header</b>
<b>Issue/Alternative Set 1: Black Sea Bass Conservation Equivalency</b>		
Option 1A	Alternative 1A	Status Quo/No Action (conservation equivalency cannot be used for black sea bass)
Option 1B	Alternative 1B	Update FMPs to allow Black Sea Bass Conservation Equivalency using the Current Summer Flounder Conservation Equivalency Process
Option 1C	Alternative 1C	Black Sea Bass Conservation Equivalency using the Current Summer Flounder Process and Allowing Conservation Equivalency to Roll Over from One Year to the Next (when appropriate)
<b>Issue/Alternative Set 2: Summer Flounder Conservation Equivalency Rollover</b>		
Option 2A	Alternative 2A	Status Quo/No Action
Option 2B	Alternative 2B	Allow Summer Flounder Conservation Equivalency to Roll Over from One Year to the Next (when appropriate)
<b>Issue/Alternative Set 3: Block Island Sound Transit Provisions</b>		
Option 3A	Alternative 3A	Status Quo/No Action
Option 3B	Alternative 3B	Block Island Sound Transit Provisions for Summer Flounder, Scup, and Black Sea Bass Apply in a Defined Transit Corridor for Rhode Island Commercial and Recreational State-Only Permit Holders
Option 3C	Alternative 3C	Transiting Allowed for RI, CT, NY, and MA Permit Holders in the Same Area as the Striped Bass Transit Area
<b><i>Sub-Options/Alternatives for Permit Holders Subject to Transit Provisions under Option/Alternative 3C</i></b>		
<i>Sub-option 3C-1</i>	<i>Alternative 3C-1</i>	Only Recreational Permit Holders
<i>Sub-option 3C-2</i>	<i>Alternative 3C-2</i>	Recreational and Commercial Permit Holders
<b><i>Sub-Options/Alternatives for Measures Addressed by Transit Provisions under Option/Alternative 3C (one or more sub-alternatives could be selected)</i></b>		
<i>Sub-option 3C-3</i>	<i>Alternative 3C-3</i>	Differences in State and Federal Fishing Seasons
<i>Sub-option 3C-4</i>	<i>Alternative 3C-4</i>	Differences in State and Federal Possession Limits
<i>Sub-option 3C-5</i>	<i>Alternative 3C-5</i>	Differences in State and Federal Minimum Fish Sizes
<b>Issue/Alternative Set 4: Slot Limits</b>		
N/A	Alternative 4A	No Action (slot limits cannot be used in federal recreational summer flounder, scup, or black sea bass fisheries)
N/A	Alternative 4B	Modify the Council's FMP to allow use of a maximum size limit for recreational summer flounder, scup, and black sea bass fisheries



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## MEMORANDUM

**Date:** August 3, 2018  
**To:** Council  
**From:** Julia Beaty  
**Subject:** Alternatives and draft impacts analysis for summer flounder, scup, and black sea bass framework on conservation equivalency, Block Island Sound transit, and slot limits

### 1. INTRODUCTION

This document summarizes the alternatives under consideration through a framework adjustment to the Mid-Atlantic Fishery Management Council's (Council's) Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan (FMP). The Atlantic States Marine Fisheries Commission (Commission) is developing a complementary addendum to their Summer Flounder, Scup, and Black Sea Bass FMP. Fisheries for these three species are managed cooperatively by the Council and the National Marine Fisheries Service (NMFS) in federal waters (3-200 miles) and the Commission in state waters (0-3 miles).

The alternatives considered through this action address recreational black sea bass conservation equivalency, conservation equivalency rollover for black sea bass and summer flounder, transit in Block Island Sound, and slot limits for all three species. A summary of the potential impacts of these alternatives is included in this document.

Note: This action does not consider implementing black sea bass conservation equivalency or slot limits for any of the three species in 2019. Rather, the alternatives would update the FMPs to allow these management tools to be used in future years.

### 2. MANAGEMENT ALTERNATIVES

#### 2.1. Alternative Set 1: Black sea bass conservation equivalency

##### 2.1.1. Alternative 1.A: No action (conservation equivalency cannot be used for black sea bass)

The Council and Commission FMPs require uniform coastwide measures (applying to state and federal waters) for the recreational black sea bass fishery. From 1996 to 2010, uniform coastwide minimum fish size, season, and bag limits were used by the Council and Commission to



constrain the recreational fishery to the annual recreational harvest limit (RHL). In recent years, the Commission implemented addenda to allow temporary deviations from this requirement in state waters. These addenda allowed for state-by-state flexibility – first through state shares in 2011 and then through an ad-hoc regional management approach from 2012–2018.

Under the ad-hoc process used for 2012-2018, the Council and Board agreed to coastwide federal waters measures each year. Individual states or regions then worked through the Commission process to develop measures for state waters that would constrain harvest to the RHL. In recent years, the states of New Jersey north implemented management measures in state waters that differed from the federal waters measures.

Under alternative 1.A, the recreational black sea bass fishery would continue to be managed with uniform coastwide measures in federal waters. The Commission could continue to use ad-hoc regional management to set recreational measures in state waters through addenda. The details of how this is carried out may vary year to year. The Board would also have the option of discontinuing ad-hoc regional management and reverting to uniform coastwide measures, or adopting an alternative approach.

### **2.1.2. Alternative set 1.B: Allow black sea bass conservation equivalency using the current summer flounder conservation equivalency process**

This alternative proposes updating the Council and Commission FMPs to allow conservation equivalency to be used for the recreational black sea bass fishery in future years based on the process currently used for summer flounder.

Under this process, the Council and Board decide each year whether to use coastwide measures or conservation equivalency. If they agree to conservation equivalency, they must agree on a set of non-preferred coastwide measures consisting of a minimum fish size, possession limit, and season that, if implemented on a coastwide basis, would constrain harvest to the RHL. They also agree to a set of precautionary default measures. The precautionary default measures are intended to be restrictive enough to deter states/regions from implementing measures which are not approved through the conservation equivalency process.

Individual states or regions develop proposed measures that, when taken as a whole, are the conservation equivalent of the non-preferred coastwide measures (i.e. would be expected to result in the same level of harvest as the non-preferred coastwide measures). An agreed upon management scheme forms the basis for the state or regional measures. For example, early in summer flounder management, the Commission's FMP designated state-by-state measures based on each state's proportion of total harvest in 1998. Recent addenda have deviated from these state-by-state measures, and currently regional (as opposed to state) measures are set to achieve the RHL. If alternative 1.B is selected, the Board would determine the management program to implement conservation equivalency for black sea bass through a separate action. The Board could agree to develop state or regional measures using a different approach than that used for summer flounder (e.g. different regional alignment or data used to set measures).

The Commission's Technical Committee reviews the state/regional proposals to determine if, as a whole, they are expected to constrain harvest to the RHL. The Board then considers the proposals for approval, taking into account the Technical Committee's recommendations. If the Board does not approve an individual proposal, that state or region may submit a revised

proposal. If a state or region implements measures which are not approved by the Board, then the precautionary default measures would be enforced in that state or region.

After reviewing and approving the state/regional proposals, the Board submits a letter to NMFS certifying that the combination of state and regional measures is expected to constrain harvest to the RHL. NMFS then either approves or rejects the combination of proposals. If approved, NMFS waives the federal waters measures (i.e. the non-preferred coastwide measures) for the remainder of the calendar year in favor of the state or regional conservation equivalency measures. Federally-permitted vessels and vessels fishing in federal waters are then subject to the regulations in the states where they land their catch.

Appendix A outlines a potential timeline for black sea bass conservation equivalency based on the typical timeline for the summer flounder process.

### **2.1.3. Alternative 1.C: Black sea bass conservation equivalency using the current summer flounder process and allowing conservation equivalency to roll over from one year to the next (when appropriate)**

This alternative proposes updating the FMPs to allow conservation equivalency to be used for the recreational black sea bass fishery in future years. It proposes establishing a process for black sea bass conservation equivalency based on the process currently used for summer flounder, and would also allow conservation equivalency to roll over from one year to the next with Board and Council approval.

Under the current process for summer flounder, conservation equivalency expires at the end of the year, but the federal waters measures are not waived until the spring, after NMFS receives a letter from the Commission certifying that the combination of state and regional measures is expected to constrain harvest to the RHL. Thus, from January 1 until NMFS completes the rulemaking process to waive the federal waters measures, the non-preferred coastwide measures from the previous year are technically in place in federal waters. This not only creates the potential for confusion, but can also result in federal waters measures that are more restrictive than state waters measures.

If conservation equivalency rolled over from one year to the next, a federal recreational specifications package would not need to be developed annually and NMFS would not need to go through the rulemaking process to waive the federal waters measures each year. However, the Council and Board would still review the non-preferred coastwide and precautionary default measures each year to ensure the fishery would be constrained to the RHL. Given the timing of data availability from MRIP, the Council and Board would continue to review projected fishery performance in December and final recreational estimates early in the next year.

For conservation equivalency to roll over from one year to the next, the non-preferred coastwide and precautionary default measures would need to be appropriate for the RHL in both years. The non-preferred coastwide and precautionary default measures could be crafted with this flexibility in mind.

## **2.2. Alternative Set 2: Summer flounder conservation equivalency rollover**

### **2.2.1. Alternative 2.A: No action (conservation equivalency for summer flounder cannot roll over from one year to the next)**

Under the current process for summer flounder, conservation equivalency expires at the end of each year, and a federal rule must be made each year to implement conservation equivalency and waive the federal waters measures, as described above. Under alternative 2.A, there would be no change to the current summer flounder conservation equivalency process.

### **2.2.2. Alternative 2.B: Allow summer flounder conservation equivalency to roll over from one year to the next (when appropriate)**

Under alternative 2.B, the conservation equivalency process for summer flounder would be modified so that conservation equivalency could roll over from one year to the next. As described in the previous section for black sea bass, if conservation equivalency rolled over from one year to the next, a federal recreational specifications package would not need to be developed annually and NMFS would not need to go through the rulemaking process to waive the federal waters measures each year. However, the Council and Board would still review the non-preferred coastwide and precautionary default measures each year to ensure that the fishery would be constrained to the RHL.

For conservation equivalency to roll over from one year to the next, the non-preferred coastwide and precautionary default measures would need to be appropriate for the RHL in both years. The non-preferred coastwide and precautionary default measures could be crafted with this flexibility in mind.

## **2.3. Alternative Set 3: Block Island Sound transit provisions**

### **2.3.1. Alternative 3.A: No action**

Under current regulations, when summer flounder, scup, or black sea bass fisheries are closed in federal waters but open in state waters, vessels may not transit federal waters with summer flounder, scup, or black sea bass. This has been problematic in Block Island Sound during the fall closure in federal waters for recreational black sea bass in recent years (Table 1). In most recent years, state waters in Rhode Island, Connecticut, and/or New York (depending on the year) have been open to black sea bass fishing during that time. Anglers fishing in state waters around Block Island must pass through federal waters to return to the mainland. Therefore, if they retain any black sea bass during the federal waters closure, they are in violation of the federal regulations while transiting federal waters, even if those fish were legally caught in state waters.

This has not been an issue for the recreational summer flounder fishery for several years as federal recreational regulations have been waived under conservation equivalency. It has not been an issue for the recreational scup fishery in recent years, as the federal waters scup season has been open year-round since 2012.

Under alternative 3.A, no change would be made to the current regulations requiring all dual (i.e. state and federal) permit holders to abide by the measures of the state in which they land their catch, or the federal waters measures, whichever are more restrictive. It would be unlawful for state-only permit holders to transit through federal waters while in possession of any summer

flounder, scup, or black sea bass, including federal waters around Block Island, when federal waters are closed to fishing for those species.

Table 1: Federal recreational measures for black sea bass, north of Cape Hatteras, NC, 2007 - 2018.

Years	Minimum size (inches, total length)	Possession limit	Open season
2007-2008	12	25	1/1-12/31
2009	12.5	25	1/1-10/5
2010-2011	12.5	25	5/22-10/11 and 11/1-12/31
2012	12.5	25	5/19-10/14 and 11/1-12/31
2013	12.5	20	5/19-10/14 and 11/1-12/31
2014	12.5	15	5/19-9/18 and 10/18-12/31
2015-2017	12.5	15	5/15-9/21 and 10/22-12/31
2018	12.5	15	5/15-12/31

**2.3.2. Alternative 3.B: Block Island Sound transit provisions for summer flounder, scup, and black sea bass in a defined transit corridor for Rhode Island commercial and recreational state-only permit holders**

Under this alternative, any vessel or individual legally permitted to fish in Rhode Island state waters (including individuals fishing under reciprocity agreements with other states), either commercially or recreationally, would be allowed to transit through a defined corridor between Rhode Island state waters adjacent to Block Island and Rhode Island state waters adjacent to the Rhode Island mainland. State-only permit holders transiting this area would be subject to the state waters measures for season, possession limit, and minimum size for summer flounder, scup, and black sea bass. Proposed regulatory language and geographic area where transit would be allowed is provided in Appendix B. If selected, the final regulations would be determined by NMFS and may differ in details, compared to Appendix B, but should be similar in intent.

There would be no change to the current regulations requiring all dual (i.e. state and federal) permit holders to abide by the measures of the state in which they land their catch, or the federal waters measures, whichever are more restrictive.

**2.3.3. Alternative 3.C: Transiting allowed for RI, CT, NY, and MA permit holders in the same area as the striped bass transit area**

Note: If alternative 3.C is selected, sub-alternatives should also be selected to define permit holders subject to transit provisions (sub-alternatives 3.C.1 and 3.C.2) and measures addressed by transit provisions (sub-options 3.C.3 - 3.C.5).

In situations where federal waters measures for summer flounder, scup, or black sea bass are more restrictive than measures in the state where catch will be landed, state-only permit holders may transit through a defined area while complying with the state regulations. The transit area would be identical to the area of the exclusive economic zone (EEZ) where transit is allowed for striped bass. This area is defined as follows: “The EEZ within Block Island Sound, north of a line connecting Montauk Light, Montauk Point, NY, and Block Island Southeast Light, Block Island, RI; and west of a line connecting Point Judith Light, Point Judith, RI, and Block Island Southeast Light, Block Island, RI” (50 CFR 697.7 (b); Figure 1).

This alternative defines only the transit area. This alternative could apply to state-only recreational permit holders, or state-only recreational and commercial permit holders, depending on if sub-alternative 3.C.1 or 3.C.2 is selected. It would apply to regulations for fishing seasons, minimum fish size limits, and/or possession limits, depending on the sub-alternative(s) selected from sub-alternatives 3.C.3 - 3.C.5.

There would be no change to the current regulations requiring all dual (i.e. state and federal) permit holders to abide by the measures of the state in which they land their catch, or the federal waters measures, whichever are more restrictive.

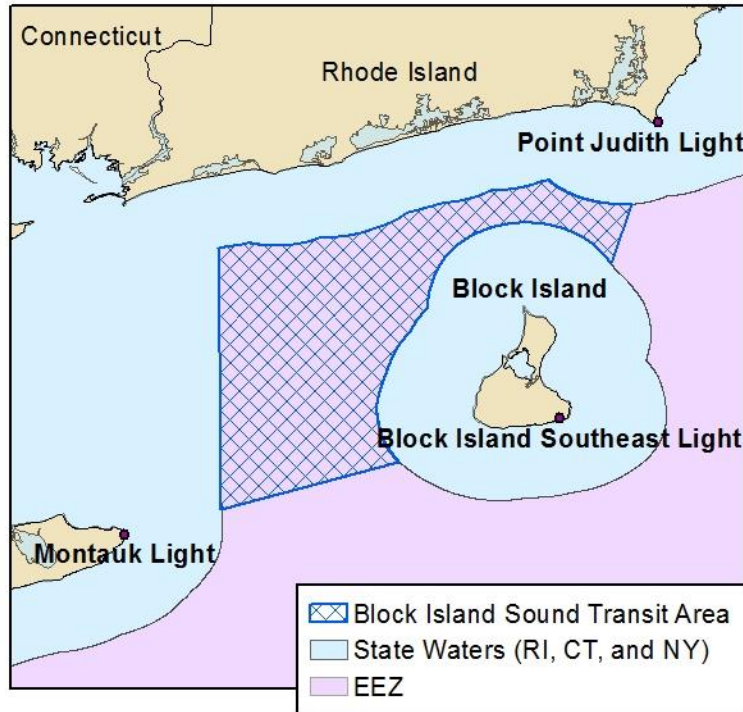


Figure 1: Striped bass transit area in Block Island Sound (blue hatched area).

**2.3.3.1. Alternative 3.C.1: Transiting allowed for RI, CT, NY, and MA recreational permit holders in the same area as the striped bass transit area**

This alternative would allow state-only recreational permit holders to transit through the transit area shown in **Figure 1** while complying with the state regulations for summer flounder, scup, and black sea bass seasons, minimum fish sizes, and/or possession limits, depending on the sub-alternative(s) selected from sub-alternatives 3.C.3 - 3.C.5.

There would be no change to the current regulations requiring all dual (i.e. state and federal) permit holders to abide by the measures of the state in which they land their catch, or the federal waters measures, whichever are more restrictive.

**2.3.3.2. Alternative 3.C.2: Transiting allowed for RI, CT, NY, and MA recreational and commercial permit holders in the same area as the striped bass transit area**

This alternative would allow state-only commercial and recreational permit holders to transit through the area shown in **Figure 1** while complying with the state regulations for summer

flounder, scup, and black sea bass seasons, minimum fish sizes, and/or possession limits, depending on the alternative(s) selected from alternatives 3.C.3-3.C.5.

There would be no change to the current regulations requiring all dual (i.e. state and federal) permit holders to abide by the measures of the state in which they land their catch, or the federal waters measures, whichever are more restrictive.

Commercial black sea bass and summer flounder fisheries are managed on a state-by-state basis with no federal seasons or possession limits; thus, conflicting regulations are generally not an issue for individuals fishing commercially under federal permits. However, state-only commercial permit holders are currently not permitted to transit federal waters in Block Island Sound with summer flounder, scup, or black sea bass in excess of the recreational possession limit on board.

**2.3.3.3. Alternative 3.C.3: Transit provisions under alternative 3.C address differences in state and federal fishing seasons**

This alternative would allow state-only permit holders (either recreational or recreational and commercial depending on the other alternatives selected) to transit through the area shown in **Figure 1** while in possession of summer flounder, scup, and/or black sea bass when federal waters are closed to fishing for those species but state waters are open. State-only permit holders would be subject to the regulations of the state in which they land their catch.

There would be no change to the current regulations requiring all dual (i.e. state and federal) permit holders to abide by the measures of the state in which they land their catch, or the federal waters measures, whichever are more restrictive.

This alternative could be used in combination with alternatives 3.C.4 and 3.C.5.

**2.3.3.4. Alternative 3.C.4: Transit provisions under alternative 3.C address differences in state and federal possession limits**

This alternative would allow state-only permit holders (either recreational or recreational and commercial depending on the other alternatives selected) to transit through the area shown in **Figure 1** while abiding by the state-waters possession limits for summer flounder, scup, and/or black sea bass. That is, when the possession limit in federal waters is lower than the possession limit in state waters, state-only permit holders could transit through the defined transit zone with fish in excess of the federal waters possession limit. State-only permit holders would be subject to the regulations of the state in which they land their catch.

There would be no change to the current regulations requiring all dual (i.e. state and federal) permit holders to abide by the measures of the state in which they land their catch, or the federal waters measures, whichever are more restrictive.

This alternative could be used in combination with alternatives 3.C.3 and 3.C.5.

**2.3.3.5. Alternative 3.C.5: Transit provisions under alternative 3.C address differences in state and federal minimum fish sizes**

This alternative would allow state-only permit holders (either recreational or recreational and commercial depending on the other alternatives selected) to transit through the area shown in **Figure 1** while abiding by the state-waters minimum fish sizes for summer flounder, scup, and/or black sea bass. That is, when the minimum size limit in federal waters is greater than the

size limit in state waters, state-only permit holders could transit through the defined transit zone while in possession of fish smaller than the minimum size in federal waters. State-only permit holders would be subject to the regulations of the state in which they land their catch.

There would be no change to the current regulations requiring all dual (i.e. state and federal) permit holders to abide by the measures of the state in which they land their catch, or the federal waters measures, whichever are more restrictive.

This alternative could be used in combination with alternatives 3.C.3 and 3.C.4.

## **2.4. Alternative Set 4: Recreational slot limits**

### **2.4.1. Alternative 4.A: No action (slot limits cannot be used in federal recreational summer flounder, scup, or black sea bass fisheries)**

Currently, the Council's FMP does not allow for specification of a maximum size limit for summer flounder, scup, or black sea bass. Therefore, slot limits may not be used as a management tool for these fisheries in federal waters. Under this alternative, there will be no change to the Council's FMP and maximum size limits could not be used in federal waters. Slot limits can currently be implemented through the Commission process without a change to the Commission's FMP; (i.e. for summer flounder through conservation equivalency, and for black sea bass and scup for state waters measures only). For this reason, the complementary addendum being developed by the Commission does not include slot limit alternatives.

### **2.4.2. Alternative 4.B: Modify the Council's FMP to allow use of a maximum size limit for recreational summer flounder, scup, and black sea Bass fisheries in federal waters**

Under this alternative, the Council's FMP would be modified to allow specification of a maximum fish size. This would allow for use of regular slot limits, split slot limits, and trophy fish. A complementary change is not needed to the Commission's FMP as slot limits can already be used through the Commission process. For this reason, the complementary addendum being developed by the Commission does not include slot limit alternatives.

## **3. POTENTIAL BIOLOGICAL AND SOCIO-ECONOMIC IMPACTS OF ALTERNATIVES**

This section summarizes the potential impacts of the alternatives on summer flounder, scup, and/or black sea bass (depending on the alternative) as well as the potential socio-economic impacts of each alternative. This impacts analysis is preliminary. A full impacts analysis will be included in a future Council Environmental Assessment. The conclusions summarized below may be modified after additional consideration by Council and Commission staff, the Monitoring Committee, the Board, the Council, and stakeholder input.

The impacts are summarized in Table 2 and described in more detail in the following sections.

Table 2: Summary of expected impacts of the alternatives considered in this framework. A minus sign (–) signifies a negative impact, a plus sign (+) signifies a positive impact, and zero (0) indicates no impact or negligible impacts.

Alternative(s)		Impacts to summer flounder, scup, and/or black sea bass	Socio-economic impacts
Conservation Equivalency	1.A No action	+*	-*
	1.B and 1.C Black sea bass conservation equivalency	+	+
	1.C and 2.B Conservation equivalency rollover for black sea bass and summer flounder, respectively	0	+
Block Island Sound Transit	3.A No action	+*	-*
	3.B Transiting allowed in a defined transit corridor for RI commercial and recreational state-only permit holders		
	3.C: Transiting allowed in the same area as the striped bass transit area for RI, CT, NY, and MA recreational permit holders (3.C.1) or commercial and recreational permit holders (3.C.2). May address differences in state and federal fishing seasons (3.C.3), possession limits (3.C.4), and/or minimum fish size limits (3.C.5)	+	Mostly +
Slot Limits	4.A No action	+*	Mostly -*
	4.B Update Council’s FMP to allow slot limits to be used in recreational summer flounder, scup, and black sea bass fisheries	-	+ and -

\*The impacts of all no action alternatives are expected to be similar to current impacts. For example, + would indicate continued positive impacts, not impacts that are more positive than current impacts.

### 3.1. Potential impacts black sea bass conservation equivalency

#### 3.1.1. Potential impacts of conservation equivalency on black sea bass

Under all black sea bass conservation equivalency alternatives (i.e. alternatives 1.A - 1.C), fishing effort and fishing mortality will continue to primarily be constrained by the RHL. Therefore, the impacts of these alternatives on black sea bass are not expected to be different than the impacts of the annual RHL. The expected impacts of the RHL are analyzed in a specifications document prepared by the Council each time an RHL is implemented or revised (e.g. MAFMC 2017). The RHL is based on the best available science and is intended to prevent overfishing. As such, the RHL is expected to have positive impacts on black sea bass. These positive impacts are expected to be maintained under all black sea bass conservation equivalency alternatives, including the no action alternative. These impacts are not expected to be different (i.e. not more positive) than the impacts of recreational management measures on the stock in recent years.



### 3.1.2. Potential socio-economic impacts of black sea bass conservation equivalency

Over the past 5 years (i.e. 2013-2017), about 38% of the annual recreational harvest of black sea bass (in numbers of fish) from Maine through North Carolina occurred in federal waters, according to marine recreational information program (MRIP) estimates.<sup>1</sup> The proportion of harvest from state and federal waters varied by state (

Table 3: Percentage of black sea bass harvest (in numbers of fish) from state and federal waters by state during 2013-2015 according to MRIP data.

<b>State</b>	<b>State waters</b>	<b>Federal waters</b>
<b>NH</b>	100%	0%
<b>MA</b>	92%	8%
<b>RI</b>	79%	21%
<b>CT</b>	93%	7%
<b>NY</b>	61%	39%
<b>NJ</b>	29%	71%
<b>DE</b>	6%	94%
<b>MD</b>	17%	83%
<b>VA</b>	19%	81%
<b>NC</b>	11%	89%
<b>Overall</b>	<b>62%</b>	<b>38%</b>

### 3.2. Potential impacts of conservation equivalency rollover for black sea bass and/or summer flounder

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As described above, under current regulations (represented by the no action alternative, alternative 1.A), uniform coast-wide measures are required in federal waters. In recent years, the states of Maine through New Jersey have implemented state waters measures that differed from the federal waters measures. In some cases, the differences between state and federal waters measures resulted in angler confusion and noncompliance and state/federal water transit issues (e.g. Block Island Sound). These could be considered negative socio-economic impacts. The no action alternative would represent a continuation of these negative impacts.

If conservation equivalency were to be used for the black sea bass recreational fishery (alternatives 1.B and 1.C), then the federal waters measures could be waived in favor of the measures of the state where anglers land their catch. This would alleviate many of the issues associated with different state and federal waters measures (e.g. angler confusion and noncompliance, state/federal water transit issues). In addition, conservation equivalency would allow anglers in both state and federal waters to fish under regulations that are tailored to the relevant characteristics of the fishery in their area. This could result in socioeconomic benefits due to increased angler satisfaction and decreased noncompliance.

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<sup>1</sup> All MRIP data referenced in this document are based on recreational catch and/or harvest estimates obtained prior to the July 2018 release of re-calibrated data.

Table 3: Percentage of black sea bass harvest (in numbers of fish) from state and federal waters by state during 2013-2015 according to MRIP data.

<b>State</b>	<b>State waters</b>	<b>Federal waters</b>
<b>NH</b>	100%	0%
<b>MA</b>	92%	8%
<b>RI</b>	79%	21%
<b>CT</b>	93%	7%
<b>NY</b>	61%	39%
<b>NJ</b>	29%	71%
<b>DE</b>	6%	94%
<b>MD</b>	17%	83%
<b>VA</b>	19%	81%
<b>NC</b>	11%	89%
<b>Overall</b>	<b>62%</b>	<b>38%</b>

### **3.3. Potential impacts of conservation equivalency rollover for black sea bass and/or summer flounder**

Alternative 1.C considers allowing conservation equivalency for black sea bass to rollover from one year to the next (if appropriate). Alternative 2.B considers allowing conservation equivalency for summer flounder to rollover from one year to the next (if appropriate). The impacts of these alternatives are not expected to be different for black sea bass and summer flounder; therefore, the conservation equivalency rollover alternatives for the two species are considered together in the following sections.

#### **3.3.1. Potential impacts of conservation equivalency rollover on black sea bass and summer flounder**

When considered separately from the use of conservation equivalency itself, the alternatives for conservation equivalency rollover for black sea bass (alternative 1.C) and summer flounder (alternative 2.B) are both administrative in nature. As such, they are not expected to result in any changes in fishing effort or fishing mortality and are not expected to have any direct or indirect impacts on black sea bass or summer flounder.

#### **3.3.2. Potential socio-economic impacts of conservation equivalency rollover**

If conservation equivalency rolled over from one year to the next, NMFS would not need to go through the rule-making process each year to waive the federal waters recreational measures. This would reduce the time and cost burden on NMFS for managing these fisheries. Under the current process for summer flounder (alternative 2.A), conservation equivalency expires at the end of the year, but the federal waters measures are not waived until the spring, after NMFS receives a letter from the Commission certifying that the combination of state and regional measures will constrain harvest to the RHL. Thus, from January 1 until NMFS completes the rule-making process to waive the federal waters measures, the non-preferred coastwide measures from the previous year are technically in place in federal waters. This not only creates the potential for confusion, but can also create a situation where federal waters measures are more restrictive than state waters measures. These could be considered negative socio-economic

impacts. Conservation equivalency rollover (alternatives 1.C and 2.B) could be beneficial for recreational fishermen as it would resolve these issues.

### **3.4. Potential impacts of Block Island Sound transit provisions**

#### **3.4.1. Potential impacts of Block Island Sound transit provisions on summer flounder, scup, and black sea bass**

Compared to the no action alternative (alternative 3.A), all the Block Island Sound transit alternatives (i.e. alternatives 3.B, 3.C, and 3.C.1 through 3.C.5) are expected to lead to a slight increase in fishing effort for summer flounder, scup, and black sea bass in Rhode Island state waters off Block Island. Under these alternatives, in situations where federal waters measures are more restrictive than state waters measures (i.e. open seasons, possession limits, and/or minimum fish sizes, depending on the alternatives chosen), state-only permit holders would be able to fish in state waters off Block Island and return to the mainland in a defined transit area while complying with the state regulations. Under current regulations, fishermen must comply with the federal waters measures when they are in federal waters, including the federal waters that separate Rhode Island state waters around Block Island from state waters adjacent to the mainland.

The degree of the potential increase in fishing effort varies depending on the sub-alternatives chosen. For example, the combination of alternative 3.C.2 - 3.C.5 (i.e. transit allowed in the striped bass transit area for both commercial and recreational permit holders, and for differences in state and federal seasons, possession limits, and minimum fish size limits) would result in the greatest potential increase in fishing effort because it would apply to the greatest area, the greatest number of fishermen, and the greatest number of regulations of all the possible combinations of alternatives considered.

Although a slight increase in fishing effort is expected under these alternatives, fishing effort will continue to be primarily constrained by the annual RHL and commercial quota, which are set based on the best available science and are intended to prevent overfishing. Therefore, the impacts of these alternatives on summer flounder, scup, and black sea bass are not expected to be different than the impacts of the RHL and commercial quota, which are analyzed in a specifications document prepared by the Council each time an RHL or quota is implemented or revised (e.g. MAFMC 2017). Because these measures are based on the best available science and are intended to prevent overfishing, they are generally expected to have positive impacts on summer flounder, scup, and black sea bass. The Block Island Sound transit alternatives are not expected to change these impacts. These positive impacts are expected to be maintained under all Block Island Sound transit alternatives, including the no action alternative.

#### **3.4.2. Potential socio-economic impacts of Block Island Sound transit provisions**

With the exception of the no action alternative (alternative 3.A), all the Block Island Sound transit alternatives would allow state-only recreational and/or commercial permit holders to transit federal waters in a defined area while complying with the state waters season, minimum fish size, and/or possession limits (depending on the alternative) for summer flounder, scup, and black sea bass. In situations where the federal waters measures are more restrictive than the state waters measures, this could allow for a slight increase in fishing effort for and harvest of these species in the state waters around Block Island. As such, it could lead to increased revenues for commercial fishermen, for-hire operations, and associated industries, as well as increased fishing

opportunities for commercial and/or recreational fishermen (depending on the alternative). For these reasons, all Block Island Sound transit alternatives are expected to have positive socio-economic impacts, compared to the no action alternative. When conservation equivalency is used (e.g. as with summer flounder in recent years), the Block Island Sound transit alternatives would result in neutral socio-economic impacts since the federal waters measures would be waived.

The no action alternative could be considered to have negative socio-economic impacts because, in certain situations, it can require fishermen to comply with federal measures which are more restrictive than state waters measures simply because vessels must pass through federal waters to return to the mainland from Rhode Island state waters around Block Island. For example, as previously described, in most recent years, state waters in Rhode Island, Connecticut, and/or New York (depending on the year) have been open to recreational black sea bass fishing during a period of time when federal waters were closed. Therefore, if anglers retained any black sea bass during the federal waters closure, they would be in violation of the federal regulations while transiting federal waters, even if those fish were legally caught in state waters. The no action alternative can have similar implications for situations where the federal waters minimum fish size limit and/or possession limit is more restrictive than the state waters measures. For these reasons, the no action alternative can have negative socio-economic impacts.

Enforcement of some Block Island Sound transit alternatives will be more challenging than others. The transit provisions are essentially exceptions to federal regulations. The more regulations and permits that are subject to that exception, the more challenging it will be to enforce, as opposed to if the exception applied to a smaller number of permit holders (e.g. recreational only) and a smaller number of regulations (e.g. only situations where federal waters are closed and state waters are open). Increased enforcement challenges could be considered a negative socioeconomic impact if associated costs increase.

In addition, although both the Rhode Island specific transit area (alternative 3.B) and the larger striped bass transit area (alternative 3.C) could be used, enforcement could be challenging if the regulations were different in the two areas—for example, if transit provisions in one area applied to differences in state and federal seasons, possession limits, and minimum fish sizes and in the other area they addressed only differences in seasons. For the same reasons, use of two transit areas, as opposed to a single area, could increase enforcement costs and/or increase the potential for confusion and unintentional noncompliance.

### **3.5. Potential impacts of recreational slot limits**

As previously stated, this framework does not consider implementing any specific slot limits. Rather, it proposes updating the Council's FMP to allow slot limits to be used in future years. The potential impacts of slot limits are summarized below, but will vary depending on the particular slot limit used.

#### **3.5.1. Potential impacts of slot limits on summer flounder, scup and black sea bass**

Slot limits are intended to reduce fishing mortality on larger fish. For some species, females reach larger sizes than males and bigger, older females tend to produce more offspring than younger fish. Thus, in theory, slot limits could have positive impacts on recruitment for some species by reducing fishing mortality on large females. The following sections summarize the potential impacts of slot limits on summer flounder, scup, and black sea bass based on past

analyses and the life history of each species. However, it should be noted that actual impacts to these species would depend on the specific slot limits implemented.

### ***Impacts to summer flounder***

In 2009, the Monitoring Committee analyzed a range of slot limit options for the recreational summer flounder fishery using for-hire catch data from 2008. The analysis also considered a range of bag limits and options for trophy fish in combination with slot limits. The results indicated that, compared to a standard minimum size limit, the slot limit options considered would “certainly result in greatly increased numbers of fish harvested” due to the higher availability of smaller fish compared to larger fish. Although discards may decrease under certain slot limits, total removals (i.e. harvest and discards) would likely increase due to the increase in harvest. An increase in removals in numbers of fish would increase the fishing mortality rate. Under some slot limit options, marginal benefits to spawning stock biomass (SSB) were predicted; however, these benefits were eliminated when a trophy class was considered in combination with slot limits (Wong 2009).

A management strategy evaluation analysis by Wiedenmann et al. (2013) also found that slot limits could result in an increase in the number of summer flounder harvested per angler, as well as a small reduction in the total number of female summer flounder harvested. They found that slot limits generally resulted in lower harvest and more discards by weight, and higher and more frequent annual catch limit (ACL) overages, compared to minimum size limits.

In summary, these two studies suggest that total removals in numbers of fish may increase under slot limits, the fishing mortality rate may increase, and any increases in SSB may be minor. For these reasons, slot limits could have negative impacts on the summer flounder stock, especially under current conditions (i.e. overfishing is occurring and SSB is below the target level).

### ***Impacts to scup***

An analysis of slot limits for scup has not been performed. Female and male scup have similar growth rates (NEFSC 2015); therefore, unlike summer flounder, slot limits would not have disproportionate impacts on females compared to males.

Scup reach a maximum length of at least 46 cm (18 inches; NEFSC 2015). Scup reach a maximum age of at least 14 years; however, few scup older than 7 years are caught in the mid-Atlantic (Northeast Data Poor Stocks Working Group 2009, NEFSC 2015). In theory, slot limits should be most beneficial for longer-lived species and scup are not a particularly long-lived species.

For all these reasons, the scup stock may not benefit from slot limits. In addition, if slot limits lead to increased harvest in numbers of fish, as suggested by Wong (2009) and Wiedenmann et al. (2013) for summer flounder, then slot limits could lead to an increased fishing mortality rate, compared to a traditional minimum size limit. Given that the biomass of scup is currently estimated at more than double the target and overfishing is not occurring, an increased fishing mortality rate may not have major negative impacts on the stock, depending on the degree of the increase. In summary, the impacts of slot limits on the scup stock could be negligible or slightly negative.

### ***Impacts to black sea bass***

An analysis of slot limits for black sea bass has not been performed. Most black sea bass transition from female to male when they reach about 7.5 inches in length; thus, larger, older fish tend to be males and slot limits could disproportionately impact males compared to females.

Multiple studies have suggested that the black sea bass stock is somewhat resilient to the removal of large males due to the contribution of smaller, secondary males (i.e. mature males without the bright coloration or nuchal humps of dominant males) to spawning (NEFSC 2017). For example, Blaylock and Shepherd (2016) concluded the black sea bass stock from Maine through Cape Hatteras, North Carolina is more resilient to exploitation than a typical protogynous hermaphrodite species because not all larger individuals are males and secondary males contribute to spawning.

Some Council, Board, Monitoring and Technical Committee, and Advisory Panel members have expressed concerns that larger, compared to smaller, black sea bass may experience higher mortality rates due to barotrauma. Consequently, they have said the use of slot limits for black sea bass could lead to an increase in discard mortality because slot limits would increase discards of larger fish compared to traditional minimum size limits.

In addition, if slot limits lead to increased harvest in numbers of fish, as suggested by Wong (2009) and Wiedenmann et al. (2013) for summer flounder, then slot limits could lead to an increased fishing mortality rate, compared to a traditional minimum size limit. Given the current high biomass of black sea bass (more than double the biomass target), and given that overfishing is not currently occurring, an increased fishing mortality rate may not have major negative impacts on the stock, depending on the degree of the increase. In summary, the impacts of slot limits on the black sea bass stock could be negligible or negative.

### ***Impacts of standard minimum size limits***

The Monitoring Committee has concluded in the past that standard minimum fish size limits are one of the most powerful tools to constrain recreational harvest to the RHL. In years when a decrease in harvest is needed, increasing the minimum size limit can have a greater impact on harvest than decreasing the season or possession limit. For this reason, use of a standard minimum size limit can have positive impacts on the summer flounder, scup, and black sea bass stocks as it can be an effective tool to constrain harvest and prevent overfishing. Some negative impacts are possible due to the potential to concentrate fishing effort on larger, older fish which may have greater contributions to spawning than smaller fish; however, in general, the impacts of traditional minimum size limits on summer flounder, scup, and black sea bass are mostly positive. The no action alternative (alternative 4.A) would represent a continuation of these positive impacts.

### **3.5.2. Potential socio-economic impacts of slot limits**

To the extent that traditional minimum fish size limits are an effective tool to prevent overfishing, they could be considered to have positive socio-economic impacts. However, as described above, compared to slot limits, traditional minimum fish sizes can result in both higher discards and lower harvest in numbers of fish (Wong 2009, Wiedenmann et al. 2013). These could be considered negative socio-economic impacts. The no action alternative (alternative 4.A) would represent a continuation of these negative impacts.

As summarized above, Wong (2009) and Wiedenmann et al. (2013) suggested that total summer flounder removals in numbers of fish may increase under slot limits, compared to traditional minimum size limits. The same may be true for scup and black sea bass; however, slot limits have not been analyzed for these species. This could result in socio-economic benefits as it could allow anglers to retain more fish and would increase angler satisfaction. However, if the increase in removals is great enough to negatively impact the stock and significantly increase the risk of overfishing, this could result in longer-term negative socio-economic impacts if it leads to reduced availability or requires more restrictive management measures to be implemented in future years.

An analysis by the Monitoring Committee suggested that, given differences in availability of smaller summer flounder, slot limits could result in a disproportionate increase in harvest from shore, compared to for-hire and private/rental boats, assuming other regulations were unchanged (Wong 2009). Due to this increase in harvest, slot limits could have greater positive impacts for anglers fishing from shore than anglers fishing from boats. The same may be true for scup. A very small percentage of recreational black sea bass harvest comes from the shore mode.

The impacts of slot limits depend, in part, on the particular slot implemented. For example, slot limits that allow retention of smaller fish could allow greater harvest from shore, compared to other modes, and in certain states (e.g. Maryland and North Carolina where bays are important recreational fishing areas), compared to others. Slot limits at larger sizes could disadvantage the shore mode and those states compared to others (Wong 2009). Over the past 10 years (i.e. 2008-2017), the shore mode generally accounted for less than 10% of the summer flounder harvest in each state. North Carolina is a notable exception, where it accounted for about 26% of the summer flounder harvest in numbers of fish.

Based on Wong 2009, the Monitoring Committee concluded that a very narrow slot limit would be necessary to constrain summer flounder harvest to the RHL. Narrow slot limits could be more challenging to enforce and could lead to greater noncompliance than wider slot limits or a standard minimum size. For these reasons, slot limits could have some negative socio-economic impacts in years when RHLs are low and harvest must be constrained. Wider slots could be possible under higher RHLs.

In addition, slot limits would require anglers to discard fish above a certain size. This could be unappealing to some anglers, which could decrease angler satisfaction and may increase the potential for noncompliance, compared to a traditional minimum size limit. These would be considered negative socio-economic impacts. Allowance of a trophy fish in combination with a slot limit could address these concerns.

In summary, the socio-economic impacts of slot limits could be mixed (i.e. both positive and negative) and would depend on the particular slot limits used.

#### 4. LITERATURE CITED

Blaylock, J. and G.R. Shepherd. 2016. Evaluating the vulnerability of an atypical protogynous hermaphrodite to fishery exploitation: results from a population model for black sea bass (*Centropristis striata*). Fishery Bulletin 114(4): 476-489.

MAFMC (Mid-Atlantic Fishery Management Council). 2017. 2017-2018 black sea bass specifications environmental assessment and initial regulatory flexibility act analysis.

NEFSC (Northeast Fisheries Science Center). 2015. 60<sup>th</sup> Northeast Regional Stock Assessment (60<sup>th</sup> SAW) assessment report. Northeast Fisheries Science Center Reference Document 15-08. Available at: <https://www.nefsc.noaa.gov/saw/archive.html>

Northeast Data Poor Stocks Working Group. 2009. The northeast data poor stocks working group report, part A: skate species complex, deep sea red crab, Atlantic wolffish, scup, and black sea bass. Northeast Fish Science Center Reference Document 09-02; 496 p. Available at: <http://www.nefsc.noaa.gov/publications/crd/crd0902/>.

Wong, R. 2009. Slot limit management for recreational summer flounder harvest. Available at: [http://www.mafmc.org/s/Slot\\_limit\\_guidance\\_Wong\\_2009-002.pdf](http://www.mafmc.org/s/Slot_limit_guidance_Wong_2009-002.pdf)

Wiedenmann, J., M. Wilberg, E. Bochenek, J. Boreman, B. Freeman, J. Morson, E. Powell, B. Rothschild, and P. Sullivan. 2013. Evaluation of management and regulatory options for the summer flounder recreational fishery. Available at: <http://www.mafmc.org/s/A-Model-to-Evaluate-Recreational-Management-Measures.pdf>



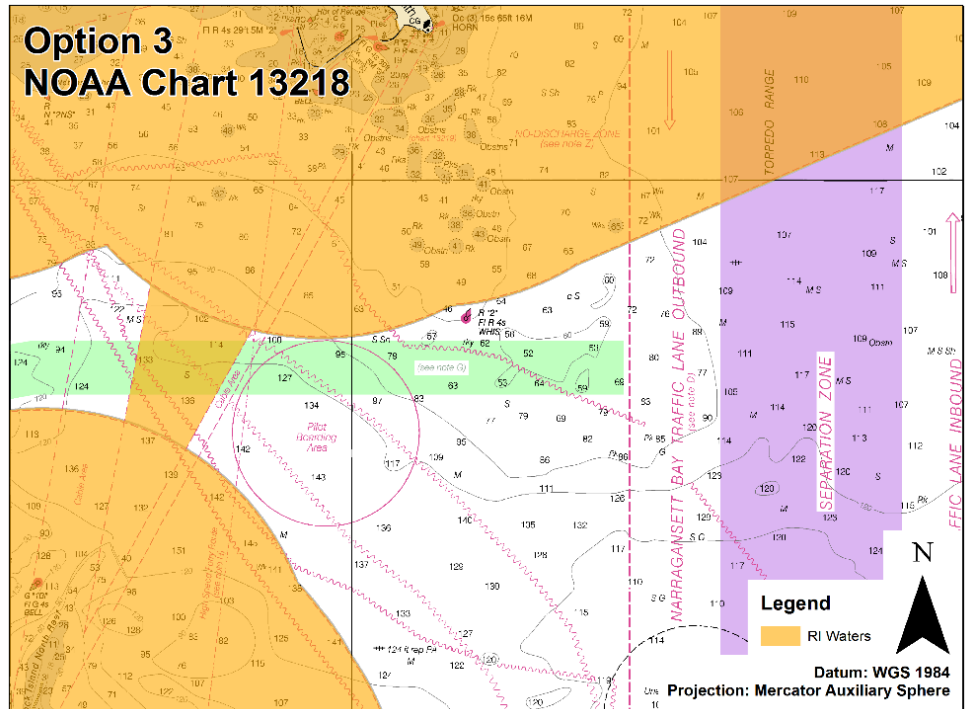
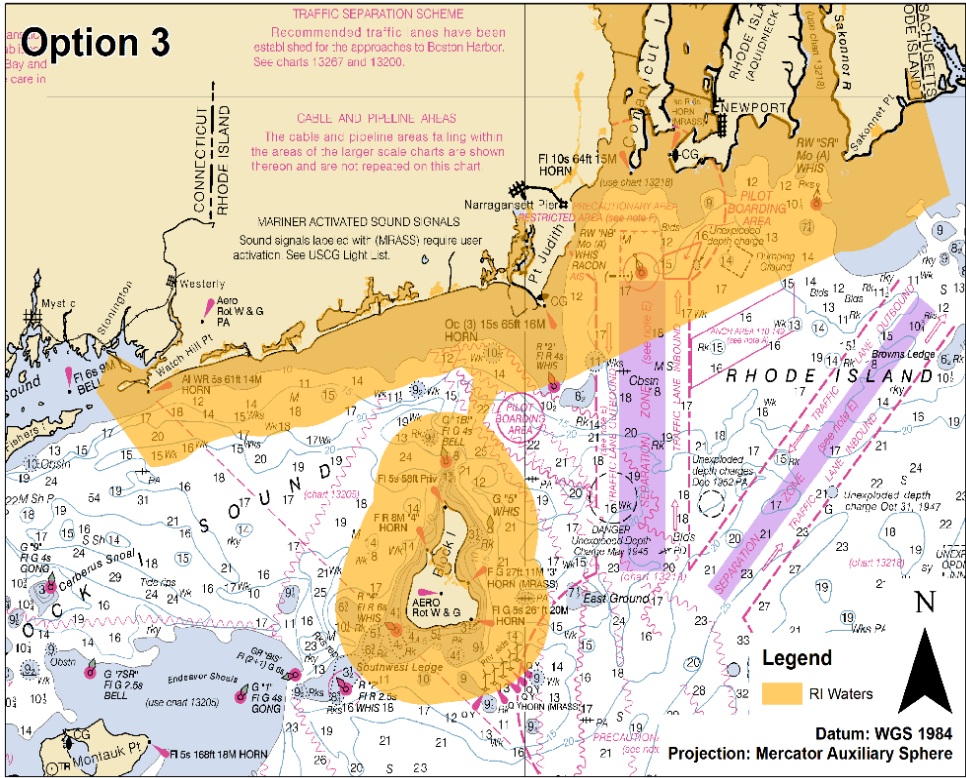
**APPENDIX A: TIMELINE OF SUMMER FLOUNDER CONSERVATION EQUIVALENCY PROCESS**

This timeline reflects current practice for summer flounder conservation equivalency in recent years. The timeline can vary year to year. In years when the Commission develops an addendum to modify summer flounder conservation equivalency, the timeline can be delayed and additional steps are added to the Board’s process.

<p><b>August</b> Council/Board recommend Recreational Harvest Limit (RHL) to NMFS and Board takes final action on RHL for state waters.</p> <p><b>October</b> Preliminary MRIP data available for waves 1-4 (i.e. January - August) of current year.</p> <p><b>November</b> Monitoring Committee reviews MRIP data through wave 4 and develops recommendations on overall % reduction required (if applicable) and use of coastwide measures or conservation equivalency (including the non-preferred coastwide and precautionary default measures).</p> <p><b>December</b> Council/Board recommend either conservation equivalency OR coastwide measures. If conservation equivalency, they also recommend non-preferred coastwide and precautionary default measures. NMFS publishes final rule announcing subsequent year’s RHL.</p>	
<p style="text-align: center;"><u><b>State Conservation Equivalency Measures</b></u></p> <p style="text-align: center;"><b>January</b></p> <ul style="list-style-type: none"> <li>• States/regions submit conservation equivalency proposals to Commission staff.</li> <li>• Technical Committee meets to evaluate proposals.</li> </ul> <p style="text-align: center;"><b>February</b></p> <ul style="list-style-type: none"> <li>• Board meeting to approve/disapprove proposals.</li> </ul> <p style="text-align: center;"><b>March</b></p> <ul style="list-style-type: none"> <li>• Council staff submits recreational measure package to NMFS. Package includes: <ul style="list-style-type: none"> <li>○ Overall % reduction required (if applicable);</li> <li>○ Non-preferred coastwide and precautionary default measures; and</li> <li>○ Recommendation to implement conservation equivalency.</li> </ul> </li> </ul> <p style="text-align: center;"><b>April</b></p> <ul style="list-style-type: none"> <li>• NMFS publishes proposed rule for recreational measures announcing the overall % reduction required (if applicable) and the non-preferred coastwide and precautionary default measures to be used under conservation equivalency.</li> <li>• Board submits a letter to NMFS certifying that the combination of state/regional measures is expected to constrain harvest to the RHL.</li> </ul> <p style="text-align: center;"><b>May</b></p> <ul style="list-style-type: none"> <li>• NMFS publishes final rule announcing overall % reduction required (if applicable) and one of the following scenarios: <ul style="list-style-type: none"> <li>○ Approval of conservation equivalency; or</li> <li>○ Coastwide measures</li> </ul> </li> </ul>	<p style="text-align: center;"><u><b>Coastwide Measures</b></u></p> <p style="text-align: center;"><b>February</b></p> <ul style="list-style-type: none"> <li>• Council staff submits recreational measure package to NMFS. Package includes: <ul style="list-style-type: none"> <li>○ Overall % reduction required (if applicable); and</li> <li>○ Coastwide measures.</li> </ul> </li> </ul> <p style="text-align: center;"><b>April</b></p> <ul style="list-style-type: none"> <li>• NMFS publishes proposed rule for recreational measures announcing the overall % reduction required (if applicable) and coastwide measures.</li> </ul> <p style="text-align: center;"><b>May</b></p> <ul style="list-style-type: none"> <li>• NMFS publishes final rule announcing overall % reduction required (if applicable) and coastwide measures.</li> </ul>

**APPENDIX B: PROPOSED LANGUAGE FOR TRANSITING THE EEZ BETWEEN RHODE ISLAND STATE WATERS ADJACENT TO BLOCK ISLAND AND RHODE ISLAND STATE WATERS ADJACENT TO THE RHODE ISLAND MAINLAND**

- (a) A vessel in possession of a regulated species legally harvested in Rhode Island state waters in accordance with all applicable Rhode Island laws and regulations may transit a portion of the EEZ, as specified in subsection (b), for the purpose of landing said species, provided (1) the operator of the vessel has a valid fishing license; (2) the vessel is in continuous transit; (3) no fishing takes place from the vessel while in the EEZ; (4) if previously fishing with nets, the nets are stowed as specified in subsection (c); and (5) if previously fishing with hook and line gear, the poles are secured in holders with all bait removed from all hooks.
- (b) The transit corridor that shown on NOAA chart 13218 (cable area) and bound by NW (41°18'50"N, -71°32'56"W); NE (41°18'20"N, -71°31'27"W); SE (41°17'01"N, -71°32'25"W); SW (41°17'19"N, -71°33'19"W) (figures on next page).
- (c) Stowage of nets: Vessels possessing trawl devices, gill nets, or other nets used to harvest regulated species may have those nets on board while transiting, provided that the nets are stowed and not available for immediate use in accordance with one of the following specifications.
- (1) A net stowed below deck, provided:
- i. It is located below the main working deck from which the net is deployed and retrieved;
  - ii. The towing wires, including the leg wires, are detached from the net; and
  - iii. It is fan folded (flaked) and bound around its circumference.
- (2) A net stowed and lashed down on deck, provided:
- i. It is fan folded (flaked) and bound around its circumference;
  - ii. It is securely fastened to the deck or rail of the vessel; and
  - iii. The towing wires, including the leg wires, are detached from the net.
- (3) A net that is on a reel and is covered and secured, provided:
- i. The entire surface of the net is covered with canvas or other similar material that is securely bound;
  - ii. The towing wires, including the leg wires, are detached from the net; and
  - iii. The cod end is removed from the net and stored below deck.





**Mid-Atlantic Fishery Management Council**  
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Michael P. Luisi, Chairman | G. Warren Elliott, Vice Chairman  
Christopher M. Moore, Ph.D., Executive Director

## MEMORANDUM

**Date:** August 3, 2018  
**To:** Council  
**From:** Julia Beaty  
**Subject:** Black Sea Bass Specifications for 2019

The Council and Board will consider 2019 specifications for black sea bass on Tuesday, August 14, 2018. Materials listed below are provided for the Council and Board's consideration of this agenda item.

*Materials behind this tab:*

- 1) Staff memo on 2019 black sea bass specifications dated July 3, 2018
- 2) Summary of July 19, 2018 Monitoring Committee meeting
- 3) Advisory Panel Fishery Performance Report on summer flounder, scup, and black sea bass
- 4) 2018 Black Sea Bass Fishery Information Document
- 5) Black sea bass data update for 2018
- 6) Additional written comments from advisors on summer flounder, scup, and black sea bass

*Materials behind other tabs:*

- 7) July 2017 Scientific and Statistical Committee meeting report (*behind Tab 16*)



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

## MEMORANDUM

**DATE:** July 3, 2018

**TO:** Chris Moore, Executive Director

**FROM:** Julia Beaty, Staff

**SUBJECT:** 2019 Black Sea Bass Management Measures

### Executive Summary

In January 2017, the Mid-Atlantic Fishery Management Council's (Council's) Scientific and Statistical Committee (SSC) recommended acceptable biological catch levels (ABCs) for black sea bass for 2017-2019 based on biomass projections from the 2016 benchmark stock assessment. In February 2017, the Council and the Atlantic States Marine Fisheries Commission's (Commission's) Summer Flounder, Scup, and Black Sea Bass Management Board (Board) adopted the SSC's 2017 and 2018 ABC recommendations but decided to postpone adopting a 2019 ABC.

In July 2018, the SSC will review their previously-recommended 2019 ABC. The Council's Monitoring Committee will meet in July 2018 to review recent fishery performance and recommend 2019 Annual Catch Targets (ACTs) and any necessary modifications to the commercial possession limits, quota period provisions, gear restrictions, and minimum fish size. The Council and Board will meet in August 2018 to review the recommendations of the SSC and Monitoring Committee and to adopt catch and landings limits for 2019, as well as any desired changes to the commercial management measures.

Based on the results of the 2016 benchmark stock assessment, the black sea bass stock north of Cape Hatteras, North Carolina was not overfished and overfishing was not occurring in 2015, the terminal year of the assessment. Spawning stock biomass (SSB) in 2015 was 48.89 million pounds (22,176 mt), 2.3 times SSB at maximum sustainable yield (i.e.  $SSB_{MSY} = 21.31$  million pounds/9,667 mt). The average fishing mortality (F) on ages 4-7 in 2015 was 0.27, 25% below the fishing mortality threshold reference point (i.e.  $F_{MSYPROXY} = F_{40\%} = 0.36$ ).

The Northeast Fisheries Science Center (NEFSC) provided a data update on black sea bass fishery catch, landings, and discards, as well as NEFSC and state survey catches through 2017 (NEFSC 2018). No new stock projections or estimates of stock status are available. The data update indicates that black sea bass biomass continues to be high and the 2015 year class appears to be above average in both the northern and southern surveys, as well as fishery discards.

According to dealer data, commercial fishermen landed 3.99 million pounds (1,809 mt) of black sea bass in 2017, about 97% of the commercial quota (4.12 million pounds, 1,869 mt) and the highest landings since at least 1982. According to the 2018 data update from the NEFSC, commercial dead discards were 1.78 million pounds (806 mt; NEFSC 2018). Commercial catch exceeded the 2017 commercial annual catch limit (ACL) of 5.09 million pounds (2,309 mt) by 13%.

According to the Marine Recreational Information Program (MRIP), recreational fishermen from Maine through Cape Hatteras, NC harvested 4.16 million pounds (1,887 mt) of black sea bass in 2017, about 97% of the RHL (4.29 million pounds, 1,946 mt). According to the 2018 data update from the NEFSC, recreational dead discards were 1.27 million pounds (576 mt; NEFSC 2018). Recreational catch was about 1% above the 2017 recreational ACL of 5.38 million pounds (2,083 mt).

Total commercial and recreational catch in 2017 was about 11.20 million pounds (5,080 mt), about 7% above the 2017 ABC of 10.47 million pounds (4,749 mt).

Council staff recommend maintaining the SSC's previously-recommended 2019 ABC of 7.97 million pounds (3,617 mt). Using the standard methodology for deriving other catch and landings limits, this ABC results in a commercial ACL of 3.98 million pounds (1,807 mt) and a recreational ACL of 3.99 million pounds (1,810 mt). Consistent with prior year's Monitoring Committee recommendations, staff recommend no reduction from the commercial and recreational ACLs to account for management uncertainty; therefore, both the commercial and recreational ACTs would be set equal to their respective ACLs for 2019. After removing projected discards, the commercial quota would be 2.95 million pounds (1,341 mt) and the recreational harvest limit (RHL) would be 3.08 million pounds (1,396 mt; Table 1).

An assessment update, with updated biomass projections, is expected to be available in early 2019. This update will incorporate updated catch and survey information through 2017, including estimates of the size of the 2015 year class as well as the revised MRIP time series of recreational catch estimates, which will be released in July 2018. The SSC, Monitoring Committee, Council, and Board will review their recommendations for 2019 measures after the assessment update is available. Thus, 2019 measures recommended in 2018 will likely be interim measures which will be adjusted mid-year in 2019. There are currently no catch and landings limits implemented for 2019; therefore, interim measures are necessary.

Staff do not recommend any changes to the current commercial measures, including the minimum fish size, possession limits, mesh size requirements, or pot/trap gear requirements.

**Table 1:** Currently implemented catch and landings limits for black sea bass for 2018 and staff recommended measures for 2019.

Management Measure	2018		Basis	2019		Basis
	mil lb.	mt		mil lb.	mt	
<b>OFL</b>	10.29	4,669	Stock assessment projections	9.18	4,163	Stock assessment projections
<b>ABC</b>	8.94	4,057	Stock assessment projections and Council risk policy	7.97	3,617	Stock assessment projections and Council risk policy
ABC Landings Portion	7.18	3,258	80.3% of ABC, based on average 2013–2015 landings as % of catch	6.03	2,737	75.7% of ABC, based on average 2015–2017 landings as % of catch
ABC Discards Portion	1.76	799	19.7% of ABC, based on avg. 2013–2015 discards as % of catch	1.94	880	24.3% of ABC, based on avg. 2015–2017 discards as % of catch
Projected Commercial Discards	0.83	377	47.2% of ABC discards portion, based on 2013-2015 avg. % discards by sector	1.03	446	53.0% of ABC discards portion, based on 2015-2017 avg. % discards by sector
Projected Recreational Discards	0.93	422	52.8 % of ABC discards portion, based on 2013-2015 avg. % discards by sector	0.91	414	47.0% of ABC discards portion, based on 2015-2017 avg. % discards by sector
<b>Commercial ACL</b>	4.35	1,974	49% of ABC landings portion (per FMP) + projected commercial discards	3.98	1,807	49% of ABC landings portion (per FMP) + projected commercial discards
Commercial ACT	4.35	1,974	Commercial ACL, with no deduction for management uncertainty	3.98	1,807	Commercial ACL, with no deduction for management uncertainty
<b>Commercial Quota</b>	3.52	1,596	Commercial ACT minus projected commercial discards	2.95	1,341	Commercial ACT minus projected commercial discards
<b>Recreational ACL</b>	4.59	2,083	51% of ABC landings portion (per FMP) + projected recreational discards	3.99	1,810	51% of ABC landings portion (per FMP) + projected recreational discards
Recreational ACT	4.59	2,083	Recreational ACL, with no deduction for management uncertainty	3.99	1,810	Recreational ACL, with no deduction for management uncertainty
<b>RHL</b>	3.66	1,661	Recreational ACT minus projected recreational discards	3.08	1,396	Recreational ACT minus projected recreational discards

## **Introduction**

The Magnuson-Stevens Act (MSA) requires that the Council's SSC provide scientific advice for fishery management decisions, including recommendations on ABCs, prevention of overfishing, and achieving maximum sustainable yield (MSY). The SSC must recommend ABCs that address scientific uncertainty. The Council's catch limit recommendations cannot exceed the ABCs recommended by the SSC.

The Monitoring Committee develops recommendations for management measures to achieve the ABCs recommended by the SSC. Specifically, the Monitoring Committee recommends ACTs that are equal to or less than the ACLs to address management uncertainty, and recommends management measures designed to achieve these ACTs.

Summer flounder, scup, and black sea bass are cooperatively managed by the Council and the Commission under a joint Fishery Management Plan (FMP). The Council and the Commission's Summer Flounder, Scup, and Black Sea Bass Management Board meet jointly each year to consider SSC and Monitoring Committee recommendations before deciding on proposed catch limits and other management measures. The Council and Board may set specifications for summer flounder, scup, and black sea bass for up to three years at a time. The Council and Board submit their recommendations to NMFS, which is responsible for implementation and enforcement of federal fisheries regulations.

This memorandum includes information to assist the SSC and Monitoring Committee in recommending catch and landings limits and commercial management measures for black sea bass in 2019. Additional information on fishery performance and past management measures can be found in the 2018 Black Sea Bass Fishery Information Document (MAFMC 2018A) and the 2017 Summer Flounder, Scup, and Black Sea Bass Fishery Performance Report developed by the Council and Commission Advisory Panels (MAFMC 2018B).

## **Recent Catch and Landings**

According to dealer data, about 3.99 million pounds (1,810 mt) of black sea bass were landed in 2017 by commercial fishermen, about 97% of the commercial quota. According to the Marine Recreational Information Program (MRIP) estimates, recreational fishermen landed 4.16 million pounds (1,887 mt) of black sea bass north of Cape Hatteras, North Carolina in 2017. This is approximately 3% below the 2017 RHL of 4.29 million pounds. This is the first time since 2011 that the recreational fishery did not exceed the RHL. It should be noted that the commercial and recreational catch and landings limits increased notably in 2017 as a result of the 2016 benchmark stock assessment (Table 2).

As of June 23, 2018, about 46% of the 2018 commercial quota of 3.52 million pounds (1,597 mt) had been landed (Table 3). Recreational harvest data for 2018 are not currently available.



**Table 2:** Black sea bass commercial and recreational fishery performance relative to quotas and RHLs, 2013-2017.

Year	Commercial Landings (mil lb)	Commercial Quota (mil lb)	Percent Overage/ Underage	Recreational Landings (mil lb)	RHL (mil lb)	Percent Overage/ Underage
2013	2.26	2.17	+4%	2.46	2.26	+9%
2014	2.18	2.17	0%	3.60	2.26	+59%
2015	2.29	2.21	+4%	3.79	2.33	+63%
2016	2.59	2.71	-4%	5.19	2.82	+84%
2017	3.99	4.12	-3%	4.16	4.29	-3%

**Table 3:** 2018 black sea bass commercial landings by state through the week ending June 23, 2018, according to NMFS weekly quota reports.

State	Cumulative Landings (lb)
ME	0
NH	0
MA	4,569
RI	186,583
CT	17,327
NY	106,187
NJ	300,106
DE	104,487
MD	287,479
VA	374,223
NC	243,526
Other	923
<b>Total</b>	<b>1,625,410</b>
<b>2018 Commercial Quota</b>	<b>3,520,000</b>

**Previously Recommended 2019 ABC**

At their January 2017 meeting, the SSC reviewed the 2016 black sea bass benchmark stock assessment and peer review results and recommended ABCs for 2017-2019 (MAFMC 2017). The SSC recognized the substantial improvement in the stock assessment, compared to previous assessments, and accepted the OFL estimates produced by the stock assessment for management use. The SSC determined the level of uncertainty of the OFL derived from the assessment required an SSC-specified coefficient of variation (CV) and recommended a CV of 60%. The assessment conducted a thorough analysis and simulation testing regarding the unique life history (i.e. protogynous hermaphroditism) of black sea bass. Based on this, the SSC concluded that no additional buffer for an atypical life history should be applied and therefore used a probability of overfishing (p\*) of 40%. Based on this application of the Council’s risk policy, the SSC recommended a 10.47 million pound (4,750 mt) ABC for 2017, a 8.94 million pound (4,057 mt) ABC for 2018, and a 7.97 million pound (3,617 mt) ABC for 2019 (Table 4). The

declining pattern of the ABCs reflects the population responding to fishing at the OFL ( $F_{MSY}$ ) and the decreasing abundance of the large 2011 year class. The stock assessment estimated that 68.9 million fish were spawned in 2011, nearly three times the 1988-2014 average of 24.3 million fish. This year class played a key role in recent black sea bass stock dynamics.

The Council and Board set black sea bass specifications for the 2017-2018 fishing years in February 2017 based on the SSC’s ABC recommendations. The Council and Board did not set specifications for 2019 due to uncertainties related to a possibly large 2015 year class as well as the possibility of incorporating forthcoming revised recreational catch estimates into an assessment update that will be used for future year specification setting.

The 2018 data update from NEFSC confirmed that the 2015 year-class appears to be above average in both the northern and southern surveys, as well as fishery discards (NEFSC 2018). However, updated biomass projections incorporating data on this year class are not currently available. An assessment update, with updated biomass projections, is expected to be available in early 2019. This update will incorporate estimates of the size of the 2015 year class as well as the revised MRIP time series of recreational catch estimates, which are expected to be released in July 2018. The SSC, Monitoring Committee, Council, and Board will review their recommendations for 2019 measures after the assessment update is available. Thus, 2019 measures recommended by these groups in 2018 will likely be interim measures which will be adjusted mid-year in 2019. There are currently no catch and landings limits implemented for 2019; therefore, interim measures are necessary.

**Table 4:** ABC, fishing mortality (F), and SSB based on projections from the 2016 benchmark black sea bass stock assessment (NEFSC 2017a). Projected catch, landings, discards, and SSB for 2017-2019 were calculated using a typical life-history application ( $p^*=0.40$ ) and a 60% OFL CV.

Year	ABC (mil lb)	ABC (mt)	F	SSB (mil lb)	SSB (mt)
2016	6.67	3,024	0.27	41.11	18,647
2017	10.47	4,750	0.36	35.88	16,275
2018	8.94	4,057	0.36	31.29	14,183
2019	7.97	3,617	0.36	28.26	12,820

The SSC considered the following to be the most significant sources of uncertainty with the determination of an OFL and ABC from the 2016 benchmark assessment (MAFMC 2017):

- The natural mortality rate (M) used in the assessment — because of the unusual life history strategy the current assumption of a constant M in the assessment model for both sexes may not adequately capture the dynamics in M;
- The spatial distribution of productivity within the stock range;
- The level, temporal pattern, and spatial distribution of recreational catches;
- The nature of exchanges between the spatial regions defined in the assessment model.

**Stock Status and Biological Reference Points**

The most recent benchmark stock assessment for black sea bass was peer-reviewed and approved at the 62<sup>nd</sup> Stock Assessment Review Committee (SARC 62) in December 2016 (NEFSC 2017a). To address

concerns raised during the SAW/SARC 53 review (NEFSC 2012) regarding potential spatial structure of the stock, the assessment modeled black sea bass as two separate sub-units (North and South) divided at approximately Hudson Canyon. Each sub-unit was modeled separately and the average F and combined biomass and SSB across sub-units were used to develop stock-wide reference points. As the result of this new information and changes to the modeling approaches, new biological reference points were developed as part of the assessment. Due to the lack of a stock/recruit relationship, a direct calculation of MSY and associated reference points (F and SSB) was not feasible and proxy reference points were approved for management use. SSB calculations and SSB reference points account for mature males and females. The average fishing mortality threshold for black sea bass is  $F_{MSY} = F_{40\%}$  (as  $F_{MSYproxy} = 0.36$ , and the combined  $SSB_{MSYproxy}$  target is 21.3 million pounds (9,667 mt). The minimum stock size threshold,  $\frac{1}{2} SSB_{MSY}$ , is 10.7 million pounds (4,834 mt).

The 2016 benchmark assessment indicated that the black sea bass stock was not overfished and overfishing was not occurring in 2015, relative to the biological reference points. The average fishing mortality on ages 4-7 in 2015 was estimated at  $F=0.27$ , which is 25% below the fishing mortality threshold of  $F=0.36$ . Total SSB in 2015 was estimated at 48.9 million pounds (22,199 mt) which is 2.3 times the target  $SSB_{MSYproxy}$  of 21.3 million pounds (9,667 mt) and 4.6 times the biomass threshold  $SSB_{MSYproxy}$  of 10.7 million pounds (4,834 mt). The terminal year (i.e. 2015) estimates of F and SSB provided here are adjusted to account for retrospective patterns in the assessment and do not change stock status.

Recruitment estimated by the model was relatively constant through the time series except for large peaks from the 1999 and 2011 year classes. Average recruitment from 1989 – 2015 was 24.3 million fish, with the 1999 year class estimated at 37.3 million fish and the 2011 year class estimated at 68.9 million fish. Since 2012, recruitment has been about average, with the latest cohort included in the stock assessment (i.e. the 2014 year class) estimated to be 24.9 million fish.

The NEFSC provided a data update on black sea bass fishery catch, landings, and discards, as well as NEFSC and state survey catches through 2017 (NEFSC 2018). No new estimates of stock status are available. The data update indicates that black sea bass biomass continues to be high and the 2015 year class appears to be above average in both the northern and southern surveys, as well as fishery discards.

## **Other Management Measures**

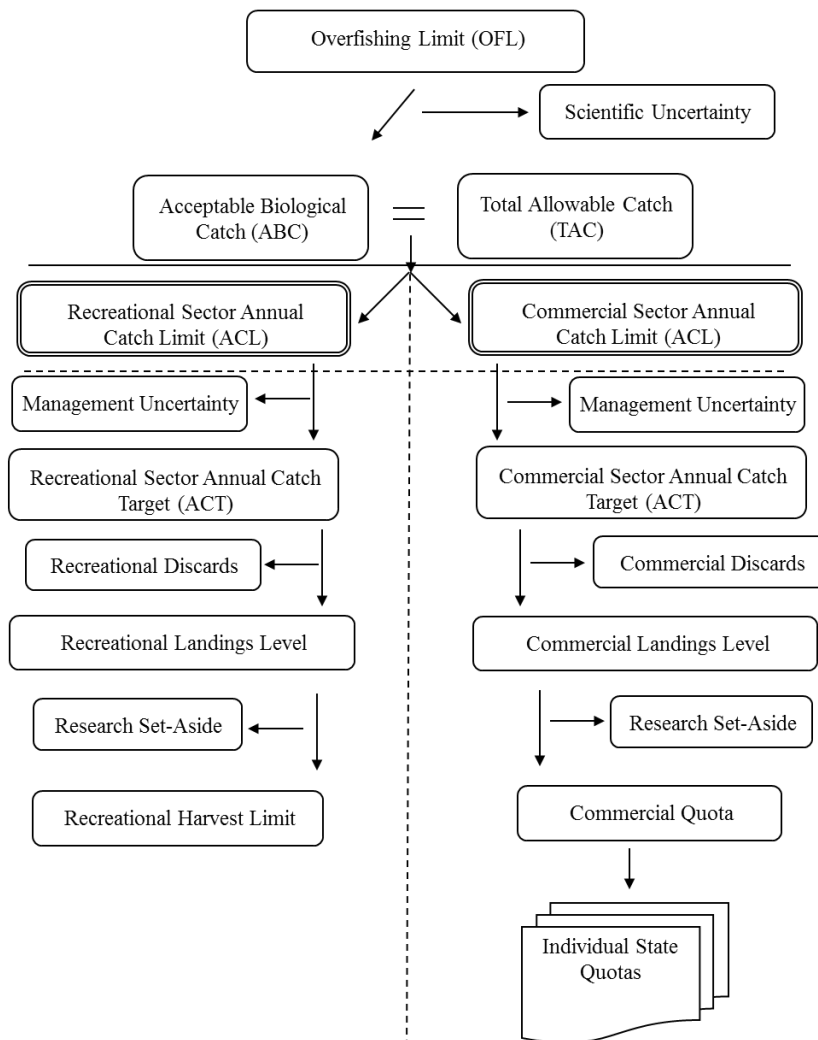
### ***Recreational and Commercial Annual Catch Limits***

The black sea bass ABC includes both landings and discards and is equal to the sum of the commercial and recreational ACLs (Figure 1). Based on the allocation percentages in the FMP, 49% of the total allowable landings are allocated to the commercial fishery, and 51% to the recreational fishery. The Monitoring Committee recommends ACTs, which are set equal to or less than the ACLs to account for management uncertainty.

The ABC is apportioned into expected landings and discards based on the most recent three year average portion of the catch. During 2015-2017, landings averaged 75.7% of total catch and discards averaged 24.3%. The catch and landings limits increased substantially between 2016 and 2017 as a result of the 2016 benchmark stock assessment. This increase would be expected to result in a decrease in discards as a proportion of total catch. Variation in recruitment can also impact discards. For example, large year classes such as the 2011 and 2015 year classes can lead to an increase in discards for a few years due to

commercial and recreational minimum size limits. If availability remains high when those fish are large enough to be retained, they can continue to influence discards when the fishing seasons are closed or due to possession limits being exceeded. Thus, the assumption that patterns in landings and discards in a future year will be similar to the most recent three year average percentage of landings and discards may not hold true. This will be considered by the Monitoring Committee at their July 2018 meeting.

Staff recommend a 2019 commercial ACL of 3.98 million pounds (1,807 mt) and recreational ACL of 3.99 million pounds (1,810 mt), based on the standard process for deriving ACLs from the ABC (Table 1, Figure 1).



**Figure 1:** Flowchart for black sea bass catch and landings limits. The research set-aside program was suspended in 2014.

### *Annual Catch Targets*

The Monitoring Committee considers all relevant sources of management uncertainty in the black sea bass fishery when recommending ACTs. Management uncertainty is comprised of two parts: uncertainty in the ability of managers to control catch and uncertainty in quantifying the true catch (i.e., estimation

errors). Management uncertainty can occur because of a lack of sufficient information about the catch (e.g., due to late reporting, underreporting, and/or misreporting of landings or discards) or because of a lack of management precision (i.e., the ability to constrain catch to desired levels).

Commercial landings have generally been near the commercial quotas for most of the past five years (2013-2017). The commercial quota monitoring system is timely and typically successful in constraining landings to the commercial quota. In contrast, the recreational fishery exceeded the RHL in several recent years, with periodic substantial overages (Table 2). The Monitoring Committee has noted that these recreational overages occurred when the black sea bass stock was rapidly expanding and availability to recreational anglers was very high. At the same time, due to the lack of an approved stock assessment prior to 2017, the RHLs were set at levels not reflective of the large and increasing stock abundance. Analysis using the 2016 stock assessment indicates that RHLs during the few years prior to 2017 would have been significantly higher (i.e. approximately double those implemented) if they had been set using the new assessment model, and overages would likely not have occurred to the same degree.

In recent years, the Monitoring Committee and the Commission's Technical Committee have spent a great deal of time developing new and alternative methodologies to evaluate management uncertainty in the recreational fishery, the predictability and uncertainty in recreational catch estimates, and the influence of recreational regulations on harvest. These Committees plan to continue to work to make improvements to the evaluation process for recreational measures.

For 2019, staff recommend no reduction in catch from the recreational or commercial ACLs so that each sector's ACT is set equal to the ACL.

### ***Commercial Quotas and Recreational Harvest Limits***

Projected discards are subtracted from the sector-specific ACTs to derive landings limits, which include annual commercial quotas and RHLs. Projected discards are apportioned between the recreational and commercial fisheries using the average percentage of dead discards attributable to each sector over the past three years. Based on 2015-2017 discard data, 53.0% of discards were attributable to the commercial sector and 47.0% to the recreational sector (Table 1). As stated above, the assumption that patterns in landings and discards in a future year will be similar to the most recent three year average percentage of landings and discards may not hold true. This will be considered by the Monitoring Committee at their July 2018 meeting.

After removing projected discards from the staff-recommended ACTs, the commercial quota would be 2.95 million pounds (1,341 mt) and the recreational harvest limit (RHL) would be 3.08 million pounds (1,396 mt; Table 1).

### ***Commercial Gear Regulations and Minimum Fish Size***

Amendment 9 in 1996 incorporated black sea bass into the Summer Flounder FMP, and established an initial minimum fish size of 9 inches total length (TL) as part of an effort to reduce fishing mortality on immature black sea bass and increase SSB. The Council and Commission increased the commercial minimum size to 10 inches TL in 1998, and to 11 inches TL in 2002. The 11-inch minimum size has remained unchanged since 2002.

Amendment 9 also established gear regulations that became effective in December 1996, and were modified in 1998 and again in 2002. Current regulations, unchanged since 2002, state that trawl vessels whose owners have a black sea bass moratorium permit and possess 500 pounds or more of black sea bass from January 1 through March 31, or 100 pounds from April 1 through December 31 (i.e., the threshold or incidental possession limits), must fish with nets that have a minimum mesh size of 4.5-inch diamond mesh applied throughout the codend for at least 75 continuous meshes forward of the terminus of the net. For codends with less than 75 meshes, the entire net must have a minimum mesh size of 4.5-inch diamond mesh.

The Council and Commission adopted modifications to the circle vent size in black sea bass pots/traps, effective in 2007, based on the findings of a Council and Commission sponsored workshop. The minimum circle vent size requirements for black sea bass pots/traps were increased from 2.375 inch to 2.5 inch. The requirements of 1.375 inch x 5.75 inch for rectangular vents and 2 inch for square vents remained unchanged. In addition, two vents are required in the parlor portion of the pot/trap.

In the fall of 2015, the Council and Commission's Monitoring and Technical Committees conducted a thorough review of current commercial management measures (MAFMC 2015). The Committees, and subsequently the Council and Board, indicated that further exploration of some measures may be justified. Specifically, for black sea bass, this included assessing the feasibility of a common minimum mesh size for summer flounder, scup, and black sea bass, as well as summarizing past studies on mesh sizes and pot/trap configuration requirements for all three species.

Stemming from this discussion, the Council funded a project which analyzed the selectivity of multiple codend mesh sizes relative to summer flounder, black sea bass and scup retention in the commercial bottom trawl fishery in the Mid-Atlantic region. Results confirmed that the current minimum mesh sizes for all three species are effective at releasing most fish smaller than the commercial minimum sizes (i.e. 14" total length for summer flounder, 9" total length for scup, and 11" total length for black sea bass). The study was not able to identify a common mesh size for all three species that would be effective at minimizing discards under the current minimum fish size limits. However, the authors concluded that a common mesh size of 4.5" or 5" diamond for scup and black sea bass would be effective at releasing undersized fish (Hasbrouck et al. 2018).

Council staff recommend no changes to the minimum mesh sizes for 2019. The Monitoring Committee will review the results of Hasbrouck et al. (2018) during their July 2018 meeting. If the Council wishes to consider modifications to the minimum mesh sizes, the objectives should be clarified. Possible objectives could include establishing a common minimum mesh size, minimizing discards, and/or maintaining or increasing catches of legal-sized fish; however, some of these objectives may be at odds with each other. Input from the commercial fishing industry should be sought before any minimum mesh size changes are considered. As the Monitoring Committee has noted in the past, changes to these requirements can create an economic burden for fishermen if they necessitate purchase of new nets.

### ***Recreational Management Measures***

Specific management measures that will be used to achieve 2019 RHL will not be determined until after the first four waves (i.e. January - August) of 2018 recreational landings are reviewed. These data will likely be available in October 2018. The Monitoring Committee will meet in November to review these data and make recommendations regarding any necessary changes in the recreational possession limits, minimum sizes, and seasons.

For 2018, the Council and Commission provided states the opportunity to open their recreational black sea bass fisheries during the month of February for the first time since 2013. The Council and Commission will consider doing so again for 2019.

Only North Carolina and Virginia opted to open their recreational black sea bass fisheries in February 2018. No black sea bass were harvested in North Carolina in February 2018. It was estimated that 4,826-5,206 pounds of black sea bass were harvested by recreational fishermen off Virginia in February 2018.

### **References**

Hasbrouck, E., S. Curatolo-Wagemann, T. Froelich, K. Gerbino, D. Kuehn, P. Sullivan, J. Knight. 2018. Determining Selectivity and Optimum Mesh Size to Harvest Three Commercially Important Mid-Atlantic Species - A Report to the Mid-Atlantic Fishery Management Council and the Atlantic States Marine Fisheries Commission. Available at: [http://www.mafmc.org/s/Tab08\\_SFSBSB-Mesh-Selectivity-Study-Apr2018.pdf](http://www.mafmc.org/s/Tab08_SFSBSB-Mesh-Selectivity-Study-Apr2018.pdf)

MAFMC Mid-Atlantic Fishery Management Council). 2015. Summer Flounder, Scup and Black Sea Bass Commercial Management Measures Review. Available at: <http://www.mafmc.org/briefing/december-2015>.

MAFMC (Mid-Atlantic Fishery Management Council). 2017. Report of the January 2017 Meeting of the MAFMC SSC. Available at: <http://www.mafmc.org/ssc>.

NEFSC (Northeast Fisheries Science Center). 2012. 53<sup>rd</sup> Northeast Regional Stock Assessment Workshop Assessment Report. UD Dept. Comm. NEFSC Center Reference Document 12-05, 559p.

NEFSC (Northeast Fisheries Science Center). 2017a. 62nd Northeast Regional Stock Assessment Workshop (62nd SAW) Assessment Report. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 17-03; 822 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026, or online at <http://nefsc.noaa.gov/publications/>.

NEFSC (Northeast Fisheries Science Center). 2017b. Black Sea Bass Data Update for 2016. Available at: <http://www.mafmc.org/council-events/2017/july-2017-ssc-meeting>.

NEFSC (Northeast Fisheries Science Center). 2018. Black Sea Bass 2017 Catch and Survey Information for Stock North of Cape Hatteras, NC - Report to the Mid-Atlantic Science and Statistical Committee. Available at: <http://www.mafmc.org/ssc-meetings/2018/july-17-18>



**Summer Flounder, Scup, and Black Sea Bass Monitoring Committee  
July 19, 2018 Meeting Summary  
Baltimore, MD**

**Monitoring Committee Attendees:** Sydney Alhale (VMRC), Julia Beaty (MAFMC staff), Peter Clarke (NJ F&W), Tiffany Cunningham (MA DMF), Kiley Dancy (MAFMC staff), Steve Doctor (MD DNR), Emily Gilbert (GARFO staff), John Maniscalco (NY DEC), Jason McNamee (RI F&W), Brandon Muffley (MAFMC staff), Kirby Rootes-Murdy (ASMFC staff), Caitlin Starks (ASMFC staff), T.D. VanMiddlesworth (NC DMF), Greg Wojcik (CT DEEP), Rich Wong (DE DFW)

**Additional Attendees (all via webinar):** Emerson Hasbrouck (Cornell Cooperative Extension/ASMFC Board member), Gavin Fay (UMass Dartmouth), Scott Curatolo-Wagemann (Cornell Cooperative Extension), Thomas Heimann (Commercial Fisheries Research Foundation)

### **Mesh Size Selectivity Study**

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The Monitoring Committee (MC) received a presentation on the results of a mesh size selectivity study for summer flounder, scup, and black sea bass funded by the Council's Collaborative Fisheries Research Program. The MC agreed that this study provides valuable contemporary information on the mesh selectivities for all three species. This information could be useful for future stock assessments. The results suggest that, in general, the current minimum mesh sizes are effective at releasing catch of most undersized and immature fish.

As described in more detail below, the MC discussed several possible changes to the current mesh size and/or minimum fish size requirements, but **emphasized that fishing industry feedback should be sought and additional analysis should be completed before pursuing specific changes.**

The study results indicate that either a 4.5" diamond (the current black sea bass minimum mesh size) or 5.0" diamond (the current scup minimum mesh size) could be an appropriate common minimum mesh size for scup and black sea bass. The MC was supportive of further exploring the biological and economic impacts of a common 4.5" or 5" diamond mesh size for these two species. Analysis is needed to determine how much catch of legal-sized fish would be lost if the black sea bass minimum mesh size were increased to 5.0" diamond. The impacts of this lost catch would also depend on market factors (e.g., larger fish are usually worth more).

At the April Council meeting, there was some discussion of whether a 13-inch minimum fish size could be adopted for summer flounder in order to move to a 5.0" diamond minimum mesh size for all three species. The MC recommended that if the Council and Board wish to explore this option, additional analysis should be completed to evaluate the potential biological impacts of this change on the stock. These impacts should be carefully considered given that recruitment has been below average and stock biomass is close to the overfished threshold. In addition, the MC noted that a



size limit decrease could increase high grading, especially under low quotas and increase the disparity between commercial and recreational fishery regulations.

The value of mesh regulation consistency is largely dependent on current use patterns. For example, some vessels may already use 5.0” diamond mesh to target black sea bass, as opposed to the current minimum mesh size of 4.5” diamond. If most vessels already use 5.0” mesh, the burden of changing the minimum mesh size from 4.5” to 5.0” diamond would likely be low. The value of consistent mesh sizes would also be clarified by understanding how much overlap there is between the three species in terms of target species and catch within trips.

Although moving to a consistent mesh size for two or three species would simplify regulations, such changes could also create economic and administrative burdens that may offset any gains from regulatory simplicity. **The group recommends that any potential future changes involve significant lead time before implementation to allow time for fishermen to plan for the cost of replacing gear.** A cost-benefit analysis of the costs of gear transition versus potential biological benefits would be helpful if such regulation changes were pursued.

The current minimum mesh sizes for summer flounder are 5.5” diamond or 6.0” square. The MC noted that the summer flounder selectivity curve for 6.0” square mesh does not appear to be equivalent to that of the 5.5” diamond. Instead, the 6.0” square is much more similar to a 5.0” diamond mesh. The 6.0” square mesh releases less than 50% of minimum size fish. The MC had some concerns with the amount of undersized summer flounder caught with the 6.0” square mesh and recommended further exploring the impacts of this mesh size. **Phasing out the use of 6.0” square mesh for summer flounder could reduce discards of undersized fish.** The MC noted that further analysis should be done on how many vessels are currently using 6.0” square vs. 5.5” diamond mesh.

For any possible mesh size changes, additional analysis would be needed on how the changes would impact discards. For example, reducing the scup mesh size to 4.5” for consistency with black sea bass could increase scup discards; however, the results of the new study show similar 4.5” and 5.0” selectivity curves for scup, so the effect may be small. As noted above, summer flounder discards could potentially be reduced by moving away from the 6.0” square mesh regulation.

## **Summer Flounder Comments and Recommendations**

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**The MC supported the staff recommendations for 2019 annual catch limits (ACLs), annual catch targets (ACTs), commercial quota, and recreational harvest limit (RHL; Table 1).** As described in the staff memo, these measures are expected to be interim measures until they can be revised based on the results of the new benchmark stock assessment, likely in mid-2019.

The MC discussed that there is some additional risk (biological risk as well as risk to the fishery) with these specifications given several process and technical considerations. For example, by the time the catch and landings limits are adjusted in mid-2019, many states will be well into their commercial fishing year. In addition, similar to the SSC, the MC expressed concerns with using an additional year of projected stock biomass from the 2016 assessment update. Stock projections several years out are always more uncertain, and the model used as the basis of these projections has a history of overestimating biomass and underestimating fishing mortality. In addition, given below-average recruitment for summer flounder for the past several years, the MC is concerned

that assumed recruitment in the projections may be higher than is realistic for the stock at this time. Finally, there is considerable uncertainty in the magnitude and direction of changes in stock status and catch limits that may result from the new benchmark stock assessment.

While the MC ultimately supported the staff recommendation of revised 2019 ACTs, the group noted the Council and Board could consider mitigating some of the risk and uncertainties highlighted above. One example the MC discussed would be to keep the ACTs static between 2018 and 2019. The MC does not have additional information or an agreed-upon method for determining an appropriate alternative reduction, other than *status quo*, from the ACLs to the ACTs.

For the commercial fishery, the monitoring and fishery closure system is timely and has typically been successful in holding the landings close to the quota. States should continue to be diligent in managing their state quotas.

The MC discussed whether recent increases in commercial discards present management uncertainty issues that would warrant reconsideration of the commercial ACT. Commercial discards increased in 2017, and the MC concluded (based in part on observer data) that this is largely due to the very low quota in 2017. However, the MC indicated that additional analysis should be done regarding the drivers of increased discards to see if there are other measures that could reduce commercial discards or if statistically anomalous estimates may be driving the increases.

The MC noted that the increase in the commercial ACL between 2017 and 2018, and the proposed increase in the ACL between 2018 and 2019, may result in reduced discards relative to 2017 as some portion of discards are converted to landings with increased quotas. However, a reduction in the commercial ACT is expected for the initial 2019 specifications given that a commercial Accountability Measure (AM) has been triggered due to an overage of the commercial ACL in 2017. This could also mitigate some of the risks noted above.

For the recreational fishery, the MC agrees that management uncertainty is best considered during the recreational measures setting process in the fall. The group will need to carefully consider development of recreational measures for 2019, given the lack of in-season closure authority for the recreational fishery. The MC continues to work toward improved approaches to developing recreational measures. The Council, Board, MC and Technical Committee (TC) plan to continue developing a proposed policy of less reactionary recreational measure adjustments, providing for stability in the measures from year to year if projected harvest is within a to-be-determined measure of uncertainty from the following year's RHL. At this time, the MC recommends that any potential liberalizations in 2019 recreational measures not be taken, at least until preliminary 2018 harvest can be evaluated and the revised stock assessment results can be incorporated into management.

**The MC agreed with the staff recommendation that no changes be made to the commercial minimum fish size (14-inch total length), gear requirements, and exemption programs for 2019.** As noted above, considering the recent mesh size selectivity study results may warrant further evaluation for summer flounder (i.e. the impacts of the 6.0" square mesh size, on catch and discards of undersized fish). The MC recommends no changes to these measures for 2019, but will revisit this issue following further evaluation and analysis of potential effects of mesh size changes and input from industry.

## Scup Comments and Recommendations

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**The MC maintained their previous recommendation that the 2019 commercial and recreational scup ACTs be set equal to their respective ACLs, with no reduction for management uncertainty. They also recommended no changes to their previously-recommended 2019 commercial quota and RHL (Table 2).**

The biomass projections which served as the basis for the 2018 and 2019 scup acceptable biological catch levels (ABCs) assumed that 87% of the 2017 ABC would be caught based on performance of the 2016 fishery; however, preliminary landings and discard information indicate that 113% of the 2017 ABC was caught. The MC agreed with the SSC's conclusion that this is a source of implementation error and said this may warrant further consideration for future specifications.

**The MC discussed a request from Massachusetts and Rhode Island that the federal scup commercial incidental possession limit increase to 4,000 pounds during April 15 - June 15 for all permit holders.** Trawl vessels which possess more than the incidental possession limit must comply with the minimum mesh size of 5.0" diamond. The federal incidental possession limit is currently 1,000 pounds from October through April and 200 pounds from May through September. The intent behind the request is to allow the small mesh inshore spring fisheries for longfin squid in those states to retain, rather than discard, the scup they catch incidentally. **The MC tentatively supported the proposed change; however, they requested that the following information be analyzed and considered before the Council and Board approve the change:**

- The number of participants in the longfin squid fisheries which may be impacted by this change.
- The proportion of longfin squid and scup in catches on trips that caught both species with small mesh during April - June.
- The length frequencies of scup discarded in small mesh fisheries during April - June.
- The proportion of the spring longfin squid fishery which would be accommodated by a 4,000 pound scup incidental limit, compared to a 3,000 pound or 2,000 pound limit.
- Differences in the behavior and seasonal distributions of scup and longfin squid in the spring. For example, the MC discussed the idea that larger scup migrate inshore before smaller scup. An increased incidental possession limit during the times of year when larger scup are more prevalent would be more beneficial than during the times of year when smaller scup are also present as scup less than 9 inches total length cannot be retained in commercial fisheries.

The MC expressed some concern about the potential impacts of this proposed incidental limit increase on the scup stock; however, given that biomass is currently more than double the target, they agreed that the risk of negative impacts may be low. They suggested that if this change is implemented, it be reconsidered after one year or if biomass falls below the target or if some other trigger is met.

The MC discussed the 71% increase in commercial scup discards between 2016 and 2017 (from 6.11 million pounds to 10.42 million pounds) and agreed that it was likely driven by the large 2015 year class. They recommended that scup discards continue to be closely monitored and measures to reduce discards be considered. They did not express a desire to revise the 2019 catch and landings limits to account for this increase in discards. Discards may decline in 2018 and 2019

because the 2015 year class will be large enough to be retained in the commercial fishery and the 2018 and 2019 commercial quota is 30% higher than in 2017.

The MC considered a proposal from Massachusetts for a “bait tolerance” for small scup caught in recreational fisheries. The proposal suggested that anglers be allowed to retain up to 5 scup as small as 6 inches, compared to the current recreational minimum size of 9 inches in federal waters and in most states. This would allow anglers to use small scup for live bait for species like striped bass and bluefish. The proposal suggested that anglers would not retain 6-inch scup for other purposes as larger scup are readily available and are preferred by anglers who harvest scup for personal consumption.

The MC noted that a 5 fish possession limit with a 6-inch minimum size, in combination with a higher bag limit at a higher minimum size would add complexity to the regulations. This would make the regulations more challenging to enforce and would also complicate analysis of the impacts of regulations. The MC recommends an analysis of how many immature scup would be harvested if this change were made. Only about 20% of 6-inch scup are mature. The MC also wished to know how many anglers would take advantage of this “bait tolerance” and questioned if a special permit could be required. One MC member questioned if the use of live scup as bait increases the discard mortality of striped bass. The MC did not recommend any changes to the recreational minimum fish size or bag limit at this time but will reconsider these measures during their fall 2018 meeting.

As summarized above, the MC recommended no changes to the scup minimum mesh size requirements. **The MC also recommended no changes to the other gear requirements, the commercial minimum fish size, possession limits, and quota period regulations.**

### **Black Sea Bass Comments and Recommendations**

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**The MC supported the staff recommended ACTs, commercial quota, and RHL for 2019.** The commercial and recreational ACTs are set equal to their respective ACLs, with no reduction for management uncertainty (Table 3).

The ACL, ACT, quota, and RHL calculations divide the ABC into expected landings and discards based on the average proportion of total catch that was landed and discarded during 2015-2017. Expected discards are further divided between the commercial and recreational sectors based on the proportion of discards by sector during 2015-2017. The MC acknowledged that the proportions of catch that will be landed and discarded in 2019 are uncertain and may differ from 2015-2017. This is a source of uncertainty in the sector-specific catch and landings limit calculations. If discards are much higher than expected, then AMs may be triggered, which could require reductions in catch limits in future years. If discards are much lower than expected, then the quota and/or RHL may be set too low. Despite these concerns, the MC couldn't support or justify the use of a different metric for estimating 2019 discards and apportioning them between the commercial and recreational sectors at this time. The MC will explore other options for future years. The MC noted that the current method of using the most recent three year average is unable to account for incoming year class strength, is reactive to past fishery performance, and is not predictive of what might occur in the future.

The MC questioned whether biomass projections derived from the stock assessment could project what proportions of the ABC will be landed and discarded in future years based on year class

strength, different fishery selectivities, and any other relevant information. This could allow for more accurate calculations of expected discards than the current method; however, the stock assessment may not be structured in a way to allow for this.

The MC discussed information provided with the data update from the NEFSC which shows that estimated pot/trap discards in the southern region in 2017 are much higher when based on observer data than when based on vessel trip report (VTR) data. The MC thought the observer-based estimate in the southern region seemed extremely high and requested that staff follow up with the assessment scientist to confirm that estimate.<sup>1</sup> The MC also said the length frequencies of discarded black sea bass, which were not presented at the meeting, could be informative.

The MC discussed different ways to reduce commercial and recreational discard mortality due to barotrauma. One MC member questioned whether venting could be required, noting that some studies have shown that venting, when done properly, can be very successful at reducing discard mortality. After some discussion, the MC agreed that venting should not be mandated as this would be difficult to enforce and could cause more harm than good. For example, if anglers attempt to vent black sea bass in the wrong area (e.g. through the stomach) or with an unclean needle, the increased risk of infection could decrease, rather than increase, the likelihood of the fish surviving. The MC acknowledged the benefits of venting would vary by area and time of year as barotrauma is a greater source of mortality in some areas (e.g. deeper depths) and times of year (e.g. during the winter when black sea bass are found at greater depths and during summer when the difference between surface and bottom temperature is greatest) than others.

The MC agreed that venting in the commercial fishery would be too time consuming due to the volume of fish that can be discarded on a given trip. One MC member described baskets or elevators that can return multiple black sea bass to depth at the same time. Research into these methods is being conducted in Delaware.

**The MC supported education and outreach efforts to train fishermen on how to properly vent black sea bass and how to use descending devices.** In the past, NOAA Fisheries, Sea Grant, and other agencies have offered such trainings and have made venting equipment and descending devices available to anglers. The MC strongly supported continuation of such programs.

## **Framework and Addendum on Conservation Equivalency, Block Island Sound Transit, and Slot Limits**

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Staff summarized management alternatives under consideration through a framework and addendum that addresses conservation equivalency for black sea bass and summer flounder, Block Island Sound transit provisions for all three species, and the use of slot limits in the recreational fisheries for all three species.

One set of alternatives considers the use of conservation equivalency for black sea bass, whereby the federal recreational measures can be waived in favor of the measures in the states where anglers

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<sup>1</sup> After the meeting, the stock assessment scientist confirmed that the discard estimates may need further refinement. Although the value of the observer-based discard estimate shown at the meeting may not be accurate, the suggestion that VTR-based estimates are low is likely valid.

land their catch. The fishery management plan (FMP) currently only allows the use of conservation equivalency for summer flounder.

Recreational catch and harvest data is generally less precise at the state or regional level than at the coastwide level. Under conservation equivalency, the Board must certify that the combination of state and/or regional measures will result in a similar level of harvest as the non-preferred coastwide measures. This necessitates an examination of state and/or regional level data. One MC member suggested that the data be examined to determine if the state/regional level data for black sea bass is more or less precise than for summer flounder. This could help the Council and Board determine if conservation equivalency is more or less appropriate for black sea bass compared to summer flounder.

One MC member asked if there are any examples of slot limits for food fish that are biologically beneficial, as well as increase angler satisfaction. Other MC members said slot limits for red drum and grouper are good examples; however, they cautioned that differences in biology and/or habitat use of those species compared to summer flounder, scup, and black sea bass may limit the usefulness of this comparison.

One MC member emphasized that the current stock status of summer flounder (i.e. overfishing is occurring and biomass is below the target) is not conducive to experimentation with alternative management measures such as slot limits, in particular due to previous research on the subject suggesting a high potential for increased harvest under a slot limits.<sup>2</sup> One MC member said slot limits are most beneficial for longer-lived species and there may not be enough older summer flounder for the benefits of slot limits to be fully realized.

Another MC member said the stock status of black sea bass is good, but there are other major management challenges such as how to best account for the different abundances between the northern and southern regions. Another MC member said, given concerns about barotrauma for larger black sea bass, measures to reduce discard mortality (e.g. use of descending devices, venting) should be seriously considered if slot limits are to be used for this species.

One MC member requested that this framework and addendum include an updated conservation equivalency timeline as the timeline in Framework 2, which implemented conservation equivalency for summer flounder, does not reflect current practice.

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<sup>2</sup> Wong, R. 2009. Slot limit management for recreational summer flounder harvest. Available at: [http://www.mafmc.org/s/Slot\\_limit\\_guidance\\_Wong\\_2009-002.pdf](http://www.mafmc.org/s/Slot_limit_guidance_Wong_2009-002.pdf)

Wiedenmann, J., M. Wilberg, E. Bochenek, J. Boreman, B. Freeman, J. Morson, E. Powell, B. Rothschild, and P. Sullivan. 2013. Evaluation of management and regulatory options for the summer flounder recreational fishery. Available at: <http://www.mafmc.org/s/A-Model-to-Evaluate-Recreational-Management-Measures.pdf>

**Table 1:** Currently implemented catch and landings limits for summer flounder for 2018, and Monitoring Committee recommended measures for 2019. Numbers may not add precisely due to unit conversions and rounding.

Management Measure	2018		Basis	2019 (MC Rec.)		Basis
	mil lb.	mt		mil lb.	mt	
<b>Overfishing limit (OFL)</b>	18.69	8,476	2016 stock assessment update projections	20.60	9,343	Updated stock projections for 2019 based on the 2016 assessment update
<b>ABC</b>	13.23	5,999	Stock assessment projections/SSC recommendation	15.41	6,988	Revised 2019 projections/Council Risk Policy application
ABC Landings Portion	11.05	5,010	Stock assessment projections	12.86	5,834	Stock assessment projections
ABC Discards Portion	2.18	989	Stock assessment projections	2.54	1,154	Stock assessment projections
Projected Commercial Discards	1.07	485	49% of ABC discards portion, based on 2013-2015 average % discards by sector	1.47	666	58% of ABC discards portion, based on 2015-2017 average % discards by sector
Projected Recreational Discards	1.11	504	51% of ABC discards portion, based on 2013-2015 average % discards by sector	1.08	488	42% of ABC discards portion, based on 2015-2017 average % discards by sector
<b>Commercial ACL</b>	7.70	3,491	60% of ABC landings portion (per FMP allocation) + projected commercial discards	9.18	4,166	60% of ABC landings portion (FMP allocation) + projected commercial discards
Commercial ACT	7.70	3,491	MC recommendation: no deduction from ACL for management uncertainty	9.18	4,166	Staff recommendation: no deduction from ACL for management uncertainty
<b>Commercial Quota</b>	6.63	3,006	Commercial ACT, less projected commercial discards	7.72	3,500	Commercial ACT, less projected commercial discards
<b>Recreational ACL</b>	5.53	2,508	40% of ABC landings portion (per FMP allocation) + projected recreational discards	6.22	2,822	40% of ABC landings portion (FMP allocation) + projected recreational discards
Recreational ACT	5.53	2,508	MC recommendation; no deduction from ACL for management uncertainty	6.22	2,822	Staff recommendation: no deduction from ACL for management uncertainty
<b>Recreational Harvest Limit</b>	4.42	2,004	Recreational ACT, less projected recreational discards	5.15	2,334	Recreational ACT, less projected recreational discards

**Table 2:** Currently implemented scup catch and landings limits for 2018-2019. Numbers may not add precisely due to unit conversions and rounding.

Management Measure	2018		2019		Basis
	mil lb	mt	mil lb	mt	
<b>OFL</b>	45.05	20,433	41.03	18,612	Assessment projections
<b>ABC</b>	39.14	17,755	36.43	16,525	Assessment projections & risk policy
<b>ABC discards</b>	5.91	2,679	5.08	2,304	Assessment projections
<b>Projected commercial discards</b>	5.15	2,338	4.43	2,011	87.3% of ABC discards (avg. % of dead discards from commercial fishery, 2014-2016)
<b>Projected recreational discards</b>	0.75	341	0.65	293	12.7% of the ABC discards (avg. % of dead discards from rec. fishery, 2014-2016)
<b>Commercial ACL</b>	30.53	13,849	28.42	12,890	78% of ABC (per FMP)
<b>Commercial ACT</b>	28.42	12,890	28.42	12,890	2019 commercial ACL with no deduction for management uncertainty (2018 ACL set equal to 2019 ACL)
<b>Commercial quota</b>	23.98	10,879	23.98	10,879	Commercial ACT minus 2019 projected discards
<b>Recreational ACL</b>	8.61	3,906	8.01	3,636	22% of ABC (per FMP)
<b>Recreational ACT</b>	8.01	3,636	8.01	3,636	2019 recreational ACL with no deduction for management uncertainty (2018 ACL set equal to 2019 ACL)
<b>RHL</b>	7.37	3,342	7.37	3,342	Recreational ACT minus 2019 projected discards



**Table 3:** Currently implemented catch and landings limits for black sea bass for 2018 and SSC and Monitoring Committee recommended measures for 2019. Numbers may not add precisely due to unit conversions and rounding.

Management Measure	2018		Basis	2019		Basis
	mil lb.	mt		mil lb.	mt	
<b>OFL</b>	10.29	4,669	Stock assessment projections	9.18	4,163	Stock assessment projections
<b>ABC</b>	8.94	4,057	Stock assessment projections and Council risk policy	7.97	3,617	Stock assessment projections and Council risk policy
ABC Landings Portion	7.18	3,258	80.3% of ABC, based on average 2013–2015 landings as % of catch	6.03	2,737	75.7% of ABC, based on average 2015–2017 landings as % of catch
ABC Discards Portion	1.76	799	19.7% of ABC, based on avg. 2013–2015 discards as % of catch	1.94	880	24.3% of ABC, based on avg. 2015–2017 discards as % of catch
Projected Commercial Discards	0.83	377	47.2% of ABC discards portion, based on 2013–2015 avg. % discards by sector	1.03	446	53.0% of ABC discards portion, based on 2015–2017 avg. % discards by sector
Projected Recreational Discards	0.93	422	52.8 % of ABC discards portion, based on 2013–2015 avg. % discards by sector	0.91	414	47.0% of ABC discards portion, based on 2015–2017 avg. % discards by sector
<b>Commercial ACL</b>	4.35	1,974	49% of ABC landings portion (per FMP) + projected commercial discards	3.98	1,807	49% of ABC landings portion (per FMP) + projected commercial discards
Commercial ACT	4.35	1,974	Commercial ACL, with no deduction for management uncertainty	3.98	1,807	Commercial ACL, with no deduction for management uncertainty
<b>Commercial Quota</b>	3.52	1,596	Commercial ACT minus projected commercial discards	2.95	1,341	Commercial ACT minus projected commercial discards
<b>Recreational ACL</b>	4.59	2,083	51% of ABC landings portion (per FMP) + projected recreational discards	3.99	1,810	51% of ABC landings portion (per FMP) + projected recreational discards
Recreational ACT	4.59	2,083	Recreational ACL, with no deduction for management uncertainty	3.99	1,810	Recreational ACL, with no deduction for management uncertainty
<b>RHL</b>	3.66	1,661	Recreational ACT minus projected recreational discards	3.08	1,396	Recreational ACT minus projected recreational discards



## Summer Flounder, Scup, and Black Sea Bass Fishery Performance Reports

June 2018

The Mid-Atlantic Fishery Management Council's (Council) Summer Flounder, Scup, and Black Sea Bass Advisory Panel (AP) met jointly with the Atlantic States Marine Fisheries Commission's (Commission) Summer Flounder, Scup, and Black Sea Bass AP on June 26, 2018. Advisors reviewed Fishery Information Documents for all three species and developed the following Fishery Performance Reports. **Please note:** Advisor comments described below are not necessarily consensus or majority statements.

**Council Advisory Panel members present:** Carl Benson (NJ), Skip Feller (VA), James Fletcher (NC), Jeff Gutman (NJ), Mark Hodges\* (VA), Greg Hueth (NJ), Ross Pearsall (RI), Michael Plaia\* (CT/RI)

**Commission Advisory Panel members present:** Frank Blount (RI), Jeff Eutsler (MD), Mike Hall (RI), Mark Hodges\* (VA), Marc Hoffman (NY), James Lovgren (NJ), Michael Plaia\* (RI), James Tietje (MA), Brent Fulcher (NC; proxy for Robbie Mercer)

**Others present:** Julia Beaty (MAFMC Staff), Kiley Dancy (MAFMC Staff), Brandon Muffley (MAFMC Staff), Kirby Rootes-Murdy (ASMFC Staff), Caitlin Starks (ASMFC Staff), John Boreman (SSC Chair), Jessica Kuesel (ASMFC Staff), Mike Blanton (ASMFC legislative proxy for NC)

\*Serves on both Council and Commission Advisory Panels.

### General Comments

#### *Recreational Data Concerns*

Multiple advisors expressed frustration with the Council and Commission's use of data from the Marine Recreational Information Program (MRIP), which they see as inaccurate and fundamentally flawed. For example, one advisor said the 2016 wave 6 black sea bass harvest estimate from New York, which is widely regarded as unreasonably high, should not be used. Instead, the adjusted estimate generated by the Monitoring Committee should be used in Council and Commission documents. He also said the MRIP estimates of the number of anglers in New York is too high. One advisor said MRIP misses a significant portion of the recreational catch because their intercept samplers do not sample private docks. He said 80% of private anglers use private docks and this fishing effort is not intercepted by MRIP. Another advisor commented that more MRIP intercept staff are needed.

Multiple advisors voiced support for moving away from MRIP and towards a smart phone app to collect data from anglers. Some apps, such as the MyFishCount app, are already being used in certain capacities. One advisor said the Council should immediately implement mandatory recreational catch reporting through a smartphone app. He noted that commercial fishermen are

already required to report their catch and recreational fishermen should have the same requirements.

### ***Multi-Year Specifications***

Advisors agreed that predictability and stability in regulations is beneficial for fishermen and fishing businesses. Several advisors noted that it's very difficult to make business plans based on the current process, since catch limits and measures change year-to-year and often change within the year. Some commercial fishermen aim to spread their quotas throughout the year and for-hire captains need to plan their trips in advance. Several advisors supported implementing five-year measures, or at least three years, without modifications. It is especially challenging for fishermen to plan based on regulations that are finalized so close to the beginning of the season and are sometimes in place for less than a year, as happened recently and may happen again in 2019.

### ***Trawl Survey Concerns***

Several advisors commented on the surveys included in the assessments, and specifically, many had criticisms of the configuration of the various fishery independent trawl surveys. One advisor asked whether all surveys were conducted in the same manner, and commented that the state of Maryland coastal bay survey net was previously towing too high and was inefficient at catching summer flounder. This advisor believes that the Bigelow net also does not work as intended, and that all surveys should be corrected and done the same way up and down the coast.

Other advisors noted concerns with the Bigelow survey in recent years in terms of late survey timing or missing data. The early weeks of the survey are critical for summer flounder and in some cases in recent years, these weeks have been missed in the survey. One advisor noted that some members of the Northeast Trawl Advisory Panel (NTAP) have commented that the spring and fall surveys do not align well with the migration patterns of several species. This advisor also noted that the Bigelow net is too small for the boat. Without a cookie sweep, the net doesn't catch flatfish well. This advisor supported reviving the winter trawl survey, and noted that survey captains in a number of the different fishery dependent surveys are not fishing the nets correctly.

### ***Research Recommendations for All Three Species***

Multiple advisors recommended that the Council use a research set aside (RSA) program to fund cooperative research for all three species. They said collaborative research between industry and academia is very important and an RSA program, if done right, can be very valuable. One advisor said he did not oppose the use of RSA, but wanted to see past issues with the program addressed and added that it should not be set up so that one group of fishermen benefits more than others. One advisor said the Saltonstall-Kennedy funds should be used entirely for research and seafood promotion, as was intended.

One advisor recommended research into hook sizes and configurations with the goal of reducing recreational discard mortality.

### ***Council and Board Member Attendance at AP Meetings***

The AP emphatically requested that Council and Board members attend future AP meetings so they can hear directly from the advisors, rather than relying on meeting summaries. Some advisors

said the meeting summaries only capture a fraction of what is said and present a “sanitized” version of advisor comments.

Multiple advisors expressed frustration and disappointment that no Council members were in attendance at this meeting. One advisor said it appears like this meeting is held each year to simply check a box. Four advisors said the perception among AP members is that Council and Board members don’t truly listen to AP input. Some advisors traveled far distances or incurred substantial costs to attend this meeting (e.g. missed fishing trips, paying someone else to run a charter). Some advisors wondered if their attendance at this meeting was worth the costs.

## **Black Sea Bass Fishery Performance Report**

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### ***Environmental/Ecological Issues***

One advisor said the range of black sea bass has expanded, not simply shifted north. This is impacting other fisheries, particularly the lobster and clam fisheries, which are suffering due to black sea bass predation. He argued for an emergency increase in the black sea bass catch limits to reduce the black sea bass population and help address these ecological issues. He added that the whole ecosystem needs to be considered when developing management measures, not just a single species. He questioned whether this range expansion has been captured in the Northeast Fisheries Science Center survey data and the stock assessment.

One advisor said that weather patterns have changed, and this has impacted seasonal patterns in landings. Specifically, winters and springs have been colder. He said this should be taken into account when considering management measures.

One advisor said he’s seen three cycles of fish abundance in his lifetime. He believes these cycles are based on natural phenomena.

### ***General Management Issues***

One advisor questioned why the acceptable biological catch level is declining from 2018 to 2019 when the 2015 year class is so large. He also asked if the Council could change their risk policy to allow more black sea bass to be harvested, given that biomass is more than double the target. For example, maybe allowing for overfishing over a short period (e.g. one or a few years) could be considered acceptable when the stock biomass is so high.

### ***Market and Economic Issues***

One advisor said over time bottom trawls have accounted for a greater proportion of black sea bass landings. He said bottom trawls tend to catch bigger fish, while potters in the south tend to catch mostly the medium market category. He said dealers typically pay a higher price per pound for the bigger fish, so the shift towards trawl landings could have impacted the overall value and average price per pound.

One advisor said markets for black sea bass have been generally stable, with a few exceptions. For example, when the quota increased mid-year in 2017, landings increased late in the year and flooded the market, causing the price to drop.

### ***Commercial Management Issues***

One advisor pointed out that participation in the commercial black sea bass fishery in Maryland is limited because the state uses an individual quota system. He said the commercial landings in Ocean City, MD, as shown in the Fishery Information Document, likely include landings from bottom trawls vessels based in other states.

One advisor said the distribution of landings has been impacted by management changes. For example, fly netting south of Cape Hatteras is now limited and some fishing effort has shifted north to avoid requirements for turtle excluder devices.

One advisor said that individual transferable quota programs implemented in some states have allowed one individual to accumulate nearly 20% of the commercial black sea bass quota. This creates the potential for one individual to flood the market and cause reduced prices for other fishermen.

### ***Recreational Management Issues***

One advisor expressed frustration with the current restrictive recreational management measures, arguing that the stock was rebuilt under smaller size limits and higher bag limits than are currently in place.

One advisor noted that 2017 recreational harvest in numbers of fish was low, although catch was high and abundance is very high. He argued that managing the recreational fishery based on pounds instead of numbers of fish has created challenges as minimum fish sizes have increased therefore increasing the average weight of the fish that are harvested. This has resulted in anglers being able to keep fewer and fewer fish, even under high recreational harvest limits (RHLs). Another advisor agreed, adding that discard rates are too high and the RHL is more easily exceeded when the average weight of the fish is higher due to increased size limits.

Multiple advisors were troubled by the high discard rate in the recreational fishery. One advisor said the recreational discard mortality rate used in the stock assessment is likely an underestimate. He said the fishery should be managed with a total length limit where anglers are required to keep all fish up to a certain total cumulative length.

One advisor suggested that the private and for-hire sectors be managed with different bag limits given recent difficulties in constraining harvest to the RHL and the large contribution of the private sector to the total harvest. Another advisor expressed support for this recommendation, adding that separate bag limits for private, charter, and party vessels are working well for blueline tilefish.

One advisor said different private and for-hire boat limits would be met with some resistance. He suggested that recreational boat limits be considered, in addition to per person bag limits. This would prevent one vessel from harvesting very high amounts of fish. Massachusetts has a boat limit for scup. He suggested that higher bag limits could be allowed with mandatory reporting.

One advisor from Virginia said that the southern states don't have the diversity of fish species that Northern states have. He said black sea bass is a critical species for the for-hire industry in Virginia and a reduction in the bag limit would have a major negative impact. He added that most black sea bass in his area are caught 40-50 miles offshore.

One advisor said recent high recreational catches suggest that the stock is larger than managers think.

One advisor said non-compliance is a challenge in the recreational fishery. Anglers in some areas can fish during closed seasons with little fear of being caught.

### ***Research Recommendations***

A few advisors said the gear used in the Northeast Fisheries Science Center's bottom trawl survey, including the vessel itself, is not capable of accurately sampling the black sea bass stock, and other fish stocks.

One advisor recommended that research be conducted on why black sea bass are moving into new areas. He said it can't all be attributed to global warming and wondered if reduced cod abundances to the north and snapper/grouper abundances to the south played a role.

## **Summer Flounder Fishery Performance Report**

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### ***General Management Issues***

Regarding stock status, one advisor noted that managers need to look into the numbers, not just at numbers. For example, 2015 was a better year than what the data shows. 2015 catch was low because 2015 had a late winter. Another advisor stated that with recent large cuts in the catch limits, that should be translating to increased biomass. This advisor noted he has seen more small (likely juvenile) fish lately.

One advisor suggested that the reference points in the summer flounder stock assessment need to be addressed as soon as possible. According to the assessment, even at the all-time stock biomass high in the time series, the biomass was not close to reaching the reference point despite having a good fishery. This indicates that we're trying to obtain something that's unobtainable and that these reference points need to be revisited.

Multiple advisors expressed concerns with the fishery independent trawl surveys used in the stock assessment, as summarized above under "General Issues."

One advisor commented that his vessels frequently carry observers, and wondered whether the observer data was providing useful information and whether trends matched the trawl survey data. Two other advisors responded that observers have told them that they are only on board vessels to look for interactions with turtles. Another advisor noted that while fishing off of Barnegat Ridge, their vessel caught many smaller summer flounder, but the observers missed it because they were measuring incidental catch such as sea robins. This advisor is concerned that the large 2015 year class will not be picked up in the data.

### ***Environmental and Ecological Issues***

One advisor stated that climate change needs to be considered more thoroughly with the trawl surveys, and that the footprint of the survey needs to be expanded given that fish are moving north. Inshore areas need to be addressed, such as Nantucket Shoals and Buzzard's Bay. Climate is a huge part of what's going on with the summer flounder trends, and part of the problem is detectability. Larger fish are being seen in inshore waters now.

Another advisor noted that they have been seeing a lot of smaller fish lately (14-inch summer flounder). Vessels that used to fish the same favorite spots repeatedly now need to fish over a greater geographic area. This advisor was not sure if this was because there used to be more fish overall, or because the stock contracts under certain conditions and makes them easier to catch. It's not clear if the stock is expanding right now and that's why they are having to fish larger areas. Fishermen are reporting seeing a bigger variety of fish species, especially on the inshore grounds. Something has changed environmentally, and the fish have spread out.

### ***Market and Economic Issues***

One advisor commented that the less overlap there is between states' open seasons, the better the price is. When multiple states are open at the same time, buyers pit fish dealers against each other.

One advisor fishing on Individual Fishing Quota (IFQ) allocation in Maryland indicated that he is often making more money leasing his quota instead of fishing it. This advisor also stated that there's not enough quota up and down the coast to keep everyone going. When the fishery open, derby conditions often drive the price down. This advisor stated that it is impossible to make a living off of just the summer flounder fishery.

### ***Research Recommendations***

One advisor requested that to improve recruitment, the Council and Board investigate ocean ranching of juvenile summer flounder, and release millions of 2-inch fish. This has been done in Japan since the 1980s. This is currently illegal for fishermen to do given that it's illegal to possess summer flounder under the minimum size limit. Another advisor suggested that Research Set-Aside (RSA) could pay for these types of studies.

Several advisors supported bringing back RSA or a similar type of program, with one advisor noting that RSA funding is hugely important, and that RSA allows more industry and academia engagement in the management process. Another advisor commented that despite having a 5-year research plan, the Council has funded only four projects in the last cycle. More projects should be done, and if funding is an issue, the Council should bring back RSA. The study on reducing discard mortality of offshore black sea bass should have been a lower priority given that there are so many black sea bass out there, whereas summer flounder are in a downward spiral. The offshore black sea bass recreational fishery is limited, and this money should have been better spent.

## **Scup Fishery Performance Report**

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### ***Market and Economic Issues***

A few advisors said that scup cannot compete with tilapia for market demand. One advisor said this is largely because scup do not freeze well and can be difficult to fillet by machine. Another advisor said scup could make a great food fish for restaurants and frozen products if these problems could be overcome because scup taste good and are relatively uniform in size.

One advisor said the price per pound for scup used to be much higher, but wasn't sure why it used to be so high. He thought demand and prices in the past were too high to be due to ethnic markets alone.

### ***Commercial Management Issues***

Advisors discussed a proposal from the states of Massachusetts and Rhode Island for an increase in the incidental scup possession limit during April 15 - June 15 (or May - June) to 4,000 pounds. Currently, the incidental limit is 1,000 pounds during October-April and 200 pounds during May-September. The proposal is intended to accommodate the spring longfin squid fisheries in Massachusetts and Rhode Island.

One advisor said he supported an increase in the 200 pound limit to accommodate the squid fishery only. Another advisor supported the proposal, saying that it could help reduce discards. Another advisor supported the proposal but said the start date of April 15 seems a little too early given the migratory patterns of scup. He thought May 1 would be more appropriate. One advisor said the squid fleet is shrinking and this change could help make it easier for the remaining vessels to stay in business because they would be able to sell more scup instead of discarding them.

### ***Recreational Management Issues***

MRIP data show that most scup are harvested by anglers on private and/or rental vessels. One advisor said these data are not even close to accurate. He said the majority of scup harvest in his home state of New York comes from for-hire vessels. He estimated that about 90% of recreational scup harvest occurs on party boats. He said many party boat customers which target scup are lower income people who like to catch a lot of fish to take home to eat. Two other advisors said private boats play a bigger role in the recreational fishery in Massachusetts.

One advisor questioned why recreational discards have increased. Increased availability of small scup may have impacted commercial discards, but he hadn't seen an increase in small scup caught in the recreational fishery.

One advisor expressed support for the federal waters possession limit of 50 scup. Many states have possession limits of 30 or 45 fish. In the past, the limit was as high as 100 fish. In 2018, Massachusetts, Connecticut, Rhode Island, and New York decreased their minimum size limits from 10 inches to 9 inches. He said an increase in the bag limit would have been more beneficial than a decrease in the size limit, especially for for-hire vessels. He said anglers generally do not want to keep smaller scup.

One advisor said in the past, people would travel from other states to Rhode Island to fish for scup on for-hire boats. Now scup are abundant and easily accessible from many states, which has decreased the demand for scup trips out of Rhode Island.

One advisor said it would be beneficial if the scup and black sea bass seasons started at the same time.

Advisors discussed a proposal from the state of Massachusetts for an allowance of up to five scup as small as six inches, compared to the current recreational minimum size limit of 8 or 9 inches, depending on the state and mode. One advisor said in his home state of Massachusetts, many fishermen keep undersized scup for use as live bait for striped bass. The proposed regulation change would make this existing practice legal. He added that he thought live bait was not necessary to catch striped bass. One advisor said that if this change were implemented, it should be for all states, not just Massachusetts. Another advisor said that if the recreational fishery were managed with a total cumulative length limit, this would not be an issue.



### ***Research Recommendations***

One advisor said scup are an underutilized species and research and marketing efforts to increase demand should be encouraged (e.g. research on methods to de-bone scup).

One advisor recommend that the Council and Commission offer a \$1-2 million prize for development of a method to soften fish bones to the point that they can be consumed by humans. This would eliminate the need to de-bone fish like scup.

## **AP Comments on Framework and Addendum on Conservation Equivalency, Block Island Sound Transit, and Slot Limits**

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### ***Conservation Equivalency***

One advisor questioned how conservation equivalency for black sea bass could work with regional management. He said it was hard to imagine how measures in different regions could be compared against a coastwide standard.

### ***Block Island Sound Transit***

One advisor asked if Rhode Island could extend their state waters so there are no federal waters separating Block Island from the main land.

One advisor said the alternative which would only allow Rhode Island permit holders to transit Block Island Sound discriminates against residents of other states and is likely illegal.

Multiple advisors said the transit zone for summer flounder, scup, and black sea bass should be identical to that used for striped bass. One advisor said this is preferable to a smaller transit area (e.g. just north of Block Island) because it would reduce the likelihood that fishermen would have to go out of their way to stay in the transit zone.

One advisor noted that Block Island Sound isn't the only area where differences between state and federal measures can be an issue. In New Jersey, anglers fishing in certain areas, such as off Perth Amboy and other parts of Raritan Bay, must pass through New York state waters to return home.

### ***Slot Limits***

Multiple advisors spoke against the use of slot limits for summer flounder, scup, and/or black sea bass, as this would increase discards and discard mortality, would lead to non-compliance because anglers would not want to throw back large fish, or would have negative impacts on the stocks (e.g. due to the protogynous life history of black sea bass). One advisor said slot limits are not necessary for scup given the size of scup.

Many advisors expressed concerns about discards increasing under slot limits. One advisor noted that a slot limit would result in greater discards of larger fish, which are more likely than smaller fish to suffer discard mortality due to the greater handling time that is often required to release a larger fish and, for black sea bass, the greater potential for barotrauma. One advisor said he would prefer a prohibition on discards to a slot limit.

One advisor said he opposed options for trophy fish as this would allow continued mortality of large female summer flounder and would counteract the benefits of a slot limit.

One advisor said the current stock assessment for summer flounder is not configured in a way that can account for the reduced fishing pressure on females as a result of a slot limit.

One advisor cautioned that under low recreational harvest limits, slot limits may not be appealing to anglers because they may require very narrow slots and/or very low bag limits.

### ***Other Comments***

Two advisors recommended that the framework/addendum include an alternative for a total cumulative length limit with mandatory retention of all fish caught until the limit is met. They said this would eliminate discards, would protect the stock, and would be a simple solution to many existing problems.

## **AP Comments on Summer Flounder Commercial Issues Amendment**

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The advisors received an update on the status of the Summer Flounder Commercial Issues Amendment. Advisors were encouraged to provide comments during the public hearing process, and in addition, some advisors provided comments at this meeting, as summarized below.

### ***Federal Moratorium Permit Requalification***

One advisor noted that we've only managed fishermen, but done nothing to increase the size of the stock, such as ocean ranching done by fishermen. If ocean ranching occurred, the stock could rebound and support more fishermen. If this is not going to happen, we should just leave the permits like they are currently.

One advisor opposed taking away fishing rights from permit holders who qualified based on historical landings and are now in Confirmation of Permit History (CPH). Permit holders in CPH should have the right to re-enter the fishery if they choose. Summer flounder management occurs primarily by the states, and the states should continue to decide who's going to catch summer flounder and when. If you don't have a state permit, having a federal permit doesn't matter. We should not be cutting people out, especially at the federal level.

One advisor commented that the "scup model" allocation could cause an increase in latent effort from permit holders that currently can't fish at the state level. Right now there are hundreds of federal permits with no landings, but this could be due to boats not having state permits that provide adequate fishing opportunities. With the scup model, those permits will have greater flexibility to land in the winter periods because the quota will be managed at the coastwide level. This advisor noted that some of those latent permits may have even lied about their 1-pound qualifying landings in order to get a permit.

One advisor suggested a buyout of permits if managers want fewer people participating in the fishery. He also questioned what the concern is if people don't use their permits.

### ***Commercial Allocation (Alternative Set 2)***

One advisor stated that the supposed shift in biomass to the north is really due to shifting fishing effort patterns, with more southern vessels now fishing further north due to regulations. If there has been a shift in biomass, did not agree that New Jersey, in the middle of the coast, should be losing quota. This advisor believes that this amendment amounts to a quota grab by certain states.

Another advisor agreed, stating that if New York were in the southern region, no one would be discussing this action at all.

Another advisor did not support the concept of changing state allocations based on supposed shifts in biomass. Allocations were initially determined when fishing was open to all. Now that there are so many restrictions, fishery catch is not indicative of what could be caught by each state. Staff responded that the biomass-shift option in the document is based on trawl survey data, not fishery catch.

Another advisor supported *status quo* quotas, stating that people have invested in licenses and businesses related to this fishery. Changing allocations will affect business models and business plans. These businesses are difficult enough with constantly changing catch limits and other measures, and the fishery should be managed for maximum economic value. Under the scup model allocation, they'll be market gluts and the price will plummet.

Another advisor stated that with any reallocation, there are winners and losers, but New Jersey is consistently ending up on the losing side. Reallocation will bankrupt people in the south, including in New Jersey. The quotas are already way too low. Managers shouldn't take what people have and give it to other states, especially states that have had enforcement issues with things like RSA.

One advisor commented that he had to give up his herring permit for not having a tracking unit on his vessel, and stated that actions such as these are a push to get the small boats out of the fishery.

Several advisors expressed concerns that under the "scup model" allocation, derby fishing would be a major problem during the winter coastwide periods.

One advisor noted that the Potomac is an ideal place for stock enhancement of summer or southern flounder, and that this should be attempted before this amendment is completed. The Council and Board should be managing toward increasing weight of fishery catch.

### *Landings Flexibility*

One advisor noted that landings flexibility is, and should continue to be, a state issue. Several states already allow it through mutual agreements, such as North Carolina and Virginia. North Carolina allows boats to retain limits for other states as long as they only offload the North Carolina limit in North Carolina. This advisor stated the landings flexibility would ruin business models, by destroying the certainty of being able to land a certain amount in a certain state. Under the scup model, vessels wouldn't be able to plan for what they could land in a given year, and the value of summer flounder during coastwide periods will tank. States should seek feedback from all permit holders on what they would like in terms of landings flexibility and transiting with multiple possession limits.



## **Black Sea Bass Fishery Information Document**

**June 2018**

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This document provides a brief overview of the biology, stock condition, management system, and fishery performance for black sea bass, with an emphasis on 2017, the most recent complete fishing year.

### **1. Biology**

Black sea bass (*Centropristis striata*) are distributed from the Gulf of Maine through the Gulf of Mexico. Genetic studies have identified three stocks within that region. Black sea bass north of Cape Hatteras, North Carolina are considered one unit stock. Adults and juveniles are mostly found on the continental shelf. Young of the year (i.e. fish less than one year old) can be found in estuaries. Adults prefer to be near structures such as rocky reefs, coral patches, cobble and rock fields, mussel beds, and shipwrecks. Adults in the mid-Atlantic show strong site fidelity during the summer and migrate to offshore wintering areas south of New Jersey when water temperatures decrease in the fall. Adults in the South Atlantic and Gulf of Mexico do not migrate during the winter.<sup>1</sup>

Black sea bass are protogynous hermaphrodites, meaning they are born female and some later transition to males, usually around 2-5 years of age. Male black sea bass are either of the dominant or subordinate type. Dominant males are larger than subordinate males and develop a bright blue nuchal hump during the spawning season. About half of black sea bass are sexually mature by 2 or 3 years of age and about 20 cm (about 8 inches) in length. Most black sea bass greater than 19 cm (about 7.5 inches) are either in a transitional stage between female and male or have fully transitioned to the male stage. Results from a simulation model highlight the importance of subordinate males in the spawning success of sea bass. This increases the resiliency of the population to exploitation compared to other species with a more typical protogynous life history. Black sea bass reach a maximum size of about 60 cm (about 24 inches) and a maximum age of about 12 years.<sup>1,2</sup>

Black sea bass in the mid-Atlantic spawn in nearshore continental shelf areas at depths of 20-50 meters. Spawning usually takes place between April and October. During the summer, adult black sea bass share complex coastal habitats with tautog, hakes, conger eel, sea robins and other migratory fish species. Essential Fish Habitat (EFH) for black sea bass consists of pelagic waters, structured habitat, rough bottom, shellfish, sand, and shell, from the Gulf of Maine through Cape Hatteras, North Carolina. Juvenile and adult black sea bass mostly feed on crustaceans, small fish, and squid. The Northeast Fisheries Science Center (NEFSC) food habits database lists spiny dogfish, Atlantic angel shark, skates, spotted hake, summer flounder, windowpane flounder, and monkfish as predators of black sea bass.<sup>1</sup>

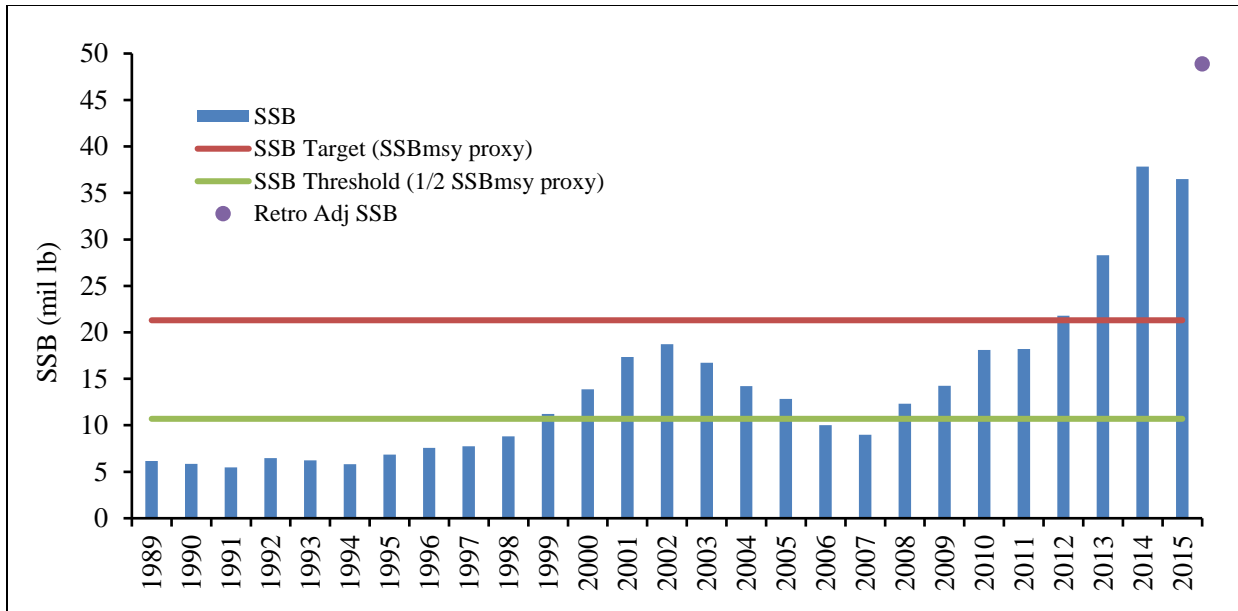
## 2. Status of the Stock

A benchmark stock assessment for black sea bass was peer-reviewed and approved at the 62<sup>nd</sup> Stock Assessment Review Committee (SARC 62) in December 2016. The protogynous life history, structure-orienting behavior and potential spatial stock structure of black sea bass posed challenges for prior analytical assessments of this species. The 2016 benchmark stock assessment was successful at evaluating and addressing many concerns and the greatest sources of uncertainty associated with prior stock assessments.<sup>3,4</sup>

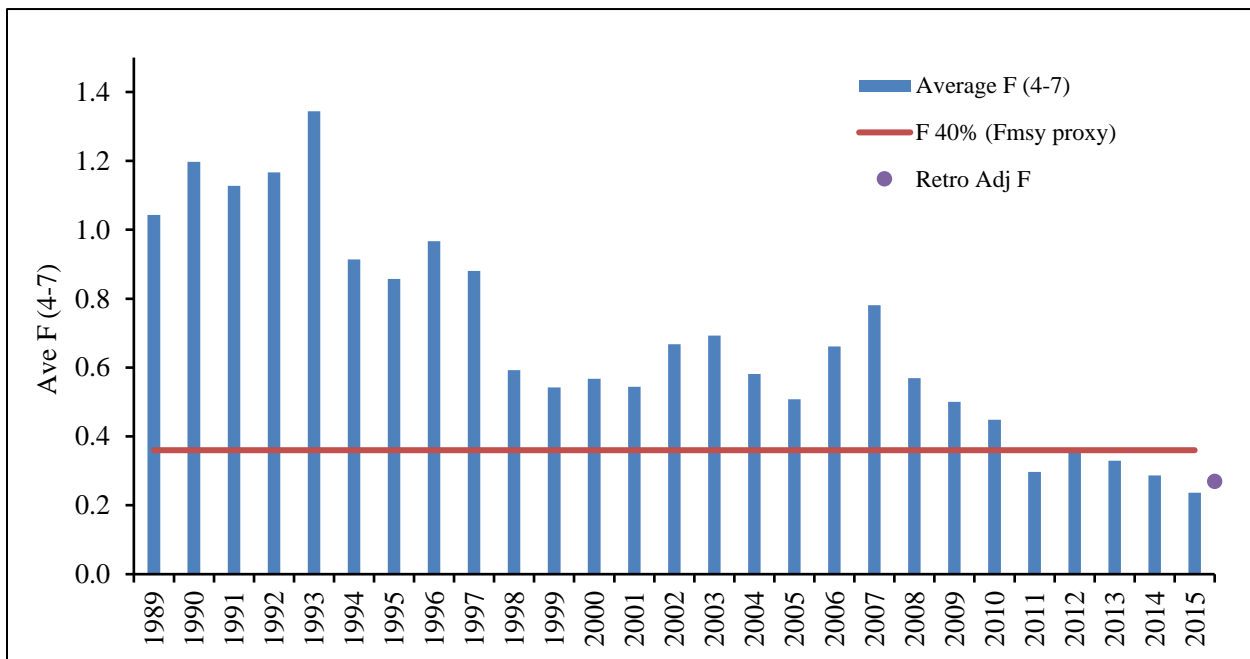
The 2016 benchmark assessment indicated that the black sea bass stock north of Cape Hatteras, North Carolina was not overfished and overfishing was not occurring in 2015, the terminal year of the assessment. Spawning stock biomass (SSB) averaged around 6 million pounds from the late 1980's and early 1990's and then steadily increased from 1997 to 2002 when it reached 18.7 million pounds. SSB then declined until 2007 (8.9 million pounds), followed by a steady increase through 2015 with SSB at its highest estimated level (Figure 1). The model-estimated SSB in 2015 was 48.89 million pounds (22,176 mt), 2.3 times SSB at maximum sustainable yield,  $SSB_{MSY} = 21.31$  million pounds (9,667 mt).<sup>4</sup>

The fishing mortality rate (F) in 2015 was 0.27, below the fishing mortality threshold reference point ( $F_{MSY\ proxy} = F40\%$ ) of 0.36 (Figure 2). Fishing mortality was very high in the early 1990's, typically greater than 1.0, but declined and stabilized after 1997 once joint management by the Mid-Atlantic Fisheries Management Council (Council) and Atlantic States Marine Fisheries Commission (Commission) began. Fishing mortality was below the  $F_{MSY\ proxy}$  reference point during 2011-2015. Model estimated recruitment was relatively constant throughout the time series except for large peaks from the 1999 and 2011 year classes (i.e. fish spawned in those years). Average recruitment of age 1 black sea bass from 1989 – 2015 was 24.3 million fish. The 1999 year class was estimated at 37.3 million fish and the 2011 year class was estimated at 68.9 million fish.<sup>4</sup> Catches in many state surveys, with the exception of New Jersey and Virginia, as well as the 2017 NEFSC bottom trawl survey, suggest that the 2015 year class is also above average.<sup>5</sup>

A data update with catch, landings, and fishery independent survey information through 2017, including recent estimates of commercial and recreational fishery catch and fishery independent indices, will be provided by the NEFSC by July 2018.



**Figure 1:** Spawning stock biomass of black sea bass, 1989 - 2015, and biomass reference points from the 2016 benchmark stock assessment. The 2015 retro-adjusted spawning stock biomass value was generated to correct for the retrospective bias present in the assessment model and is used as the estimate to compare to the reference points.<sup>4</sup>



**Figure 2:** Fishing mortality rate on black sea bass ages 4-7 and the  $F_{MSY}$  PROXY reference point from the 2016 benchmark stock assessment. The 2015 retro-adjusted fishing mortality rate value was generated to correct for the retrospective bias present in the assessment model and is used as the estimate to compare to the reference points.<sup>4</sup>

### **3. Management System and Overall Fishery Performance**

The Council and the Commission work cooperatively to develop fishery regulations for black sea bass from Maine through Cape Hatteras, North Carolina. The Council and Commission work in conjunction with the National Marine Fisheries Service (NMFS), which serves as the federal implementation and enforcement entity. This cooperative management endeavor was developed because a significant portion of the catch is taken from both state waters (0-3 miles offshore) and federal waters (3-200 miles offshore, also known as the Exclusive Economic Zone or EEZ). The management unit for black sea bass includes U.S. waters from Cape Hatteras, North Carolina to the U.S.-Canadian border.

The Council has managed black sea bass since 1997 when it amended the Summer Flounder and Scup Fishery Management Plan (FMP) to include black sea bass. The original FMP and subsequent amendments and frameworks are available at: [www.mafmc.org/fisheries/fmp/sf-s-bsb](http://www.mafmc.org/fisheries/fmp/sf-s-bsb).

Commercial and recreational black sea bass fisheries are managed using catch and landings limits, commercial quotas, recreational harvest limits, minimum fish sizes, gear regulations, permit requirements, and other provisions. The Council allocates 49% of the total allowable landings to the commercial fishery as a commercial quota and 51% of allowable landings to the recreational fishery as a recreational harvest limit (RHL).

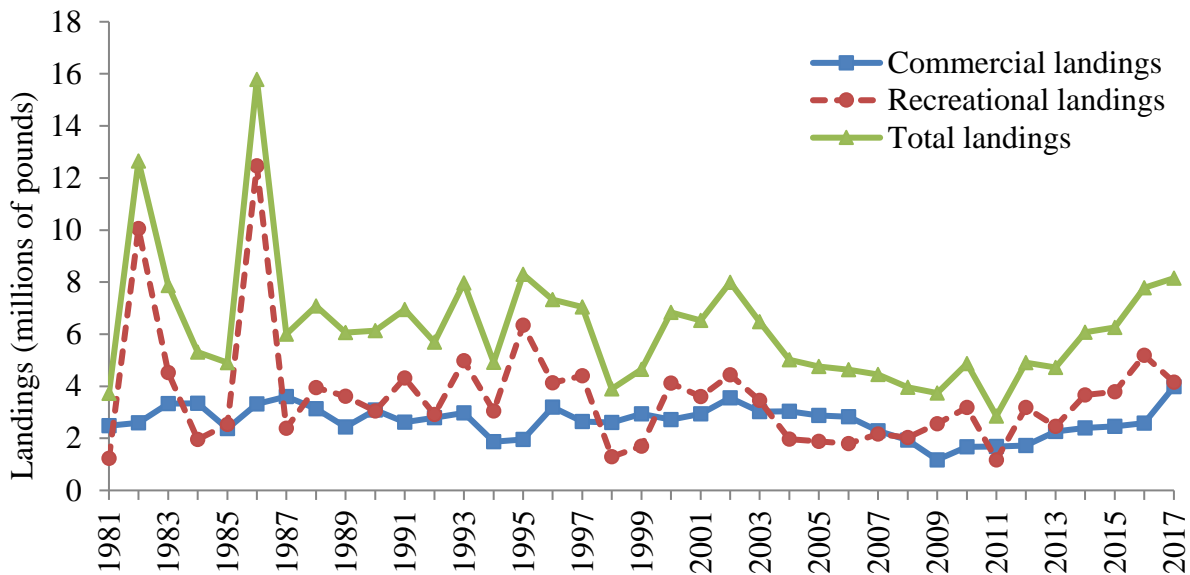
The Council's Scientific and Statistical Committee recommends annual Acceptable Biological Catch (ABC) levels for black sea bass, which are then approved by the Council and Commission and submitted to NMFS for final approval and implementation. The ABC is divided into commercial and recreational Annual Catch Limits (ACLs), based on the landings allocations prescribed in the FMP and the recent distribution of discards between the commercial and recreational fisheries. The Council first implemented recreational and commercial ACLs, with a system of overage accountability, in 2012. Both the ABC and the ACLs are catch limits (i.e., include both projected landings and discards), while the commercial quota and RHL are landing limits.

Table 1 shows black sea bass catch and landings limits from 2008 through 2018, as well as commercial and recreational landings through 2017. Total black sea bass landings (commercial and recreational) peaked in 1986, when approximately 15.8 million pounds of black sea bass were landed. About 8.15 million pounds of black sea bass were landed by commercial and recreational fishermen from Maine through Cape Hatteras, North Carolina in 2017 (Figure 3).<sup>6,7</sup>

**Table 1:** Summary of catch and landings limits, and landings for commercial and recreational black sea bass fisheries from Maine through Cape Hatteras, NC 2008 through 2018.

Management measures	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
ABC (mil. lb)	--	--	4.50	4.50	4.50	5.50	5.50	5.50	6.67	10.47	8.94
Commercial ACL (mil. lb)	--	--	--	--	1.98	2.60	2.60	2.60	3.15	5.09	4.35
Commercial quota (mil. lb) <sup>a</sup>	2.03	1.09	1.76	1.71	1.71	2.17	2.17	2.21	2.71	4.12	3.52
Commercial landings (mil. lb)	1.93	1.18	1.68	1.69	1.72	2.26	2.18	2.29	2.59	3.99	--
% of commercial quota landed	95%	108%	95%	99%	101%	104%	100%	104%	96%	97%	--
Recreational ACL (mil. lb)	--	--	--	--	1.86	2.90	2.90	2.90	3.52	5.38	4.59
RHL (mil. lb) <sup>a</sup>	2.11	1.14	1.83	1.78	1.32	2.26	2.26	2.33	2.82	4.29	3.66
Recreational landings (mil. lb)	2.03	2.56	3.19	1.17	3.19	2.46	3.60	3.79	5.19	4.16	--
% of RHL harvested	96%	225%	174%	66%	242%	109%	159%	163%	184%	97%	--

<sup>a</sup> Commercial quotas and RHLs reflect the removal of projected discards from the sector-specific ACLs. For 2006-2014, these limits are also adjusted for Research Set Aside.



**Figure 3:** Commercial and recreational black sea bass landings in millions of pounds from Maine through Cape Hatteras, North Carolina, 1981-2017.<sup>6,7</sup> Recreational landings prior to 2004 include all North Carolina landings.



#### **4. Commercial Black Sea Bass Measures and Fishery Performance**

Commercial landings of black sea bass peaked in 2017 at 3.99 million pounds, and reached a low of 1.18 million pounds in 2009 (Figure 3). The 3.99 million pounds of black sea bass landed in 2017 corresponded to approximately 97% of the commercial.<sup>7</sup>

A moratorium permit is required to fish commercially for black sea bass in federal waters. In 2017, 679 federal commercial black sea bass permits were issued.<sup>8</sup>

The minimum commercial size limit for black sea bass of 11 inches total length has been in place since 2002. The Commission divides the commercial quota among states based on the allocation percentages in Table 2. States set measures to achieve their state-specific commercial quotas.

Vessel Trip Report (VTR) data for 2017 indicate that 73% of the black sea bass caught by federal commercial permit holders from Maine to North Carolina was caught with bottom otter trawl gear. About 16% were caught with fish pots and traps, 5% in offshore lobster traps, and 4% with hand lines. Other gear types accounted for just over 1% each of total commercial catch.<sup>9</sup>

Any federally-permitted vessel which uses otter trawl gear and catches more than 500 pounds of black sea bass from January through March, or more than 100 pounds from April through December, must use nets with a minimum mesh size of 4.5-inch diamond mesh applied throughout the codend for at least 75 continuous meshes forward of the end of the net. Pots and traps used to commercially harvest black sea bass must have two escape vents with degradable hinges in the section known as the parlor. The escape vents must measure 1.375 inches by 5.75 inches if rectangular, 2 inches by 2 inches if square, or have a diameter of 2.5 inches if circular.

According to VTR data, statistical area 616 was responsible for the largest percentage of commercial black sea bass catch (landings and discards) in 2017 (Table 3, Figure 4). Statistical area 539 accounted for only 5% of 2017 catch, but had the highest number of trips that caught black sea bass (2,148 trips), accounting for 19% of all trips.<sup>9</sup>

Total black sea bass ex-vessel value (adjusted to 2017 dollars to account for inflation) from Maine to North Carolina ranged from a low of \$3.48 million in 1994 to a high in 2017 with an ex-vessel value of \$12.24 million. Black sea bass reached its lowest adjusted average annual price per pound in 1996, at \$1.73 (\$1.14 in 2017 dollars), and its highest adjusted average annual price per pound in 2016, at \$3.73 (in 2017 dollars; Figure 5).<sup>7</sup>

In 2017, 3.99 million pounds of black sea bass were landed in the commercial fishery, generating \$12.24 million in revenues at an average price of \$3.07 per pound (Figure 5). Landings and ex-vessel value increased from 2016, while the price per pound decreased from 2016.<sup>7</sup>

At least 100,000 pounds of black sea bass were landed in each of nine ports in seven states from Maine through North Carolina in 2017. These nine ports accounted for approximately 65% of all commercial black sea bass landings in 2017 (Table 4).<sup>7</sup> Detailed community profiles developed by the NEFSC Social Science Branch can be found at [www.mafmc.org/communities/](http://www.mafmc.org/communities/).

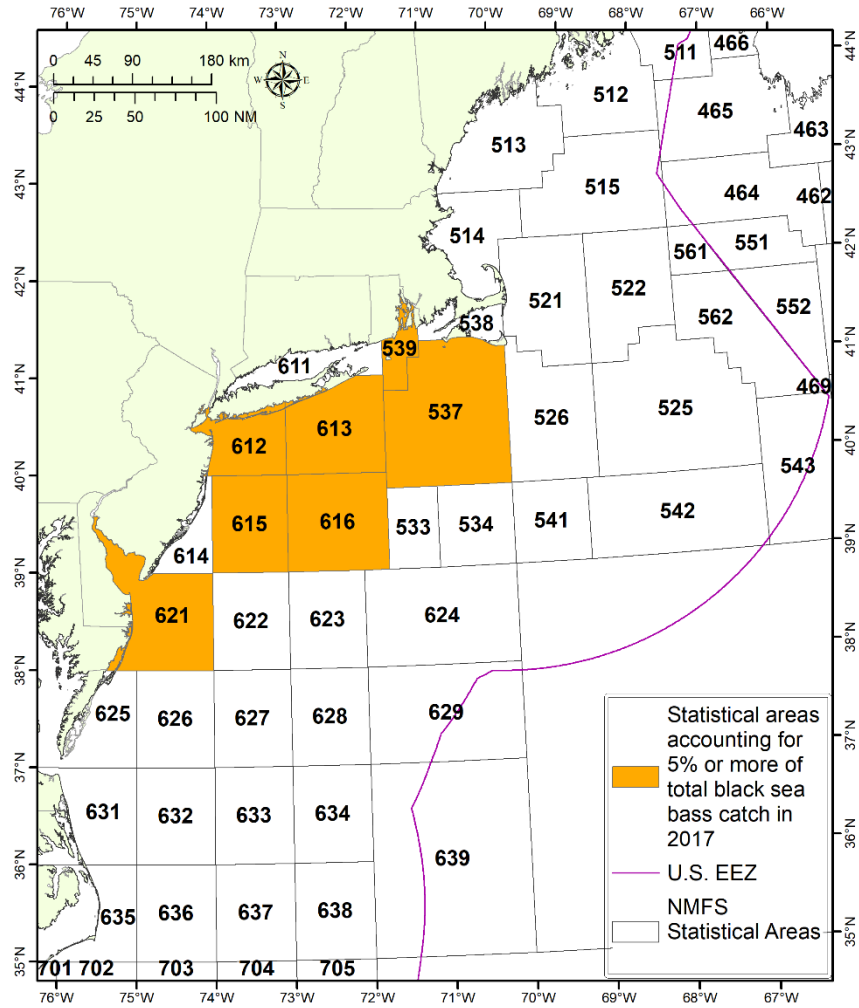
A total of 204 federally-permitted dealers from Maine through North Carolina purchased black sea bass in 2017. More dealers bought black sea bass in New York than in any other state (Table 5).<sup>6</sup>

**Table 2:** Allocation of commercial black sea bass quota among states established in the Commission’s FMP.

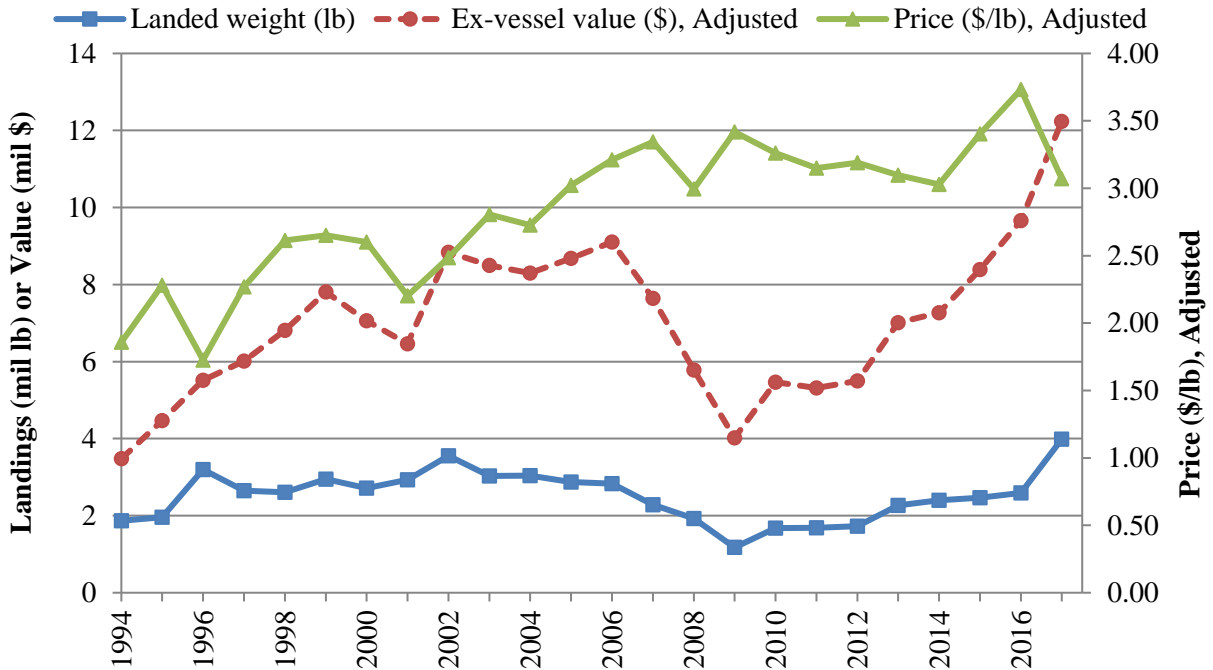
<b>State</b>	<b>Allocation (percent)</b>
Maine	0.5
New Hampshire	0.5
Massachusetts	13.0
Rhode Island	11.0
Connecticut	1.0
New York	7.0
New Jersey	20.0
Delaware	5.0
Maryland	11.0
Virginia	20.0
North Carolina	11.0
Total	100

**Table 3:** Statistical areas that accounted for at least 5% of the total commercial black sea bass catch in 2017, with associated number of trips.<sup>9</sup>

<b>Statistical Area</b>	<b>Percent of 2016 Commercial Black Sea Bass Catch</b>	<b>Number of Trips</b>
616	35%	677
613	12%	1,205
615	9%	211
537	8%	1,081
621	8%	353
612	7%	696
539	5%	2,148



**Figure 4:** NMFS Statistical Areas, highlighting those that each accounted for more than 5% of the commercial black sea bass catch in 2017.<sup>9</sup>



**Figure 5:** Landings, ex-vessel value, and price for black sea bass, from Maine through North Carolina, 1994-2017. Ex-vessel value and price are adjusted to real 2017 dollars.<sup>7</sup>

**Table 4:** Ports reporting at least 100,000 pounds of black sea bass landings in 2017 and associated number of vessels and percentage of total commercial landings.<sup>7</sup>

Port name	Pounds of black sea bass landed	% of total commercial black sea bass landed	Number of vessels landing black sea bass
PT. PLEASANT, NJ	590,917	14.8	48
HAMPTON, VA	398,221	10.0	38
POINT JUDITH, RI	344,849	8.7	148
OCEAN CITY, MD	332,940	8.4	8
BEAUFORT, NC	219,199	5.5	51
CHINCOTEAGUE, VA	203,888	5.1	9
NEW BEDFORD, MA	198,447	5.0	58
CAPE MAY, NJ	168,011	4.2	29
MONTAUK, NY	152,969	3.8	104

**Table 5:** Dealers, by state, which reported purchases of black sea bass in 2017.<sup>7</sup>

State	MA	RI	CT	NY	NJ	DE	MD	VA	NC
Number of dealers	29	29	14	45	33	4	6	16	28

## **5. Recreational Black Sea Bass Measures and Fishery Performance**

Black sea bass support a sizable recreational fishery in the Mid-Atlantic region. Most recreational black sea bass landings occur in state waters when the fish migrate inshore during the summer months.

The Council develops coast-wide regulations for the recreational black sea bass fishery in federal waters, including a minimum size, a possession limit, and open seasons (Table 6). The Commission and member states develop recreational measures in state waters (Table 7 and Table 8).

Between 1981 and 2017, recreational catch and harvest were highest in 1986, when an estimated 29.17 million black sea bass were caught and 21.90 million black sea bass (about 12.46 million pounds) were harvested from Maine through North Carolina. Recreational catch reached a low of 3.43 million fish in 1984. Recreational harvest was lowest in 2011, when 0.82 million fish (about 1.17 million pounds) were landed from Maine through Cape Hatteras, North Carolina (Table 9). In 2017, an estimated 2.21 million black sea bass, at about 4.16 million pounds and approximately 97% of the 2017 RHL, were harvested by recreational anglers from Maine through Cape Hatteras, North Carolina (Table 1).<sup>5</sup>

For-hire vessels carrying passengers in federal waters must obtain a federal party/charter permit. In 2017, 814 party and charter boats held federal recreational black sea bass permits, an increase from the 749 party/charter permits issued in 2016. Many of these vessels also hold recreational permits for summer flounder and scup.<sup>8</sup>

In 2017, about 50% of black sea bass landed by recreational fishermen were caught in state waters, and about 50% in federal waters (Table 10). Most landings occurred in New Jersey, New York, and Connecticut. These three states accounted for about 72% of all recreational harvest from Maine to Cape Hatteras, North Carolina in 2017 (Table 11).<sup>5</sup>

About 78% of recreational black sea bass landings in 2017 were caught by anglers fishing on private or rental boats, about 21% from anglers aboard party or charter boats, and 1% from shore (Table 12).<sup>6</sup>

**Table 6:** Federal recreational measures for black sea bass, north of Cape Hatteras, NC, 2007 through 2018.

Measure	2007-2008	2009	2010-2011	2012	2013	2014	2015-2017	2018
Min. size (inches, total length)	12	12.5	12.5	12.5	12.5	12.5	12.5	12.5
Possession limit	25	25	25	25	20	15	15	15
Open season	1/1-12/31	1/1-10/5	5/22-10/11 and 11/1-12/31	5/19-10/14 and 11/1-12/31	5/19-10/14 and 11/1-12/31	5/19-9/18 and 10/18-12/31	5/15-9/21 and 10/22-12/31	5/15-12/31

**Table 7:** State waters black sea bass recreational fishing measures in 2017.

State	Minimum Size (inches)	Possession Limit	Open Season
Maine	13	10 fish	May 19-September 21; October 18-December 31
New Hampshire	13	10 fish	January 1-December 31
Massachusetts	15	5 fish	May 21 - August 31
Rhode Island	15	3 fish	May 25-August 31
		7 fish	September 1-21; October 22-December 31
Connecticut (Private & Shore)	15	5 fish	May 1-December 31
Connecticut Authorized Party/Charter Vessels		8 fish	May 1-December 31
New York	15	3 fish	June 27-August 31
		8 fish	September 1-October 31
		10 fish	November 1-December 31
New Jersey	12.5	10 fish	May 26-June 18
		2 fish	July 1-August 31
		15 fish	October 22-December 31
Delaware, Maryland, Virginia, and North Carolina, North of Cape Hatteras (N of 35° 15'N)	12.5	15 fish	May 15-September 21; October 22-December 31

**Table 8:** State waters black sea bass recreational fishing measures in 2018.

State	Minimum Size (inches)	Possession Limit	Open Season
Maine	13	10 fish	May 19-September 21; October 18-December 31
New Hampshire	13	10 fish	January 1-December 31
Massachusetts	15	5 fish	May 19-September 12
Rhode Island	15	3 fish	June 24 - August 31
		7 fish	September 1 - December 31
Connecticut (Private & Shore)	15	5 fish	May 19-December 31
Connecticut Authorized Party/Charter Vessels	15	5 fish	May 19-August 31
		7 fish	September 1-December 31
New York*	15	3 fish	June 23-August 31
		7 fish	September 1-December 31
New Jersey	12.5	10 fish	May 15-June 22
	12.5	2 fish	July 1-August 31
	12.5	10 fish	October 8 - October 31
	13	5 fish	November 1 - December 31
Delaware, Maryland, Virginia, and North Carolina, North of Cape Hatteras (N of 35° 15'N)	12.5	15 fish	May 15-December 31

\*New York is in the process of promulgating its measures, which should be finalized in June.

**Table 9:** Estimated recreational black sea bass catch and harvest from 1981 through 2017. Values from 2004 through 2017 are for Maine through Cape Hatteras, North Carolina. Values prior to 2004 include all of North Carolina.<sup>6</sup>

<b>Year</b>	<b>Catch (Millions of fish)</b>	<b>Harvest (Millions of fish)</b>	<b>Harvest (Millions of pounds)</b>	<b>% of catch retained</b>
1981	5.30	2.73	1.23	52%
1982	11.62	10.25	10.05	88%
1983	8.71	5.63	4.53	65%
1984	4.33	2.49	1.96	58%
1985	7.13	4.22	2.54	59%
1986	29.17	21.90	12.46	75%
1987	5.91	3.47	2.39	59%
1988	9.36	4.06	3.94	43%
1989	7.00	4.65	3.62	66%
1990	9.62	4.27	3.05	44%
1991	11.22	5.46	4.32	49%
1992	8.30	3.87	2.91	47%
1993	9.45	6.20	4.98	66%
1994	7.69	3.57	3.05	46%
1995	14.48	6.89	6.34	48%
1996	8.44	3.76	4.13	45%
1997	11.09	4.87	4.40	44%
1998	5.70	1.26	1.29	22%
1999	7.76	1.41	1.70	18%
2000	17.67	3.76	4.12	21%
2001	14.63	3.01	3.60	21%
2002	15.08	3.42	4.44	23%
2003	12.65	3.39	3.45	27%
2004	7.24	1.53	1.97	21%
2005	7.04	1.26	1.88	18%
2006	7.60	1.29	1.80	17%
2007	8.73	1.53	2.17	18%
2008	10.65	1.29	2.03	12%
2009	9.22	1.81	2.56	20%
2010	9.96	2.21	3.19	22%
2011	4.74	0.82	1.17	17%
2012	12.54	1.87	3.18	15%
2013	9.81	1.28	2.46	13%
2014	10.87	2.12	3.67	19%
2015	9.43	2.21	3.79	23%
2016	14.14	2.54	5.19	18%
2017	15.03	2.21	4.16	15%



**Table 10:** Estimated percentage of black sea bass recreational landings (in numbers of fish) in state and federal waters, from Maine through North Carolina, 2008 through 2017.<sup>6</sup>

<b>Year</b>	<b>State waters</b>	<b>Federal waters</b>
2008	60.3%	39.7%
2009	67.5%	32.5%
2010	72.1%	27.9%
2011	63.8%	36.2%
2012	72.6%	27.4%
2013	66.6%	33.4%
2014	62.5%	37.5%
2015	67.3%	32.7%
2016	64.6%	35.4%
2017	50.0%	50.0%
<b>2008-2017 average</b>	<b>64.7%</b>	<b>35.3%</b>
<b>2015-2017 average</b>	<b>60.6%</b>	<b>39.4%</b>

**Table 11:** State-by-state contribution (as a percentage) to total recreational harvest of black sea bass (in number of fish), Maine through Cape Hatteras, North Carolina, in 2016 and 2017.<sup>6</sup>

<b>State</b>	<b>2016</b>	<b>2017</b>
Maine	0.0%	0.0%
New Hampshire	0.0%	0.0%
Massachusetts	15.4%	10.6%
Rhode Island	10.0%	8.7%
Connecticut	17.1%	17.9%
New York	40.6%	16.3%
New Jersey	11.6%	38.1%
Delaware	1.0%	2.7%
Maryland	3.1%	3.3%
Virginia	1.1%	1.7%
North Carolina	0.0%	0.8%

**Table 12:** The number of black sea bass landed (in numbers of fish) by recreational fishing mode, Maine through North Carolina, 1989-2017.<sup>6</sup>

<b>Year</b>	<b>Shore</b>	<b>Party/charter</b>	<b>Private/rental</b>
1989	5.12%	42.84%	52.04%
1990	6.78%	53.15%	40.07%
1991	4.59%	47.38%	48.03%
1992	1.17%	52.81%	46.02%
1993	0.88%	73.91%	25.21%
1994	6.81%	56.17%	37.01%
1995	4.01%	75.47%	20.53%
1996	1.87%	69.91%	28.21%
1997	0.17%	81.16%	18.67%
1998	0.56%	61.78%	37.65%
1999	1.36%	44.01%	54.63%
2000	4.73%	47.87%	47.40%
2001	0.47%	60.78%	38.76%
2002	0.49%	60.39%	39.12%
2003	0.32%	61.11%	38.57%
2004	0.49%	36.28%	63.23%
2005	0.88%	40.71%	58.41%
2006	3.52%	52.48%	44.00%
2007	0.61%	55.83%	43.56%
2008	0.70%	35.75%	63.55%
2009	1.26%	23.16%	75.58%
2010	0.26%	22.25%	77.49%
2011	0.93%	35.29%	63.78%
2012	0.33%	36.06%	63.60%
2013	0.93%	20.84%	78.24%
2014	0.92%	35.85%	63.24%
2015	0.14%	41.01%	58.84%
2016	2.74%	18.29%	78.97%
2017	0.88%	21.30%	77.82%
<b>2015-2017 average</b>	<b>1.25%</b>	<b>26.87%</b>	<b>71.88%</b>

## References

- <sup>1</sup> Drohan, A.F., J. P. Manderson, D. B. Packer. 2007. Essential fish habitat source document: black sea bass, *Centropristis striata*, life history and habitat characteristics, 2nd edition. NOAA Technical Memorandum NMFS NE 200; 68 p.
- <sup>2</sup> Blaylock, J. and G.R. Shepherd. 2016. Evaluating the vulnerability of an atypical protogynous hermaphrodite to fishery exploitation: results from a population model for black sea bass (*Centropristis striata*). Fishery Bulletin 114(4): 476-489.
- <sup>3</sup> 62<sup>nd</sup> Northeast Regional Stock Assessment Workshop (62<sup>nd</sup> SAW) Assessment Summary Report at <http://www.nefsc.noaa.gov/publications/crd/crd1701/crd1701.pdf>.
- <sup>4</sup> Northeast Fisheries Science Center. 2017. 62<sup>nd</sup> Northeast Regional Stock Assessment Workshop (62<sup>nd</sup> SAW) Assessment Report. US Dept. Commerce., Northeast Fish Sci Cent Ref Doc. 17-03; 822 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026, or online at <http://nefsc.noaa.gov/publications/>.
- <sup>5</sup> Northeast Fisheries Science Center. 2017. Black Sea Bass 2016 Catch and Survey Information for Stock North of Cape Hatteras, NC. Report to the Mid-Atlantic Science and Statistical Committee. Available at: <http://www.mafmc.org/ssc-meetings/2017/july-19-20>
- <sup>6</sup> Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division. Accessed May 15, 2017. Available at: <http://www.st.nmfs.noaa.gov/recreational-fisheries/index>.
- <sup>7</sup> Unpublished NMFS dealer data.
- <sup>8</sup> Unpublished NMFS permit data.
- <sup>9</sup> Unpublished NMFS Vessel Trip Report (VTR) data.

# Black Sea Bass 2017 Catch and Survey Information for Stock North of Cape Hatteras, NC

Report to the Mid-Atlantic Science and Statistical Committee

NOAA Fisheries Service  
Northeast Fisheries Science Center  
166 Water Street  
Woods Hole, MA  
July, 2018



## Introduction

The 2016 Black Sea Bass stock assessment (NEFSC 2017) was conducted for two geographic regions, split roughly north and south along the Hudson Canyon, then combined for determining final stock status. The information in this data update has been provided by region where possible. The increase in quota instituted following the assessment is reflected in both the commercial and recreational fisheries. The strong 2011 cohort identified in the assessment remains a dominant year class in the fisheries and surveys in the northern region. The 2015 cohort appears to be above average in both the northern and southern surveys, as well as fishery discards.

## Commercial Landings

Black sea bass landings in 2017 were 1,761 mt, predominately from otter trawls and fish pots (Tables 1 and 2), an increase from 1,133 mt in 2016. The majority of landings were reported from the Mid-Atlantic statistical areas between New York and Delaware and were the highest in the time series beginning in 1982. Landings size composition differed between trawl and pot gears (Figure 1) and overall was dominated by the 2011 cohort (Figure 3).

Table 1. 2017 commercial Black Sea Bass landings (mt) by market category and region.

	unclassified	jumbo	large	medium	small	Grand Total
North	130.3	631.3	541.6	76.7	10.3	1,390.3
South	21.3	107.8	103.1	120.6	18.1	370.8
Grand Total	42.0	411.7	459.4	194.5	25.8	1,761.1

Table 2. 2017 commercial Black Sea Bass landings (mt) by gear type, and region.

	Handline	Trawl	Pot	Other	Total
North	195.1	948.1	194.8	52.3	1390.3
South	17.2	152.7	193.3	7.6	370.8
Total	212.3	1100.8	388.1	59.9	1761.1
North %	11.1%	53.8%	11.1%	3.0%	
South %	1.0%	8.7%	11.0%	0.4%	
	12.1%	62.5%	22.0%	3.4%	

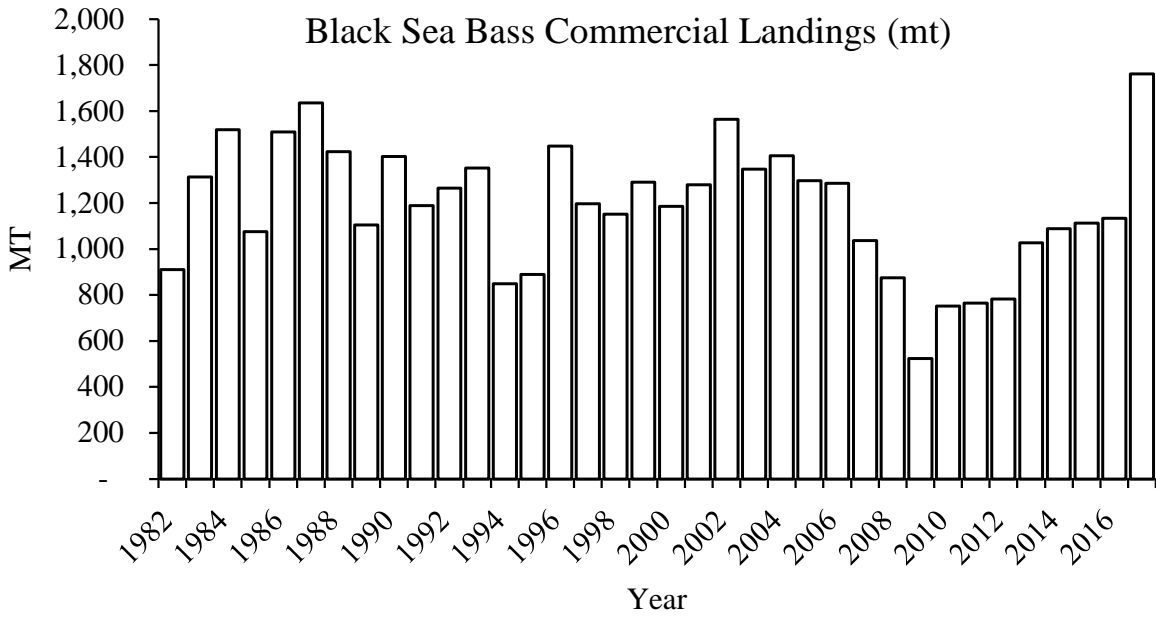


Figure 1. Total commercial landings (mt) for Black Sea Bass stock north of Cape Hatteras, NC, 1982-2017.

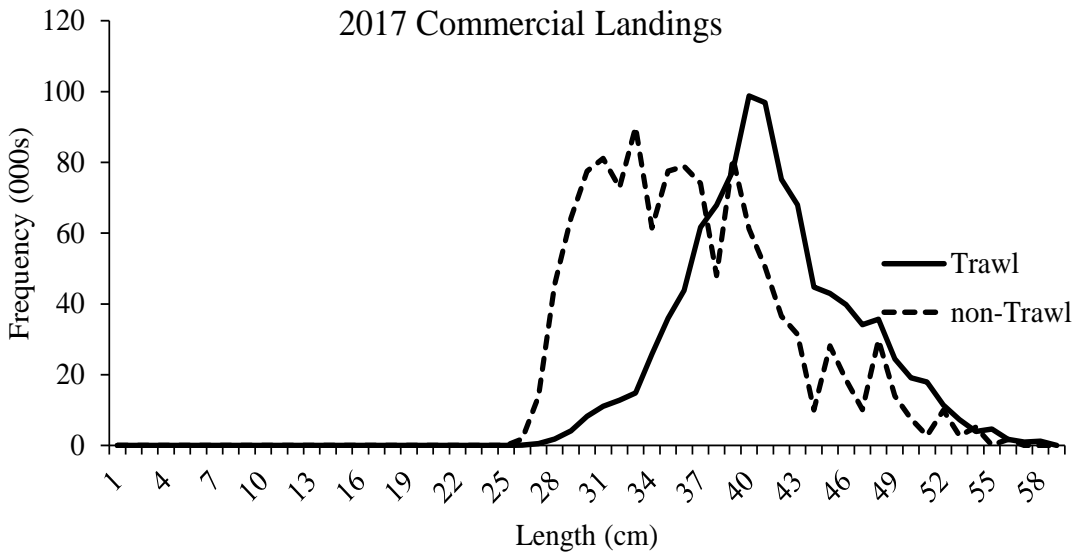


Figure 2. Length (cm) frequency of 2017 Black Sea Bass commercial landings by gear category.

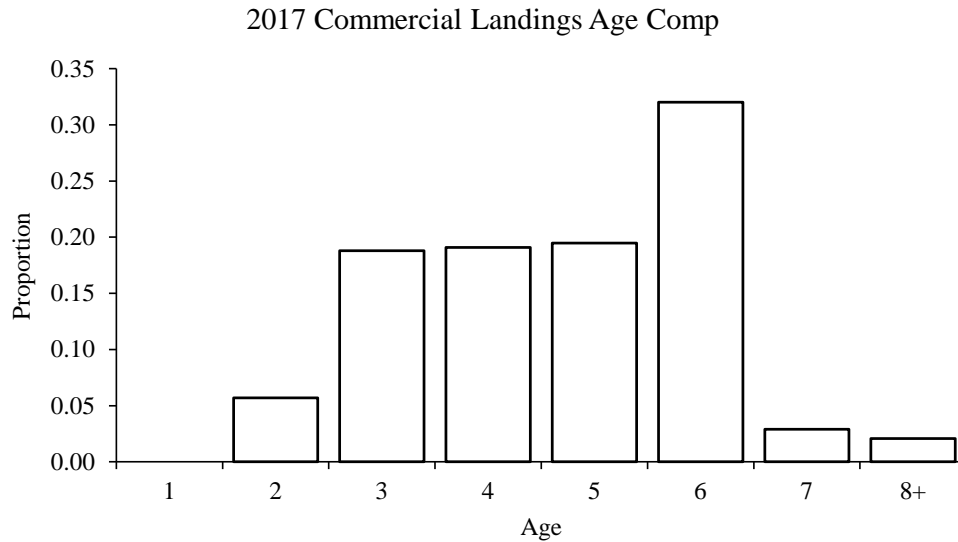


Figure 3. Age composition of 2017 commercial Black Sea Bass landings.

### *Commercial Discards*

Commercial discards from otter trawls were estimated from Northeast Fisheries Observer trips discard to kept all ratios (Table 3). All other gears were estimated from discarded sea bass recorded in Vessel Trip Reports by gear and are likely underestimates. Observer coverage of pot fisheries in the southern region has increased in 2017, allowing more accurate estimates of discards. Initial results suggest that dead discards from pot fisheries are on the order of 709 mt rather than 2.1 mt. Discard mortality rates same as used in previous assessment with 100% from trawls and gillnets and 15% for pots and hand lines. The commercial discards were dominated by the 2015 cohort in both the northern and southern regions (Figure 4).

Table 3. Commercial Black Sea Bass discards (mt) by gear and region from 2017.

2017	Source	NEGEAR	MT
NORTH	OBS	Otter trawl	224.1
	VTR	Handline	5.2
	VTR	Fish pots	7.0
	VTR	Other pots	1.4
SOUTH	OBS	Otter trawl	560.1
	OBS	Gillnet	5.8
	VTR	Handline	0.3
	VTR	Fish pots	1.7
	VTR	Other pots	0.3
TOTAL			805.9

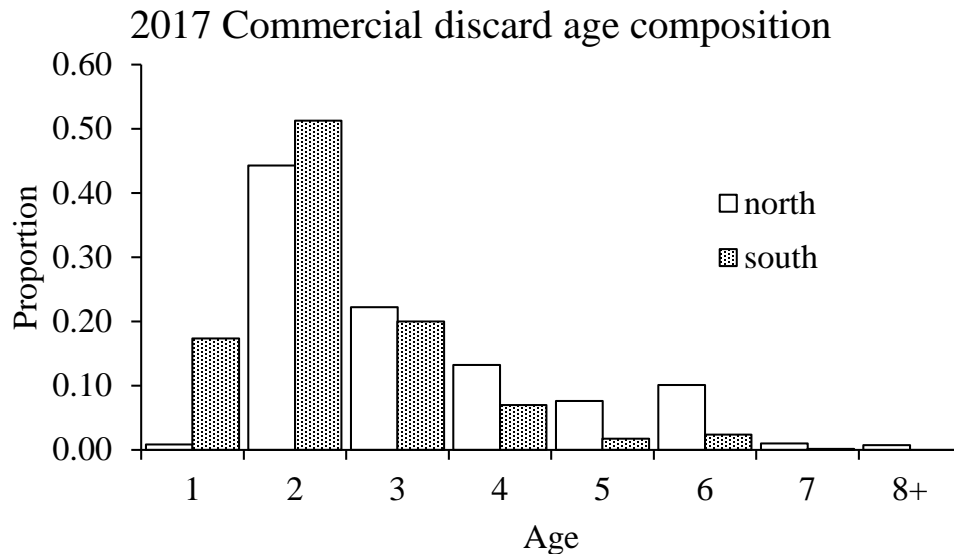


Figure 4. Age composition of 2017 commercial Black Sea Bass discards.

### *Recreational Fishery*

Recreational landings in 2017 for Maine through Cape Hatteras, NC were 2.206 million fish equal to 2,042 mt. Total discards (B2 only) were 12.862 million fish. Assuming a discard mortality rate of 15%, discard losses equal 1.929 million fish and 576 mt. Black sea bass catch from vessel trip reports for January-February party/charter vessels was negligible. Recreational catch split into North and South regions as used in the assessment show the majority of the landings and discards occurred in the north (NY and north as a proxy for north of Hudson Canyon). Length compositions differed by region due to differences in minimum size regulations (Figures 5 and 7). The 2011 cohort was only dominant in the landings within the northern region (Figure 6) whereas the 2015 cohort dominated discards in both regions (Figure 8).

Table 4. 2017 Recreational Black Sea Bass catch (number in 000s and MT) by year. A mortality rate of 15% applied to live discards (B2).



	Number (000s)	MT
North AB1	1,206.2	1,411.2
North B2*0.15	1,203.4	410.3
South AB1	999.7	631.0
South B2*0.15	725.8	165.7
<b>Total</b>	<b>4,135.1</b>	<b>2,618.2</b>

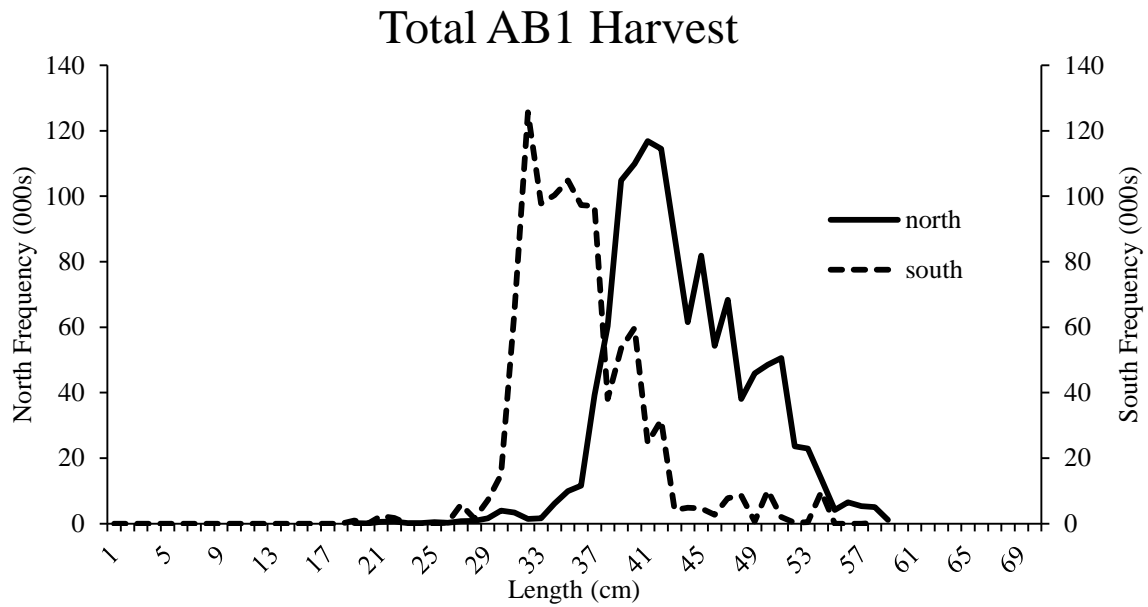


Figure 5. Length frequency (TL cm) of 2017 Black Sea Bass recreational harvest (AB1), by region (Cape Hatteras, NC –NJ, NY-ME). Note that minimum sizes south of New Jersey are 12” (30.5 cm).

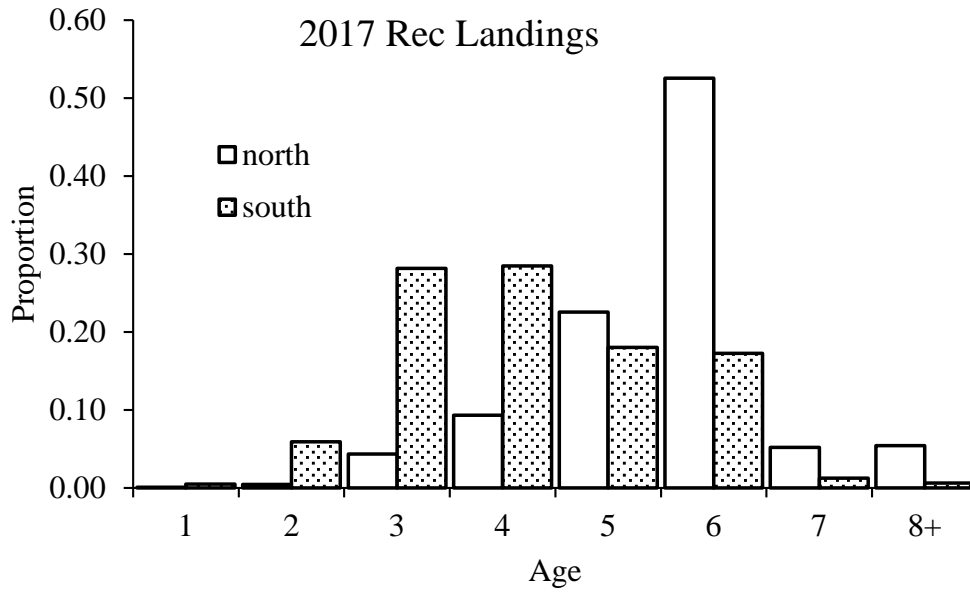


Figure 6 . Age composition of Black Sea Bass recreational landings (AB1) by region.

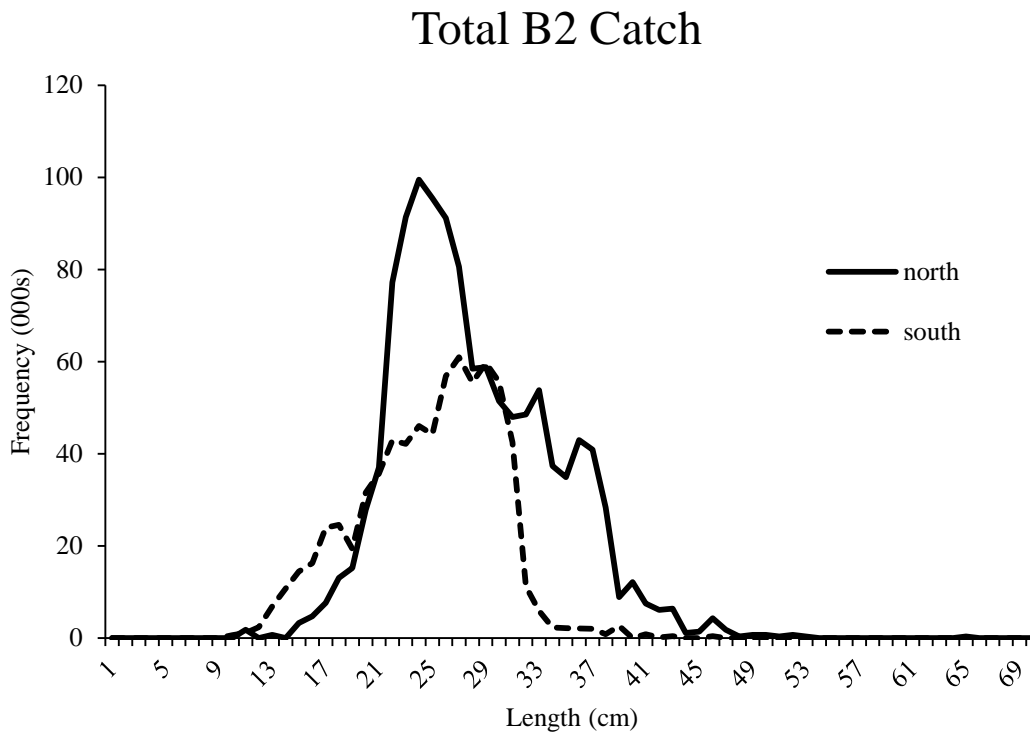


Figure 7. Length frequency (TL cm) of 2017 Black Sea Bass recreational discards (B2\*15%), by region (Cape Hatteras, NC-NJ, NY-ME).

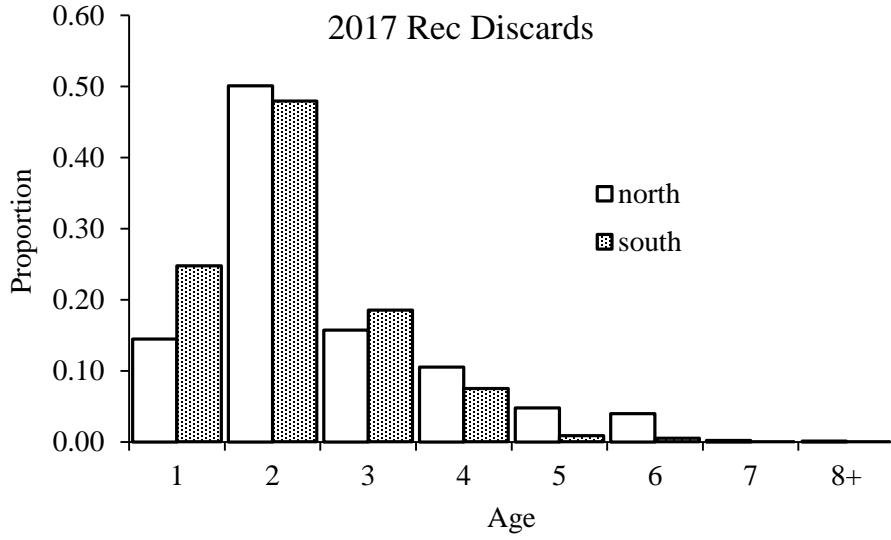


Figure 8. Age composition of Black Sea Bass recreational discards (B2) by region.

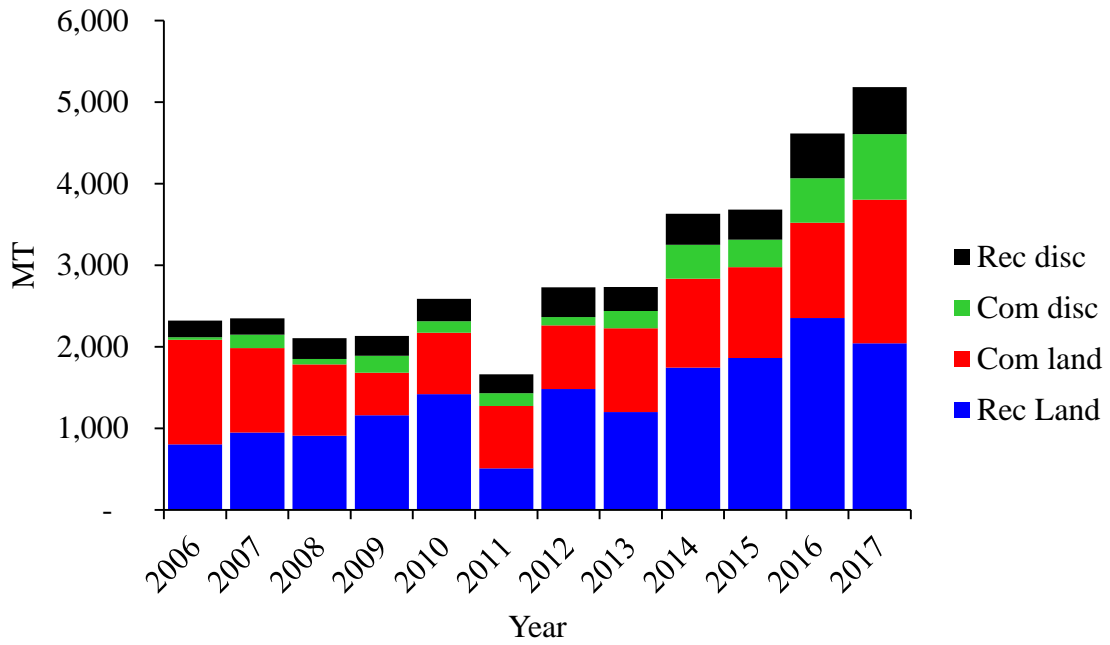


Figure 9. Black Sea Bass catch, Maine to Cape Hatteras, North Carolina 2006-2017.

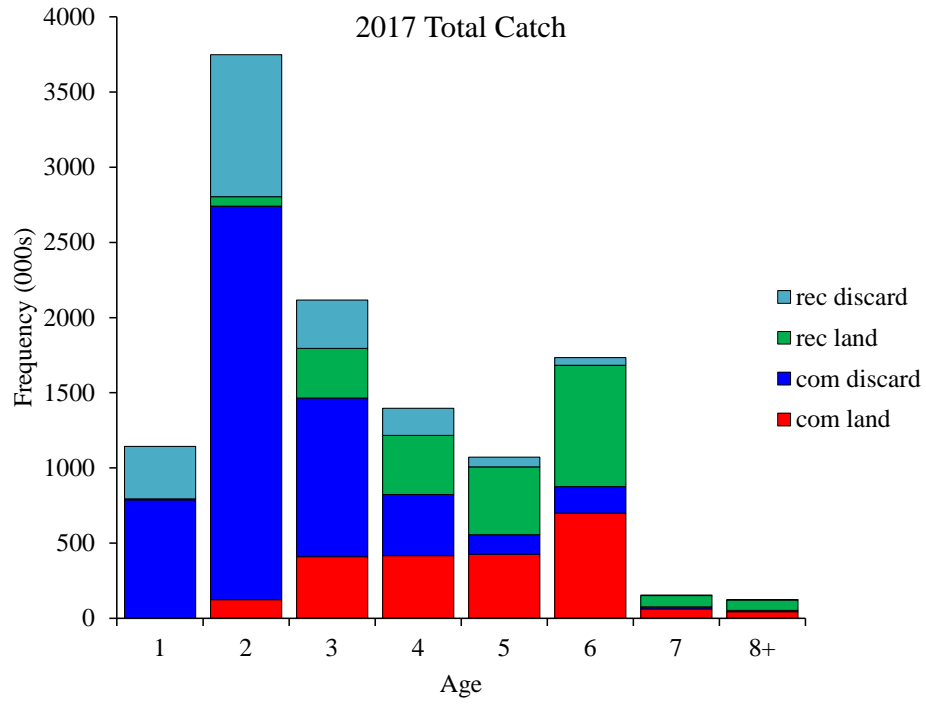


Figure 10. Age composition of Black Sea Bass catch, Maine to Cape Hatteras, North Carolina Black Sea Bass 2017.

Table 5. Summary of Black Sea Bass total catch (mt), 2006-2017.

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Min <sup>1</sup>	Max <sup>1</sup>
Commercial landings	875	523	751	765	782	1,027	1,088	1,113	1,169	1,761	523	1,564
Commercial discard	66	209	142	157	103	211	416	335	546	806	25	806
Recreational landings	909	1,159	1,421	507	1,480	1,198	1,745	1,864	2,352	2,042	473	2,352
Recreational discards	257	241	273	232	364	296	382	371	551	576	46	771
Catch used in assessment	2,107	2,132	2,587	1,662	2,729	2,733	3,631	3,683	-	-	1,662	4,346
Spawning stock biomass	5,594	6,460	8,215	8,258	9,878	12,833	17,158	16,552	-	-	2,485	17,158
Recruitment (age 1, millions)	27.5	22.4	22.6	22.1	68.9	27.6	17.8	24.9	-	-	11.9	68.9
F full <sup>2</sup>	0.57	0.50	0.45	0.30	0.35	0.33	0.29	0.24	-	-	0.24	1.34

<sup>1</sup> Years 1989-2017

<sup>2</sup> F on fully selected ages 4-7. Note that table values are not retro adjusted.

## Survey Indices

Survey data is presented for the northern and southern regions as defined in the SARC62 black sea bass stock assessment (<https://www.nefsc.noaa.gov/publications/crd/crd1703/>). The strong 2011 cohort which was dominant in the northern region continues to be a large component of surveys north of Hudson Canyon. The abundance indices from the NEFSC 2018 spring survey shows a low index of abundance in the north and above average indices in the southern region. A shift in spring distribution relative to the demarcation line between north and south resulting from changes in survey timing likely influenced the 2018 index. The 2015 cohort appears to be above average to strong in many of the state surveys, (with the exception of NJ and VA) as well as the preliminary 2018 NEFSC survey.

### NEFSC Survey – Northern Region

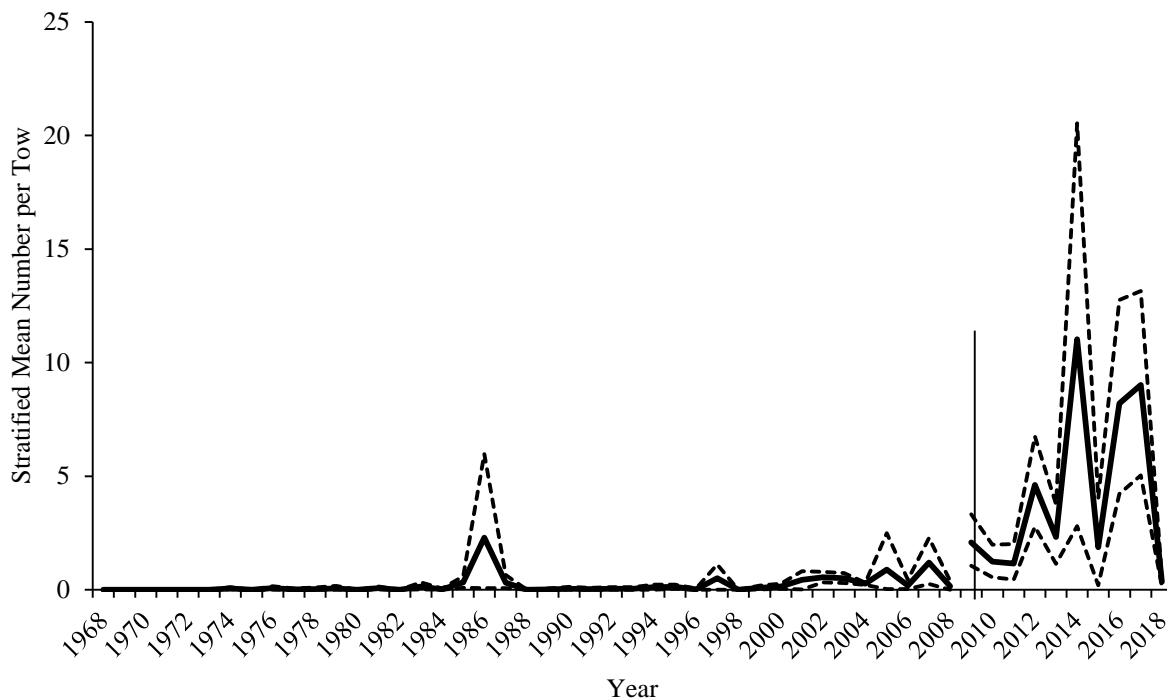


Figure 11. NEFSC spring north offshore stratified mean number per tow ( $\pm$  90% CI) of Black Sea Bass, 1968-2018. Vertical line identifies split between the *Albatross* and *Bigelow* survey series. *Bigelow* data presented as separate series for 2009-2018.

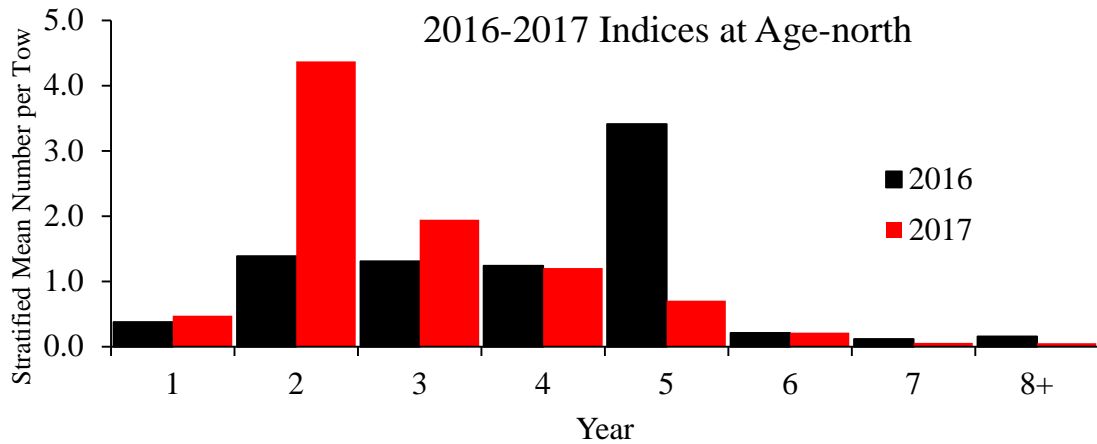


Figure 12. NEFSC Black Sea Bass spring indices at age from northern region.

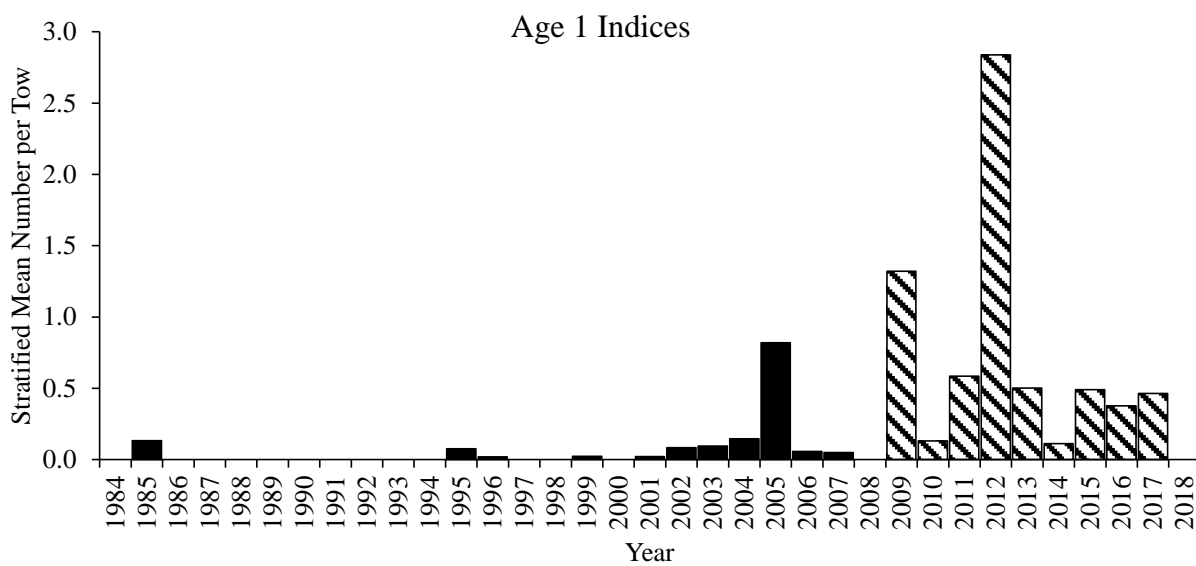


Figure 13. Indices of Black Sea Bass recruitment (mean #/tow, age 1) in northern region from NEFSC spring offshore survey, 1984-2018. Bigelow indices from 2009-2018 not calibrated to Albatross units. The 2018 index (mean number per tow at age 1 = 0) is approximated from length distribution.

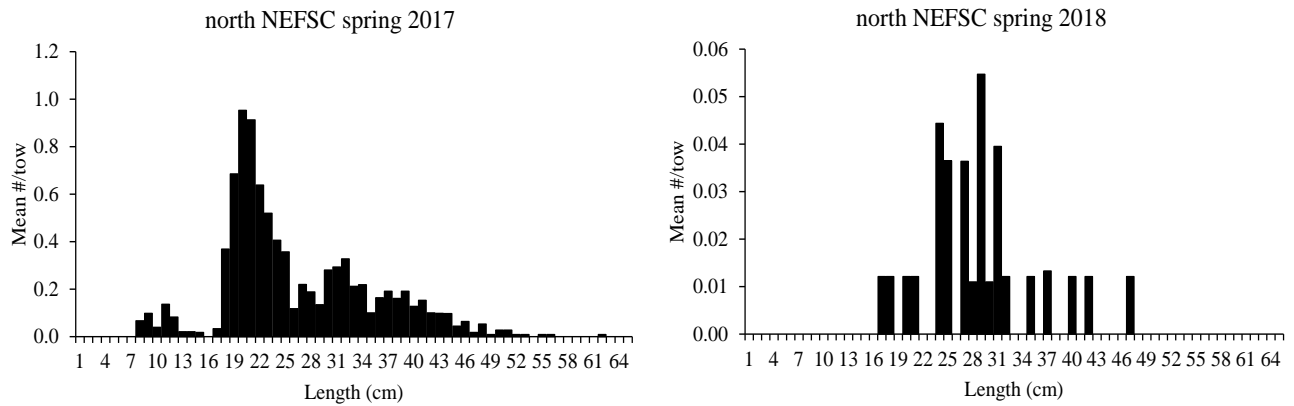


Figure 14. Length composition of NEFSC spring survey in northern region, 2017 and 2018.

*NEFSC Survey – Southern Region*

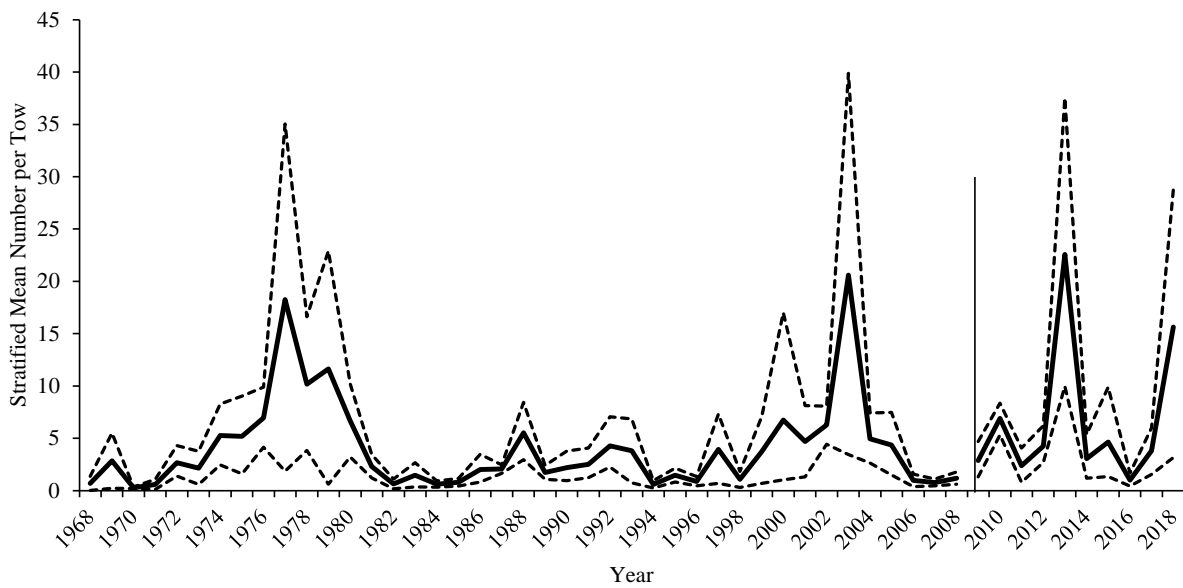


Figure 15. NEFSC spring south offshore stratified mean number per tow ( $\pm$  90% CI) of Black Sea Bass, 1968-2018. Vertical line identifies split between the Albatross and Bigelow survey series. Bigelow data presented as separate series for 2009-2018.



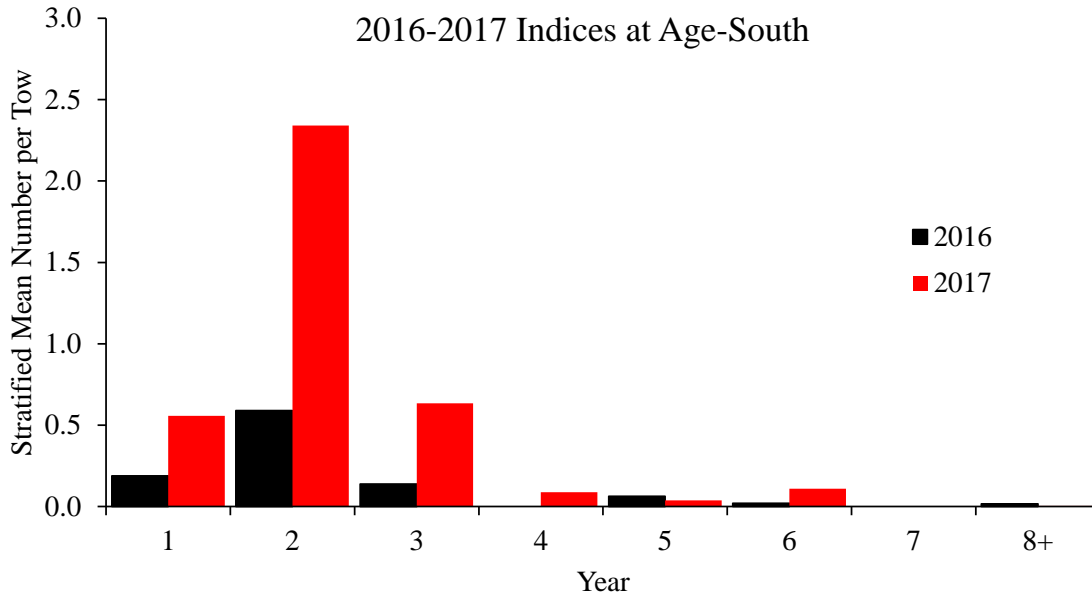


Figure 16. NEFSC spring mean number per tow at age from southern region for 2016 and 2017.

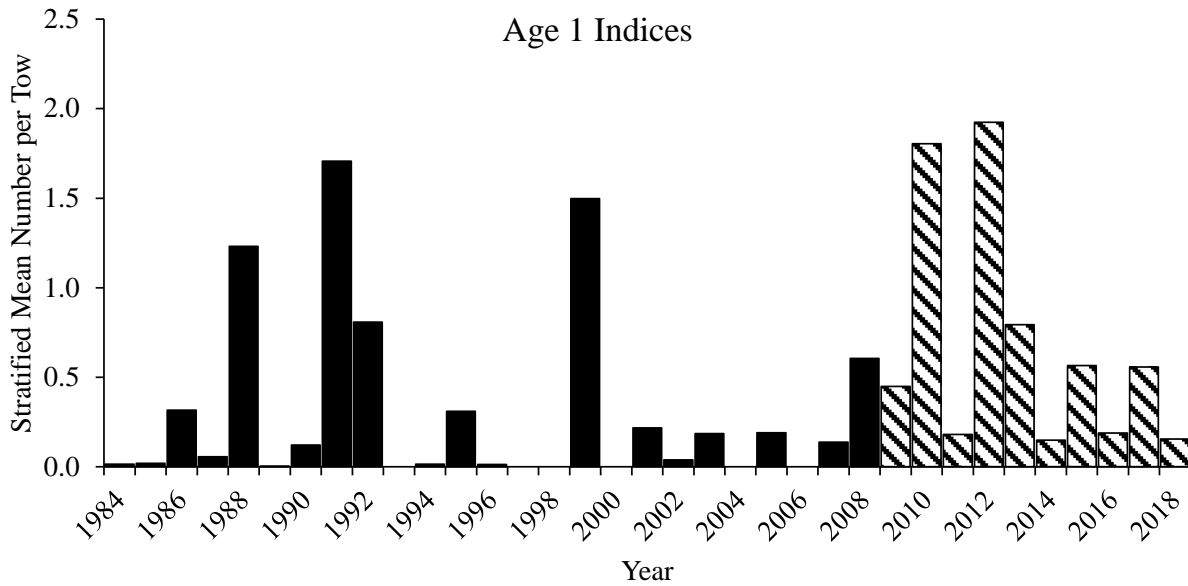


Figure 17. Indices of Black Sea Bass recruitment (mean #/tow, age 1) in southern region from NEFSC spring offshore survey, 1984-2017. Bigelow indices from 2009-2018 not calibrated to Albatross units. 2018 index approximated from length distribution.

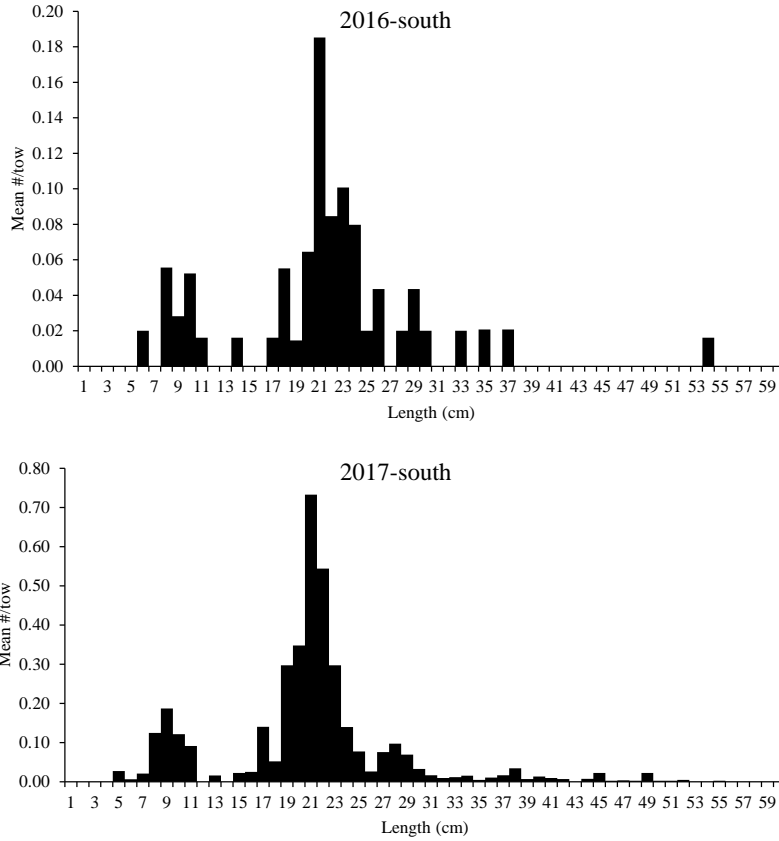


Figure 18. Length composition of NEFSC spring survey in southern region, 2016 and 2017.

*NEAMAP Survey-Northern Region*

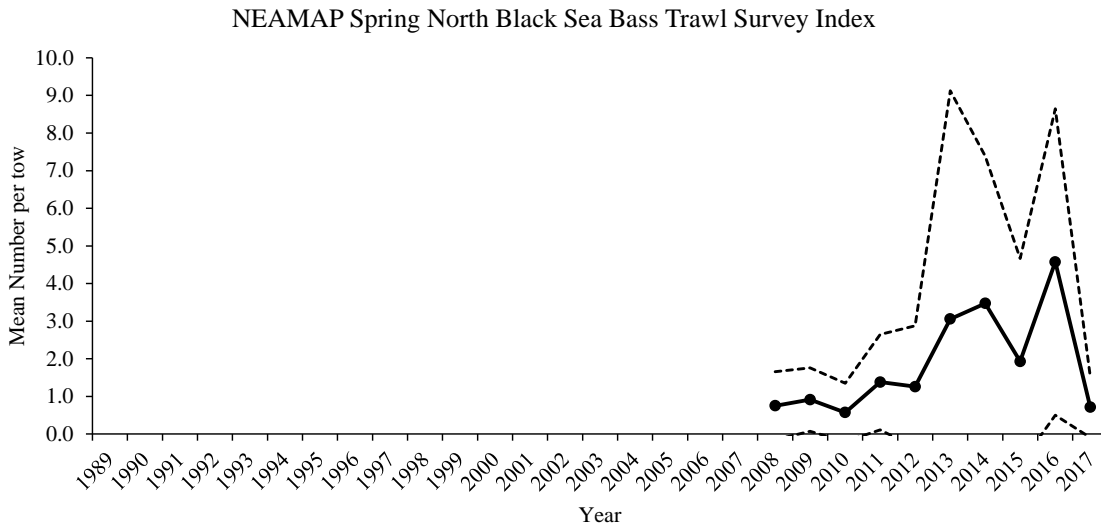


Figure 19. NEAMAP spring Northern stratified mean number per tow ( $\pm$  90% CI) of Black Sea Bass, 2008-2017.

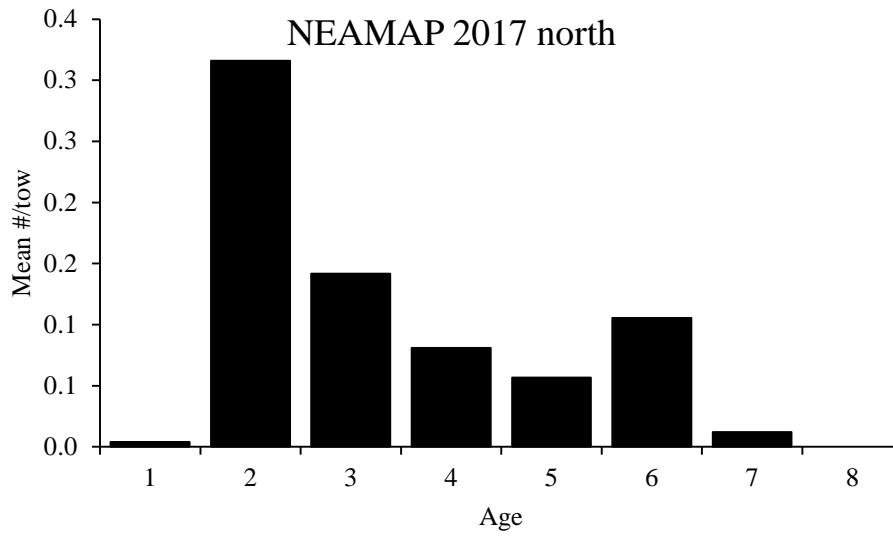


Figure 20. NEAMAP 2017 spring Northern stratified mean number per tow at age of Black Sea Bass.

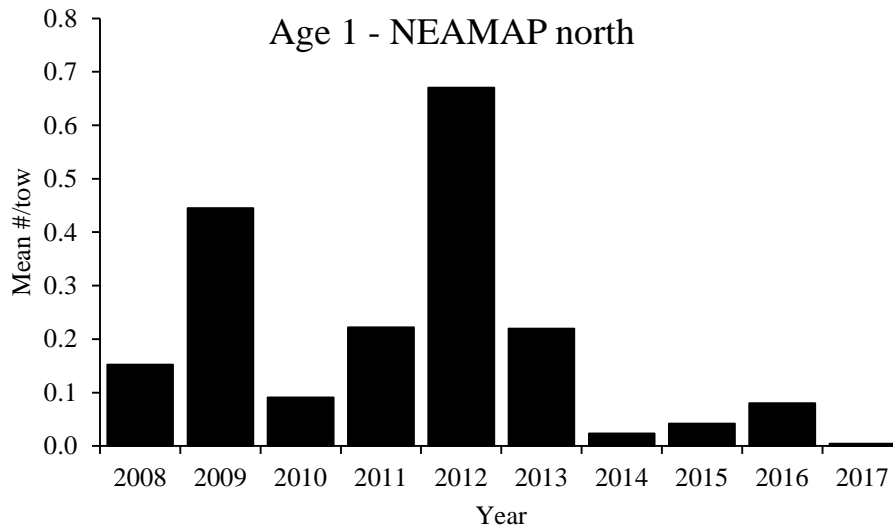


Figure 21. NEAMAP spring Northern stratified mean number per tow at age one of Black Sea Bass, 2008-2017.

*NEAMAP Survey-Southern Region*

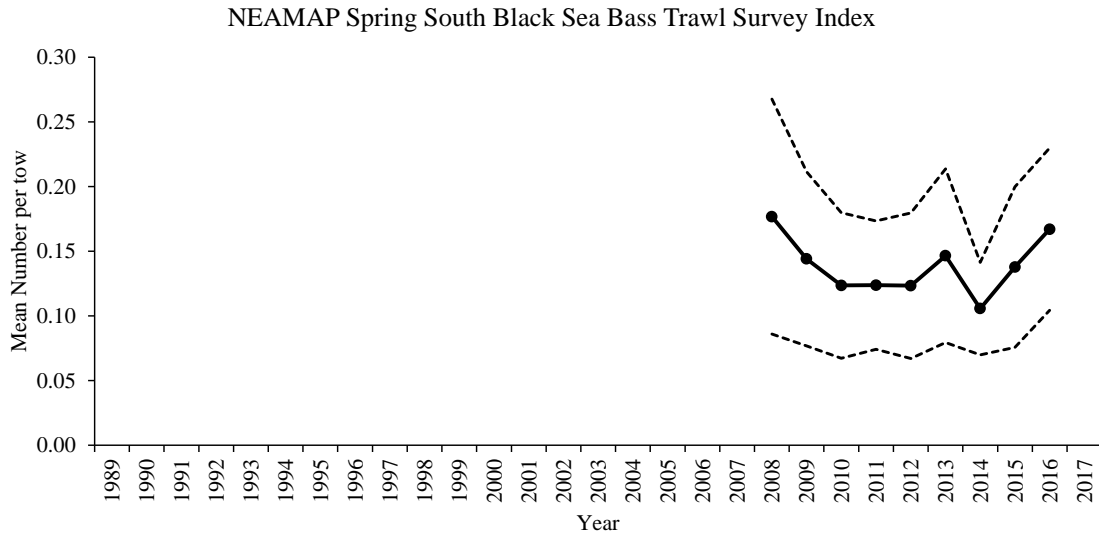


Figure 22. NEAMAP spring Southern stratified mean number per tow ( $\pm$  90% CI) of Black Sea Bass, 2008-2016. 2017 index is not available due to logistical issues sampling strata in the southern region.

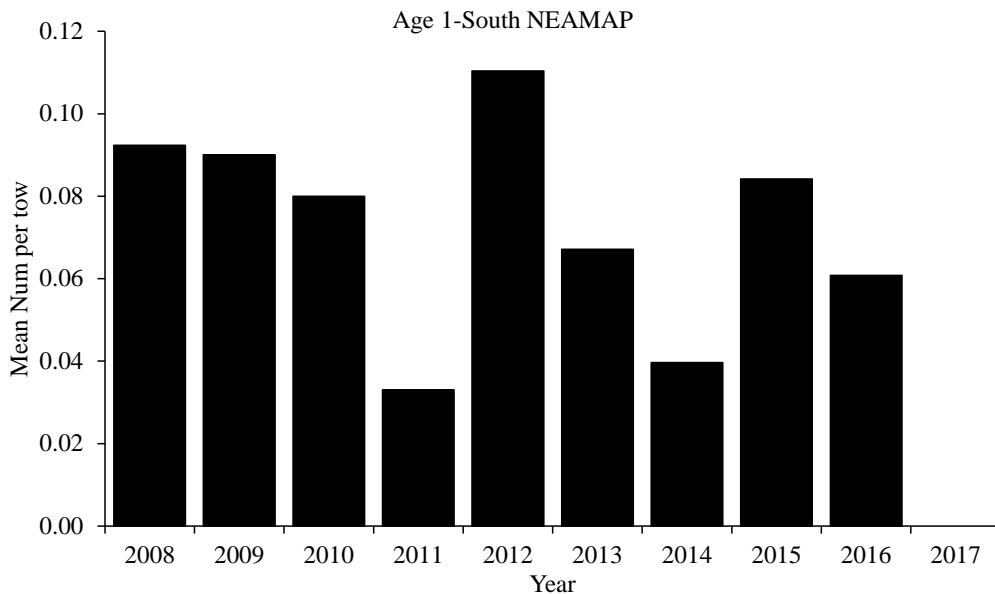


Figure 23. NEAMAP spring southern stratified mean number per tow at age one of Black Sea Bass, 2008-2016. 2017 index is not available due to logistical issues sampling strata in the southern region.

State Surveys- Northern Region

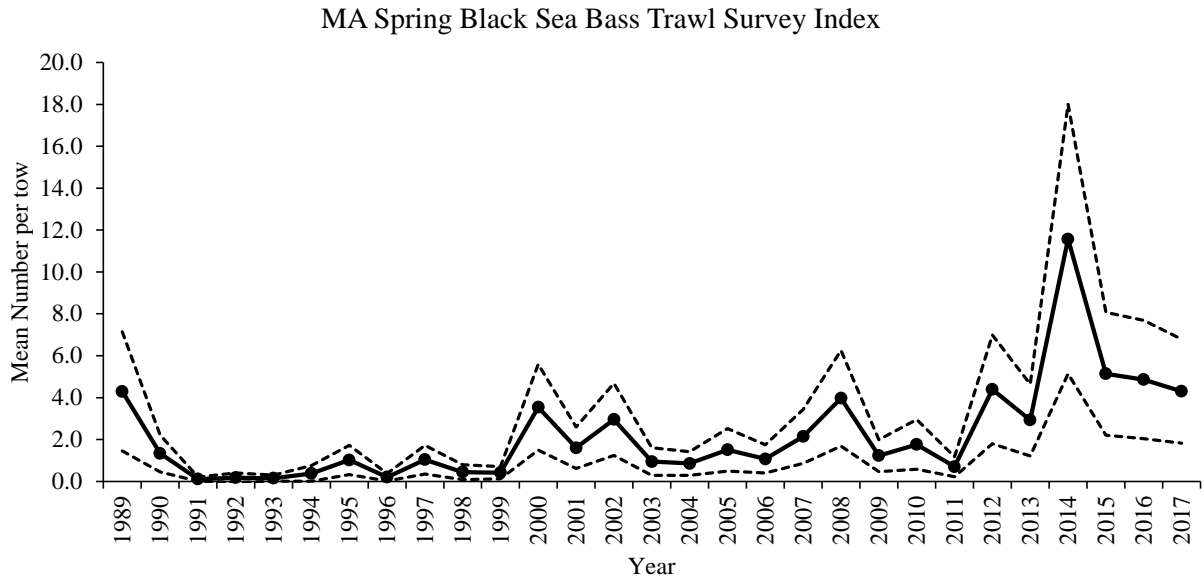


Figure 24. MADMF spring stratified mean number per tow ( $\pm$  90% CI) of Black Sea Bass, 1989-2017.

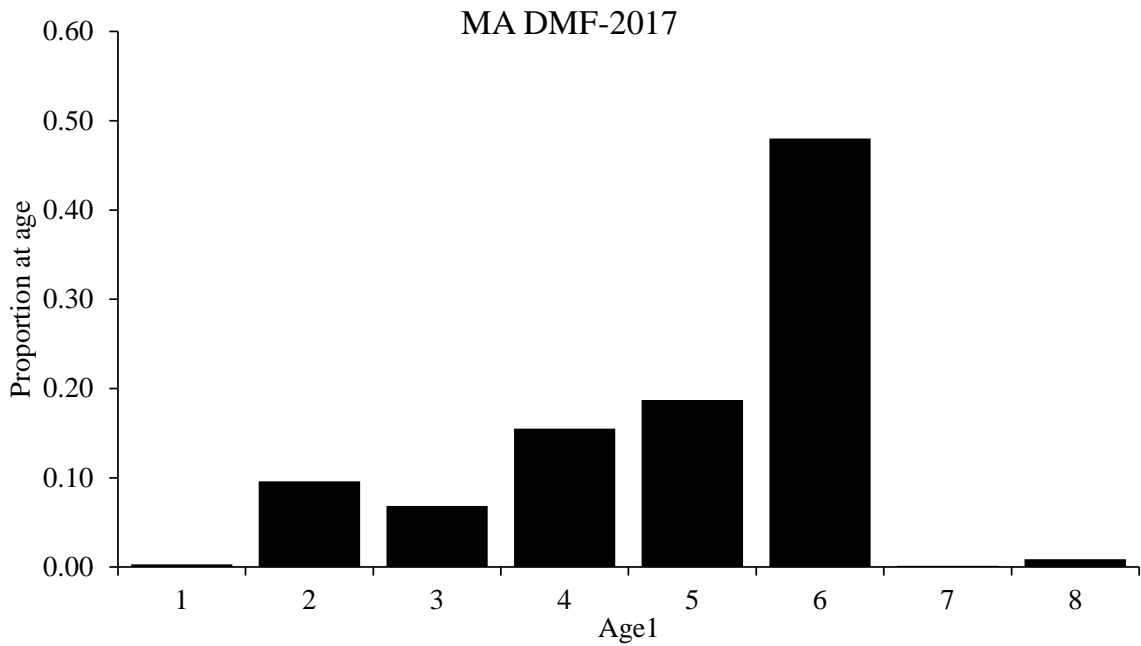


Figure 25. MADMF 2017 spring stratified mean number per tow at age of Black Sea Bass.

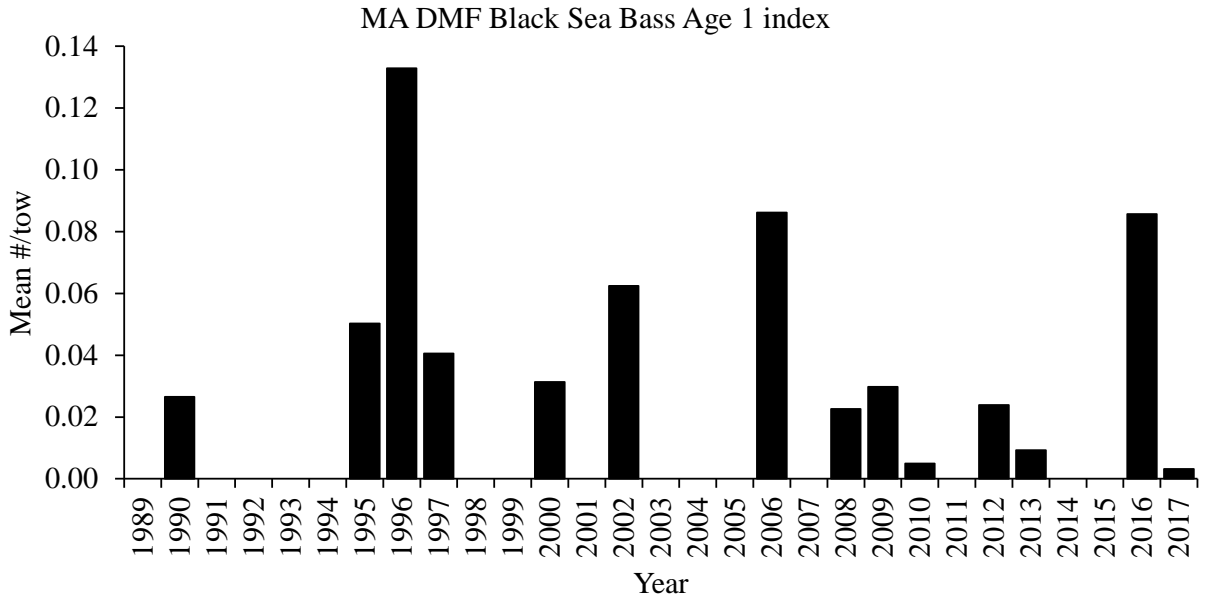


Figure 26. MADMF spring stratified mean number per tow at age one of Black Sea Bass, 1989-2017.

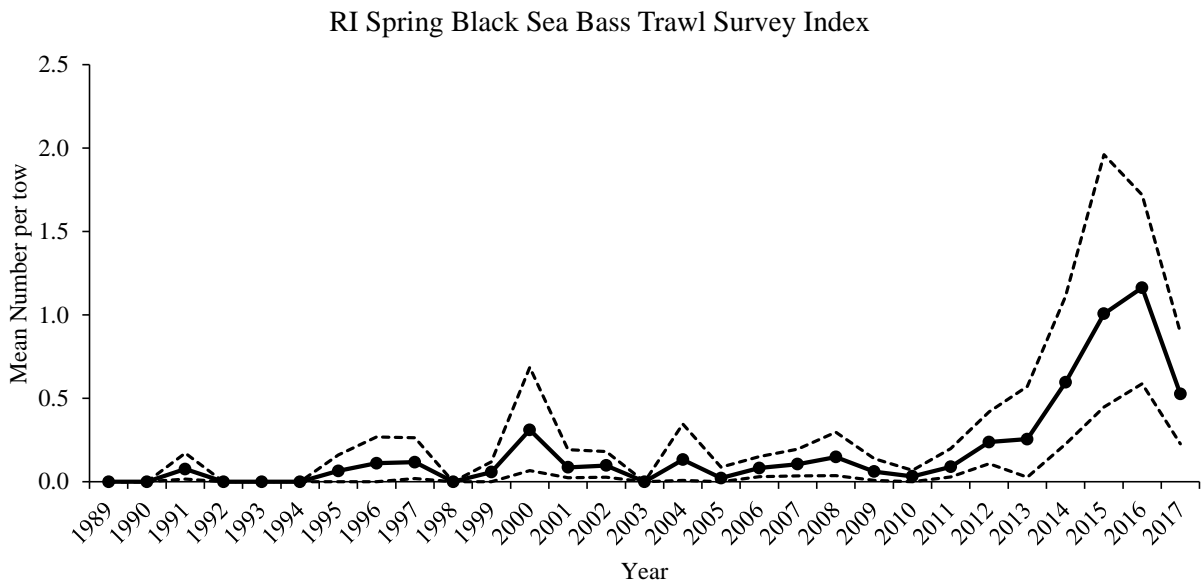


Figure 27. RIDEM spring stratified mean number per tow ( $\pm$  90% CI) of Black Sea Bass, 1989-2017.

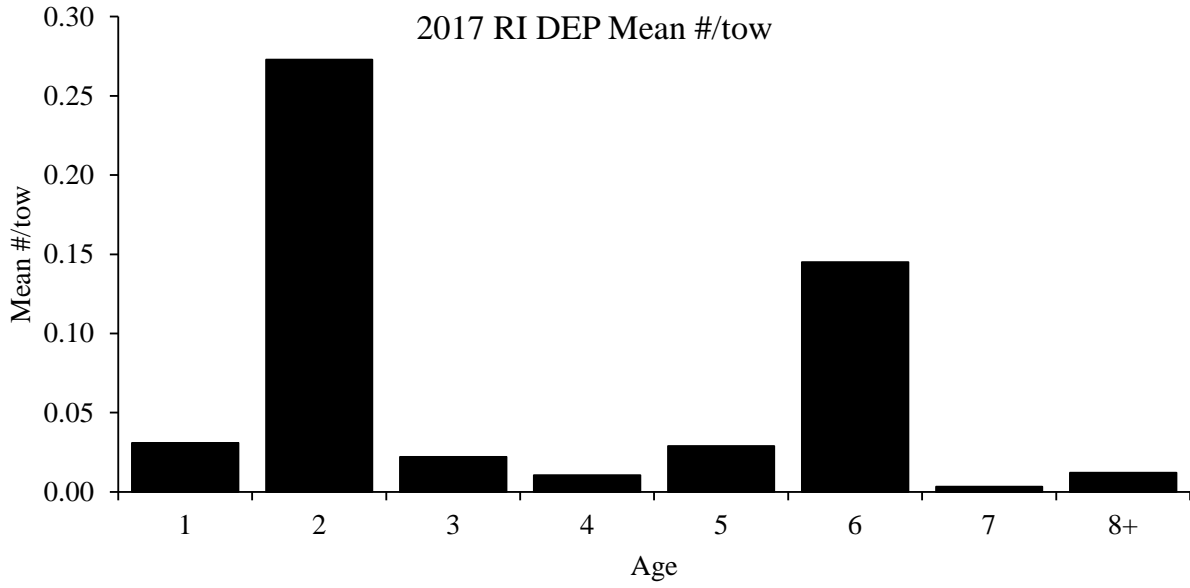


Figure 28. RI DEM 2017 spring stratified mean number per tow at age of Black Sea Bass.

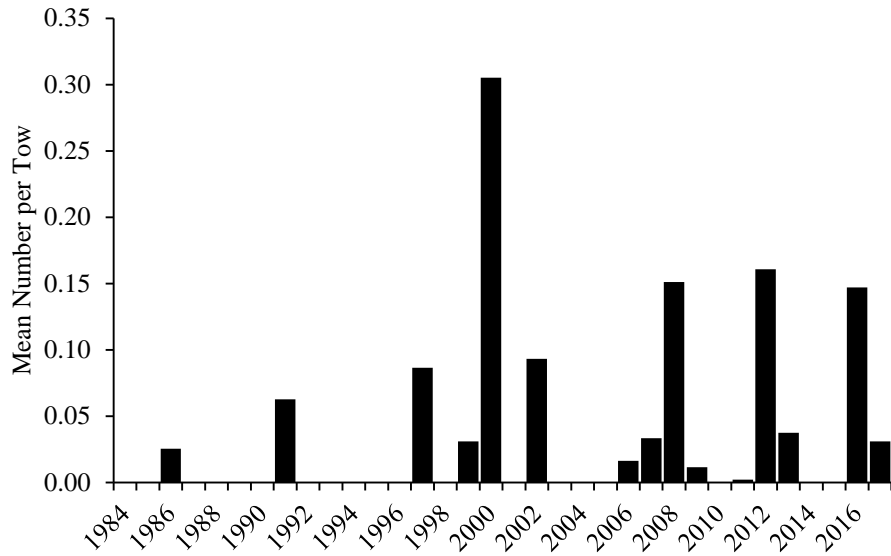


Figure 29. RI DEM spring stratified mean number per tow at age one of Black Sea Bass, 1984-2017.

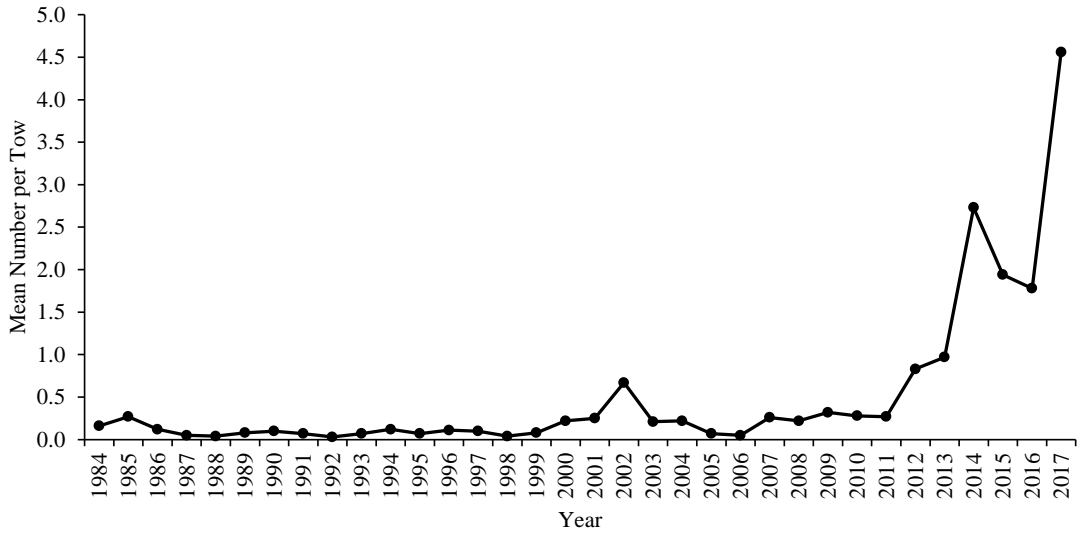


Figure 30. CT DEP nominal spring stratified mean number per tow of Black Sea Bass, Long Island Sound 1984-2017.

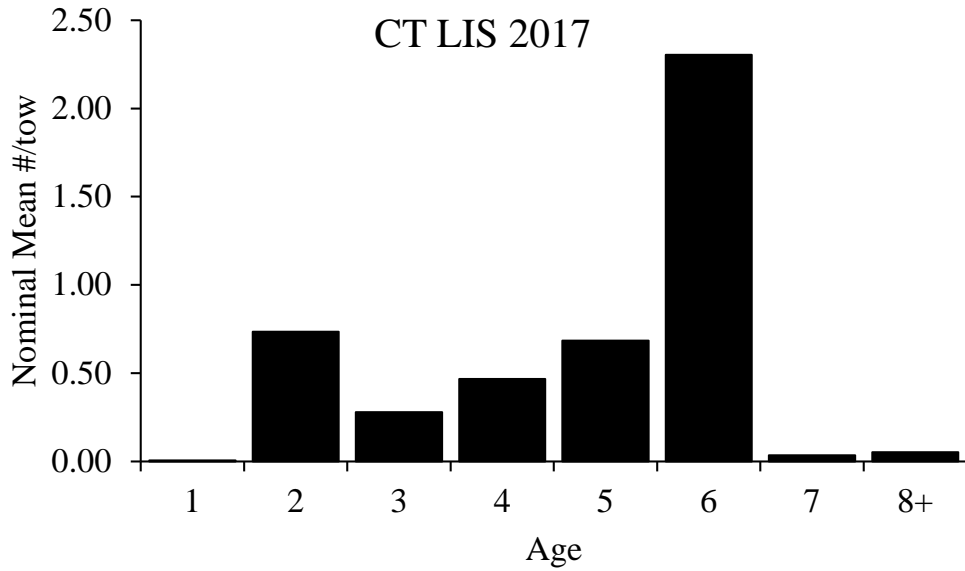


Figure 31. Age composition of CT DEP nominal spring stratified mean number per tow of Black Sea Bass, Long Island Sound 1984-2017.



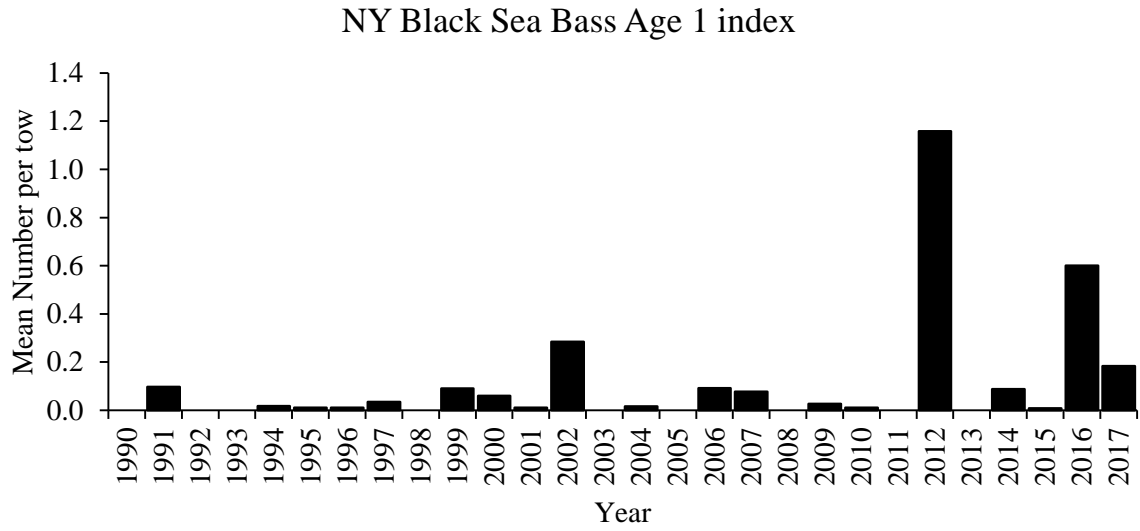


Figure 32. NY DEC spring stratified mean number per tow at age one of Black Sea Bass, 1989-2017.

*State Surveys- Southern Region*

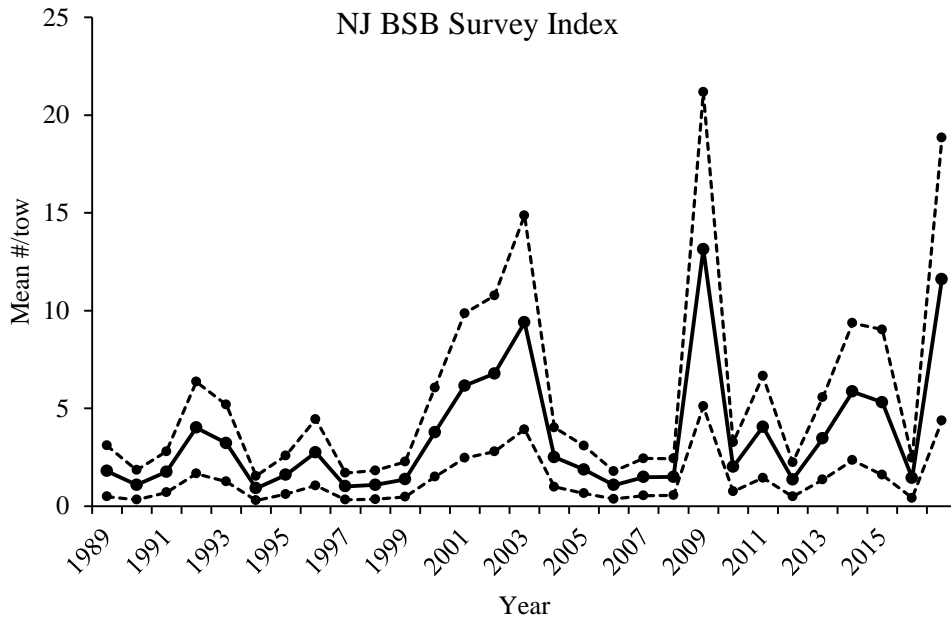


Figure 33. NJ DEP spring stratified mean number per tow ( $\pm$  90% CI) of Black Sea Bass, 1989-2017.

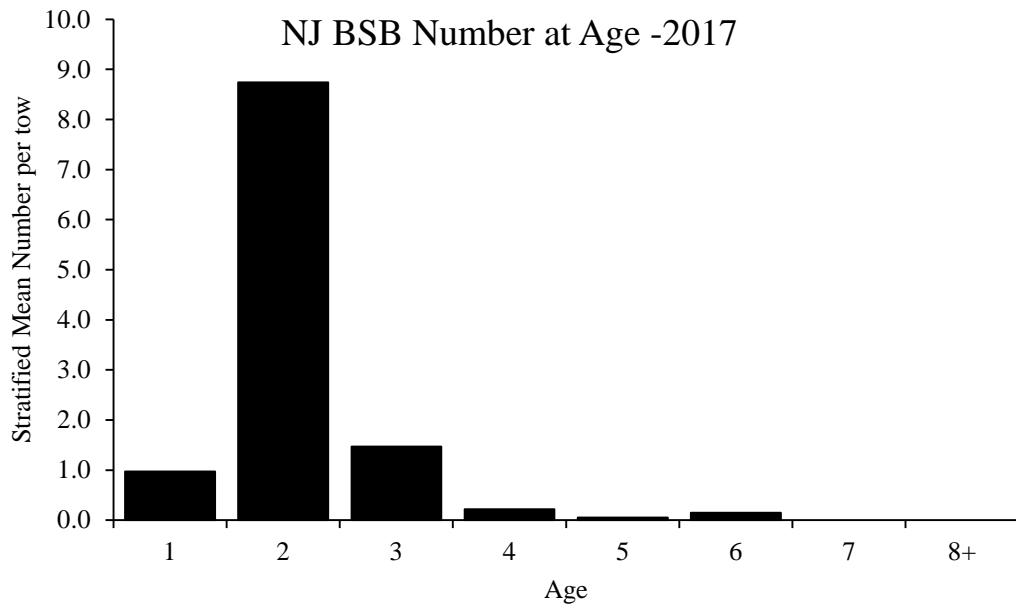


Figure 34. NJ DEP 2017 spring stratified mean number per tow at age of Black Sea Bass.

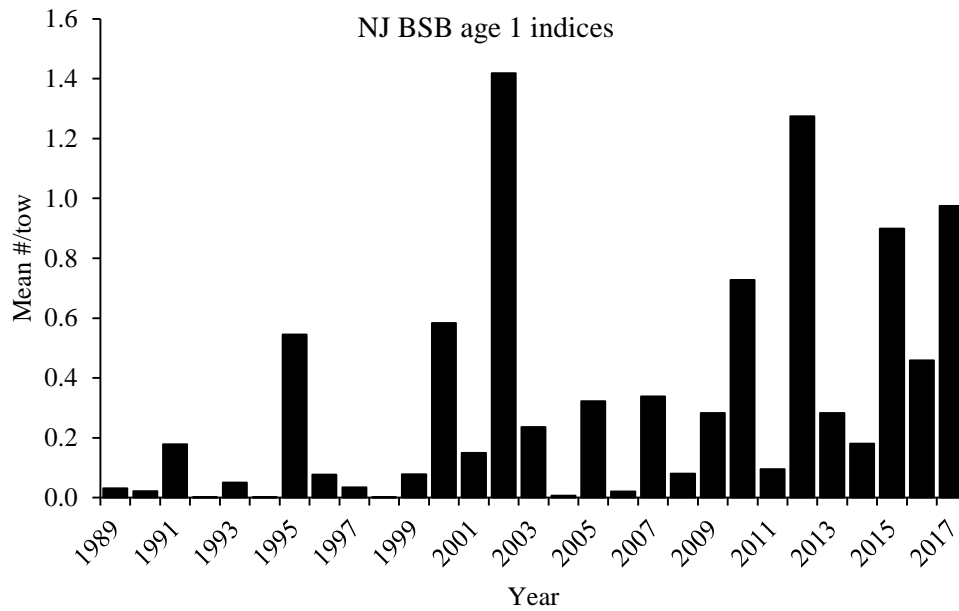


Figure 35. NJ DEP spring stratified mean number per tow at age one of Black Sea Bass, 1989-2017.

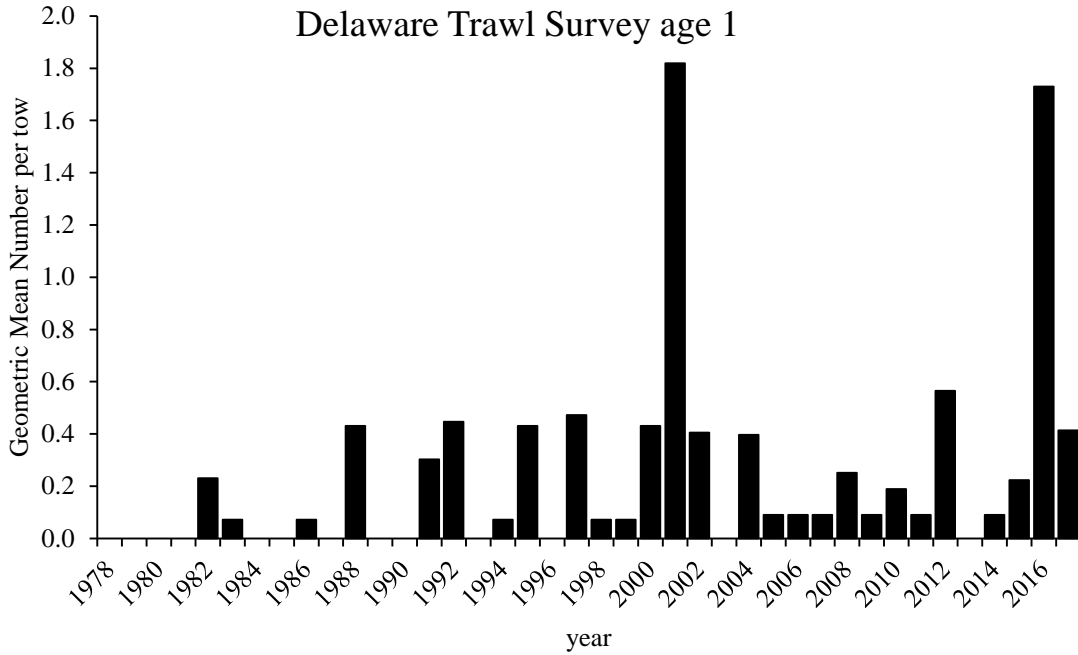


Figure 36. DE DFW spring stratified mean number per tow at age one of Black Sea Bass, 1978-2017.

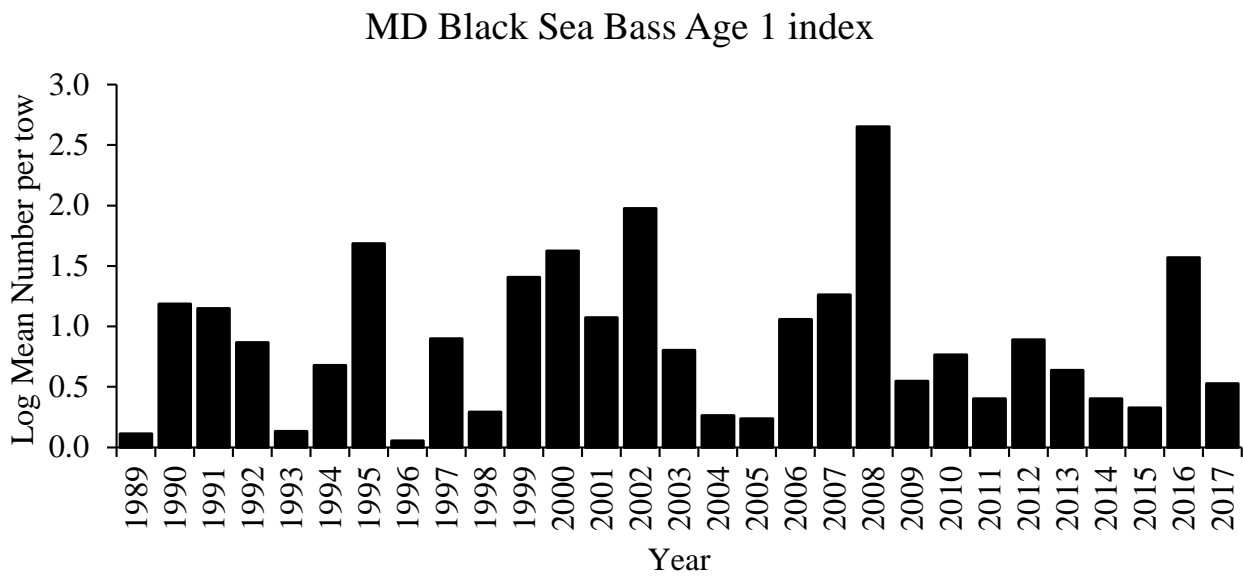


Figure 37. MD DNR spring stratified mean number per tow at age one of Black Sea Bass, 1989-2017.

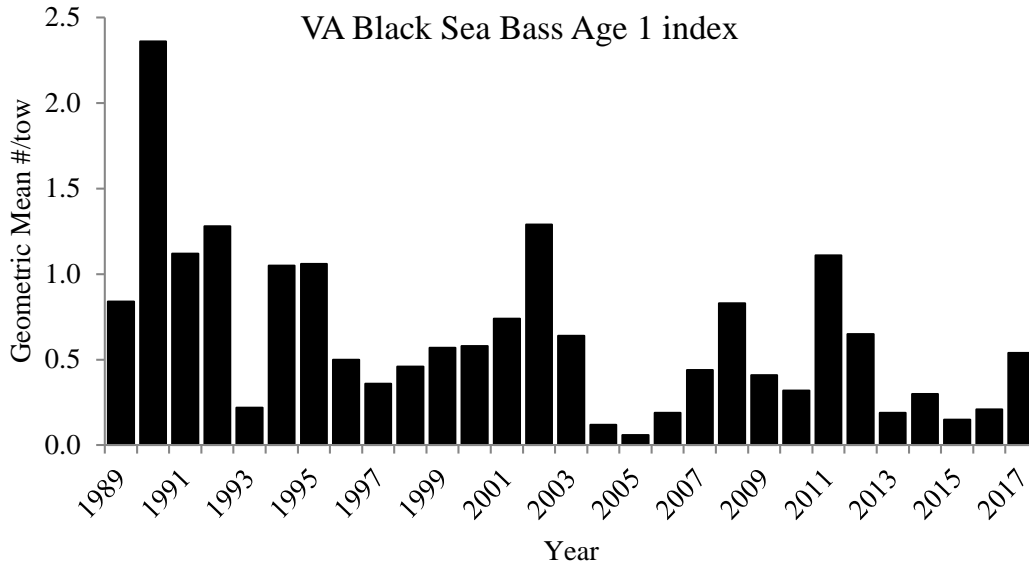


Figure 38. VIMS spring stratified mean number per tow at age one of Black Sea Bass, 1989-2017.

*Recreational Catch per Angler Trip*

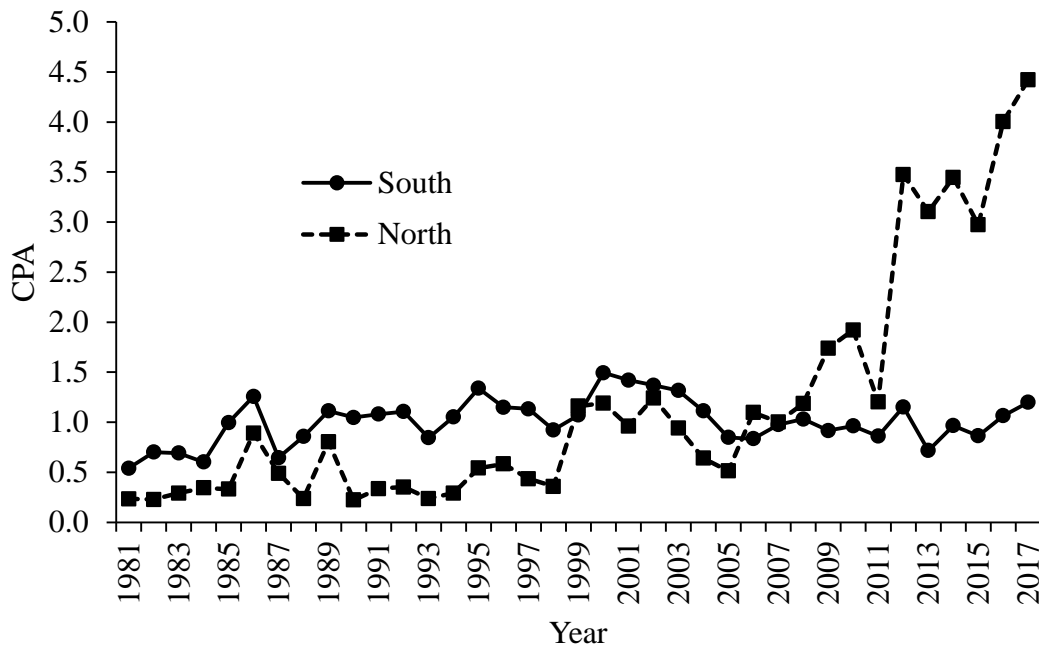


Figure 39. MRIP recreational catch (AB1B2) per angler for northern and southern regions, 1981-2017. Effort based on catch per angler trip within a regional guild of species.

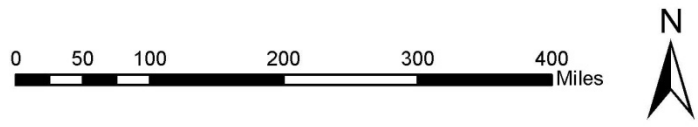
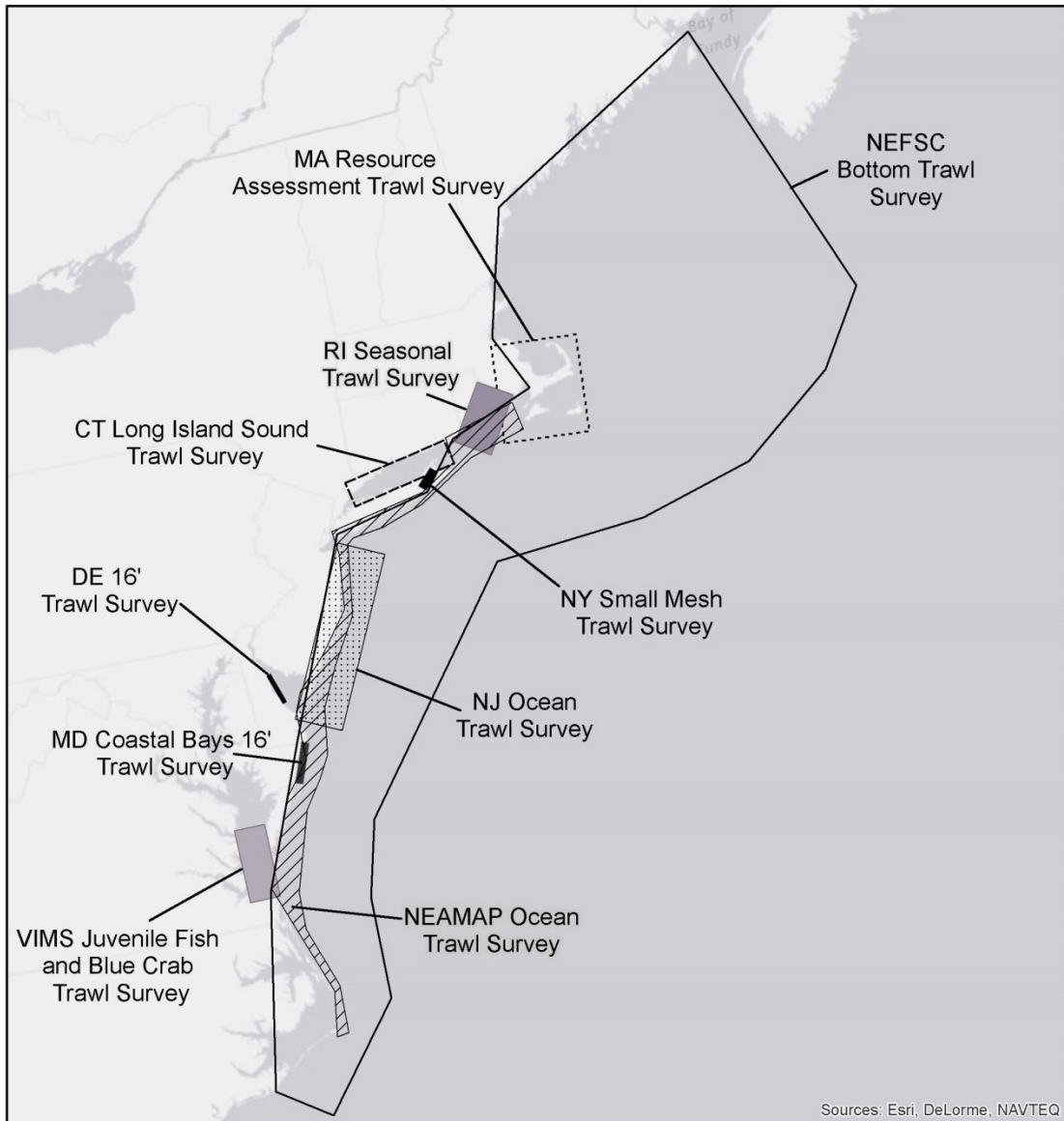
### *Reference Documents*

Northeast Fisheries Science Center. 2017. 62nd Northeast Regional Stock Assessment Workshop (62nd SAW) Assessment Report. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 17-03; 822 p. (doi:10.7289/V5/RD-NEFSC-17-03) Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026, or online at <http://nefsc.noaa.gov/publications/>

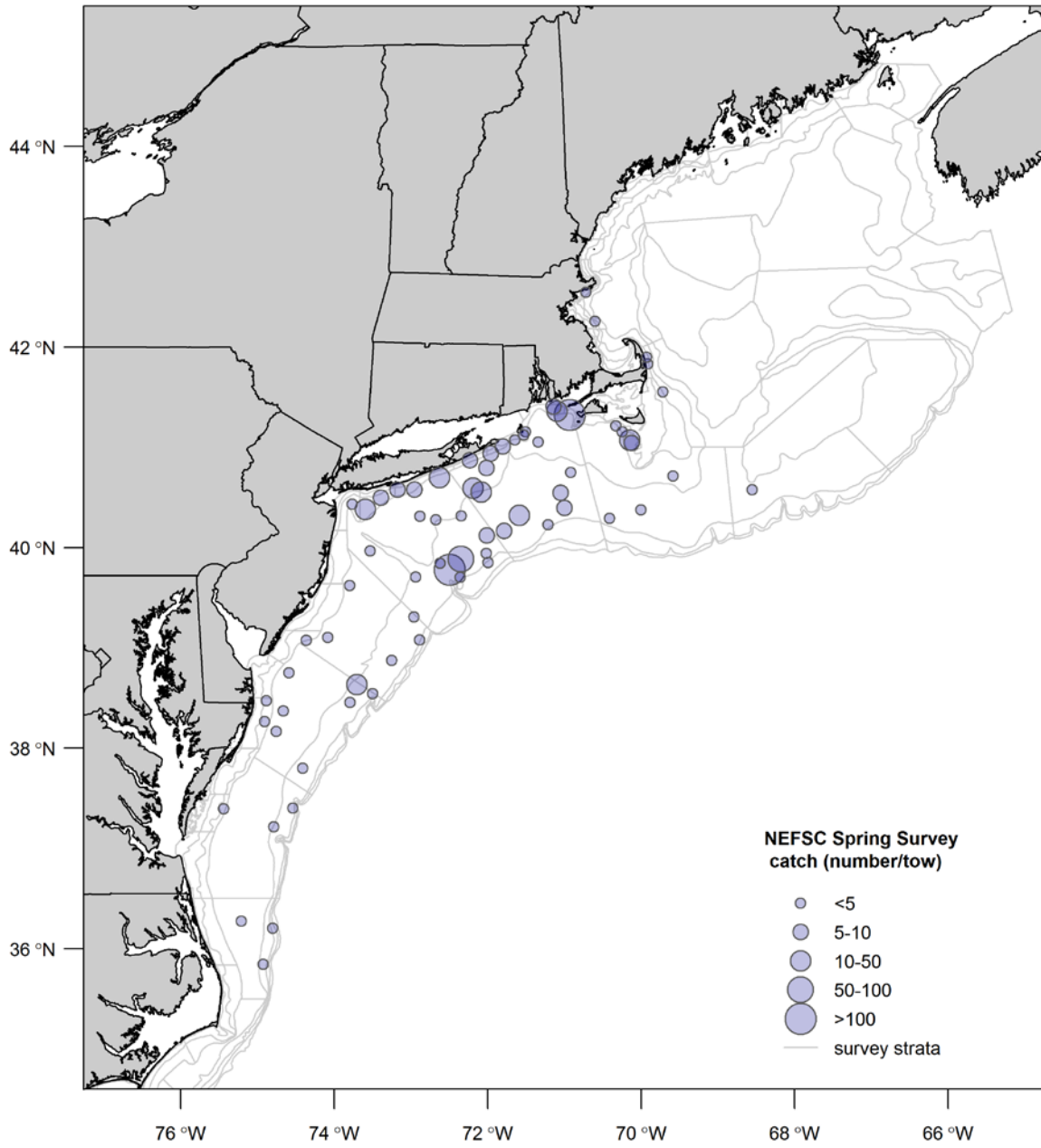
### *Acknowledgments*

NEAMAP information courtesy of Jim Gartland, VIMS. NEFSC age information developed by Josh Dayton, NEFSC. Data contributions from MADMF, RI DEM, CT DEP, NY DEC, NJ DEP, MD DNR, VIMS. MRIP CPA developed by Jeff Brust, NJ DEP. NEFSC survey maps produced by Alicia Miller, NEFSC.

# Spatial extent of state and federal surveys contributing to the assessment

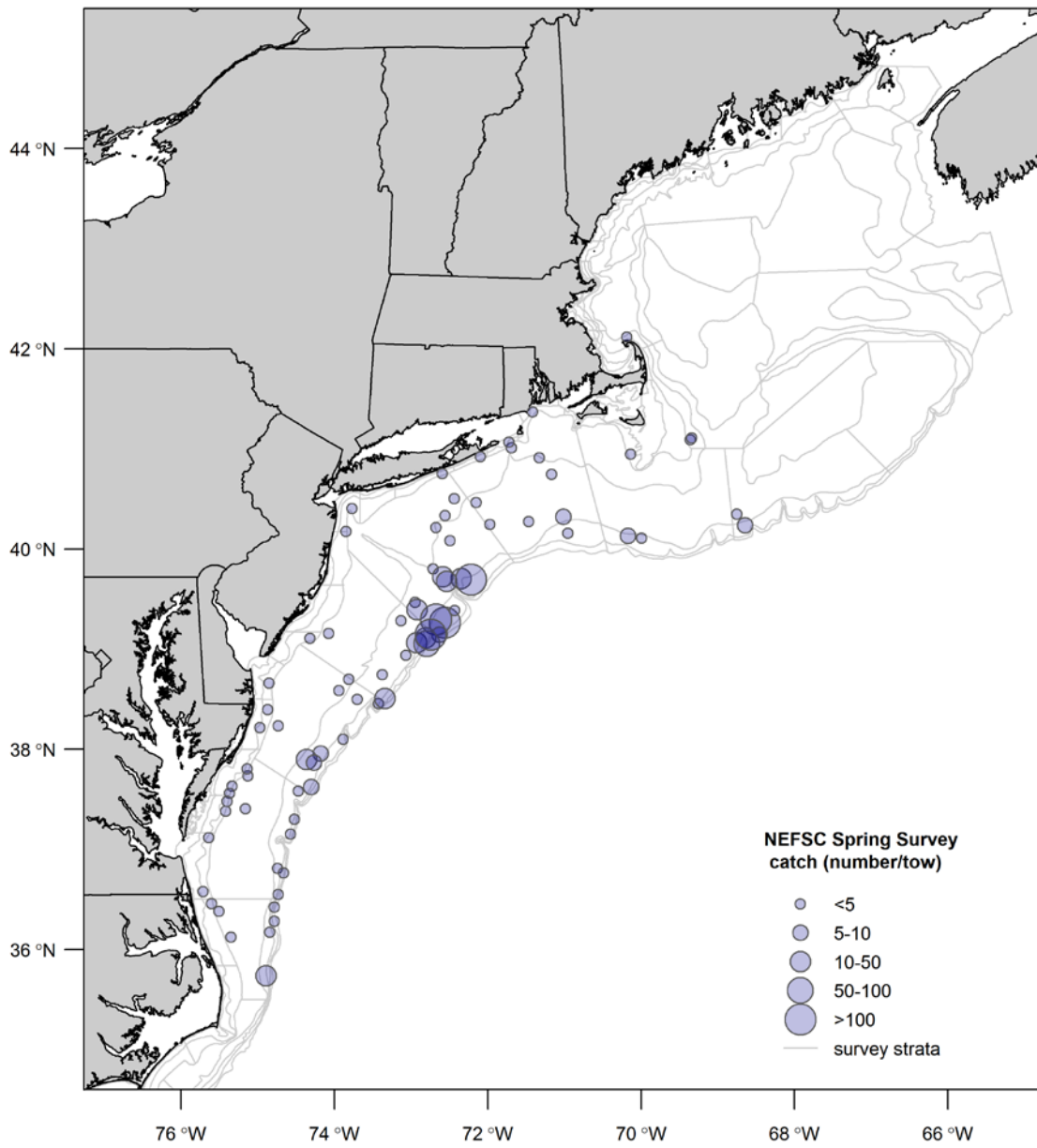


# SPRING 2016



Appendix Figure 1. Black Sea Bass distribution from 2016 NEFSC spring survey.

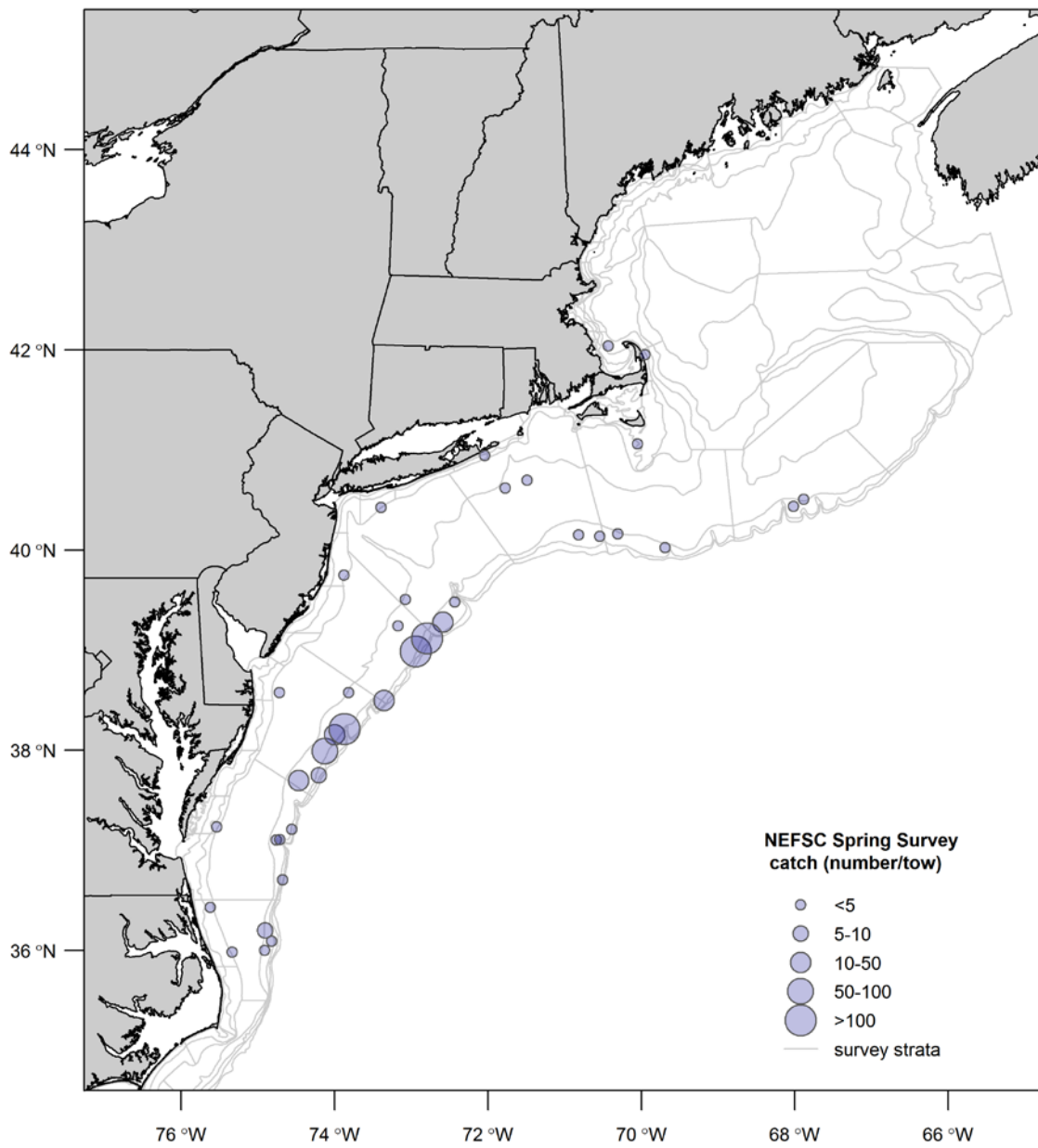
# SPRING 2017



Appendix Figure 2. Black Sea Bass distribution from 2017 NEFSC spring survey.



# SPRING 2018



Appendix Figure 3. Black Sea Bass distribution from 2018 NEFSC spring survey.

## Summer Flounder, Scup and Black Sea Bass Advisory Panel

AP member comments provided prior to meeting

June 22, 2018

### Brady Lybarger (NJ)

- Research
  - The Council should consider using a research set-aside (RSA) program for summer flounder, scup, and black sea bass. The scallop RSA program works well. Fishermen should be involved in research. Research and commercial harvest should take place on the same trips. Allowing fishermen to sell their catch from RSA trips generates income for fishermen and funding for science.
- Commercial possession limits
  - The regulations for state-specific possession limits be modified to address landings, rather than possession. This would give fishermen more flexibility in where they land their catch. For example, fishermen could unload their limit of one species in one state, while retaining another species on the vessel to land in a different state.

### Steven Witthuhn (NY)

- Black sea bass “regions”
  - Regions and the management associated with the regions need to be more clearly defined.
  - Northern region states all have different regulations
    - These differences get anglers upset with the management system
    - Differences within the region make management and recreational catch estimates more difficult and uncertain.
  - Lessons should have been learned from the fluke regional management approach.
  - Consideration should be given to splitting NJ North-South and align those regions with the Northern and Southern regions, respectively.
- Black sea bass management timeframe
  - The regional configurations and management measures need to remain in place and consistent for a number of years (3+) in order to provide some stability and determine if the approach is working and what the impacts on the population might be
- General: when does anecdotal information become fact? If 100’s-1,000’s of anglers and captains are observing the same thing on the water, when will science incorporate this information and not just ignore it?

June 18, 2018

Comments for AP fluke, sea bass, scup meeting June 26, 2018

Council staff:

I wish to thank council for the wise decisions I have seen made thus far in my three years as a member of the AP panel, as it pertains to the region I represent, southern NJ.

1. The allowance for the Delaware Bay to have a lower size limit for fluke has helped the few surviving businesses in that region, though many marinas and related businesses have closed due to lack of fish and strict regulations.

2. The allowance for New Jersey to become its own region for fluke regionalized management allows the state to set regulations consistent with mandated conservation equivalency more appropriate to the temporal shift in the fluke stock. Hopefully the state will act wisely to propose regulations consistent with the stock size parameters along its coast.

3. The reopening of the previously closed sea bass season in federal waters from Sept 21 to Oct 22 will allow the states to set seasons that allow more continued fishing opportunities. This should result in more fishing activity when the season was closed last year for fluke and sea bass during much of Sept and Oct with resultant loss of business to the state and discontinuity of recreational fishing effort. Now with an extended fluke season (Sept 22 vs Sept 5 last year), and sea bass being opened Oct 5, the struggling state recreational fishery related businesses should see an uptick in sales for that time period.

Overall, though, marinas in my area are still far below capacity and fishing effort that I see is no where near what it was in the past. My nonscientific assessment is marina occupancy and fishery activity is down 25-30%. Our bay and ocean striped bass fishery is almost nonexistent. Fluke stocks continue to be at a low level based on my observations and personal catches. Despite the abundance of sea bass, the catch in the Delaware Bay is nonexistent, the near shore catch in small, and only decent abundance is found out 20-30 miles, and even there is not what it once was. We rarely catch scup in southern NJ.

Slot sizes.....I would be in favor of allowing slot size provisions for all three species as this gives management additional opportunity and flexibility in managing these species. Realizing the limited usefulness of slot sizes for sea bass and scup, still it is wise to have this capability for future possibly unforeseen circumstances.

Other sea bass recommendations.....We are very lucky to be in a situation where we have such a robust sea bass stock. I hope we can manage it wisely so as not to be in a situation close to fluke where we are bordering on having an overfished stock. I would make the following comments:

1. I am in favor of making the sea bass regulatory process as close or the same as fluke

management for two reasons. One is that it would reduce management complexity for staff and establish more uniform regulatory frameworks for our stocks. Secondly, and perhaps even more importantly, it would help (to at least some extent) to reduce the frustration the public perceives in our rather complex management processes, when they attempt to understand how our fisheries are managed. In this regard I would favor conservation equivalency with rollover Option 1Bii.

2. I would also recommend mandatory "venting" of sea bass when recreationally fishing in waters over 80 feet deep (the depth I see where barotrauma is significant). Wasteful fishing practices should be greatly discouraged when possible.

3. We are lucky to having sexual dimorphism (ability to distinguish sex by external features) in sea bass. The importance of the females (and subordinate males) makes this an ideal fishery to make it a sex based fishery where only males (obvious blue hump) should be retained. This is particularly important in the spring when the females are loaded with eggs.

4. I would strongly recommend we transition from an MRIP data based system because of the inherent inaccuracy in the system despite repeated modifications. Time and time again this data has proved faulty and is a huge waste of resources and money. Transitioning to an "F" based system like used for striped bass would be huge improvement in terms of reliability, cost, believability, continuity, and stock management.

#### Research recommendatons:

I have spent a great deal of time studying ocean temperature data (and acidification data) and for sure it has had some effect on stocks particularly in areas like the Gulf of Maine where the effect is magnified. The oceanic (surface and benthic) temperature changes we have seen (and not those worst case scenarios I have seen presented to council) thus far, are relatively minor compared to some of the massive stock shifts we have seen thus far in some of our stocks.

It was quite an interesting read studying the history of the cod stock shifts seen from the late 1800's to the present. Clearly demonstrated are decimation of cods stocks with different DNA makeup, and different migratory patterns of those subunit stocks. It is my belief that we have experienced the same pattern in our fluke stocks.

Our current management scheme has for many years allowed a disproportionate share of the commercial fluke stock to southern states. With commercial fishing effort having shifted beginning in the late 1980's to a winter fishery, exploitation of the stock during its crucial spawning season, could well have decimated the southern portions of the stock causing the fleet to have to fish many hundreds of miles to the north then in previous years. I get the impression that management blames this on the very minor degree of benthic oceanic warming we have seen (whether one blames it on slowing thermohaline circulations or shifting of the cold water pool).

The problem with the loss of the southern portion of the stock is that the recreational fishing industry in those states suffers unfairly, violating the standards of the MSA requiring fair allocation to all parties. These comments are in no way commercial vs recreational in nature, but

instead a suggestion for management to consider the effects of fishing effort on depletion of east-west migratory stocks.

It is possible that this northern shift of the stock has also been a cause of reduced recruitment with a reduced survival rate of newly hatch fluke in more northern and eastern waters. This could be from being spawned in colder or deeper water, or in currents not conducive to good inshore push.

I would suggest research into looking at this scenario.

1. I would look for DNA differences in southern vs northern fluke.

2. I would study egg content of harvested fish to look for prime breeding times (some data is already available for serial spawning of this species) to hopefully curtail fishing activity during this period.

3. I would do a tagging study of fish on the spawning grounds to see how they migrate (i.e. do fluke migrate straight east or more southeast as they move inshore). In this context, I would explore if loss of spawning segments in a north-south axis will be causative for an inshore depletion.

4. I would look at a management scenario where ocean spawning grounds are closed as stock depletion is detected in those waters in a similar way, for example, like certain scallop grounds are closed temporarily as localized depletions occur.

4. On a separate note, I would look at data to see how much fluke loss is contributed to bycatch fisheries for skate, sea bass, scallop, and other fisheries.

5. I would look at the stock benefit of making sea bass a male only recreational fishery.

6. I would look at survival rates of released sea bass and various depths.

## Kiley Dancy

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**From:** James Fletcher <unfa34@gmail.com>  
**Sent:** Friday, May 11, 2018 11:02 AM  
**To:** Kiley Dancy; Moore, Christopher; Kellogg, Chris  
**Subject:** 1. RECENT EXPERIENCES IN OCEAN RANCHING: THE CASES OF JAPAN, UNITED STATES AND ICELAND

<http://www.fao.org/docrep/005/Y1805E/y1805e07.htm#TopOfPage>

let us address ocean ranching if the "science" has a problem with stock enhancement. Something needs to be accomplished with Summer Flounders {look at sea scallop production} WHY DO THE COUNCILS ONLY MANAGE FISHERMEN INSTEAD OF THE RESOURCE?

--

James Fletcher  
United National Fisherman's Association  
123 Apple Rd.  
Manns Harbor, NC 27953  
252-473-3287

## Kiley Dancy

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**From:** James Fletcher <unfa34@gmail.com>  
**Sent:** Tuesday, May 8, 2018 5:35 PM  
**To:** Kiley Dancy; Moore, Christopher  
**Subject:** Re: June 26 Summer flounder, scup, black sea bass Advisory Panel meeting

Kiley: Could / Would a discussion of an enhancement program to release 20,000,000 one inch summer flounder be within the advisor discussion. At a cost of three to five cents to grow to one to three inches summer flounder it should be worth discussion, in Japan they know how to have white spots or markings to show using spawning methods. Thus we could know the recovery rate.

ALSO WOULD LIKE ADVISORS TO PUSH TOTAL LENGTH RETENTION IN RECREATIONAL DISCUSSION.

THOSE WANTING LARGER FISH CAN USE BARB-LESS HOOKS.

On 5/8/2018 10:33 AM, Kiley Dancy wrote:

Hello Summer Flounder, Scup, and Black Sea Bass Advisory Panel members,  
The MAFMC and ASMFC have scheduled a joint Advisory Panel meeting to develop Fishery Performance Reports. Our meeting will be held in person on **Tuesday, June 26, 2018 from approximately 10AM-4:30PM** at the [Hilton Garden Inn BWI](#). We do not yet have sleeping room block information but will send it out as soon as it's available. We will also be sending out background materials and an agenda a few weeks before the meeting.

Please note that although the Council is currently reviewing AP membership applications for our typical re-appointment cycle, this meeting will be with the current group of advisors. New AP member appointments will be finalized in late June but will not be effective until July. Please let us know if you have any questions.

Kiley Dancy  
Fishery Management Specialist  
Mid-Atlantic Fishery Management Council  
302-526-5257 (direct)  
Email: [kdancy@mafmc.org](mailto:kdancy@mafmc.org) or [kiley.dancy@noaa.gov](mailto:kiley.dancy@noaa.gov)

--  
James Fletcher  
United National Fisherman's Association  
123 Apple Rd.  
Manns Harbor, NC 27953  
252-473-3287

## Kiley Dancy

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**From:** James Fletcher <unfa34@gmail.com>  
**Sent:** Wednesday, May 9, 2018 11:54 AM  
**To:** Kiley Dancy; Moore, Christopher  
**Subject:** Flounder enhancement discussion  
**Attachments:** An\_Economic\_Review\_of\_the\_Japanese\_Flounder\_Stock\_.pdf

This article is mid 1990's it is time that the council & NMFS begin stock enhancement.

Fishery management has selected for slower growing & smaller fish utilizing regulations, TIME FOR A CHANGE FROM MANAGING FISHERMEN TO MANAGING FISH & FISH GROWTH WITH ENHANCEMENT FOR LARGER FASTER GROWING FISH.

--

James Fletcher  
United National Fisherman's Association  
123 Apple Rd.  
Manns Harbor, NC 27953  
252-473-3287



## Beaty, Julia

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**From:** Kirby Rootes-Murdy <krootes-murdy@asmfc.org>  
**Sent:** Tuesday, June 26, 2018 6:45 AM  
**To:** Kiley Dancy; Muffley, Brandon; Beaty, Julia; cstarks@asmfc.org  
**Subject:** Fwd: Advisors meeting

Comments from AP member Bill Shillingford who's unable to attend

Kirby Rootes-Murdy  
Senior FMP Coordinator  
Atlantic States Marine Fisheries Commission  
1050 North Highland Street, Suite 200A-N  
Arlington, VA 22201-2196  
P: 703-842-0740  
e: krootes-murdy@asmfc.org  
w: www.asmfc.org

----- Forwarded message -----

**From:** "BUCKTAIL" <[bucktail8@aol.com](mailto:bucktail8@aol.com)>  
**Date:** Mon, Jun 25, 2018 at 9:11 PM -0400  
**Subject:** Advisors meeting  
**To:** "Kirby Rootes-Murdy" <[krootes-murdy@asmfc.org](mailto:krootes-murdy@asmfc.org)>

I am sorry to tell you I will not be able to attend the advisor's meeting . I have been fighting some kind of Flu for past 3 days and while I am improving I don't think it wise for me to travel down there ,also don't want to pass on whatever I am fighting

Do hope you have a successful meeting  
IF I can make a comment...There must be some relief on removing only females and throwing back a very high number that are dying.... There needs to be a slot of like 2 fish between 16-18 and 2 over 18".... The season also needs to be reviewed as Fluke in Southern NJ are arriving very Early April....This year I tagged and released 111 fluke with 44 over 18" up to 25" .pre opening day in NJ. Since opening Day I have caught and tagged 101 with only 11 over 18" and largest at 20" . Fluke only stay in inside waterways 8-10 weeks before moving back out to spawn....The current regulations with current size limits are destroying the population  
Delaware fluke fishermen are catching same size fish in same numbers ,10 months a years and last year Delaware boats were in NJ waters in October catching fluke when NJ could not  
Thank you for listening and hope you have a productive meeting

Bill Shillingford  
[bucktail8@aol.com](mailto:bucktail8@aol.com)

**From:** bob pride  
**To:** [Beaty, Julia](#)  
**Subject:** Re: Comments and reminder of other materials for tomorrow's AP meeting  
**Date:** Monday, June 25, 2018 8:11:01 PM

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Julia,

I expected to be there tomorrow, but work demands have once again intervened.

I have reviewed the comments and the briefing materials.

My inputs are as follows:

Alt Set 1: Support 1.B.ii

Alt Set 2: Support 2.B

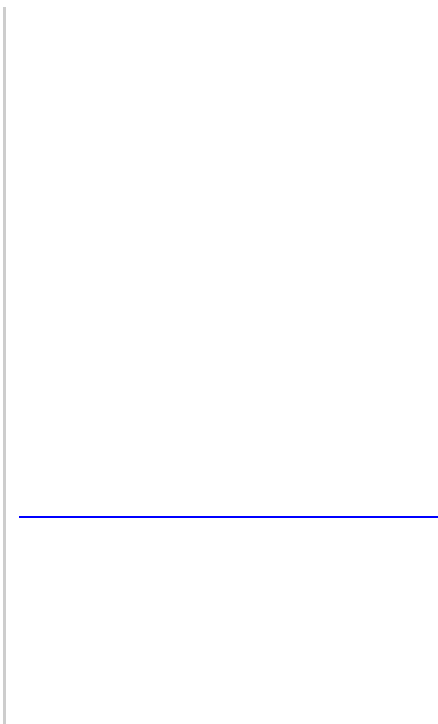
Alt Set 3: 3.B.i does not make sense as it references transit of fish caught in federal waters when federal waters are closed. Huh? I don't understand the local issue as well as people from the area, so I make the following comment: I support relieving enforcement problems and cost burdens on fishermen due to transiting federal waters with catches from state waters.

My support is subject to reasonable safeguards against abuse.

Alt Set 4: Slot limits are challenging for recreational fishermen and tend to compromise trophy fishing. That said, I would support 4.B to allow more flexibility for the Council.

Sincerely,  
Bob Pride

,



## Beaty, Julia

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**From:** Kirby Rootes-Murdy <krootes-murdy@asmfc.org>  
**Sent:** Tuesday, June 26, 2018 6:46 AM  
**To:** Kiley Dancy; Beaty, Julia; Muffley, Brandon; cstarks@asmfc.org  
**Subject:** Fwd: Comments from CT

Comments from AP member Jack Conway who's unable to attend

Kirby Rootes-Murdy  
Senior FMP Coordinator  
Atlantic States Marine Fisheries Commission  
1050 North Highland Street, Suite 200A-N  
Arlington, VA 22201-2196  
P: 703-842-0740  
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w: www.asmfc.org

----- Forwarded message -----

**From:** "John Conway" <[ctjackc@gmail.com](mailto:ctjackc@gmail.com)>  
**Date:** Mon, Jun 25, 2018 at 10:23 PM -0400  
**Subject:** Comments from CT  
**To:** "Kirby Rootes-Murdy" <[krootes-murdy@asmfc.org](mailto:krootes-murdy@asmfc.org)>  
**Cc:** "JACK CONWAY" <[jack.d.conway.Jr@lmco.com](mailto:jack.d.conway.Jr@lmco.com)>

Greetings from CT.

Apologies on not being about to make the meeting tomorrow. I've been a bit tied up at work and I could not squeeze a trip in tomorrow.

My answers to discussion questions:

Note - my comments are primarily reflect the views of the private boat based angler in CT, which represent the "lion's share" of angling effort in the CT waters of LIS.

1. What factors influenced your catch of summer flounder, scup and black sea bass in recent years:

Summer Flounder - in general, summer flounder fishing in the CT waters of LIS has been somewhat "off" during recent years. Typically there has been a a bit of an early run (May/June) which ends quickly. A decade ago, the best fishing was in early August and peaked in late August. Fluke fishing ends earlier and there is a lack of good fishing before August. Obviously, recreational boats from CT will venture to NY and RI waters for better summer flounder fishing, landings from these vessels can confuse the reality of summer flounder fishing in CT waters.

Bottom line - the fishery in the CT waters of LIS is definitely not as good as it used to be, an early run and and an early ending.

Scup - a great success story for CT. I have a joke that CT is "a Scup State". Decades ago scup were primary targeted by minority communities that liked small pan fish. With e rebuilt fishery that offers large fish that fight good and poor

summer flounder and striped bass fishing, scup fill the void left by other species. In addition, they are now universally targeted by the recreational fishing community in CT. I have experienced some spotty fishing in certain areas that used to be great but overall no complaints. Somewhat uniquely, bluefish were almost absent in LIS last fall and scup again helped keep anglers on the water. They also allow anglers to fish for a good tasting fish in September and October which used to be dominated by tautog fishing. Scup are incredibly important to the recreational fishing community in CT. A long open season and reasonable bag limit are important.

Black Sea Bass - another incredibly important species for CT. LIS has a robust black sea bass population and recreational fishery that did not exist 20 years ago. They fill the slack for the decline in the striped bass fishery. There used to be a fleet of recreational boats (for hire and not for hire) everyday for striped bass. That effort has switched to black sea bass.

## 2. Issues or concerns:

In general, the Council does not solicit enough feedback from the private boat angler. The for hire fleet tends to dominate conversations but the majority of landings are from private boats. Private boats dwarf the economic impact of the for hire fleet. The council needs to rethink how it runs meetings and how they solicit input from the public. A switch to electronic meetings and a consideration of running meetings in early evenings is warranted. (No offense against the for hire sector.)

## 3. Research Recommendations:

Focus on understanding black sea bass population dynamics and if there are discrete populations of black sea bass.

## 4. Recommendations for 2019 regulations:

For CT, having the longest possible open season for black sea bass (and a May opening) is really important. Interestingly, Central and Western LIS have a great spring run of black sea bass and very poor fishing for them in the fall when Southern LI and RI have a robust fishery. Scup need to be managed in a similar fashion (long open season) and a September/October season for scup is also critical. CT and NY are very much linked in the summer flounder fishery since many CT boats will fish NY waters early in the season for the "spring run" of summer flounder. Early opening is important for this fishery as well.

Thanks- Jack

## Kiley Dancy

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**From:** Fishthewizard <fishthewizard@aol.com>  
**Sent:** Monday, July 9, 2018 1:52 PM  
**To:** Kiley Dancy  
**Subject:** BSB AP Comments

- With black sea bass so abundant, the yearly quota should be increased. There are many age classes present proving an over abundance of fish to sustain a greater harvest.
- If the RSA program is used to fund studies, black sea bass quota awarded should benefit only that fishery, not other species.

Joan Berko

## Kiley Dancy

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**From:** Monty Hawkins <capt.montyhawkins@gmail.com>  
**Sent:** Tuesday, July 3, 2018 7:33 AM  
**To:** Luisi, Michael; Angel Willey -Dnr-; Moore, Christopher; Didden, Jason; Coakley, Jessica; Beaty, Julia; Kiley Dancy  
**Cc:** Odell, Jay; peter.auster@uconn.edu; Hare, Jon  
**Subject:** BSB Spawning Production..

Greetings All,

I've written about BSB spawning & age at maturity several times of late. I truly believe Nature's Plan for dealing with calamity can be utilized to great effect — offers the most simple restoration strategy; a strategy we employed until MRFSS mislead regulation into overly stringent regulation.. What I experienced owing our own pre-regulatory actions & bolstered strongly by early regulation was, primarily, a result of "all hands on deck" for spawning.

It's NOT overcrowding that triggers a shift to older maturity - it's the SIZE of males on a reef..

Well, I do hope you'll read & consider these thoughts I have offered for so long.

Cheers

Monty

From Fish Report 7/2/18..

On the East Coast we have a 10 fish limit on mahi. I'd be thrilled if we caught 10 for the boat while sea bassing..

Used to call them dolphin or dorado, but folks would get all wound up with "dolphin" on a menu. (Oh! We switched to dolphin free tuna and now they want to serve Flipper to us?!) Word usage transition must be very nearly complete if folks such as myself use "mahii" instead of dolphin.

In the Pacific, there are no limits. Even the staunchest conservation groups are A-OK with that because they grow so fast and begin spawning [at 3 to 4](#) months of age.

Oceana is about as protectionist as they come in the marine world; this from Oceana's website: "*Though the common dolphinfish is heavily fished by recreational and commercial fishers, its high productivity and young age at maturity have so far protected it from overfishing. Populations are stable and are able to support the heavy fishing. Currently, scientists consider the common dolphinfish to be a species of least concern*"

This is EXACTLY why I'm trying so hard to get management's attention on black sea bass's varying 'age at maturity.' In sea bass, 'age at maturity' is malleable. We can change it via size limit regulation as evidenced by the size of blue 'knothead' spawning males -- I witnessed when ALL sea bass in the ocean appeared to be in the spawning class. All scientific works prior to 2000 have sea bass spawning at age zero/age one. (After you correct for mis-aging. It was once thought that a 9 inch sea bass was 3, even 5, years old. We know today that's solidly age one.)

As management began sea bass still spawned in their first months of life or certainly by age one. But after the size limit hit 12 inches that youthful spawning, as evidenced by abundance/absence of less than 9 inch males, was replaced by populations where males matured at age 3 or better.

Instead of all our throwbacks being spawners, now it's just our keepers.. Spawning success from hot oil? Not so good.

Sea bass were far more prolific off DelMarVa when the entire marine population was in the spawning class.

Recent issues with survey equipment have created 'experiments' off Maryland's coast where large areas of habitat had virtually all sea bass driven out. As these areas recolonized, sea bass again reverted to age one spawning..

(I wrote about this at length in my 6/22/18 report if you'd care to dig deeper..)

There was a time when I fully believed our sea bass off DelMarVa were at "Habitat Capacity" - that we just couldn't hold many more UNLESS WE BUILT MORE HABITAT.

That was in the early 2000s. Every reef built in the 1990s & into the early 2000s was swiftly colonized by sea bass capable of spawning.

We even had 1/2 day boats occasionally catching boat limits at 25 fish per-person when the 12 inch and 25 bag limit first

started in 2002.

But sea bass were already maturing later. As soon as all reefs, even the hardest hit--pounded daily by 1/2 days boats; as soon as even those reefs were populated by 12 inch sea bass -- by 2003 the little guys ceased to be. They would not transition to male until 11.5 inches or better. Because they also grow fast, relative to their max size, these just-maturing fish become legal soon after.

Where once reefs/wrecks with amazingly heavy pressure STILL had a strong spawning contribution to make, suddenly the entire inshore spawning population (or darn near all of it) was being removed..

We're experiencing a spike in spawning production now; where it was All Hands On Deck for spawning as the MD Wind Energy Area recolonized. Hopefully the African Queen Reef will follow suite as it seems the Navy is not returning with the Sheila Bordelon this year.. (Knocking wood..)

An amazing tool. Incredibly powerful. Management can FORCE sea bass to spawn young.

But because to do so requires LOWERING our size limit to match the commercial limit of 11 inches, getting NOAA et al to even consider it has been impossible.

After all, they have to keep a sharp eye out for Overfishing. Maybe this year's catch estimates will show kayaks outfishing all commercial trawl.

In an estimate system where shore fishers commonly have the largest average sized sea bass catches, any illusion of catch is quickly assigned the title, "Science."

Would that population biology & ecology might take catch estimate's place....

Regards,  
Monty

Here from Fish Report 6/22/18 — So my theory on "size limit's influence on age at maturity in sea bass" will be nigh impossible. Where my other assertions are well supported in science except my beef with catch estimates.. My argument to compare Private Boat against the more well-known & measured Party/Charter landings hasn't gained an inch. I can get 100 regulators laughing out load by comparing Private Boat's insane estimates against Party/Charter, but they'll take not not one step toward using such comparison to truth the data. MRIP estimates are, after all, supported by brilliant statisticians **who do not fish**, yet the numbers are implausible beyond belief----and about to become many times worse under NOAA's impending "Recalibration." Bayesian Stops are REQUIRED. Currently an estimate stating Shore Fishers from one state, in one two month period, catching more fish than ALL COMMERCIAL EFFORT causes no discomfort to regulators. I've detailed many such exaggerated claims over the years.. So far as NOAA's concerned, there is no height recreational fishers cannot achieve where over-harvest of quota is concerned.

My thoughts on sea bass spawning production, however, cut against all teachings in fisheries science.

Where today science holds "big old fecund females," or "BOFF" as the best way to bolster egg production and therefore a population's spawning production is increased, my experience with sea bass populations shows BOFF to be wholly ineffective.

In fact, I believe BOFF-type thinking has curtailed production so badly that DelMarVa's nearshore reef spawning production has been nearly lost.

Indeed, today's sea bass population is mostly comprised of large females--larger than scientists once believed even existed prior to 2000--yet spawning production is minimized despite the greatest female population of sea bass since fishing began.

For years & years I've been trying to convince management of size limit's affect on black sea bass production: how ALL sea bass found at sea prior to 2002 were once spawners, but when the size limit increased to 12 inches their age at maturity--(or ability to participate)--shifted from age zero/age one to age three or better.

This spawning participation is, I believe, evidenced by the blue hump on a male sea bass; the nuchal hump. We call them knotheads..

When I was told in 1992 that: "All sea bass have spawned by 9 inches (age 1) and some twice," it was a true statement. Since 2002 it has been false. Except in one instance..

It's not crowding. Sea bass were astoundingly crowded in the late 1990s/early 2000s, but they still matured young as, so far as we knew then, they always had.

When a lot of age 3 fish started populating reefs however, younger fish ceased showing the nuchal hump -- almost completely. When the size limit was 11 inches and smaller, all the sea bass we threw back were spawners. Some for *another* year too.

When the size limit went to 12 inches (and then 12.5) almost none of our throwbacks were spawners. They grow 3 inches that 3rd summer. A 12 inch male thrown back in May will be legal come mid-June.

Seeing larger fish around a reef stops the biological urge to spawn at age one dead in its tracks.

Inshore grounds where fishing pressure is heaviest continue their downward sea bass population spiral, except on new reef. The greater fishing pressure is, the greater size limit impacts production. Used to be our heavily pressured inshore reefs contributed importantly to spawning production -- more so, I believe, than even distant & lightly fished reefs populated by jumbos. Pre-2002 size limits 11 inches & below forced ALL sea bass into the spawning population. Now we take sea bass JUST as they begin spawning.

Timing is everything.. Just as cbass are joining the spawning stock today--just as they are about to have their first spawn -- they also become legal.

Spawning population ain't much good in a fry pan.

Interesting..

Experiments with sea bass aquaculture

from: [http://www.unh.edu/news/news\\_releases/2006/april/kw\\_060411bass.html](http://www.unh.edu/news/news_releases/2006/april/kw_060411bass.html)

***Berlinsky's team found that females were more likely to change sex when no males were present in the tank. Additionally, the fish were more likely to turn into males when kept in crowded tanks.***

Did I mention they change sex? This a development that assures reproductive success on even far-flung isolated reef communities. It's at the core of my argument.

I believe we can purposely trigger age one fish to become males and start spawning simply by lowering the size limit a bit.

Well, we've recently completed an (unplanned!) experiment on this idea of shifting age at maturity.

In the spring of 2016 we had our worst 'spring run' of sea bass ever.

Ever.

We also had the utter evacuation of at least 500 square miles of seabed -- sea bass & flounder had completely left the area affected by sub-bottom profiler surveys in the MD Wind Energy Area by the summer of 2015. (see a video I had made in Jan 2016 with video from 2004 & the last day of August, 2015 <https://www.youtube.com/watch?v=46ahNqo8geE> )

After the surveys ceased in late summer 2015, recolonization for spawning's purpose began in 2016. I predicted a return to sub-9 inch male spawning colors owing there were no males staking their claim to prime habitats.

I also predicted an increase in spawning production.

It wasn't just the wind area. Though especially there, we also saw small males on many reefs/wrecks outside 15 fathoms owing, I believe, to suitable habitat unoccupied by age 3 or better males.

This recent spawning population of age 1 & age 2 sea bass propelled us to today's better fishing.

2016's enlivened spawning production became 'age one' on January 1st, 2017. They were fully in the spawning class that summer. We had the most 'knothead' sea bass off here in a very long time.



In 2015 I was still writing how we'd only see less than a dozen under-9 inch male sea bass a year - hadn't since 2002. In 2016 it was fairly commonplace to see small males again offshore a bit in some areas. Small, age one males were a frequent occurrence in 20 fathoms, some places 15 fathoms too. Perhaps the greatest reason this is so important is because every teeny, tiny bit of anything sticking above the seabed is colonized by some little guy and his girls. Increasing the percentage of the population in the spawning class makes for great reproduction.

Now age 2, they're making for a lot of throwback action. Soon the fastest growers will be legal.

**Age 1 - 112.92g** - 0.25 lbs - 5.5 to 9.1 inches.

**Age 2 - 243.19g** - 0.54 lbs - 8.7 to 12.2 inches. (our size limit 12.5 inches)

**Age 3 - 395.48g** - 0.871 lbs - 10.6 to 16.1 inches.

**Age 4 - 604.69g** - 1.33 lbs - 13.4 to 20.5 inches.

**Age 5 - 861.95g** - 1.90 lbs - 16.5 to 22.0 inches.

They can live to 12, perhaps older, but growth slows as it must..

In 2018 we are NOT seeing under 9 inch males -- just age 2 and above.

Those surveys about drove me mad. Guvmint said of survey noise: "They're as quiet as a ships propeller" ..couldn't do a thing to reef fish.

But fish fled the noise - left entirely after a couple years.

As in so many things in nature: From Catastrophe, Abundance.

If I cannot get science to pay attention this time, there may never be another.

We'll be drawn into MRIP's trap soon. Always able to find "overfishing" - MRIP even has 2016's MD Shore anglers loading up on 1.3 pound AVERAGE SIZED sea bass, and far more than Party/Charter caught that same year. We'll have a 15 inch size limit and some short season like up north -- all to "Prevent Overfishing."

A fishery that survived true overfishing's darkest days of even distant water fleets of factory trawl pummeling US fish populations; our recreational sea bass fishery may not survive management's ignorance.

Would that it might.

I absolutely believe a full suite of management options, including Ecology & Population Biology, can send sea bass populations above even those that must have existed during industrial fishing's earliest days.

It'll never happen so long as managers find regulatory comfort in recreational catch data that couldn't possibly be true.

Regards,  
Monty

Capt. Monty Hawkins  
Partyboat Morning Star  
Ocean City, MD  
[mhawkins@morningstarfishing.com](mailto:mhawkins@morningstarfishing.com)

Sent from my iPhone

## Kiley Dancy

---

**From:** Monty Hawkins <capt.montyhawkins@gmail.com>  
**Sent:** Monday, July 9, 2018 4:00 PM  
**To:** Luisi, Michael; Angel Willey -Dnr-; Hare, Jon; john.manderson@noaa.gov; Odell, Jay; peter.auster@uconn.edu; Kelly, Moira; Moore, Christopher; Coakley, Jessica; Beaty, Julia; Didden, Jason; Kiley Dancy; Steve Doctor -Dnr-  
**Subject:** Re: Prepare..

And, for anyone VAUGLY aware of the MD sea bass fishery - That MD Shore outcaught All MD Party/Charter in 2016 by 141,000 pounds might cause question.

Absolute BALONEY!

We've found One Guy who claims to have caught a keeper.. Yet MRIP claims Shore-Caught BSB AVERAGE 1.4 POUNDS!!!!!!

I can not believe this horrible infection in fisheries science has been allowed to fester to where it will kill the patient.

You're soooo much further from the truth than you were last night.

I hope my business survives this idiocy.

Regards

Monty

Sent from my iPhone

> On Jul 9, 2018, at 3:28 PM, Monty Hawkins <capt.montyhawkins@gmail.com> wrote:

>

> So now we have "recalibration" I hear.

> And do.

> One would think a 'calibration' might be accomplished with a known value & a recalibration undertaken as the known value became firmer.

> Instead - the dumbest statistical garbage ever Fed a system of regulation will have now become far worse than ever before.

> Unbelievable..

> Absolutely unbelievable.

> Yes - You will be FORCED to ingest NY wave 6 Party/Charter bsb 2016 and 17 as approx 30k lbs of landings — but the ghost fleet of Private Boats NY PROFESSIONAL SKIPPERS NEVER SEE caught over THREE MILLION!!

> What a complete failing.

> Unbelievable..

> This deserves to be made a fool.

> And shall.

> Regards,

> Monty

>

> Sent from my iPhone



**Mid-Atlantic Fishery Management Council**  
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Phone: 302-674-2331 | FAX: 302-674-5399 | [www.mafmc.org](http://www.mafmc.org)  
Michael P. Luisi, Chairman | G. Warren Elliott, Vice Chairman  
Christopher M. Moore, Ph.D., Executive Director

## MEMORANDUM

**Date:** August 2, 2018  
**To:** Council  
**From:** Brandon Muffley, Staff  
**Subject:** 2019 Wave 1 Recreational Black Sea Bass Fishery and Future Direction of a Wave 1 Fishery

### **Introduction:**

In 2017, the Council and the Atlantic States Marine Fisheries Commission's Summer Flounder, Scup and Black Sea Bass Management Board (Board) recommended opening the 2018 wave 1 fishery to all anglers through the regular specification process with the following management measures: a season of February 1 – 28, a 15 fish possession limit and a 12.5 inch minimum size. At the time, these measures were recommended only for 2018 while the details of the Letter of Authorization (LOA) program were developed and considered by the Council and Board for potential implementation in 2019.

At their February 2018 meeting, the Council discussed the future direction and implementation of the recreational wave 1 (January-February) black sea bass fishery in 2019 and beyond. Topics discussed by the Council included the reasons for low participation in the 2018 fishery, the benefits and trade-offs between opening the wave 1 fishery through specifications or an LOA program and the anticipated timeframe needed to implement an LOA program given the potential complexity and administrative demands<sup>1</sup>. After a lengthy discussion, the Council passed the following motion:

*Move to 1) refer the black sea bass 2020 Wave 1 LOA implementation provisions to Committee; 2) provide for a 2019 Wave 1 fishery under the specifications as implemented in 2018; and 3) prioritize Council staff time to work with the ASMFC on Addendum XXX provisions ahead of the Wave 1 LOA framework. Motion passes unanimously.*

This memo provides a review of the February 2018 recreational black sea bass fishery and a comparison to the 2013 wave 1 fishery. It also provides an overview of a possible 2019 wave 1 fishery and the future direction of the wave 1 fishery. This information is provided to help the Council and Board in their deliberations regarding the potential opening of the fishery in 2019 and

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<sup>1</sup> For more information, see staff memo from February 2018 Council meeting at: [https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/5a74867053450a6bc94f5b04/1517586033652/TAB03\\_BSB-2018-Rec-Measures-Feb2018.pdf](https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/5a74867053450a6bc94f5b04/1517586033652/TAB03_BSB-2018-Rec-Measures-Feb2018.pdf).

generate feedback to determine the future direction of the recreational wave 1 black sea bass fishery and implementation of an LOA program.

**Review of February 2018 fishery:**

In addition to the management measures described above, the Council and Board also implemented a specific allocation of 100,000 pounds to this fishery and stipulated that adjustments to management measures in the rest of the recreational season were only required by those states that participated in the February fishery. The Council and Board further stipulated that the 100,000 pounds would be allocated to the states based on their historical (1996-2010 and 2013) proportion of wave 1 black sea bass catch (Table 1). Those states that participated in the February fishery would then make adjustments to their management measures for the rest of the year based on their specified allocation. Of the nine states eligible to participate in the fishery, only the states of Virginia and North Carolina declared their interest and participated in the fishery. In addition to the required management adjustments, Virginia and North Carolina also implemented a variety of monitoring programs, reporting requirements and conducted biological sampling from vessels participating in the fishery.

**Table 1.** Proportion of recreational wave 1 total black sea bass catch by state from 1996 – 2010 and 2013 and the associated state allocation of the 100,000 pounds allocated to the February 2018 fishery.

State	Proportion of Catch	Allocation of Wave 1 100,000 lb
RI	0.29%	288
CT	0.06%	57
NY	9.41%	9,410
NJ	82.85%	82,850
DE	1.30%	1,297
MD	0.54%	541
VA	5.50%	5,496
NC	0.06%	62
TOTAL	100%	100,000

Updated harvest estimates from the two states indicate between 6,015 and 6,902 pounds of black sea bass were harvested in Virginia, and zero pounds harvested in North Carolina. The range in the Virginia total harvest is due to the limited number of individual weight samples collected; therefore, different data sources were used by Virginia to develop two different average mean weight estimates to apply to the total number of black sea bass harvested. In North Carolina, there were only two known directed trips and MRIP staff reported zero intercepts with black sea bass harvest north of Hatteras. As a result of the Board’s approval of Addendum XXX, which established regional allocations of the 2018 recreational harvest limit based on exploitable biomass and harvest history, the Southern Region allocation (Delaware-North Carolina) was greater than the projected 2018 harvest for the region, even with the inclusion of the 2018 February harvest. Therefore, Virginia and North Carolina did not need to make any adjustments to the rest of their recreational black sea bass season.

### *Comparison of the February 2018 and the 2013 wave 1 information*

The 100,000 pounds allocated to the 2018 February fishery was based on the projected February harvest using data from federal for-hire Vessel Trip Reports (VTR) from 2013 and MRIP harvest estimates by mode. The 2013 VTR data was used to calculate the projected wave 1 harvest by the for-hire sector. MRIP data by mode in waves 2 and 6 over the last 10 years were used to scale the for-hire harvest estimates to the private/rental and shore mode sectors since no information on those sectors is available during wave 1. Based on this analysis, the projected February 2018 harvest assumed 50% of the harvest from party/charter vessels and 50% from private/rental and shore mode.

Since the data used in the original analysis was from the 2013 wave 1 fishery and given concerns raised by Council/Board members about some of the assumptions used in the analysis, a comparison between the 2013 data and the information collected by Virginia from the 2018 fishery was conducted. Information was obtained from submitted federal for-hire VTR reports and from trip reports provided by the Virginia Marine Resources Commission (VMRC) through their reporting system and is summarized in Table 2. There were a total of 62 individual trips taken during the February fishery with 71% of the trips taken by private vessels. Each trip report provided the total number of black sea bass harvested; however, 39% of the reports did not provide the total number of anglers or the total number of black sea bass discarded on the trip. Therefore, total participation and total black sea bass catch could not be determined.

Based on the participation information available, anglers' fishing from for-hire vessels made up the majority (67%) of the total participation. The average number of anglers on a private vessel was three and the average number of anglers on a for-hire vessel was 33. A similar ratio was observed when comparing total black sea bass harvest by sector with for-hire vessels accounting for 64% of the total harvest and private vessels accounting for 36%. In addition, for those trips in which the number of anglers, total harvest and discards was provided, when comparing average catch per angler between the two sectors revealed higher catch rates on for-hire vessels. The average catch per angler on a for-hire vessel was 12.6 black sea bass compared to 10.0 black sea bass caught per angler on private vessels.

When comparing these results to the 2013 wave 1 fishery, the 2018 fishery had a lower average catch per angler (10.4 versus 15.5) and discards comprised a greater portion of the overall catch (24.2% versus 13.7%). These differences are likely driven by the differences in magnitude and spatial distribution between the 2011 and 2015 year classes. However, similar to the results of the 2013 wave 1 fishery, the 2018 fishery does highlight the differences in the wave 1 fishery versus the recreational fishery at other times of the year. As in 2013, the 2018 fishery catch per angler is much higher than it is at other times of the year and has a significantly lower discard ratio.

**Table 2.** Summary of the Virginia February 2018 recreational black sea bass fishery catch and participation information by sector. Information is based on federal for-hire VTR reports and the Virginia reporting system. Not all trip reports provided all catch and participation information and the \* denotes those variables where information is not complete and not representative of all trips taken during the fishery.

Sector	# of Trips	Total Anglers*	Harvest (# of fish)	Discards* (# of fish)	Total Catch* (# of fish)
For-Hire	17	199	1,996	675	2,671
Private	44	96	1,140	334	1,474
Unknown	1		30		30
Total	62	295	3,166	1,009	4,175

**2019 Wave 1 Fishery:**

The SSC did not change its previous 2019 ABC recommendation of 7.97 million pounds at their July 2018 meeting. The 2019 ABC is approximately 11% lower than the 2018 ABC of 8.94 million pounds. Projections from the 2016 benchmark stock assessment for black sea bass serve as the basis for setting catch and landing limits. The declining ABC from the projections is largely due to the extremely robust 2011 year class beginning to decline in abundance and exit the fishery. The Monitoring Committee then followed their current process for allocating the ABC between landings and discards and between the commercial and recreational sectors. They also set each sector’s ACT equal to the ACL<sup>2</sup>. This results in a 2019 RHL of 3.08 million pounds which is approximately 580,000 pounds lower than the 2018 RHL of 3.66 million pounds, or 16% lower. Depending upon the timing of the black sea bass operational assessment update scheduled for sometime in early 2019, the 2019 specifications and RHL may be adjusted.

Although the analysis of the 2018 wave 1 fishery is limited to one state, the information indicates the 2018 fishery performed similar to the 2013 fishery and the assumptions used in the projections for the 2018 fishery generally held true. The data also indicates that catch and harvest rates remain high compared to other times of the year. In addition, information from the 2018 fishery (i.e. higher discard rate) and from the 2018 NEFSC data update<sup>3</sup> indicate the 2015 year class is likely to be above average. This year class will be available to the wave 1 fishery in both the South and North sub-units and, therefore, it is anticipated that high catch and harvest rates would continue in 2019.

At the joint August 2018 meeting, the Council and Board will need to consider and decide on whether to open the 2019 wave 1 fishery through specifications. Due to the Council’s decision to delay consideration of an LOA program until 2020, the LOA program is not an option for consideration to open the fishery in 2019. Therefore, opening the wave 1 fishery in 2019 can only

<sup>2</sup> For more information on the Monitoring Committee recommendations, please see the July 19, 2018 Monitoring Committee meeting summary at: <http://www.mafmc.org/briefing/august-2018>.

<sup>3</sup> Black Sea Bass 2017 Catch and Survey Information for Stock North of Cape Hatteras, NC - Report to the Mid-Atlantic Science and Statistical Committee. Available at: <http://www.mafmc.org/ssc-meetings/2018/july-17-18>

be accomplished through specifications. As mentioned previously, the Council approved a motion to consider opening the 2019 wave 1 fishery as implemented in 2018. This would include the same size, season and possession limits as implemented in 2018 as well as the allocation of 100,000 pounds to wave 1 and then allocated to each state based on historical catch with only those states participating responsible to make management adjustments to the rest of their recreational fishery.

### **Future direction of a wave 1 fishery:**

Throughout 2017, the Council and Board discussed a variety of different options to open a black sea bass wave 1 fishery. In 2018, and possibly for 2019, the wave fishery will open through the regular specifications process. Beyond 2019, the Council and Board need to determine the most appropriate process to open the wave 1 fishery. The Council and Board should consider the overall goals of a wave 1 fishery and the benefits and trade-offs of opening the wave fishery through specification or through the continued development of an LOA program. In addition, under either option, concerns raised by the states for not participating in the 2018 fishery (i.e. allocation, equity, accountability and implications, and overall perceived benefits) would remain simply because implementing a wave 1 fishery requires accountability of the harvest and the trade-offs associated with that harvest.

The Council and Board can continue to open the wave 1 fishery through the regular specifications process utilizing the same general management framework as implemented in 2018 and being considered for 2019. This process is relatively straightforward and would require the least amount of fiscal and staff resources. In addition, states could develop voluntary monitoring and sampling approaches as part of the specification process, similar to those implemented by VA and NC in 2018, in an effort to collect some limited participation, effort, catch and biological information that is currently unavailable.

In previous discussions about a wave 1 fishery, the Council and Board have expressed an interest in developing a comprehensive monitoring and data collection program in order to account for and better understand the implications of a wave 1 fishery. After speaking with GARFO, if this is still the goal of a wave 1 fishery then the continued development and implementation of an LOA program would be necessary to open the wave 1 fishery in the future. While the LOA program currently being considered offers a number of potential benefits such as increased data collection and greater accountability, there will also likely be a significant administrative cost in implementing and monitoring an LOA program. This increased cost includes greater staff and resources, particularly within GARFO, and increased time and effort within the states and recreational community to participate.

Given the concerns raised and associated trade-offs with the different options to open the wave 1 fishery, the Council and Board need to determine what the goals are of a wave 1 fishery and then decide what is the most appropriate approach to open the fishery and achieve those goals. A program that is relatively straightforward, minimizes administrative demands but is limited in monitoring and oversight could be accomplished through the existing specification process. A program that would increase accounting and monitoring capabilities but increases the complexity and administrative costs could be implemented through the LOA program. Concerns were raised at the February meeting regarding the complexity and regulatory requirements the Council was considering with the LOA program. If the Council and Board want to continue with the

development of the LOA program, staff recommend working with GARFO and the Demersal Committee to develop a program with the minimum number of requirements needed to open the fishery with an LOA, even if that requires removing some of the alternatives initially considered. At this meeting, the Council and Board need to provide a clear and committed process to the future implementation of the wave 1 fishery in order to appropriately allocate future meeting and staff resources in order to address this action and other black sea bass priorities.





**Mid-Atlantic Fishery Management Council**  
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Michael P. Luisi, Chairman | G. Warren Elliott, Vice Chairman  
Christopher M. Moore, Ph.D., Executive Director

## MEMORANDUM

**Date:** August 2, 2018  
**To:** Council  
**From:** Kiley Dancy, Staff  
**Subject:** Summer Flounder Specifications for 2019

The Council and Board will consider 2019 specifications for summer flounder on Wednesday, August 15. Materials listed below are provided for the Council and Board's consideration of this agenda item.

Please note that some materials are behind other tabs.

- 1) Monitoring Committee recommendation summary (*behind Tab 7*)
- 2) July 2017 Scientific and Statistical Committee meeting report (*behind Tab 16*)
- 3) Staff memo on 2019 summer flounder specifications dated June 29, 2018
- 4) Summer Flounder Data Update for 2018
- 5) June 2018 Advisory Panel Fishery Performance Report (*behind Tab 7*)
- 6) Additional written comments from advisors received through August 1, 2018 on summer flounder, scup, and black sea bass (*behind Tab 7*)
- 7) Additional public comments received on summer flounder as of August 1, 2018
- 8) 2018 Summer Flounder Fishery Information Document



## Mid-Atlantic Fishery Management Council

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Michael P. Luisi, Chairman | G. Warren Elliott, Vice Chairman  
Christopher M. Moore, Ph.D., Executive Director

# MEMORANDUM

**DATE:** June 29, 2018

**TO:** Chris Moore, Executive Director

**FROM:** Kiley Dancy, Staff

**SUBJECT:** Summer Flounder Specifications for 2019

### Executive Summary

In 2016, two-year specifications were implemented for summer flounder for 2017-2018. No specifications have yet been recommended or implemented for the 2019 fishing year. A benchmark stock assessment for summer flounder is scheduled to undergo peer review in November 2018, with results expected to be available in early 2019. Interim 2019 specifications are needed for implementation by January 1, 2019. Revisions based on the new stock assessment would likely be implemented in spring 2019.

The most recent stock assessment update was completed in July 2016. This update indicated that the summer flounder stock was not overfished, but overfishing was occurring in 2015. Spawning stock biomass (SSB) was estimated to be 79.90 million lb (36,240 mt) in 2015, 58% of SSB at maximum sustainable yield,  $SSB_{MSY} = 137.56$  million lb (62,394 mt). The fishing mortality rate (F) in 2015 was 0.390, 26% above the fishing mortality threshold reference point  $F_{MSYPROXY} = F_{35\%} = 0.309$ .

The Northeast Fisheries Science Center (NEFSC) provided a data update for 2018, with catch, landings, and fishery independent survey indices through 2017. In addition, this data update provides projections of stock biomass for 2019. The projections use the 2016 stock assessment update model run, updated to reflect realized catch from 2016 and 2017 and the assumption that the 2018 Acceptable Biological Catch (ABC) will be caught. Staff recommend using these projections to set a preliminary 2019 ABC for summer flounder, for revision later in 2019 based on the forthcoming benchmark assessment.

The Monitoring Committee will review recent fishery performance and recommend to the Council and Board commercial and recreational Annual Catch Limits (ACLs) and Annual Catch Targets (ACTs) for 2019 as well as any modifications to the commercial management measures for 2019.

The currently implemented 2018 catch and landings limits, and the staff recommendation for 2019 limits, are shown in Table 1. The methods used to derive these measures are described in more detail later in this memo.

**Table 1:** Currently implemented catch and landings limits for summer flounder for 2018, and staff recommended measures for 2019.

Management Measure	2018		Basis	2019 (Staff Rec.)		Basis
	mil lb.	mt		mil lb.	mt	
<b>OFL</b>	18.69	8,476	2016 stock assessment update projections	20.60	9,343	Updated stock projections for 2019 based on the 2016 assessment update
<b>ABC</b>	13.23	5,999	Stock assessment projections/SSC recommendation	15.41	6,988	Revised 2019 projections/Council Risk Policy application
ABC Landings Portion	11.05	5,010	Stock assessment projections	12.86	5,834	Stock assessment projections
ABC Discards Portion	2.18	989	Stock assessment projections	2.54	1,154	Stock assessment projections
Projected Commercial Discards	1.07	485	49% of ABC discards portion, based on 2013-2015 average % discards by sector	1.47	666	58% of ABC discards portion, based on 2015-2017 average % discards by sector
Projected Recreational Discards	1.11	504	51% of ABC discards portion, based on 2013-2015 average % discards by sector	1.08	488	42% of ABC discards portion, based on 2015-2017 average % discards by sector
<b>Commercial ACL</b>	7.70	3,491	60% of ABC landings portion (per FMP allocation) + projected commercial discards	9.18	4,166	60% of ABC landings portion (FMP allocation) + projected commercial discards
Commercial ACT	7.70	3,491	Monitoring Committee recommendation: no deduction from ACL for management uncertainty	9.18	4,166	Staff recommendation: no deduction from ACL for management uncertainty
<b>Commercial Quota</b>	6.63	3,006	Commercial ACT, less projected commercial discards	7.72	3,500	Commercial ACT, less projected commercial discards
<b>Recreational ACL</b>	5.53	2,508	40% of ABC landings portion (per FMP allocation) + projected recreational discards	6.22	2,822	40% of ABC landings portion (FMP allocation) + projected recreational discards
Recreational ACT	5.53	2,508	Monitoring Committee recommendation; no deduction from ACL for management uncertainty	6.22	2,822	Staff recommendation: no deduction from ACL for management uncertainty
<b>Recreational Harvest Limit</b>	4.42	2,004	Recreational ACT, less projected recreational discards	5.15	2,334	Recreational ACT, less projected recreational discards

As described below, staff recommend that ACTs for the commercial and recreational fisheries be set equal to their respective ACL. Staff also recommend no changes to the commercial minimum size, mesh requirements, or exemption programs for summer flounder in 2019.

## **Introduction**

The Magnuson-Stevens Act (MSA) requires each Council's Scientific and Statistical Committee (SSC) to provide ongoing scientific advice for fishery management decisions, including recommendations for ABC, preventing overfishing, and achieving maximum sustainable yield. The Council's catch limit recommendations for the upcoming fishing year(s) cannot exceed the ABC recommendation of the SSC. In addition, the Monitoring Committee established by the Fishery Management Plan (FMP) is responsible for developing recommendations for management measures designed to achieve the recommended catch limits. The SSC is responsible for recommending ABCs that address scientific uncertainty, while the Monitoring Committee recommends ACTs that address management uncertainty and management measures to constrain landings to the ACTs.

In 2015, the SSC recommended 2016-2018 specifications based on a phased-in reduction approach taken at the request of the Council. In 2016, the SSC revised their previously recommended 2017-2018 ABCs after reviewing the results of the 2016 stock assessment update (see "Review of Prior SSC Recommendations" below). The revised 2017-2018 measures were implemented by NMFS in December 2016. In 2017, the SSC reviewed and maintained their previous recommendations for the 2018 fishing year (ABC = 13.24 million lb or 5,999 mt)

No specifications are currently in place for the 2019 fishing year. A benchmark stock assessment is currently in development and is scheduled for peer review at the 66<sup>th</sup> Stock Assessment Review Committee (SARC 66) in November 2018.<sup>1</sup> Because specifications for summer flounder must be implemented by January 1, 2019, the assessment results will not be available with enough time to incorporate into the initial 2019 ABC recommendations. Thus, interim specifications are required for the first part of 2019, which will then be revised after the final benchmark stock assessment results are available for review.

The SSC is asked to develop 2019 ABC recommendations, and the Monitoring Committee will need to develop 2019 ACL and ACT recommendations. Based on these recommendations, the Council will make a recommendation to the NMFS Greater Atlantic Regional Administrator. Because the FMP is cooperatively managed with the Atlantic States Marine Fisheries Commission, the Commission's Summer Flounder, Scup, and Black Sea Bass Board will meet jointly with the Council in August 2018 to recommend summer flounder management measures. In this memorandum, information is presented to assist the SSC and Monitoring Committee in developing recommendations for the Council and Board to consider for the 2019 fishing year for summer flounder.

Additional relevant information about the fishery and past management measures is presented in the Fishery Performance Report for summer flounder developed by the Council and Commission Advisory Panels, as well as in the corresponding Summer Flounder Fishery Information Document prepared by Council staff.<sup>2</sup>

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<sup>1</sup> See <https://www.nefsc.noaa.gov/saw/> for more information.

<sup>2</sup> Available at: <http://www.mafmc.org/council-events/2018/july-2018-ssc-meeting>.

## **Recent Catch and Landings**

Reported 2017 landings in the commercial fishery were approximately 5.83 million lb (2,644 mt), about 3% over the commercial quota of 5.66 million lb (2,567 mt). The 2017 commercial ACL (6.57 million pounds or 2,982 mt) was exceeded by 17%, with 2017 commercial catch estimated at 7.71 million pounds (3,498 mt) according to the 2018 data update.

Recreational harvest in 2017 was 3.19 million (1,447 mt), about 85% of the recreational harvest limit (3.77 million lb or 1,711 mt). Recreational catch (harvest plus dead discards) in 2017 was estimated at 4.13 million pounds (1,873 mt), about 87% of the recreational ACL (4.72 million pounds = 2,143 mt).

Total fishery dead catch in 2017 was estimated at 11.84 million pounds (5,371 mt) according to the 2018 data update, about 5% above the 2017 ABC of 11.30 million pounds (5,125 mt).

The 2018 commercial landings as of the week ending June 23, 2018, indicate that 58% of the 2018 coastwide commercial quota has been landed (Table 2). Last year, 62% of the 2017 commercial quota had been landed as of June 24. No recreational data are available yet for summer flounder for 2018.

**Table 2:** The 2018 state-by-state commercial quotas and the amount of summer flounder landed by commercial fishermen, in each state as of week ending June 23, 2018.

<b>State</b>	<b>Cumulative Landings (lb)</b>	<b>Quota (lb)<sup>a</sup></b>	<b>Percent of Quota (%)</b>
ME	0	3,061	0
NH	0	30	0
MA	123,616	410,192	30
RI	623,925	1,001,381	62
CT	72,154	145,268	50
NY	246,436	492,169	50
NJ	529,906	1,076,440	49
DE	0	0	0
MD	20,168	131,239	15
VA	783,257	1,371,972	57
NC	1,310,224	1,755,989	75
Other	0	0	0
<b>Totals</b>	<b>3,709,686</b>	<b>6,387,741</b>	<b>58</b>

<sup>a</sup> Quotas adjusted for overages. Source: NMFS Weekly Quota Report for week ending June 23, 2018.

## **Stock Status and Biological Reference Points**

The last peer-reviewed benchmark stock assessment was conducted in the summer of 2013 at the 57<sup>th</sup> Stock Assessment Workshop/Stock Assessment Review Committee (SAW/SARC 57).<sup>3</sup> The SAW/SARC 57 biological reference points include a fishing mortality threshold of  $F_{MSY} = F_{35\%}$  (as the  $F_{MSY}$  proxy) = 0.309, and a biomass reference point of  $SSB_{MSY} = SSB_{35\%}$  (as the  $SSB_{MSY}$  proxy) = 137.56 million lb = 62,394 mt. The minimum stock size threshold ( $1/2 SSB_{MSY}$ ), is 68.78 million lb (31,197 mt).

<sup>3</sup> Northeast Fisheries Science Center. 2013. 57th Northeast Regional Stock Assessment Workshop (57th SAW) Assessment Summary Report. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 13-14; 39 p.

The most recent stock assessment update was completed in July 2016, using data through 2015.<sup>4</sup> This assessment update uses the model from the 2013 benchmark stock assessment, which is a combined-sex age-structured ASAP assessment model.

Results from the 2016 assessment update indicate that the summer flounder stock was not overfished, but overfishing was occurring in 2015 relative to the biological reference points from the 2013 benchmark assessment. Fishing mortality on the fully selected age 4 fish ranged between 0.799 and 1.775 during 1982-1996 and then decreased from 0.871 in 1997 to 0.288 in 2007. Since 2007 the fishing mortality rate has increased and was 0.390 in 2015, 26% above the fishing mortality reference point ( $F_{MSY}$  proxy =  $F_{35\%}$  = 0.309). The 90% confidence interval for F in 2015 was 0.292 to 0.490.

SSB was estimated to be 79.90 million lb (36,240 mt) in 2015, about 58% of the biomass target ( $SSB_{MSY}$  = 137.6 million lb, 62,394 mt), and 16% above the biomass threshold ( $\frac{1}{2} SSB_{MSY}$  proxy =  $\frac{1}{2} SSB_{35\%}$  = 68.78 million lb, 31,197 mt). A rebuilding plan will be triggered if estimated biomass falls below the minimum biomass threshold. Figures showing the trends in F and SSB over time are provided in the 2017 Summer Flounder Fishery Information Document.

The 2016 assessment update indicated that while catches in recent years have not been substantially over the ABCs, the projected fishing mortality rates have been exceeded and projected SSB has not been achieved. This update showed a moderate internal model retrospective pattern with continued recent underestimation of F and overestimation of SSB. A historical retrospective analysis, comparing model estimates from the 1990-2015 assessments, likewise indicates the same trend since the 2011 assessment update. These results appear to be largely driven by below average recruitment from 2010-2015. The assessment continues to show a consistent recent retrospective pattern in recruitment averaging +22%. The update shows that recruitment of age 0 fish was below the time series average (41 million fish at age 0; 1982-2015) each year from 2010 through 2015. Recruitment of age 0 fish in 2015 was estimated at 23 million fish.

In June 2018, the Council received a data update for summer flounder<sup>5</sup>, including updated catch and landings information as well as survey indices through 2017 (through spring 2018 for NESFC indices). The data update indicates that most state and federal survey indices of abundance, with the exception of Massachusetts and Delaware, have seen declines from their most recent peaks (generally during 2009-2012) through 2017, although most indices are variable in recent years, and some have shown signs of slight to moderate rebounding. The NEFSC fall survey was unable to sample the summer flounder strata in fall 2017, however the NEFSC spring survey biomass index increased between 2017 and 2018. The Delaware index peaked in 2017. Indices of recruitment (age 0 fish) have generally been below average over the last 6-7 years. Recruitment indices in 2017 were highly variable.

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<sup>4</sup> Northeast Fisheries Science Center. 2015. Stock Assessment Update of Summer Flounder for 2015. US Dept Commer, Northeast Fish Sci Cent; 17 p.

<sup>5</sup> Posted at [http://www.mafmc.org/s/Summer\\_flounder\\_2018\\_Data\\_Projection\\_Update.pdf](http://www.mafmc.org/s/Summer_flounder_2018_Data_Projection_Update.pdf).

## **Review of Prior SSC Recommendations**

In July 2016, the SSC recommended, and the Council and Board adopted, revised two-year ABCs for summer flounder for 2017-2018, based on new stock status information and projections from the 2016 assessment update.<sup>6</sup> In July 2017, the SSC reviewed the 2018 recommendation and recommended no changes.

The SSC classified the current assessment as an assessment requiring an “SSC-modified OFL (overfishing limit) probability distribution.” In this type of assessment, the SSC provides its own estimate of uncertainty in the distribution of the OFL. In 2016, the SSC concluded that no new information was presented that would cause the SSC to deviate from using the previously applied OFL CV of 60%.

Assuming an OFL with a lognormal distribution and a 60% CV, and a stock status lower than  $B_{MSY}$ , the 2018 OFL was determined to be 18.69 million lb (8,476 mt), based on an  $F_{MSY}$  proxy of  $F = 0.309$  ( $F_{35\%}$ ) and 2017 projected SSB. For 2018, this procedure resulted in a  $P^*=0.267$  and an ABC of 13.23 million lb (5,999 mt).

At their July 2016 meeting, the SSC considered the following to be the most significant sources of uncertainty associated with the determination of the OFL and/or ABC:

- Retrospective patterns were evident in the assessment update that have substantial implications for the reliability of model projections and inferences regarding the status of the stock. The causes of the retrospective pattern are unknown, but might include changes in the following:
  - 1) Sources of mortality that are not fully accounted in the assessment. These could include:
    - Under-estimation of discards in both the commercial and recreational fisheries and lower estimates of mortality rates applied to the discards than are actually occurring; and
    - Under-reported landings.
  - 2) Natural mortality, which may be underestimated – but the presence of older male flounder in the population suggest this is unlikely.
  - 3) Availability or catchability of fish due to changes in stock distribution.
- Changes in life history are apparent in the population.
- Potential changes in availability of fish to some surveys and to the fishery as a result of changes in the distribution of the population.

## **Staff Recommendation for 2019 ABC**

As described in the 2018 data update, projections using the existing 2016 updated assessment model were made to estimate the 2019 OFL and ABC. The projections use the realized catches for 2016 and 2017 and assume that 100% of the 2018 ABC (13.23 million lb = 5,999 mt) will be caught. The OFL

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<sup>6</sup> The previous 2016-2018 ABC specifications were recommended by the SSC in 2015 based on a three-year phased in reduction, at the request of the Council. This was a deviation from the Council’s risk policy that was intended to mitigate negative economic and social impacts of large cuts in the ABC. After reviewing the 2016 stock assessment update, the SSC concluded that the patterns in the survey and recruitment indices indicated a longer-term decline in stock performance and required additional caution compared to the phased-in approach adopted in 2015. Accordingly, the SSC recommended against continuation of the phased-in approach, and recommended revised ABCs for 2017 and 2018 based on a return to its standard approach for implementing the Council’s risk policy.

projection uses  $F_{2019}=F_{MSY} = 0.309$ . The total catch associated with the projected 2019 OFL is 20.60 million lb = 9,343 mt.

Based on these updated 2019 OFL projections, staff recommend a 2019 ABC of 15.41 million lb (6,988 mt). This is derived by applying the same application of the Council's risk policy that the SSC has used in recent years, including assuming an OFL with a lognormal distribution and a 60% CV, projected 2018 SSB at 75.6% of  $SSB_{MSY}$ , and a typical life history. This results in a 2019 ABC of 15.41 million pounds = 6,988 mt and a  $P^*$  of 0.300 (Table 3).

**Table 3: Staff recommendations based on 2019 stock biomass projections and application of the Council's risk policy.**

Year	OFL	ABC Total Catch	ABC % of OFL	Landings portion of ABC	Discards portion of ABC	F	$P^*$ Value	Projected SSB
2019	20.60 mil lb (9,343 mt)	15.41 mil lb (6,988 mt)	75%	12.86 mil lb (5,834 mt)	2.54 mil lb (1,154 mt)	0.225	0.300	117.28 mil lb (53,198 mt)

As discussed above, these specifications are intended to serve as initial 2019 specifications until they can be revised based on the results of the 2018 benchmark assessment scheduled for peer review in November 2018.

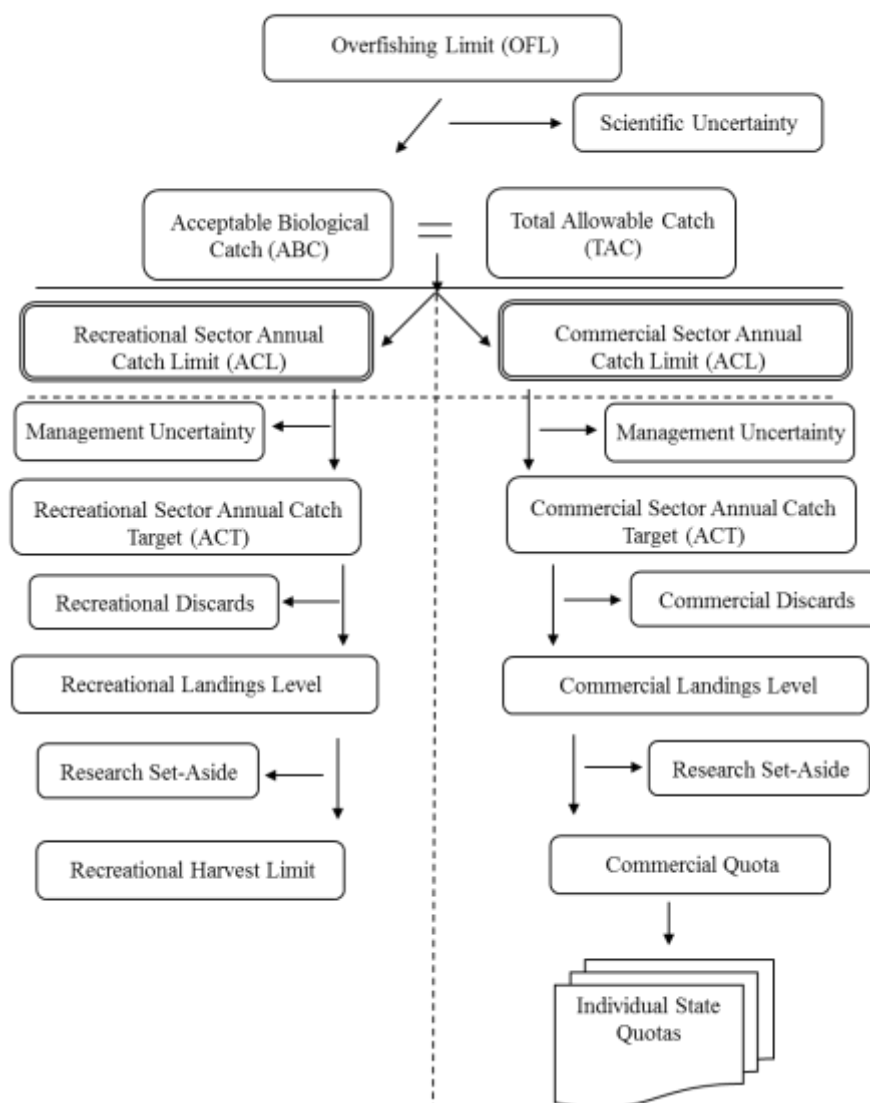
### **Sector-Specific Catch and Landings Limits**

#### ***Recreational and Commercial Annual Catch Limits***

The summer flounder ABC includes both landings and discards, and is equal to the sum of the commercial and recreational ACLs for summer flounder (Figure 1). Based on the allocation percentages in the FMP, 60% of the landings are allocated to the commercial fishery, and 40% to the recreational fishery. Discards are apportioned based on the discards contribution from each fishing sector using a 3-year moving average percentage. When 2017-2018 specifications were revised in 2016, the most recent three-year period was 2013-2015, during which 51% of dead discards were attributable to the recreational fishery, and 49% to the commercial fishery, on average (Table 1). According to the 2018 data update, the proportion of discards attributable to the commercial fishery increased in 2017, with approximately 58% of discards originating from the commercial fishery and 42% from the recreational fishery between 2015-2017. This is accounted for in the staff recommendation for 2019 ACLs and ACTs.



### Summer Flounder Flowchart



**Figure 1:** Flowchart for summer flounder catch and landings limits. Note: the research set-aside program was suspended in 2014.

#### ***Annual Catch Targets***

The Summer Flounder Monitoring Committee is responsible for recommending ACTs, which are intended to account for management uncertainty. The Monitoring Committee should consider all relevant sources of management uncertainty in the summer flounder fishery and provide the technical basis, including any formulaic control rules, for any reduction in catch when recommending an ACT.

Management uncertainty is comprised of two parts: uncertainty in the ability of managers to control catch and uncertainty in quantifying the true catch (i.e., estimation errors). Management uncertainty can occur because of a lack of sufficient information about the catch (e.g., due to late reporting, underreporting, and/or misreporting of landings or bycatch) or because of a lack of management precision (i.e., the ability to constrain catch to desired levels).

Recreational harvest fluctuated widely in relation to the recreational harvest limits (RHLs) for the past five years. Over the past five years (2013-2017), harvest varied substantially (Table 4), even with constant recreational measures between 2014-2016. This illustrates the substantial uncertainty around predicting recreational harvest, which results in occasionally large RHL underages and overages. Given recent substantial underages, staff believe a reduction in the recreational ACL to an ACT is not necessarily the appropriate management response. Instead, the Monitoring Committee should continue ongoing work to incorporate estimates of uncertainty in the recreational data and more fully consider various factors that may influence recreational catch and harvest. For example, the impacts of management changes on recreational discards and the impacts of year class size and trends in biomass projections should be more thoroughly considered with the goal of better predicting impacts of management measure changes. The Council and Board are currently considering both short-term and long-term modifications to the recreational management system to address some of these uncertainties in recreational management, and achieve a balance of flexibility and stability in the recreational measures. For example, the Council funded a proposal to evaluate moving to an F-based management system for the recreational summer flounder fishery. This type of management would fundamentally alter the approach to recreational management.

Recreational dead discards as a percentage of total catch has been stable in recent years, averaging 8% of total catch from 2013-2017. As a percentage of recreational catch, recreational dead discards have averaged 24% over the same time period.

Commercial landings have generally been very near the commercial quotas for the last five years (2013-2017). Although the commercial quota overages were higher than average in 2013 and 2014, landings have been closer to the commercial quota for the past two years (Table 4). The NMFS Regional Administrator has in-season closure authority for the commercial summer flounder fishery, and commercial quota monitoring systems in place are typically effective in allowing timely reactions to landings levels that approach quotas.

Commercial discards as a percentage of the total catch increased in 2017 relative to recent years. Typically, commercial discards have comprised 10% of the total catch on average since 1989, and in 2017 were 16% of the total catch. Commercial discards were 24% of commercial catch in 2017, above the prior 10-year average of 17%. According to observer data, the increase in discards in 2017 appears to be largely driven by low quotas in 2017 and resulting closures (Table 5). The top reasons shown below account for about 90% of observed trawl discards over this period.

Because increases in commercial discards resulted in the commercial ACL being exceeded in 2017, trends in commercial discards should continue to be monitored closely for potential future incorporation into ACT recommendations. However, given the forthcoming benchmark stock assessment that is expected to revise 2019 catch limits, as well as the forthcoming revised time series of recreational catch that will change the understanding of discards by sector, staff recommend that no changes to the ACTs be made until this new information becomes available. Thus, for preliminary 2019 specifications, staff recommend that the commercial and recreational ACTs be set equal to their respective sector ACLs. This should be re-evaluated when revised recreational time series are released, as well as when new stock assessment catch time series are available.

**Table 4:** Summer flounder commercial and recreational fishery performance relative to quotas and harvest limits, 2013-2017.

Year	Commercial Landings (mil lb) <sup>a</sup>	Commercial Quota (mil lb)	Percent Overage(+)/ Underage(-)	Recreational Landings (mil lb) <sup>b</sup>	Recreational Harvest Limit (mil lb)	Percent Overage(+)/ Underage(-)
2013	12.49	11.44	+9%	7.36	7.63	-4%
2014	11.07	10.51	+5%	7.39	7.01	+5%
2015	10.68	11.07	-4%	4.72	7.38	-36%
2016	7.81	8.12	-4%	6.18	5.42	+14%
2017	5.83	5.66	+3%	3.19	3.77	-15%
<b>5-yr Avg.</b>	-	-	+2%	-	-	-7%

<sup>a</sup> Source: NMFS dealer data, as of May 2018.

<sup>b</sup> Source: NMFS MRIP database as of April 23, 2018. Recreational landings from Maine through North Carolina.

**Table 5:** Top reasons recorded for discarding summer flounder on observed trawl trips, 2013-2017.

Recorded Discard Reason	2013	2014	2015	2016	2017	Avg
Regulations Prohibit Retention, Too Small	6.2%	10.4%	9.5%	9.2%	10.4%	9.1%
Regulations Prohibit Retention, Quota Filled	2.9%	3.2%	3.6%	4.1%	6.1%	4.0%
Regulations Prohibit Any Retention	1.5%	1.8%	0.8%	1.8%	4.4%	2.1%
Regulations Prohibit Retention, No Quota in Area	0.5%	0.6%	1.2%	0.9%	5.1%	1.7%
Retaining Only Certain Size Better Price Trip Quota in Effect	0.2%	1.1%	0.6%	1.1%	1.9%	1.0%

### *Commercial Quotas and Recreational Harvest Limits*

Projected discards are removed from the sector-specific ACTs to derive landings limits, which include annual commercial quotas and RHLs (Table 1). The sum of the commercial quota and RHL is equivalent to the total allowable landings in a given year. The commercial quota is divided amongst the states based on the allocation percentages in the FMP, shown in Table 6. Revisions to the commercial allocations are currently being considered through the Council and Commission's Summer Flounder Commercial Issues Amendment.<sup>7</sup> Any revisions to these allocations would not be implemented until January 1, 2020 at the earliest.

<sup>7</sup> <http://www.mafmc.org/actions/summer-flounder-amendment>.

**Table 6:** The summer flounder quota allocations for the commercial fisheries in each state.

State	Allocation (%)
ME	0.04756
NH	0.00046
MA	6.82046
RI	15.68298
CT	2.25708
NY	7.64699
NJ	16.72499
DE	0.01779
MD	2.03910
VA	21.31676
NC	27.44584
<b>Total</b>	<b>100</b>

Specific management measures that will be used to achieve the RHL for the recreational fishery in 2019 will not be determined until later in 2018. Typically, the Council and Board review data through Wave 4 (July-August) in the current year to set specifications in the upcoming year. The Monitoring Committee meets in November to review these data and make recommendations regarding any necessary changes in the recreational management measures (i.e., bag limit, minimum size, and season). Given that MRIP time series revisions are expected in July 2018, and that the benchmark assessment is expected to revise recreational catch and landings limits in mid-2019, the Monitoring Committee and Council/Board will need to consider how the timing of 2019 recreational measures development may need to be modified to accommodate this new information.

### **Commercial Management Measures**

#### ***Commercial Gear Regulations and Minimum Fish Size***

Management measures in the commercial fishery other than quotas (i.e., minimum fish size, gear requirements, etc.) have remained generally constant since 1999.

The current commercial minimum fish size is 14 inches total length (TL). The 14-inch minimum size was implemented in 1997 and represented an increase from the previous minimum size of 13 inches TL.

Current trawl gear regulations require a 5.5-inch diamond or 6.0-inch square minimum mesh in the entire net for vessels possessing more than the threshold amount of summer flounder, i.e., 200 lb in the winter (November 1-April 30) and 100 lb in the summer (May 1-October 31). The minimum fish size and mesh requirements may be changed through specifications based on the recommendations of the Monitoring Committee. The 5.5 inch diamond or 6.0 inch square minimum mesh size requirements were first implemented in 1993 under Amendment 2 to the FMP, but at the time applied only to the net's codend. Under Amendment 10 to the FMP, effective in 1998, the minimum mesh requirements were modified to apply throughout the whole net.

Summer flounder, scup, and black sea bass are all currently managed with different minimum mesh sizes (i.e. 5.5" diamond or 6" square for summer flounder, 5" diamond for scup, and 4.5" diamond for

black sea bass). A study by Hasbrouck et al. (2018)<sup>8</sup> confirmed that the current minimum mesh sizes for all three species are effective at releasing most fish smaller than the commercial minimum sizes (i.e., 14” total length for summer flounder, 9” total length for scup, and 11” total length for black sea bass). One goal of the Hasbrouck et al. study was to evaluate the potential for a common mesh size across all three species. The study was not able to identify a mesh size for all three species that would be effective at minimizing discards under the current minimum fish size limits. However, the authors concluded that a common mesh size of 4.5” or 5” diamond for scup and black sea bass would be effective at releasing undersized fish.

Council staff recommend no changes to the minimum mesh sizes for 2019. The Monitoring Committee will review the results of Hasbrouck et al. (2018) during their July 2018 meeting. If the Council wishes to consider modifications to the minimum mesh sizes, the objectives should be clarified. Possible objectives could include establishing a common minimum mesh size, minimizing discards, and/or maintaining or increasing catches of legal-sized fish; however, some of these objectives may be at odds with each other. Input from the commercial fishing industry should be sought before any minimum mesh size changes are considered. As the Monitoring Committee has noted in the past, changes to these requirements can create an economic burden for fishermen if they necessitate purchase of new nets.

Staff recommend no changes to the current 14-inch minimum fish size, gear requirements, or seasonal thresholds for 2019.

### ***Minimum Mesh Size Exemption Programs***

#### **Small Mesh Exemption Area**

Vessels landing more than 200 lb of summer flounder, east of longitude 72° 30.0'W, from November 1 through April 30, and using mesh smaller than 5.5-inch diamond or 6.0-inch square are required to obtain a small mesh exemption program (SMEP) permit from NMFS. The exemption is designed to allow vessels to retain a bycatch of summer flounder while operating in other small-mesh fisheries.

The FMP requires that observer data be reviewed annually to determine whether vessels fishing seaward of the SMEP line with smaller than the required minimum mesh size and landing more than 200 lb of summer flounder are discarding more than 10% (by weight) of their summer flounder catch per trip. Typically, staff evaluate the Northeast Fisheries Observer Program (NEFOP) data for the period from November 1 in the previous year to April 30 in the current year. However, when this analysis is conducted in early July, complete observer data is not yet available through the end of April in the current year. As such, a year-long lag in the analysis is used.

Staff evaluated NEFOP data for November 1, 2016 through April 30, 2017. These data indicate that a total of 555 trips with at least one tow were observed east of 72° 30.0'W and 376 of these trips used small mesh (Table 7). Of those 376 trips, 150 trips reported landing more than 200 lb of summer flounder. Of those 150 trips, 36 trips discarded more than 10% of their summer flounder catch. The percentage of trips that met all these criteria relative to the total number of observed trips east of 72° 30.0'W is 6.5% (36/555 trips). The prior year percentage of trips that met the criteria, also shown in Table 7, was about 4.6%. This percentage has seen small increases over the last several years, and the Monitoring Committee should continue to closely monitor the use of this exemption program. If the rate

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<sup>8</sup> Available at: [http://www.mafmc.org/s/Tab08\\_SFSBSB-Mesh-Selectivity-Study-Apr2018.pdf](http://www.mafmc.org/s/Tab08_SFSBSB-Mesh-Selectivity-Study-Apr2018.pdf)

of trips meeting these criteria continues to increase, the Monitoring Committee should consider modifications to this program.

For an unrelated action in 2017, GARFO staff compiled the number of vessels issued a letter of authorization (LOA) for the small mesh exemption program in recent years, shown in Table 8, indicating that an average of 64 summer flounder permit holders have requested this LOA from 2013 through 2017.

Based on the information described above, staff recommend no change in the SMEP program, however, the rates of summer flounder discarding should continue to be closely tracked by the Monitoring Committee.

**Table 7:** Numbers of trips that meet specific criteria based on observed trips from November 1, 2015 to April 30, 2016, and November 1, 2016 to April 30, 2017.

Criteria		Nov. 1, 2015 – April 30, 2016	Nov. 1, 2016 – April 30, 2017
A	Observed trips with at least one catch record east of 72° 30' W Longitude	391	555
B	That met the criteria in row A <u>and</u> used small mesh at some point during their trip	252	376
C	That met the criteria in rows A-B <u>and</u> landed more than 200 pounds summer flounder on whole trip	92	150
D	That met the criteria in rows A-C <u>and</u> discarded >10% of summer flounder catch east of 72° 30' W Longitude	18	36
E	% of observed trips with catch east of 72° 30' W Longitude that also used small mesh, landed >200 pounds of summer flounder, and discarded >10% of summer flounder catch (row D/row A)	4.6%	6.5%
F	Total summer flounder discards (pounds) from trips meeting criteria in A-D	16,470	14,640
G	Total summer flounder landings (pounds) from trips meeting criteria in A-D	23,295	25,472
H	Total catch (pounds) from trips meeting criteria in A-D	39,765	40,113

**Table 8:** Number of vessels issued the small mesh LOA from fishing year 2013-2017.

Year	Vessels Enrolled
2013	71
2014	55
2015	65
2016	61
2017	69

### **Flynet Exemption Program**

Vessels fishing with a two-seam otter trawl flynet are also exempt from the minimum mesh size requirements. Exempt flynets have large mesh in the wings that measure 8 to 64 inches, the belly of the net has 35 or more meshes that are at least 8 inches, and the mesh decreases in size throughout the body of the net to 2 inches or smaller. Only North Carolina has a flynet fishery at present. The supplemental memo from T.D. VanMiddlesworth dated June 22, 2018 (see Attachment) indicates that no summer flounder were landed in the North Carolina flynet fishery in 2015, 2016, or 2017. In 2015, as part of the review of commercial measures, the Monitoring and Technical Committees reviewed information indicating that summer flounder landings in this fishery have generally declined since 2007, and have been under 2,000 lb since 2010. Based on this information, staff recommend no change to this exemption program. Staff also note that scup and black sea bass were landed in the North Carolina flynet fishery in 2017, and the Monitoring Committee should consider whether similar exemptions should be explored for these species.



ROY COOPER  
*Governor*

MICHAEL S. REGAN  
*Secretary*

STEPHEN W. MURPHEY  
*Director*

## Memorandum

**To:** Kiley Dancy, MAFMC

**From:** Todd Daniel VanMiddlesworth, NCDMF

**Date:** June 22, 2018

**Subject:** Species composition and landings from the 2017 North Carolina fly net fishery

The 2017 North Carolina fly net species composition and landings in pounds are provided in Table 1. Individual landings listed as “other species” are not reported because the data are confidential and cannot be distributed to sources outside the North Carolina Division of Marine Fisheries (North Carolina General Statute 113-170.3 (c)). Confidential data can only be released in a summarized format that does not allow the user to track landings or purchases to an individual. Summer flounder were not landed in the 2015, 2016 or 2017 fly net fishery. Note that fly net landings for most species were lower in 2017 than in 2016. Additionally, total fly net landings in 2017 were lower than those in 2016 which may be the result of reduced fishing effort on targeted fish species and increased shoaling at Oregon Inlet resulting in limited access of fly net boats to North Carolina ports.





Table 1. Species composition and landings for 2017 North Carolina fly net fishery. Species with confidential landings are listed under “Other Species”.

<u>Species</u>	<u>Weight (lb)</u>	<u>Percent</u>
Atlantic croaker	51,740	39.46
black sea bass	23,582	17.99
scup	18,859	14.38
other species*	36,923	28.16
<b>Total</b>	<b>131,104</b>	<b>100.00</b>

\*Those species with confidential landings included bluefish, butterfish, cobia, cutlassfish (ribbonfish), hakes (ling), Atlantic menhaden bait (lbs), monkfish (whole), sea mullet (kingfish), spot, squid, loligo squid (lbs), starbutter (harvestfish) and trout (gray trout).



## Summer flounder Data and Projection Update for 2018

National Marine Fisheries Service  
Northeast Fisheries Science Center  
166 Water St.  
Woods Hole, MA 02543

Reported 2017 landings in the commercial fishery were 2,644 mt = 5.829 million lbs, about 103% of the commercial quota (2,567 mt = 5.659 million lbs). Estimated 2017 landings in the recreational fishery were 1,447 mt = 3.190 million lbs, about 85% of the recreational harvest limit (1,711 mt = 3.772 million lbs). Total commercial and recreational landings in 2017 were 4,091 mt = 9.019 million lbs and total commercial and recreational discards were 1,280 mt = 2.822 million lbs, for a total catch in 2017 of 5,371 mt = 11.841 million lbs (Table 1, Figure 1), about 5% above the 2017 ABC of 5,125 mt = 11.299 million lbs. The total catch in 2017 was the lowest in the assessment time series (1982-2017).

State and Federal survey abundance and biomass indices generally have decreased from their most recent peaks during 2009-2012 to 2017 (Figures 2-11), with the exception of the Massachusetts and Delaware indices. Massachusetts indices decreased in 2017 from their time series peaks in 2016. The Delaware index peaked in 2017. Indices of recruitment (age 0 fish) were generally lower over the last 6-7 years than in the previous decade; recruitment indices in 2017 were highly variable (Figures 12-18). The Massachusetts and one of the Delaware recruitment indices were high in 2017. Note that the NEFSC Fall survey was unable to sample the summer flounder strata in 2017 so no indices are available (Figures 2 & 4). The NEFSC Spring biomass index increased by 87% from 2017 to 2018 (Figures 2-3).

Projections using the existing 2016 updated assessment model (data through 2015) were made to estimate the 2019 OFL and ABC catches. The projections use the reported/estimated catches for 2016 and 2017 and assume that 100% of the 2018 ABC (5,999 mt = 13.226 million lbs) will be caught. The OFL projection uses  $F_{2019} = F_{MSY} = 0.309$  and so the total catch in 2019 is the projected OFL = 9,343 mt (20.598 million lbs). The ABC projection sets the CV of the OFL at 60% (MAFMC SSC assumption for summer flounder in 2016) and so the total catch in 2019 is the projected ABC = 6,988 mt (15.406 million lbs), about 75% of the projected OFL (Table 2).

Table 1. Commercial (comm) and recreational (recr) fishery landings, estimated commercial and recreational dead discard, and total catch (metric tons) as used in the assessment of summer flounder, Maine to North Carolina. Includes MRIP 2004-2017 estimates of recreational catch, and 1982-2003 recreational catch adjusted by the 2004-2011 MRIP to MRFSS ratio for each catch type.

Year	Comm Landings	Comm Discard	Comm Catch	Recr Landings	Recr Discard	Recr Catch	Total Landings	Total Discard	Total Catch
1982	10,400	n/a	10,400	8,163	284	8,447	18,563	284	18,847
1983	13,403	n/a	13,403	12,527	361	12,888	25,930	361	26,291
1984	17,130	n/a	17,130	8,405	399	8,804	25,535	399	25,934
1985	14,675	n/a	14,675	5,594	88	5,682	20,269	88	20,357
1986	12,186	n/a	12,186	8,000	555	8,555	20,186	555	20,741
1987	12,271	n/a	12,271	5,450	502	5,951	17,721	502	18,222
1988	14,686	n/a	14,686	6,550	328	6,878	21,236	328	21,564
1989	8,125	456	8,581	1,417	43	1,460	9,542	499	10,041
1990	4,199	898	5,097	2,300	225	2,525	6,499	1,122	7,621
1991	6,224	219	6,443	3,566	412	3,978	9,790	631	10,420
1992	7,529	2,151	9,680	3,201	332	3,533	10,730	2,483	13,213
1993	5,715	701	6,416	3,956	874	4,830	9,671	1,575	11,246
1994	6,588	1,535	8,123	4,178	660	4,838	10,766	2,195	12,961
1995	6,977	821	7,798	2,428	723	3,152	9,405	1,545	10,950
1996	5,861	1,436	7,297	4,398	656	5,054	10,259	2,092	12,351
1997	3,994	806	4,800	5,314	535	5,849	9,308	1,341	10,649
1998	5,076	634	5,710	5,588	705	6,293	10,664	1,339	12,003
1999	4,820	1,660	6,480	3,747	683	4,430	8,567	2,343	10,910
2000	5,085	1,617	6,702	7,376	915	8,291	12,461	2,532	14,993
2001	4,970	405	5,375	5,213	1,225	6,438	10,183	1,630	11,813
2002	6,573	922	7,495	3,586	746	4,332	10,159	1,668	11,827
2003	6,450	1,144	7,594	5,213	847	6,060	11,663	1,991	13,653
2004	7,880	1,606	9,486	4,974	1,013	5,987	12,854	2,619	15,473
2005	7,671	1,484	9,155	4,929	950	5,879	12,600	2,434	15,034
2006	6,316	1,482	7,798	4,804	768	5,572	11,120	2,250	13,370
2007	4,544	2,110	6,654	4,199	1,002	5,201	8,743	3,112	11,855
2008	4,179	1,162	5,341	3,689	1,154	4,843	7,868	2,316	10,184
2009	5,013	1,446	6,459	2,716	1,140	3,856	7,729	2,586	10,316
2010	6,078	1,466	7,544	2,317	1,066	3,383	8,395	2,532	10,927
2011	7,515	1,096	8,611	2,645	1,093	3,738	10,160	2,189	12,349
2012	5,916	718	6,634	2,853	815	3,668	8,769	1,533	10,302
2013	5,643	712	6,355	3,351	758	4,109	8,994	1,470	10,464
2014	4,991	785	5,776	3,356	932	4,288	8,347	1,717	10,064
2015	4,843	670	5,513	2,209	563	2,772	7,052	1,233	8,285
2016	3,542	738	4,280	2,804	671	3,475	6,346	1,409	7,755
2017	2,644	854	3,498	1,447	426	1,873	4,091	1,280	5,371

Table 2. Summer flounder 2019 OFL and ABC Projections.

**OFL Projection:** Projection assumes that 100% of the 2018 ABC (5,999 mt = 13.226 million lbs) will be caught. Total catch in 2019 is the projected OFL.

Total Catch, Landings, Discards, Fishing Mortality (F),  
and Spawning Stock Biomass (SSB)  
Catches and SSB in metric tons

Year	Total Catch	Landings	Discards	F	SSB
2016	7,750	6,341	1,409	0.327	39,428
2017	5,371	4,091	1,280	0.214	43,107
2018	5,999	5,010	989	0.215	48,389
2019	9,343	7,780	1,563	0.309	51,225

**ABC Projection:** Projection assumes that 100% of the 2018 ABC (5,999 mt = 13.226 million lbs) will be caught. Total catch in 2019 is the projected ABC. Projection sets the CV of the OFL at 60% (MAFMC SSC assumption for summer flounder in 2016).

Total Catch, Landings, Discards, Fishing Mortality (F),  
and Spawning Stock Biomass (SSB)  
Catches and SSB in metric tons

Year	Total Catch	Existing ABC	Landings	Discards	F	P* value	SSB
2016	7,750	7,375	6,341	1,409	0.327	0.641	39,248
2017	5,371	5,125	4,091	1,280	0.214	0.010	43,107
2018	5,999	5,999	5,010	989	0.215	0.100	48,389
2019	6,988	n/a	5,834	1,154	0.225	0.300	53,198

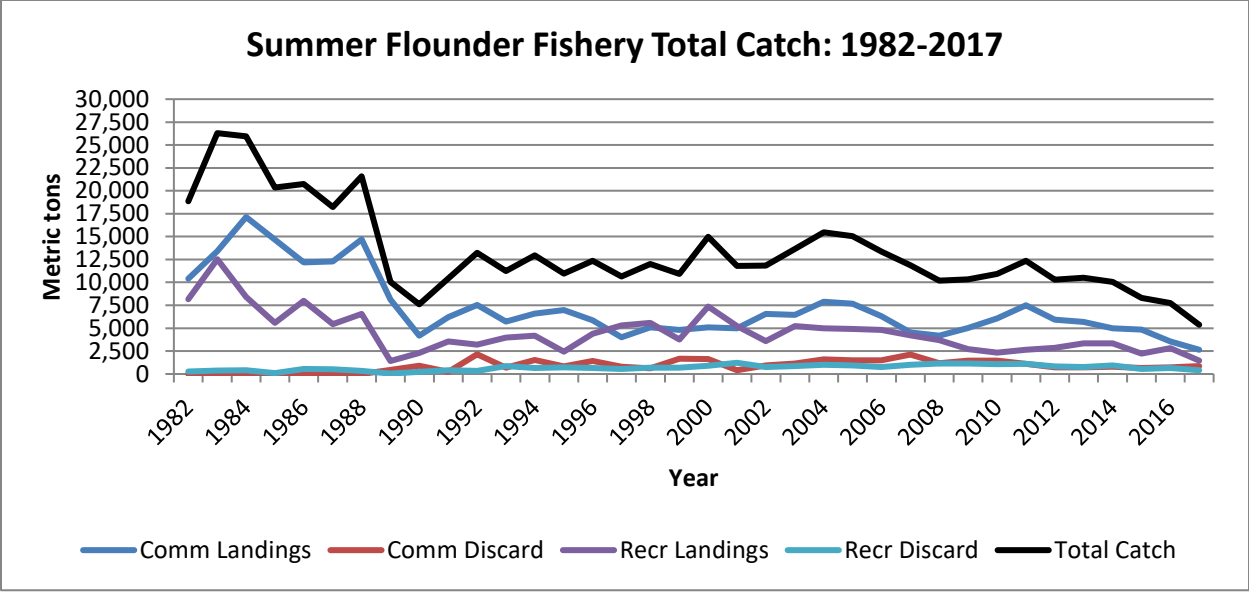


Figure 1. Summer flounder fishery total catch.

## NEFSC Trawl Surveys

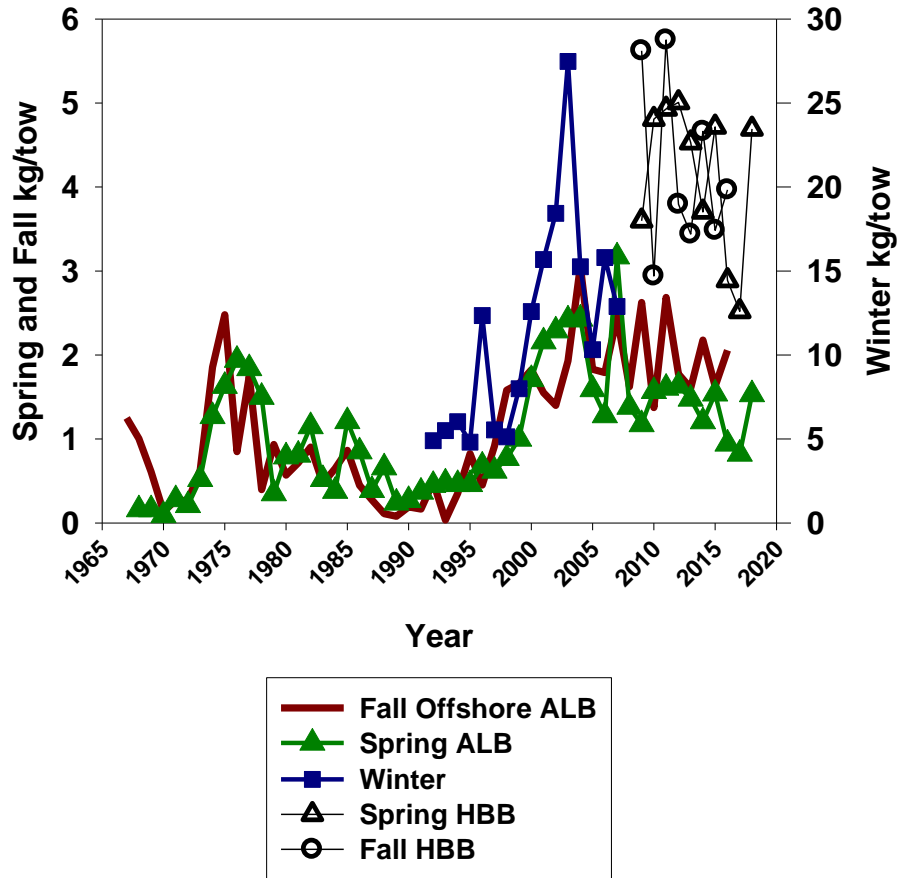


Figure 2. NEFSC trawl survey biomass indices for summer flounder. ‘ALB’ indices are calibrated FSV Albatross IV indices; ‘HBB’ indices are uncalibrated FSV Bigelow indices.

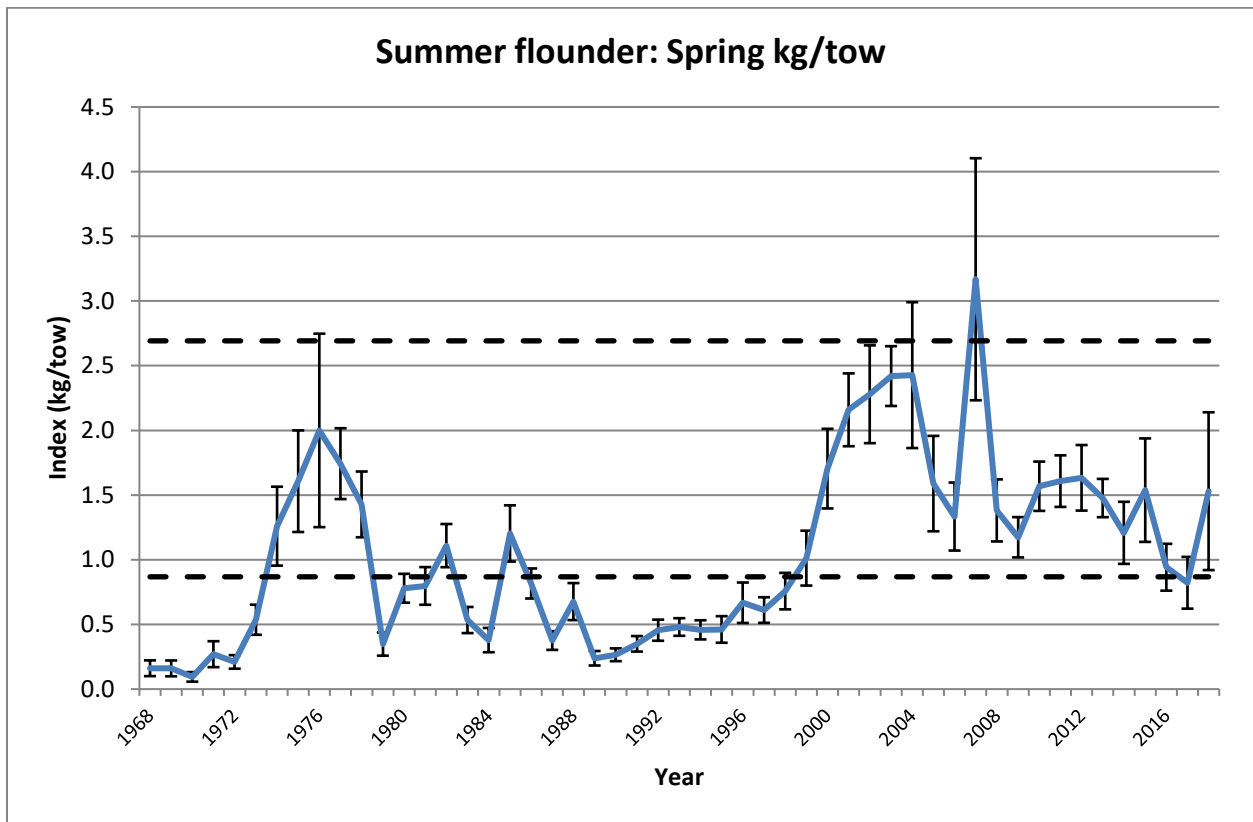


Figure 3. NEFSC spring trawl survey indices of summer flounder biomass. Whiskers around each annual index represent +/- one standard deviation. Dashed lines represent 80% confidence intervals around the 2007-2011 mean, a period when the stock was estimated to be at or above SSBMSY and not experiencing overfishing.

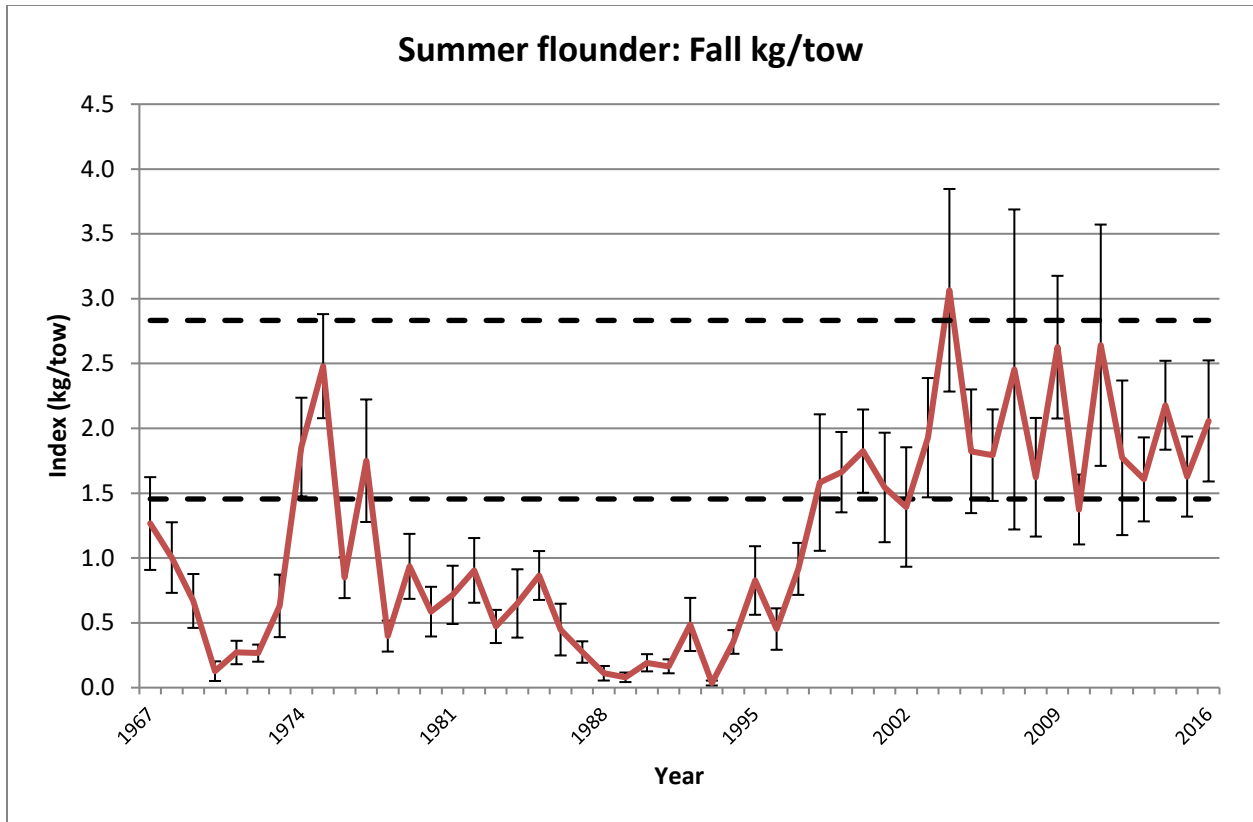


Figure 4. NEFSC fall trawl survey indices of summer flounder biomass. Whiskers around each annual index represent +/- one standard deviation. Dashed lines represent 80% confidence intervals around the 2007-2011 mean, a period when the stock was estimated to be at or above SSBMSY and not experiencing overfishing.



### NEFSC Larval Surveys

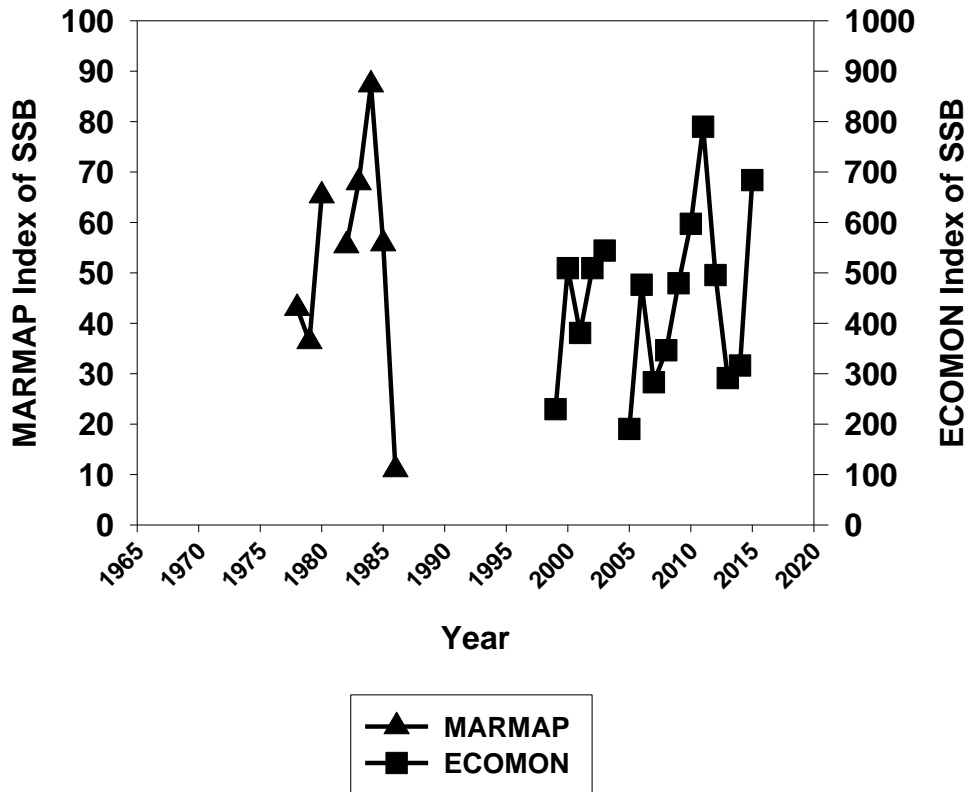


Figure 5. NEFSC larval survey indices of summer flounder spawning stock biomass (SSB).

### MA Trawl Surveys

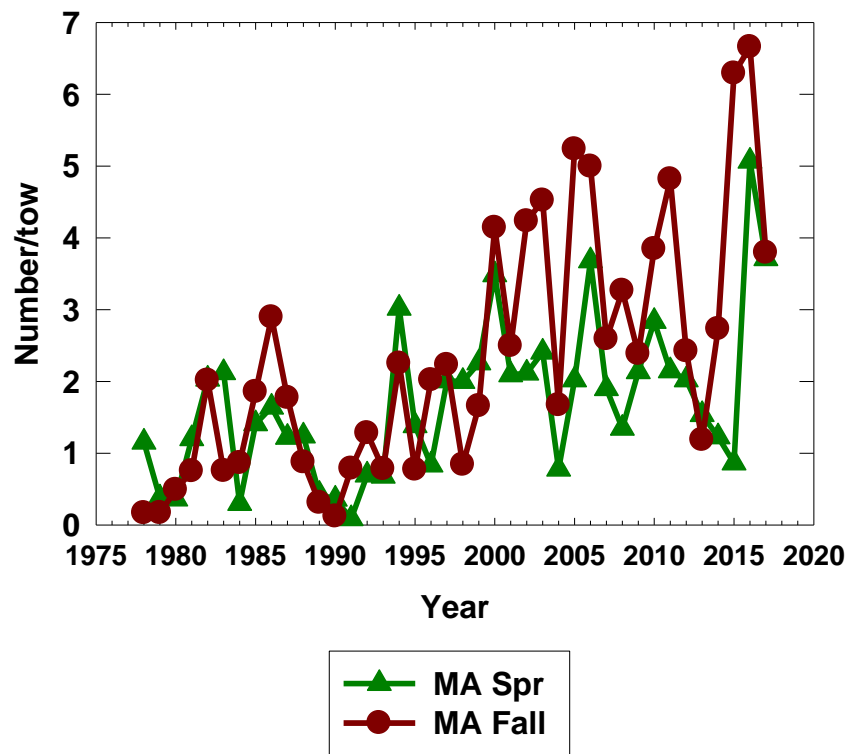


Figure 6. MADMF trawl survey indices for summer flounder.

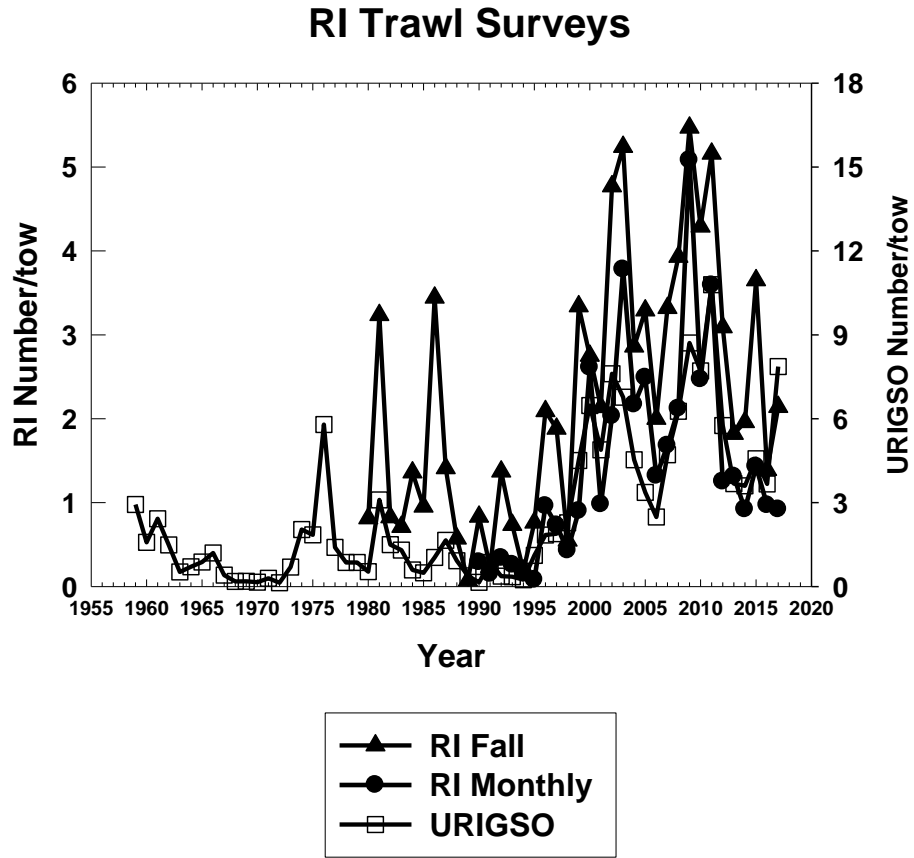


Figure 7. RIDFW and URIGSO trawl survey indices for summer flounder.

# CT and NY Trawl Surveys

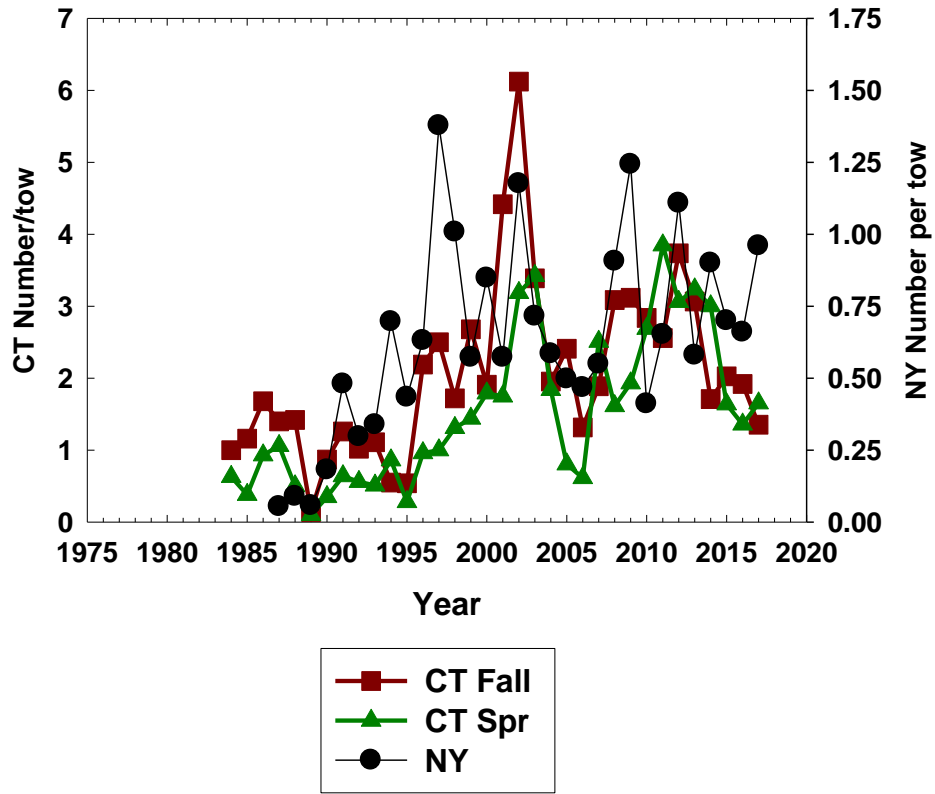


Figure 8. CTDEP and NYDEC trawl survey indices for summer flounder.

### NJ and DE Trawl Surveys

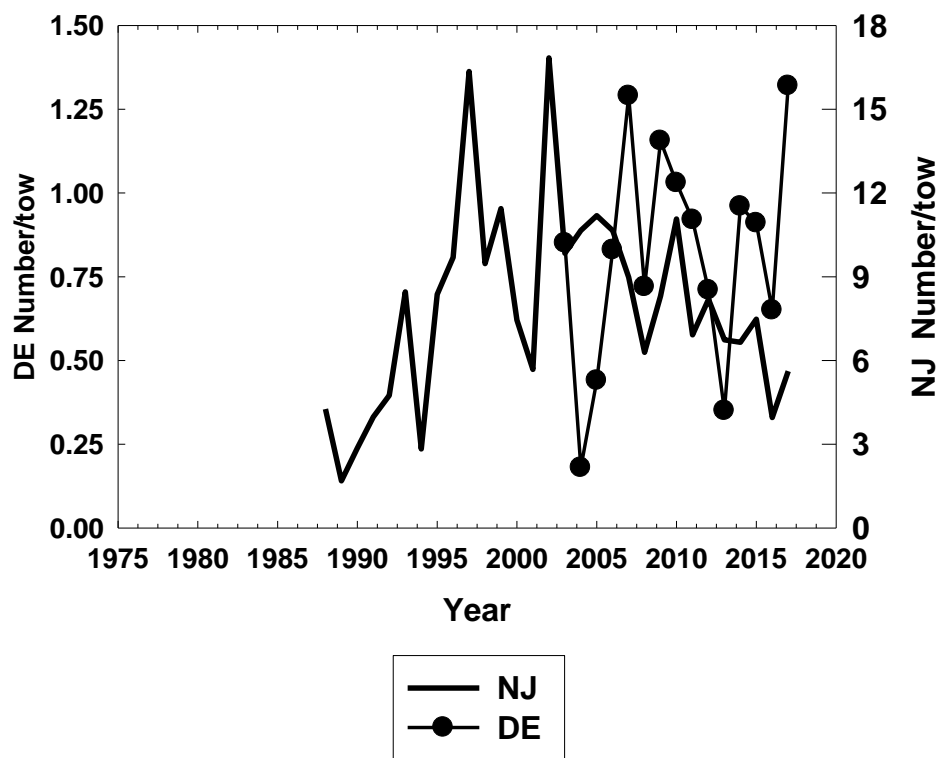


Figure 9. NJDMF and DEDFW trawl survey indices for summer flounder.

# ChesMMap and NEAMAP Trawl Surveys

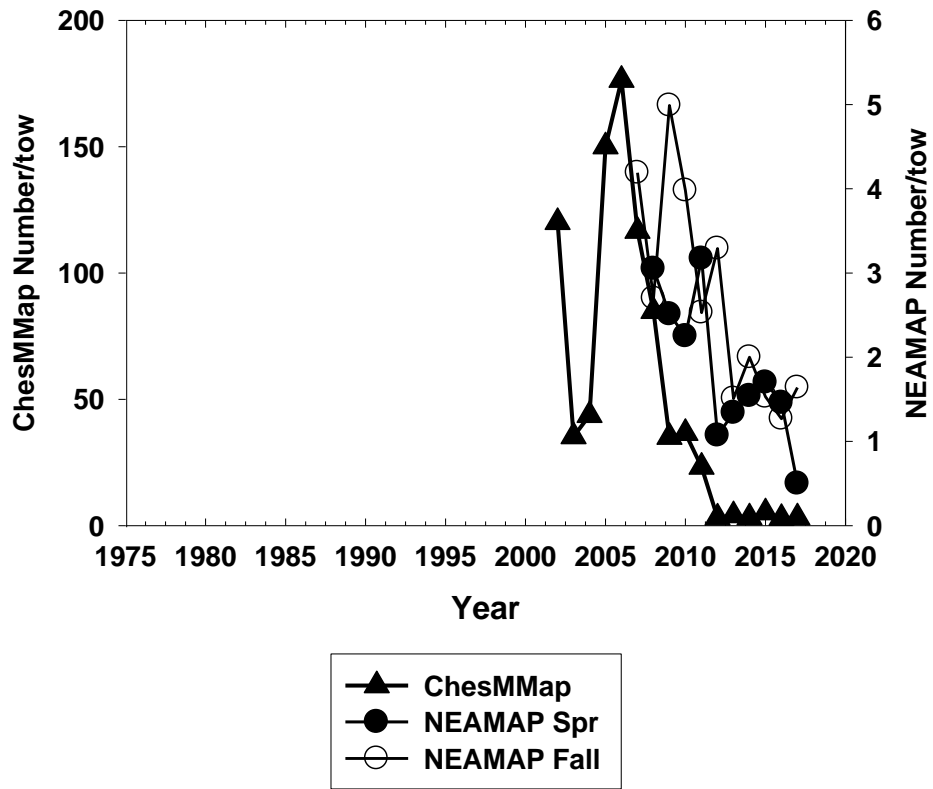


Figure 10. ChesMMap and NEAMAP trawl survey indices for summer flounder.

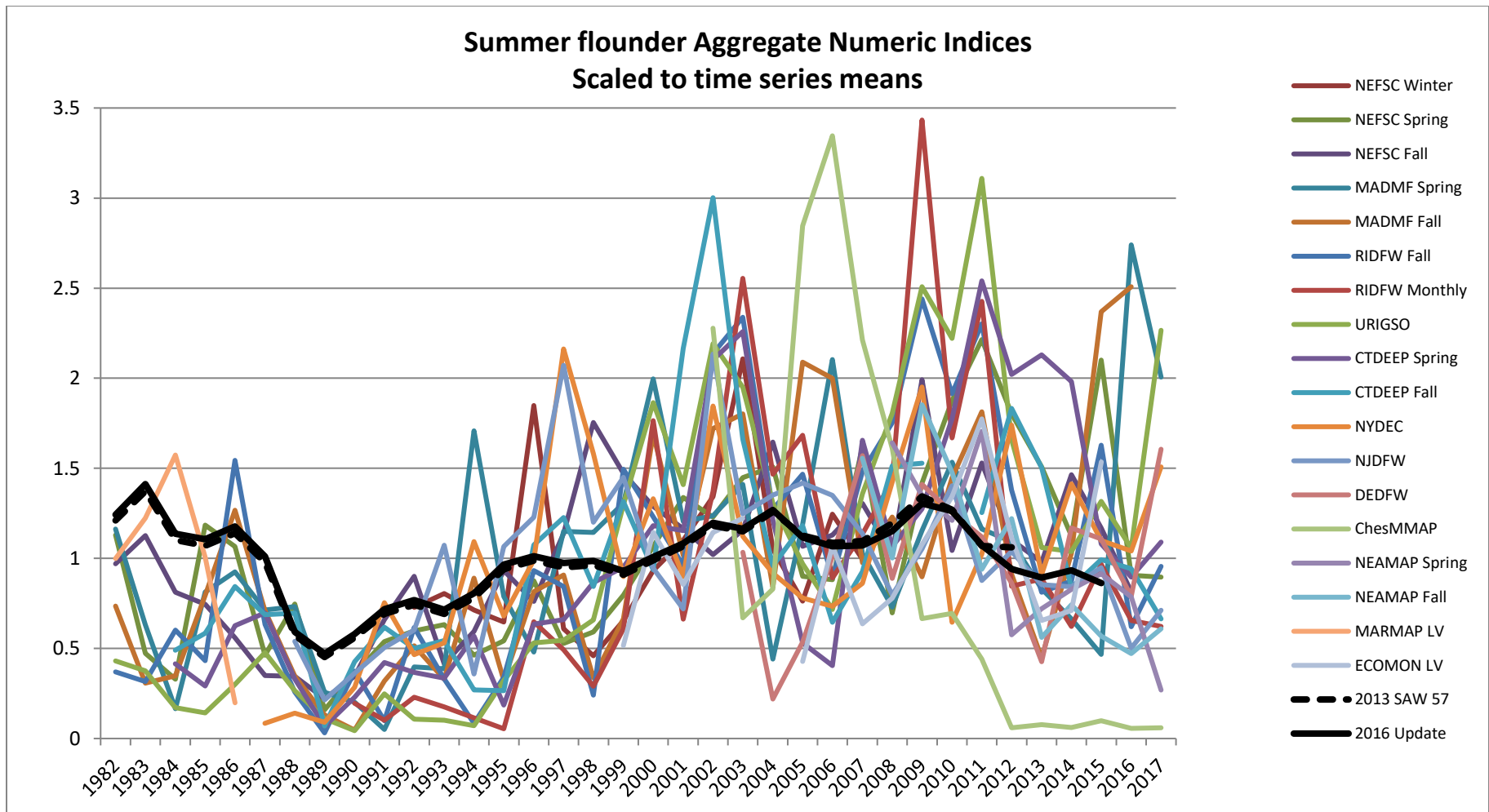


Figure 11. Summer flounder aggregate indices of numeric abundance.

### NEFSC Fall Age 0 Index

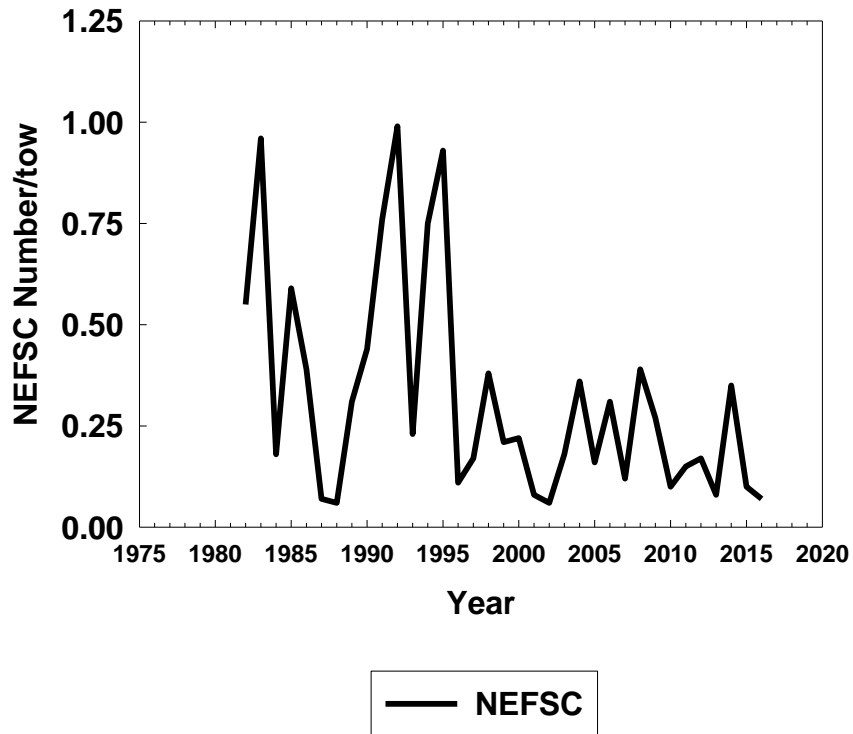


Figure 12. NEFSC age 0 abundance indices for summer flounder.



### MA and RI Age 0 Indices

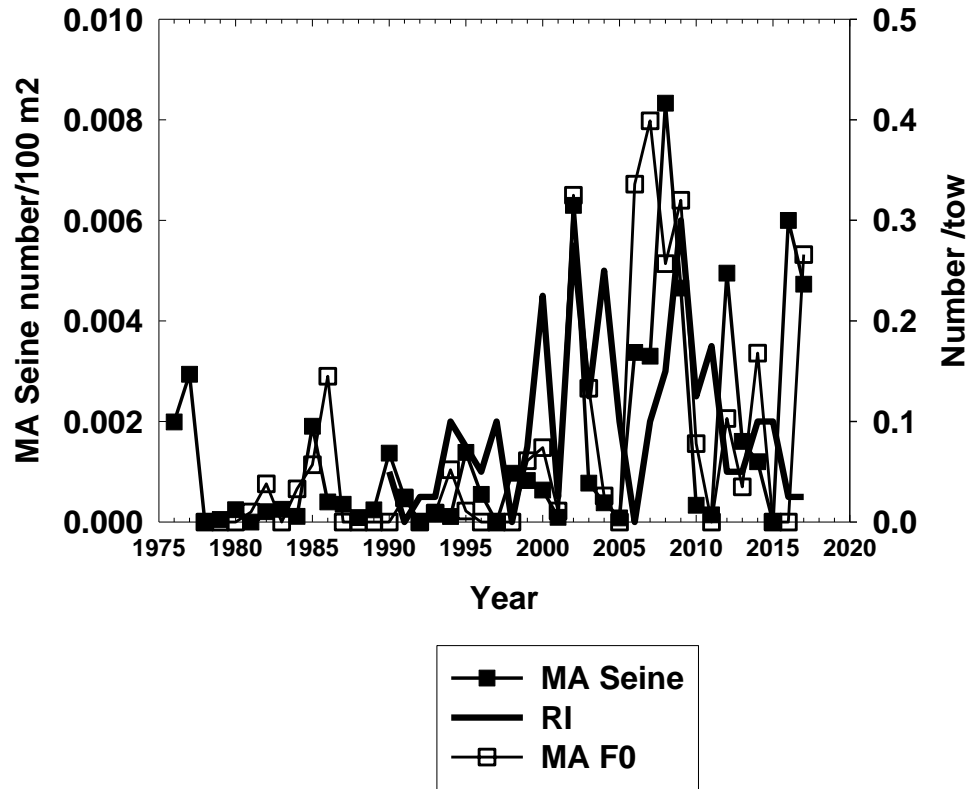


Figure 13. MADMF and RIDFW age 0 abundance indices for summer flounder.

### CT, NY and NJ Age 0 Indices

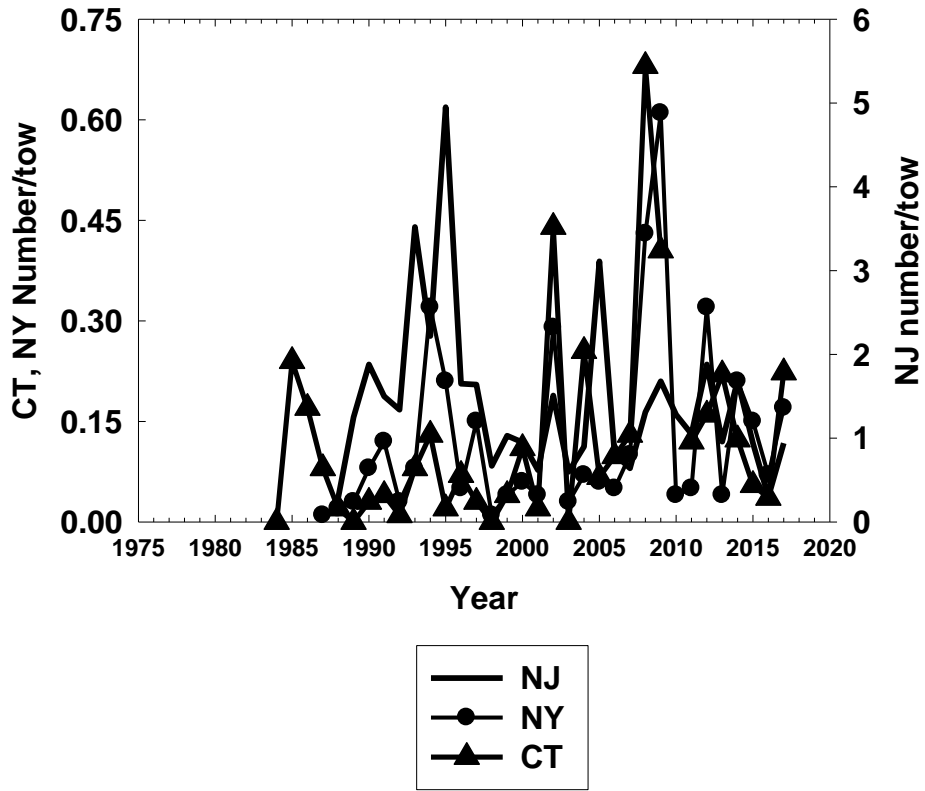


Figure 14. CTDEP, NYDEC, and NJDFW age 0 abundance indices for summer flounder.

### DE Age 0 Indices

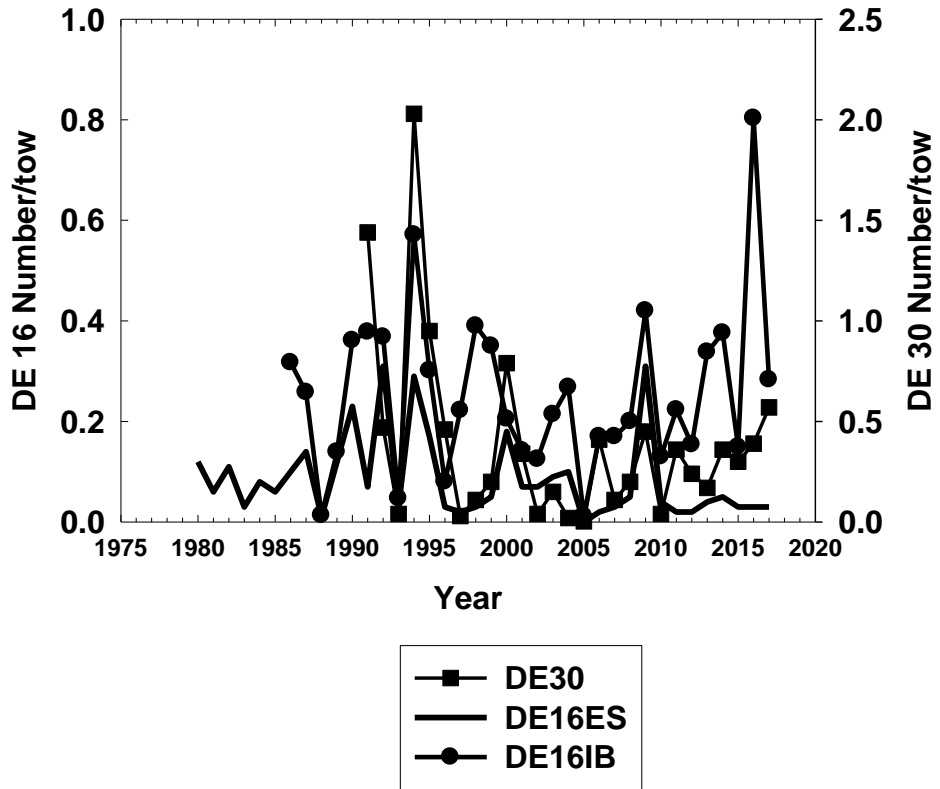


Figure 15. DEDFW age 0 abundance indices for summer flounder.

### MD, VIMS and NC Age 0 Indices

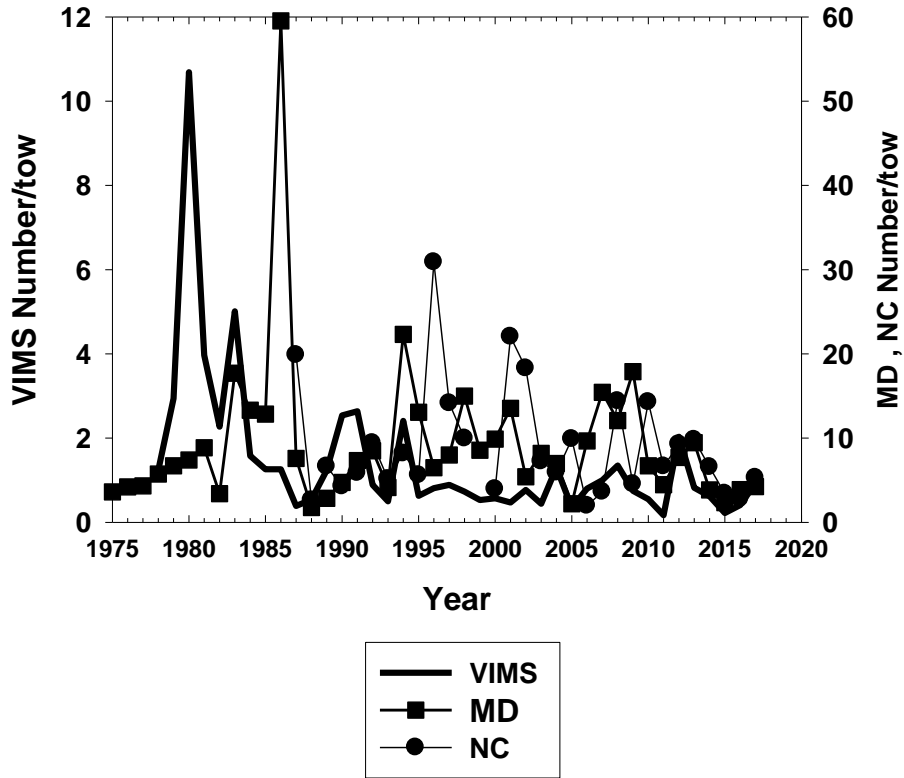


Figure 16. MDDNR, VIMS, and NCDMF age 0 abundance indices for summer flounder.

### ChesMMAP and NEAMAP Age 0 Indices

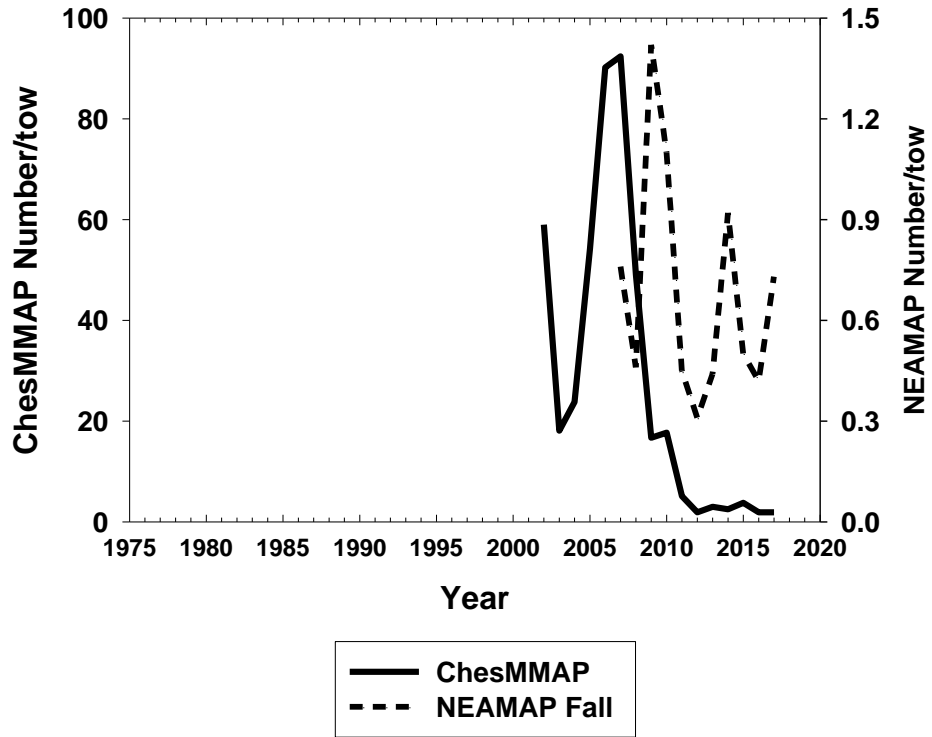


Figure 17. ChesMMAP and NEAMAP age 0 abundance indices for summer flounder.

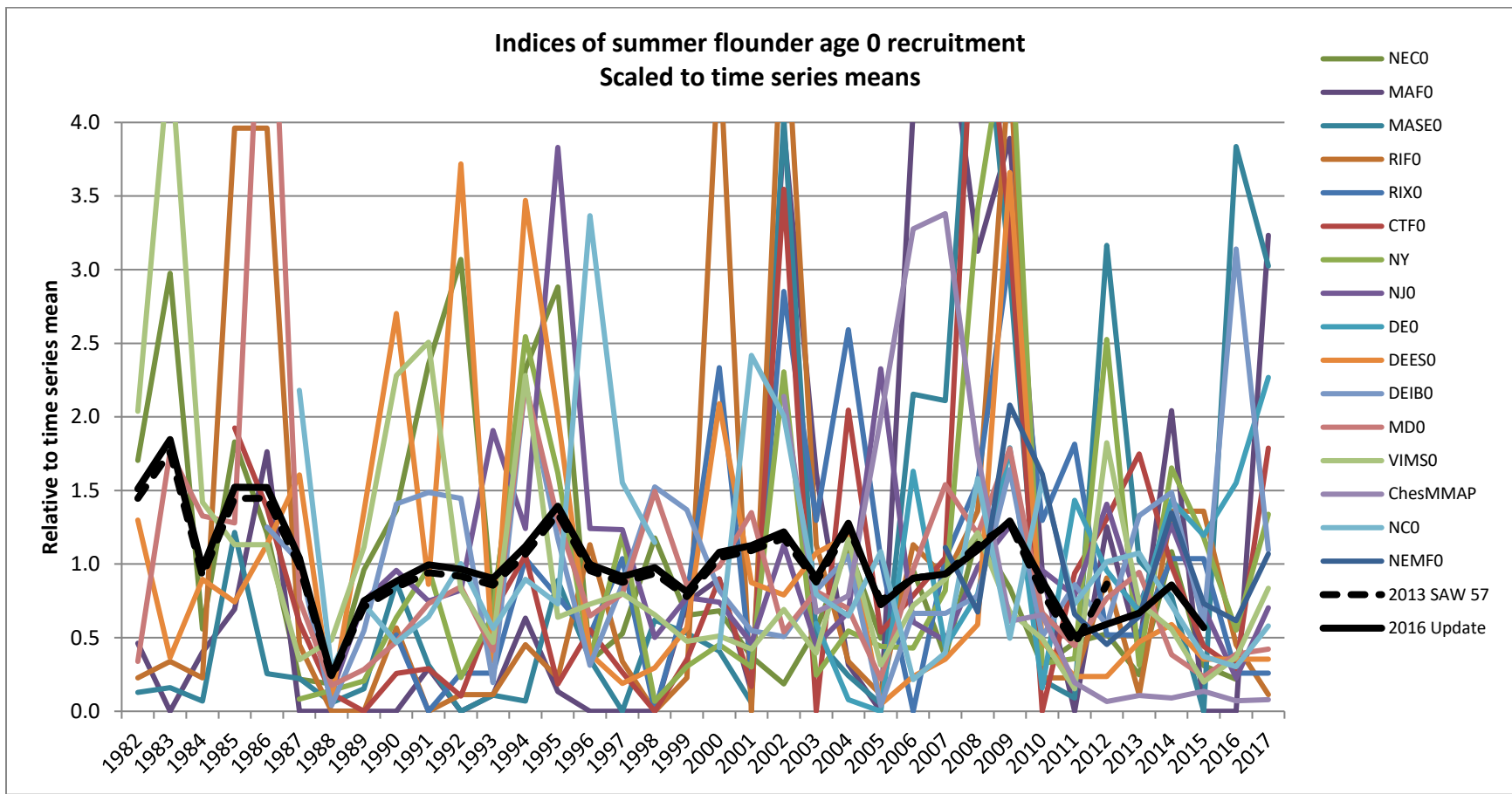


Figure 18. Summer flounder age 0 recruitment indices.

## Kiley Dancy

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**From:** Moore, Christopher  
**Sent:** Tuesday, July 31, 2018 8:40 PM  
**To:** Beaty, Julia; Kiley Dancy  
**Subject:** Fw: August Meeting on Flounder

fyi

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**From:** Gene Doebley <gdoebley@gmail.com>  
**Sent:** Tuesday, July 31, 2018 8:10 PM  
**To:** Moore, Christopher  
**Subject:** August Meeting on Flounder

Dr. Chris Moore

RE: The MAFMC and ASMFC meeting Aug 13 to 15

I wish to take this opportunity to offer comment on the current state of fluke management.

The issue as I see it is that the current regulations have us killing all the breeding females. Almost all fish over 18" are females and setting regulations that kill the breeding stock is counterproductive to population growth. We need to reduce the current 18" minimum size. We are killing too many fish due to dead discards while trying to find a keeper, especially in South Jersey where the fish are smaller. A slot fish would solve this problem and allow fishermen to take a fish home.

South Jersey and North Jersey are geologically different. We need to set different regulations to recognize this difference and address the fact that we do not have the large schools of big fluke in the south. The current Delaware Bay regulation for NJ could be expanded to cover the incubator areas in NJ's shallow bays by moving the dividing line to below 40degrees N and inside the ColRegs line.

Thank you for your consideration.

Gene Doebley  
Somers Point, NJ

## Kiley Dancy

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**From:** Moore, Christopher  
**Sent:** Wednesday, August 1, 2018 10:27 AM  
**To:** Beaty, Julia; Kiley Dancy  
**Subject:** Fw: Fluke Regulations

fyi

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**From:** william tedor <wtedor@comcast.net>  
**Sent:** Tuesday, July 31, 2018 9:10 PM  
**To:** Moore, Christopher  
**Subject:** Fluke Regulations

Dear Mr Moore,

I am writing to you to voice my opinion for 2019 New Jersey Fluke regulations. I believe that these regulations should be in line with Delaware and Maryland Regulations with a 16 and 1/2 inch size limit. The reasoning for this belief is by keeping all 18 inch and over fluke we are taking all the females out of the population and causing the stock to be depleted. Another good reason to lower the size limit is it would cut down on the dead loss from catch and release fish below 18 inches. The mortality rate for these fish is supposedly very high and this would partially address this problem. I would also like to have the season of Delaware and Maryland but realize this may not be feasible. Thank you for giving me this forum to voice my opinion. Bill Tedor



## Kiley Dancy

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**From:** Moore, Christopher  
**Sent:** Wednesday, August 1, 2018 1:54 PM  
**To:** Kiley Dancy; Beaty, Julia  
**Subject:** FW: NJ Fluke Regs

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**From:** Jeff Hale <jhale@sudlerco.com>  
**Sent:** Wednesday, August 1, 2018 1:29 PM  
**To:** Moore, Christopher <cmoore@mafmc.org>  
**Subject:** NJ Fluke Regs

Dear Sir:

I have been fishing recreationally for Fluke for many years. As the size requirements increase for a 'keeper', the outcome is increasingly producing smaller fish.

Your system is inverted and discourages population growth:

- More and more throw backs, sometimes it's a 12-16/1 ratio to 'find' a keeper.
- These shorts are returned/ released in stressed condition and sometimes gut hooked and dead.
- The 'keepers' are the breeders, which are what is being taken out of the bio mass.

Solution:

- Create a slot fish and a limit; 16" with a limit of 4 per angler per day.
- Plus one 'trophy' fish....20" plus per angler per day.

Benefits:

- Reduction of mortality of short fish and discards.
- Less pressure on the breeder stock...hopefully increasing the breeder stock and bio mass.

It seems to me that there is an abundance of 16" 17" fish on my trips. I see sometimes 10-20 shorts in the 15" – 17" range per trip. Most people never hit their 3 fish keeper limit.

I think the fishery needs a slot category. The current system is not effective.

Regards,

Jeffrey H. Hale  
Vice President - Leasing  
The Sudler Companies

[www.sudlerco.com](http://www.sudlerco.com)

## Kiley Dancy

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**From:** Moore, Christopher  
**Sent:** Wednesday, August 1, 2018 2:41 PM  
**To:** Kiley Dancy; Beaty, Julia  
**Subject:** FW: Future NJ Fluke Regulations

fyi

**From:** Kevin Sullivan <admin@kpsullivan.net>  
**Sent:** Wednesday, August 1, 2018 2:36 PM  
**To:** Moore, Christopher <cmoore@mafmc.org>  
**Subject:** Future NJ Fluke Regulations

Dr. Moore

First and foremost, thank you in advance for taking the time to read this message and thank you as well for your work in the MAMFC; I firmly believe that we share the same passionate desire to maintain a healthy and sustainable fishery in the mid-Atlantic.

The reason that I am sending this message today is to voice concerns that I have over the management of the summer flounder fishery in New Jersey, particularly South Jersey. As you certainly know, we are currently faced with an 18" limit on summer flounder with a per-angler limit of three fish per-day with limited exceptions for both the Delaware Bay as well as Island Beach State Park. The concern that I have, however, is that this size requirement would give the outward appearance of doing more potential harm to this fishery than good.

While I most certainly do not have advanced degrees in the field or anywhere near the experience of someone with your credentials and in your position, I fear that our current regulations are causing significant problems within the fluke biomass. My reasons for this are two-fold. First, the size requirement of what constitutes a fish which may be harvested seems to be honing in recreational angler's harvesting target on those fish which are most likely to be the larger breeding females. By harvesting and removing these fish, are we not hurting the next generation of this fishery? Also, while my information is more anecdotal than analytical, I believe that in the waters of South Jersey, it is actually uncommon for male fluke to reach the 18" or larger size required to potentially be harvested. If true, this would mean that anglers are being specifically encouraged to damage the portion of the stock which should be most protected, the egg-carrying, mature females.

Secondarily, I also believe these regulations have created a new issue, or at the very least, exacerbated an existing one in the form of by-catch mortality. With the new 18" regulations, a significant number of 14"-18" fish are being caught by recreational anglers and released; however, some of the statistics that I have seen have sited an up-to 60% mortality rate among these fish even when handled properly for release. This is extremely alarming because now, not only are we potentially targeting the fish which are most likely to replenish the stock naturally, but we are also culling the existing stock through by-catch mortality as anglers are being forced to 'sort through' the overwhelming majority of 14-18" fish while searching for an 18" fish to be harvested.

I realize that NJ, specifically, can pose some unique challenges as the Northern half of the state and the southern half of the state are significantly different in terms of fisheries. I believe this is extremely evident by comparing the NJ regulations to those of Delaware to our immediate South and New York to our immediate North. While Delaware, whose waters are very much like that of South Jersey to the extent of having special regulations in DE Bay which are NJ waters, has a regulation of 16.5" with a 4-fish limit, but open year-round. On the other hand, New York has a 19"

requirement with a 4-fish limit and is open only between May 4th and September 30th. This seems to clearly illustrate a significant change in the fishery which occurs in the 130 miles of NJ coastline.

While I may not have your experience or education, I remain a firm believer in never highlighting a problem without offering a potential solution, so if I may be so bold as to make a suggestion, I would ask that the MAFMC please consider altering NJ regulations in one of two methods. First, I'd ask that simply consider dividing the state into two areas which would allow for more geocentric management which is specific to the regional biomass which seems to vary dramatically between the northern and southern parts of the state. Perhaps, given its already exempted status, Island Beach State Park could serve as the dividing line between these two regions. Should regionalization not prove possible, I would then ask that you please consider changing future regulations to something which would not have the negative impact on the biomass which current regulations do. My first instinct is to propose something along the lines of a 3-fish limit with 2 fish 16-18" and one fish which is permitted to be over 18" as a 'trophy fish' of sorts. I believe this approach will have a positive impact in two ways. First, it will lessen the culling which is occurring as part of the by-catch mortality of anglers releasing 16-18" fluke while pursuing 18"+ fish. Secondly, it should lessen the pressure on the larger prime-breeding fluke which are in the 18"+ class.

I appreciate the time you have taken to read this email, and I do appreciate the work that the MAFMC does. I believe that we share the same goals despite envisioning different ways of achieving them, and I hope that some of these suggestions could be taken into consideration as I sternly fear that our current summer flounder regulations will have a significant negative impact on this fishery if they remain unchanged; further, I believe that any size increase in the current regulations would only expound the current issues rather than alleviating them.

Thank you very much for your time.

Sincerely,

Kevin P. Sullivan

## Kiley Dancy

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**From:** Moore, Christopher  
**Sent:** Wednesday, August 1, 2018 6:13 PM  
**To:** Kiley Dancy; Beaty, Julia  
**Subject:** Fw: NJ Fluke Regs

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**From:** Ed Fiorentino <edward\_fiorentino@comcast.net>  
**Sent:** Wednesday, August 1, 2018 5:46 PM  
**To:** Moore, Christopher  
**Subject:** NJ Fluke Regs

*Dr. Moore*

*First and foremost, thank you in advance for taking the time to read this message and thank you as well for your work in the MAMFC; I firmly believe that we share the same passionate desire to maintain a healthy and sustainable fishery in the mid-Atlantic.*

*The reason that I am sending this message today is to voice concerns that I have over the management of the summer flounder fishery in New Jersey, particularly South Jersey. As you certainly know, we are currently faced with an 18" limit on summer flounder with a per-angler limit of three fish per-day with limited exceptions for both the Delaware Bay as well as Island Beach State Park. The concern that I have, however, is that this size requirement would give the outward appearance of doing more potential harm to this fishery than good.*

*While I most certainly do not have advanced degrees in the field or anywhere near the experience of someone with your credentials and in your position, I fear that our current regulations are causing significant problems within the fluke biomass. My reasons for this are two-fold. First, the size requirement of what constitutes a fish which may be harvested seems to be honing in recreational angler's harvesting target on those fish which are most likely to be the larger breeding females. By harvesting and removing these fish, are we not hurting the next generation of this fishery? Also, while my information is more anecdotal than analytical, I believe that in the waters of South Jersey, it is actually uncommon for male fluke to reach the 18" or larger size required to potentially be harvested. If true, this would mean that anglers are being specifically encouraged to damage the portion of the stock which should be most protected, the egg-carrying, mature females.*

*Secondarily, I also believe these regulations have created a new issue, or at the very least, exacerbated an existing one in the form of by-catch mortality. With the new 18" regulations, a significant number of 14"-18" fish are being caught by recreational anglers and released; however, some of the statistics that I have seen have sited an up-to 60% mortality rate among these fish even when handled properly for release. This is extremely alarming because now, not only are we potentially targeting the fish which are most likely to replenish the stock naturally, but we are also culling the existing stock through by-catch mortality as anglers are being forced to 'sort through' the overwhelming majority of 14-18" fish while searching for an 18" fish to*

be harvested.

*I realize that NJ, specifically, can pose some unique challenges as the Northern half of the state and the southern half of the state are significantly different in terms of fisheries. I believe this is extremely evident by comparing the NJ regulations to those of Delaware to our immediate South and New York to our immediate North. While Delaware, whose waters are very much like that of South Jersey to the extent of having special regulations in DE Bay which are NJ waters, has a regulation of 16.5" with a 4-fish limit, but open year-round. On the other hand, New York has a 19" requirement with a 4-fish limit and is open only between May 4th and September 30th. This seems to clearly illustrate a significant change in the fishery which occurs in the 130 miles of NJ coastline.*

*While I may not have your experience or education, I remain a firm believer in never highlighting a problem without offering a potential solution, so if I may be so bold as to make a suggestion, I would ask that the MAFMC please consider altering NJ regulations in one of two methods. First, I'd ask that simply consider dividing the state into two areas which would allow for more geocentric management which is specific to the regional biomass which seems to vary dramatically between the northern and southern parts of the state. Perhaps, given its already exempted status, Island Beach State Park could serve as the dividing line between these two regions. Should regionalization not prove possible, I would then ask that you please consider changing future regulations to something which would not have the negative impact on the biomass which current regulations do. My first instinct is to propose something along the lines of a 3-fish limit with 2 fish 16-18" and one fish which is permitted to be over 18" as a 'trophy fish' of sorts. I believe this approach will have a positive impact in two ways. First, it will lessen the culling which is occurring as part of the by-catch mortality of anglers releasing 16-18" fluke while pursuing 18"+ fish. Secondly, it should lessen the pressure on the larger prime-breeding fluke which are in the 18"+ class.*

*I appreciate the time you have taken to read this email, and I do appreciate the work that the MAFMC does. I believe that we share the same goals despite envisioning different ways of achieving them, and I hope that some of these suggestions could be taken into consideration as I sternly fear that our current summer flounder regulations will have a significant negative impact on this fishery if they remain unchanged; further, I believe that any size increase in the current regulations would only expound the current issues rather than alleviating them.*

*Thank you very much for your time.*

Ed Fiorentino



## Summer Flounder Fishery Information Document

June 2018

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This document provides a brief overview of the biology, stock condition, management system, and fishery performance for summer flounder with an emphasis on 2017, the most recent complete fishing year.

### 1. Biology

Summer flounder (*Paralichthys dentatus*) spawn during the fall and winter over the open ocean areas of the continental shelf. From October to May, larvae and postlarvae migrate inshore, entering coastal and estuarine nursery areas. Juveniles are distributed inshore and in many estuaries throughout the range of the species during spring, summer, and fall. Adult summer flounder exhibit strong seasonal inshore-offshore movements, normally inhabiting shallow coastal and estuarine waters during the warmer months of the year and remaining offshore during the colder months.

Summer flounder habitat includes pelagic waters, demersal waters, saltmarsh creeks, seagrass beds, mudflats, and open bay areas from the Gulf of Maine through North Carolina. Summer flounder are opportunistic feeders; their prey includes a variety of fish and crustaceans. While the natural predators of adult summer flounder are not fully documented, larger predators (e.g., large sharks, rays, and monkfish) probably include summer flounder in their diets.<sup>1</sup>

Spawning occurs during autumn and early winter, and the larvae are transported toward coastal areas by prevailing water currents. Development of post larvae and juveniles occurs primarily within bays and estuarine areas. Most fish are sexually mature by age 2. The largest fish are females, which can attain lengths over 90 cm (36 in) and weights up to 11.8 kg (26 lb). Recent NEFSC trawl survey data indicate that while female summer flounder grow faster (reaching a larger size at the same age), the sexes attain about the same maximum age (currently age 15 at 56 cm for males, and age 14 at 65 cm for females). Unsexed commercial fishery samples currently indicate a maximum age of 17 for an 85 cm fish (M. Terceiro, NEFSC, personal communication).

### 2. Status of the Stock

The most recent benchmark summer flounder stock assessment was completed and reviewed during the 57<sup>th</sup> Stock Assessment Workshop and Stock Assessment Review Committee (SAW/SARC 57).<sup>3</sup> This assessment uses a statistical catch at age model (the age-structured assessment program, or “ASAP” model). Stock assessment and peer review reports are available online at the Northeast Fisheries Science Center (NEFSC) website:

<http://www.nefsc.noaa.gov/saw/reports.html>.

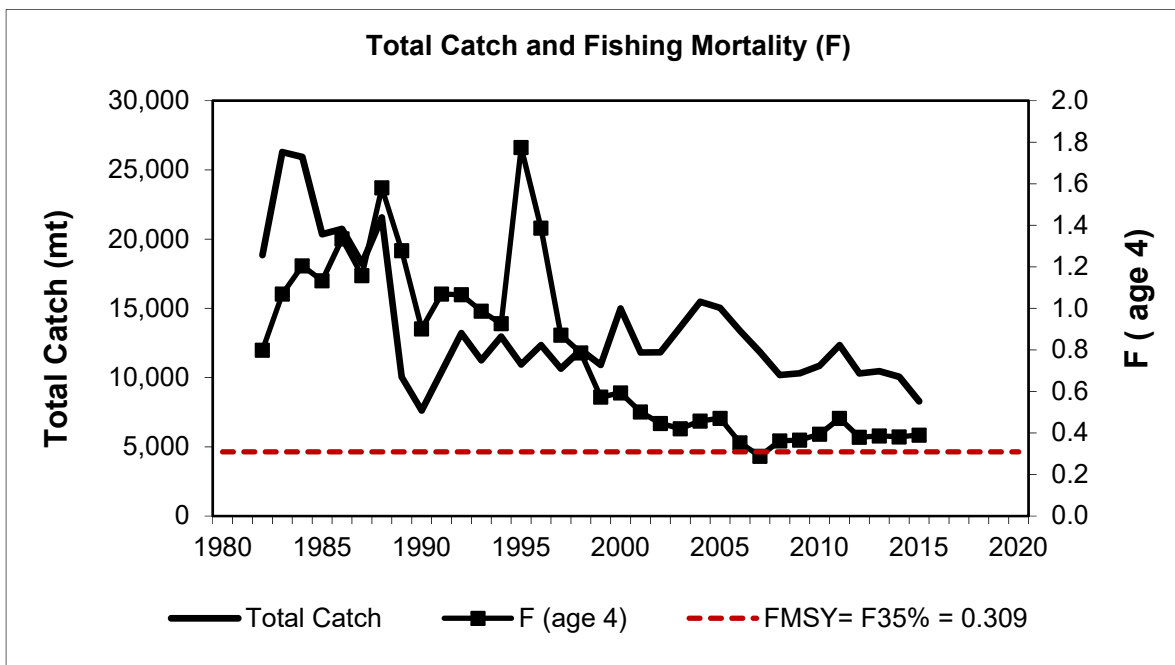
The last stock assessment update was completed by the NEFSC in June 2016, and incorporated data through 2015 into the population model used for the previous benchmark assessment. The 2016 assessment update indicated that the summer flounder stock was not overfished, but that overfishing was occurring in 2015, relative to the biological reference points established through the SAW/SARC 57 assessment. The model-estimated spawning stock biomass (SSB) was estimated to

be 79.90 million lb (36,240 mt) in 2015, 58% of the spawning stock biomass at maximum sustainable yield,  $SSB_{MSY} = 137.56$  million lb (62,394 mt). The fishing mortality rate (F) in 2015 was 0.390, 26% above the fishing mortality threshold reference point  $F_{MSYPROXY} = F_{35\%} = 0.309$  (Figure 1).<sup>4</sup>

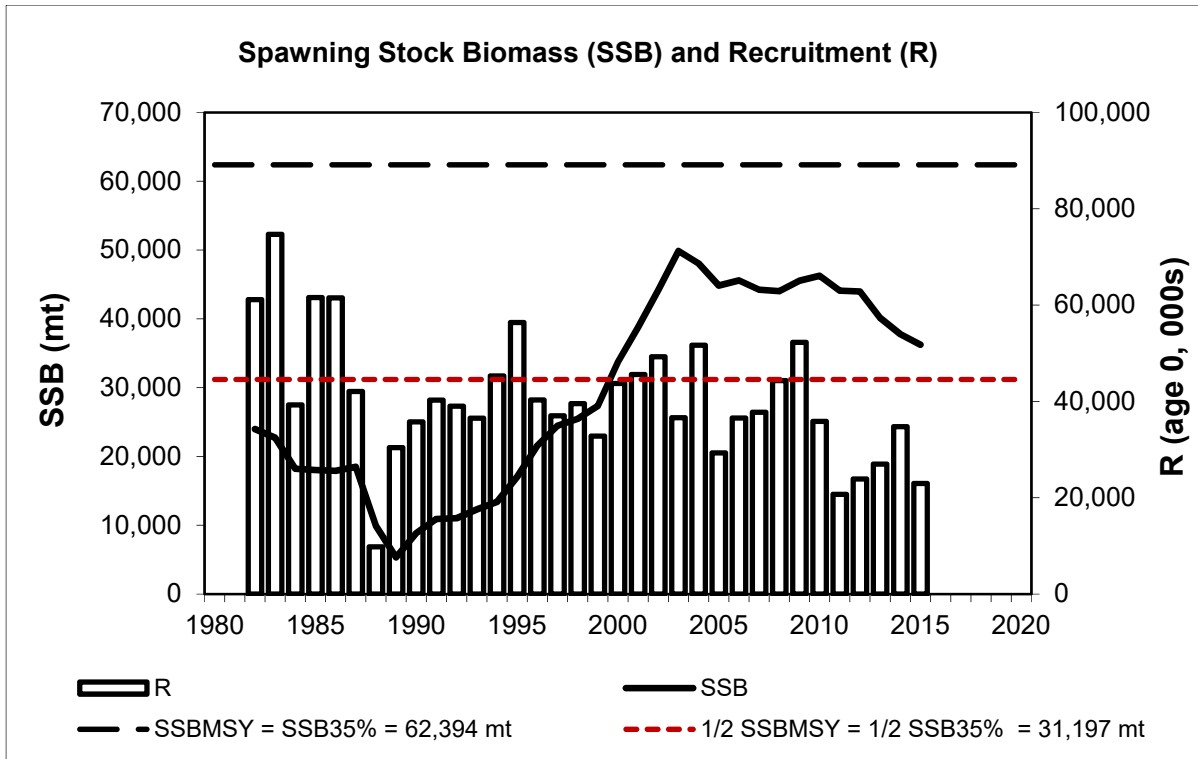
The 2016 assessment update indicated that while catch in recent years has not been substantially over the ABCs, the projected fishing mortality rates have been exceeded and projected spawning stock biomass has not been achieved. The assessment update shows a moderate internal model retrospective pattern with continued recent underestimation of F and overestimation of SSB. The assessment update indicates that the previous assessment had overestimated recruitment for several of the preceding years. These results appear to be largely driven by below average recruitment in each year from 2010-2015. The update shows that recruitment of age 0 fish was below the time series average (41 million fish at age 0; 1982-2015) each year from 2010 through 2015. Recruitment of age 0 fish in 2015 was estimated at 23 million fish.<sup>4</sup>

In June 2017, the Council received a data update for summer flounder, including updated catch and landings information as well as survey indices through 2016. No new stock projections or estimates of stock status were provided. The data update indicates that there is little evidence to suggest a substantial change in stock status from the 2016 assessment update (data through 2015). Most state and federal survey indices of abundance, with the exception of Massachusetts, remain below their most recent peaks (generally 2009-2012). Many of the indices decreased slightly between 2015 and 2016. Recruitment indices in 2016 were highly variable.

A new data update, including recent estimates of commercial and recreational fishery catch and fishery independent indices, will be provided by the NEFSC in July 2018.



**Figure 1:** Total fishery catch and fully-recruited fishing mortality (F, peak at age 4) of summer flounder, 1982-2015. The horizontal dashed red line is the 2013 SAW 57 fishing mortality threshold reference point proxy.<sup>4</sup>



**Figure 2:** Summer flounder spawning stock biomass (SSB; solid line) and recruitment at age 0 (R; vertical bars) by calendar year, 1982-2015. The horizontal long-dashed line is the 2013 SAW 57 biomass target reference point proxy, the horizontal short-dashed red line is the biomass threshold reference point proxy.<sup>4</sup>

### 3. Management System and Overall Fishery Performance

The Mid-Atlantic Fishery Management Council (Council) and the Atlantic States Marine Fisheries Commission (Commission or ASMFC) work cooperatively to develop fishery regulations for summer flounder off the east coast of the United States. The Council and Commission work in conjunction with the National Marine Fisheries Service (NMFS), which serves as the federal implementation and enforcement entity. This cooperative management endeavor was developed because a significant portion of the catch is taken from both state (0-3 miles offshore) and federal waters (3-200 miles offshore, also known as the Exclusive Economic Zone, or EEZ).

The joint Fishery Management Plan (FMP) for summer flounder became effective in 1988, and established the management unit for summer flounder as U.S. waters in the western Atlantic Ocean from the southern border of North Carolina northward to the U.S.-Canadian border. The FMP also established measures to ensure effective management of summer flounder fisheries, which currently include catch and landings limits, commercial quotas, recreational harvest limits, minimum fish sizes, gear regulations, permit requirements, and other provisions as prescribed by the FMP.

There are large commercial and recreational fisheries for summer flounder. These fisheries are managed primarily using output controls (catch and landings limits), with 60 percent of the landings being allocated to the commercial fishery as a commercial quota and 40 percent allocated



to the recreational fishery as a recreational harvest limit. Management also uses minimum fish sizes, gear regulations, permit requirements, and other provisions as prescribed by the FMP. Summer flounder was under a stock rebuilding strategy beginning in 2000 until it was declared rebuilt in 2011, based on an assessment update with data through 2010. Although the most recent (2016) assessment update included a revised biomass time series indicating that estimated biomass never actually reached the target biomass, current biomass estimates are still above the minimum stock size threshold that would trigger a new rebuilding plan. The Summer Flounder FMP, including subsequent Amendments and Frameworks, are available on the Council website at: <http://www.mafmc.org/fisheries/fmp/sf-s-bsb>.

The Council's Scientific and Statistical Committee (SSC) recommends annual Acceptable Biological Catch (ABC) levels for summer flounder, which are then approved by the Council and Commission and submitted to NMFS for final approval and implementation. The ABC is divided into commercial and recreational Annual Catch Limits (ACLs), based on the landings allocation prescribed in the FMP and the recent distribution of discards between the commercial and recreational fisheries. The Council first implemented recreational and commercial ACLs, with a system of overage accountability, in 2012. Both the ABC and the ACLs are catch limits (i.e., include both projected landings and discards), while the commercial quota and the recreational harvest limit are landing limits. Table 1 shows summer flounder catch and landings limits from 2007 through 2018, as well as commercial and recreational landings through 2017.

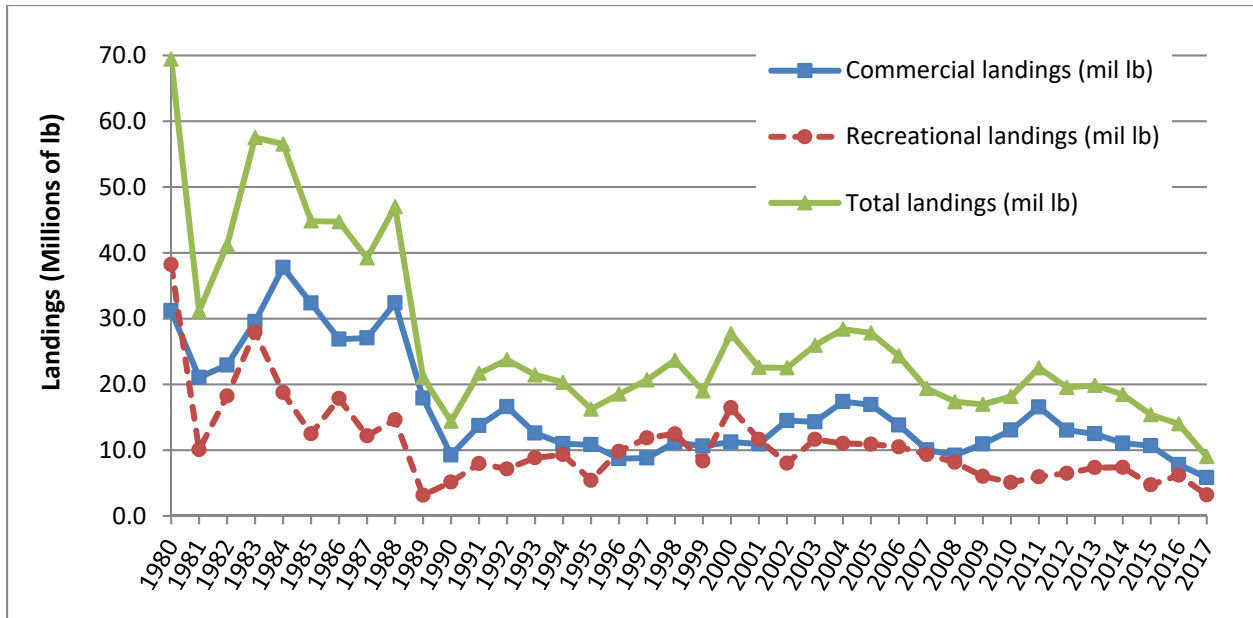
Total (commercial and recreational combined) summer flounder landings generally declined throughout the early 1980s, dropping to a time series low of 14.39 million lb in 1990, and in 2017 were about 9.02 million lb total (Figure 3).<sup>5,6</sup>

**Table 1:** Summary of catch limits, landings limits, and landings for commercial and recreational summer flounder fisheries from 2007 through 2018.

<b>Management measures</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
ABC (mil. lb) <sup>a</sup>	--	--	21.50	25.5	33.95	25.58	22.34	21.94	22.57	16.26	11.30	13.23
Commercial ACL (mil. lb) <sup>a</sup>	--	--	--	--	--	14.00	12.11	12.87	13.34	9.43	6.57	7.70
Commercial quota (mil. lb) <sup>b</sup>	9.79	9.32	10.74	12.79	17.38	12.73	11.44	10.51	11.07	8.12	5.66	6.63
Commercial landings (mil. lb.)	10.04	9.21	10.94	13.04	16.56	13.03	12.49	11.07	10.68	7.81	5.83	--
% of commercial quota landed	103%	99%	102%	102%	95%	102%	109%	105%	96%	96%	103%	--
Recreational ACL (mil. lb)	--	--	--	--	--	11.58	10.23	9.07	9.44	6.84	4.72	5.53
Recreational harvest limit (mil. lb) <sup>b</sup>	6.68	6.21	7.16	8.59	11.58	8.49	7.63	7.01	7.38	5.42	3.77	4.42
Recreational landings (mil. lb)	9.34	8.15	6.03	5.11	5.96	6.49	7.36	7.39	4.72	6.18	3.19	--
% of recreational harvest limit landed	140%	131%	84%	59%	51%	76%	97%	105%	64%	114%	85%	--

<sup>a</sup> The ABC is the annual Acceptable Biological Catch for the entire summer flounder fishery, and is divided into sector-specific Annual Catch Limits (ACLs) for the commercial and recreational fisheries. The ABC and ACLs include both landings and discards.

<sup>b</sup> Commercial quotas and recreational harvest limits reflect the removal of projected discards from the sector-specific ACLs. For 2006-2014, these limits are also adjusted for Research Set Aside (RSA). Quotas and harvest limits for 2015-2018 do not reflect an adjustment for RSA due to the suspension of the program in 2014.



**Figure 3:** Commercial and recreational summer flounder landings in millions of pounds, Maine-North Carolina, 1980-2017.<sup>5,6</sup>

#### 4. Commercial Summer Flounder Measures and Fishery Performance

Commercial landings of summer flounder peaked in 1984 at 37.77 million pounds, and reached a low of 5.83 million pounds in 2017 (corresponding to 103% of the commercial quota) according to preliminary data (Figure 3).<sup>5</sup>

In federal waters, a moratorium permit is required to fish commercially for summer flounder. Permit data indicate that 766 commercial moratorium permits for summer flounder were issued in 2017.<sup>7</sup>

The commercial quota is divided among the states based on the allocation percentages given in Table 2 and each state sets measures to achieve their state-specific commercial quotas. The Council and ASFMC are currently considering modifications to the commercial allocations through a Summer Flounder Commercial Issues Amendment (see: <http://www.mafmc.org/actions/summer-flounder-amendment>). If adopted, any changes to allocations would not be implemented until at least January 1, 2020.

**Table 2:** State-by-state percent share of commercial summer flounder allocation.

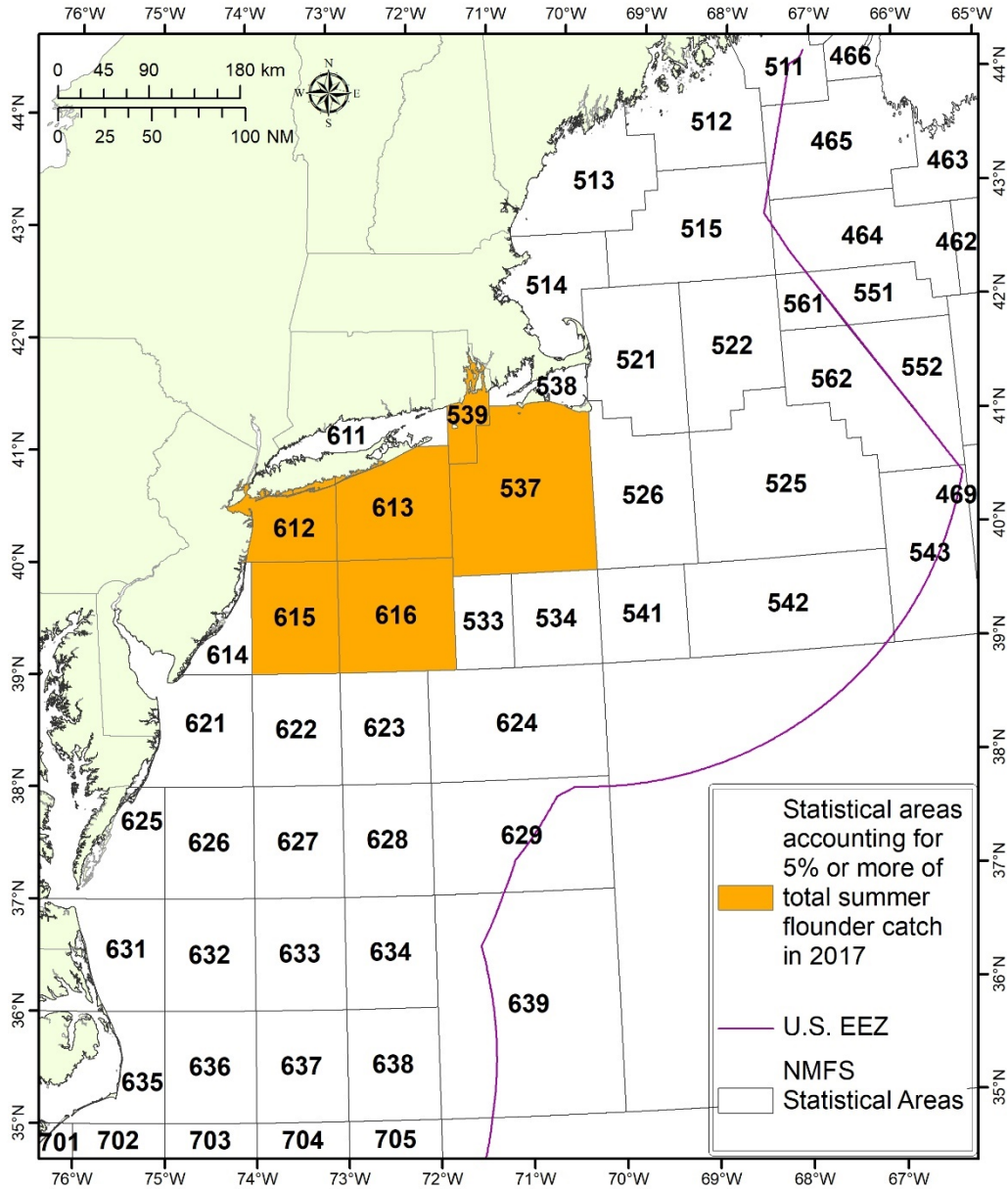
State	Allocation (%)
ME	0.04756
NH	0.00046
MA	6.82046
RI	15.68298
CT	2.25708
NY	7.64699
NJ	16.72499
DE	0.01779
MD	2.03910
VA	21.31676
NC	27.44584
Total	100

Vessel Trip Report (VTR) data for 2017 indicate that the bulk of the summer flounder landings were taken by bottom otter trawls (96 percent). All other gear types each accounted for less than 1 percent of landings.<sup>8</sup> Current regulations require a 14-inch total length minimum fish size in the commercial fishery. Trawl nets are required to have 5.5-inch diamond or 6-inch square minimum mesh in the entire net for vessels possessing more than the threshold amount of summer flounder (i.e., 200 lb from November 1-April 30 and 100 lb from May 1-October 31).

VTR data were also used to identify all NMFS statistical areas that accounted for more than 5 percent of the summer flounder commercial catch in 2017 (Table 3; Figure 4). Statistical areas 616 and 537 were responsible for the highest percentage of the catch (24% and 23% respectively; Table 3). While statistical area 539 accounted for only 6% of 2016 summer flounder catch, this area had the highest number of trips that caught summer flounder (2,478 trips).<sup>8</sup> Note that discards on VTRs are self-reported.

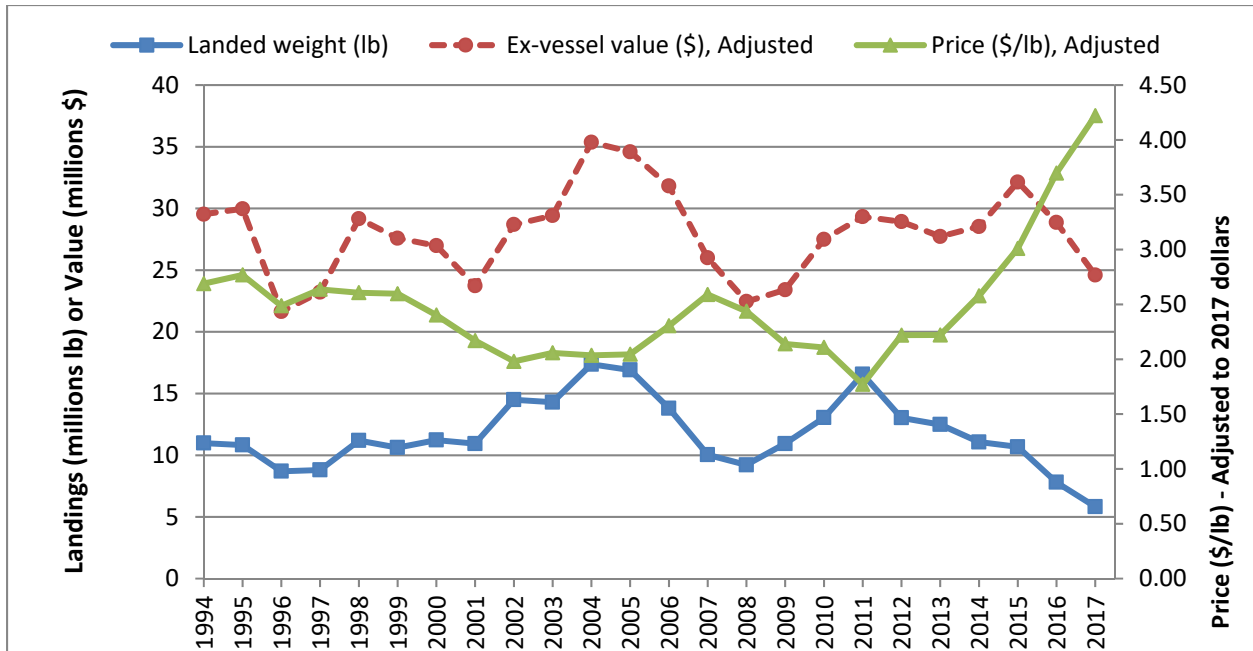
**Table 3:** Statistical areas that accounted for at least 5 percent of the total summer flounder catch in 2017, with associated number of trips.<sup>8</sup>

Statistical Area	Percent of 2017 Commercial Summer Flounder Catch	Number of Trips
616	24%	823
537	23%	1,469
613	13%	1,617
612	7%	1,205
615	7%	425
539	6%	2,478



**Figure 4:** NMFS Statistical Areas, highlighting those that each accounted for more than 5% of the commercial summer flounder catch in 2017.<sup>8</sup>

For the years 1994 through 2017, NMFS dealer data indicate that summer flounder total ex-vessel revenue from Maine to North Carolina ranged from a low of \$21.64 million in 1996 to a high of \$35.36 million in 2004 (values adjusted to 2017 dollars to account for inflation). The mean price per pound for summer flounder ranged from a low of \$1.77 in 2011 (in 2017 dollars) to a high of \$4.22 in 2017. In 2017, 5.83 million pounds of summer flounder were landed generating \$24.60 million in total ex-vessel revenue (an average of \$4.22 per pound; Figure 5).<sup>5</sup>



**Figure 5:** Landings, ex-vessel value, and price per pound for summer flounder, Maine through North Carolina, 1994-2017. Ex-vessel value and price are adjusted to real 2017 dollars.<sup>5</sup>

At least 100,000 lb of summer flounder were landed by commercial fishermen at each of 13 ports in seven states in 2017. These 13 ports accounted for approximately 82% of all 2017 commercial summer flounder landings. Beaufort, NC and Point Judith, RI were the leading ports in 2017 in terms of pounds of summer flounder landed, while Point Judith, RI was the leading port in terms of the number of vessels landing summer flounder (Table 4).<sup>5</sup> Detailed community profiles developed by the Northeast Fisheries Science Center’s Social Science Branch can be found at [www.mafmc.org/communities/](http://www.mafmc.org/communities/).

**Table 4:** Ports reporting at least 100,000 lb of summer flounder in 2017, and the corresponding percentage of total 2016 commercial summer flounder landings and number of vessels.<sup>5</sup>

Port	Summer Flounder Landings (lb)	% of 2017 commercial summer flounder landings	Number of vessels
BEAUFORT	902,639	15	69
POINT JUDITH	770,412	13	140
HAMPTON	598,478	10	57
PT. PLEASANT	480,258	8	58
NEWPORT NEWS	428,416	7	43
MONTAUK	289,375	5	77
WANCHESE	274,174	5	25
BELFORD	241,572	4	20
NEW BEDFORD	211,907	4	69
CHINCOTEAGUE	192,609	3	25
CAPE MAY	132,848	2	49
ENGELHARD	131,580	2	9
ORIENTAL	105,698	2	10

Over 194 federally permitted dealers from Maine through North Carolina bought summer flounder in 2017. More dealers bought summer flounder in New York than in any other state (Table 5). All dealers combined bought approximately \$24.60 million worth of summer flounder in 2017.<sup>5</sup>

**Table 5:** Dealers reporting buying summer flounder, by state in 2017.<sup>5</sup> C=Confidential.

State	MA	RI	CT	NY	NJ	DE	MD	VA	NC
Number Of Dealers	27	29	16	45	25	C	6	16	30

## 5. Recreational Summer Flounder Measures and Fishery Performance

There is a significant recreational fishery for summer flounder, primarily in state waters when the fish migrate inshore during the warm summer months. The Council and ASMFC determine annually whether to manage the recreational fishery under coastwide measures or conservation equivalency. Under conservation equivalency, state- or region- specific measures are developed through the ASMFC’s management process and submitted to NMFS. The combined state or regional measures must achieve the same level of conservation as would a set of coastwide measures developed to adhere to the overall recreational harvest limit. If NMFS considers the combination of the state- or region- specific measures to be "equivalent" to the coastwide measures, they may then waive the coastwide regulation in federal waters. Anglers fishing in federal waters are then subject to the measures of the state in which they land summer flounder.

The recreational fishery has been managed using conservation equivalency each year since 2001. From 2001 through 2013, measures were developed under state-by-state conservation equivalency. Since 2014, a regional approach has been used, under which the states within each region must

have identical size limits, possession limits, and season length. The 2018 regional conservation equivalency measures are given in Table 6.

**Table 6:** Summer flounder recreational fishing measures in 2018, by state, under regional conservation equivalency. 2018 regions include: 1) Massachusetts, 2) Rhode Island, 3) Connecticut and New York, 4) New Jersey, 5) Delaware, Maryland, The Potomac River Fisheries Commission, and Virginia, and 6) North Carolina.

State	Minimum Size (inches)	Possession Limit	Open Season
Massachusetts	17	5 fish	May 23-October 9
Rhode Island	19	6 fish	May 1-December 31
Connecticut	19	4 fish	May 4- September 30
CT Shore Program (45 designed shore sites)	17		
New York	19	4 fish	May 4- September 30
New Jersey	18	3 fish	May 25-September 22
NJ Shore program site (Island Beach State Park) <sup>a</sup>	16	2 fish	
New Jersey/Delaware Bay COLREGS	17	3 fish	
Delaware	16.5	4 fish	January 1- December 31
Maryland	16.5	4 fish	January 1- December 31
PRFC	16.5	4 fish	January 1- December 31
Virginia	16.5	4 fish	January 1- December 31
North Carolina	15	4 fish	January 1- December 31

Recreational data for years 2004 and later are available from the Marine Recreational Information Program (MRIP). For years prior to 2004, recreational data were generated by the Marine Recreational Fishery Statistics Survey (MRFSS). Recreational catch and landings for summer flounder peaked in 1983 with 32.11 million fish caught and 21.00 million fish landed (27.97 million pounds). Catch reached a low in 1989 with 2.69 million fish caught, while landings reached a low in 2017 with 1.03 million fish landed (3.19 million pounds; Table 7).<sup>6</sup>

For-hire vessels carrying passengers in federal waters must obtain a federal party/charter permit. In 2017, there were 820 party and charter vessels that held summer flounder federal for-hire permits.<sup>7</sup> Many of these vessels also hold recreational permits for scup and black sea bass.



**Table 7:** Recreational summer flounder landings data from the NMFS recreational statistics databases, Maine through North Carolina, 1981-2017.<sup>6</sup>

<b>Year</b>	<b>Catch (millions of fish)</b>	<b>Landings (millions of fish)</b>	<b>Landings (millions of pounds)</b>
1981	13.58	9.57	10.08
1982	23.56	15.47	18.23
1983	32.06	21.00	27.97
1984	29.78	17.48	18.76
1985	13.53	11.07	12.49
1986	25.29	11.62	17.86
1987	21.02	7.86	12.17
1988	17.17	9.96	14.62
1989	2.68	1.72	3.16
1990	9.10	3.79	5.13
1991	16.07	6.07	7.96
1992	11.91	5.00	7.15
1993	22.90	6.49	8.83
1994	17.73	6.70	9.33
1995	16.31	3.33	5.42
1996	18.99	7.00	9.82
1997	20.03	7.17	11.87
1998	22.09	6.98	12.48
1999	21.38	4.11	8.37
2000	25.38	7.80	16.47
2001	28.19	5.29	11.64
2002	16.67	3.26	8.01
2003	20.53	4.56	11.64
2004	20.34	4.32	11.02
2005	25.81	4.03	10.92
2006	21.40	3.95	10.50
2007	20.73	3.11	9.34
2008	22.90	2.35	8.15
2009	24.09	1.81	6.03
2010	23.72	1.50	5.11
2011	21.56	1.84	5.96
2012	16.53	2.27	6.49
2013	16.11	2.52	7.36
2014	18.97	2.46	7.39
2015	12.15	1.62	4.72
2016	14.17	2.03	6.18
2017	8.44	1.03	3.19

On average, an estimated 87 percent of the landings (in numbers of fish) occurred in state waters over the past ten years, and about 81 percent of landings came from state waters in 2017 (Table 8). The majority of summer flounder were landed in New York and New Jersey in 2017 (Table 9).<sup>6</sup>

**Table 8:** Estimated percentage of summer flounder recreational landings in state vs. federal waters, Maine through North Carolina, 2008-2017.<sup>6</sup>

Year	State <= 3 mi	EEZ > 3 mi
2008	96.49%	3.51%
2009	90.93%	9.07%
2010	92.40%	7.60%
2011	95.31%	4.69%
2012	87.76%	12.24%
2013	76.97%	23.03%
2014	77.08%	22.92%
2015	80.95%	19.05%
2016	80.91%	19.09%
2017	79.57%	20.43%
<b>Avg. 2008 - 2017</b>	<b>86.8 %</b>	<b>14.2%</b>
<b>Avg. 2015 - 2017</b>	<b>80.5%</b>	<b>19.5%</b>

**Table 9:** State contribution (as a percentage) to total recreational landings of summer flounder (in numbers of fish), from Maine through North Carolina, 2015-2017.<sup>6</sup>

State	2015	2016	2017
Maine	0.0%	0.0%	
New Hampshire	0.0%	0.0%	0.0%
Massachusetts	4.9%	2.7%	2.6%
Rhode Island	10.1%	4.3%	6.1%
Connecticut	5.7%	10.7%	8.5%
New York	30.3%	35.1%	21.5%
New Jersey	30.7%	37.2%	43.9%
Delaware	3.2%	4.4%	3.3%
Maryland	2.7%	1.1%	2.5%
Virginia	9.8%	3.5%	9.0%
North Carolina	2.5%	0.9%	2.5%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

MRIP data indicate that about 82% of recreational summer flounder landings in 2017 were caught by anglers fishing on private or rental boats, about 13% from anglers aboard party or charter boats, and 5% from shore (Table 10).<sup>6</sup>

**Table 10:** The number of summer flounder landed by recreational fishing mode, Maine through North Carolina, 1981-2017.<sup>6</sup>

Year	Shore (numbers of fish)	Party/Charter (numbers of fish)	Private/Rental (numbers of fish)
1981	3,145,683	1,362,252	5,058,639
1982	1,120,521	5,936,006	8,416,173
1983	3,963,680	3,574,229	13,458,398
1984	1,355,595	2,495,733	13,623,843
1985	786,185	1,152,247	9,127,759
1986	1,237,033	1,608,907	8,774,921
1987	406,095	1,150,095	6,308,572
1988	945,864	1,134,353	7,879,442
1989	180,268	141,320	1,395,177
1990	261,898	413,240	3,118,447
1991	565,404	597,610	4,904,637
1992	275,474	375,245	4,351,387
1993	342,225	1,013,464	5,138,352
1994	447,184	836,362	5,419,145
1995	241,906	267,348	2,816,460
1996	206,927	659,876	6,130,182
1997	255,066	930,633	5,981,121
1998	316,314	360,777	6,302,004
1999	213,447	300,807	3,592,741
2000	569,612	648,755	6,582,707
2001	226,996	329,705	4,736,910
2002	154,958	261,554	2,845,647
2003	203,717	389,142	3,965,811
2004	200,368	463,776	3,652,354
2005	104,295	498,614	3,424,557
2006	154,414	315,935	3,479,934
2007	98,418	499,160	2,510,000
2008	79,339	171,951	2,098,583
2009	62,691	176,997	1,566,490
2010	59,812	160,109	1,281,546
2011	34,849	137,787	1,667,240
2012	106,344	169,473	1,996,404
2013	132,804	271,060	2,117,502
2014	79,918	439,550	1,938,535
2015	47,680	272,227	1,301,573
2016	62,383	144,423	1,820,964
2017	49,269	138,277	840,937
<b>% of Total, 1981-2017</b>	9%	14%	78%
<b>% of Total, 2013-2017</b>	4%	13%	83%

## 6. References

- <sup>1</sup> Packer, D. B, S. J. Griesbach, P. L. Berrien, C. A. Zetlin, D. L. Johnson, and W.W. Morse. 1999. Essential Fish Habitat Source Document: Summer Flounder, *Paralichthys dentatus*, Life History and Habitat Characteristics. NOAA Technical Memorandum NMFS-NE-151.
- <sup>2</sup> Mark Terceiro, NEFSC, personal communication, January 2017.
- <sup>3</sup> Northeast Fisheries Science Center. 2013. 57<sup>th</sup> Northeast Regional Stock Assessment Workshop (57<sup>th</sup> SAW) Assessment Summary Report. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 13-14; 39 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026, or online at: <http://nefsc.noaa.gov/publications/>.
- <sup>4</sup> Terceiro M. 2016. Stock Assessment of Summer Flounder for 2016. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 16-15; 117 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026, or online at <http://www.nefsc.noaa.gov/publications/>.
- <sup>5</sup> Unpublished NMFS dealer data as of May 21, 2018.
- <sup>6</sup> Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division. Accessed April 23, 2018. Available at: <http://www.st.nmfs.noaa.gov/recreational-fisheries/index>.
- <sup>7</sup> Unpublished NMFS permit data as of May 29, 2018.
- <sup>8</sup> Unpublished NMFS Vessel Trip Report (VTR) data as of May 29, 2018.



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Michael P. Luisi, Chairman | G. Warren Elliott, Vice Chairman  
Christopher M. Moore, Ph.D., Executive Director

## MEMORANDUM

**Date:** August 2, 2018  
**To:** Council  
**From:** Julia Beaty  
**Subject:** Scup Specifications for 2019

The Council and Board will consider 2019 specifications for scup on Wednesday, August 15, 2018. Materials listed below are provided for the Council and Board's consideration of this agenda item.

*Materials behind this tab:*

- 1) Staff memo on 2019 scup specifications dated July 3, 2018
- 2) Proposal from Massachusetts and Rhode Island on the incidental scup possession limit
- 3) Memo from David Pierce, Massachusetts Division of Marine Fisheries on recreational scup minimum size, dated June 12, 2018
- 4) 2018 Scup Fishery Information Document
- 5) Scup data update for 2018

*Materials behind other tabs:*

- 6) Summary of July 19, 2018 Monitoring Committee meeting (*behind Tab 7*)
- 7) Advisory Panel Fishery Performance Report for scup (*behind Tab 7*)
- 8) Additional written comments from advisors on summer flounder, scup, and black sea bass (*behind Tab 7*)
- 9) July 2017 Scientific and Statistical Committee meeting report (*behind Tab 16*)



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## MEMORANDUM

**DATE:** July 3, 2018

**TO:** Chris Moore, Executive Director

**FROM:** Julia Beaty, Staff

**SUBJECT:** 2019 Scup Management Measures and Review of Scup Discards through 2017

### Executive Summary

In 2017, the Mid-Atlantic Fishery Management Council (Council) and the Atlantic States Marine Fisheries Commission's (Commission's) Summer Flounder, Scup, and Black Sea Bass Management Board (Board) revised the scup catch and landings limits for 2018 and set catch and landings limits for 2019. The Council's Scientific and Statistical Committee (SSC) and Monitoring Committee, as well as the Council and Board, will review the 2019 catch and landings limits in July and August 2018.

Council staff recommend no changes to the previously implemented 2019 catch and landings limits, including the 2019 acceptable biological catch (ABC) of 36.43 million pounds (16,525 mt), the commercial annual catch limit (ACL) and annual catch target (ACT) of 28.42 million pounds (12,890 mt), commercial quota of 23.98 million pounds (10,879 mt), recreational ACL and ACT of 8.01 million pounds (3,636 mt), and recreational harvest limit (RHL) of 7.37 million pounds (3,342 mt). The process used to derive these values is described in later sections of this document. In addition, staff recommend no changes to the commercial scup management measures at this time.

According to the 2018 data update from the Northeast Fisheries Science Center (NEFSC) and recreational harvest estimates from the Marine Recreational Information Program (MRIP), the 2017 commercial ACL was exceeded by 17% and the recreational ACL was exceeded by 1%. The ABC was exceeded by about 13%. Neither the commercial quota nor the RHL were exceeded in 2017. According to NEFSC estimates, commercial discards in 2017 were 10.47 million pounds (4,727 mt), the highest since 1981 and a 71% increase from 2016 (NEFSC 2018). This increase in discards was likely mainly due to the large 2015 year class, which is the largest year class since at least 1984. In 2017, these scup were very abundant, but mostly too small to be landed in the commercial fishery due to the commercial minimum fish size of 9 inches total length (Dr. Mark Terceiro, NEFSC, personal communication). An analysis of commercial scup discards through 2017 is included in an appendix to this document. Recreational discards increased by 14% between 2016 and 2017 (from 780,436 pounds/354 mt to 897,281 pounds/407 mt; NEFSC 2018).

Current regulations require pound for pound paybacks of commercial ACL overages. The National Marine Fisheries Service (NMFS) will publish any changes to the 2019 commercial ACL due to the 2017 ACL overage through a notice in the Federal Register. The Council approved a modification to the commercial summer flounder, scup, and black sea bass accountability measures (AMs) in February 2018. This change, which has not yet been implemented, would eliminate the requirement for pound for

pound paybacks of ACL overages when the stock is above the target biomass, as scup is currently.<sup>1</sup> If NMFS approves and implements this change, then the 2017 ACL overage may not require a modification to the 2019 commercial ACL.

Recreational ACL overages do not require pound for pound paybacks when the stock is above the target biomass; therefore, no recreational ACL adjustment is needed in 2019 as a result of the 2017 recreational ACL overage.

Based on the 2017 stock assessment update, the scup stock was not overfished and overfishing was not occurring in 2016. Spawning stock biomass (SSB) was estimated to be about 397 million pounds (179,898 mt) in 2016, about 2.1 times the SSB<sub>MSY</sub> proxy reference point (i.e. SSB<sub>40%</sub>) of 192 million pounds (87,302 mt). Fishing mortality on fully selected age 3 scup was 0.139 in 2016, about 63% of the F<sub>MSY</sub> proxy reference point (F<sub>40%</sub>) of 0.220. At 252 million fish, the 2015 year class was estimated to be the largest in the time series (i.e. 1984-2016) and about 2.1 times the average recruitment (i.e. 65 million age 0 scup). The 2016 year class was estimated to be about 46% below average (NEFSC 2017).

According to the 2018 data update from the NEFSC (NEFSC 2018), the NEFSC bottom trawl survey biomass indices for scup in fall 2015 and spring 2016 were record highs for the time series (i.e. 1963 - present for the fall survey and 1968 through the present for the spring survey). Both seasonal indices decreased after 2016. Several state fisheries-independent surveys show similar trends.

**Table 1:** Scup catch and landings limits for 2019.

Measure	mil lb	mt	Basis
<b>Overfishing Limit (OFL)</b>	41.03	18,612	2017 stock assessment update projections
<b>ABC</b>	36.43	16,525	Assessment projections & risk policy
<b>ABC discards</b>	5.08	2,304	14% of ABC, based on the avg. % of catch that was discarded, 2014-2016
<b>Projected commercial discards</b>	4.43	2,011	87.3% of ABC discards (avg. % of dead discards from commercial fishery, 2014-2016)
<b>Projected recreational discards</b>	0.65	293	12.7% of the ABC discards (avg. % of dead discards from rec. fishery, 2014-2016)
<b>Commercial ACL</b>	28.42	12,890	78% of ABC (per FMP)
<b>Commercial ACT</b>	28.42	12,890	Set equal to commercial ACL
<b>Commercial quota</b>	23.98	10,879	Commercial ACT minus projected commercial discards
<b>Recreational ACL</b>	8.01	3,636	22% of ABC (per FMP)
<b>Recreational ACT</b>	8.01	3,636	Set equal to recreational ACL
<b>RHL</b>	7.37	3,342	Recreational ACT minus projected recreational discards

## Introduction

The Magnuson-Stevens Act (MSA) requires that the Council’s SSC provide scientific advice for fishery management decisions, including recommendations on ABCs, prevention of overfishing, and achieving

<sup>1</sup> The proposed change would not modify the existing pound for pound payback requirements for quota overages. The proposed change only addresses overages due to higher than projected discards (i.e. non-landings overages). More information is available here: <http://www.mafmc.org/actions/sfsbsb-commercial-am-framework>.

maximum sustainable yield (MSY). The SSC must recommend ABCs that address scientific uncertainty. The Council's catch limit recommendations cannot exceed the ABCs recommended by the SSC.

The Monitoring Committee develops recommendations for management measures to achieve the ABCs recommended by the SSC. Specifically, the Monitoring Committee recommends ACTs that are equal to or less than the ACLs to address management uncertainty, and recommends management measures designed to achieve the ACTs.

Summer flounder, scup, and black sea bass are cooperatively managed by the Council and the Commission under a joint Fishery Management Plan (FMP). The Council and the Commission's Summer Flounder, Scup, and Black Sea Bass Management Board meet jointly each year to consider SSC and Monitoring Committee recommendations before deciding on proposed scup catch limits and other management measures. The Council and Board may set specifications for scup for up to three years at a time. The Council and Board submit their recommendations to NMFS, which is responsible for implementation and enforcement of federal fisheries regulations.

This memorandum includes information to assist the SSC and Monitoring Committee in reviewing and possibly revising the previously implemented 2019 scup catch and landings limits, as well as commercial management measures for 2019. Additional information on fishery performance and past management measures can be found in the 2018 Scup Fishery Information Document (MAFMC 2018A) and the 2017 Summer Flounder, Scup, and Black Sea Bass Fishery Performance Report developed by the Council and Commission Advisory Panels (MAFMC 2018B).

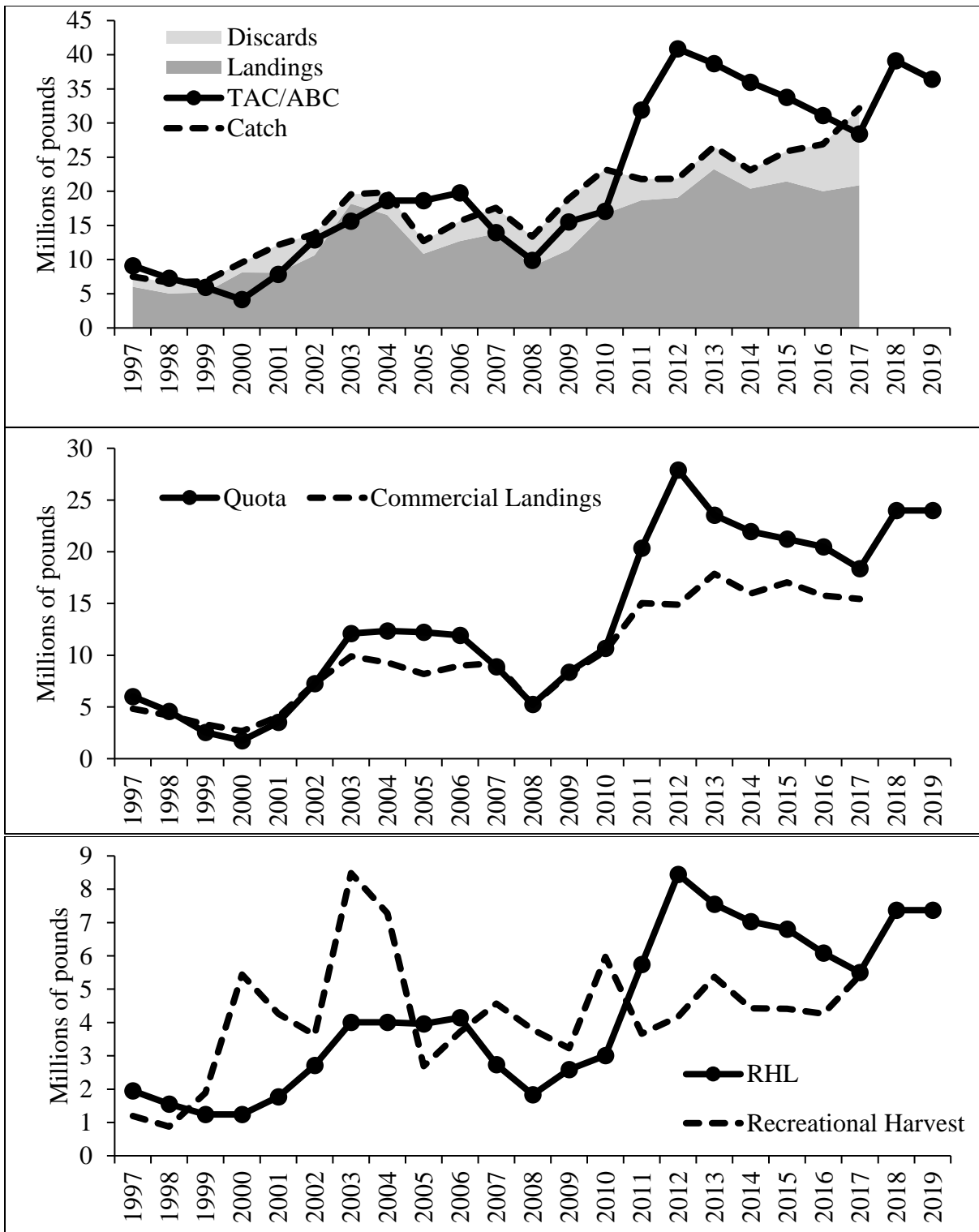
### **Recent Catch and Landings**

According to the 2018 data update from the NEFSC (NEFSC 2018), commercial fishermen landed 15.45 million pounds (7,007 mt) of scup, about 84% of the 2017 commercial quota (18.38 million pounds, 8,337 mt), and discarded 10.42 million pounds of scup (4,727 mt). Commercial catch exceeded the ACL of 22.15 million pounds (12,890 mt) by about 17%.

According to MRIP data, 5.43 million pounds (2,462 mt) of scup were harvested by recreational fishermen from Maine through North Carolina in 2017, about 99% of the RHL of 5.50 million pounds (2,495 mt). According to the 2018 NEFSC data update (NEFSC 2018), about 0.90 million pounds (407 mt) of scup were discarded by recreational fishermen in 2017. According to these estimates, recreational catch in 2017 was 6.33 million pounds (2,849 mt), about 1% above the 2017 ACL of 6.25 million pounds (2,835 mt).

According to these estimates, the 2017 ABC was exceeded by 13%. These commercial and recreational overages mark a departure from trends in the fisheries during 2011-2016, as shown in Figure 1. The increase in discards between 2016 and 2017 was likely mainly due to the large 2015 year class, which is the largest year class since at least 1984. In 2017, these scup were very abundant, but mostly too small to be landed in the commercial fishery due to the commercial minimum fish size of 9 inches total length (Dr. Mark Terceiro, NEFSC, personal communication). An analysis of commercial scup discards through 2017 is included in an appendix to this document.





**Figure 1:** *Top:* total commercial and recreational catch, landings, and discards compared to ABCs. *Middle:* commercial landings compared to commercial quotas. *Bottom:* recreational harvest compared to RHLs.

The commercial scup quota is allocated among three quota periods: Winter I (January 1 – April 30, allocated 45.11% of the annual quota), Summer (May 1 – September, allocated 38.95% of the annual quota), and Winter II (October 1 – December 31, allocated 15.94% of the annual quota).<sup>2</sup> About 42% of the 2018 Winter I commercial scup quota was landed. As of June 23, 2018, 28% of the Summer commercial scup quota had been landed (Table 2).

**Table 2:** Commercial scup landings during the 2018 Winter I and Summer quota periods (through the week ending June 23, 2018), according to NMFS weekly landings reports. The Winter I quota is a coast-wide quota. The Summer period quota is allocated among states under the Commission’s FMP.

<b>State</b>	<b>Winter I</b> Landings (pounds) January 1 – April 28, 2018*	<b>Summer</b> Landings (pounds) May 1 – June 23, 2018*
Maine	0	0
New Hampshire	0	0
Massachusetts	536,100	301,591
Rhode Island	745,050	1,264,569
Connecticut	226,219	98,932
New York	1,133,110	821,485
New Jersey	1,443,524	80,653
Delaware	0	0
Maryland	34,932	0
Virginia	353,656	3,327
North Carolina	39,989	311
Other	0	0
<b>Total landings</b>	<b>4,512,580</b>	<b>2,570,868</b>
<b>Quota</b>	<b>10,820,000</b>	<b>9,294,233</b>

\*Note: The Winter I period lasts from January 1 through April 30. The Summer period lasts from May 1 through September 30. Landings in this table are from the NMFS quota monitoring site (<https://www.greateratlantic.fisheries.noaa.gov/aps/monitoring/scup.html>), which reports landings by week, rather than by quota period; thus, the Winter I landings shown above do not account for 100% of the 2018 Winter I landings.

### **2019 OFL and ABC Projections**

In 2015, the Council and Board set scup specifications for 2016-2018 based on the recommendations of the SSC and Monitoring Committee. The SSC derived their ABC recommendations from the Council’s risk policy and OFL projections provided with the 2015 benchmark stock assessment (NEFSC 2015). These projections assumed that 75% of the 2015 ABC would be caught and that F in 2016 and 2017 would be 0.22 ( $F_{MSY}$ ). The SSC assigned a 60% coefficient of variation (CV) to the OFL. The SSC used a 40% probability of overfishing ( $p^*$ ) to derive the 2016-2018 ABCs, based on the Council’s risk policy for a species with a typical life history.

<sup>2</sup> Prior to 2018, October was included in the summer quota period. The allocation percentages were the same as shown above.

The SSC revised their 2018 OFL and ABC recommendations and adopted a 2019 OFL and ABC in July 2018 after reviewing a stock assessment update provided by the NEFSC (NEFSC 2017). These ABC recommendations were based on biomass projections provided with the assessment update.

The projections assumed, based on patterns in the 2016 fishery, that 87% of the 2017 ABC would be caught and F in 2018 and 2019 would be 0.22 (i.e. the  $F_{MSY}$  proxy). The projections also used an OFL CV of 60% and a 40% probability of overfishing, based on the SSC’s previous OFL CV recommendation and application of the Council’s risk policy. This resulted in a 2019 OFL of 41.03 million pounds (18,612 mt) and a 2019 ABC of 36.43 million pounds (16,525 mt; Table 3).

**Table 3:** OFL, ABC, F, and SSB based on projections from the 2017 stock assessment update (NEFSC 2017) using an OFL CV of 60% and the Council’s risk policy ( $p^*=40\%$ ) and assuming that 87% of the ABC will be caught in 2017 and F would be at  $F_{MSY}$  proxy of 0.22 in subsequent years.

Year	OFL		ABC Catch		ABC Landings		ABC Discards		F	SSB	
	mil lb	mt	mil lb	mt	mil lb	mt	mil lb	mt		mil lb	mt
2017	24.70	11,206	24.70	11,206	19.76	8,962	4.95	2,244	0.112	404.10	183,296
2018	45.05	20,433	39.14	17,755	33.24	15,076	5.91	2,679	0.220	396.18	179,704
2019	41.03	18,612	36.43	16,525	31.35	14,221	5.08	2,304	0.220	361.84	164,129

The SSC considered the following to be the most significant sources of uncertainty in the 2015 benchmark assessment (MAFMC 2015A):

- While older age Scup (age 3+) are represented in the catch used in the assessment model, most indices used in the model do not include ages 3+. As a result, the dynamics of the older ages of scup are driven principally by catches and inferences regarding year class strength.
- Uncertainty exists with respect to the estimate of natural mortality used in the assessment.
- Uncertainty exists as to whether the MSY proxies ( $SSB_{40\%}$ ,  $F_{40\%}$ ) selected and their precisions are appropriate for this stock.
- The SSC assumed that OFL has a lognormal distribution with a 60% CV, based on a meta-analysis of survey and statistical catch at age model accuracies.
- Survey indices are particularly sensitive to scup availability, which results in high inter-annual variability. Efforts were made to address this question in the Stock Assessment Workshop and Stock Assessment Review Committee (SAW/SARC) that should be continued; and
- The projection on which the ABC was determined is based on an assumption that the quotas would be landed in 2016, 2017, and 2018.

**Stock Status and Biological Reference Points**

Biological reference points estimated by the 2015 benchmark scup stock assessment include (NEFSC 2015):

- A biomass reference point of  $SSB_{MSY\ proxy} = SSB_{40\%} = 192.47$  million pounds (87,302 mt)
- A minimum biomass threshold of  $\frac{1}{2} SSB_{MSY\ proxy} = \frac{1}{2} SSB_{40\%} = 96.23$  million pounds (43,651 mt)
- A fishing mortality reference point of  $F_{MSY\ proxy} = F_{40\%} = 0.220$ .

Based on the 2017 stock assessment update, the scup stock was not overfished and overfishing was not occurring in 2016 relative to the biological reference points from the 2015 benchmark stock assessment. SSB was estimated to be about 397 million pounds (179,898 mt) in 2016, about 2.1 times the SSB<sub>MSY</sub> proxy reference point (i.e. SSB<sub>40%</sub>) of 192 million pounds (87,302 mt). Fishing mortality on fully selected age 3 scup was 0.139 in 2016, about 63% of the F<sub>MSY</sub> proxy reference point (i.e. F<sub>40%</sub>) of 0.220. At 252 million fish, the 2015 year class was estimated to be the largest since at least 1984 and about 2.1 times the average recruitment (i.e. number of age 0 scup) over 1984-2016. The 2016 year class was estimated to be about 46% below the 1984-2016 average at 65 million fish (NEFSC 2015, NEFSC 2017).

According to the 2018 data update from the NEFSC (NEFSC 2018), the NEFSC bottom trawl survey biomass indices for scup in fall 2015 and spring 2016 were record highs for the time series (i.e. 1963 - present for the fall survey and 1968 through the present for the spring survey). Both seasonal indices decreased after 2016. Several state fisheries-independent surveys show similar trends.

### **Other Management Measures**

#### ***Commercial and Recreational Annual Catch Limits (ACLs)***

As specified in the FMP, 78% of the ABC is allocated to the commercial fishery as a commercial ACL and 22% is allocated to the recreational fishery as a recreational ACL (Figure 2). ACLs include both landings and discards. The 2019 commercial ACL is 28.42 million pounds (12,890 mt) and the 2019 recreational ACL is 8.01 million pounds (3,636 mt; Table 1).

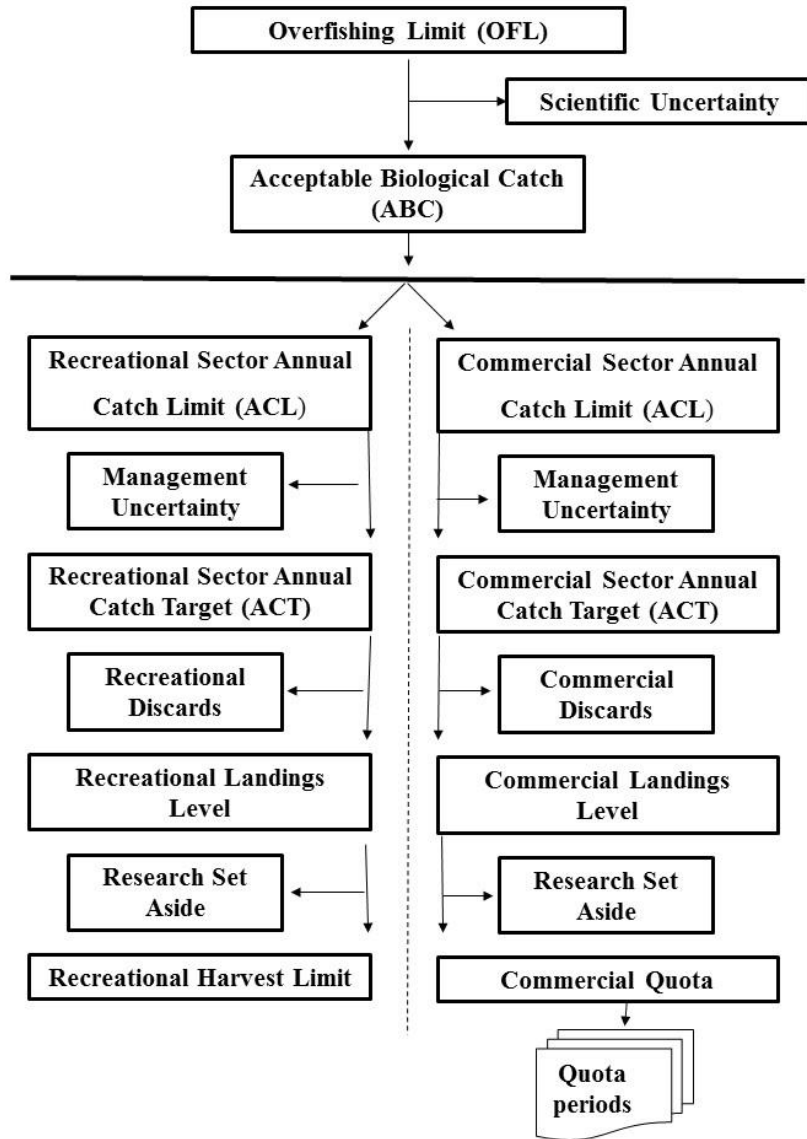
#### ***Annual Catch Targets (ACTs)***

The Monitoring Committee recommends ACTs for the Council and Board's consideration. ACTs may be either equal to the ACLs or reduced from the ACLs to account for management uncertainty. Management uncertainty can include uncertainty in the ability of managers to control catch and uncertainty in quantifying the true catch (i.e. estimation errors). This can occur due to a lack of sufficient information about catch (e.g. due to late reporting, under-reporting, and/or misreporting of landings or discards) or due to a lack of management precision (i.e. the ability to constrain catch to desired levels).

At their July 2017 meeting, the Monitoring Committee reviewed the SSC's recommendations for 2018 and 2019 ABCs and noted that the revised 2018 ABC represented a 45% increase over the previously implemented 2018 ABC. The Monitoring Committee recommended taking a less substantial increase of 22.5% at the ACT level for 2018 and setting the 2019 ACTs equal to the 2018 ACTs. The Monitoring Committee noted potential management uncertainty associated with changes to the scup commercial quota period dates in 2018. The shift of October from the Summer to the Winter II period may impact total commercial landings and the distribution of landings by state. In addition, revisions to the MRIP time series of recreational catch data, planned to be released in July 2018, could also introduce a source of management uncertainty. The Monitoring Committee expressed concern that drastic catch limit increases have the potential to be followed by large cutbacks, especially given the uncertainty in how the MRIP revisions will impact the stock assessment. More moderate changes, as opposed to large swings in quota, provide for more stability in the fisheries.

Ultimately, the Council and Board did not accept the Monitoring Committee's recommendation, and instead recommended setting the 2019 ACL equal to the ACT. They also recommended setting the 2018

ACT equal to the 2019 ACT, which resulted in a slightly lower 2018 ACT than if the ACT had been set equal to the 2018 ACL. This resulted in stable ACTs, commercial quotas, and RHLs between 2018 and 2019 (Figure 1).



**Figure 2:** Scup catch and landings limit calculation methodology. The Research Set Aside program was suspended in 2014.

***Commercial Quotas and Recreational Harvest Limits (RHLs)***

Commercial scup quotas and RHLs are calculated by subtracting projected discards from the sector-specific ACTs. Projected discards from the stock assessment are apportioned between commercial and recreational fisheries using the average percent of dead discards attributable to each sector over the past three years. According to the 2017 assessment update (NEFSC 2017), commercial discards accounted for an average of 87.3% and recreational dead discards accounted for an average of 12.7% of all dead

discards from 2014 through 2016. These values were used to calculate the 2019 commercial quota of 23.98 million pounds (10,879 mt) and RHL of 7.37 million pounds (3,342 mt).

As previously stated, the commercial scup quota is allocated among three quota periods: Winter I (January 1 – April 30, allocated 45.11% of the annual quota), Summer (May 1 – September, allocated 38.95% of the annual quota), and Winter II (October 1 – December 31, allocated 15.94% of the annual quota). Assuming no changes to the annual 2019 quota, the 2019 Winter I quota will be about 10.81 million pounds (4,903 mt), the Summer period quota will be about 9.34 million pounds (4,237 mt), and the Winter II quota will be about 3.82 million pounds (1,733 mt).

### ***Commercial Winter I and Winter II Quota Period Possession Limits***

Commercial possession limits are designed to help constrain landings to the seasonal period quotas. The Winter I possession limit is 50,000 pounds. After 80% of the Winter I quota is landed, the possession limit drops to 1,000 pounds. The Winter II possession limit is initially set at 12,000 pounds. If the Winter I quota is not fully harvested, the Winter II possession limit increases by 1,500 pounds for every 500,000 pounds of scup not landed during the Winter I period. There are no federal possession limits during the Summer quota period; however, there are state possession limits.

Most commercial scup trips in recent years landed well below the Winter I and Winter II possession limits. These possession limits have not been modified since 2012, when the Winter I limit increased from 30,000 to 50,000 pounds and 2014 when the initial Winter II limit increased from 2,000 to 12,000 pounds. In recent years, some advisors have said that the current Winter I possession limit can cause markets to be flooded with scup, which can lead to a decrease in price. However, many advisors support status quo possession limits and the Monitoring Committee has not recommended changes in recent years. Advisors did not comment on the commercial scup possession limits at their June 2018 meeting. Staff recommend no changes to the Winter I and Winter II possession limits for 2018.

### ***Commercial Minimum Fish Size***

The minimum size for retention of scup in the commercial fishery is 9 inches total length. This measure was first implemented in 1996, when scup were first managed by the Council and Commission. The Council and Board considered modifying this measure in 2005, 2012, and in 2015. After reviewing this measure in detail 2015, the Monitoring Committee, Council, and Board all recommended no changes. The rationale for this recommendation is described in MAFMC 2015B. Advisors have expressed differing opinions on the commercial minimum fish size for scup in the past (e.g. MAFMC 2017b); however, they did not comment on this measure during their June 2018 meeting. Staff recommend that this regulation remain unchanged in 2019.

### ***Commercial Trawl Mesh Size***

Trawl vessels which possess more than 1,000 pounds of scup from November 1 through April 30 and more than 200 pounds of scup from May 1 through October 31 must use a minimum mesh size of 5.0 inches. In late 2015, the Council approved an increase in the November-April incidental limit from 500 to 1,000 pounds in recognition of the substantial increase in SSB and expansion of the age structure of the population since this measure was last modified in 2004.

In June 2018, the Council received a request from the states of Massachusetts and Rhode Island to consider an increase in the incidental scup possession limit during April 15 - June 15 (or alternatively, May 1 - June 30) to 4,000 pounds to accommodate their spring inshore squid fisheries, which use mesh smaller than 5 inches in diameter. This would allow the squid fisheries to land more of the scup which they catch incidentally, rather than discarding them.<sup>3</sup> The Monitoring Committee will review this request and make a recommendation during their July 2018 meeting.

Summer flounder, scup, and black sea bass are all currently managed with different minimum mesh sizes (i.e. 5.5” diamond or 6” square for summer flounder, 5” diamond for scup, and 4.5” diamond for black sea bass). A study by Hasbrouck et al. (2018) confirmed that the current minimum mesh sizes for all three species are effective at releasing most fish smaller than the commercial minimum sizes (i.e. 14” total length for summer flounder, 9” total length for scup, and 11” total length for black sea bass). One goal of the Hasbrouck et al. study was to evaluate the potential for a common mesh size across all three species. The study was not able to identify a common mesh size for all three species that would be effective at minimizing discards under the current minimum fish size limits. However, the authors concluded that a common mesh size of 4.5” or 5” diamond for scup and black sea bass would be effective at releasing undersized fish.

Council staff recommend no changes to the minimum mesh sizes for 2019. The Monitoring Committee will review the results of Hasbrouck et al. (2018) during their July 2018 meeting. If the Council wishes to consider modifications to the minimum mesh sizes, the objectives should be clarified. Possible objectives could include establishing a common minimum mesh size, minimizing discards, and/or maintaining or increasing catches of legal-sized fish; however, some of these objectives may be at odds with each other. Input from the commercial fishing industry should be sought before any minimum mesh size changes are considered. As the Monitoring Committee has noted in the past, changes to these requirements can create an economic burden for fishermen if they necessitate purchase of new nets.

### ***Commercial Pot and Trap Regulations***

NMFS Vessel Trip Report data show that about 1% of the 2017 commercial scup catch was taken with pots and traps. Pots and traps used in the commercial scup fishery must have either a circular escape vent with a 3.1 inch minimum diameter or square or rectangular escape vents with each side being at least 2.25 inches in length. The Council and Commission hosted a workshop in 2005 to review several studies on vent size. Workshop participants did not recommend any changes in the vent sizes for the commercial scup fishery. The Monitoring Committee reviewed these measures in 2015 and recommend no changes (MAFMC 2015B). Staff recommend no changes to these measures for 2019.

### ***Recreational Seasons, Possession Limits, and Minimum Size***

The Council and Board will discuss 2019 recreational scup seasons, possession limits, and minimum fish sizes at their joint meeting in December 2018. Data from the first four “waves” (i.e. the two-month reporting increments for recreational data) of 2018 recreational landings are expected to be available in October 2018. The Monitoring Committee will meet in November to review these landings data and make recommendations for any necessary changes in recreational management measures. Staff have no recommendations for 2019 recreational management measures at this time.

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<sup>3</sup> The full request is available at: <http://www.mafmc.org/council-events/2018/sfsbsb-monitoring-committee-meeting>

## **References**

Hasbrouck, E., S. Curatolo-Wagemann, T. Froelich, K. Gerbino, D. Kuehn, P. Sullivan, J. Knight. 2018. Determining Selectivity and Optimum Mesh Size to Harvest Three Commercially Important Mid-Atlantic Species - A Report to the Mid-Atlantic Fishery Management Council and the Atlantic States Marine Fisheries Commission. Available at: [http://www.mafmc.org/s/Tab08\\_SFSBSB-Mesh-Selectivity-Study-Apr2018.pdf](http://www.mafmc.org/s/Tab08_SFSBSB-Mesh-Selectivity-Study-Apr2018.pdf)

MAFMC (Mid-Atlantic Fishery Management Council). 2015A. Report of the July 2015 Meeting of the MAFMC SSC. Available at: <http://www.mafmc.org/ssc>

MAFMC (Mid-Atlantic Fishery Management Council). 2015B. Summer Flounder, Scup, and Black Sea Bass Commercial Management Measures Review. Available at: <http://www.mafmc.org/briefing/december-2015>

MAFMC (Mid-Atlantic Fishery Management Council). 2018A. Scup Fishery Information Document. Available at: <http://www.mafmc.org/sf-s-bsb/>

MAFMC (Mid-Atlantic Fishery Management Council). 2018B. Summer Flounder, Scup, and Black Sea Bass Fishery Performance Reports. Available at: <http://www.mafmc.org/sf-s-bsb/>

NEFSC (Northeast Fisheries Science Center). 2015. 60<sup>th</sup> Northeast Regional Stock Assessment (60<sup>th</sup> SAW) Assessment Report. Northeast Fisheries Science Center Reference Document 15-08. Available at: <http://www.nefsc.noaa.gov/publications/>

NEFSC (Northeast Fisheries Science Center). 2016. Scup Data Update for 2016. Available at: <http://www.mafmc.org/council-events/2016/ssc-3>.

NEFSC (Northeast Fisheries Science Center). 2017. Scup Assessment Update for 2017. Available at: <http://www.mafmc.org/ssc-meetings/2017/july-19-20>.

NEFSC (Northeast Fisheries Science Center). 2018. Scup Data Update for 2018. Available at: <http://www.mafmc.org/council-events/2018/july-2018-ssc-meeting>.



## APPENDIX

### Commercial Fishery Scup Discard Evaluation, 2001-2017

#### Background

- Trawl discards are estimated by calendar quarter, statistical area, and three mesh categories: large (i.e. 5" or greater), small (i.e. smaller than 5" but larger than 2.125"), and squid (i.e. 2.125" or less). Estimated discards are calculated using observer, VTR, and dealer data (NEFSC 2015).
- The scup GRAs were first effective November 2000. The Southern GRA is effective January 1 - March 15. The Northern GRA is effective November 1 - December 31.
- The most recent change in boundary of southern scup GRA became effective January 1, 2017 (Figure 1).
- Effective January 1, 2016, the incidental scup possession limit for trawl vessels using mesh smaller than 5 inches in diameter during November-April increased from 500 pounds to 1,000 pounds. This change was intended to reduce scup discards.
- The 2015 year class was estimated to be 252 million fish, about 2.1 times the average recruitment from 1984 to 2016. It appears to be the largest year class in the assessment time series since at least 1984. In 2017, these fish were mostly too small (< 8 inches/ <20 cm) to be landed in the commercial fishery (NEFSC 2018; Dr. Mark Terceiro, NEFSC, personal communication; Figure 2).

#### Results

- Total estimated scup discards from all mesh sizes were 4,727 mt (10.42 million pounds) in 2017, the highest since 1981 and about 71% higher than in 2016 (Figure 3, NEFSC 2018).
- On average, during 2001-2017, squid mesh discards accounted for 41% of all estimated scup discards, while small mesh accounted for 30%, and large mesh accounted for 29%. In 2017, squid mesh accounted for 50% of total estimated scup discards, small mesh accounted for 23%, and large mesh accounted for 27% (Figure 3).
- Between 2016 and 2017, scup discards with large mesh doubled (i.e. an increase of 100%). Discards with small mesh increased by 41% and discards with squid mesh increased by 73% (Figure 3).
- Estimated discards with squid and small mesh were variable, but generally decreased in the GRA statistical areas during the times when the GRAs were in effect. The northern GRA has been in effect during November and December since 2000. Estimated scup discards by squid and small mesh in the northern GRA statistical areas during the fourth quarter of the year averaged 456 mt before 2000 and 171 mt from 2000 through 2017 (Figure 4). The southern GRA has been in effect during January 1 - March 15 since 2001. Estimated scup discards by squid and small mesh in the southern GRA statistical areas during the first quarter of the year averaged 344 mt before 2001 and 242 mt from 2001 through 2017 (Figure 5).
- Between 2016 and 2017, scup discards in statistical areas which are partially included in the southern GRA increased by 148%. Within these statistical areas, squid mesh scup discards increased by 182%, small mesh discards increased by 70%, and large mesh discards increased by 206% (Figure 6 and Figure 7)

- Between 2016 and 2017, scup discards in statistical areas which are partially included in the northern GRA increased by 62%. Within these statistical areas, squid mesh scup discards increased by 53%, small mesh discards increased by 57%, and large mesh discards increased by 85% (Figure 6 and Figure 7).
- Total scup discards with all mesh sizes steadily increased from 2014 through 2017. This trend closely mirrors the trend in recruitment during 2012-2015 (Figure 8 and Figure 9).
- In general, most scup discards occurred in GRA statistical areas, though not necessarily during the times of year when the GRAs are in place or with mesh sizes regulated by the GRAs. In all years from 2001 through 2017, at least 50% (with an average of 76%) of all scup discards from all mesh sizes occurred in statistical areas which are partially included in either the GRAs. On average, since both GRAs have been in place, the northern GRA areas accounted for 49% of all scup discards and the southern GRA areas accounted for 26% of all scup discards (Figure 6).
- Over the past 5 years (i.e. 2013-2017), squid mesh discards in southern GRA statistical areas, as a percentage of all estimated squid mesh scup discards, were below average (i.e. 3% on average for 2013-2017 vs. 16% for 2001-2017). Squid mesh scup discards in the southern GRA statistical areas were 5% of total squid mesh scup discards in 2017, slightly higher than in the previous four years. Squid mesh scup discards in northern GRA statistical areas during 2013-2017 were equivalent to the 2001-2017 average of 53%. In 15 of the past 17 years, squid mesh scup discards were higher in the northern GRA statistical areas than in the southern GRA statistical areas (Figure 7).
- When examining only the southern GRA statistical areas, during 2001-2017, most squid mesh discards occurred in statistical area 616, which includes Hudson Canyon (Figure 10).
- During 2013-2017, large mesh accounted for most scup discards in the southern GRA statistical areas, averaging 65% of total scup discards per year in those areas, compared to 10% for squid mesh and 26% for small mesh (Figure 11).
- During 2013-2017, squid mesh accounted for most scup discards in the northern GRA statistical areas, averaging 49% of total scup discards per year in those areas, compared to 25% for small mesh and 26% for large mesh (Figure 12).
- Seasonal patterns in scup discards varied by year. During 2001-2017, discards from all mesh sizes in the first quarter of the year averaged 24% of total annual scup discards; however, there was considerable year-to-year variability (Figure 13). Discards in the second quarter averaged 31%. Discards in the third quarter averaged 13% and discards in the fourth quarter averaged 32%. Most squid mesh and small mesh discards occurred in quarter 2 (37% and 33%, respectively), when neither GRA is in effect. Most large mesh discards occurred in quarter 4 (44%; Figure 14).

## Conclusions

- The high scup discards in 2017 were likely the result of the record high recruitment in 2015 (Figure 9).

- Between 2016 and 2017, scup discards in southern GRA statistical areas increased by a greater amount than discards in all statistical areas (i.e. 148% vs. 71%). This increase was driven by discards with large mesh (increase of 206%), small mesh (increase of 70%), and squid mesh (increase of 182%). Only squid and small mesh are regulated by the GRAs. The change in the southern GRA boundary in 2017 may have played a role in the increase in scup discards; however, recruitment likely had a greater impact on discards.
- Patterns in scup discards in squid and small mesh fisheries since 1989 suggest that implementation of the GRAs led to a reduction in scup discards in those fisheries (Figure 4 and Figure 5).
- Increased, targeted fishing effort toward scup may also have played a role, as the fleets attempt to catch the increased quotas. However, given the multispecies nature of the major mid-Atlantic trawl fisheries (e.g. summer flounder, scup, black sea bass, squid, mackerel, and butterfish), it would be difficult to tease out how multispecies effort (trips or days fished) relates directly to discards (Dr. Mark Terceiro, NEFSC, personal communication).

**Figures**

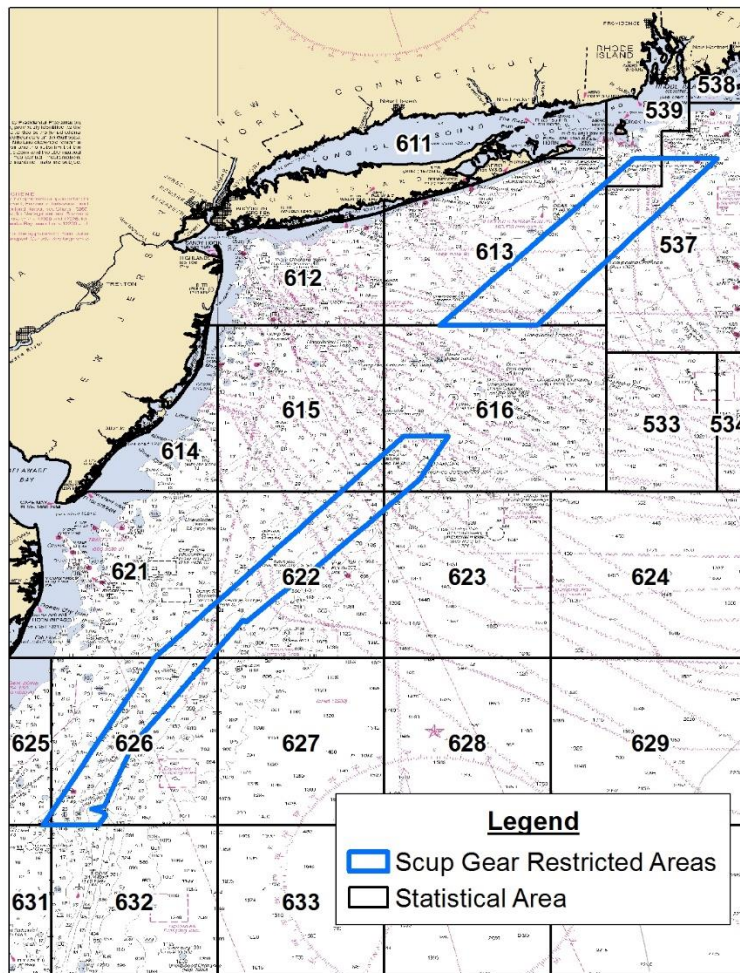


Figure 1: Scup GRAs and NMFS statistical areas.

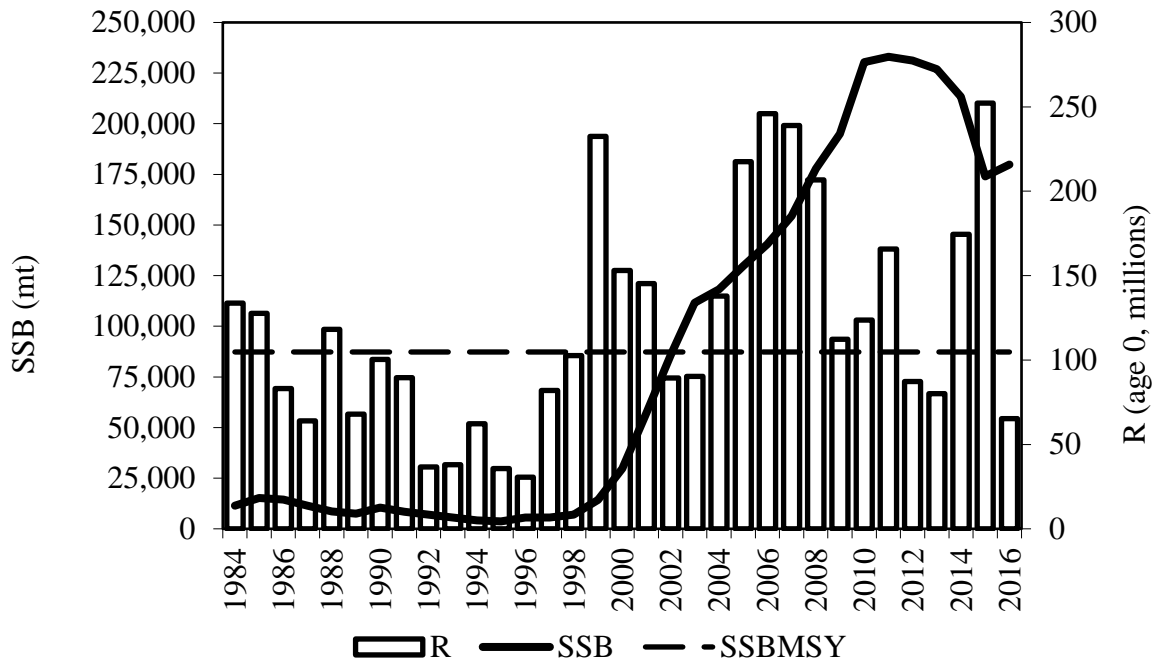


Figure 2: Spawning Stock Biomass (SSB; solid line) and Recruitment (R at age 0; vertical bars) for scup. The horizontal dashed line is the SSB<sub>MSY</sub> proxy = SSB<sub>40%</sub> = 87,302 mt from the 2015 benchmark stock assessment. Source: NEFSC 2017.

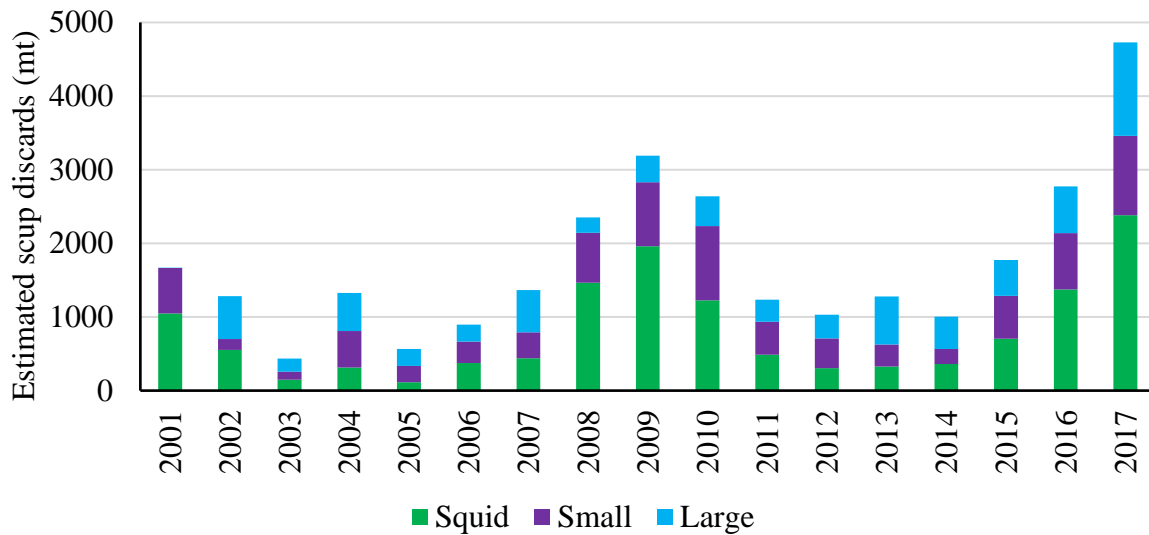


Figure 3: Estimated scup discards by year and mesh size.

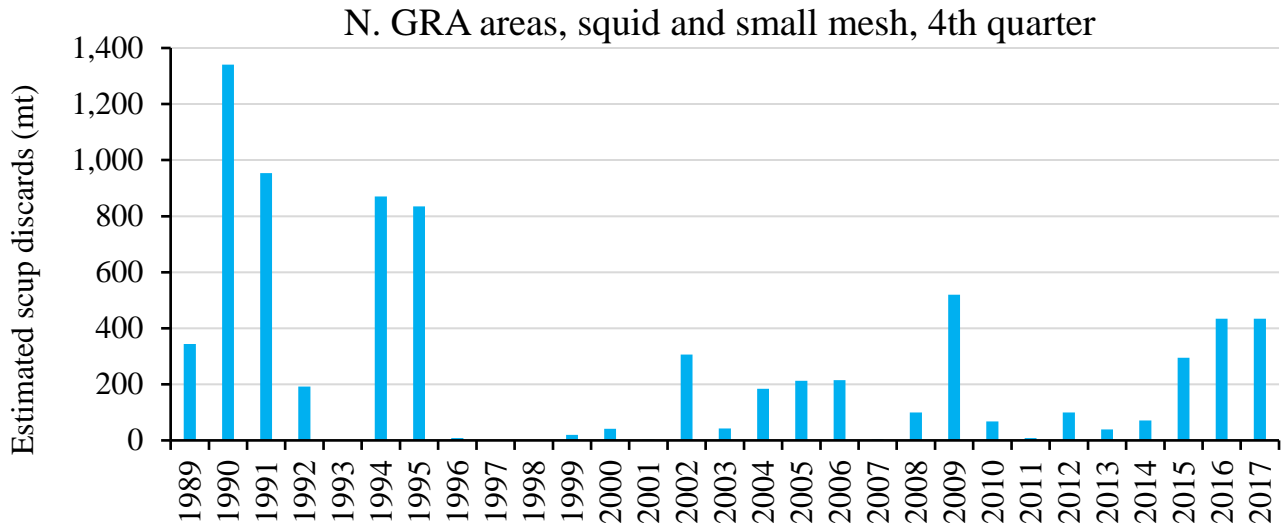


Figure 4: Estimated scup discards from squid and small mesh during the fourth quarter of the year in statistical areas which are partly included in the northern scup GRA. The northern GRA has been in effect during November and December since 2000.

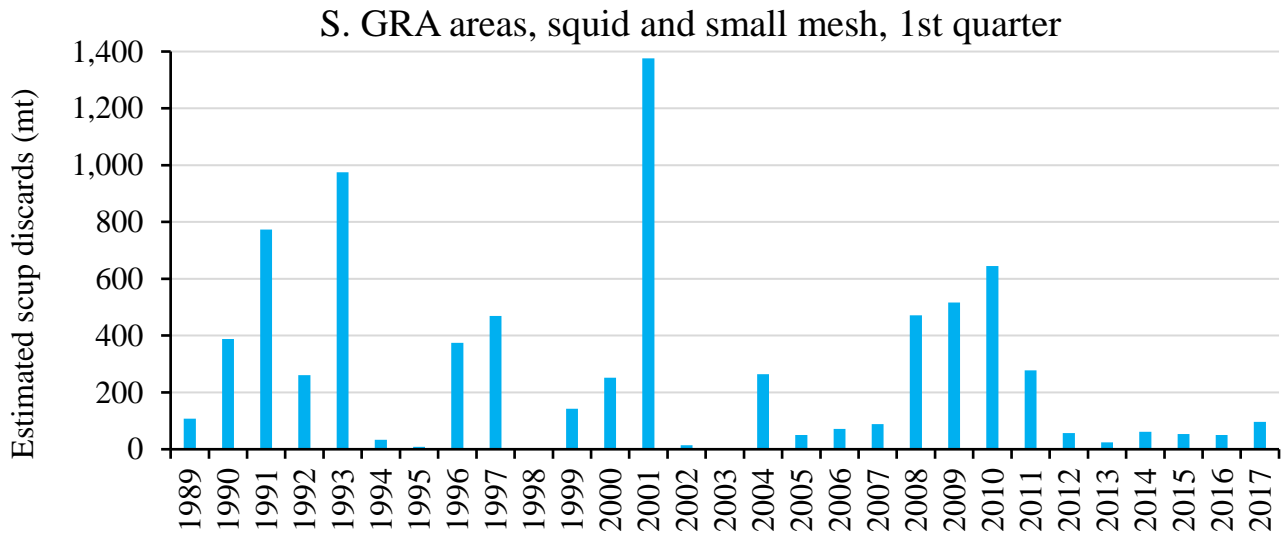


Figure 5: Estimated scup discards from squid and small mesh during the first quarter of the year in statistical areas which are partly included in the southern scup GRA. The southern GRA has been in effect during January 1 - March 15 since 2001.

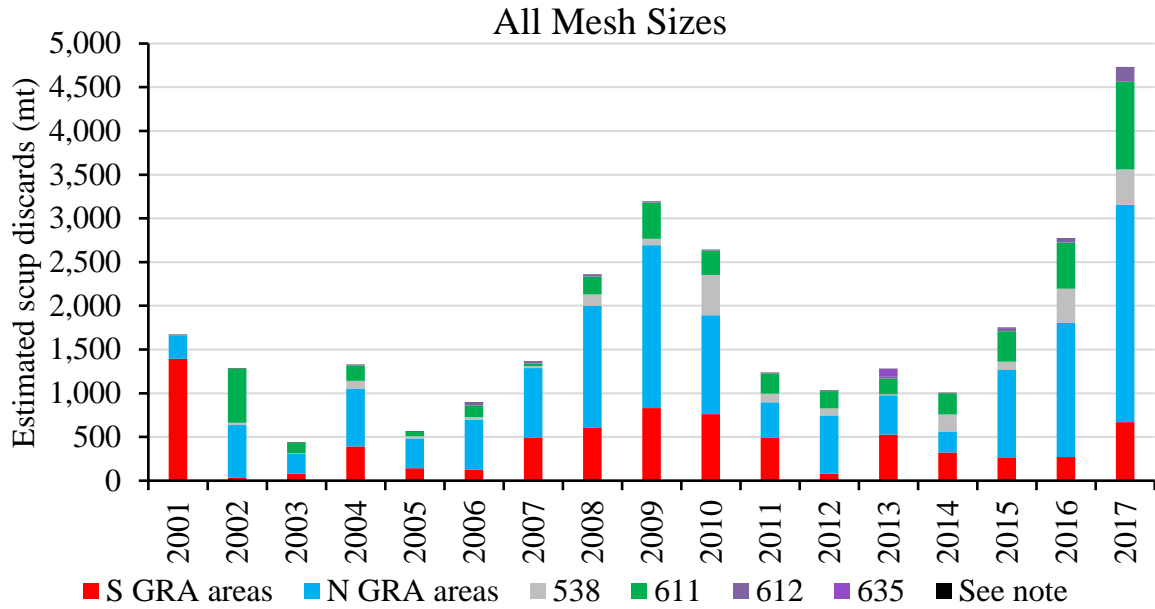


Figure 6: Estimated scup discards by year and statistical area for all mesh sizes. *Note:* statistical areas which are not part of the GRAs and which had less than 100 mt of estimated scup discards during 2001-2016 are grouped together (i.e. areas 513, 514, 515, 521, 522, 525, 526, 561, 562, 614, 627, and 636). Statistical areas with no estimated scup discards are not shown.

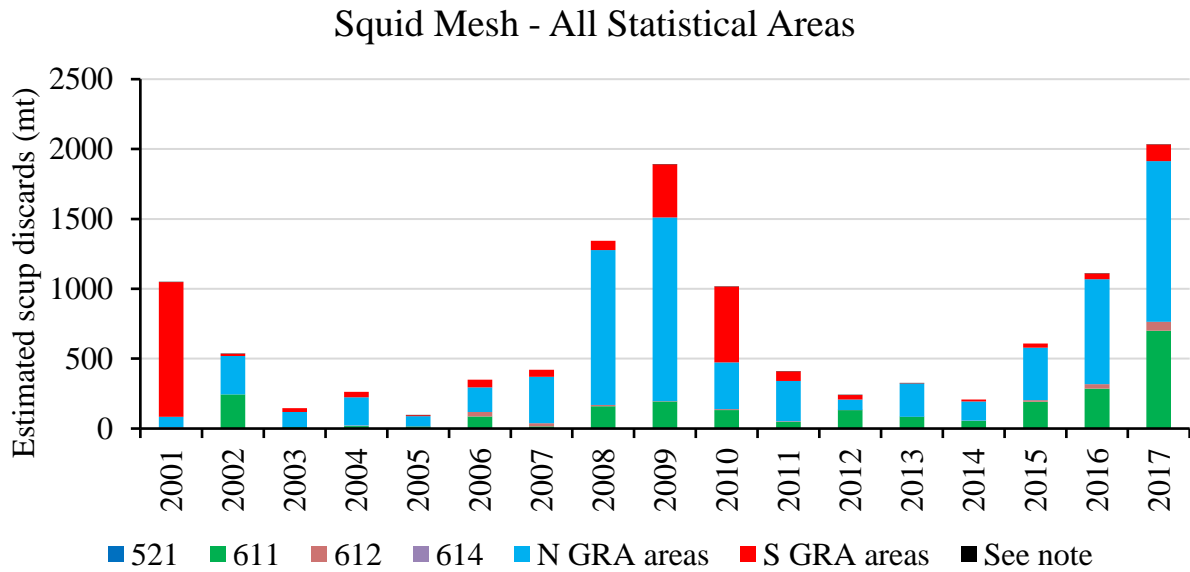


Figure 7: Estimated scup discards by year and statistical area for trawl vessels using codend mesh diameters of 2.125 inches or less (aka “squid mesh”). *Note:* all statistical areas with less than 1 mt total estimated squid mesh scup discards over 2001-2017 are grouped together (i.e. areas 513, 514, 515, 522, 525, 526, 562, 627, 632, 635, 636). Statistical areas with no estimated scup discards in squid mesh are not shown.

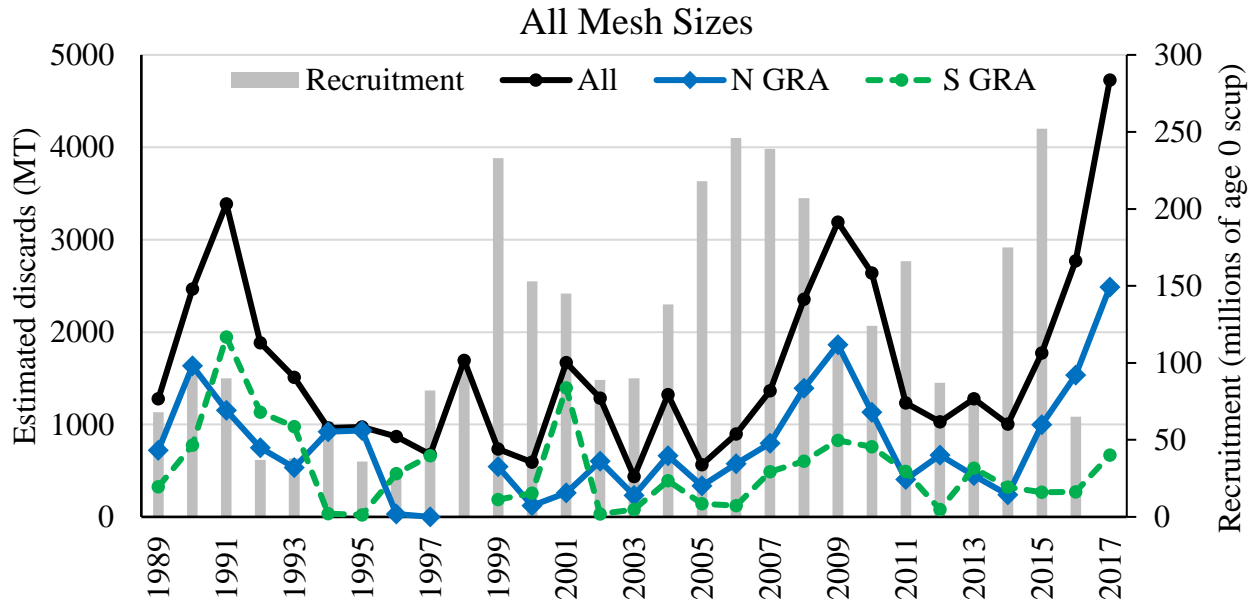


Figure 8: Estimated scup discards and recruitment. Discards are shown for all mesh sizes in all statistical areas, statistical areas partially included in the northern scup GRA, and statistical areas partly included in the southern scup GRA. Data on recruitment in 2017 are not currently available. The 1998 total discard estimate was modified to adjust for the influence of one unreasonably large tow (NEFSC 2015). Similar adjustments were not made by statistical area, therefore 1998 discard estimates by GRA areas are not shown.

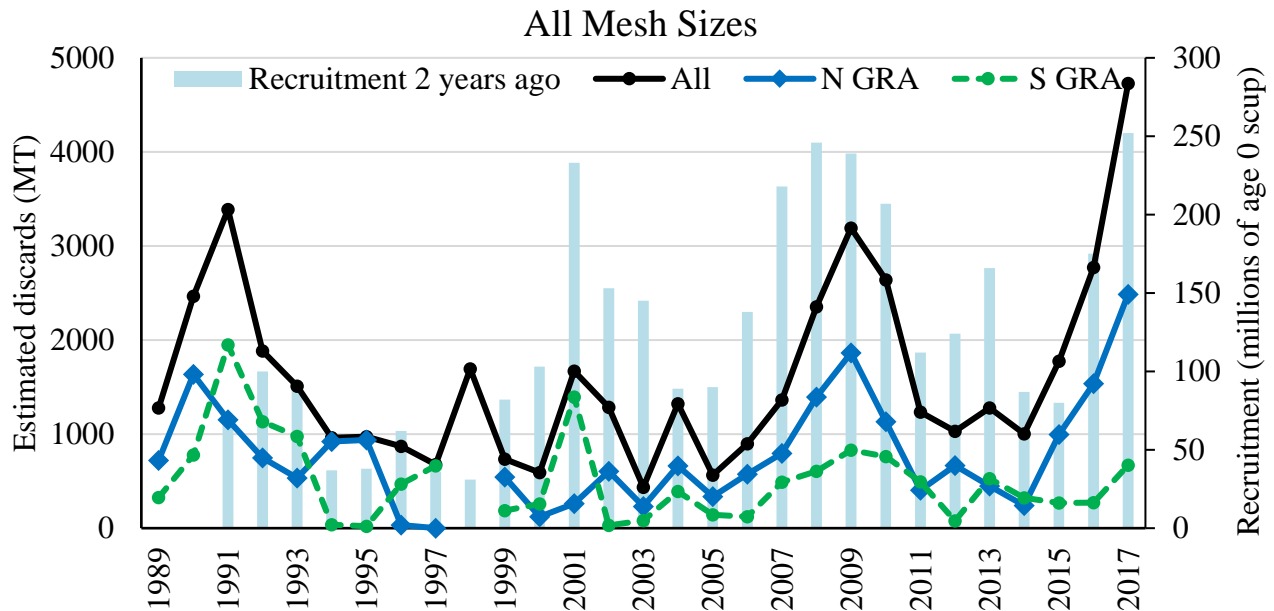


Figure 9: Estimated scup discards and recruitment from two years prior (e.g. 2015 recruitment is shown in 2017). Discards are shown for all mesh sizes in all statistical areas, statistical areas partially included in the northern scup GRA, and statistical areas included in the southern scup GRA. The 1998 total discard estimate was modified to adjust for the influence of one unreasonably large tow (NEFSC 2015). Similar adjustments were not made by statistical area, therefore 1998 discard estimates by GRA areas are not shown.

### Squid Mesh - Southern GRA

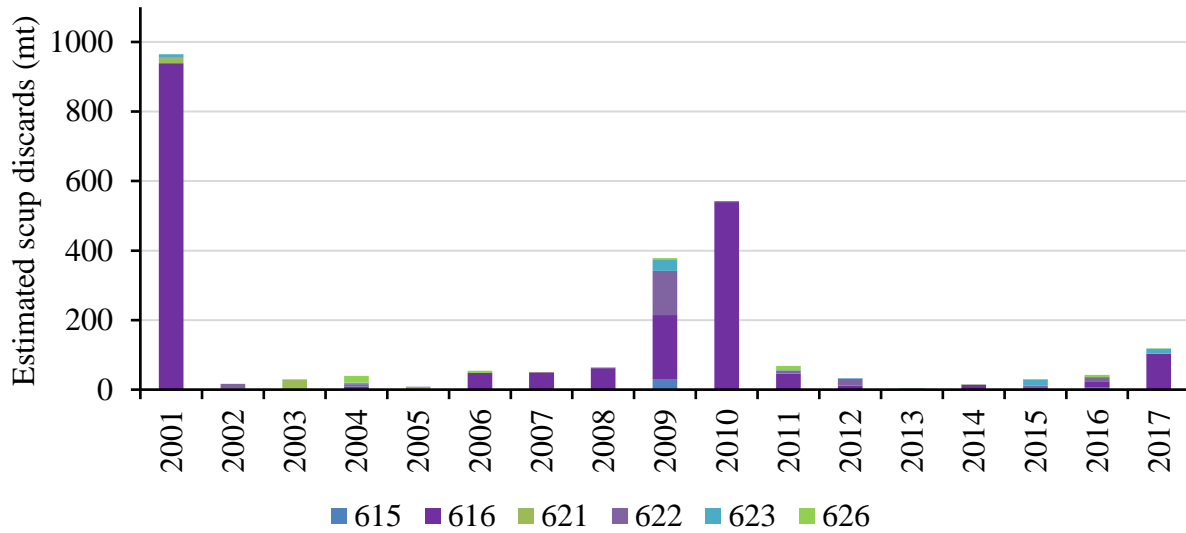


Figure 10: Estimated scup discards by year and statistical area for trawl vessels using codend mesh diameters of 2.125 inches or less (aka “squid mesh”). Only statistical areas which are partially included in the southern scup GRA are shown. Statistical areas with no estimated squid mesh scup discards are not shown (i.e. statistical areas 625, 631, and 632).

### Discards from southern GRA statistical areas

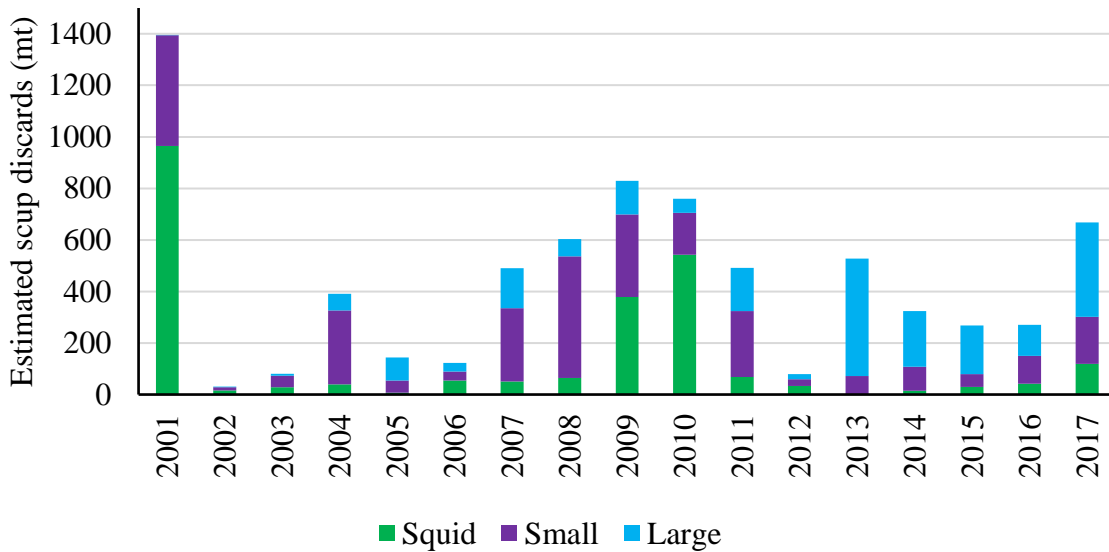


Figure 11: Estimated scup discards by year and mesh size for statistical areas which are partially included in the southern scup GRA.



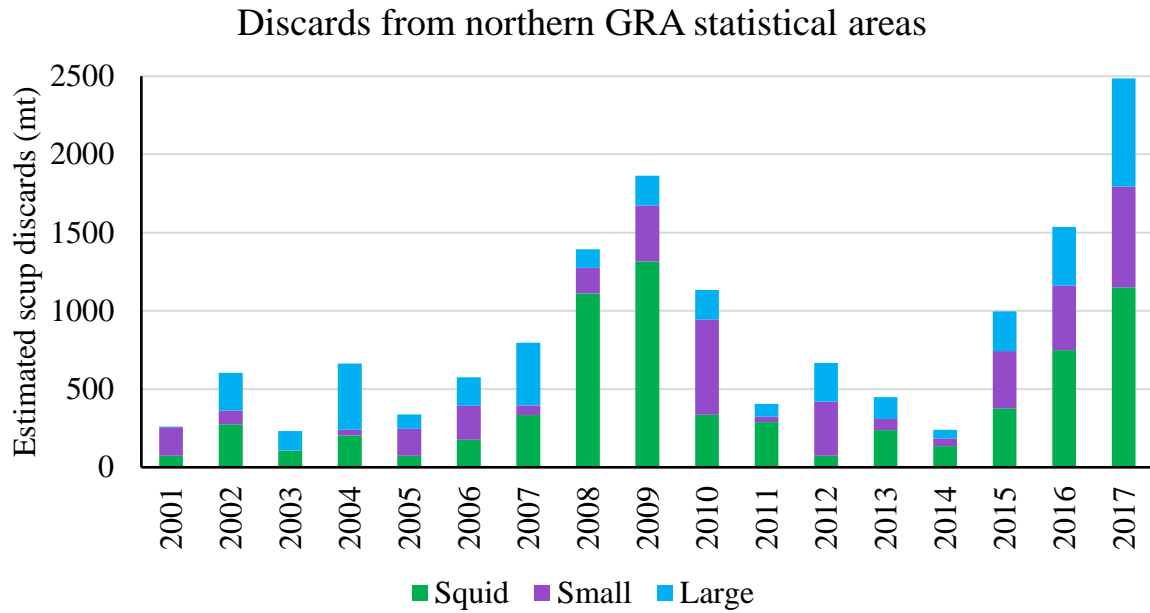


Figure 12: Estimated scup discards by year and mesh size for statistical areas which are partially included in the northern scup GRA.

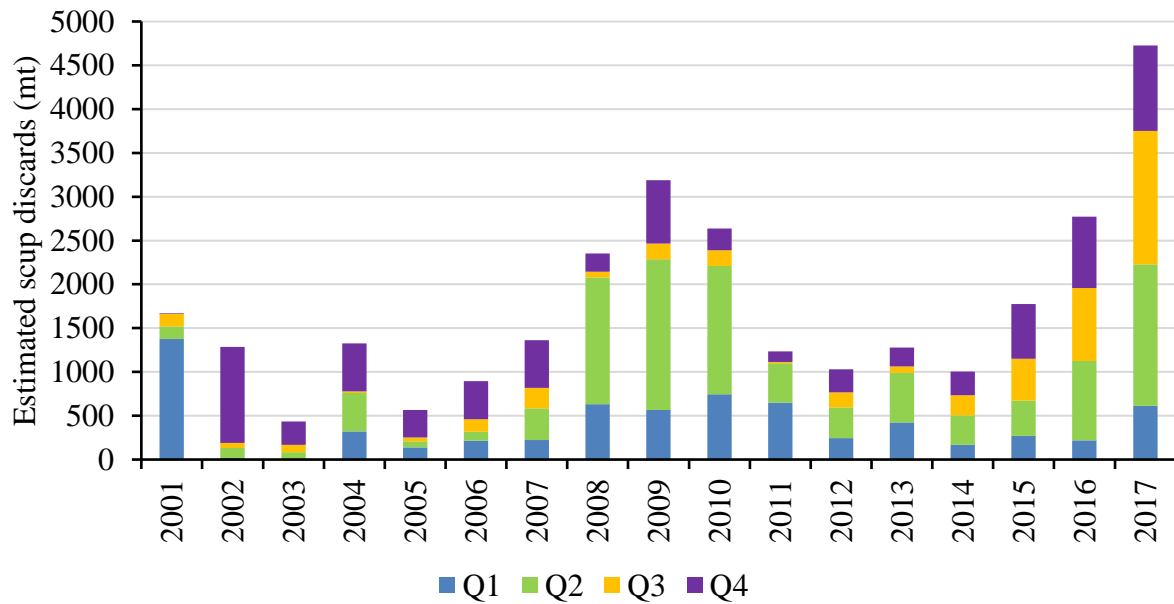


Figure 13: Estimated scup discards for all mesh categories by calendar quarter and year.

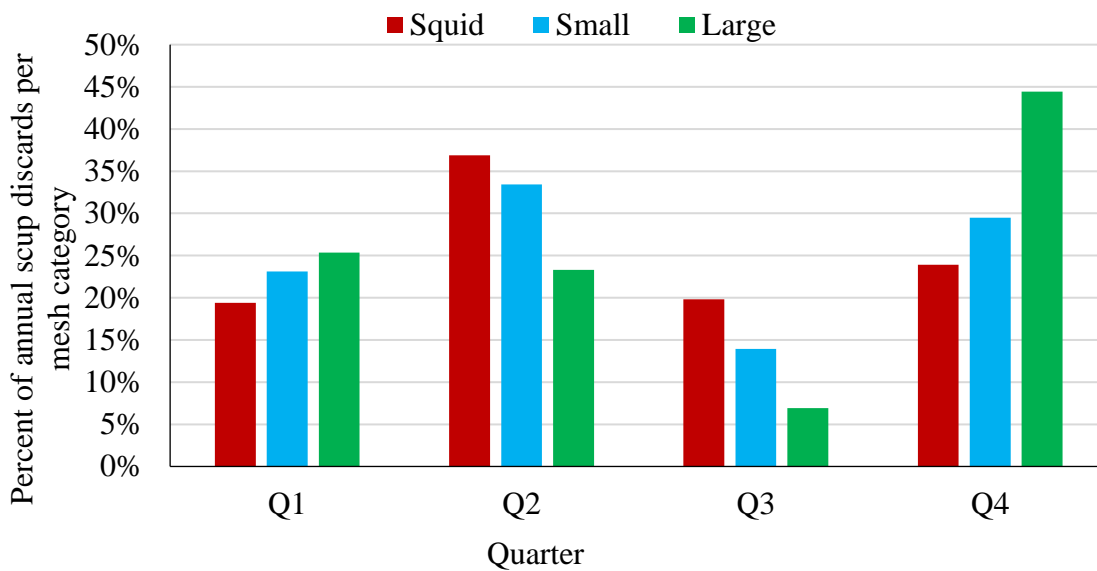


Figure 14: Average percent of annual scup discards per quarter for each of three mesh categories (squid, small, and large), 2001-2017.



### Appendix References

NEFSC (Northeast Fisheries Science Center). 2015. SARC 60 Scup Working Paper - TOR 1: Estimates of Commercial Fishery Scup Discards: 1989-2013.

NEFSC (Northeast Fisheries Science Center). 2017. Scup Assessment Update for 2017. Available at: <http://www.mafmc.org/ssc-meetings/2017/july-19-20>.

NEFSC (Northeast Fisheries Science Center). 2018. Scup Data Update for 2018. Available at: <http://www.mafmc.org/ssc-meetings/2018/july-17-18>

TO: Julia Beaty, Scup Fishery Management Specialist, MAFMC

FROM: David Pierce, Director, MA Division of Marine Fisheries   
Jason McNamee, Chief, RI Division of Marine Fisheries 

DATE: June 12, 2018

SUBJECT: Annual Scup Specifications – Minimum Mesh Size & Incidental Possession Limit

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### **Overview**

Massachusetts and Rhode Island would like the Summer Flounder, Scup, and Black Sea Bass Monitoring Committee to consider potential changes to the scup bottom trawl minimum mesh size and/or triggers during the specification setting process for 2019 in recognition of the small mesh squid fisheries that seasonally occur in our states' waters. These rules were important conservation measures for scup when the stock was in poor condition, but as currently set may now lead to potentially high levels of scup discarding during this period with little conservation value. Discards in the squid fishery, particularly in and around Nantucket Sound, have been the subject of much negative attention for the Council as of late.

### **Background**

The federal/interstate plan currently mandates a bottom trawl minimum mesh size of 5" diamond when possessing more than 1,000 lb of scup during October 1–April 30 and 200 lb during May 1–September 30 (Table 1). These mesh size triggers serve to discourage a directed fishery on scup with small mesh that would cause regulatory discards due to the minimum size (9").

MA and RI have gradually been increasing our directed scup trip limit for trawl gear over multiple years as the scup annual quota has increased due to rebuilding. Currently, both states have a 10,000-lb weekly possession limit for scup caught by trawl. These higher weekly limits reflect the states' interest to accommodate the occasional large tow of scup, and thereby reduce regulatory discards.

The small mesh squid fisheries in MA and RI occur seasonally. MA allows trawl gear with a 1 7/8" minimum mesh to target squid from April 23–June 9 (or longer by Director's declaration; generally a week if at all) in the state waters south of Cape Cod; otherwise the minimum trawl mesh is 6.5" throughout the cod-end and 6" throughout the remainder of the net. RI's small mesh squid fishery is not regulated to the extent seen in MA, but has similar characteristics (mesh size and seasonality) and is impacted negatively through regulatory discards by the scup mesh trigger as is the case in MA.

Larger, adult scup generally arrive in Southern New England waters during the operation of the small mesh squid fishery and are susceptible to bycatch. Smaller scup follow, usually as the squid fishery nears its conclusion in state waters either due to regulation or squid availability.

Because of the scup minimum mesh incidental limit, one of two things is happening in the directed small mesh squid fishery off MA and RI. Vessels are fishing with small mesh to get their squid limit—potentially discarding large amounts of legal-sized scup—and then switching to at least 5" mesh to target scup. In this case, if the mesh trigger were higher, fishermen would be allowed to be more efficient by not discarding the scup during squid fishing, thereby not having to do additional tows to add value to the trip. In a worst-case scenario, fishermen are potentially unaware of or unconcerned with the scup mesh trigger rule and keep the scup intercepted while fishing for squid. Even in this case, there is value in allowing the scup to be landed rather than causing a regulatory violation for a species that is not overfished, overfishing is not occurring, and annual federal quotas are not being reached.

**Request**

An analysis of RI harvester and dealer data suggests that a 4,000-lb scup bycatch limit for the small mesh squid fishery would largely eliminate scup discards in the fishery. (The RI data are likely representative of MA as well given the two fisheries’ similarities, e.g., common participants, identical trip limits). To reduce scup discards and improve efficiency in the small mesh squid fishery, MA and RI are interested to have this incidental limit apply during April 15–June 15 (or May–June if it is problematic to straddle the Winter I/Summer Periods). Interestingly, the first incidental limit set was for 4,000 lb in 1996, when the stock was at drastically lower levels in need of rebuilding (i.e.,  $SSB_{1996} = 5,535$  mt vs.  $SSB_{2016} = 179,898$  mt, per the 2017 stock assessment update). An alternative option would be to seasonally eliminate the minimum mesh size requirement.

We note that there has been hesitance in the past to increase the Summer Period incidental possession limit to avoid conflict with (i.e., be higher than) the directed fishery possession limits in state waters. Due to the broad range of the states’ trip limits during the Summer Period (itself a product of divergent state shares and effort levels), there is not a one-size-fits-all incidental possession limit for May–September. As previously stated, MA and RI now have Summer Period trawl trip limits for scup of 10,000 lb weekly, a level approaching that of the Winter II Period (12,000 lb or higher) when a 1,000-lb incidental possession limit applies. At a bare minimum, MA and RI should be afforded the same incidental limit as the Winter II fishery, although a 4,000-lb season limit would do much more to eliminate unnecessary discarding in our states’ squid fisheries. An incidental limit higher than a state’s directed trip limit need not be considered a conflict; in essence it just eliminates the minimum mesh requirement for that state’s directed fishery. Given the rebuilt stock status and numerous other state and federal conservation measures, a year-round 4,000-lb incidental possession limit may not be an unreasonable approach.

Table 1. Scup Minimum Mesh Size and Landings Trigger History

Years		1996	1997-1998	1999-2001	2002-2004	2005-2015	2016-present
Minimum Mesh Size (generalized)		4"	4.5"	4.5"	4.5"	5"	5"
Incidental Limit (lbs)	Winter	4,000	4,000	200	500	500	1,000
	Summer		1,000	100	100	200	200



**David E. Pierce, Ph.D.**  
*Director*

# *Commonwealth of Massachusetts*

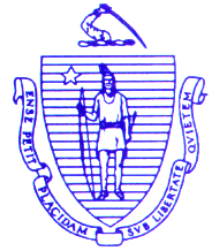
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*Deputy Commissioner*

### **MEMORANDUM**

TO: Julia Beaty, Scup Fishery Management Specialist, MAFMC

FROM: David Pierce, Director 

DATE: June 12, 2018

SUBJECT: Annual Scup Specifications – Recreational Minimum Size

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MA DMF would like the Summer Flounder, Scup, and Black Sea Bass Monitoring Committee to consider potential changes to the scup recreational minimum size during the specification setting process for 2019 in recognition of recreational stakeholder interest to retain smaller scup to be used for live bait.

The recreational scup minimum size in federal waters and most state waters of MA–NJ is 9”, and 8” in state waters of DE–NC. Recreational limits range from 30 to 50 fish.

In Massachusetts (and elsewhere), scup are a popular bait fish, especially for striped bass and bluefish fishing. For-hire and private vessels will often fish for scup under the recreational limits, and retain some in a live well to then use as live bait for other targets. Several recreational fishing community members have expressed a desire to be able to use scup as small as 6” for live bait purposes. At the current 9” minimum size, the hook-up ratio is reduced compared to what it could be with a smaller bait fish. Striped bass and bluefish will often bite only part of a large (9”) bait fish, missing the hook, thereby causing more bait to be wasted than if a smaller scup were used.

One our south coast in particular scup is one of three main bait sources to be used for striped bass and bluefish fishing, with eels and menhaden being the other two. Eels are depleted, posing challenges to their acquisition whether by purchase (extremely expensive) or personal harvest (low, inconsistent catch). Menhaden distribution isn’t predictable and they haven’t yet returned to many of our inshore areas, meaning they must be purchased or travel is required to harvest them. The most popular method of fishing with menhaden around the Islands is as chum, which requires substantially more bait as well. Scup are readily available and easily caught in the same places and times as striped bass and bluefish fishing occurs. Using them for live bait means any unused fish can be returned alive to the water, with little waste.

Proponents of a smaller recreational minimum size for scup (with the intent of it being for bait) argue it would be unlikely to increase landings of smaller scup (for food) because fish below the 9” minimum size provide little meat. Regardless, this abundant species should be able to accommodate limited take of smaller fish without jeopardy they believe. An allowance of 5 fish per angler has been suggested. Because it would be a compliance and enforcement challenge to assign a different size to scup being used for bait versus scup being landed for consumption, we suggest the Monitoring Committee consider a 5-fish “bait tolerance” with regards to the minimum size, possibly with a threshold size limit of 6”. The tolerance could apply to possession alone (requiring its use as bait) or landing as well.

We look forward to the Monitoring Committee’s review of this concept, and hope the Advisory Panel can be consulted as well.



## Scup Fishery Information Document

June 2018

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This document provides a brief overview of the biology, stock condition, management system, and fishery performance for scup with an emphasis on 2017, the most recent complete fishing year.

### 1. Biology

Scup (*Stenotomus chrysops*) are a schooling, demersal (i.e., bottom-dwelling) species. They are found in a variety of habitats in the Mid-Atlantic. Scup essential fish habitat includes demersal waters, areas with sandy or muddy bottoms, mussel beds, and sea grass beds from the Gulf of Maine through Cape Hatteras, North Carolina. Scup undertake extensive seasonal migrations between coastal and offshore waters. They are found in estuaries and coastal waters during the spring and summer. In the fall and winter, they move offshore and to the south, to outer continental shelf waters south off New Jersey. Scup spawn once annually over weedy or sandy areas, mostly off southern New England. Spawning takes place from May through August and usually peaks in June and July.<sup>1</sup>

About 50% of scup are sexually mature at two years of age and about 17 cm (about 7 inches) total length. Nearly all scup older than three years of age are sexually mature. Scup reach a maximum age of at least 14 years. They may live as long as 20 years; however, few scup older than 7 years are caught in the Mid-Atlantic.<sup>2,3</sup>

Adult scup are benthic feeders. They consume a variety of prey, including small crustaceans (including zooplankton), polychaetes, mollusks, small squid, vegetable detritus, insect larvae, hydroids, sand dollars, and small fish. The Northeast Fisheries Science Center's (NEFSC's) food habits database lists several predators of scup, including several shark species, skates, silver hake, bluefish, summer flounder, black sea bass, weakfish, lizardfish, king mackerel, and monkfish.<sup>1</sup>

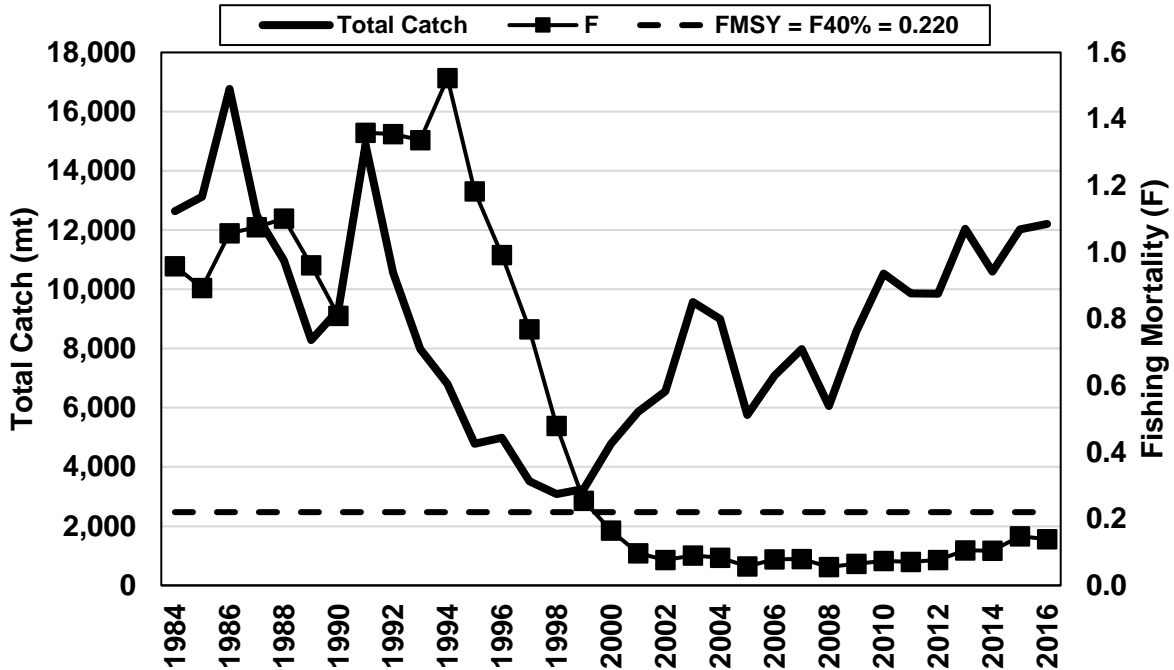
### 2. Status of the Stock

The scup stock was designated as overfished in 2005, requiring development of a rebuilding plan. The stock was declared rebuilt ahead of schedule in 2009 after a benchmark stock assessment determined that the stock was no longer overfished and overfishing was not occurring.<sup>2</sup>

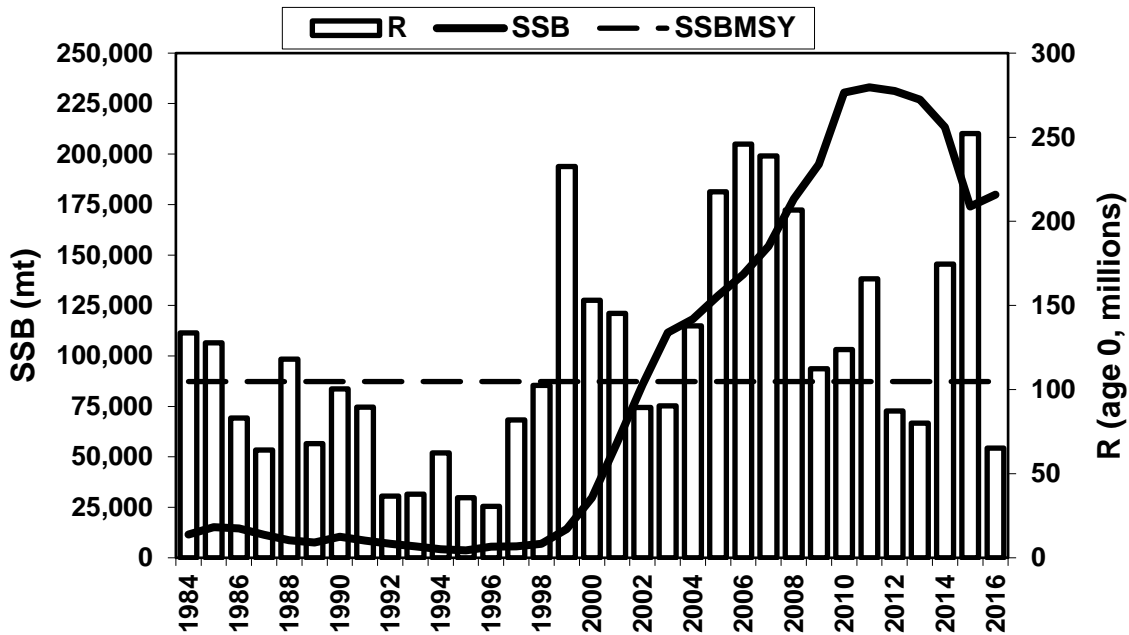
The most recent benchmark stock assessment took place in 2015. An update to that assessment using commercial and recreational fishery data and fishery-independent survey data through 2016 indicated that the stock was not overfished and overfishing was not occurring. Spawning stock biomass (SSB) was estimated to be 396.6 million pounds in 2016, about 2.1 times the target SSB level (Figures 1 and 2).<sup>3,4</sup>

According to data through 2017, the NEFSC bottom trawl survey biomass indices for scup in fall 2015 and spring 2016 were record highs for the time series (i.e. 1963 - present for the fall survey and 1968 through the present for the spring survey). Both seasonal indices decreased after 2016. Several state fisheries-independent surveys show similar trends.<sup>5</sup>

Fishing mortality was estimated to be 0.139 in 2016, 37% below the fishing mortality reference point (Figure 1). The 2015 year class (i.e. those scup spawned in 2015) was estimated to be 252 million fish, about 2.1 times the average recruitment from 1984 to 2016. The 2016 year class is estimated to be 65 million fish, about 47% below the average (Figure 2).<sup>4</sup>



**Figure 1:** Total fishery catch and fishing mortality rate (F) for fully-selected age 3 scup, 1984-2016. The horizontal dashed line is the fishing mortality reference point from the 2015 benchmark stock assessment. Overfishing is occurring when the fishing mortality rate exceeds this threshold.<sup>4</sup>



**Figure 2:** Scup spawning stock biomass and Recruitment, 1984-2016.<sup>4</sup>

### **3. Management System and Overall Fishery Performance**

The Mid-Atlantic Fishery Management Council (Council) and the Atlantic States Marine Fisheries Commission (Commission) cooperatively develop fishery regulations for scup off the east coast of the United States. The National Marine Fisheries Service (NMFS) serves as the federal implementation and enforcement entity. This cooperative management endeavor was developed because a significant portion of the catch is taken from both state waters (0-3 miles offshore) and federal waters (3-200 miles offshore, also known as the Exclusive Economic Zone or EEZ). The management unit for scup includes U.S. waters from Cape Hatteras, North Carolina to the U.S./Canadian border.

The federal Fishery Management Plan (FMP) for scup has been in place since 1996, when scup were incorporated into the Summer Flounder FMP through Amendment 8. Amendment 8 established gear restrictions, reporting requirements, commercial quotas, a moratorium on new commercial scup permits, recreational possession limits, and minimum size restrictions for scup fisheries. The Council has made several adjustments to the FMP since 1996. The FMP and subsequent amendments and framework adjustments can be found at: [www.mafmc.org/sf-s-bsb/](http://www.mafmc.org/sf-s-bsb/).

The Council's Scientific and Statistical Committee (SSC) recommends annual Acceptable Biological Catch (ABC) levels for scup. The annual ABC is divided into commercial and recreational Annual Catch Limits (ACLs), based on the allocation percentages prescribed in the FMP (i.e. 78% commercial, 22% recreational). Both ABCs and ACLs are catch-based limits, meaning they account for both landings and discards. Projected discards are subtracted to determine the commercial quota and recreational harvest limit (RHL), which are landings-based limits. Table 1 shows scup catch and landings limits from 2007 through 2018, as well as commercial and recreational landings through 2016.

Total scup landings (commercial and recreational) from Maine to North Carolina peaked in 1981 at over 27 million pounds and reached a low of 5.1 million pounds in 1998. In 2017, about 20.87 million pounds of scup were landed by commercial and recreational fishermen (Figure 3).<sup>6,7</sup>



**Table 1:** Summary of scup catch limits, landings limits, and landings, 2007 through 2018. Values are in millions of pounds unless otherwise noted.

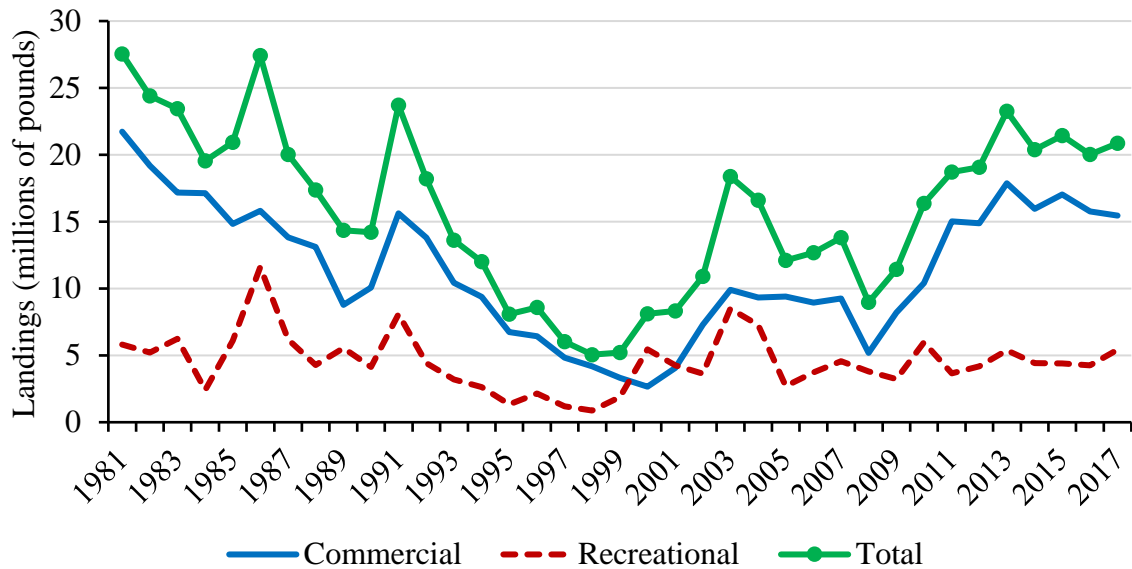
Measure	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 <sup>a</sup>
ABC	--	--	11.70	17.09	51.70	40.88	38.71	35.99	33.77	31.11	28.40	39.14	36.43
TAC <sup>b</sup>	13.97	9.90	15.54	17.09	31.92	--	--	--	--	--	--	--	--
Commercial ACL	--	--	--	--	--	31.89	30.19	28.07	26.35	24.26	22.15	30.53	28.42
Commercial ACT <sup>c</sup>	--	--	--	--	--	31.89	30.19	28.07	26.35	24.26	22.15	28.42	28.42
Commercial quota <sup>d</sup>	8.90	5.24	8.37	10.68	20.36	27.91	23.53	21.95	21.23	20.47	18.38	23.98	23.98
Commercial landings	9.25	5.19	8.20	10.40	15.03	14.88	17.87	15.96	17.03	15.76	15.44	--	--
% of commercial quota landed	104%	99%	98%	97%	74%	53%	76%	72%	80%	77%	84%	--	--
Recreational ACL	--	--	--	--	--	8.99	8.52	7.92	7.43	6.84	6.25	8.61	8.01
Recreational ACT <sup>c</sup>	--	--	--	--	--	8.99	8.52	7.92	7.43	6.84	6.25	8.01	8.01
RHL <sup>d</sup>	2.74	1.83	2.59	3.01	5.74	8.45	7.55	7.03	6.80	6.09	5.50	7.37	7.37
Recreational landings	4.56	3.79	3.23	5.97	3.67	4.17	5.37	4.43	4.41	4.26	5.42	--	--
% of RHL harvested	166%	207%	125%	198%	64%	49%	71%	63%	65%	70%	98%	--	--

<sup>a</sup>2019 measures will be reviewed by the Council in 2018 and may be revised.

<sup>b</sup>Prior to implementation of the 2011 Omnibus ACLs and AMs Amendment, the Council specified a Total Allowable Catch (TAC). After implementation of this amendment, the Council specified ABCs instead of TACs. Both terms refer to the total catch limit in a given year. The difference between the TAC and the ABC in 2009 is due to NMFS specifying a revised catch limit after new scientific information became available. In 2011, the difference was due to the Council specifying a more conservative limit than that recommended by the SSC.

<sup>c</sup>The ACT is the annual catch target and is set equal to or less than the ACL to account for management uncertainty.

<sup>d</sup>Commercial quotas and RHLs reflect the removal of projected discards from the sector-specific ACLs. For 2006-2014, these limits were also adjusted for Research Set Aside. This program was suspended in 2014.



**Figure 3:** Commercial and recreational scup landings, Maine - North Carolina, 1981-2017.<sup>5,6</sup>

#### 4. Commercial Fishery Regulations and Performance

Commercial scup landings peaked in 1981 at 21.73 million pounds and reached a low of 2.66 million pounds in 2000 (Figure 3). In 2017, commercial fishermen landed 15.44 million pounds of scup, about 84% of the commercial quota.<sup>6</sup>

Commercial discards have been increasing since 2014. About 10.47 million pounds of scup were discarded in commercial fisheries in 2017. This is the highest amount of discards since 1981 and represents about a 71% increase from 2016. This resulted in the 2017 commercial ACL being exceeded by about 17% and the ABC being exceeded by about 11%, despite the quota underage. This increase in discards was likely mainly due to the large 2015 year class, which appears to be the largest year class since at least 1984. In 2017, these scup were very abundant, but mostly too small to be landed in the commercial fishery due to the commercial minimum fish size of 9 inches total length.<sup>5</sup>

The commercial scup fishery operates year-round, taking place mostly in federal waters during the winter and mostly in state waters during the summer. A coast-wide commercial quota is allocated between three quota periods, known as the winter I, summer, and winter II quota periods. These seasonal quota periods were established to ensure that both smaller day boats, which typically operate near shore in the summer months, and larger vessels operating offshore in the winter months can land scup before the annual quota is reached. The dates of the summer and winter II periods were modified in 2018 (Table 2).

The summer period quota is divided among states according to the allocation percentages outlined in the Commission’s FMP (Table 3). Once the quota for a given period is reached, the commercial fishery is closed for the remainder of that period. If the full winter I quota is not harvested, unused quota is added to the winter II period. Any quota overages during the winter I and II periods are subtracted from the quota allocated to those periods in the following year. Quota overages during

the summer period are subtracted from the following year's quota only in the states where the overages occurred.

A possession limit of 50,000 pounds of scup is in effect during the winter I quota period. A possession limit of 12,000 pounds is in effect during the winter II period. If the winter I quota is not reached, the winter II possession limit increases by 1,500 pounds for every 500,000 pounds of quota not caught during winter I. The winter II possession limit was 18,000 pounds in 2017 due to quota rollover from the winter I period. During the summer period, various state-specific possession limits are in effect.

The commercial scup fishery in federal waters is predominantly a bottom otter trawl fishery. In 2017, about 97% of the commercial scup landings (by weight) reported on vessel trip reports (VTRs) were caught with bottom otter trawls. Pots and sink gillnets each accounted for about 1% of landings. All other gear types each accounted for less than 1% of the 2017 commercial scup landings.<sup>9</sup>

Trawl vessels may not possess 1,000 pounds or more of scup during October - April, or 200 pounds or more during May - September, unless they use a minimum mesh size of 5-inch diamond mesh, applied throughout the codend for at least 75 continuous meshes forward of the terminus of the net. Pots and traps for scup are required to have degradable hinges and escape vents that are either circular with a 3.1 inch minimum diameter or square with a minimum length of 2.25 inches on the side.

VTR data suggest that NMFS statistical areas 537, 539, 611, 613, and 616 were responsible for the largest percentage of commercial scup catch in 2017. Statistical area 539, off Rhode Island, had the highest number of trips which caught scup (Table 4, Figure 4).<sup>9</sup>

Over the past two decades, total scup ex-vessel revenue ranged from a low of \$4.66 million in 2000 to a high of \$11.53 million in 2015. In 2017, 15.44 million pounds of scup were landed by commercial fishermen from Maine through North Carolina. Total ex-vessel value in 2017 was \$9.60 million, resulting in an average price per pound of \$0.62. All revenue and price values were adjusted to 2017 dollars to account for inflation.<sup>6</sup>

In general, the price of scup tends to be lower when landings are higher, and vice versa (Figure 6). This relationship is not linear and many other factors besides landings also influence price. The highest average price per pound over the past two decades was \$1.46 (\$2.27 in 2017 dollars) and occurred in 1998. The lowest mean price per pound was \$0.55 (\$0.52 in 2017 dollars) and occurred in 2013.<sup>6</sup>

Over 171 federally-permitted dealers from Maine through North Carolina purchased scup in 2017. More dealers in New York purchased scup than in any other state (Table 5).<sup>6</sup>

At least 100,000 pounds of scup were landed by commercial fishermen in 17 ports in 7 states in 2017. These ports accounted for approximately 92% of all 2017 commercial scup landings. Point Judith, Rhode Island was the leading port, both in terms of landings and number of vessels landing scup (Table 6).<sup>6</sup> The ports and communities with the greatest participation in the scup fishery are described in Amendment 13 to the FMP (available at <http://www.mafmc.org/sf-s-bsb/>). Detailed

community profiles developed by the Northeast Fisheries Science Center's Social Science Branch can be found at [www.mafmc.org/communities/](http://www.mafmc.org/communities/).

A moratorium permit is required to fish commercially for scup. In 2017, 634 vessels held commercial moratorium permits for scup.<sup>10</sup>

**Table 2:** Dates, allocations, and possession limits for the commercial scup quota periods.

<b>Quota Period</b>	<b>Dates</b>	<b>% of commercial quota allocated</b>	<b>Possession limit</b>
Winter I	January 1 – April 30	45.11%	50,000 pounds, until 80% of winter I allocation is reached, then reduced to 1,000 pounds.
Summer	May 1 – September 30*	38.95%	State-specific
Winter II	October 1 – December 31*	15.94%	12,000 pounds. If winter I quota is not reached, the winter II possession limit increases by 1,500 pounds for every 500,000 pounds of scup not landed during winter I.

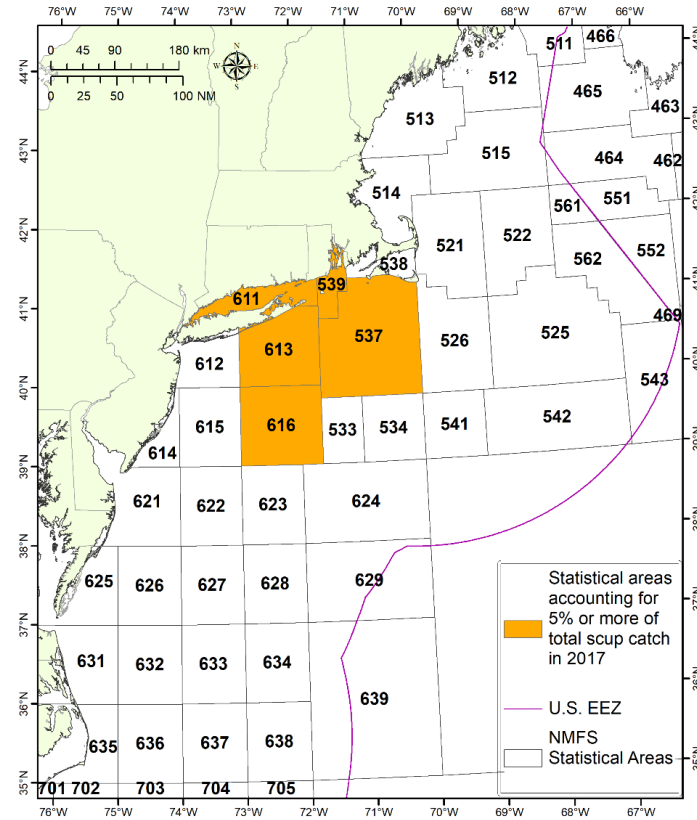
\*Prior to 2018, the summer period was May 1 - October 31 and the winter II period was November 1 - December 31, with the same allocations as shown above.

**Table 3:** State-by-state quotas for the commercial scup fishery during the summer quota period.

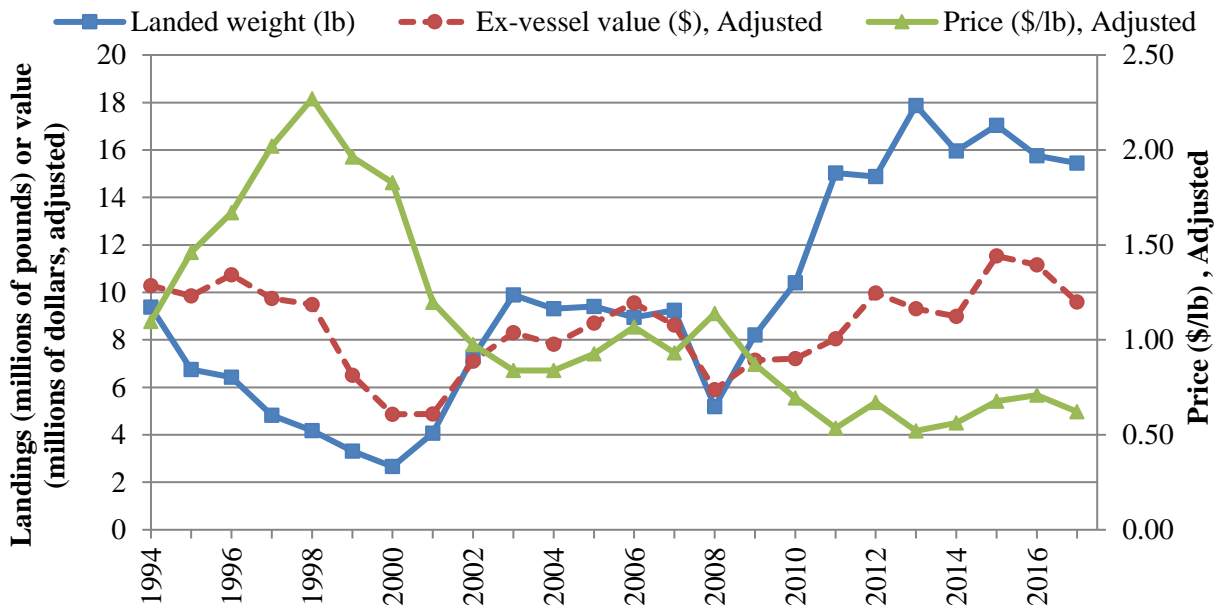
<b>State</b>	<b>Share of summer quota</b>
Maine	0.1210%
Massachusetts	21.5853%
Rhode Island	56.1894%
Connecticut	3.1537%
New York	15.8232%
New Jersey	2.9164%
Maryland	0.0119%
Virginia	0.1650%
North Carolina	0.0249%
Total	99.9908%

**Table 4:** Statistical areas which accounted for at least 5% of the total commercial scup catch (by weight) in 2017, with associated number of trips.<sup>9</sup>

<b>Statistical Area</b>	<b>Percent of 2017 Commercial Scup Catch</b>	<b>Number of Trips</b>
537	40%	1,426
539	14%	2,506
616	12%	542
613	12%	1,126
611	9%	1,870



**Figure 4:** NMFS Statistical Areas, highlighting those which accounted for at least 5% of the commercial scup catch in 2017.<sup>9</sup>



**Figure 6:** Landings, ex-vessel value, and price for scup from Maine through North Carolina, 1994-2017. Ex-vessel value and price are adjusted to show real 2017 dollars.<sup>6</sup>

**Table 5:** Number of dealers per state which reported purchases of scup in 2017. C = Confidential.<sup>6</sup>

State	NH	MA	RI	CT	NY	NJ	DE	MD	VA	NC
Number of Dealers	C	37	28	15	39	21	C	4	13	14

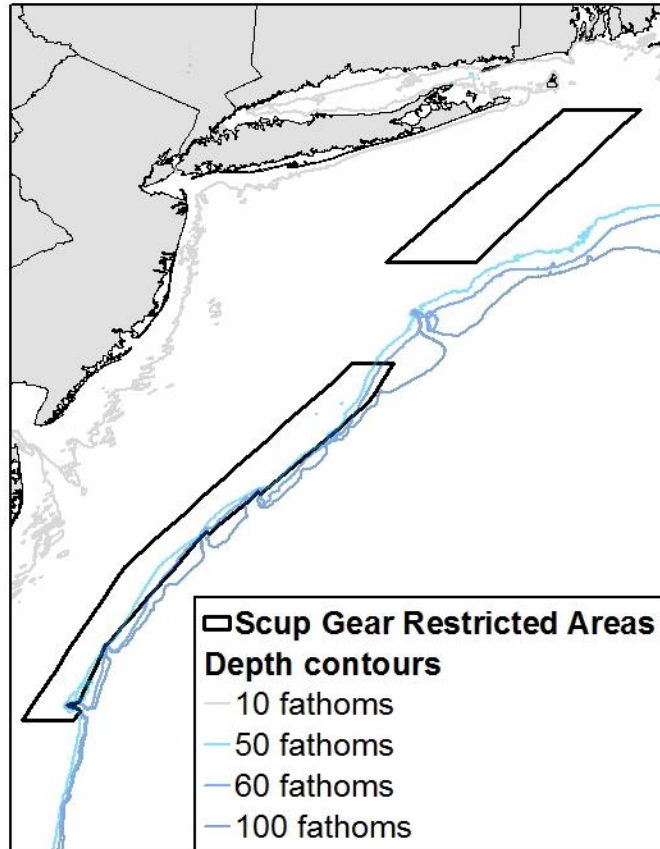
**Table 6:** Ports reporting at least 100,000 pounds of scup landings in 2017, based on NMFS dealer data. C = Confidential.<sup>6</sup>

Port	Scup Landings (lb)	% of total commercial scup landings	Number of vessels
POINT JUDITH, RI	5,279,877	34%	134
MONTAUK, NY	2,655,349	17%	83
NEW BEDFORD, MA	2,067,044	13%	69
PT. PLEASANT, NJ	1,414,580	9%	38
NEW LONDON, CT	438,687	3%	6
HAMPTON, VA	360,494	2%	42
LITTLE COMPTON, RI	281,527	2%	12
BELFORD, NJ	270,689	2%	19
MATTITUCK, NY	265,314	2%	4
STONINGTON, CT	213,465	1%	17
HAMPTON BAYS, NY	200,614	1%	37
NEWPORT, RI	175,828	1%	14
HYANNIS, MA	163,783	1%	13
BEAUFORT, NC	149,994	1%	31
CAPE MAY, NJ	137,123	1%	21
TIVERTON, RI	100,521	1%	4
SHINNECOCK, NY	100,005	1%	7

### Scup Gear Restricted Areas

Two scup gear restricted areas (GRAs) were first implemented in 2000 with the goal of reducing scup discards in small-mesh fisheries. Trawl vessels may not fish for or possess longfin squid, black sea bass, or silver hake in the Northern GRA from November 1 – December 31 and in the Southern GRA from January 1 – March 15 unless they use mesh which is at least 5 inches in diameter (Figure 5). The GRAs are thought to have contributed to the recovery of the scup population in the mid- to late-2000s.<sup>8</sup> The Council modified the boundaries of the GRAs several times since they were first implemented. The most recent modification, effective as of January 1, 2017, reduced the size of the southern GRA to restore access to certain historical winter squid fishing areas.

As previously stated, commercial scup discards have been increasing since 2014 and increased by 71% between 2016 and 2017, likely due to the large 2015 year class.<sup>5</sup> The increase between 2016 and 2017 may also be due to the recent modifications to the southern scup GRA. Further analysis is needed to evaluate the impact of the GRA modification on commercial scup discards in 2017.



**Figure 5:** The Scup Gear Restricted Areas.

## 5. Recreational Fishery Regulations and Performance

The recreational scup fishery is managed on a coast-wide basis in federal waters. Current federal regulations include a minimum size of 9 inches total length, a year-round open season, and a possession limit of 50 scup (Table 7). These measures have been unchanged since 2015.

The Commission applies a regional management approach to recreational scup fisheries in state waters, where New York, Rhode Island, Connecticut, and Massachusetts develop regulations intended to achieve 97% of the recreational harvest limit. The minimum fish size, possession limit, and open season for recreational scup fisheries in state waters vary by state. State waters measures remained unchanged from 2015 through 2017 (Table 8). The states of Massachusetts through New York reduced their recreational minimum size limits for 2018. New Jersey extended their recreational fishing season to the full year. All other state waters measures remained unchanged from 2017 to 2018 (Table 9).

Recreational catch and landings of scup peaked in 1986, when an estimated 30.87 million scup were caught and 24.8 million scup were landed by recreational fishermen from Maine through North Carolina. Recreational catch was lowest in 1998 when an estimated 2.7 million scup were caught and 1.2 million scup were landed (Table 10). Recreational anglers from Maine through North Carolina caught an estimated 14.53 million scup and landed 5.50 million scup (about 5.42 million pounds) in 2017.<sup>7</sup>



Vessels carrying passengers for hire in federal waters must obtain a federal party/charter permit. In 2017, 752 vessels held scup federal party/charter permits. Many of these vessels also held party/charter permits for summer flounder and black sea bass.<sup>10</sup>

Most recreational scup catch occurs in state waters during the warmer months when the fish migrate inshore. Between 2008 and 2017, about 97% of recreational scup landings (in numbers of fish) occurred in state waters and about 3% occurred in federal waters (Table 11). New York, Massachusetts, Connecticut, Rhode Island, and New Jersey accounted for over 99.9% of recreational scup harvest in 2017 (Table 12).<sup>7</sup>

About 60% of recreational scup landings (in numbers of fish) in 2017 were from anglers who fished on private or rental boats. About 29% were from anglers fishing on party or charter boats, and about 12% were from anglers fishing from shore (Table 13).<sup>7</sup>

**Table 7:** Federal recreational measures for scup, 2005-2018.

<b>Regulation</b>	<b>2005-2007</b>	<b>2008-2009</b>	<b>2010-2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015-2018</b>
<b>Minimum size (total length)</b>	10 in.	10.5 in.	10.5 in.	10.5 in.	10 in.	9 in.	9 in.
<b>Possession limit</b>	50	15	10	20	30	30	50
<b>Open season</b>	Jan 1–Feb 28 & Sept 18 – Nov 30	Jan 1–Feb 28 & Oct 1–Oct 31	Jun 6 – Sept 26	Jan 1 – Dec 31	Jan 1 – Dec 31	Jan 1 – Dec 31	Jan 1 – Dec 31

**Table 8:** Scup recreational fishing measures in state waters for 2015-2017.

State	Minimum Size (inches)	Possession Limit	Open Season
MA	10	30 fish	May 1-December 31
MA (party/charter)	10	45 fish	May 1-June 30
		30 fish	July 1-December 31
RI (private and shore)	10	30 fish	May 1-December 31
RI Shore Program (7 designated shore sites)	9		
RI (party/charter)	10	30 fish	May 1-August 31; November 1-December 31
		45 fish	September 1-October 31
CT (private angler)	10	30 fish	May 1-December 31
CT Shore Program (45 designed shore sites)	9		
CT (party/charter)	10	30 fish	May 1-August 31; November 1-December 31
		45 fish	September 1-October 31
NY (private and shore)	10	30 fish	May 1-December 31
NY (party/charter)	10	30 fish	May 1-August 31; November 1-December 31
		45 fish	September 1- October 31
NJ	9	50 fish	January 1-February 28; July 1-December 31
DE	8	50 fish	January 1-December 31
MD	8	50 fish	January 1-December 31
VA	8	30 fish	January 1-December 31
NC, North of Cape Hatteras	8	50 fish	January 1-December 31

**Table 9:** Scup recreational fishing measures in state waters for 2018.

State	Minimum Size (inches)	Possession Limit	Open Season
MA	9	30 fish; 150 fish/vessel with 5+ anglers on board	May 1-December 31
MA (party/charter)	9	45 fish	May 1-June 30
		30 fish	July 1-December 31
RI (private & shore)	9	30 fish	May 1-December 31
RI shore program (7 designated shore sites)	8		
RI (party/charter)	9	30 fish	May 1-August 31; November 1-December 31
		45 fish	September 1-October 31
CT (private & shore)	9	30 fish	May 1-December 31
CT shore program (46 designated shore sites)	8		
CT (party/charter)	9	30 fish	May 1-August 31; November 1-December 31
		45 fish	September 1-October 31
NY (private & shore)	9	30 fish	May 1-December 31
NY (party/charter)	9	30 fish	May 1-August 31; November 1-December 31
		45 fish	September 1- October 31
NJ	9	50 fish	January 1- December 31
DE	8	50 fish	January 1-December 31
MD	8	50 fish	January 1-December 31
VA	8	30 fish	January 1-December 31
NC, North of Cape Hatteras (N of 35° 15'N)	8	50 fish	January 1-December 31

**Table 10:** Estimated recreational catch and harvest of scup, Maine - North Carolina, 1981 - 2017.<sup>6</sup>

<b>Year</b>	<b>Recreational catch (millions of fish)</b>	<b>Recreational harvest (millions of fish)</b>	<b>Recreational harvest (millions of pounds)</b>	<b>% of catch retained</b>
1981	10.38	9.08	5.81	88%
1982	7.18	6.45	5.20	90%
1983	10.16	8.84	6.25	87%
1984	7.77	6.06	2.42	78%
1985	13.86	10.81	6.09	78%
1986	30.87	24.82	11.60	80%
1987	12.38	9.92	6.20	80%
1988	7.54	6.06	4.27	80%
1989	11.39	9.18	5.56	81%
1990	10.17	8.04	4.14	79%
1991	16.85	13.28	8.09	79%
1992	10.08	7.76	4.41	77%
1993	7.08	5.66	3.20	80%
1994	5.65	4.27	2.63	76%
1995	3.77	2.42	1.34	64%
1996	4.68	2.97	2.16	64%
1997	3.07	1.92	1.20	62%
1998	2.67	1.21	0.87	45%
1999	4.64	3.25	1.89	70%
2000	11.28	7.24	5.44	64%
2001	9.93	5.10	4.26	51%
2002	7.58	3.65	3.62	48%
2003	14.66	9.45	8.48	64%
2004	13.43	7.15	7.28	53%
2005	7.04	2.59	2.69	37%
2006	9.61	3.43	3.72	36%
2007	10.05	4.75	4.56	47%
2008	10.71	3.49	3.79	33%
2009	8.70	3.13	3.23	36%
2010	11.15	5.15	5.97	46%
2011	6.47	3.06	3.67	47%
2012	8.83	3.67	4.17	42%
2013	10.02	4.98	5.37	50%
2014	8.99	4.13	4.43	46%
2015	8.39	4.05	4.41	48%
2016	12.10	3.84	4.26	32%
2017	14.53	5.50	5.42	38%

**Table 11:** Estimated percent of scup (in numbers of fish) caught by recreational fishermen in state and federal waters, Maine - North Carolina, 2008 - 2017.<sup>6</sup>

<b>Year</b>	<b>State waters</b>	<b>Federal waters</b>
<b>2008</b>	96.7%	3.3%
<b>2009</b>	97.8%	2.2%
<b>2010</b>	95.9%	4.1%
<b>2011</b>	97.8%	2.2%
<b>2012</b>	99.6%	0.4%
<b>2013</b>	96.0%	4.0%
<b>2014</b>	95.4%	4.6%
<b>2015</b>	97.9%	2.1%
<b>2016</b>	93.3%	6.7%
<b>2017</b>	95.4%	4.6%
<b>2008-2017 average</b>	<b>96.6%</b>	<b>3.4%</b>
<b>2015-2017 average</b>	<b>95.5%</b>	<b>4.5%</b>

**Table 12:** Recreational scup harvest by state in 2016 and 2017. Percentages were calculated based on numbers of fish.<sup>6</sup>

<b>State</b>	<b>2016</b>	<b>2017</b>
Maine	0.0%	0.0%
New Hampshire	0.00%	0.02%
Massachusetts	22.58%	23.64%
Rhode Island	15.04%	9.04%
Connecticut	21.46%	18.82%
New York	32.70%	33.56%
New Jersey	7.71%	14.91%
Delaware	0.0%	0.0%
Maryland	0.0%	0.0%
Virginia	0.50%	0.00%
North Carolina	0.00%	0.01%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>

**Table 13:** Scup harvest by recreational fishing mode, Maine - North Carolina, 1981 - 2017, based on numbers of fish. Some percentages do not sum to 100% due to rounding. <sup>6</sup>

<b>Year</b>	<b>Shore</b>	<b>Party/charter</b>	<b>Private/rental</b>	<b>Total</b>
1981	9%	12%	80%	9,083,708
1982	13%	22%	65%	6,454,108
1983	25%	34%	41%	8,836,563
1984	21%	4%	75%	6,057,310
1985	10%	3%	87%	10,810,048
1986	8%	13%	79%	24,823,042
1987	5%	6%	89%	9,915,988
1988	12%	19%	70%	6,062,309
1989	10%	11%	79%	9,176,431
1990	5%	16%	78%	8,042,990
1991	12%	17%	71%	13,279,092
1992	13%	13%	74%	7,764,179
1993	5%	31%	64%	5,663,018
1994	5%	22%	73%	4,270,240
1995	9%	35%	56%	2,419,031
1996	4%	15%	81%	2,972,207
1997	7%	24%	69%	1,916,434
1998	10%	14%	77%	1,211,136
1999	6%	25%	69%	3,250,650
2000	8%	16%	77%	7,243,949
2001	15%	15%	70%	5,098,820
2002	14%	36%	50%	3,646,840
2003	9%	14%	77%	9,452,312
2004	11%	21%	68%	7,153,535
2005	15%	6%	78%	2,589,430
2006	9%	18%	73%	3,434,137
2007	7%	11%	82%	4,747,826
2008	11%	25%	64%	3,486,942
2009	7%	36%	57%	3,134,057
2010	7%	25%	68%	5,148,269
2011	10%	15%	75%	3,056,212
2012	7%	31%	61%	3,668,490
2013	18%	33%	48%	4,984,345
2014	12%	24%	64%	4,125,316
2015	12%	17%	71%	4,048,113
2016	19%	22%	59%	3,838,524
2017	12%	29%	60%	5,500,291
<b>2015-2017 average</b>	<b>14%</b>	<b>22%</b>	<b>63%</b>	<b>4,462,309</b>

## References

- <sup>1</sup> Steimle, F.W, C. A. Zetlin, P. L. Berrien, D. L. Johnson, S. Chang. 1999. Essential Fish Habitat source document: Scup, *Stenotomus chrysops*, life history and habitat characteristics. NOAA Technical Memorandum NMFS-NE-149; 39 p.
- <sup>2</sup> Northeast Data Poor Stocks Working Group. 2009. The northeast data poor stocks working group report, part A: skate species complex, deep sea red crab, Atlantic wolffish, scup, and black sea bass. Northeast Fish Science Center Reference Document 09-02; 496 p. Available at: <http://www.nefsc.noaa.gov/publications/crd/crd0902/>.
- <sup>3</sup> Northeast Fisheries Science Center. 2015. 60<sup>th</sup> Northeast Regional Stock Assessment (60<sup>th</sup> SAW) assessment report. Northeast Fisheries Science Center Reference Document 15-08. Available at: <http://www.nefsc.noaa.gov/publications/>.
- <sup>4</sup> NEFSC (Northeast Fisheries Science Center). 2017. Scup Stock Assessment Update for 2017. Available at: <http://www.mafmc.org/ssc-meetings/2017/july-19-20>.
- <sup>5</sup> NEFSC (Northeast Fisheries Science Center). 2018. Scup Stock Assessment Update for 2018. Available at: <http://www.mafmc.org/ssc-meetings/2018/july-17-18>.
- <sup>6</sup> Unpublished NMFS dealer data.
- <sup>7</sup> Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division. Accessed June 2018. Available at: <http://www.st.nmfs.noaa.gov/recreational-fisheries/index>.
- <sup>8</sup> Terceiro, M., A. Miller. 2014. Commercial fishery scup discarding and the Gear Restricted Areas (GRAs). White paper for the Mid-Atlantic Fishery Management Council. 30 p.
- <sup>9</sup> Unpublished NMFS Vessel Trip Report data.
- <sup>10</sup> Unpublished NMFS permit data.

## Scup Data Update for 2018

National Marine Fisheries Service  
Northeast Fisheries Science Center  
166 Water St.  
Woods Hole, MA 02543

### Fishery and Survey Data

Reported 2017 landings in the commercial fishery were 7,007 mt = 15.448 million lbs, about 84% of the commercial quota (8,337 mt = 18.380 million lbs). Estimated 2017 landings in the recreational fishery were 2,462 mt = 5.428 million lbs, about 99% of the recreational harvest limit (2,495 mt = 5.501 million lbs). Total commercial and recreational landings in 2017 were 9,469 mt = 20.876 million lbs. Commercial fishery discards have been increasing since 2014, increased by 71% from 2016 to 2017, and were estimated at 4,727 mt (10.421 million lbs) in 2017, the highest since 1981. Most of the commercially discarded scup in 2017 were 16-18 cm age 2 fish from the large 2015 year class. Recreational discards were estimated at 407 mt = 0.897 million lbs in 2017. Total estimated commercial and recreational discards in 2017 were 5,134 mt = 11.313 million lbs. The total catch in 2017 was 14,603 mt = 32.194 million lbs, the highest since 1991, and about 13% above the 2017 ABC = 12,881 mt = 28.398 million lbs (Table 1, Figure 1).

The NEFSC fall 2015 and spring 2016 survey biomass indices were record highs for the time series, although both seasonal indices then decreased (Figures 2-4). The NEFSC 2017 fall survey did not sample the scup assessment strata, and so no 2017 fall index is available. The MADMF spring and fall 2017, RIDFW spring and fall 2016, URIGSO 2015-2017, CTDEP spring 2016-2017, NYDEC 2016-2017, and NEAMAP spring 2016 indices were also at or near record highs. NJDFW indices decreased during 2013-2017 (Figures 5-12). Some of the indices of recruitment (RIDFW, NYDEC, NEFSC; age 0 fish) indicate the recruitment of a large year class in 2015 (Figure 13). Measures of mean size, size-structure, and exploitation ratio (total fishery catch/survey biomass index) from the NEFSC trawl surveys are presented in Figures 14-19.



Table 1. Total catch (metric tons) of scup from Maine through North Carolina. Landings include revised Massachusetts landings for 1986-1997. Commercial discards for 1981-1988 calculated as the geometric mean ratio of discards to landings numbers at age for 1989-1993. Commercial discard estimate for 1998 is the mean of 1997 and 1999 estimates. Recreational catch from MRIP (2004-2017 and MRFSS (1981-2003; adjusted by MRFSS to MRIP 2004-2011 ratio).

Year	Commercial Landings	Commercial Discards	Recreational Landings	Recreational Discards	Total Catch
1981	9,856	4,495	3,116	59	17,526
1982	8,704	3,970	2,791	53	15,518
1983	7,794	3,555	3,353	63	14,765
1984	7,769	3,543	1,296	33	12,641
1985	6,727	3,068	3,268	60	13,123
1986	7,176	3,273	6,223	97	16,769
1987	6,276	2,862	3,323	42	12,504
1988	5,943	2,710	2,289	35	10,977
1989	3,984	1,277	2,980	43	8,285
1990	4,571	2,466	2,220	42	9,299
1991	7,081	3,388	4,336	87	14,892
1992	6,259	1,885	2,366	52	10,562
1993	4,726	1,510	1,714	31	7,981
1994	4,392	962	1,409	41	6,804
1995	3,073	974	720	14	4,781
1996	2,945	870	1,156	22	4,993
1997	2,188	675	642	9	3,514
1998	1,896	705	469	16	3,086
1999	1,505	735	1,012	7	3,259
2000	1,207	592	2,919	61	4,779
2001	1,729	1,671	2,285	184	5,869
2002	3,173	1,284	1,944	152	6,553
2003	4,405	436	4,549	176	9,566
2004	4,209	1,324	3,278	182	8,993
2005	3,711	565	1,215	270	5,761
2006	4,081	896	1,681	426	7,084
2007	4,193	1,363	2,085	346	7,987
2008	2,370	1,693	1,713	287	6,062
2009	3,721	3,189	1,462	211	8,583
2010	4,866	2,638	2,715	318	10,537
2011	6,819	1,234	1,632	173	9,858
2012	6,751	1,029	1,842	231	9,853
2013	8,105	1,279	2,464	224	12,072
2014	7,239	1,004	2,124	229	10,596
2015	7,725	1,774	2,295	226	12,020
2016	7,147	2,772	1,932	354	12,205
2017	7,007	4,727	2,462	407	14,603

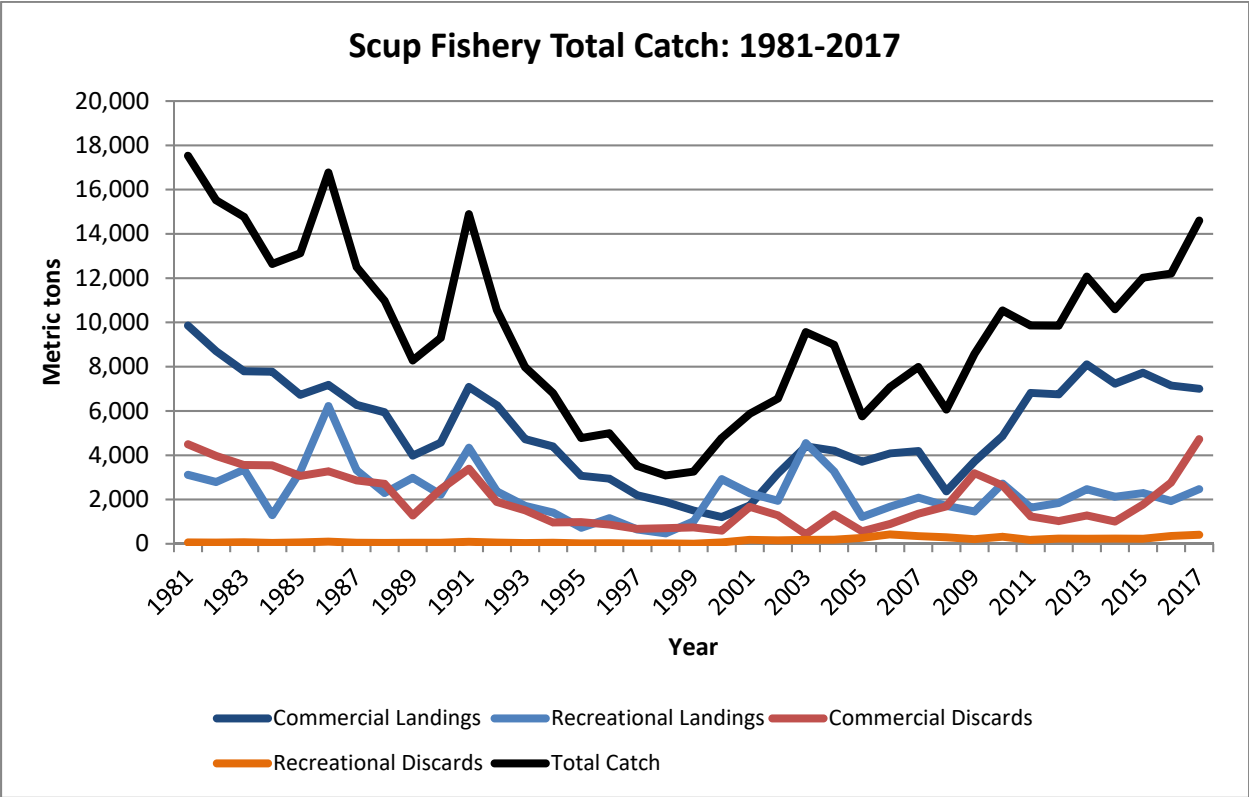


Figure 1. Scup fishery total catch.

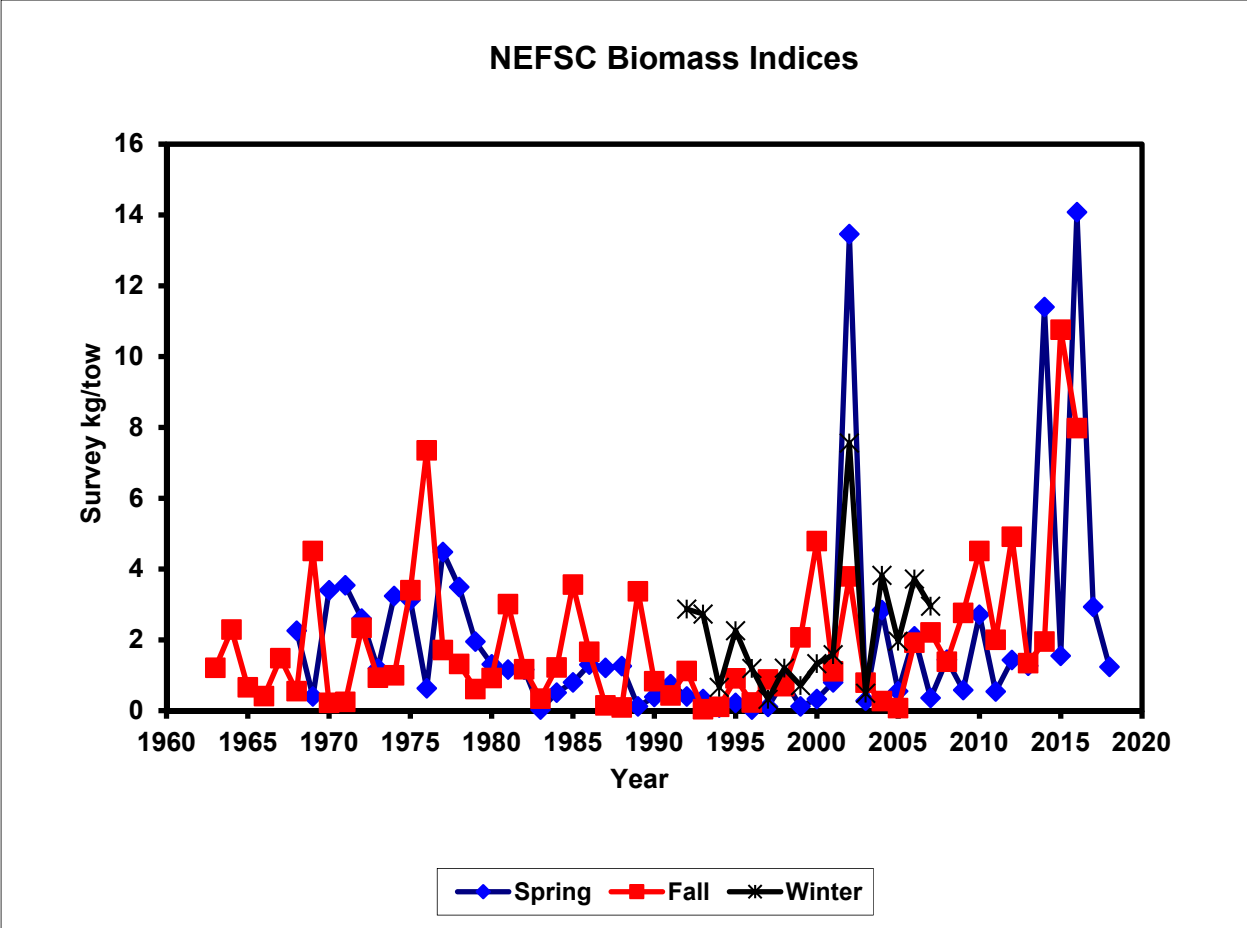


Figure 2. NEFSC trawl survey biomass indices for scup.

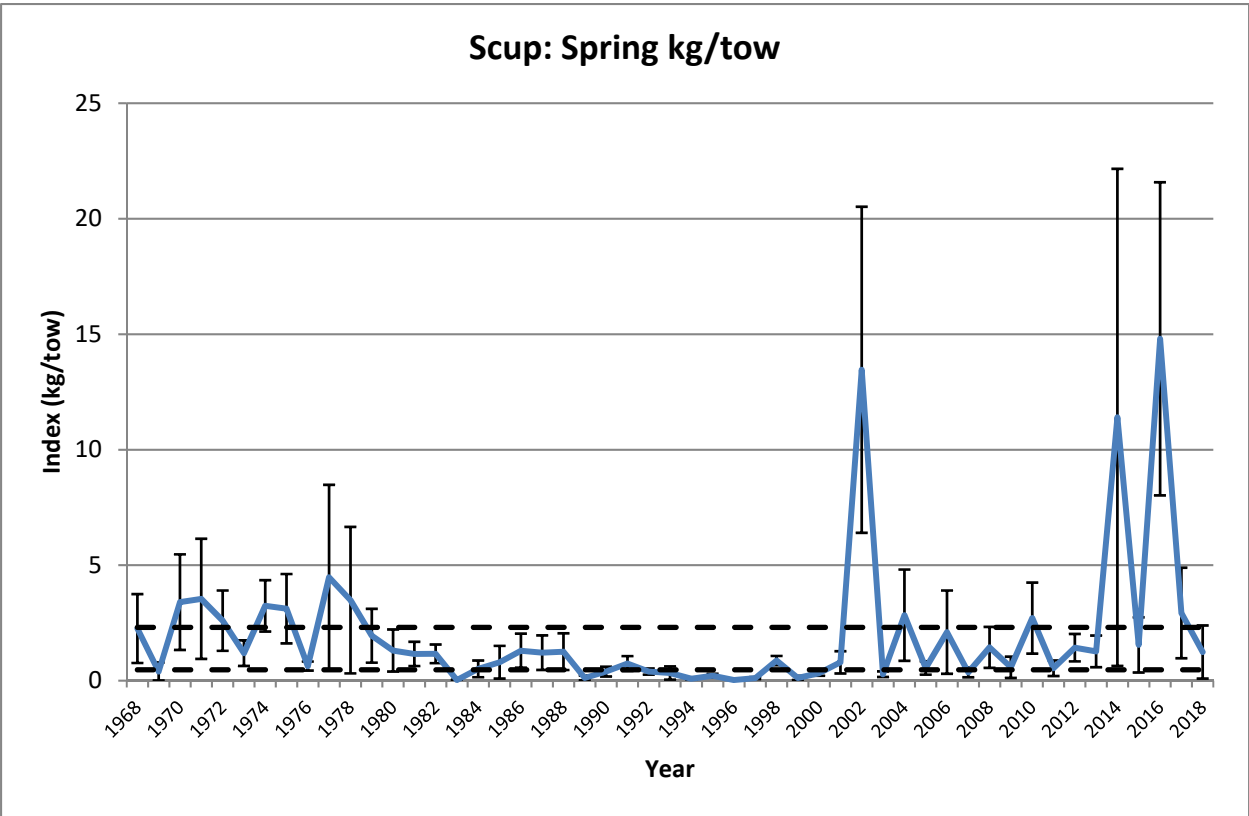


Figure 3. NEFSC spring trawl survey biomass indices for scup. Whiskers around each annual index represent +/- one standard deviation. Dashed lines represent 65% confidence intervals around the 2004-2011 mean, a period when the stock was estimated to be at or above SSBMSY and not experiencing overfishing.

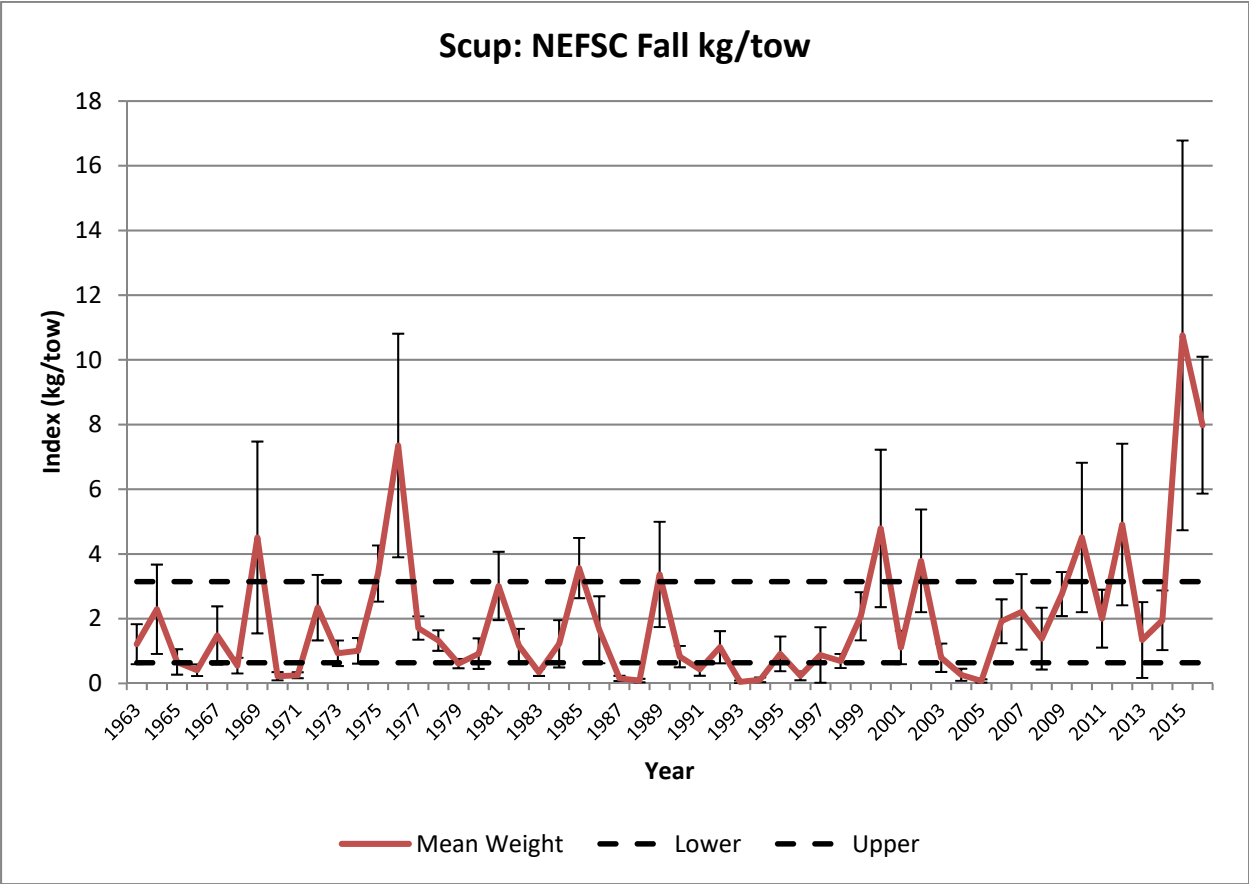


Figure 4. NEFSC fall trawl survey biomass indices for scup. Whiskers around each annual index represent +/- one standard deviation. Dashed lines represent 65% confidence intervals around the 2004-2011 mean, a period when the stock was estimated to be at or above SSBMSY and not experiencing overfishing.

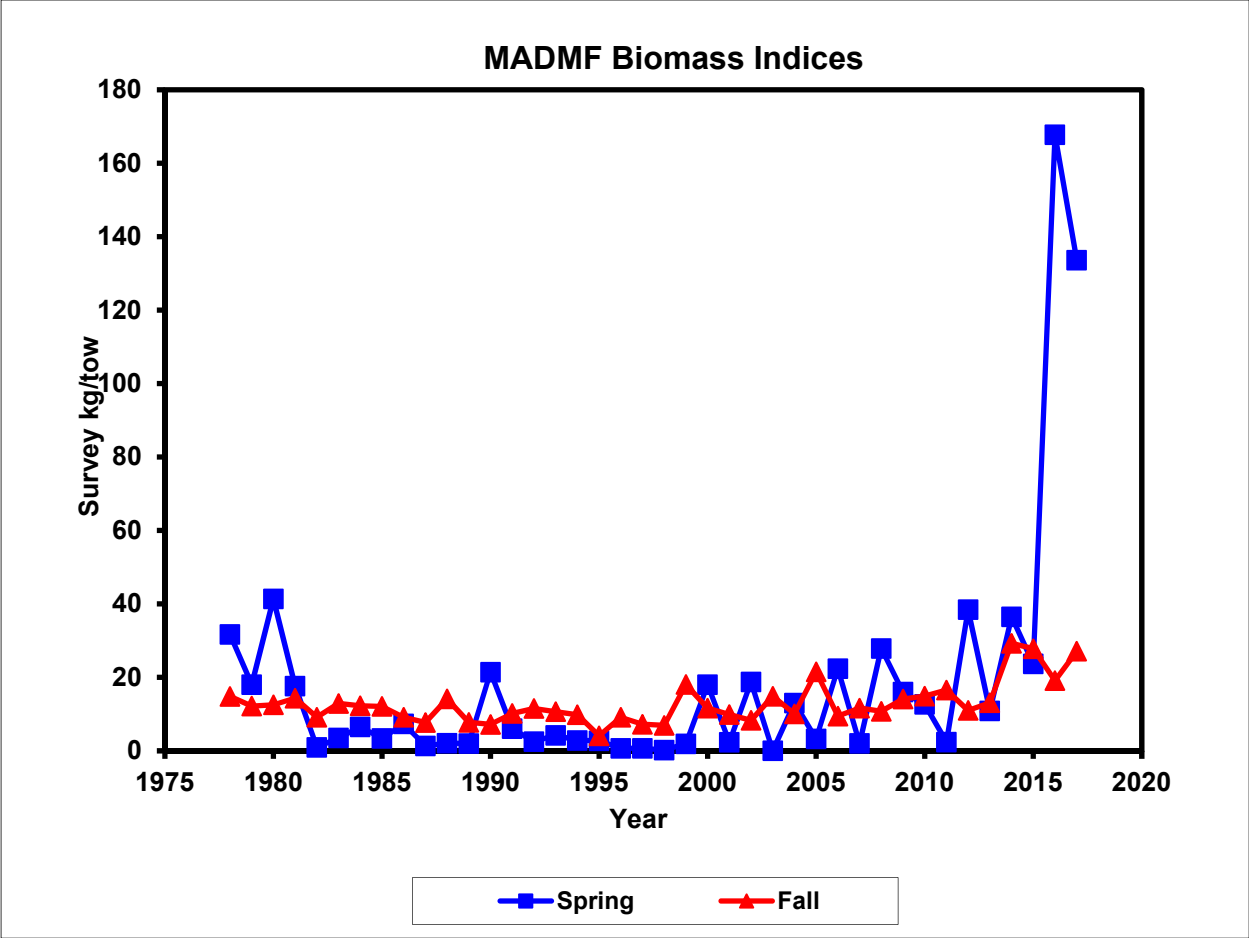


Figure 5. MADMF trawl survey indices for scup.

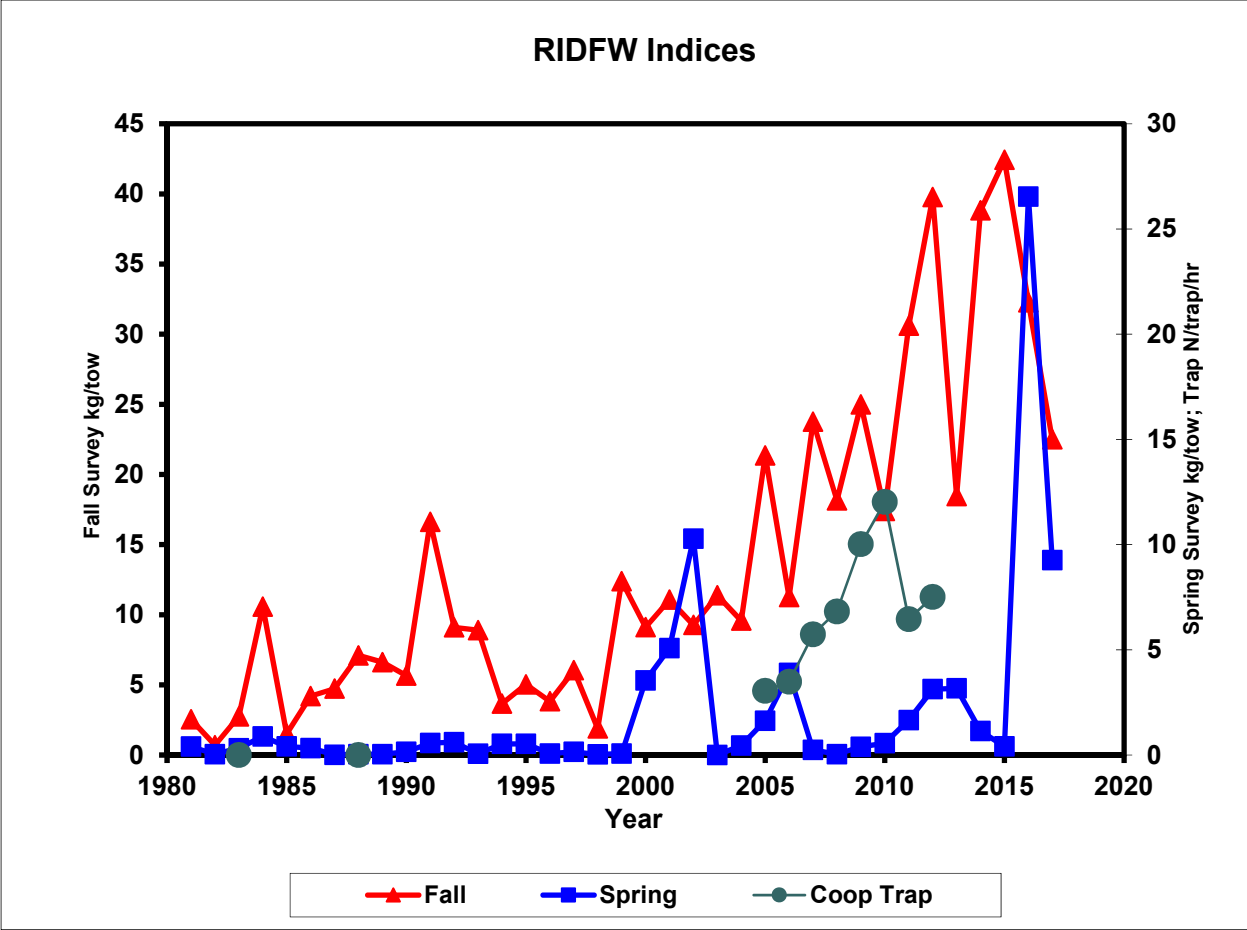


Figure 6. RIDFW trawl and trap survey indices for scup. The Cooperative trap survey ended in 2012.

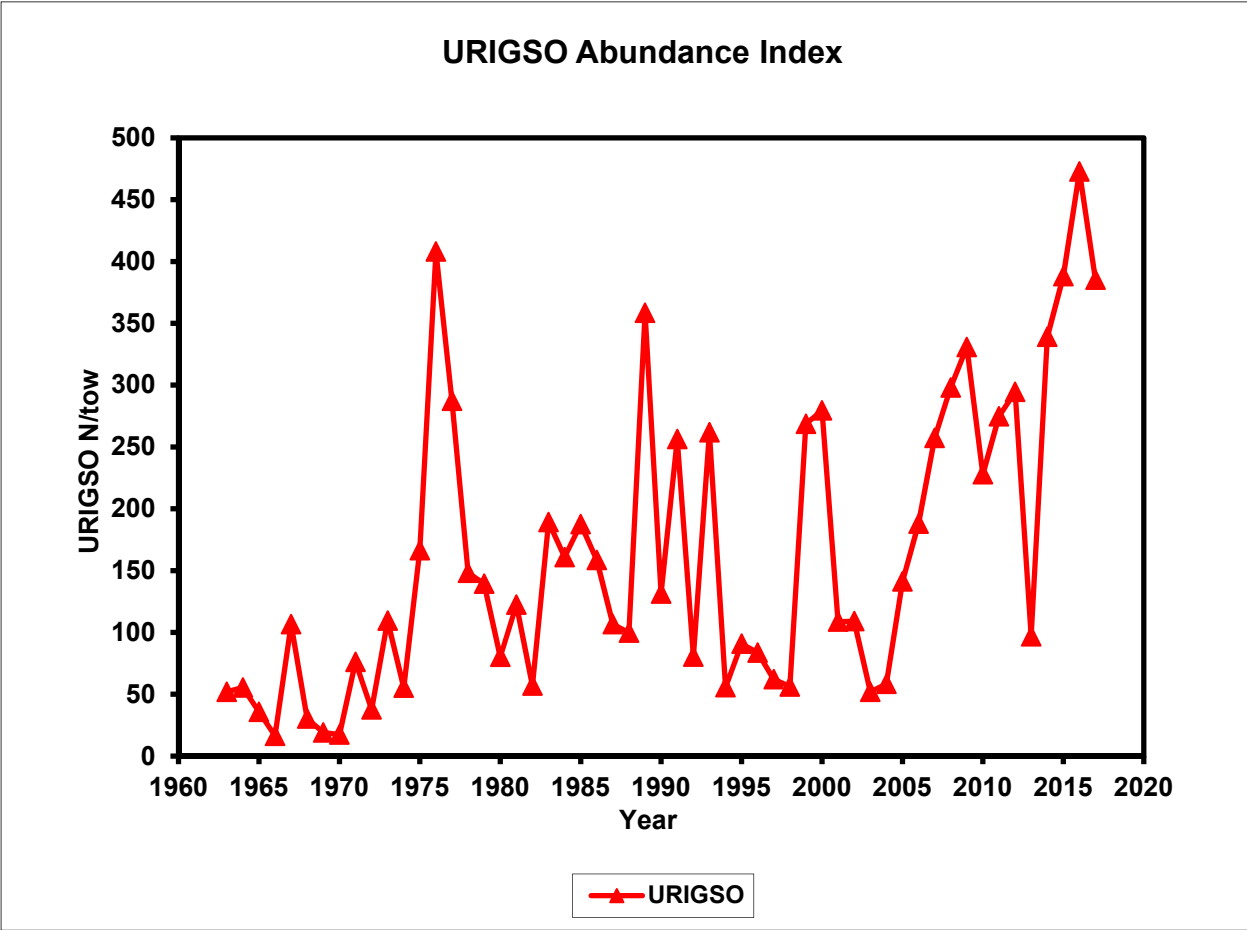


Figure 7. URIGSO trawl survey indices for scup.



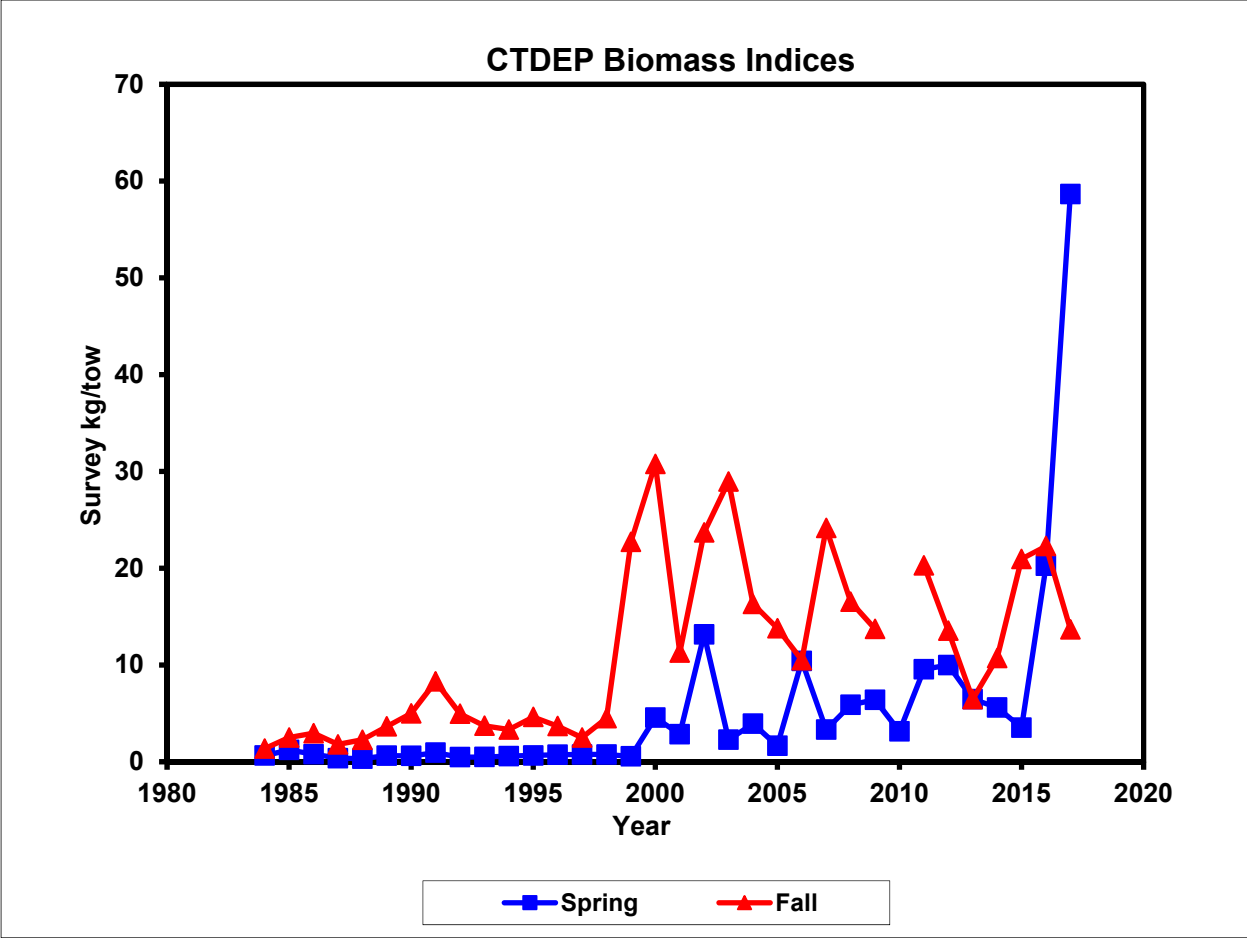


Figure 8. CTDEP trawl survey indices for scup.

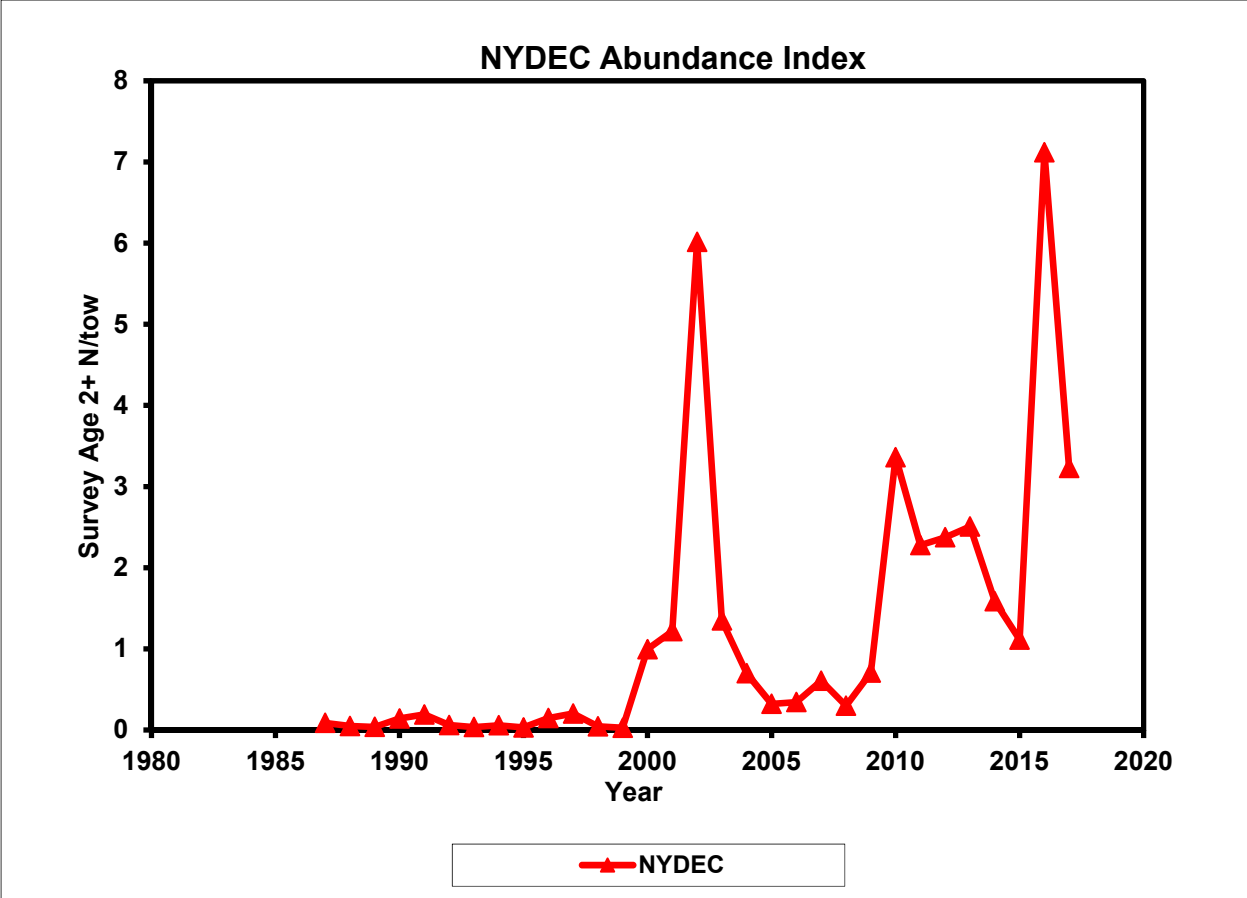


Figure 9. NYDEC trawl survey indices for scup.

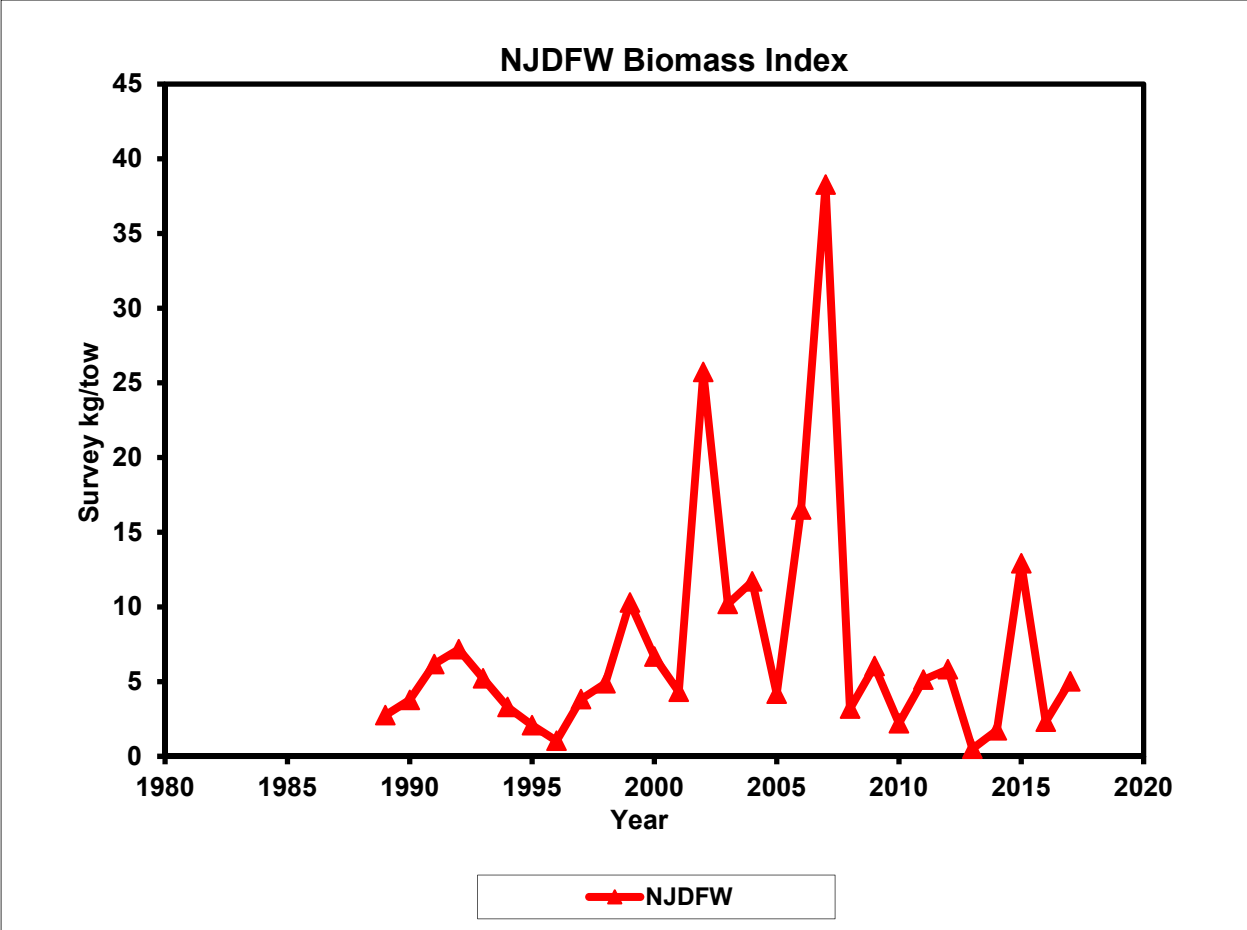


Figure 10. NJDMF trawl survey indices for scup.

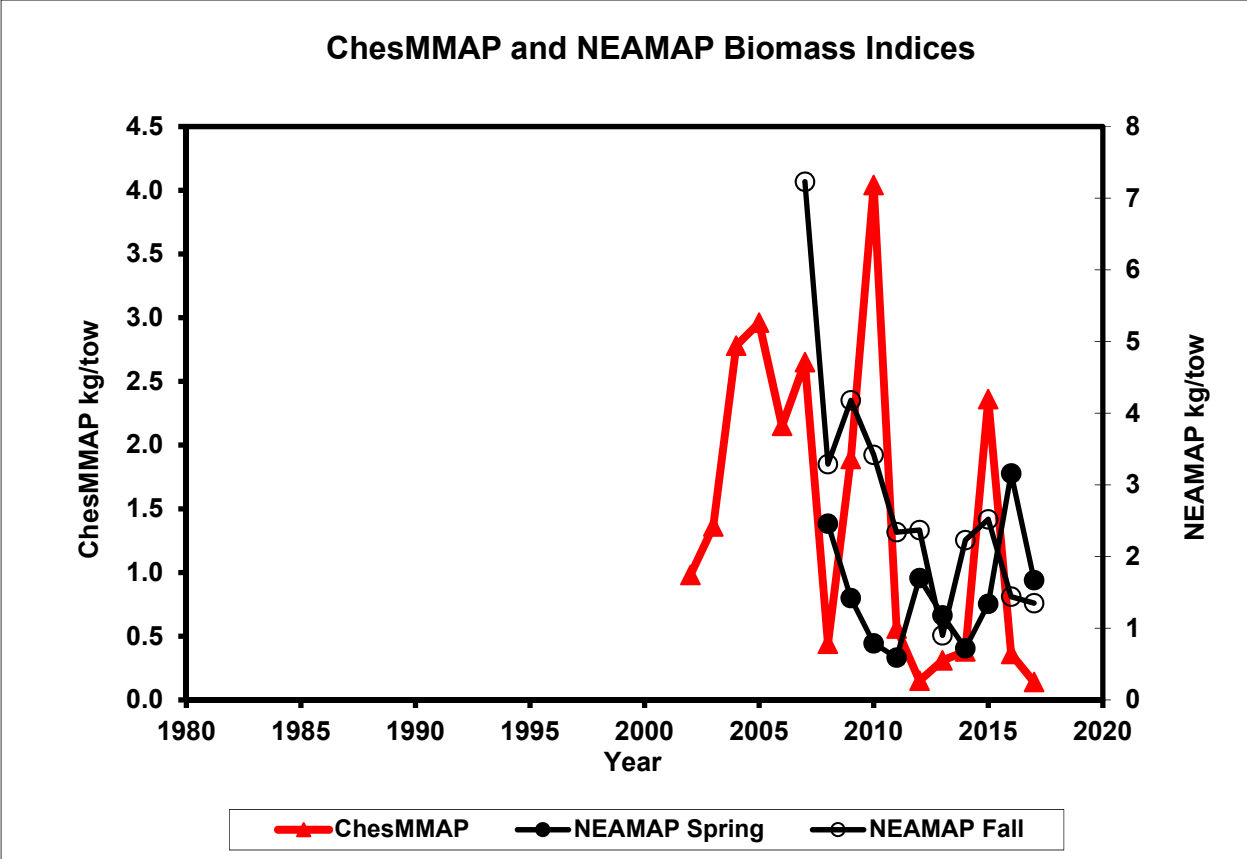


Figure 11. VIMS (ChesMMAP and NEAMAP) trawl survey indices for scup.

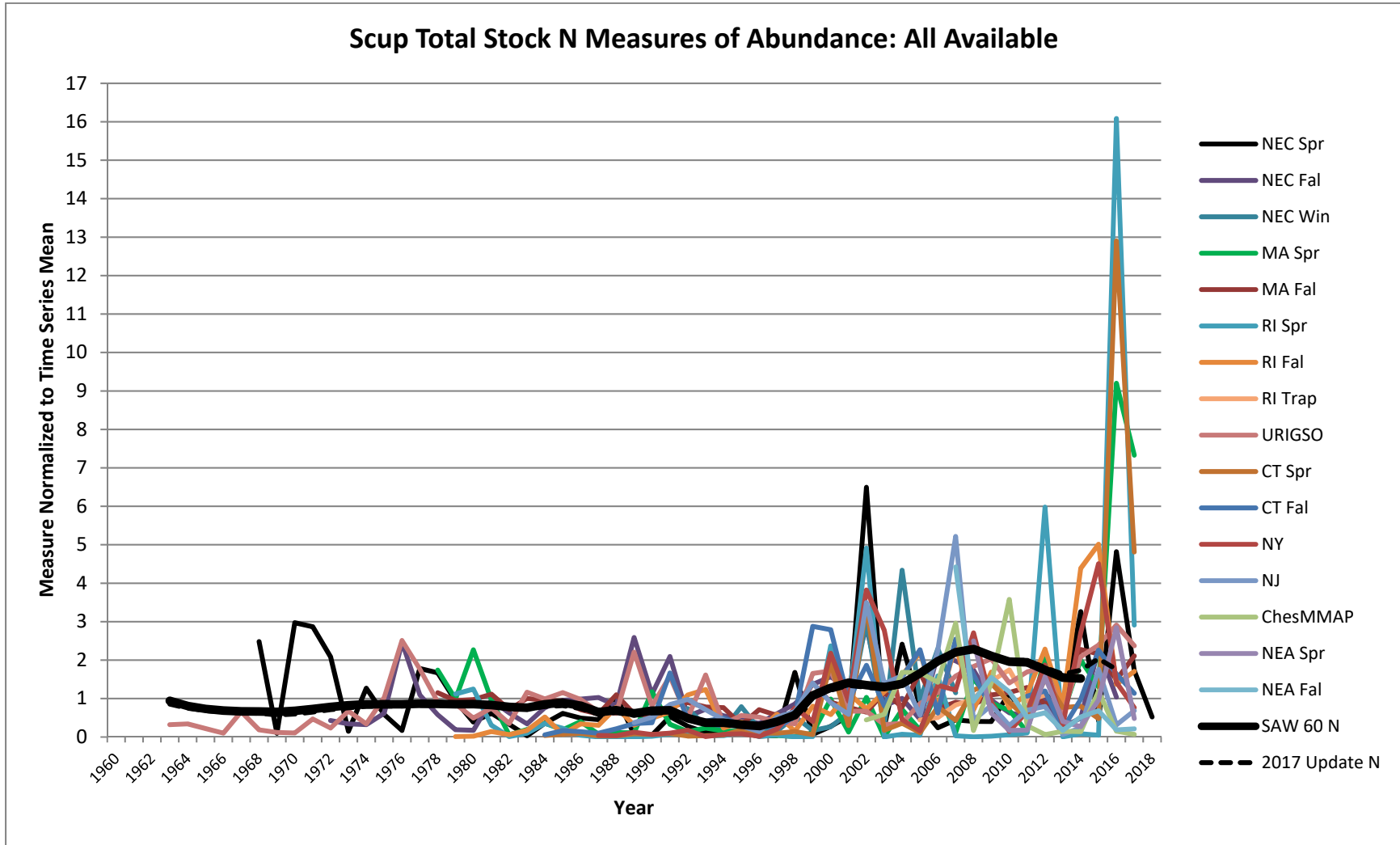


Figure 12. Measures of scup aggregate numeric abundance. Indices normalized to time series means.

### Scup Age 0 Measures of Abundance

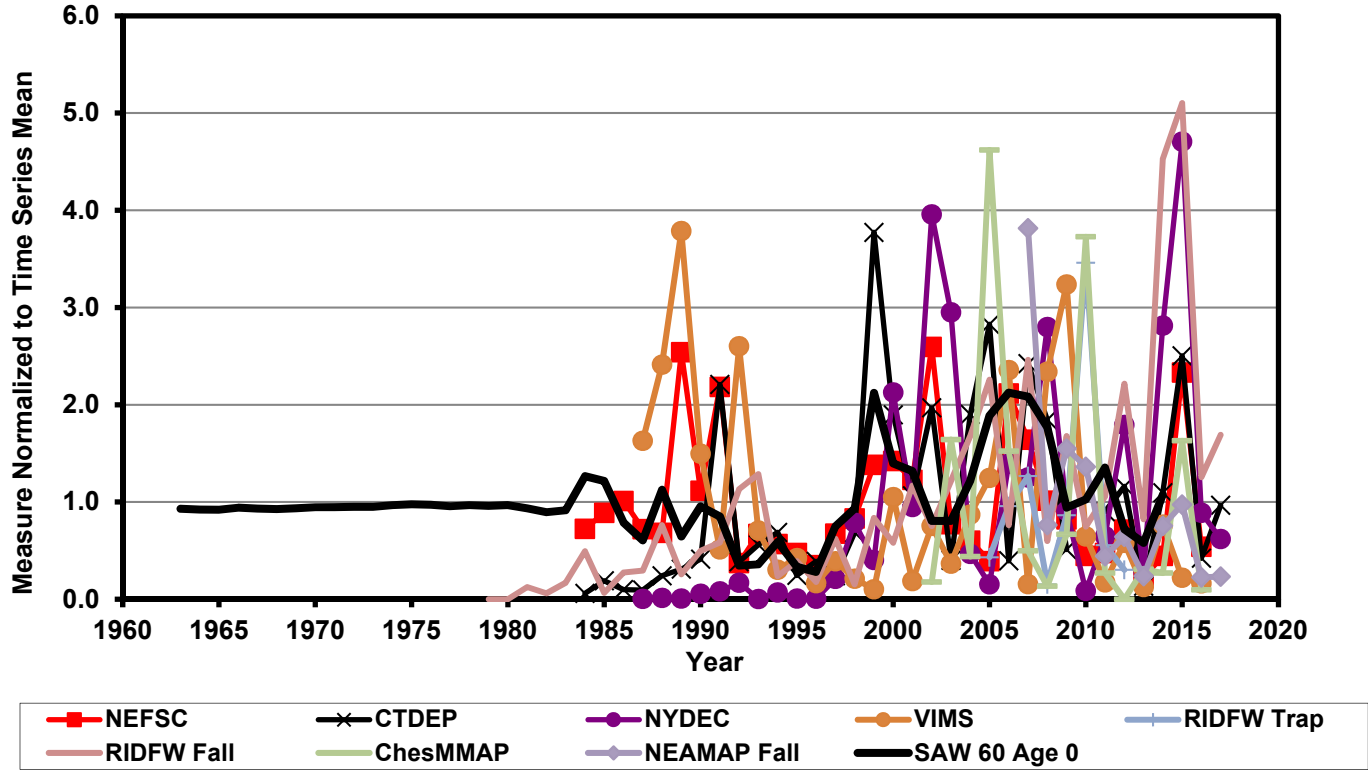


Figure 13. Measures of scup age 0 abundance. Indices normalized to time series means.

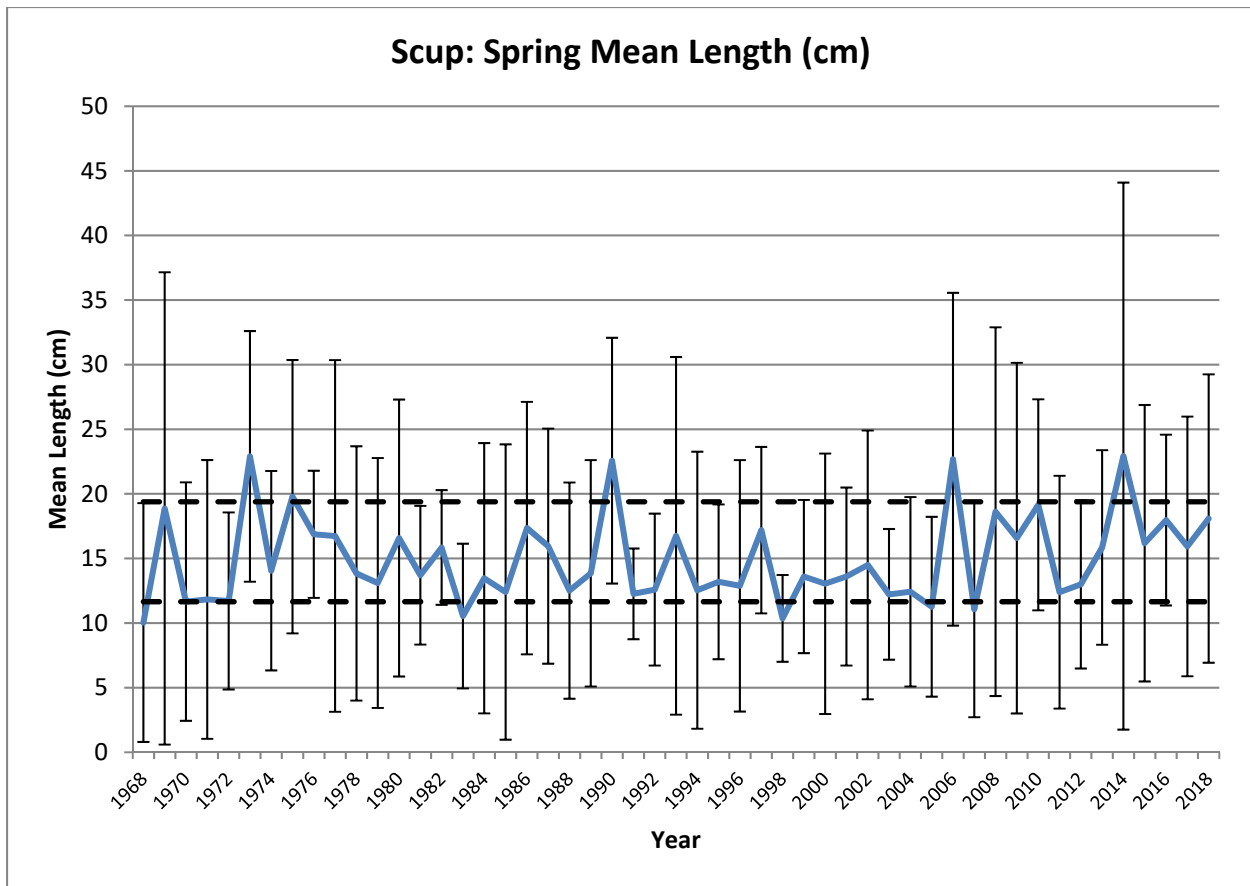


Figure 14. Trend in mean length of the NEFSC Spring survey catch. Whiskers around each annual index represent +/- one standard deviation. Dashed lines represent 65% confidence intervals around the 2004-2011 mean, a period when the stock was estimated to be at or above SSBMSY and not experiencing overfishing.

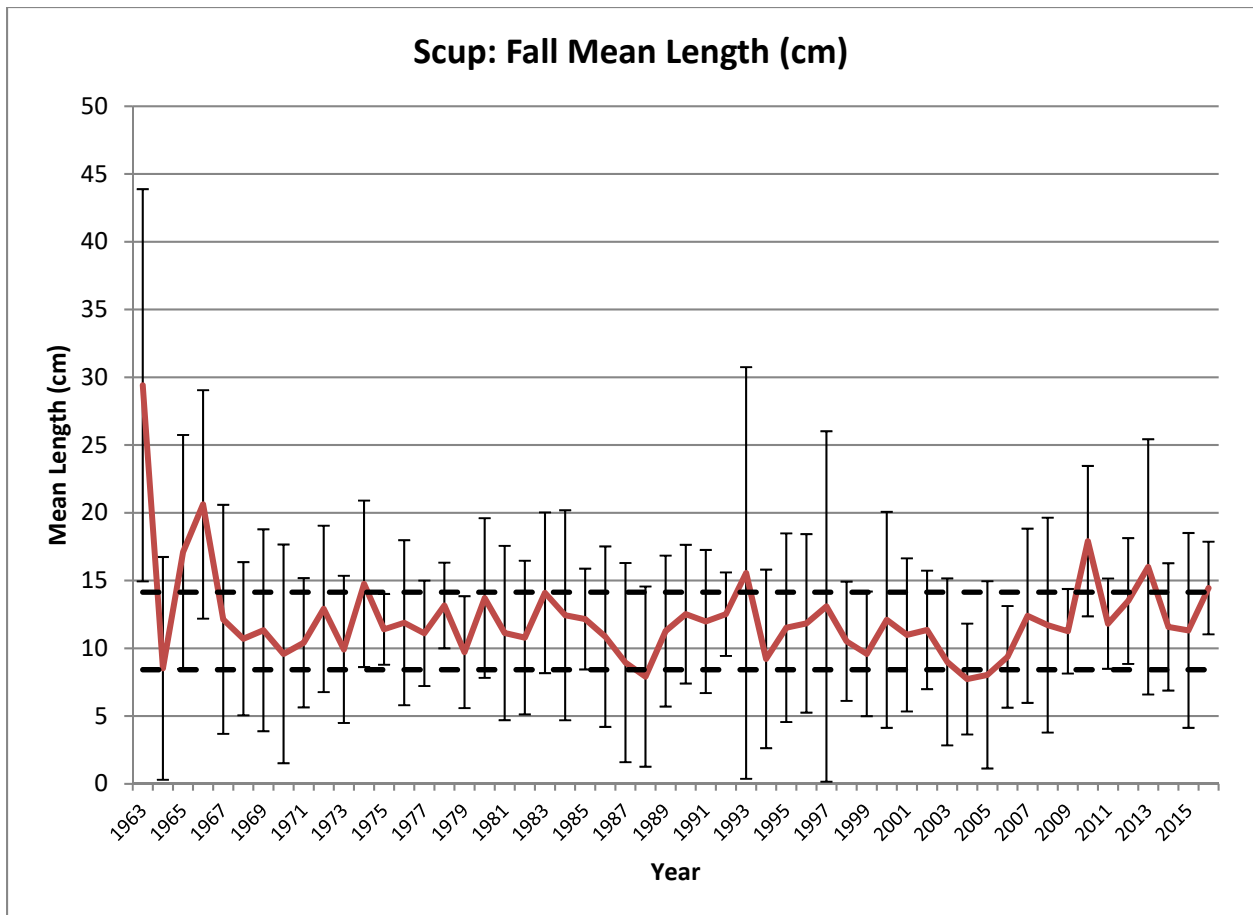


Figure 15. Trend in mean length of the NEFSC Fall survey catch. Whiskers around each annual index represent +/- one standard deviation. Dashed lines represent 65% confidence intervals around the 2004-2011 mean, a period when the stock was estimated to be at or above SSBMSY and not experiencing overfishing.



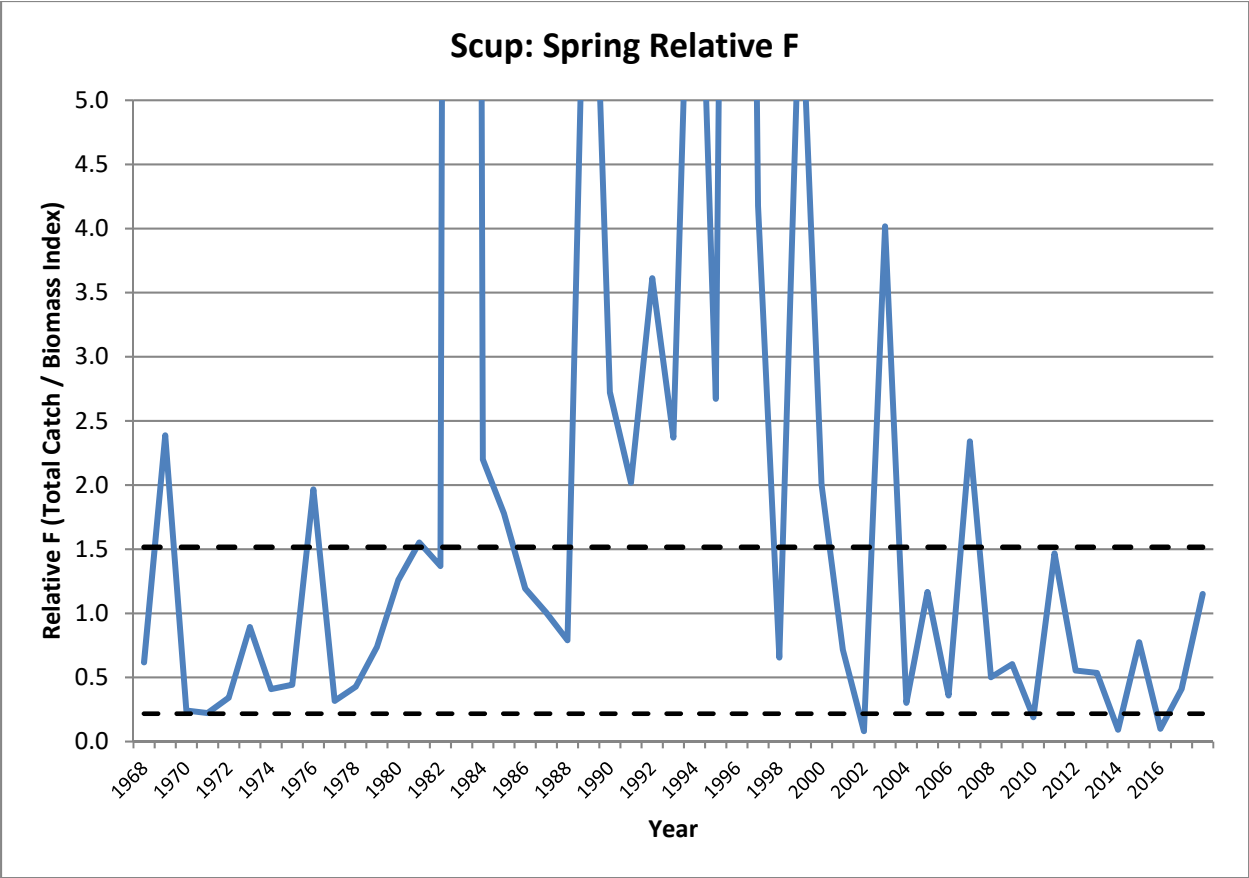


Figure 18. Trend in exploitation ratio based on total fishery catch and the NEFSC Spring survey biomass index Whiskers around each annual index represent +/- one standard deviation. Dashed lines represent 65% confidence intervals around the 2004-2011 mean, a period when the stock was estimated to be at or above SSBMSY and not experiencing overfishing.

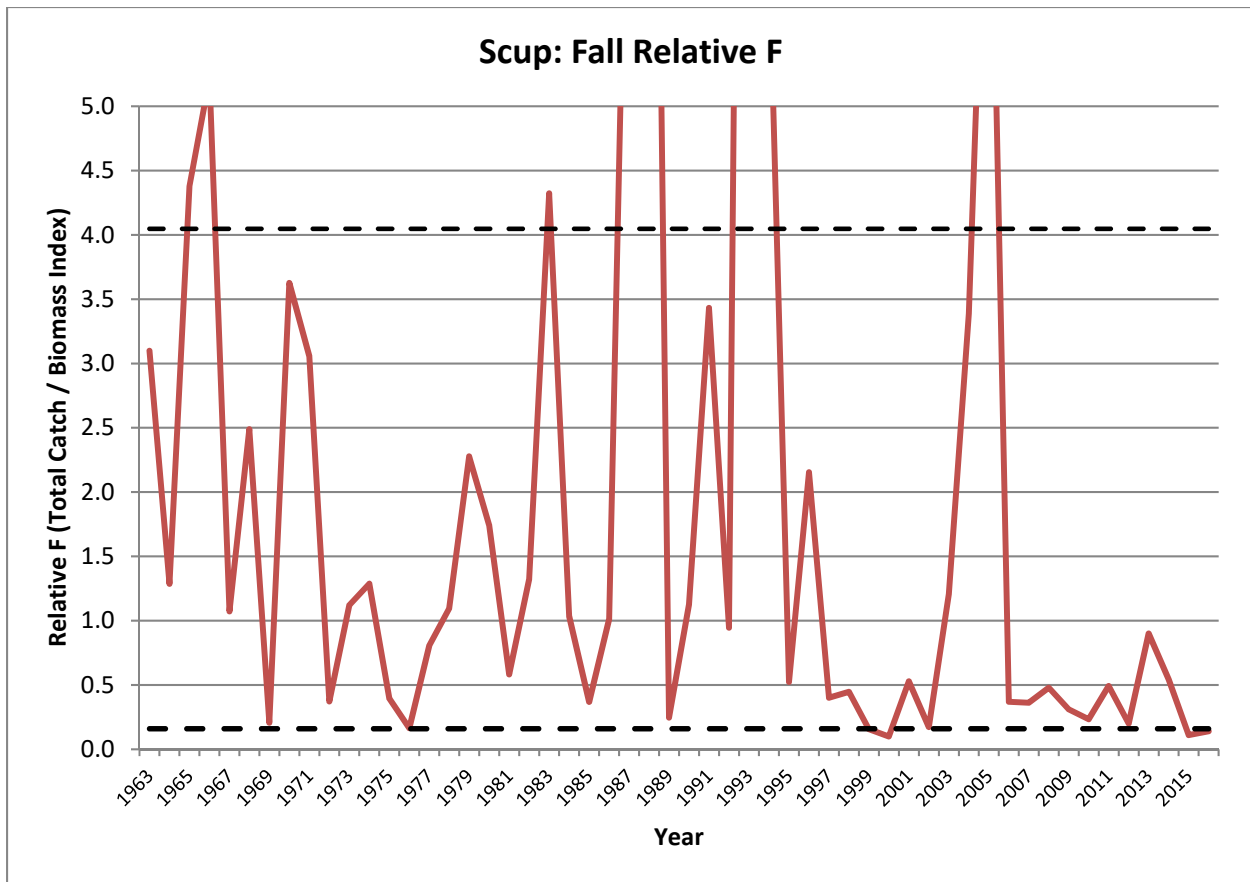


Figure 19. Trend in exploitation ratio based on total fishery catch and the NEFSC Fall survey biomass index. Whiskers around each annual index represent  $\pm$  one standard deviation. Dashed lines represent 65% confidence intervals around the 2004-2011 mean, a period when the stock was estimated to be at or above SSBMSY and not experiencing overfishing.



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

## MEMORANDUM

**Date:** July 30, 2018  
**To:** Council  
**From:** Matthew Seeley, Staff  
**Subject:** 2019 Bluefish Specifications

To set 2019 specifications for bluefish, the Scientific and Statistical Committee (SSC) and Bluefish Monitoring Committee (MC) reviewed the most recent information available.

The following materials are enclosed on this subject:

- 1) Monitoring Committee Report
- 2) July 2018 Scientific and Statistical Committee Meeting Report (*behind Tab 16*)
- 3) Staff Memo on 2019 Bluefish Specifications
- 4) Bluefish Data Update for 2018
- 5) 2018 Bluefish Advisory Panel Fishery Performance Report
- 6) 2018 Bluefish Advisory Panel Information Document



**Bluefish Monitoring Committee  
Meeting Summary  
July 24, 2018**

**Attendees:** Matthew Seeley (Council Staff), José Montañez (MC Chair, Council Staff), Caitlin Starks (ASMFC), Mike Celestino (NJ-F&W), Richard Wong (DE-F&W), Eric Durrell (MD-DNR), Tiffany Vidal Cunningham (MA-DMF), and John Maniscalco (NY DEC).

**Others in attendance:** Julia Livermore (RI-DEM), Cynthia Hanson (GARFO), Kevin Sullivan (NH-Fish and Game) and Rusty Hudson (Directed Sustainable Fisheries Inc.).

**Discussion:** The Bluefish Monitoring Committee (MC) was presented with a summary of the Scientific and Statistical Committee's (SSC's) Allowable Biological Catch (ABC) recommendation for 2019. The SSC recommended no changes (status quo) to its ABC recommendation for bluefish of 9,895 mt (21.81 million pounds) from 2018 for 2019. The ABC recommendation reflects the results of the 2015 benchmark stock assessment for bluefish (SARC 60), which found that the bluefish stock is not overfished and overfishing is not occurring. The SSC reviewed the 2018 data update and reported that all indices except the NJ Trawl survey showed a decrease from 2016 values. In addition, the 2017 commercial length frequency distribution was similar to the previous two years; the 2017 recreational length frequency distribution was more spread out, not showing the bi-modal distribution seen in previous years. Next year, the SSC will review the most recent information from an operational assessment to be conducted in 2019 to develop ABCs for the next specifications cycle.

In addition, the Bluefish MC reviewed the Council Staff recommendations, the 2018 Bluefish Fishery Performance Report (FPR), and the 2018 Advisory Panel Information Document. The MC discussed various sources of management uncertainty in considering an adjustment from the annual catch limit (ACL) to the fishery-specific annual catch target (ACT). The MC discussed the history of reported fishery landings relative to harvest limits and year-to-year variability in recreational landings. It was noted that since 2000, the reported combined commercial and recreational landings have exceeded the total allowable landings (TAL) only once (2007). The commercial fishery has never exceeded the coastwide quota. The MC agreed there is no need for an additional reduction to "buffer" for management uncertainty at this time. However, the MC indicated management uncertainty adjustments may be required in future specification cycles to address the new Marine Recreational Information Program (MRIP) estimates and recent reports of increasing commercial discards (see commercial discard discussion under "Other issues" section). Staff confirmed with the MC that the National Marine Fisheries Service will continue to release uncalibrated (old) MRIP

estimates against which the MC can compare 2019 landings to judge fishery performance (e.g., accountability measures).

The MC recommended that for 2019, projected recreational landings be calculated using a single terminal year instead of the three-year average used in previous years. This recommendation was made due to the similar performance of using the most recent 1-year and 3-year landings in predicting future landings and is consistent with the Council and Management Board's decision during the previous specification cycle. The MC noted that in future specification cycles based on calibrated MRIP estimates, a different method may be used. The MC also recommended these landings be updated mid-year with new estimates once they become available from the Greater Atlantic Regional Fisheries Office (GARFO).

### *Transfers*

The MC recommended a transfer from the recreational fishery to the commercial fishery be applied so the recreational harvest limit will equal expected landings, and the commercial fishery receives the maximum transfer amount possible. It was acknowledged that GARFO may adjust the transfer amount during the rulemaking process, incorporating the most current recreational harvest data from 2018.

### *Resulting Commercial Quota and RHL*

The overall catch and landings limits recommended by the MC for the 2019 specifications cycle are presented in Table 1 with the basis for each recommendation. Further, the commercial quota is distributed amongst the states based on the allocation percentages in Table 2.

### *Recreational Bag Limit*

The bluefish fishery has a 15-fish recreational bag limit in Federal waters. Bluefish bag limits for each state are presented in Table 3. The MC discussed the comments in the FPR regarding the recreational bag limits but agreed to recommend no change to the current 15-fish recreational bag limit. The MC noted that a change in the bag limit now, under the current stock status (the stock is not overfished, nor is overfishing occurring), while a Council Amendment initiative is underway, combined with a planned operational assessment in 2019 using updated MRIP estimates (either of which could result in management changes), could complicate the task of revising management measures in the future.

## *Discards*

As with the projected recreational landings, the MC recommended using recreational discards from the terminal year (2017) for the same reasons listed above.

The MC discussed the values used to characterize the discards in the recreational fishery. When assessing recreational discards, the Council and MC have calculated the weight of the recreational discards assuming MRIP mean weight of fish landed or harvested, which may not provide the most accurate values. The NEFSC calculates discards in the recreational fishery using a length-weight relationship for released fish from numerous sources. The MC suggested using recreational discard values from the NEFSC to characterize recreational discards in the next specifications cycle. The group also recommended meeting again to discuss ways to improve consistency in calculations and estimates produced by the NEFSC, Council, and GARFO.

The MC discussed recent reports of increased commercial discards in the bluefish fishery. Commercial discards were not included in the benchmark stock assessment due to uncertainty in the discard estimates and the low level of commercial landings relative to total removals. Some MC members indicated that in recent years (i.e., since 2015) localized discards in the commercial fishery are increasing and may not be insignificant. Uncertainty around commercial discards may continue to increase in the future as states' landings are constrained by their quotas, especially during relatively low quota years when the availability of excess quota for state-to-state transfers decreases. MC members indicated that the upcoming 2019 operational assessment would be an appropriate time to explore estimating and incorporating commercial discards into the assessment. Future commercial discard estimates can be accounted for under "commercial discard adjustments" or "management uncertainty adjustments."

## *Other issues*

The MC also indicated that work should continue to reconcile commercial bluefish landings reported under the NEFSC dealer reporting system (weighout data; which are used to manage the bluefish coastwide quota) with landings under the ACCSP reporting system. In past years there have been discrepancies in some states (due to lags in the reporting process, auditing, paper reporting, some state dealers not required to report to Federal system, etc.).

**Table 1. Current (2018) management measures and MC recommended bluefish catch and landings limits for 2019.**

Management Measure	2018		Basis	2019		Basis
	mt	M lb <sup>1</sup>		mt	M lb <sup>1</sup>	
<b>ABC</b>	9,895	21.81	Derived by SSC; Council P* policy	9,895	21.81	Derived by SSC; Council P* policy
<b>ACL</b>	9,895	21.81	Defined in FMP as equal to ABC	9,895	21.81	Defined in FMP as equal to ABC
<b>Management Uncertainty</b>	0	0	Derived by Monitoring Committee	0	0	Derived by Monitoring Committee
<b>Commercial ACT</b>	1,682	3.71	(ACL – Management Uncertainty) x 17%	1,682	3.71	(ACL – Management Uncertainty) x 17%
<b>Recreational ACT</b>	8,213	18.11	(ACL – Management Uncertainty) x 83%	8,213	18.11	(ACL – Management Uncertainty) x 83%
<b>Commercial Discards</b>	0	0	Value used in assessment	0	0	Value used in assessment
<b>Recreational Discards</b>	1,356	2.99	2015 discards	1,129	2.49	2017 discards
<b>Commercial TAL</b>	1,682	3.71	Commercial ACT – commercial discards	1,682	3.71	Commercial ACT – commercial discards
<b>Recreational TAL</b>	6,857	15.11	Recreational ACT – recreational discards	7,083	15.62	Recreational ACT – recreational discards
<b>TAL Combined</b>	8,539	18.82	Commercial TAL + recreational TAL	8,766	19.32	Commercial TAL + recreational TAL
<b>Expected Rec Landings</b>	5,253	11.58	2015 Recreational landings	4,318	9.52	2017 Recreational landings
<b>Transfer</b>	1,604	3.54	Calculated so the expected recreational landings equal the RHL	2,765	6.10	Calculated so the expected recreational landings equal the RHL
<b>Commercial quota</b>	3,286	7.24	Commercial TAL + transfer	4,447	9.80	Commercial TAL + transfer
<b>RHL</b>	5,253	11.58	Recreational TAL - transfer	4,318	9.52	Recreational TAL - transfer

<sup>1</sup> SSC recommendations are made in metric tons (mt) and thus, the management measures are developed using mt. When values are converted to millions of pounds (M lb) the numbers may slightly shift due to rounding. The conversion factor used is 1 mt = 2204.6226 pounds.

**Table 2. Bluefish allocation formula for the commercial fisheries in each state.**

<b>State</b>	<b>Allocation (%)</b>
ME	0.6685
NH	0.4145
MA	6.7167
RI	6.8081
CT	1.2663
NY	10.3851
NJ	14.8162
DE	1.8782
MD	3.0018
VA	11.8795
NC	32.0608
SC	0.0352
GA	0.0095
FL	10.0597
Total	100

**Table 3. State-by-state bluefish bag limits.**

<b>State</b>	<b>Bag limit</b>
ME	3
NH	10
MA	10
RI	15
CT	10
NY	15
NJ	15
DE	10
MD	10
VA	10
NC	15
SC	15
GA	15



SSC Report is behind  
Tab 16



Mid-Atlantic Fishery Management Council  
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Phone: 302-674-2331 | FAX: 302-674-5399 | www.mafmc.org  
Michael P. Luisi, Chairman | G. Warren Elliott, Vice Chairman  
Christopher M. Moore, Ph.D., Executive Director

## MEMORANDUM

**Date:** June 27, 2018 (Corrected on July 19, 2018)  
**To:** Dr. Chris Moore, Executive Director  
**From:** Matthew Seeley, Staff  
**Subject:** 2019 Bluefish Specifications

### Summary

This memo provides recommendations for setting bluefish specifications for one year (2019). For 2019, staff recommends an Acceptable Biological Catch (ABC) of 21.81 million pounds (9,895 mt).

### Introduction

The Magnuson Stevens Act (MSA) as currently amended requires each Council's Scientific and Statistical Committee (SSC) to provide, among other things, ongoing scientific advice for fishery management decisions, including recommendations for acceptable biological catches (ABCs). The SSC recommends ABCs to the Mid-Atlantic Fishery Management Council (the Council) that address scientific uncertainty such that overfishing is unlikely to occur per the Council's risk policy. The Council's ABC recommendations to NMFS for the upcoming fishing year(s) cannot exceed the ABC recommendation of the SSC. As such, the SSC's ABC recommendations form the upper limit for catches of Council-managed species.

Once the SSC meets and decides on an ABC, the Bluefish Monitoring Committee will meet to discuss if changes to other management measures should be recommended based on the ABCs from the SSC as well as other management considerations. These measures include Annual Catch Limits (ACLs), Annual Catch Targets (ACTs), and Accountability Measures (AMs). Based on the SSC's and Monitoring Committee's recommendations, the Council will make recommendations to the NMFS Northeast Regional Administrator. Based on NMFS' evaluation of the Council's recommendations, NMFS will publish a Proposed Rule for specifications and then a Final Rule, which may change from the Proposed Rule based on public comment.

Current management measures and staff recommendations for 2019 are presented in Table 1.

**Table 1. Current fishing year specifications (2018) and 2019 staff recommended specifications for bluefish.**

Management Measure	2018 (Current Measures set in 2015, see FR) <sup>1</sup>		Basis	2019 (Staff recommended)	
	Million lbs	mt		Million lbs	mt
ABC	21.81	9,895	Derived by SSC; Council P* policy	21.81	9,895
ACL	21.81	9,895	Defined in FMP as equal to ABC	21.81	9,895
Management Uncertainty	0	0	Derived by Monitoring Committee	0	0
Commercial ACT	3.71	1,682	(ACL – Management Uncertainty) x 17%	3.71	1,682
Recreational ACT	18.11	8,213	(ACL – Management Uncertainty) x 83%	18.11	8,213
Commercial Discards	0	0	Value used in assessment	0	0
Recreational Discards	2.99	1,356	2015 discards	2.99	1,356
Commercial TAL (pre-transfer)	3.71	1,682	Commercial ACT – commercial discards	3.71	1,682
Recreational TAL (pre-transfer)	15.12	6,857	Recreational ACT – recreational discards	15.12	6,857
TAL Combined	18.83	8,539	Commercial TAL + recreational TAL	18.83	8,539
Expected Rec Landings	11.58	5,253	2015 recreational landings	11.58	5,253
Commercial quota	7.24	3,286	Commercial TAL + transfer	7.24	3,286
Recreational harvest limit	11.58	5,253	Recreational TAL - transfer	11.58	5,253

<sup>1</sup> Greater Atlantic Regional Fisheries Office adjusted values (<https://www.greateratlantic.fisheries.noaa.gov/sustainable/species/bluefish/index.html>) and FR notice: <https://www.gpo.gov/fdsys/pkg/FR-2016-08-04/pdf/2016-18424.pdf>.

## Management System

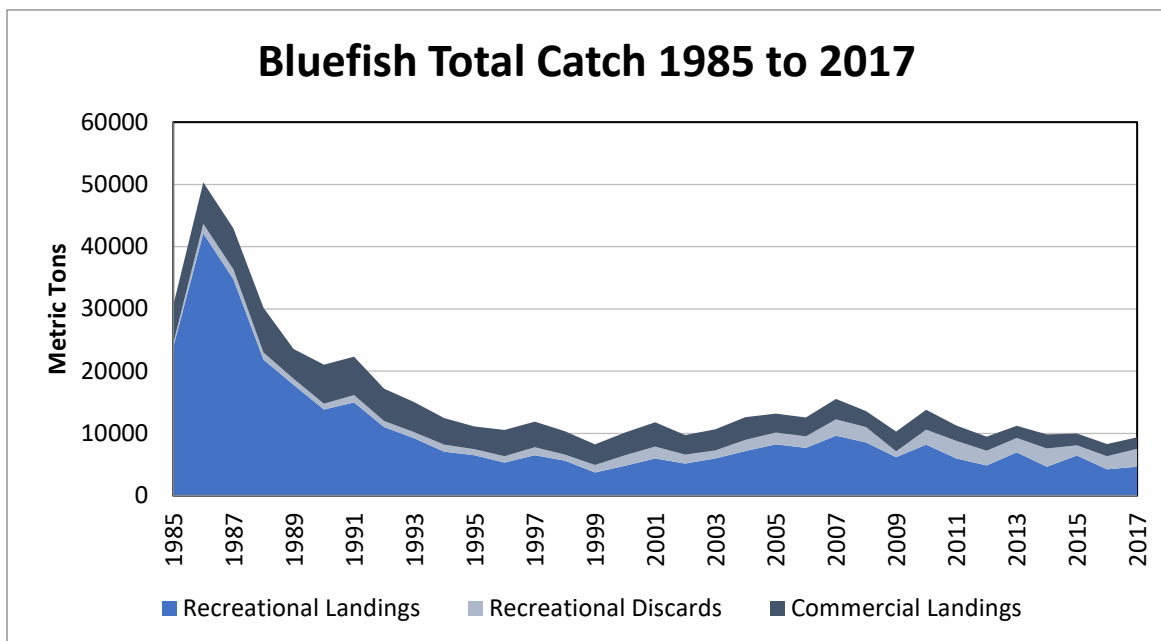
The Council and the ASMFC work cooperatively to develop fishery regulations for bluefish off the east coast of the United States. The Council and Commission work with the National Marine Fisheries Service (NMFS), which serves as the federal implementation and enforcement entity. This cooperative management endeavor was developed because a significant portion of the catch is taken from both state waters (0-3 miles offshore) and federal waters (3-200 miles offshore, also known as the Exclusive Economic Zone or EEZ). The management unit for bluefish (*Pomatomus saltatrix*) is the U.S. waters in the western Atlantic Ocean. For bluefish, the ACT is split 83/17% into recreational and commercial ACTs, respectively, and the discarded component of that catch is deducted to arrive at recreational and commercial TALs. Additionally, landings above the expected recreational harvest can be “transferred” from the recreational to the commercial fishery as long as the final commercial quota does not exceed 10.5 million pounds.

## Catch and Landings Update

A time series of recreational/commercial landings and recreational discards from 1985-2017 are presented in Figure 1.

Recreational landings in 2017 were 9.52 million lbs (4,318 mt), about 99% of the recreational harvest limit (9.65 million lbs or 4,377 mt). State landings are presented in Table 2.

Reported 2017 dealer landings in the commercial fishery were approximately 3.64 million lbs (1,651 mt), about 57% under the commercial quota of 8.54 million lbs (3,874 mt).



**Figure 1. Bluefish recreational/commercial landings and recreational discards from 1985-2017.**

**Table 2. 2017 recreational/commercial landings, commercial quota, and percentage harvested of the commercial quota.**

State	Recreational Landings (lbs)	Commercial Landings (lbs)	Commercial Quota (lbs)	Percentage of Commercial Quota (%) <sup>2</sup>
ME	69	0	57,105	0
NH	0	0	35,408	0
MA	619,746	364,810	573,755	64
RI	337,710	647,112	731,901	88
CT	597,122	33,088	108,170	31
NY	1,321,368	690,675	887,118	78
NJ	3,365,738	304,710	1,215,633	25
DE	770,820	5,679	160,440	4
MD	109,424	25,147	256,420	10
VA	45,055	36,251	1,014,435	4
NC	690,018	1,319,384	2,638,704	50
SC	84,593	0	3,007	0
GA	1,184	0	812	0
FL (East Coast)	1,576,897	209,864	859,322	24
Total	9,519,744	3,636,720	8,542,230	43

### **Biological Reference Points and Stock Status**

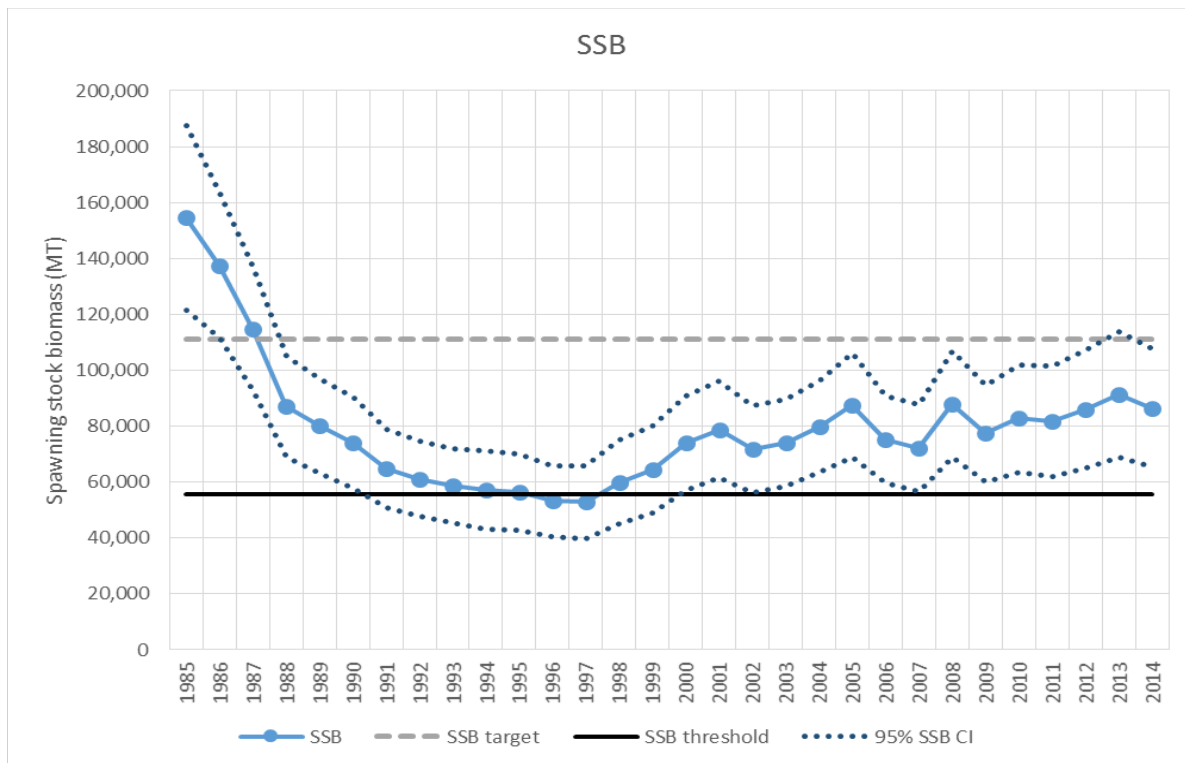
The bluefish benchmark stock assessment was peer reviewed in June 2015 and approved for use by management at SAW/SARC 60. This benchmark assessment uses the model from the 2005 benchmark assessment (SAW 41; NEFSC 2005), which is a forward-projecting statistical catch-at-age model called ASAP (Age Structured Assessment Program), with updates to the way the catch-at-age matrices were constructed and change to model configuration. The catch-at-age matrices were completely reconstructed to incorporate new age data, including archived historical samples that had not been processed at the time SAW/SARC 41 was conducted, and to correct aging errors in the earlier years of the time series (NEFSC 2015). Documentation on this assessment and previous stock assessments, such as reports on stock status, including annual assessment and reference point update reports, Stock Assessment Workshop (SAW) reports, and Stock Assessment Review Committee (SARC) panelist reports, are available online at the NEFSC website: <http://www.nefsc.noaa.gov/saw/>.

The biological reference points estimated in the previous benchmark assessment (SAW/SARC 41) were MSY reference points for F and total biomass (F<sub>MSY</sub>, B<sub>MSY</sub>). However, MSY reference

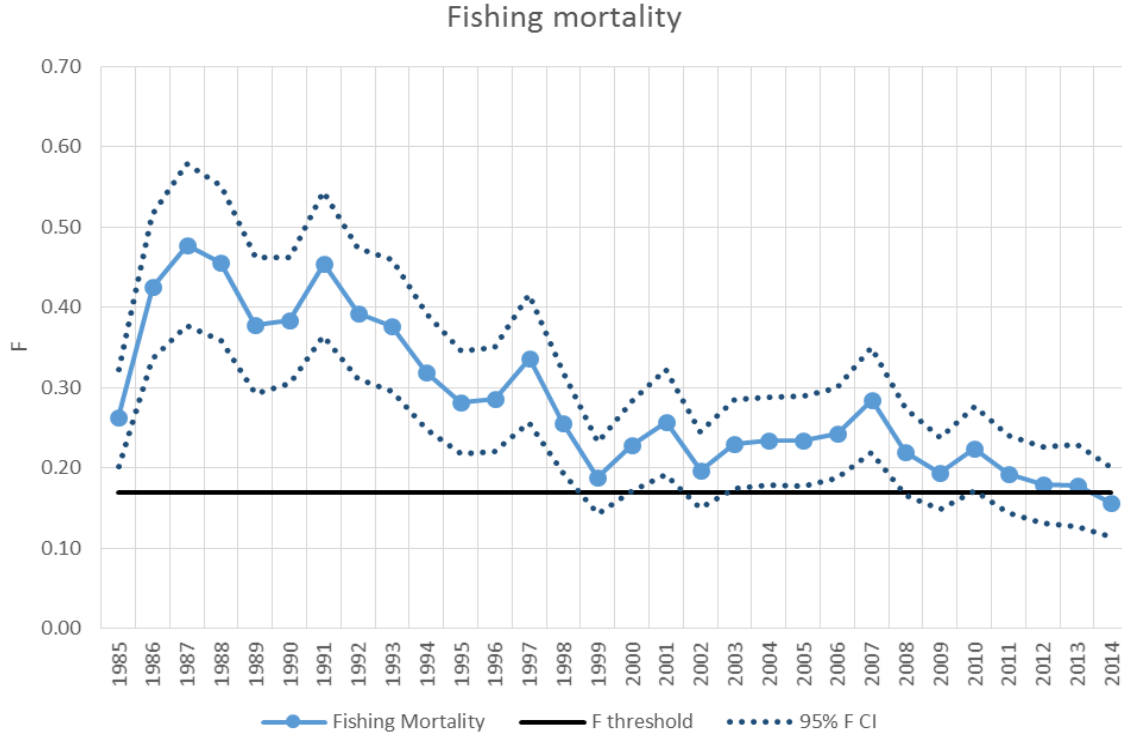
<sup>2</sup> The percentage of initial commercial quota is based on the pre-transfer quotas.

points require a reliable stock-recruitment relationship. The stock-recruitment relationship for bluefish is poorly defined, due to the lack of information on recruitment at small stock sizes, with steepness estimated to be close to one for most model runs (NEFSC 2015). Therefore, in SAW/SARC 60, SPR-based (spawn per recruit) reference points were used as a proxy for MSY reference points.

Results from the most recent benchmark stock assessment indicate that the bluefish stock is not overfished, and overfishing was not occurring in 2014 relative to the biological reference points (BRPs) from the 2015 SAW/SARC 60. Modeling results indicated that the estimated that SSB was 190.77 million lbs (86,534 mt) in 2014 (78% of the accepted reference point  $SSB_{MSY}$  proxy = 245.21 million lbs or 111,228 mt). Spawning stock biomass declined since the beginning of the time series, from a high of 340.90 million lbs (154,633 mt) in 1985 to a low of 116.34 million lbs (52,774 mt) in 1997, before increasing again. The stock spawning biomass average for the time series is 175.15 million lbs (79,449 mt; Figure 2). Fully-selected fishing mortality in 2014 was estimated to be 0.157, below the F threshold ( $F_{MSY}$  proxy =  $F_{40\%SPR}$  = 0.170, which was later adjusted by the SSC to  $F_{MSY}$  proxy =  $F_{35\%SPR}$  = 0.190). Fully selected F peaked in 1987 at 0.477 and then declined gradually since then, with a time series average of 0.284 (Figure 3).



**Figure 2. Total spawning stock biomass of bluefish plotted with thresholds and 95% confidence intervals. Source: NEFSC 2015.**



**Figure 3. Fully selected fishing mortality of bluefish plotted with thresholds and 95% confidence intervals. Source: NEFSC 2015.**

**OFL/ABC Values Derived by the SSC**

The most recent benchmark stock assessment was peer reviewed in June 2015. The SARC 60 benchmark assessment was a significant improvement over previous assessments. Many uncertainties were addressed regarding input data and there was a characterization of uncertainty in the OFL. The OFL was adjusted upward by 50% from the model output by the assessment team to account for un-modeled uncertainty. Despite these improvements, the SSC deemed the assessment uncertainty level that requires an SSC derived coefficient of variation (CV) for the OFL as the most appropriate for the new benchmark assessment.

The SSC noted that the  $F_{MSY}$  proxy of  $F_{40\%}$  might be inappropriate for bluefish, a highly productive species. At the July 2015 SSC meeting, the SSC concluded that a proxy of  $F_{35\%}$  is more precise for bluefish, as indicated by various published meta-analyses for the order perciformes.

Using  $F_{35\%}$ , the SSC recommended an OFL of:

- 2016: 25.76 million lbs (11,686 mt)
- 2017: 26.44 million lbs (11,995 mt)
- 2018: 27.97 million lbs (12,688 mt)

A CV of 60% was applied to the OFL, instead of the previously used CV of 100%, to reflect the much improved treatment of uncertainty in the current bluefish assessment. This is consistent with the rationale used by the SSC to determine CV for the summer flounder assessment OFL. The OFL levels for 2016-2018 were determined by assuming bluefish exhibit a typical life history and using  $F_{35\%} = 0.19$ . The  $SSB_{msy}$  is therefore 223.42 million pounds (101,343 mt) and  $SSB_{2014} = 190.78$  million pounds (86,534 mt), so the  $SSB/SSB_{msy} = 0.85$ , with an SSB threshold of 111.71 million pounds (50,672 mt). The SSC applied the Council policy of  $P^* = 0.307$  in 2016. This results in an ABC of:

2016: 19.46 million lbs (8,825 mt) ( $P^* = 0.307$ )

2017: 20.64 million lbs (9,363 mt) ( $P^* = 0.328$ )

2018: 21.81 million lbs (9,895 mt) ( $P^* = 0.327$ )

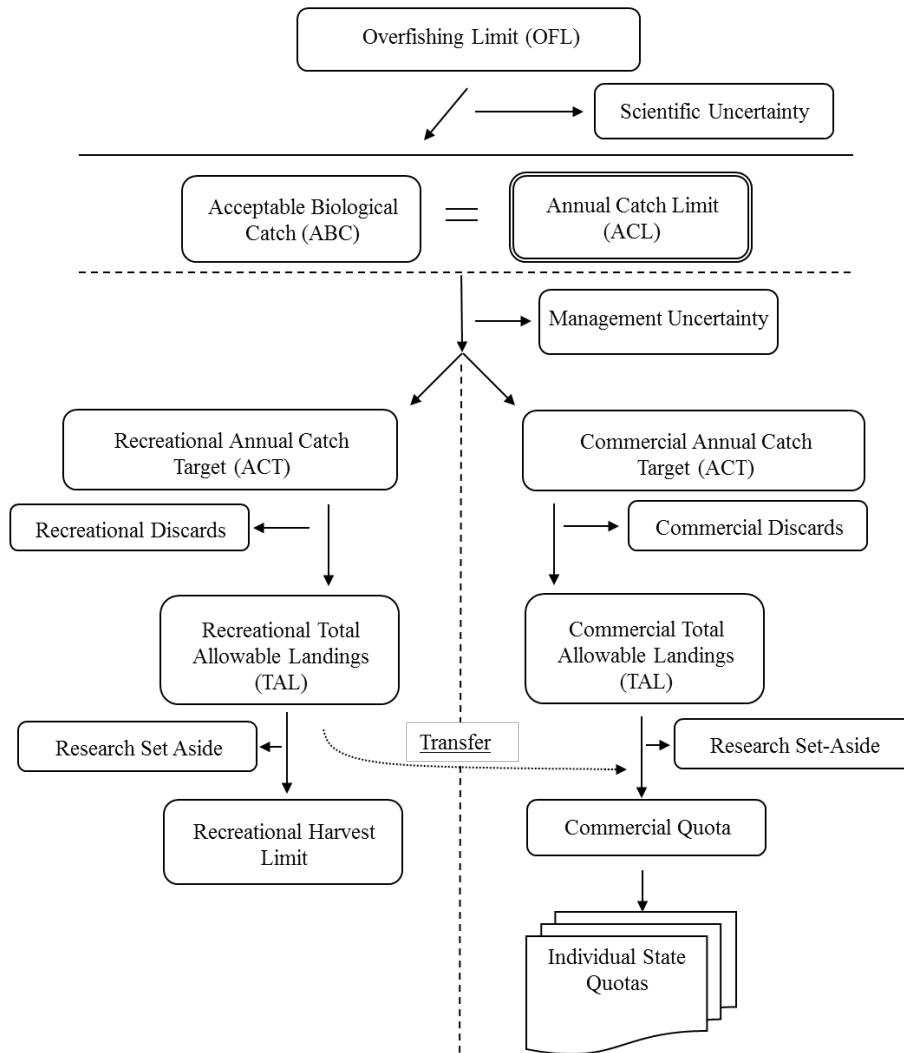
### **Catch and Landings Limit Recommendations**

Staff recommend specifications be set for 1 year since updated recreational data will be available for 2020 bluefish measures. For 2019, staff recommends an Acceptable Biological Catch (ABC) of 21.81 million lbs (9,895 mt). According to the Bluefish Fishery Management Plan (FMP) flow chart (Figure 4), the annual catch limit (ACL) is equal to the ABC. Staff recommends that the recreational and commercial annual catch targets (ACTs) equal the ACL and ABC. Staff also recommends a recreational ACT of 18.11 million lbs (8,213 mt), and a commercial ACT of 3.71 million lbs (1,682 mt). After adjusting the ACTs for discards (2.99 million lbs or 1,356 mt recreational; zero commercial), the recreational and commercial total allowable landings would sum to 18.83 million lbs (8,539 mt; Table 1). The overall recommended commercial quota and recreational harvest limit are 7.24 million lbs (3,286 mt) and 11.58 million lbs (5,253 mt), respectively.

Staff do not recommend any change to the current recreational possession limit (15 fish per person per trip with no minimum size) at this time for 2019.



### Atlantic Bluefish Flowchart



**Figure 4. Bluefish specification process as described in Amendment 3 to the Bluefish FMP.**

Bluefish 2018 Stock Assessment Update  
Data Update Through 2017

Coastal/Pelagic Working Group  
Northeast Fisheries Science Center  
National Marine Fisheries Service

Woods Hole, MA

May 2018

## **Fishery Data**

Commercial and recreational landings and recreational discards were updated for bluefish through 2017. Commercial discards are considered minimal for bluefish and are not included in this data update.

Reported commercial landings for bluefish were 1,873 MT (4.13 million lbs) in 2017 (Tables 1 and 2, Figure 1), which was 48% of the 2017 commercial quota (3,875 MT, 8.54 million lbs). Estimated recreational fishery landings were 4,649 MT (10.25 million lbs) in 2017 (Table 2, Figure 2), which was 106% of the 2017 recreational harvest limit (4,379 MT, 9.65 million lbs). Estimated recreational fishery discards were 2,857 MT (6.30 million lbs) and total recreational catch for 2017 was 7,506 MT (16.55 million lbs; Table 2, Figure 2). Total fishery catch for bluefish in 2017 was equal to 9,379 MT (20.68 million lbs; Table 2), which was 100% of the 2017 ABC (9,363 MT, 20.64 million lbs).

The commercial length frequency distribution of bluefish in 2017 was similar to the previous two years. There is a dominant peak at around 36cm with smaller extended peak of larger fish beginning at 51cm. (Figure 3). The recreational length frequency distribution of bluefish in 2017 is spread out, not showing the bi-modal distribution seen in previous years (Figure 4). Typically, the bulk of the discard lengths come from the American Littoral Society tagging program. However, these data were not available in time and this omission may be affecting the total recreational length frequency distribution. For this update, Volunteer Angler Survey (VAS) data from CT, RI, and NJ, as well as minimal information from MRIP, were used for the recreational discard lengths. The length frequency distribution of the total catch is presented in Figure 5.

Mean weight at age for bluefish remained steady for younger ages in 2017, decreased for ages 3, 4, and 5, and increased for ages 6+ when compared to 2016 values (Table 3, Figure 6). Final catch-at-age for both the commercial and recreational fishery are presented in Tables 4 and 5, respectively.

## **Surveys**

A recreational catch-per-unit-effort index was updated for 2017 from the MRIP intercept data (Table 6, Figure 7). In addition, seven fishery-independent indices were updated through 2017. The NEFSC fall Bigelow index was not calculated for this update due to insufficient data.

In the fall of 2017 vessel repairs caused a significant delay in the survey, and as a result most of the southern survey strata were not sampled. The Age-0+ fishery-independent indices that were updated include the New Jersey ocean trawl survey, the Connecticut Long Island Sound trawl survey, the NEAMAP fall inshore trawl survey, and the North Carolina Pamlico Sound independent gillnet survey (Tables 7 to 11, Figures 8 to 12). Young-of-year indices included the SEAMAP fall trawl survey and a composite index developed from state seine indices from New Hampshire to Virginia (Tables 12 and 13, Figures 13 and 14). All indices except the NJ ocean trawl survey showed a decrease from 2016 values.

Table 1. 2017 Commercial bluefish landings (mt) by state groupings used in length expansions.

Year	State			Total
	ME - VA	NC	SC-FL	
1985	4201	1634	289	<b>6124</b>
1986	4560	1562	531	<b>6653</b>
1987	3806	2069	705	<b>6580</b>
1988	4278	2286	599	<b>7164</b>
1989	2793	1493	455	<b>4741</b>
1990	3685	2077	490	<b>6251</b>
1991	3710	1778	673	<b>6162</b>
1992	3424	1288	495	<b>5207</b>
1993	3040	1227	543	<b>4810</b>
1994	3072	809	424	<b>4305</b>
1995	2034	1366	229	<b>3629</b>
1996	2655	1497	62	<b>4214</b>
1997	2165	1816	129	<b>4110</b>
1998	2258	1327	155	<b>3740</b>
1999	1921	1253	157	<b>3331</b>
2000	2058	1526	64	<b>3648</b>
2001	2039	1845	63	<b>3946</b>
2002	2025	1055	37	<b>3117</b>
2003	1740	1574	45	<b>3359</b>
2004	1885	1707	56	<b>3648</b>
2005	1844	1122	71	<b>3037</b>
2006	1852	1146	45	<b>3043</b>
2007	2283	909	76	<b>3268</b>
2008	1767	763	57	<b>2586</b>
2009	1959	1096	97	<b>3152</b>
2010	1601	1463	143	<b>3207</b>
2011	1482	862	111	<b>2456</b>
2012	1810	347	81	<b>2238</b>
2013	1382	515	65	<b>1961</b>
2014	1247	916	69	<b>2232</b>
2015	1443	364	95	<b>1902</b>
2016	1313	521	94	<b>1928</b>
2017	1051	700	121	<b>1872</b>

Table 2. Commercial landings, recreational landings, recreational discard loss, and total catch for bluefish from Maine to Florida, 1985 to 2017.

Year	Commercial Landings (mt)	Commercial Landings (000 lbs)	Recreational Landings (mt)	Recreational Discard (mt): 0.15 * B2	Recreational Catch (mt)	Total Landings (mt)	Total Catch (mt) (no comm. discards)
1985	6124	13501	23821	599	24420	29945	30544
1986	6653	14668	42133	1544	43677	48786	50330
1987	6580	14507	34769	1615	36384	41349	42965
1988	7164	15793	21873	1146	23019	29037	30183
1989	4741	10453	17808	989	18797	22549	23539
1990	6251	13782	13860	929	14789	20111	21041
1991	6162	13584	14967	1194	16161	21129	22322
1992	5207	11479	11011	979	11990	16218	17197
1993	4810	10604	9204	1013	10217	14014	15026
1994	4305	9491	7049	1128	8177	11354	12482
1995	3629	8000	6489	1003	7492	10118	11121
1996	4214	9289	5328	1010	6338	9542	10552
1997	4110	9061	6487	1287	7774	10597	11884
1998	3740	8244	5595	999	6594	9335	10334
1999	3331	7343	3744	1191	4935	7075	8265
2000	3648	8042	4811	1675	6486	8459	10134
2001	3946	8700	6001	1857	7858	9947	11805
2002	3117	6871	5158	1448	6606	8275	9722
2003	3359	7405	5958	1331	7289	9317	10648
2004	3648	8043	7179	1761	8940	10827	12588
2005	3037	6697	8225	1915	10140	11262	13178
2006	3043	6708	7663	1860	9523	10706	12566
2007	3268	7204	9608	2653	12261	12875	15528
2008	2586	5701	8573	2443	11016	11159	13602
2009	3152	6950	6161	960	7121	9313	10274
2010	3207	7071	8184	2409	10593	11391	13800
2011	2456	5414	5965	2856	8821	8421	11277
2012	2238	4933	4846	2383	7229	7084	9467
2013	1961	4324	6980	2281	9261	8941	11222
2014	2232	4920	4620	2961	7581	6852	9813
2015	1902	4192	6451	1623	8074	8353	9976
2016	1928	4251	4220	2141	6361	6148	8289
2017	1873	4130	4649	2857	7506	6522	9379

Table 3. Bluefish mean catch weight at age (kg) from 1985 to 2017

Year	Age						
	0	1	2	3	4	5	6+
1985	0.122	0.570	1.321	2.295	3.549	4.591	6.679
1986	0.093	0.585	1.323	2.266	3.369	4.392	6.160
1987	0.093	0.610	1.307	2.184	3.508	4.454	6.105
1988	0.159	0.588	1.126	2.314	3.094	3.960	5.743
1989	0.118	0.633	1.575	2.969	3.566	4.256	5.752
1990	0.152	0.503	1.192	2.372	3.971	4.389	6.208
1991	0.101	0.268	1.110	2.077	3.362	4.163	5.765
1992	0.070	0.462	1.036	2.113	3.192	4.278	5.843
1993	0.149	0.465	1.126	2.343	2.920	4.022	6.110
1994	0.104	0.482	1.073	2.095	3.360	4.147	6.641
1995	0.167	0.527	1.018	2.202	3.452	4.499	5.932
1996	0.129	0.621	1.010	1.793	2.927	4.356	5.563
1997	0.099	0.488	1.019	1.967	2.758	3.687	5.734
1998	0.132	0.508	0.881	2.609	3.703	4.036	6.201
1999	0.136	0.472	0.917	2.396	3.676	4.008	6.292
2000	0.163	0.414	0.856	2.869	3.602	3.859	6.207
2001	0.126	0.408	0.981	2.704	3.999	4.204	5.918
2002	0.128	0.504	1.092	1.901	2.736	3.637	5.066
2003	0.095	0.524	1.117	1.845	2.651	3.666	4.919
2004	0.112	0.484	1.281	2.149	2.866	3.632	4.754
2005	0.166	0.536	0.937	2.227	3.402	4.322	5.402
2006	0.122	0.491	0.934	1.811	2.756	3.126	4.076
2007	0.153	0.417	0.960	1.539	2.168	3.707	4.280
2008	0.164	0.475	1.279	1.921	3.141	3.560	4.871
2009	0.154	0.411	1.141	1.311	2.605	3.381	4.581
2010	0.120	0.373	1.014	0.938	2.500	3.689	5.175
2011	0.132	0.356	0.916	0.995	1.812	4.115	5.370
2012	0.114	0.368	0.843	1.133	2.580	4.188	5.464
2013	0.147	0.437	0.996	1.786	2.636	3.779	5.804
2014	0.142	0.413	0.963	1.873	2.891	3.873	5.144
2015	0.196	0.436	0.851	2.046	3.379	3.996	5.208
2016	0.143	0.447	0.983	2.019	3.615	4.362	5.652
2017	0.094	0.422	0.849	1.830	3.181	4.324	5.930

Table 4. Bluefish commercial catch at age (000s) from Maine to Florida, 1985 to 2017.

Year	Age							Total
	0	1	2	3	4	5	6+	
1985	607.2	3297.1	432.6	168.2	82.3	151.6	359.0	<b>5098.0</b>
1986	599.0	2297.6	729.8	197.2	295.0	285.6	278.0	<b>4682.2</b>
1987	209.2	1837.1	793.3	696.3	157.7	179.1	240.6	<b>4113.2</b>
1988	173.8	905.6	476.5	221.2	433.2	345.4	497.9	<b>3053.5</b>
1989	655.4	1505.7	163.6	182.6	193.9	326.1	162.0	<b>3189.3</b>
1990	1354.6	1267.6	2827.6	215.4	80.8	155.8	114.2	<b>6016.1</b>
1991	468.9	5026.4	425.3	16.1	48.9	62.9	798.6	<b>6847.2</b>
1992	89.1	8150.2	1014.7	95.6	24.8	24.4	71.0	<b>9469.7</b>
1993	571.9	1238.2	3001.7	74.2	31.6	22.1	86.9	<b>5026.5</b>
1994	34.1	1388.3	359.0	51.4	157.6	229.4	300.0	<b>2519.8</b>
1995	296.3	3761.3	704.0	7.0	6.5	49.3	132.2	<b>4956.6</b>
1996	178.7	1126.9	726.0	317.6	137.9	88.4	266.0	<b>2841.5</b>
1997	112.7	1096.9	509.7	183.2	134.2	75.2	402.9	<b>2514.8</b>
1998	192.4	2383.4	1360.2	178.4	31.3	120.6	82.9	<b>4349.1</b>
1999	495.0	1549.9	1106.4	183.4	15.4	124.3	129.6	<b>3604.0</b>
2000	284.4	2736.9	1013.6	143.5	20.7	283.5	46.5	<b>4529.0</b>
2001	68.7	851.7	1445.4	300.9	40.8	303.3	67.4	<b>3078.2</b>
2002	52.6	1575.1	708.4	136.7	137.7	123.0	149.8	<b>2883.3</b>
2003	37.8	966.4	704.2	222.7	168.2	142.5	176.6	<b>2418.5</b>
2004	30.9	1216.6	790.2	225.4	119.0	183.1	191.0	<b>2756.4</b>
2005	225.4	787.9	1112.0	224.7	167.0	90.4	55.5	<b>2662.9</b>
2006	143.2	924.6	563.3	352.2	133.2	159.6	251.9	<b>2528.1</b>
2007	242.7	648.4	1006.8	233.5	187.0	108.0	250.8	<b>2677.2</b>
2008	137.7	470.7	744.1	279.5	137.1	116.4	124.0	<b>2009.6</b>
2009	50.2	417.6	585.7	558.4	152.5	89.8	232.2	<b>2086.4</b>
2010	46.5	338.0	513.2	514.7	275.1	151.1	220.5	<b>2059.1</b>
2011	40.0	294.3	461.3	557.6	288.0	75.9	166.4	<b>1883.5</b>
2012	59.8	301.3	625.3	498.6	163.5	47.1	119.1	<b>1814.7</b>
2013	190.3	536.9	729.6	241.4	96.4	57.5	64.2	<b>1916.2</b>
2014	259.9	848.2	608.6	134.9	130.7	79.2	116.0	<b>2177.4</b>
2015	141.8	394.7	556.5	78.7	68.8	67.7	115.5	<b>1423.8</b>
2016	48.5	557.5	497.5	133.7	35.2	40.4	84.5	<b>1397.4</b>
2017	35.7	258.9	801.7	111.8	82.5	31.0	79.5	<b>1401.0</b>



Table 5. Bluefish recreational catch at age (000s) from Maine to Florida, 1985 to 2017.

Year	Age							Total
	0	1	2	3	4	5	6+	
1985	5731.8	6903.4	3542.6	915.2	631.9	461.2	1665.5	<b>19851.5</b>
1986	5466.7	3977.4	6494.3	2917.3	1517.4	1176.6	3084.5	<b>24634.1</b>
1987	4225.1	3783.6	3732.0	4642.1	1906.8	1012.2	1923.2	<b>21225.0</b>
1988	1319.6	1482.5	1260.3	1077.1	1589.0	913.6	1662.9	<b>9305.0</b>
1989	4945.8	2582.7	1582.1	571.3	370.8	902.3	1500.0	<b>12454.9</b>
1990	1665.4	5356.3	1462.8	430.2	259.5	469.5	1160.7	<b>10804.3</b>
1991	4111.3	2583.2	3827.4	545.5	233.5	288.8	1376.4	<b>12966.0</b>
1992	714.7	2178.3	1941.2	1641.0	433.9	219.2	788.3	<b>7916.6</b>
1993	757.7	1603.9	1178.6	935.7	1123.7	134.8	616.8	<b>6351.3</b>
1994	1569.6	2567.8	559.3	554.0	384.2	420.0	632.9	<b>6687.7</b>
1995	702.7	2869.9	923.3	326.9	289.3	341.2	553.3	<b>6006.6</b>
1996	933.4	1353.1	907.3	540.1	262.1	196.6	647.9	<b>4840.6</b>
1997	1146.8	2477.1	902.0	352.4	221.3	229.1	943.0	<b>6271.7</b>
1998	644.5	1458.6	1180.9	951.5	154.1	132.0	380.2	<b>4901.9</b>
1999	1333.1	1290.4	1041.7	560.3	150.4	88.0	261.4	<b>4725.2</b>
2000	418.8	2817.0	1583.9	975.0	226.2	295.6	244.2	<b>6560.8</b>
2001	1161.9	2780.0	2271.4	1117.9	163.7	318.1	380.8	<b>8193.7</b>
2002	445.6	3448.6	1505.1	327.2	138.7	202.3	433.1	<b>6500.6</b>
2003	580.0	2564.5	2447.6	689.9	311.1	304.8	504.6	<b>7402.6</b>
2004	554.0	4020.8	2485.3	783.0	329.7	407.6	484.1	<b>9064.5</b>
2005	1986.7	1844.5	3043.6	1623.1	521.9	391.8	398.2	<b>9809.8</b>
2006	1922.3	2258.7	1704.0	1307.1	388.5	571.6	743.5	<b>8895.8</b>
2007	1283.8	2187.9	3189.1	1501.6	1397.2	413.8	651.5	<b>10624.9</b>
2008	1290.9	1997.7	2616.8	1076.4	541.8	428.4	705.7	<b>8657.7</b>
2009	390.1	1509.2	1906.0	1520.6	479.7	188.9	467.3	<b>6461.8</b>
2010	961.7	1480.8	1758.8	1471.2	935.2	442.4	548.5	<b>7598.5</b>
2011	1028.3	1503.0	1199.5	1219.4	607.0	388.9	559.7	<b>6505.9</b>
2012	1537.6	1283.6	1407.6	1195.5	759.9	212.7	414.4	<b>6811.4</b>
2013	1342.6	1269.9	1674.8	1144.3	619.6	305.4	299.6	<b>6656.2</b>
2014	2290.1	2134.0	1275.6	736.1	343.2	240.0	306.4	<b>7325.4</b>
2015	778.5	1607.4	1207.6	472.0	374.8	350.6	484.1	<b>5275.0</b>
2016	1444.2	1888.8	932.3	469.1	150.6	130.6	389.0	<b>5404.6</b>
2017	1128.8	535.1	735.8	242.9	207.0	161.0	791.1	<b>3801.7</b>

Table 6. MRIP recreational catch per angler trip by age for bluefish from Maine to Florida, 1985 to 2017. Index was predicted from a Generalized Linear Model with a negative binomial transformation.

Year	Age							Total	SE
	0	1	2	3	4	5	6+		
1985	0.475	0.564	0.286	0.075	0.052	0.037	0.134	<b>1.623</b>	0.084
1986	0.373	0.269	0.438	0.197	0.102	0.080	0.209	<b>1.668</b>	0.087
1987	0.334	0.296	0.289	0.357	0.150	0.079	0.150	<b>1.655</b>	0.085
1988	0.137	0.155	0.132	0.113	0.166	0.096	0.174	<b>0.973</b>	0.050
1989	0.527	0.271	0.167	0.060	0.038	0.095	0.157	<b>1.315</b>	0.064
1990	0.143	0.517	0.215	0.069	0.046	0.062	0.170	<b>1.222</b>	0.060
1991	0.281	0.206	0.371	0.067	0.031	0.028	0.193	<b>1.177</b>	0.057
1992	0.057	0.198	0.188	0.252	0.066	0.034	0.131	<b>0.926</b>	0.045
1993	0.066	0.147	0.133	0.094	0.154	0.026	0.121	<b>0.741</b>	0.037
1994	0.144	0.293	0.076	0.108	0.058	0.082	0.126	<b>0.887</b>	0.044
1995	0.071	0.352	0.163	0.067	0.052	0.044	0.111	<b>0.860</b>	0.043
1996	0.099	0.212	0.174	0.152	0.084	0.050	0.193	<b>0.964</b>	0.050
1997	0.114	0.314	0.194	0.098	0.083	0.092	0.222	<b>1.117</b>	0.058
1998	0.083	0.224	0.216	0.247	0.045	0.035	0.095	<b>0.945</b>	0.050
1999	0.228	0.313	0.271	0.245	0.063	0.037	0.127	<b>1.284</b>	0.068
2000	0.048	0.390	0.281	0.281	0.115	0.085	0.098	<b>1.298</b>	0.071
2001	0.094	0.376	0.479	0.280	0.066	0.083	0.115	<b>1.493</b>	0.077
2002	0.046	0.507	0.343	0.091	0.045	0.047	0.106	<b>1.185</b>	0.063
2003	0.049	0.330	0.438	0.145	0.089	0.081	0.143	<b>1.275</b>	0.066
2004	0.059	0.472	0.477	0.152	0.085	0.085	0.114	<b>1.444</b>	0.075
2005	0.204	0.181	0.405	0.276	0.083	0.076	0.097	<b>1.322</b>	0.070
2006	0.177	0.258	0.305	0.311	0.088	0.125	0.154	<b>1.418</b>	0.076
2007	0.108	0.232	0.404	0.200	0.174	0.079	0.111	<b>1.308</b>	0.068
2008	0.161	0.213	0.431	0.175	0.120	0.077	0.111	<b>1.288</b>	0.068
2009	0.068	0.201	0.320	0.282	0.103	0.041	0.134	<b>1.149</b>	0.062
2010	0.096	0.141	0.361	0.230	0.171	0.092	0.111	<b>1.202</b>	0.062
2011	0.167	0.182	0.210	0.263	0.141	0.129	0.190	<b>1.282</b>	0.069
2012	0.188	0.199	0.279	0.258	0.234	0.065	0.134	<b>1.357</b>	0.072
2013	0.150	0.151	0.399	0.269	0.148	0.072	0.056	<b>1.245</b>	0.068
2014	0.220	0.247	0.357	0.261	0.102	0.060	0.075	<b>1.322</b>	0.072
2015	0.167	0.344	0.259	0.101	0.080	0.075	0.104	<b>1.130</b>	0.061
2016	0.339	0.444	0.219	0.110	0.035	0.031	0.091	<b>1.270</b>	0.067
2017	0.359	0.170	0.234	0.077	0.066	0.051	0.252	<b>1.210</b>	0.065

Table 7a. NEFSC bluefish indices by age using fall inshore strata and re-transformed log<sub>e</sub> stratified mean number per tow, 1985 to 2008 (FV. Albatross IV).

Year	Age							Total	CV
	0	1	2	3	4	5	6+		
1985	15.340	1.946	0.239	0.126	0.036	0.012	0.038	<b>17.74</b>	0.145
1986	38.843	1.505	0.171	0.085	0.051	0.036	0.057	<b>40.75</b>	0.427
1987	5.639	1.247	0.126	0.192	0.102	0.045	0.095	<b>7.45</b>	0.311
1988	30.041	0.189	0.027	0.031	0.074	0.036	0.069	<b>30.47</b>	0.572
1989	90.171	0.953	0.046	0.019	0.015	0.032	0.036	<b>91.27</b>	0.188
1990	5.911	3.291	0.009	0.016	0.007	0.023	0.064	<b>9.32</b>	0.222
1991	15.294	0.333	0.109	0.048	0.009	0.001	0.001	<b>15.80</b>	0.232
1992	16.062	1.662	0.056	0.051	0.010	0.005	0.019	<b>17.87</b>	0.069
1993	1.625	0.189	0.075	0.020	0.045	0.013	0.011	<b>1.98</b>	0.209
1994	11.100	1.129	0.025	0.026	0.054	0.035	0.010	<b>12.38</b>	0.117
1995	6.801	2.449	0.057	0.013	0.011	0.033	0.023	<b>9.39</b>	0.190
1996	9.124	1.417	0.170	0.092	0.019	0.017	0.023	<b>10.86</b>	0.232
1997	4.757	0.448	0.315	0.138	0.010	0.005	0.023	<b>5.69</b>	0.156
1998	9.509	0.777	0.108	0.123	0.000	0.000	0.000	<b>10.52</b>	0.320
1999	22.926	1.452	0.077	0.103	0.000	0.000	0.012	<b>24.57</b>	0.324
2000	2.843	1.555	0.152	0.029	0.000	0.013	0.000	<b>4.59</b>	0.232
2001	17.817	1.274	0.286	0.046	0.000	0.008	0.003	<b>19.43</b>	0.147
2002	16.009	2.347	0.058	0.054	0.011	0.024	0.003	<b>18.51</b>	0.057
2003	32.926	2.582	0.160	0.001	0.010	0.018	0.024	<b>35.72</b>	0.171
2004	5.423	4.845	0.230	0.050	0.011	0.007	0.026	<b>10.59</b>	0.136
2005	34.503	0.684	0.133	0.151	0.040	0.056	0.019	<b>35.59</b>	0.065
2006	22.979	1.405	0.636	0.155	0.037	0.048	0.005	<b>25.27</b>	0.143
2007	12.428	2.214	0.533	0.026	0.014	0.004	0.008	<b>15.23</b>	0.128
2008	10.939	1.717	0.397	0.088	0.026	0.013	0.025	<b>13.20</b>	0.178

Table 7b. 2009 to 2017 (FV. H.B. Bigelow)

Year	Age							Total	CV
	0	1	2	3	4	5	6+		
2009	3.515	5.294	1.392	0.635	0.151	0.042	0.043	<b>11.07</b>	0.489
2010	3.872	2.078	0.384	0.378	0.176	0.057	0.088	<b>7.03</b>	0.228
2011	5.639	1.993	0.292	0.295	0.150	0.032	0.039	<b>8.44</b>	0.157
2012	2.571	1.370	0.689	0.441	0.080	0.013	0.009	<b>5.17</b>	0.203
2013	2.699	0.264	0.040	0.019	0.018	0.004	0.002	<b>3.05</b>	0.581
2014	2.631	1.199	0.047	0.020	0.012	0.001	0.000	<b>3.91</b>	0.239
2015	0.940	0.529	0.046	0.000	0.000	0.000	0.000	<b>1.51</b>	0.219
2016	1.204	0.697	0.036	0.003	0.001	0.000	0.000	<b>1.94</b>	0.178
2017	***No index: because of survey delays, southern strata were not sampled for the fall survey								

Table 8. Bluefish survey indices by age from the New Jersey trawl survey from 1990 to 2017 (stratified geometric mean number per tow).

Year	New Jersey				SE
	0	Age 1	2	Total	
1990	1.437	0.084	0.001	<b>1.523</b>	0.349
1991	1.087	0.010	0.014	<b>1.111</b>	0.131
1992	1.561	0.237	0.025	<b>1.823</b>	0.249
1993	0.844	0.037	0.032	<b>0.913</b>	0.095
1994	2.238	0.008	0.002	<b>2.248</b>	0.252
1995	3.163	0.153	0.058	<b>3.374</b>	0.335
1996	1.835	0.077	0.007	<b>1.919</b>	0.184
1997	0.901	0.025	0.010	<b>0.937</b>	0.196
1998	1.013	0.153	0.077	<b>1.243</b>	0.247
1999	0.637	0.103	0.013	<b>0.752</b>	0.193
2000	0.493	0.092	0.035	<b>0.619</b>	0.084
2001	0.293	0.028	0.063	<b>0.384</b>	0.100
2002	2.762	1.068	0.027	<b>3.857</b>	0.274
2003	2.676	0.070	0.019	<b>2.764</b>	0.239
2004	1.546	0.448	0.249	<b>2.243</b>	0.213
2005	3.606	0.130	0.098	<b>3.833</b>	0.216
2006	2.760	0.078	0.025	<b>2.863</b>	0.277
2007	3.307	0.585	0.148	<b>4.040</b>	0.322
2008	2.888	0.082	0.011	<b>2.981</b>	0.315
2009	1.624	0.029	0.005	<b>1.657</b>	0.193
2010	0.868	0.018	0.008	<b>0.894</b>	0.237
2011	4.562	0.835	0.020	<b>5.417</b>	0.377
2012	2.732	0.195	0.044	<b>2.972</b>	0.241
2013	1.269	0.020	0.000	<b>1.290</b>	0.341
2014	3.155	0.268	0.010	<b>3.433</b>	0.195
2015	1.382	0.073	0.001	<b>1.456</b>	0.154
2016	1.825	0.080	0.001	<b>1.907</b>	0.167
2017	4.287	0.193	0.000	<b>4.480</b>	0.431

Table 9. Bluefish survey indices by age from the CT Long-Island Sound Trawl Survey from 1985 to 2017 (stratified geometric mean number per tow).

Year	Age							Total	CV	
	0	1	2	3	4	5	6+			
1985	16.978	0.952	0.627	0.246	0.146	0.022	0.039	<b>19.010</b>	0.614	
1986	10.822	1.184	1.170	0.189	0.128	0.088	0.079	<b>13.660</b>	0.551	
1987	12.167	1.006	0.508	0.384	0.132	0.058	0.065	<b>14.320</b>	0.499	
1988	14.265	0.211	0.490	0.137	0.170	0.125	0.091	<b>15.490</b>	0.560	
1989	24.998	0.575	0.460	0.042	0.020	0.068	0.087	<b>26.250</b>	0.612	
1990	19.367	2.970	0.928	0.163	0.128	0.122	0.202	<b>23.880</b>	0.484	
1991	28.494	1.279	3.267	0.121	0.056	0.050	0.164	<b>33.430</b>	0.399	
1992	18.871	1.760	2.789	1.324	0.182	0.063	0.232	<b>25.220</b>	0.451	
1993	16.776	0.110	1.032	0.321	0.566	0.030	0.084	<b>18.920</b>	0.529	
1994	30.523	0.762	0.241	0.162	0.137	0.169	0.065	<b>32.060</b>	0.524	
1995	21.696	1.962	0.597	0.055	0.045	0.041	0.065	<b>24.460</b>	0.529	
1996	19.805	0.220	0.413	0.247	0.013	0.025	0.077	<b>20.800</b>	0.578	
1997	36.592	0.602	0.477	0.074	0.067	0.028	0.060	<b>37.900</b>	0.496	
1998	29.871	0.973	0.379	0.159	0.011	0.004	0.014	<b>31.410</b>	0.521	
1999	41.878	2.892	0.224	0.203	0.050	0.008	0.056	<b>45.310</b>	0.395	
2000	17.281	2.026	1.072	0.148	0.001	0.028	0.015	<b>20.570</b>	0.585	
2001	21.472	1.126	1.403	0.184	0.020	0.011	0.024	<b>24.240</b>	0.429	
2002	14.007	3.788	0.638	0.094	0.019	0.079	0.124	<b>18.750</b>	0.508	
2003	27.338	0.425	0.603	0.073	0.021	0.032	0.038	<b>28.530</b>	0.523	
2004	21.452	5.515	1.456	0.331	0.068	0.163	0.145	<b>29.130</b>	0.483	
2005	17.769	0.087	0.655	0.207	0.088	0.045	0.038	<b>18.890</b>	0.613	
2006	14.244	0.487	0.547	0.288	0.064	0.008	0.023	<b>15.660</b>	0.601	
2007	27.262	1.984	0.719	0.428	0.110	0.068	0.089	<b>30.660</b>	0.574	
2008	11.831	0.562	1.086	0.367	0.119	0.153	0.162	<b>14.280</b>	0.508	
2009	15.686	0.520	0.432	0.812	0.297	0.068	0.295	<b>18.110</b>	0.475	
2010				mechanical issues						
2011	10.208	0.234	0.210	0.174	0.164	0.046	0.063	<b>11.100</b>	0.655	
2012	14.342	0.268	0.185	0.129	0.081	0.022	0.034	<b>15.060</b>	0.571	
2013	8.889	0.032	0.411	0.185	0.089	0.040	0.064	<b>9.710</b>	0.603	
2014	18.138	0.211	0.069	0.063	0.067	0.042	0.021	<b>18.610</b>	0.569	
2015	8.252	0.022	0.060	0.013	0.022	0.032	0.019	<b>8.420</b>	0.744	
2016	8.503	1.598	0.425	0.575	0.066	0.021	0.062	<b>11.250</b>	0.658	
2017	7.929	0.040	0.030	0.034	0.010	0.000	0.007	<b>8.050</b>	0.795	

Table 10. Bluefish survey indices by age from the NEAMAP Inshore Trawl Survey from 2007 to 2017 (stratified geometric mean number per tow).

Year	Age							Total	CV
	0	1	2	3	4	5	6+		
2007	3.878	0.318	0.063	0.015	0.009	0.004	0.002	<b>4.290</b>	0.076
2008	4.779	0.362	0.055	0.020	0.007	0.003	0.003	<b>5.230</b>	0.073
2009	5.095	0.090	0.024	0.013	0.004	0.002	0.002	<b>5.230</b>	0.068
2010	3.081	0.112	0.028	0.027	0.019	0.007	0.006	<b>3.280</b>	0.080
2011	3.471	0.439	0.052	0.047	0.005	0.003	0.004	<b>4.020</b>	0.072
2012	5.174	0.413	0.087	0.043	0.009	0.001	0.003	<b>5.730</b>	0.062
2013	3.617	0.054	0.023	0.012	0.002	0.000	0.002	<b>3.710</b>	0.082
2014	2.505	0.189	0.009	0.007	0.004	0.005	0.002	<b>2.720</b>	0.093
2015	3.221	0.149	0.002	0.001	0.002	0.002	0.002	<b>3.380</b>	0.071
2016	4.301	0.394	0.002	0.001	0.001	0.000	0.001	<b>4.700</b>	0.080
2017	4.569	0.046	0.001	0.001	0.001	0.001	0.000	<b>4.620</b>	0.068

Table 11. Bluefish survey indices by age from the NC Pamlico Sound Gillnet Survey from 2001 to 2017.

Year	Age							Total	SE
	0	1	2	3	4	5	6+		
2001	0.130	2.995	2.157	0.000	0.000	0.000	0.000	<b>5.282</b>	0.570
2002	0.127	2.861	1.290	0.009	0.000	0.000	0.000	<b>4.286</b>	0.570
2003	0.163	1.837	2.739	0.031	0.000	0.007	0.000	<b>4.777</b>	0.590
2004	0.162	2.993	1.991	0.047	0.000	0.000	0.000	<b>5.192</b>	0.730
2005	1.084	2.239	3.021	0.038	0.009	0.000	0.009	<b>6.399</b>	0.880
2006	0.532	2.972	1.854	0.441	0.096	0.050	0.111	<b>6.057</b>	0.970
2007	0.439	2.326	4.776	0.808	0.043	0.006	0.050	<b>8.448</b>	1.050
2008	1.213	2.886	2.307	0.227	0.012	0.029	0.037	<b>6.710</b>	0.740
2009	0.375	2.040	1.475	1.960	0.288	0.059	0.133	<b>6.330</b>	0.710
2010	0.469	1.571	1.356	1.845	0.392	0.044	0.003	<b>5.680</b>	0.580
2011	0.241	0.946	1.648	2.041	0.921	0.045	0.045	<b>5.887</b>	0.890
2012	0.206	1.113	1.615	0.909	0.163	0.008	0.044	<b>4.058</b>	0.520
2013	1.689	1.652	1.900	0.393	0.052	0.008	0.008	<b>5.702</b>	0.870
2014	0.741	2.282	1.291	0.105	0.004	0.003	0.016	<b>4.441</b>	0.500
2015	0.430	1.031	1.154	0.120	0.008	0.003	0.020	<b>2.766</b>	0.320
2016	0.001	1.176	2.746	0.227	0.002	0.002	0.000	<b>4.154</b>	0.720
2017	0.248	0.782	2.212	0.175	0.022	0.029	0.116	<b>3.583</b>	0.500

Table 12. SEAMAP Inshore trawl survey index for Age-0 bluefish from 1989 to 2017.

Year	Age 0	CV
1989	3.307	0.50408
1990	0.112	0.367886
1991	1.290	0.593679
1992	0.933	0.87238
1993	0.130	0.341276
1994	1.084	0.349111
1995	0.678	0.402328
1996	0.482	0.241391
1997	0.059	0.490054
1998	0.162	0.873772
1999	0.608	0.45056
2000	0.169	0.358003
2001	1.374	0.403755
2002	0.785	0.307955
2003	2.607	0.560615
2004	0.470	0.310982
2005	2.775	0.29657
2006	0.453	0.520533
2007	0.764	0.46794
2008	1.297	0.275843
2009	4.411	0.322063
2010	1.633	0.299091
2011	0.615	0.396699
2012	0.639	0.456195
2013	0.413	0.499522
2014	0.193	0.616233
2015	0.832	0.368894
2016	0.565	0.343857
2017	0.159	0.4122



Table 13. Composite seine survey index for Age-0 bluefish from 1985 to 2017.

Year	Age 0	CV
1985	1.334	0.715
1986	0.905	0.751
1987	2.081	0.566
1988	1.252	0.441
1989	2.153	0.434
1990	1.309	0.431
1991	1.403	0.434
1992	0.571	0.500
1993	0.279	0.480
1994	0.569	0.488
1995	0.436	0.438
1996	0.681	0.481
1997	1.381	0.468
1998	0.727	0.478
1999	1.860	0.526
2000	0.656	0.431
2001	1.084	0.422
2002	0.580	0.397
2003	0.468	0.427
2004	0.930	0.414
2005	1.164	0.381
2006	1.100	0.399
2007	0.987	0.405
2008	1.284	0.390
2009	0.503	0.442
2010	0.793	0.396
2011	0.608	0.422
2012	0.701	0.410
2013	1.080	0.402
2014	0.821	0.331
2015	0.722	0.418
2016	0.721	0.414
2017	0.456	0.454

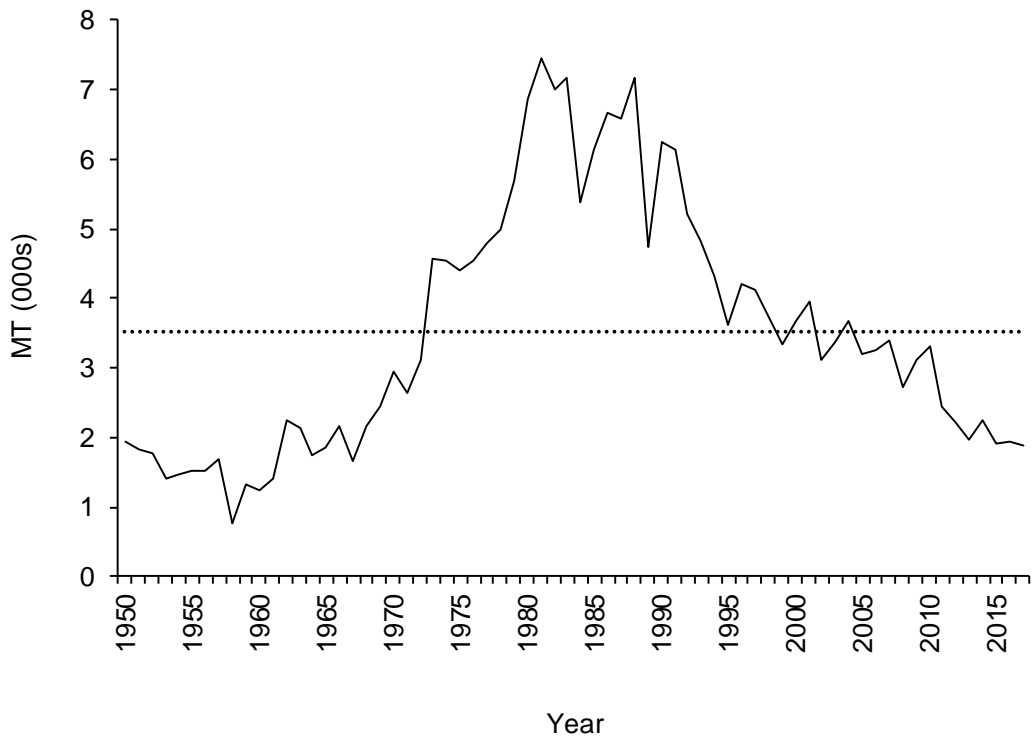


Figure 1. Times series of bluefish commercial landings (mt) along the Atlantic coast from 1950 to 2017. Dotted line represents the time-series average of 3,511 MT.

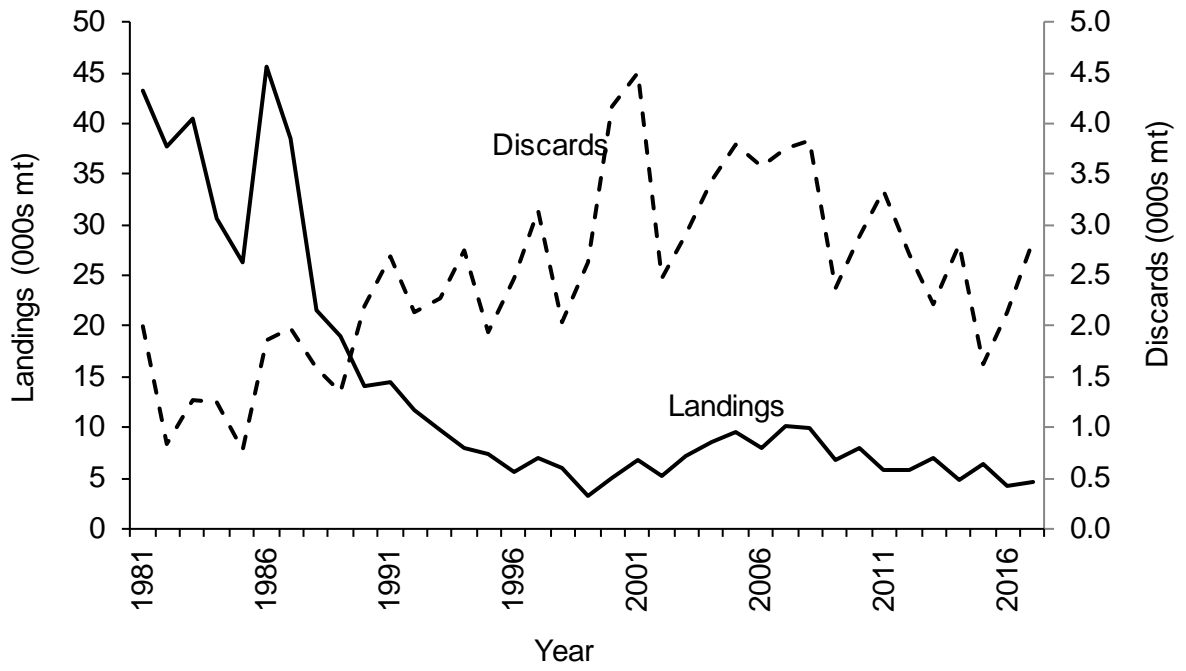


Figure 2. Recreational landings (mt) and recreational discards (MRIP B2 estimates\*0.15) from Maine to Florida, 1981 to 2017.

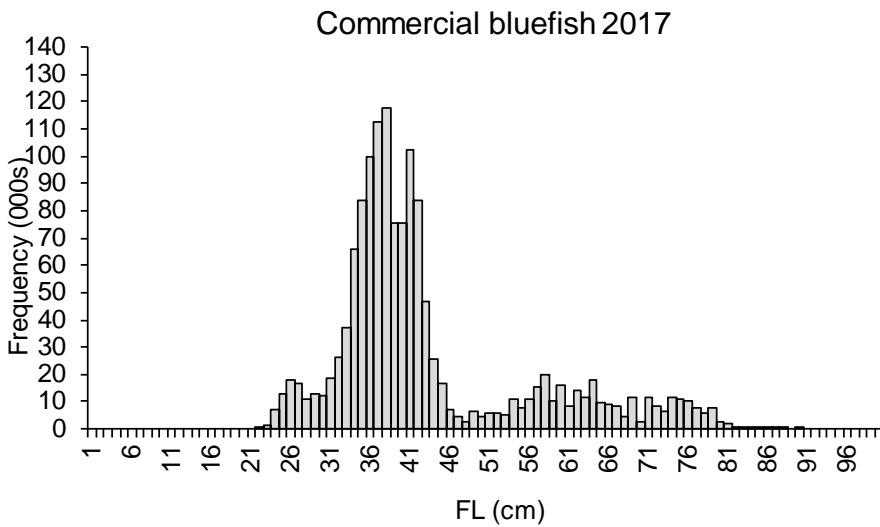
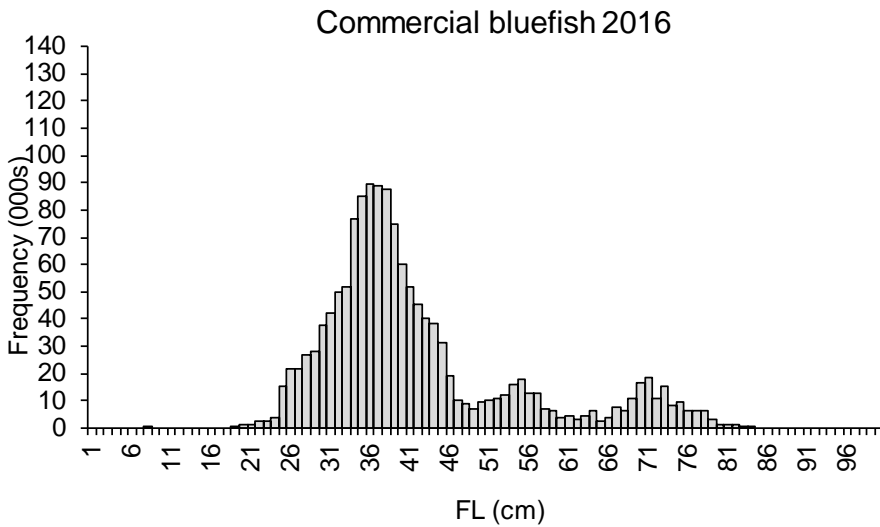
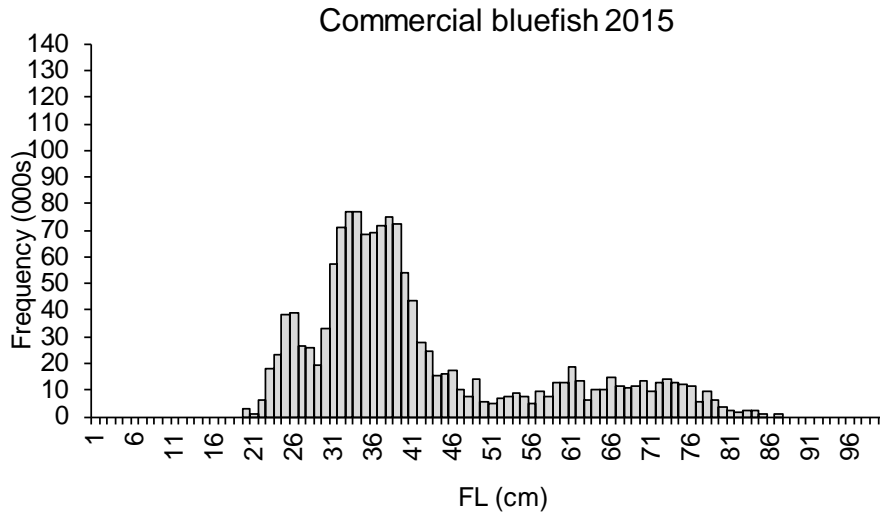


Figure 3. Length frequency distribution of commercial bluefish landings from Maine to Florida, 2015 to 2017.

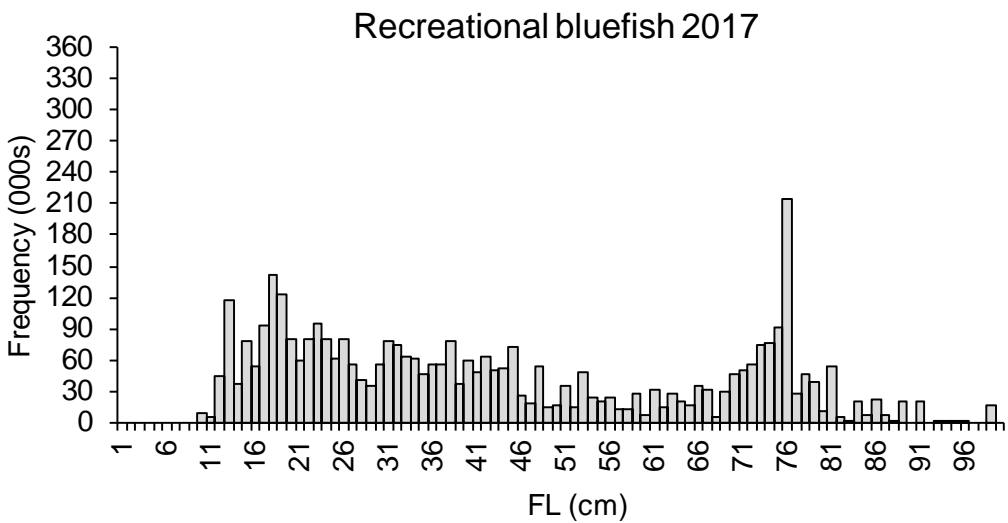
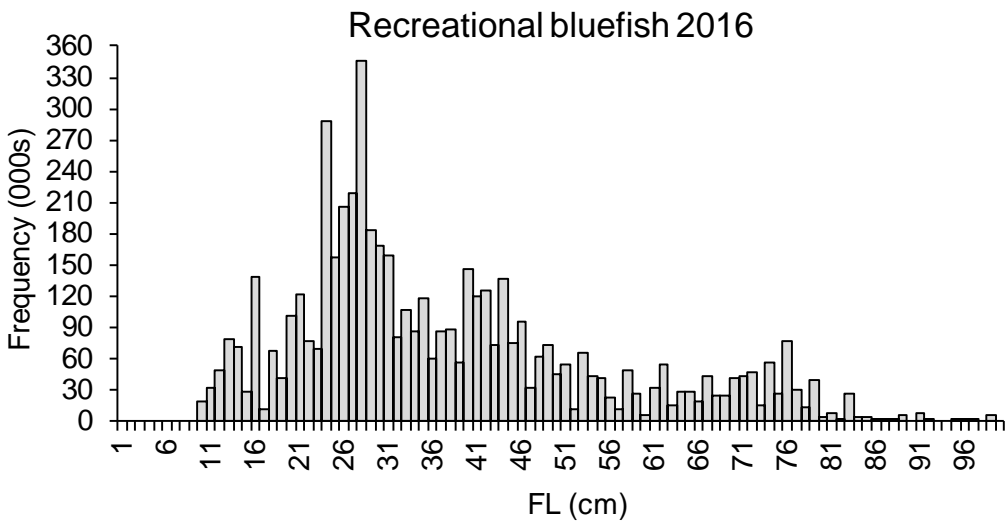
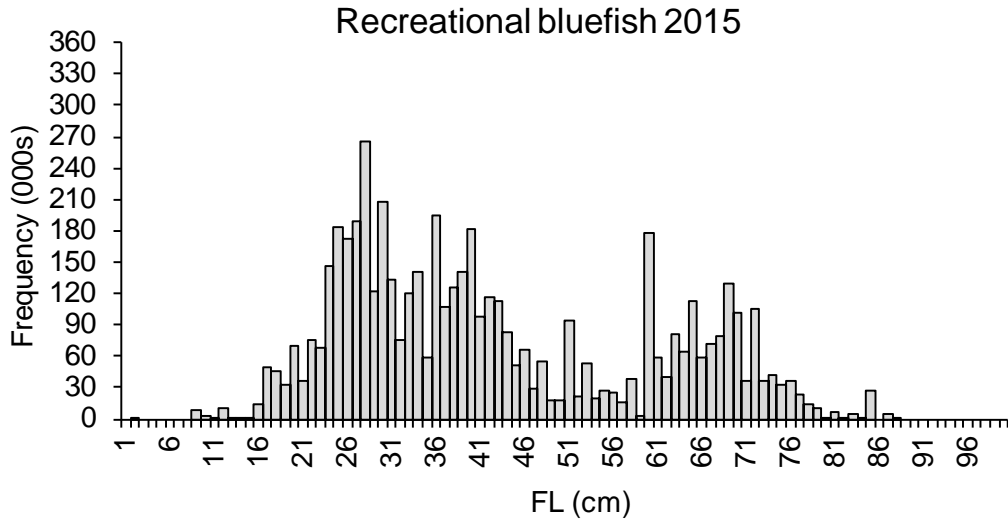


Figure 4. Length frequency distribution of recreational bluefish landings from Maine to Florida, 2015 to 2017.

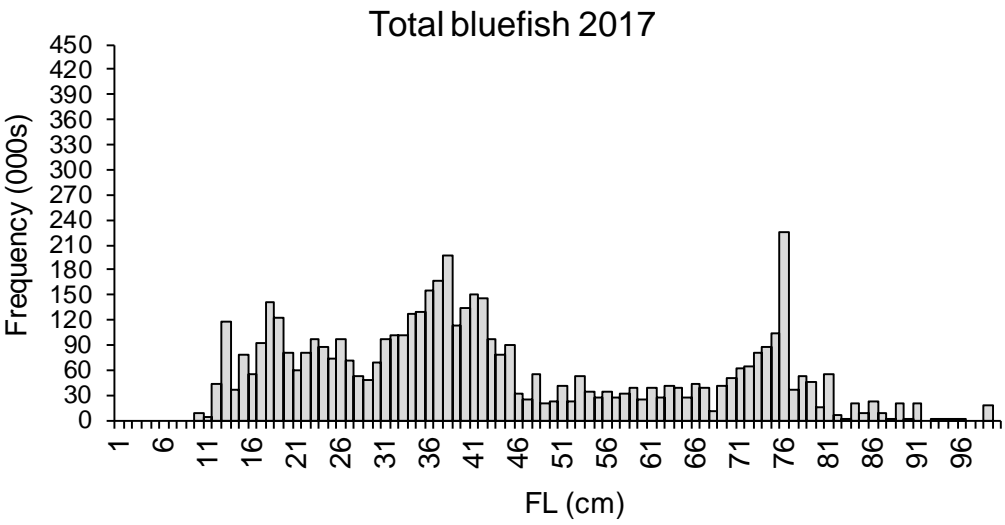
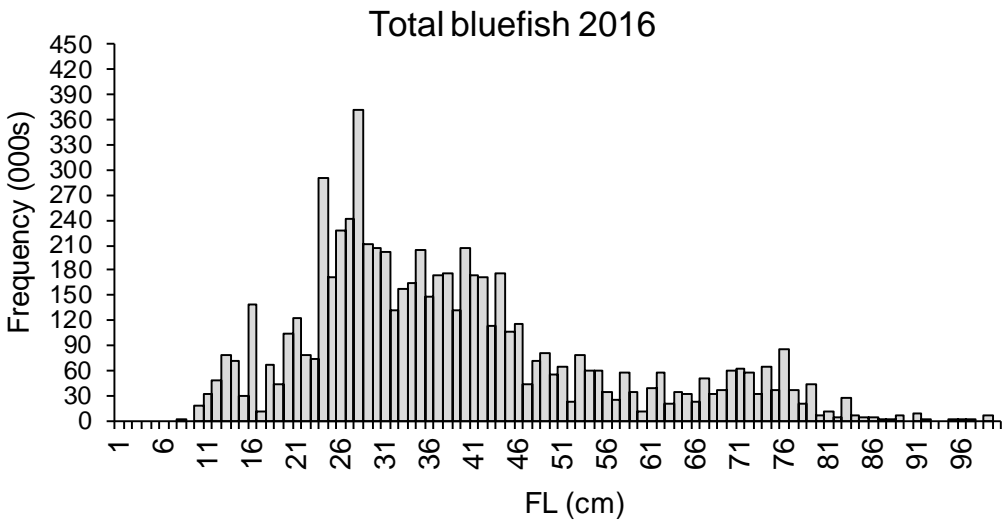
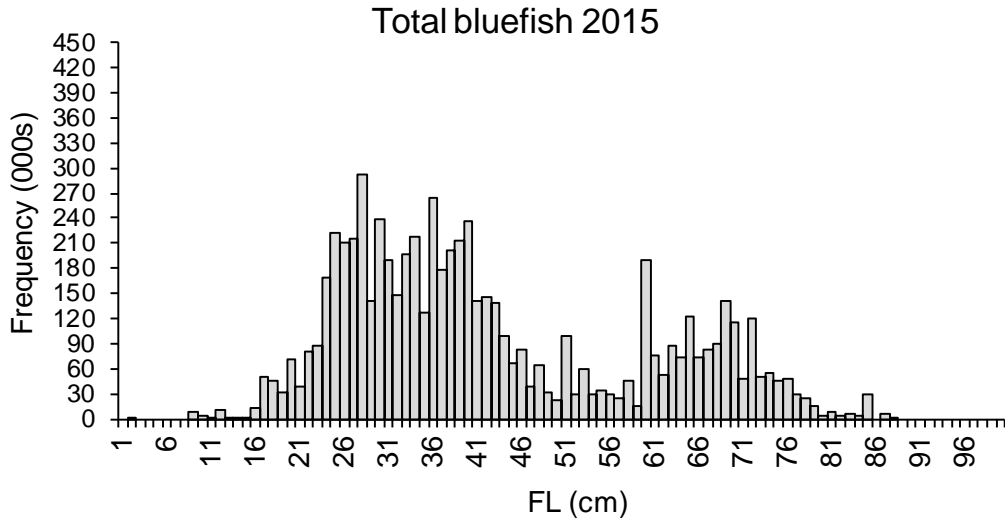


Figure 5. Length frequency distribution of total bluefish landings from Maine to Florida, 2015 to 2017.

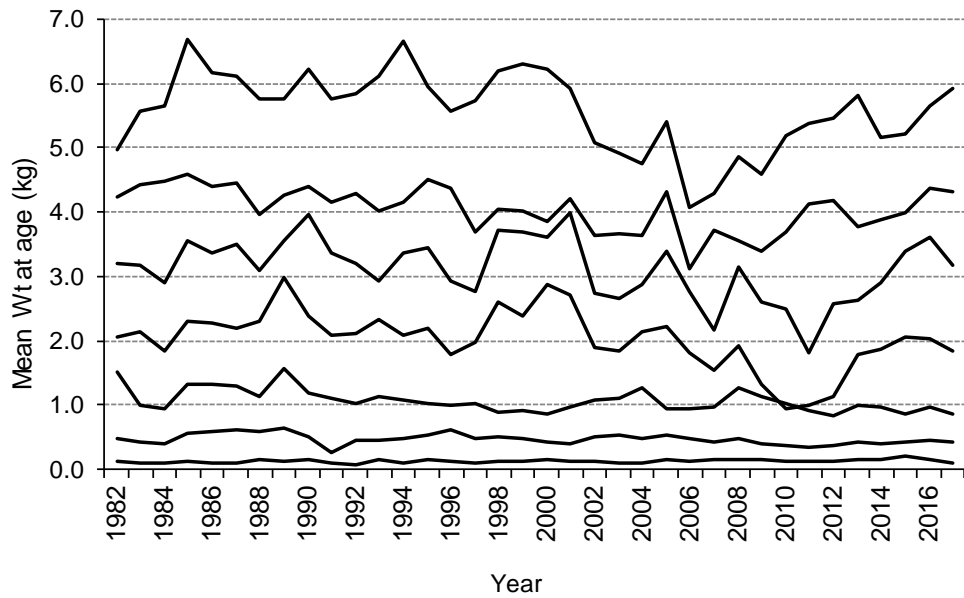


Figure 6. Bluefish mean weights (kg) at ages for age 0 (bottom) to age 6+ (top) from 1982 to 2017.

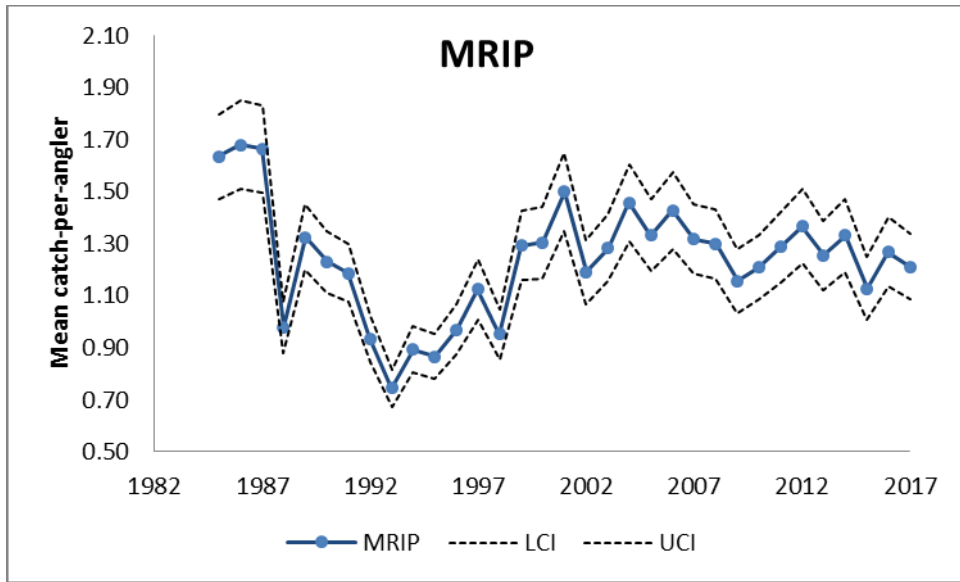


Figure 7. MRIP catch-per-angler for bluefish from 1985 to 2017.



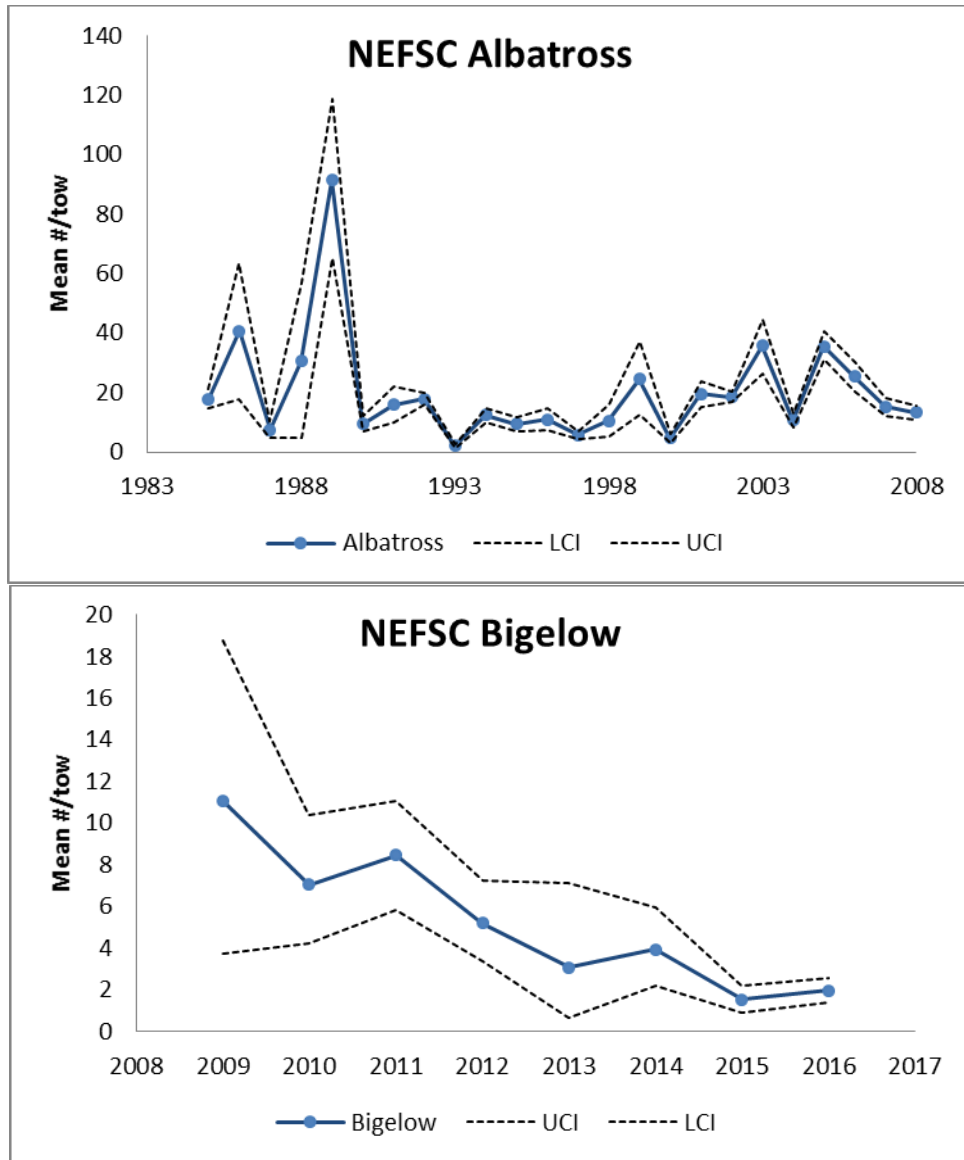


Figure 8. NEFSC Trawl survey indices for bluefish: Albatross from 1985 to 2008 and Bigelow from 2009 to 2017. \*No survey index for 2017 due to mechanical issues.

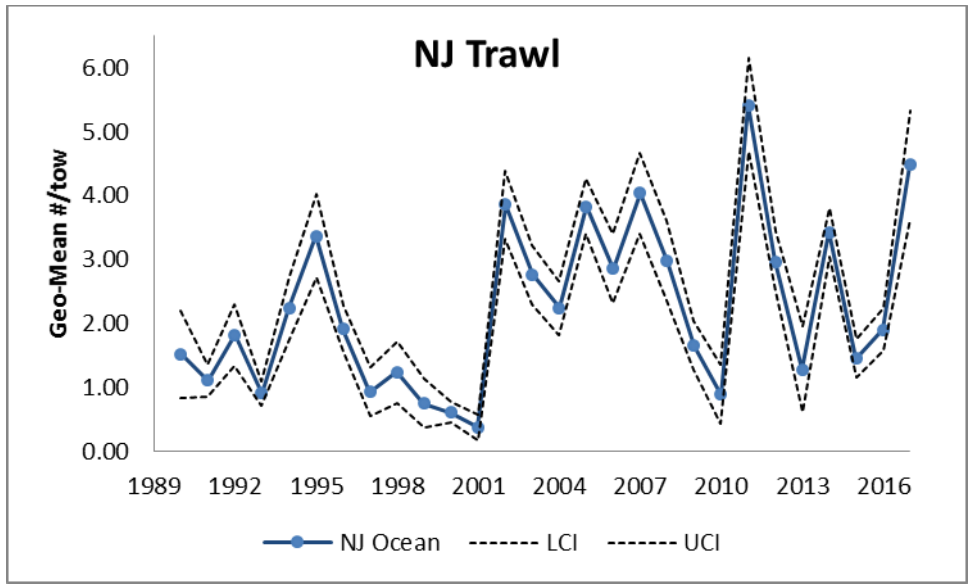


Figure 9. NJ Ocean trawl survey index for bluefish from 1990 to 2017.

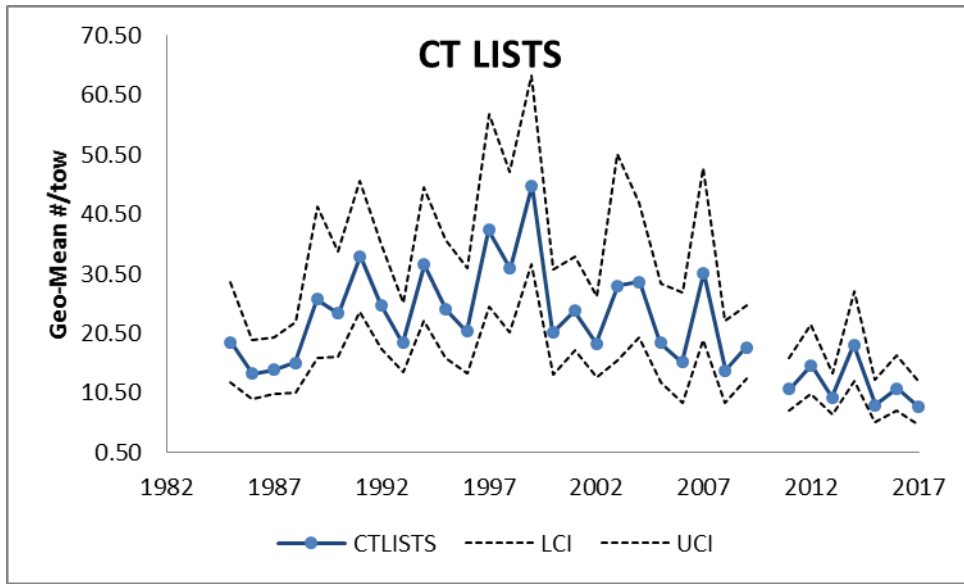


Figure 10. Connecticut Long-Island Sound Trawl survey index for bluefish from 1985 to 2017.

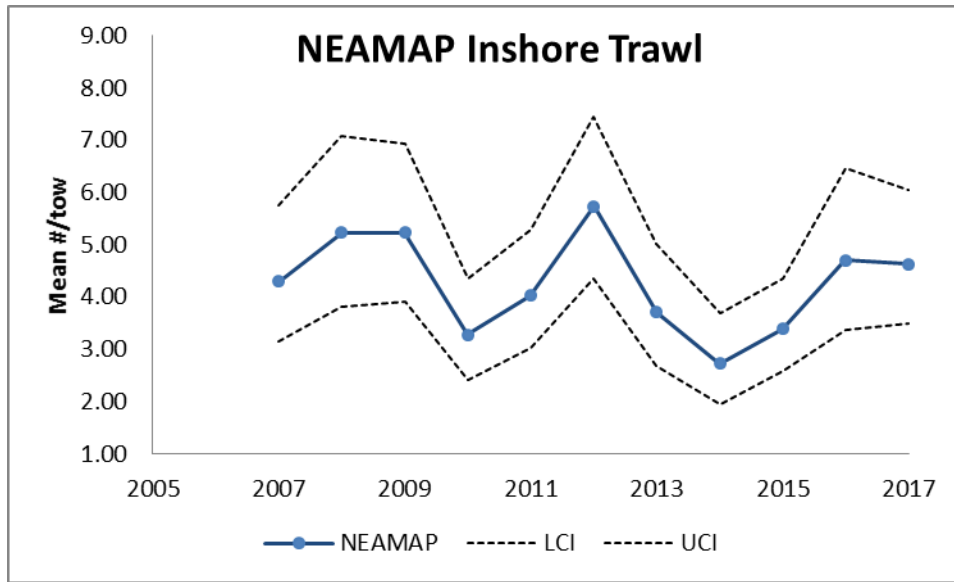


Figure 11. NEAMAP Inshore trawl survey for bluefish from 2007 to 2017.

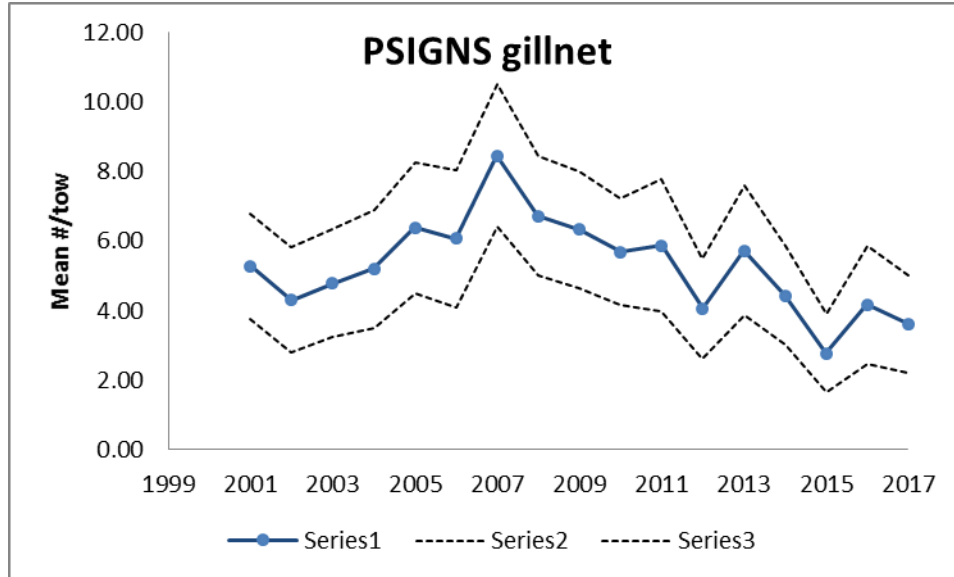


Figure 12. Pamlico Sound Independent Gillnet survey index for bluefish from 2001 to 2017.

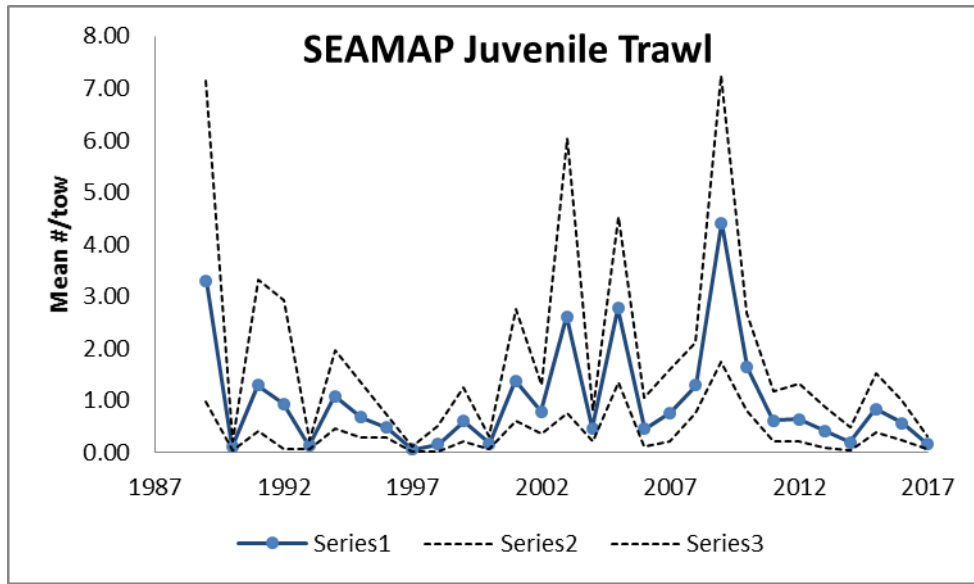


Figure 13. SEAMAP juvenile trawl survey index for bluefish from 1989 to 2017.

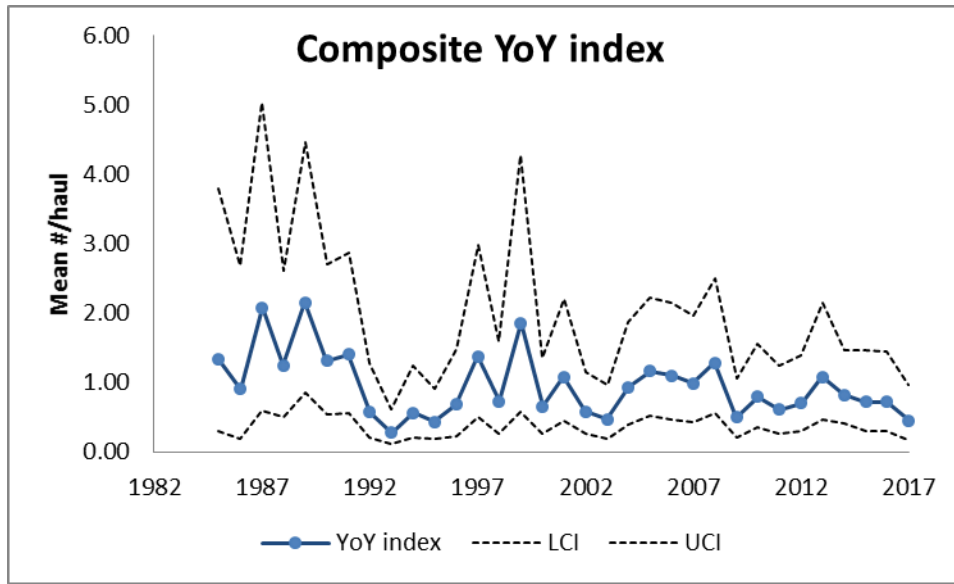


Figure 14. Composite young of the year seine index for bluefish from 1985 to 2017.



## Bluefish Fishery Performance Report June 2018

The Mid-Atlantic Fishery Management Council's (Council) Bluefish Advisory Panel (AP) met jointly with the Atlantic States Marine Fisheries Commission's (Commission) Bluefish AP on June 25, 2018 via webinar to develop a Fishery Performance Report (FPR) for consideration during the bluefish specification cycle. Advisors reviewed the Fishery Information Document and the 2017 data update prepared by the NEFSC for Bluefish to develop the 2018 Bluefish FPR based on advisor perspectives on catch and landings patterns and other trends in these fisheries. **Please note:** Advisor comments described below are not necessarily consensus or majority statements.

### Attendance

**Council Advisory Panel members present:** Arnold Leo (NY commercial/East Hampton Baymen's Association), Greg Hurley (Williamsburg, VA), Kevin Wark (Barnegat Light, NJ), Skip Feller (Virginia Beach, VA), Steven Witthuhn (Greenlawn, NJ), Tom Roller (NC recreational for-hire), Phil Langley (Dameron, MD).

**Council SSC members present:** John Boreman (Chair) and Cynthia Jones

**Others present:** Matthew Seeley (Council Staff), Caitlin Starks (ASMFC Staff) and Mike Celestino (NJ Division of Fish and Wildlife).

Because of the localized nature of AP members' observations, remarks under each heading are attributed to the states represented on the AP.

### Recreational Fishery Issues

**NJ** – This year was not as good as last year. Most bluefish seemed to be staying in the bay and the inlet. Thus, party boats have fished for bluefish in the estuaries and bays, due to the unusually large amount of large fish in those areas, as opposed to their normal offshore spots where they typically fish. This resulted in party boats not doing as well further offshore as in the previous years. Shark boats have reported large numbers of bluefish offshore (>30 miles) but party boats do not go that far to fish for blues. Additionally, large numbers of forage fish have also been reported near beach areas (menhaden and sand eels).

**NC** – Compared to previous years, we observed a lot less small fish. There was a run of big fish in the spring (big head, but small weight from early May to mid-June). Aside from observing less small fish, spatially, bluefish were present in similar locations to last year – way up the estuaries, piers, and shore. Targeting bluefish in these areas has become very popular. Overall, bluefish appear to have become more important as a target species to the recreational and for-hire fisheries in recent years, perhaps due to the lack of availability of state managed species. In the last few years, it seems that bluefish schools are smaller and a *little less* available.



**NC** – An important note for the for-hire; we saw a small run of larger fish (8-15 lbs) in the spring after seeing virtually none in the previous year. There was an incredible run of large fish from Wilmington to Cape Hatteras. Fish were well up the rivers into the sound. Some environmental condition(s) must be adding to this run of fish. Schools of smaller fish are *occasionally* present near shore, but there is a lot of pressure due to the concentrated commercial effort on them. At times, people are using these schools of fish for crab bait even though bluefish have become more accepted as a culinary target.

**NY/NC/VA** – For-hire is slightly down in recent years due to restrictive bag limits for species like striped bass, which leads to lower directed trips. Since a bluefish trip is any trip where a bluefish is harvested, lower party/charter trips will result in less bluefish for-hire trips. Yet, not all states are experiencing a decrease in the for hire.

**VA/NC** – Lots of 4-5-pound bluefish on the wrecks last year, but not this year (VA). Often, the for-hire fleet target Spanish mackerel, which will cross over with bluefish. If the Spanish mackerel fishing is really good (like it was last year, but not this year) then fishermen will not target bluefish as often.

**NC** – Need to be cautious even though abundance seems to be larger in recent years. AP members do not want to see bluefish targeted heavily now that bass or other species are down.

**NY** – East End of Long Island charter fishermen report very abundant bluefish runs, with all sizes of fish, from south shore ocean through Block Island Sound (east end of LI). Fishermen may be bringing in more bluefish at present (early summer) due to the very restricted limits on black sea bass, fluke, and striped bass. Bluefish fishing has been good for the past several years, but fishermen prefer other species when they are available and permitted. There seem to be about the same number of charter boats working this year as in the past couple of year.

**NY** – According to the Montauk charter fleet, the bluefish fishery is healthy and this year they had a run of very large fish in May, which were feeding on bunker. This was followed by a run of unusually small (1-1.5 lb fish feeding on sand eels). Then, the large bluefish came back in representing a very typical healthy fishery

**NC** – In recent years, there have been some good year classes for nearshore species (eg. Sea trout and red drum) in the fall. But, a hard winter on inshore species may direct more effort towards bluefish, but it will take the full year to see the impact. Typically, these species being available to fishermen results in less people targeting bluefish on party/charter vessels.

**MD** – A northern migration of striped bass drew fishermen further north and away from traditional bluefish targeted habitat. This resulted in a limited number of boats targeting bluefish. But, in the lower portion of the Chesapeake Bay, a patch of large bluefish remains the majority target species for vessels in the area.

**NY** – Bluefish are not as ubiquitous as they once were. The fishery needs to be monitored more closely and we need to identify research priorities to better answer the unknowns. Adjustments to

different management measures should be considered to help protect the bluefish fishery. (Comment submitted via email post meeting).

### **Commercial Fishery Issues**

**NY** – Large runs of large (7-pound) bluefish arrived pretty much on normal schedule (third week of May) and were caught from Montauk up into Peconic Bay. The abundance of menhaden and sand eels likely draws the bluefish up into the bays. Most of the catch is by gill net.

**NJ** – Strong recruitment events over the last few years. Larger sizes of fish are represented in the landings/catch. Fishermen have observed strong recruitment events as indicated in the data from the NEFSC. Continuing to see unusually large fish in the back bays. This year on the third week of May, commercial fishermen have been targeting bluefish in the Cape Cod area, which is early. Habits and movement are inconsistent and unusual compared to historical habits and ranges. (pattern of northern movement may be due to bait availability. But, the fish that are around are most often seen further offshore and to the north. Areas 614 and 615 were the older hot spots.

**NY** – In the past several years, commercial landings have been above the allocation to the state, and the state had to get transfers from states that do not land their entire bluefish quota. It seems the quota is exceeded almost every year by some amount and we expect it to be exceeded this year.

**NY** – Prefer status quo management from 2017 to 2018; bluefish are no longer as ubiquitous as they once were. It is important to focus concerns on the young of the year. (Provided post meeting via email.)

**NC** – Lots of big bluefish being targeted in May. These fish are potentially for bait or consumption markets, but occasionally were not iced down (at times ~400-500 lbs being deck loaded). Proper care of bluefish is very important!

**NJ** – Appreciate that quota transfers can happen but does not want to see fleets disabled due to loss of quota.

### **Market / Economic Issues**

**NY** – During the run of larger fish at the end of May, price dipped to \$0.20-0.25 per pound, but with the current runs of 3-pound fish the price seems to stay around \$0.50 - \$0.70 per pound.

**NC** – Recreationally, the for-hire sector has seen less large bluefish in the spring. On average, they see smaller fish than in the northeast. Bluefish are becoming increasingly important to the recreational fishery, especially to the for-hire sector due to the decrease in abundance of other nearshore available species. Ultimately, when the large run of big fish occurs, it is a very good thing for the bluefish fishery.

**NC/NJ/VA** – Bluefish fishing has been good and we depend on them a lot. The species is very important and will continue to be. We do not want to see bluefish used as crab bait or being

compared to menhaden and mullet as a bait species. The price of menhaden has made other species targets for bait (i.e. bluefish, shad, hickory shad). We do not want to see food fish used as bait.

**NY** – Bluefish are sometimes bycatch in trawls. It is better to get some use out of dead fish that cannot go to market. We would rather use them than waste them. Advisors agree, but do not want bluefish to be directly targeted for bait.

**NJ** - Occasionally, bluefish are selling for over \$1.00/lb. Over \$1.00 indicates market demand, but we want to be careful to not saturate the market.

### **Environmental Issues**

**NJ/NC** – Runs of large fish show up earlier and they stay around in the inlets which is different than the past.

**MD** – Fish are moving north from where they used to be relatively stationary. Many Chesapeake Bay stations are no longer valid since many bluefish seem to be further offshore. We observed this same pattern with bonito in the 80s.

### **Management Issues/Fishery Regulations**

**NY** –The stock is not overfished and overfishing is not occurring according to the last benchmark stock assessment. The quotas may be too cautious considering the size/abundance of the stock [Council’s Risk Policy is too strict]; the TAL is not caught up. New York commercial landings almost always exceeds the quota, so the New York quota should be increased to use up the TAL.

**MD/RI/NC/NY** – The current 15 fish bag limit was considered to be excessive. Few recreational fishermen are likely to keep more than 10 fish. AP members would like to see a reduction in the recreational bag limit. Reducing the bag limit (to 10 fish) will likely have minimal impacts on anglers, and would be more in line with state-specific bag limits

**NC** – Most recreational anglers do not keep a lot of bluefish. They throw back a mix of sizes depending on the individual. Need to protect the abundance in the fishery, this is very important for the viability of the recreational sector. In North Carolina there is a citation program (not a ticket) which allows anglers to fill out a form at a weigh station for bluefish they release. They can receive a certificate for large bluefish in the “release” category. This promotes catch-and-release fishing.

**NC** – While the commercial discards are considered to be insignificant in the assessment, there is some localized bycatch in some commercial fisheries (beach seine, different trawls, and ocean drop net and estuarine flounder net fisheries) and not zero. Additionally, the *commercial shrimp fishery* has become much larger and may lead to more bluefish discards in the commercial sector.

**NY** – We are unsure of the commercial discard rates, but they appear to still be very low. Gill netters use a certain size mesh to specifically target only market size bluefish.

NY/NC – Discard issues in the recreational fishery could be improved by implementing educational programs to minimize post-release fish mortality, to promote the phrase “catch what you are going to eat,” and to stress the use of single hook and circle hook gear (e.g., inline), and its benefits.

### **Research Issues**

The high recreational discards of bluefish (particularly small fish in MD/VA/NC) could be an issue. The Council and Commission should consider measures to address this especially if we continue to see the private recreational fishermen increase.

Investigate public stake holder perception of the recreational bluefish fishery in order to identify how the public would like this fishery to look like in years to come. Bluefish is an important recreational fishery and it is important to ask the recreational fishing community to investigate how they perceive this fishery in the future. Use for-hire log books to see what kind of data we can capture. We want to use that data to better understand where the fish are and how to characterize the recreational fishery. This could emerge into a good educational and outreach opportunity.

Need to better understand the dynamics between the inshore and offshore populations. More specifically, during the spring migration, there is another component of the stock that stays way offshore and does not appear to be the same as the fish taking part of the spring migration. This offshore component of the stock seems to miss the Mid-Atlantic Bight during the migration up north (towards Montauk). It is important to investigate this migration event in order to better understand the dynamics of the stock. What are the differences between the offshore and inshore bluefish populations?

Want to better understand what environmental or non-environmental factors bluefish cue in on? What is causing more species like bluefish to move out? Dredges? Sand mining? Mobile gear? Water quality?

### **Other Issues**

Biological characteristics of bluefish life history need to be considered when developing catch and landings limits recommendations for this species. There is evidence that as bluefish migrate along the coast during the spring and summer there may be multiple spawning events. With a species as productive as bluefish, that matures early, and has the potential for multiple spawning events increases the possibility for recruitment and availability for this species. Recent observations are leading fishermen to believe what we think we know may be incorrect. Management should be tailor made for typical or atypical life histories, depending on the species under consideration.



## Atlantic Bluefish Advisory Panel Information Document<sup>1</sup>

### June 2018

The information in this document provides a brief overview of the management system, biology, stock conditions, and fishery performance for Atlantic Bluefish with an emphasis on 2017, the most recent complete fishing year.

### **Management System**

The Mid-Atlantic Fishery Management Council (MAFMC) and the Atlantic States Marine Fisheries Commission (ASMFC) work cooperatively to develop fishery regulations for bluefish off the east coast of the United States. The Council and Commission work in conjunction with the National Marine Fisheries Service (NMFS), which serves as the federal implementation and enforcement entity. This cooperative management endeavor was developed because a significant portion of the catch is taken from both state waters (0-3 miles offshore) and federal waters (3-200 miles offshore, also known as the Exclusive Economic Zone or EEZ). The management unit for bluefish (*Pomatomus saltatrix*) is the U.S. waters in the western Atlantic Ocean.

The Bluefish Fishery Management Plan (FMP) was implemented in 1990 and established the Mid-Atlantic Fishery Management Council's (MAFMC) management authority over the fishery in federal waters. Amendment 1, implemented in 2000, addressed stock rebuilding and created the Bluefish Monitoring Committee which meets annually to make management measure recommendations to the Council. Amendment 3 incorporated the development of annual catch limits (ACLs) and accountability measures (AMs) into the specification process and Amendment 4 modified recreational accountability measures to accommodate uncertainty in recreational management and catch estimation. The original FMP and subsequent amendments and frameworks are available at: <http://www.mafmc.org/fisheries/fmp/bluefish>.

For bluefish, the annual catch target (ACT) is split 83 percent and 17 percent into recreational and commercial ACTs, respectively, and the discarded component of that catch is deducted to arrive at recreational and commercial total allowable landings (TAL). Additionally, landings above the expected recreational harvest can be "transferred" from the recreational to the commercial fishery as long as the final commercial quota does not exceed 10.5 million pounds.

The Council's Scientific and Statistical Committee (SSC) reviews assessment results and the Advisory Panel's fishery performance report, and determines the allowable biological catch (ABC) for the upcoming year. The Council's Bluefish Monitoring Committee develops and recommends

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<sup>1</sup> This document was prepared by the MAFMC staff. Data employed in the preparation of this document are from unpublished National Marine Fisheries Service (NMFS) Dealer, Vessel Trip Reports (VTRs), and Permit databases, unless otherwise noted.

specific coastwide management measures (commercial quota, recreational harvest limit) that will achieve the catch target and makes further adjustments to total catch as needed based on management uncertainty. Finally, the Council and Board meet jointly to develop recommendations to be submitted to the NMFS.

## **Bluefish Biology**

Bluefish are found worldwide in tropical and subtropical waters, but in the western North Atlantic range from Nova Scotia and Bermuda to Argentina. Bluefish travel in schools of like-sized individuals and undertake seasonal migrations, moving into the Middle Atlantic Bight (MAB) during spring and then south or farther offshore during fall. Within the MAB they occur in large bays and estuaries as well as across the entire continental shelf. Juvenile stages have been recorded in all estuaries within the MAB, but eggs and larvae occur in oceanic waters (Able and Fahay 1998). Growth rates are fast and they may reach a length of 3.5 ft and a weight of 27 pounds (Bigelow and Schroeder 1953). Bluefish live to age 12 and greater (Salerno et al. 2001).

Bluefish eat a wide variety of prey items. The species has been described by Bigelow and Schroeder (1953) as “perhaps the most ferocious and bloodthirsty fish in the sea, leaving in its wake a trail of dead and mangled mackerel, menhaden, herring, alewives, and other species on which it preys.”

Bluefish born in a given year (young of the year) typically fall into two distinct size classes suggesting that there are two spawning events along the east coast. Studies suggest, however, that spawning is a single, continuous event, but that young are lost from the middle portion resulting in the appearance of a split season (Smith et al. 1994). As a result of the bimodal size distribution, young are referred to as spring-spawned or summer-spawned. In the MAB, spring-spawned bluefish appear to be the dominant component of the stock.

## **Status of the Stock**

The bluefish benchmark stock assessment was peer reviewed in June 2015 and approved for use by management at SAW/SARC 60. This benchmark assessment uses a forward-projecting statistical catch-at-age model called ASAP (Age Structured Assessment Program). For the most recent benchmark, the catch-at-age matrices were completely reconstructed to incorporate new age data, including archived historical samples that had not been processed at the time the last benchmark (SAW/SARC 41; 2005) was conducted, and to correct aging errors in the earlier years of the time series (NEFSC 2015).

The biological reference points estimated in the previous benchmark assessment (SAW/SARC 41) were MSY reference points for  $F$  and total biomass ( $F_{MSY}$ ,  $B_{MSY}$ ). However, MSY reference points require a reliable stock-recruitment relationship. The stock-recruitment relationship for bluefish is poorly defined, due to the lack of information on recruitment at small stock sizes, with steepness estimated to be close to one for most model runs (NEFSC 2015). Therefore, in SAW/SARC 60, SPR-based (spawn per recruit) reference points were used as a proxy for MSY reference points.

Results from the most recent benchmark stock assessment indicate that the bluefish stock is not overfished and overfishing was not occurring in 2014 relative to the biological reference points (BRPs) from the 2015 SAW/SARC 60. Modeling results indicated that the estimated SSB was 190.77 million pounds (86,534 mt) in 2014 (85 percent of the accepted reference point  $SSB_{MSY}$  proxy =  $SSB_{35\%SPR}$  = 223.42 million pounds or 101,343 mt). Spawning stock biomass declined since the beginning of the time series, from a high of 340.90 million pounds (154,633 mt) in 1985 to a low of 116.34 million pounds (52,774 mt) in 1997, before increasing again. The stock spawning biomass average for the 1985-2014 time series is 175.15 million pounds (79,449 mt). Fully-selected fishing mortality in 2014 was estimated to be 0.157, below the F threshold ( $F_{MSY}$  proxy =  $F_{35\%SPR}$  = 0.19). Fully selected F peaked in 1987 at 0.477 and then declined gradually since then, with a time series average of 0.284.

### *Data Update*

The NEFSC developed a bluefish data update through 2017. The update contains recent trends in the bluefish fishery, including commercial and recreational landings, updated trawl survey index and updated MRIP index, discards, and length frequency distributions. In addition, eight fishery-independent indices were updated through 2017. Age-0+ fishery-independent indices included the NEFSC fall Bigelow trawl survey, the New Jersey ocean trawl survey, the Connecticut Long Island Sound trawl survey, the NEAMAP fall inshore trawl survey, and the North Carolina Pamlico Sound independent gillnet survey. Young-of-year indices included the SEAMAP fall trawl survey and a composite index developed from state seine indices from New Hampshire to Virginia. All indices except the NJ Trawl survey and Bigelow (no survey index for 2017) showed a decrease from 2016 values. The update is available via the Mid Atlantic Fisheries Management Council Website. For more information please visit: <http://www.mafmc.org/council-events/2018/joint-bluefish-ap-meeting>.

### **Fishery Performance Relative to Management Measures**

The recreational and commercial landings relative to specified management measures is provided in Table 1. Except for 2007, the bluefish fishery has never exceeded the TAL. In 2007, the recreational fishery exceeded the recreational harvest limit by about 2.69 million pounds, and although the commercial fishery underperformed by 1.18 million pounds, the combined landings (29.27 million pounds) were above the specified TAL (27.76 million pounds). In 2017, the recreational fishery landed 9.52 million pounds compared to the 9.65 million pounds RHL (a 0.13 million pound underage), and the commercial fishery landed 3.64 million pounds compared to the quota of 8.54 million pounds (a 4.9 million pounds underage). Combined landings for the recreational and commercial fisheries in 2017 (13.16 million pounds) resulted in an underage of 5.03 million pounds when compared to the TAL (18.19 million pounds). As of May 23, 2018, 0.55 million pounds of bluefish had been landed by the commercial fishery; this represents 8 percent of the 2018 commercial quota (7.24 million pounds). Commercial fishery landings in 2018 are behind the 2017 landings (Figure 1; as of May 23, 2018).

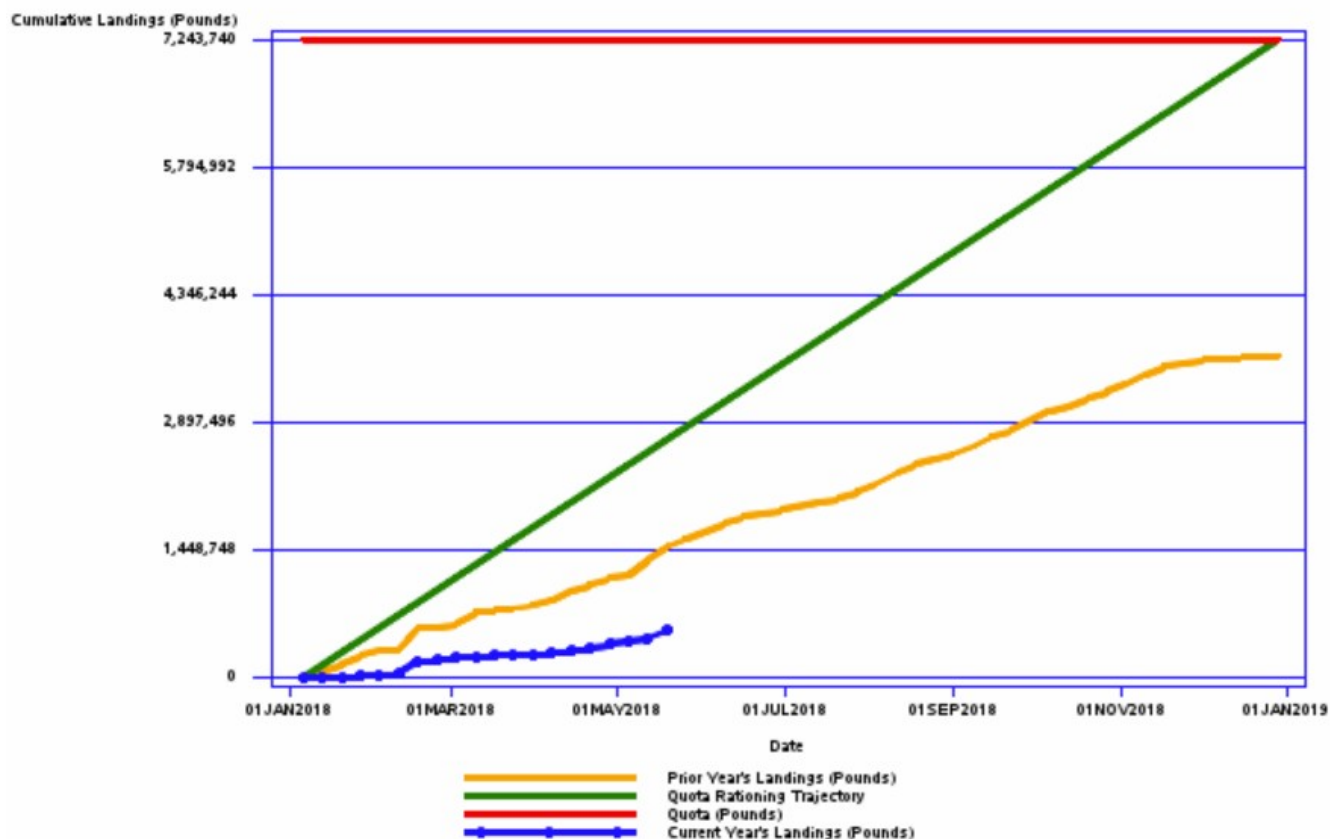
**Table 1. Summary of bluefish management measures, 2000 – 2018 (Values are in million pounds).**

Management Measures	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
TAC <sup>1</sup> / ABC <sup>2</sup>	n/a	n/a	29.1	39.5	34.22	34.22	29.15	32.03	31.89	34.08	34.38	31.74	<b>32.04</b>	<b>27.47</b>	<b>24.43</b>	<b>21.54</b>	<b>19.45</b>	<b>20.64</b>	<b>21.81</b>
TAL <sup>3</sup>	35.33	37.84	26.87	37.29	31.85	30.85	24.8	27.76	28.16	29.36	29.26	27.29	28.27	23.86	21.08	18.19	16.46	18.19	18.82
Comm. Quota <sup>4</sup>	9.58	9.58	10.5	10.5	10.5	10.5	8.08	8.69	7.71	9.83	10.21	9.38	10.32	9.08	7.46	5.24	4.88	8.54	7.24
Comm. Landings <sup>5</sup>	8.05	8.7	6.88	7.41	8.06	7.04	6.98	7.51	6.12	7.1	7.55	5.61	4.66	4.12	4.77	4.02	4.1	3.64	-
Rec. Harvest Limit <sup>4</sup>	25.75	28.26	16.37	26.79	21.35	20.35	16.72	19.07	20.45	19.53	18.63	17.81	17.46	14.07	13.62	12.95	11.58	9.65	11.58
Rec. Landings <sup>6</sup>	10.61	13.23	11.37	13.14	17.32	19.86	16.65	21.76	19.79	14.47	16.34	11.5	11.84	16.46	10.46	11.67	9.54	9.52	-
Rec. Possession Limit (# fish)	10	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Total Landings	18.66	21.93	18.25	20.55	25.38	26.9	23.63	29.27	25.91	21.57	23.89	17.11	16.5	20.58	15.23	15.69	13.64	13.16	-
Overage/Underage	-16.67	-15.91	-8.62	-16.74	-6.47	-3.95	-1.17	1.51	-2.25	-7.79	-5.37	-10.18	-11.77	-3.28	-5.85	-2.5	-2.82	-5.03	-
Total Catch <sup>7</sup>	22.35	26.02	21.44	23.48	29.71	31.55	28.08	35.12	31.83	25.10	27.93	20.39	19.26	24.06	17.96	18.65	16.09	15.65	-
Overage/Underage	n/a	n/a	-7.66	-16.02	-4.51	-2.67	-1.07	3.09	-0.06	-8.98	-6.45	-11.35	-12.78	-3.41	-6.47	-2.89	-3.36	4.99	-

<sup>1</sup> Through 2011. <sup>2</sup> 2012 fwd. <sup>3</sup> Not adjusted for RSA. <sup>4</sup> Adjusted downward for RSA. <sup>5</sup> Dealer and South Atlantic Canvass data used to generate values from 2000-2011; Dealer data used to generate values from 2012-2014. <sup>6</sup> MRIP. <sup>7</sup> Recreational discards were calculated assuming MRIP mean weight of fish landed or harvested.



## Atlantic Bluefish Quota Monitoring Report



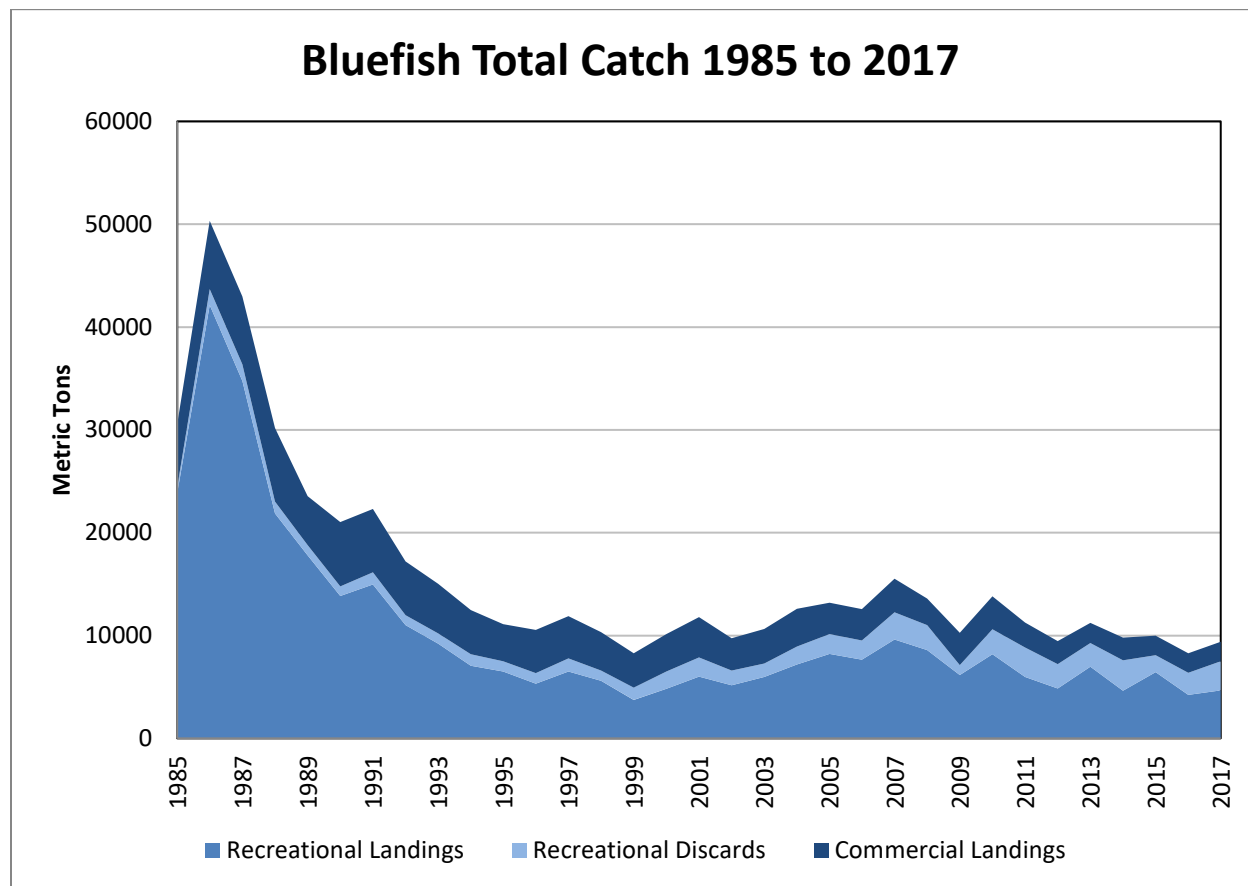
**Figure 1. Atlantic bluefish commercial landings for 2018 fishing year to date (through May 23, 2018).** [http://www.nero.noaa.gov/ro/fso/reports/reports\\_frame.htm](http://www.nero.noaa.gov/ro/fso/reports/reports_frame.htm).

### *Landings History*

Bluefish catches were estimated via the Marine Recreational Fisheries Statistic Survey (MRFSS) starting in 1981 through 2003. Recreational data for years 2004 and later are available from the Marine Recreational Information Program (MRIP), the data collection that followed MRFSS.

From the early 1980s to the early 1990s, recreational landings declined by factor of about 70% (avg. 1981-1983 = 89.14 million pounds; avg. 1991-1993 = 25.85 million pounds). Recreational landings continued to decline at a somewhat slower rate until reaching their lowest level at 8.25 million pounds in 1999, but since have grown to a peak of 21.70 million pounds in 2007. There has been an overall decline of approximately 10 million pounds in recreational landings since 2007 to 11.50 and 11.84 million pounds in 2011 and 2012, respectively. According to MRIP, recreational landings increased to 16.46 million pounds in 2013 and decreased to 10.46 million pounds in 2014 even though total catch in numbers was stable. For 2016, recreational landings were estimated at 9.54 million pounds while 2017 landings were estimated at 9.52 million pounds. Recreational discards have increased from about 10% of the catch in the 1980s to much more than 20% of the catch in the early 2000s.

Commercial landings have been relatively stable throughout the landings history (Figure 2). Commercial discards are treated as insignificant and are not estimated in the current assessment.



**Figure 2. Bluefish catch (landings and discards), 1985-2017. (Source: Anthony Wood, Personal Communication 2018)**

*Recreational Fishery*

Trends in recreational trips associated with targeting or harvesting bluefish from 1991 to 2016 are provided in Table 2. The lowest annual estimate of bluefish trips was 1.64 million trips in 2017. The highest annual estimate of bluefish trips in this timeframe was 5.95 million trips in 1991. For the last 5 years (2013-2017), bluefish trips have ranged from 1.64 million trips in 2017 to 2.40 million trips in 2014. Relative to total angler effort in 2017, bluefish were the primary target or harvested in 5.2 percent of all recreational angler trips.

**Table 2. Number of bluefish recreational fishing trips, recreational harvest limit, and recreational landings from 1991 to 2017.**

<b>Year</b>	<b>Number of bluefish trips<sup>a</sup></b>	<b>Recreational landings (N)</b>	<b>Recreational landings per “bluefish” trip</b>
1991	5,948,808	11,942,608	2.0
1992	4,549,536	7,157,754	1.6
1993	4,269,162	5,725,355	1.3
1994	3,587,131	5,767,953	1.6
1995	3,608,325	5,167,979	1.4
1996	2,820,059	4,205,103	1.5
1997	2,384,133	5,413,036	2.3
1998	2,180,471	4,202,111	1.9
1999	1,727,175	3,681,841	2.1
2000	2,041,450	4,897,008	2.4
2001	2,661,032	6,663,237	2.5
2002	2,324,253	5,300,189	2.3
2003	2,647,840	6,045,062	2.3
2004	2,901,956	7,250,407	2.5
2005	3,240,410	7,949,179	2.5
2006	2,800,204	7,035,179	2.5
2007	3,620,374	8,373,899	2.3
2008	3,024,787	6,664,150	2.2
2009	2,088,857	5,194,242	2.5
2010	2,468,273	6,090,830	2.5
2011	2,128,166	5,061,391	2.4
2012	2,394,988	5,523,282	2.3
2013	1,811,087	5,743,970	3.2
2014	2,401,822	5,875,773	2.4
2015	1,710,020	3,996,803	2.3
2016	2,166,975	4,301,220	2.0
2017	1,638,890	3,013,668	1.8

<sup>a</sup> Estimated number of recreational fishing trips where the primary target was bluefish or bluefish were harvested regardless of target, Maine – Florida's East Coast. Source: MRFSS (1991-2003)/MRIP (2004 forward).

### Recreational Landings by State

Recreational catch and landings by state for 2017 are provided in Table 3. The greatest overall catches (includes discards) were in New Jersey with 2.62 million fish, North Carolina with 1.44 million fish, New York with 1.26 million fish, and Connecticut with 0.9 million fish.

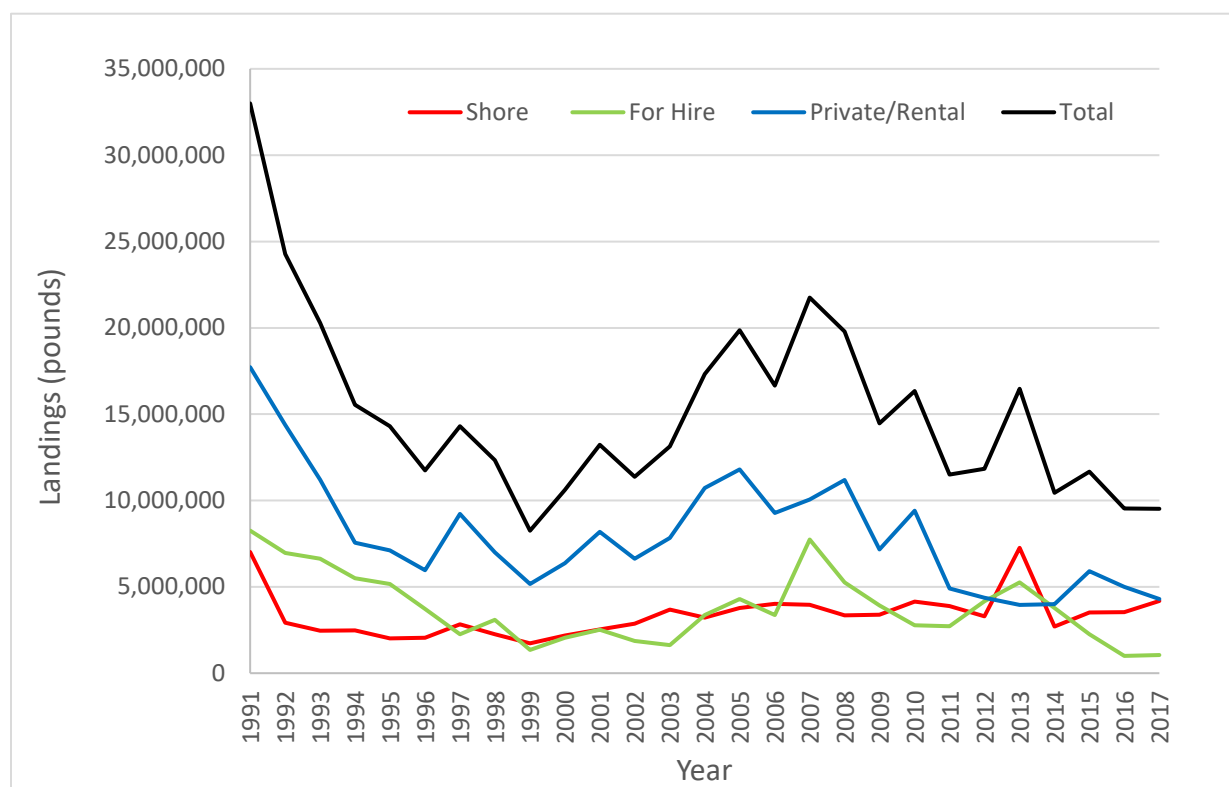
The greatest harvest (retained catch) of bluefish by weight occurred in New Jersey with 3.37 million pounds, followed by Florida (1.58 million pounds), New York (1.32 million pounds), and Delaware (0.77 million pounds). According to MRIP only 5 and 0 bluefish were caught in Maine and New Hampshire, respectively. Average weights, based on dividing MRIP landings in weight by landings in number for each state, suggest that bluefish size tends to increase toward the north along the Atlantic coast.

**Table 3. MRIP estimates of 2017 recreational harvest and total catch for bluefish.**

State	Harvest			Catch
	Pounds of fish	Number of fish	Average wt of fish (pounds)	Number of fish
ME	69	5	13.8	5
NH	0	0	0	0
MA	619,746	153,751	4.0	263,314
RI	337,710	129,159	2.6	199,104
CT	597,122	240,358	2.5	913,042
NY	1,321,368	488,433	2.7	1,262,686
NJ	3,365,738	878,465	3.8	2,615,586
DE	770,820	109,280	7.1	277,754
MD	109,424	61,381	1.8	136,509
VA	45,055	48,390	0.9	152,531
NC	690,018	524,072	1.3	1,436,765
SC	84,593	107,285	0.8	405,127
GA	1,184	1,343	0.9	11,584
FL (East Coast)	1,576,897	271,744	5.8	593,526
Total	9,519,744	3,013,666	3.2	8,267,533

### Recreational Landings by Mode

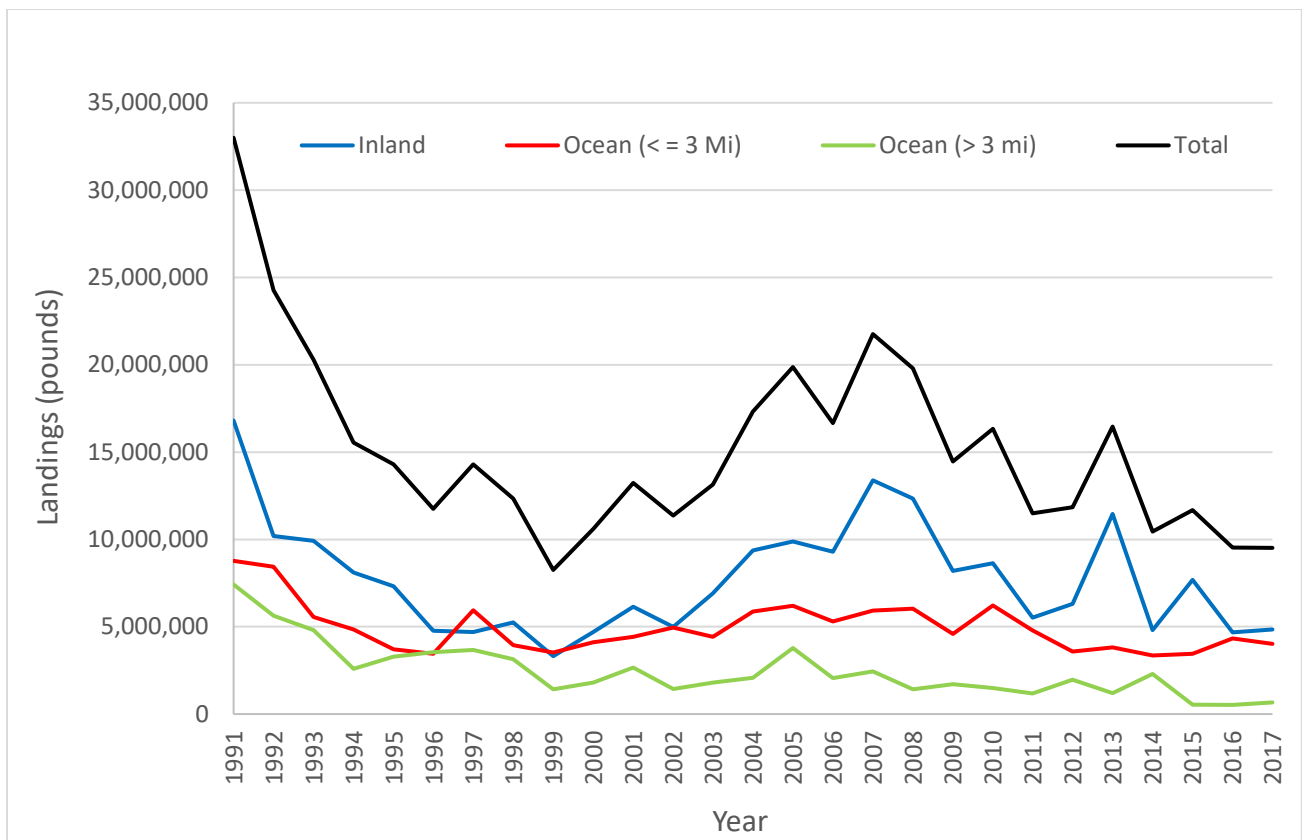
Figure 3 reflects MRFSS/MRIP-based estimates of landings by mode (1991 through 2017) and indicates that the recent primary landing modes for bluefish are private boats and shore mode. About 45 percent of the landings of bluefish on a coastwide basis came from private/rental boats, followed by shore (44 percent) for the 1991 to 2017 period. For-hire mode is only about 11 percent of the total landings. For the last five years (2013-2017), 40 percent of the total bluefish landings came from private/rental boats, 37 percent from shore mode, and 23 percent from for-hire boats.



**Figure 3. Bluefish landings (pounds) by recreational fishermen by mode, Atlantic Coast, 1991-2017.**

### Recreational Landings by Area

MRIP classifies catch into three fishing areas, inland, nearshore ocean (< 3 mi), and offshore ocean (> 3 mi). In 2017, about 51 percent of the landings of bluefish on a coastwide basis came from inland waters, followed by nearshore ocean (42 percent) (Figure 4). Offshore ocean is only about 7 percent of the total landings. Over the last five years (2013-2017), 51% of the total bluefish landings came from inland waters, 33% from nearshore ocean, and 9% from offshore ocean.



**Figure 4. Bluefish landings (pounds) by recreational catch by area, Atlantic Coast, 1991-2017.**

### *Commercial Fishery*

#### Vessel and Dealer Activity

Federal permit data indicate that 2,510 commercial bluefish permits were issued in 2017.<sup>2</sup> A subset of federally-permitted vessels was active in 2017 with dealer reports identifying 611 vessels with commercial bluefish permits that actually landed bluefish. Of the 397 federally-permitted bluefish dealers in 2017, there were 158 dealers who actually bought bluefish.

#### Landings by Gear

Dealer data for 2017 indicate that the bulk of the bluefish landings were taken by gillnet (47 percent), followed by unknown gear (29 percent), handline (7 percent), otter trawl, bottom fish (10 percent), and pound net (4 percent).

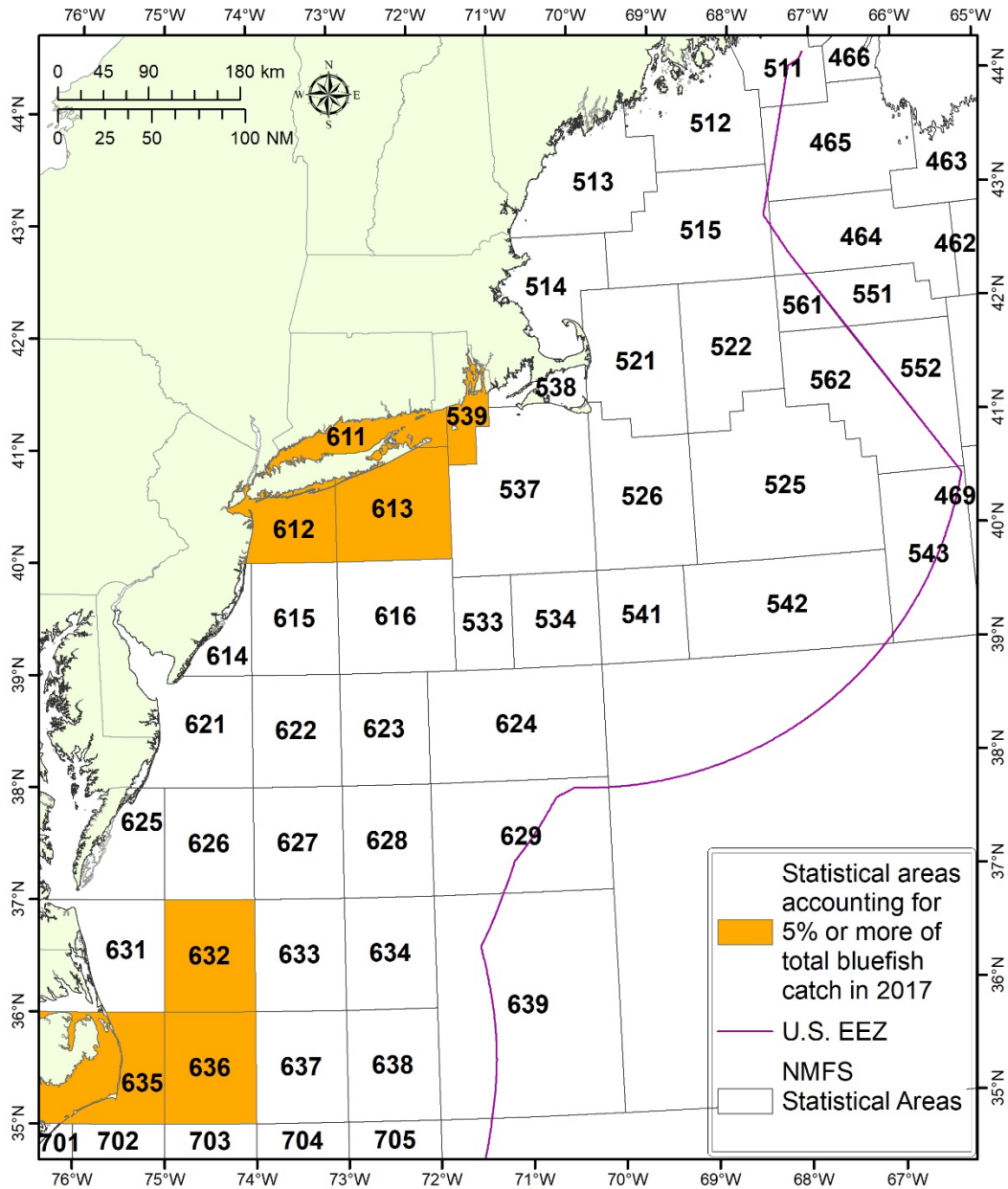
<sup>2</sup>In addition, there were 897 party/charter bluefish permit issued in 2017. A subset of federally-permitted party/charter vessels was active in 2017 with VTR reports identifying 261 vessels with party/charter bluefish permits that actually landed bluefish.

## Landings by Area

VTR data were also used to identify all NMFS statistical areas that accounted for 5 percent or more of the Atlantic bluefish catch or areas which individually accounted for 5 percent or greater of the trips which caught bluefish in 2017 (Table 4). Eight statistical areas accounted for approximately 86 percent of the VTR-reported catch in 2017. Statistical area 539 was responsible for the highest percentage of the catch, with statistical area 611 having the majority of trips that caught bluefish (Table 4). A map of the statistical areas that accounted for 5 percent or more of the Atlantic bluefish catch is shown in Figure 5.

**Table 4. Statistical areas that accounted for at least 5 percent of the total Atlantic bluefish or 5 percent or greater of the trips which caught bluefish in 2017, with associated number of trips.**

<b>Statistical area</b>	<b>Pounds of bluefish caught</b>	<b>Percent of 2017 commercial bluefish catch</b>	<b>Number of trips</b>	<b>Percent of 2017 commercial bluefish trips that caught bluefish</b>
539	351,538	20%	1166	18%
632	270,358	16%	33	1%
636	261,872	15%	79	1%
611	199,630	11%	1915	30%
612	186,976	11%	363	6%
613	95,171	5%	822	13%
635	88,410	5%	127	2%
537	58,425	3%	589	9%



**Figure 5. NMFS Statistical Areas, highlighting those that each accounted for 5% or more of the commercial bluefish catch in 2017.**

The top commercial landings ports for bluefish in 2017 are shown in Table 5. Nine ports qualified as "top bluefish ports," i.e., those ports where 100,000 pounds or more of bluefish were landed. Wanchese, NC was the most important commercial bluefish port with over 700,000 pounds landed. The ports and communities that are dependent on bluefish are described in Amendment 1 to the FMP (available at <http://www.mafmc.org/fisheries/fmp/bluefish>). Additional information on "Community Profiles for the Northeast US Fisheries" can be found at [http://www.nefsc.noaa.gov/read/socialsci/community\\_profiles/](http://www.nefsc.noaa.gov/read/socialsci/community_profiles/).



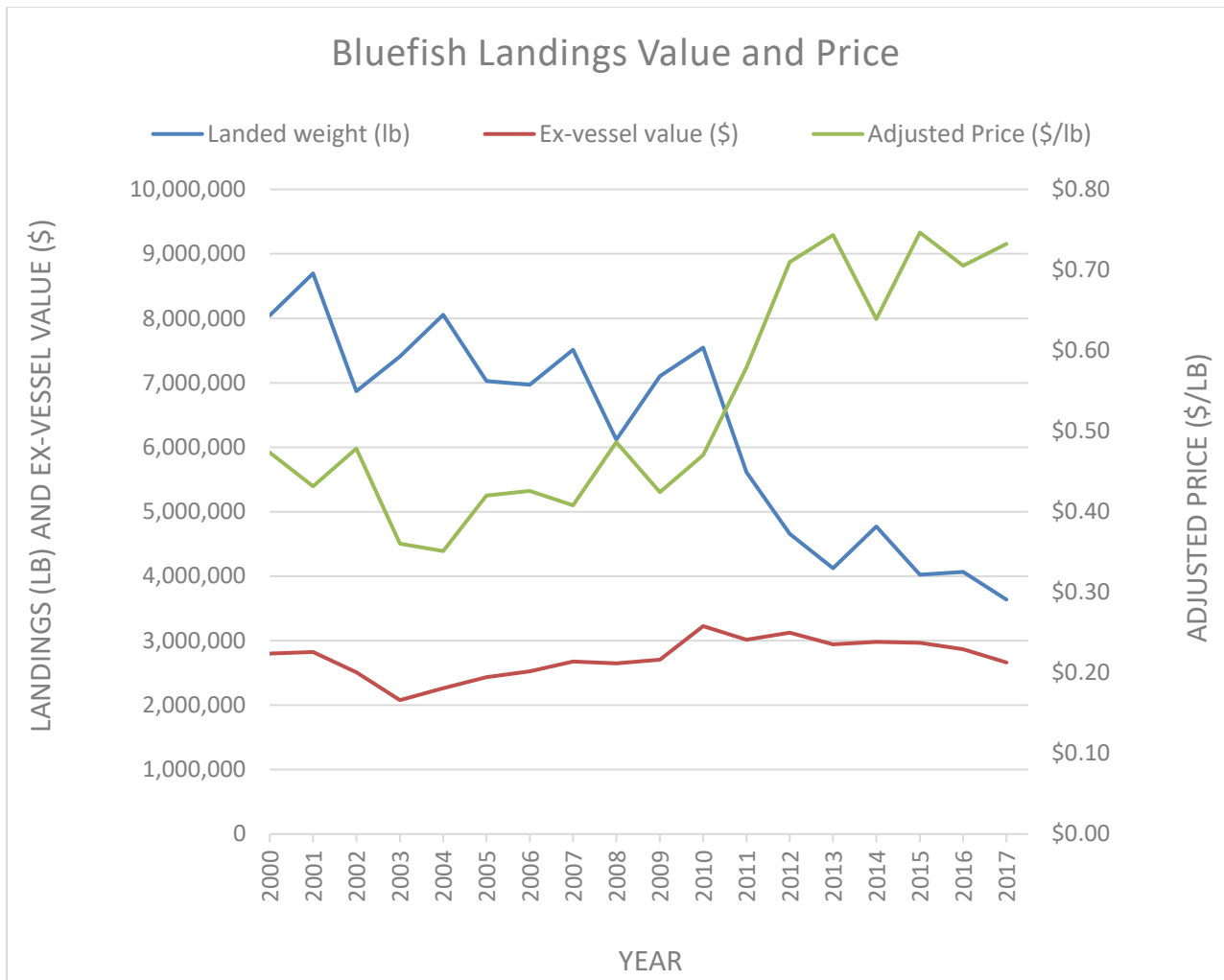
**Table 5. Top ports of bluefish landings (in pounds), based on NMFS 2017 dealer data.**

<b>Port<sup>a</sup></b>	<b>Pounds</b>	<b>% of total commercial bluefish landings</b>	<b># vessels</b>
Wanchese, NC	725,364	20%	36
Point Judith, RI	401,213	11%	122
Montauk, NY	331,895	9%	100
Hatteras, NC	302,256	8%	12
Little Compton, RI	202,097	6%	9
Point Pleasant, NJ	144,235	4%	29
Belford, NJ	123,619	3%	18
Engelhard, NC	114,913	3%	6
Greenport, NY	104,446	3%	1

<sup>a</sup> Since this table includes only the “top ports” (ports where landings of bluefish were > 100,000 pounds), it does not include all of the landings for the year.

### Revenue

According to Dealer data, commercial vessels landed about 3.64 million pounds of bluefish valued at approximately \$2.66 million in 2017. Average coastwide ex-vessel price of bluefish was \$0.73 per pound in 2017, a 2% increase from the previous year (2016 price = \$0.71 per pound). The relative value of bluefish is very low among commercially landed species, less than 1% of the total value, respectively of all finfish and shellfish landed along the U.S. Atlantic coast in 2017. A time series of bluefish revenue and price is provided in Figure 6.



**Figure 6. Landings, ex-vessel value, and price (adjusted to 2016 real dollars) for bluefish, 2000-2017.**

Bycatch

The commercial fishery for bluefish is primarily prosecuted with gillnets and handlines, although there are other small localized fisheries, such as the beach seine fishery that operates along the Outer Banks of North Carolina that also catch bluefish. Many of these fisheries do not fish exclusively for bluefish, but target a combination of species including croaker, mullet, Spanish mackerel, spot, striped bass, and weakfish. Given the mixed-species nature of the bluefish fishery, incidental catch of non-target species is not directly attributable to the bluefish fishery.

## References

Able, K.W. and M.P. Fahay. 1998. The first year in the life of estuarine fishes in the Middle Atlantic Bight. Rutgers University Press, New Brunswick, NJ. 342 p.

Bigelow, H.B. and W.C. Schroeder. 1953. Fishes of the Gulf of Maine. U.S. Fish Wildl. Serv., Fish. Bull. 53. 577 p.

Salerno, D.J., J. Burnett, and R.M. Ibara. 2001. Age, growth, maturity and spatial distribution of bluefish, *Pomatomus saltatrix* (Linnaeus), off the northeast coast of the United States, 1985-96. J. Northwest Atl. Fish. Sci., 29: 31-39.

Smith, W., P. Berrien, and T. Potthoff. 1994. Spawning patterns of bluefish, *Pomatomus saltatrix*, in the northeast continental shelf ecosystem. Bull. Mar. Sci. 54(1): 8-16.

NEFSC (Northeast Fisheries Science Center). 2015. 60th Northeast Regional Stock Assessment Workshop (60th SAW) Assessment Report. NEFSC Reference Document 15-08; 870 pp.

Wood, T. 2014. Bluefish 2014 Stock Assessment Update Data and Model Update Through 2013. Coastal/Pelagic Working Group, Northeast Fisheries Science Center, National Marine Fisheries Service, Woods Hole, MA. 37 p.

Wood, A. 2017. Personal communication. Atlantic bluefish assessment lead. NMFS/NEFSC/READ/PDB. Woods Hole, MA.



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## MEMORANDUM

**Date:** August 1, 2018  
**To:** Council  
**From:** Matthew Seeley, Staff  
**Subject:** August 2018 briefing materials on scoping comments regarding the bluefish allocation amendment

The Mid-Atlantic Fishery Management Council and the Atlantic States Marine Fisheries Commission have proposed to develop a Bluefish Allocation Amendment. This amendment was initiated in order to review/revise the FMP goals and objectives, commercial/recreational allocations, commercial allocations to the states, the quota transfer processes, and any other issues. Additional information and amendment documents are available at:

<http://www.mafmc.org/actions/bluefish-allocation-amendment>.

The scoping process commenced from publication in the Federal Register on June 6, 2018 and continued through July 30, 2018. Scoping is the process of identifying issues, potential impacts, and reasonable alternatives associated with a particular management issue. It provides the first and best opportunity for the public to make suggestions or to raise issues and concerns before development of an amendment begins. No alternatives are set during the scoping process.

Twelve public scoping hearings were held from Massachusetts through North Carolina and were attended by approximately 114 people. Of the 114 people, 53 individuals provided a total of 120 comments representing individuals and organizations from almost all states that had a hearing. The greatest representation was from New Jersey (primarily from those with recreational fishery interests) and New York (primarily from those with for-hire and commercial fishery interests). In addition, a total of 36 written comments were received via email (33), hand delivered (2), or mail (1).

This document summarizes the major themes of written and hearing comments and offers staff recommendations on issues to be included in the amendment for further development. **The scoping comment summary is accessible at this link:** [http://www.mafmc.org/s/BF-scoping-comment-summary\\_v2.pdf](http://www.mafmc.org/s/BF-scoping-comment-summary_v2.pdf) and provides additional information such as detailed scoping hearing summaries and copies of all the received written comments.

**Table 1: Summary of major written comment themes, and number received. Since most commenters addressed multiple issues, numbers do not add to total number of submitted written comments.**

<b>Issue</b>	<b>Number of written comments received</b>	<b>Number of hearing comments received</b>
<b>FMP Goals and Objectives</b>		
Supports status quo	1	3
Goals and objectives should be re-evaluated and/or revised	2	0
Supports maintaining one or more of the current objectives	0	1
<b>Commercial/Recreational Allocation</b>		
Supports status quo	19	31
Increase commercial allocation	0	2
Decrease commercial allocation	1	0
Increase recreational allocation	0	0
Decrease recreational allocation	0	1
Update data for reallocation	1	6
<b>Commercial Allocations to the States</b>		
Supports status quo	3	14
Alter commercial allocations to the states	4	7
<b>Quota Transfer Processes</b>		
Supports status quo transfer from recreational to commercial sector	5	24
Do not allow transfer from recreational to commercial sector	6	0
Supports status quo state-to-state transfers	2	0
Do not allow state-to-state transfers	0	1
Do not allow any transfers	1	1
New transfer suggestion	1	1
<b>Other Issues</b>		
Status quo bag limit	0	5
Increase bag limit	0	4
Decrease bag limit	4	19
Other	10	0

*Staff Recommendations on issues to be further developed/addressed in an Amendment*

Staff recommend the further development of issues 1-4 for alternatives in the amendment. Several issues brought up during scoping can be addressed through other processes, as described below.

**Issue 1:** Update the Fishery Management Plan (FMP) goals and objectives

- Comments mainly supported status quo, but some commenters supported updating the goals and objectives to include language related to recreational management maximizing abundance over landings and considering the economic/intrinsic value of bluefish within the recreational fishery.

**Issue 2:** Update commercial and recreational allocations

- Comments mainly supported status quo, but many individuals want to see updated data indices/Marine Recreational Information Program (MRIP) estimates. Staff recommend that revised recreational data be considered to determine whether allocation revisions are warranted.

**Issue 3:** Update state allocations

- The majority of comments supported status quo, but a significant percentage of individuals want to see the commercial allocations to the states updated (with new data and based on more recent landings percentages).

**Issue 4:** Revise processes related to commercial state-to-state transfers and transfers from the recreational to commercial fishery

- Few specific comments related to commercial state-to-state transfers, but many individuals suggested they did not oppose the opportunity to transfer. Commenters advocated that having the option to request quota can always benefit states in need if other states are willing and able to transfer.
- Comments mainly supported status quo on transferring quota from the recreational to commercial sector, but some support revisions.
  - For-hire fishermen often were not opposed to transferring quota to the commercial sector as long as the recreational sector was not anticipated to meet their quota.
  - Private recreational anglers were often not in favor of transferring quota to the commercial sector as they want their released fish to stay in the water and contribute to future populations. They find it counter intuitive to release fish and then have the quota transferred anyway.
  - Commercial fishermen that offered comments were almost always in favor of this transfer.

**Issue 5:** Other issues (to be addressed through other processes)

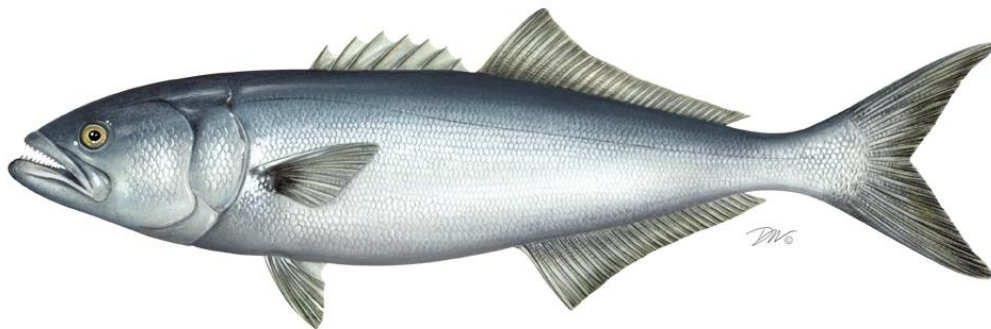
- Update all data and indices with new MRIP estimates.
  - This will be addressed through the operational assessment in 2019 and a future benchmark assessment.
- Review/revise the 15-fish federal bag limit.

- Bag limits are addressed by the Monitoring Committee when setting specifications.
- Recreational management should focus on maximizing abundance over landings.
  - Could be addressed through future goals and objectives.
- Research efforts should be dedicated to identify shifts in bluefish habitat and abundance.
  - This research recommendation can be reviewed by the Council and Scientific and Statistical Committee for potential incorporation into the Council's 5-year research plan.
- Offer consideration to the economic and intrinsic value of bluefish to the recreational fishery.
  - Could be addressed through future goals and objectives.
- Pending analyses and MRIP updates, the recreational sector needs to be accountable for overages.
  - New MRIP estimates will not be able to be compared to old recreational harvest limits.
  - In the future, should the recreational sector exceed their limits, the fishery will be subject to accountability measures detailed in the FMP.

**2018 REVIEW OF THE  
ATLANTIC STATES MARINE FISHERIES COMMISSION  
FISHERY MANAGEMENT PLAN FOR**

**BLUEFISH  
(*Pomatomus saltatrix*)**

**2017 FISHING YEAR**



Prepared By: Jessica Kuesel (ASMFC)

Bluefish Plan Review Team:

Caitlin Starks, ASMFC, Chair

Wilson Laney, U.S. Fish and Wildlife Service

Michael Celestino, New Jersey Department of Environmental Protection

Julia Livermore, Rhode Island Department of Environmental Management



## Executive Summary

Bluefish from Maine through Florida are jointly managed by the Mid-Atlantic Fishery Management Council and the Atlantic States Marine Fisheries Commission under Amendment 1 and Addendum I to the interstate Fishery Management Plan.

A benchmark stock assessment was peer reviewed by the 60<sup>th</sup> Stock Assessment Review Committee in June 2015. The benchmark assessment was approved by the Management Board and Council for management use. The benchmark assessment concluded that the U.S. bluefish population is not overfished and overfishing is not occurring relative to the new biological reference points defined in the assessment. An assessment data update is scheduled for 2018 and an operational assessment may be completed in 2019.

2017 recreational bluefish harvest was estimated at 3.01 million fish weighing 9.52 million pounds. Recreational dead discards were estimated at 788,080 million fish. 2017 commercial bluefish landings were estimated at 4.13 million pounds. Each sector harvested under its respective harvest limit and quota. Rhode Island requested and received three commercial transfers in 2017.

In 2017, all states implemented management programs consistent with the intent of Amendment 1 and Addendum I to the ISFMP. Maine, South Carolina and Georgia requested *de minimis* status for 2018. Maine, South Carolina, and Georgia all qualify for *de minimis* status because their commercial landings in 2017 were less than 0.1% of the coastwide commercial landings estimate.

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## **2017 REVIEW OF THE ASMFC FISHERY MANAGEMENT PLAN FOR BLUEFISH (*Pomatomus saltatrix*)**

### **I. Status of the Fishery Management Plan**

<u>Date of FMP Approval:</u>	1989
<u>Amendments:</u>	Amendment 1 (1998); Addendum I (2012)
<u>Management Unit:</u>	Migratory stocks of bluefish in U.S. state and federal waters of the western North Atlantic
<u>States with Declared Interest:</u>	Maine through Florida, excluding Pennsylvania and the District of Columbia
<u>Active Committees:</u>	ASMFC: Bluefish Management Board, Technical Committee, Advisory Panel, Plan Review Team, and Stock Assessment Subcommittee MAFMC: Demersal and Coastal Migratory Species Committee, Monitoring Committee, Advisory Panel, and Scientific and Statistical Committee

The Fishery Management Plan (FMP) for bluefish was adopted by the Atlantic States Marine Fisheries Commission (ASMFC or Commission) and the Mid-Atlantic Fishery Management Council (MAFMC) in October 1989. It was the first FMP developed jointly by an interstate commission and a federal fishery management council.

Bluefish is currently managed under Amendment 1 to the FMP approved in October 1998 and implemented in 2000. The goal of the Amendment is to conserve the bluefish resource along the Atlantic coast, specifically to:

1. Increase understanding of the stock and fishery
2. Provide highest availability of bluefish to U.S. fishermen while maintaining, within limits, traditional uses of bluefish
3. Provide for cooperation among the coastal states, the various regional marine fishery management councils, and federal agencies involved along the coast to enhance the management of bluefish throughout its range
4. Promote compatible management regulations between State and Federal jurisdictions
5. Prevent recruitment overfishing
6. Reduce the waste in both the commercial and recreational fisheries.

States and jurisdictions with a declared interest in the bluefish FMP include all ASMFC member states and jurisdictions, with the exception of Pennsylvania and the District of Columbia. Management issues are addressed jointly through the ASMFC Bluefish Management Board (Board) and the MAFMC Demersal and Coastal Migratory Species Committee (Council). The MAFMC's Bluefish Technical Monitoring Committee (MC) conducts annual plan monitoring,

which is reviewed jointly by the Council's and Board's Bluefish Advisory Panels (AP), and all committee recommendations are then provided to the Board and Council for review. A working group comprised of members from the Commission's Bluefish Stock Assessment Subcommittee (SAS), the Commission's Bluefish Technical Committee (TC), and the MC addresses stock assessment matters. The Board may implement changes to the FMP in state waters through the adaptive management process. The TC, Plan Review Team (PRT), Plan Development Team (PDT), and AP provide technical and industry advice to the Board throughout the adaptive management process.

In February 2012, the Board approved Addendum I to Amendment 1 to the Bluefish FMP. The Addendum establishes a coastwide biological monitoring program to improve the quantity and quality of information available for use in bluefish stock assessments. A summary of these findings from the most recent year are found in Section V.

### Annual Fishery Specifications

Commercial and recreational bluefish harvests are managed via sector-specific landings limits (i.e., a coastwide commercial fishery quota and a recreational harvest limit, or RHL). The Council's Scientific and Statistical Committee (SSC) and Bluefish MC annually review the best available information and make fishery specification recommendations to the Council and Board for the subsequent fishing year. Recommendations include commercial quota, RHL, research set-aside (RSA), and other management measures such as minimum size limits and bag limits. The Council and Board meet jointly (typically in August) to consider the SSC's and MC's fishery specification recommendations and formalize commercial and recreational catch limits, and other management measures.

Annual fishery specification recommendations are typically developed as follows: final commercial quota and RHL recommendations are derived from an annual catch limit (ACL), which the FMP defines as equal to the allowable biological catch (ABC), and is in turn equal to or less than an overfishing limit (OFL). After accounting for management uncertainty, 17% of the ACL is allocated to the commercial sector and 83% to the recreational sector; these are the commercial and recreational annual catch targets (ACTs). Discard estimates are deducted from ACTs to derive commercial and recreational total allowable landings (TALs). If the recreational fishery is not projected to land its TAL (by comparison of the recreational landings estimate from the previous year), then quota may be transferred from the recreational to the commercial sector, not to exceed a commercial quota of 10.5 million pounds (the average commercial landings during the period 1990-1997). The final commercial quota is then allocated to the states of Maine through Florida based on average commercial landings during 1981-1989. The state-specific shares are detailed in Table 5.

## **II. Status of the Stock**

The 2015 benchmark stock assessment for bluefish was peer reviewed at the 60<sup>th</sup> SAW/SARC and was approved by the Board and Council for management use. The biological reference points from SARC 41 were based on maximum sustainable yield (MSY). MSY reference points

require a reliable stock-recruitment relationship and the 2015 SAS determined that this relationship is poorly defined for bluefish. Therefore, for SAW 60, spawning potential ratio (SPR) reference points were used as a proxy for MSY reference points.  $F_{40\%SPR}$  was selected at SAW 60 as the  $F_{MSY}$  proxy for the overfishing threshold. This threshold was modified by the SSC to  $F_{35\%SPR}$ , noting that  $F_{40\%SPR}$  might be inappropriate for bluefish, a highly productive species. The biomass target ( $SSB_{MSY}$  proxy) was established by projecting the population forward until an equilibrium spawning stock biomass was reached (NEFSC 2015).

The results of the 2015 benchmark assessment indicate that bluefish are not overfished and overfishing is not occurring. Spawning stock biomass (SSB) in 2014 (Figure 1) was estimated at 191 million pounds which is below the SSB target (223 million pounds) but above the SSB threshold (112 million pounds). Although variable across the time series, recruitment (age-0 fish) has increased from 16.74 million fish in 2012 to 29.61 million fish in 2014 (Figure 1). Fishing mortality (F) in 2014 (Figure 2) was estimated to be 0.16 which is below the F threshold ( $F_{35\%SPR}=0.19$ ). It is anticipated that an operational assessment<sup>1</sup> will be completed in 2019 using the recalibrated MRIP estimates for recreational metrics.

### III. Status of the Fishery

From 1985-2017, recreational catch (harvest plus fish caught and released) of bluefish in U.S. waters of the Atlantic coast averaged 16.6 million fish annually (Table 1 and Figure 3)<sup>2</sup>. In 2017, recreational catch was estimated at 8.7 million fish which is a 33% decrease relative to 2016. In 2017, recreational anglers harvested an estimated 3.01 million fish weighing 9.52 million pounds (4,318 metric tons), equating to 98.6% of the 2017 RHL of 9.65 million pounds (Table 1, Table 2, and Figure 4). This represents a decrease relative to 2016 harvest in terms of number of fish (30%), but only a marginal decrease by weight (0.2%), indicating that bluefish harvested recreationally in 2017 were considerably larger than those harvested in 2016. The majority of the recreational harvest (number of fish) came from New Jersey (29%), North Carolina (17%), and New York (16%). In 2017, recreational dead discards (15% of B2) were estimated at 788,080 fish (Table 1).

From 1985-1999, annual commercial landings of bluefish in U.S. waters of the Atlantic coast averaged 11.3 million pounds (5,125 metric tons). After the implementation of the Amendment 1 quota system, from 2000-2017 commercial landings of bluefish have averaged 6.3 million pounds (2,861 metric tons) annually (Table 2 and Figure 4). In 2017, commercial landings were estimated at 4.13 million pounds (1,873 metric tons), a decrease of 3.7% relative to 2016 landings and a 52% underage of the 2017 commercial quota (8.54 million pounds). The majority

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<sup>1</sup> An operational assessment uses an existing model with limited changes, but adds new data to existing data sources. These assessments provide stock status, and involve an integrated peer review with select fishery council science committee members. This type of assessment is intermediate between an update assessment and a benchmark assessment (Source: <https://www.nefsc.noaa.gov/groundfish/operational-assessments-2017/>).

<sup>2</sup>All recreational data included in this report are derived from MRIP data released prior to the July 2, 2018 estimate recalibration based on the new Fishing Effort Survey (FES). New MRIP estimates will be incorporated into an operational assessment in 2019 for management use.

of commercial landings came from North Carolina (37%), Rhode Island (16%), New York (17%), Massachusetts (9%) and New Jersey (7%). Commercial dead discards are considered negligible.

## **V. Status of Research and Monitoring**

Many states, the National Marine Fisheries Service (NMFS), the Northeast Area Monitoring and Assessment Program (NEAMAP), and the Southeast Area Monitoring and Assessment Program (SEAMAP) conduct fishery-independent surveys. New Hampshire, Rhode Island, Connecticut, New York, New Jersey, Maryland, Virginia, and South Carolina (SEAMAP) provide indices of juvenile bluefish abundance for stock assessment, and Connecticut, New Jersey, Virginia (NEAMAP), and North Carolina provide indices of adult abundance. Year class strength is monitored through a number of fishery-independent surveys (NEFSC 2015). Although not included in the 2015 benchmark assessment (NEFSC 2015), Massachusetts, Delaware, Georgia and Florida also maintain indices of abundance from surveys that encounter bluefish. Refer to Table 3 for status of monitoring efforts by state in 2017.

Commercial landings information is collected by most states from dealer or fisherman reporting programs, which is provided to the Atlantic Coastal Cooperative Statistics Program's (ACCSP) Standard Atlantic Fisheries Information System (SAFIS). Fishermen fishing in federal waters are required to report their landings to NMFS. North Carolina and Virginia are the only states that significantly sample bluefish commercial fisheries for size and age composition of the catch. Recreational catch and harvest is monitored by the Marine Recreational Information Program (MRIP).

Addendum I to Amendment 1 (2012) implemented a biological monitoring program to enhance age and length data used in bluefish stock assessments. Under Addendum I, states that accounted for more than 5% of total coastwide bluefish harvest (recreational and commercial combined) for the 1998-2008 period are required to collect a minimum of 100 bluefish ages (50 from January through June, 50 from July through December). Those states are Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Virginia, and North Carolina. Age samples are primarily collected from fishery-dependent sources (e.g., party/charter boats, fishing tournaments and volunteer anglers), although samples collected from fishery-independent sources are sometimes utilized as needed to fulfill this requirement. In 2017, most of these states were able to collect the minimum of 100 age samples (Table 3), and all states made a good effort to collect 50 age samples from both spring and fall. Two states, Rhode Island and New York, collected just under 100 samples, 98 and 95 respectively. Some states (e.g., Rhode Island and Connecticut) noted difficulties collecting samples during the season before July 1<sup>st</sup> (bluefish are typically unavailable in Long Island Sound before July). South Carolina also reported 128 age samples collected by personnel of the SEAMAP-SA coastal trawl survey, and four (18) from the South Carolina Inshore Finfish Monitoring program.

As prescribed in the addendum, following the end of the first year of the sampling program, the TC reviewed the sampling design and evaluated the optimal geographic range and sample size for bluefish age data. The TC found the sampling program design to be satisfactory. However,

additional TC reviews may be warranted as the program continues, especially in light of the difficulties expressed by some states to collect samples before July.

## **VI. Status of Management Measures and Issues**

The Board and Council recommend adjustments to the commercial quota and RHL annually using the specification setting process detailed in Amendment 1 (Section 3.1.1.6) and in Section I of this report. The recreational fishery is allocated 83% of the ACL, and 17% is allocated to the commercial fishery. The coastwide commercial quota is allocated to the states via state-specific percentage shares based on landings from 1981-1989.

The 2017 ACL was 20.64 million pounds (9,363 metric tons); after a transfer of 5,033,101 pounds from the recreational to commercial sector, the commercial quota was 8.54 million pounds (3,874 metric tons) and the RHL was 9.65 million pounds (4,377 metric tons). In 2017, neither sector exceeded their respective quota or harvest limit, therefore no federal accountability measures have been triggered for 2018. 2017 state-specific shares and landings, and initial 2018 state-specific shares are listed in Table 5.

In 2017, Rhode Island requested commercial quota transfers totaling 150,338 pounds. Rhode Island received an additional 26% relative to its initial quota (Table 5). The donor states were New Jersey, Virginia, and North Carolina.

The PRT notes that the current 83/17 sector-specific quota allocation was based on the proportion of recreational and commercial landings for the period 1981-1989 (ASMFC 1998). However, due to sector transfers described in Section I under “*Annual Fishery Specifications*,” on average commercial landings have accounted for 33% of total removals from 1990-2017, and as much as 46% in 1999 (Figure 4). In 2017, the proportion of commercial landings was 30%.

Reasons for the aforementioned transfers may include changes in the distribution of prey species resulting in changes in the distribution and availability of bluefish, regulatory changes and distribution shifts of other commercially important species, changes in market conditions, variables pertaining to the productivity of the bluefish stock, or other factors. The MAFMC and ASMFC have initiated an amendment process that will involve a comprehensive review of the Bluefish Fishery management Plan’s sector-based allocations, commercial allocations to the states, transfer processes, as well as FMP goals and objectives, and any other issues highlighted by the Council and Commission through the scoping process.

## **VII. Current State-by-State Implementation of FMP Compliance Requirements**

These states and jurisdictions are required to comply with the provisions of the Bluefish FMP: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey,

Delaware, Maryland, Potomac River Fisheries Commission, Virginia, North Carolina, South Carolina, Georgia, and Florida. The following are specific FMP compliance requirements:

- Each state must restrict the possession of bluefish by recreational anglers to no more than fifteen fish per day, or have an ASMFC-approved equivalent conservation program.
- Each state must restrict its commercial fishery to the quota adopted under procedures specified in the FMP.
- These states are required to collect a minimum of 100 age samples per Addendum I to Amendment 1: Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Virginia, and North Carolina.
- States must submit annual compliance reports verifying that the above listed FMP requirements have been implemented. Compliance reports should also include an overview of permitting requirements for commercial and party/charter vessels and commercial dealers.

Based on the annual state compliance reports, the PRT determined all states and jurisdictions implemented a management program in 2017 consistent with the intent of the ISFMP for Bluefish (Amendment 1 and Addendum I). All states implemented a recreational possession limit not exceeding 15 fish per person, however, Rhode Island and New York were unable to collect the 100 required biological samples; several states were unable to acquire 50 age samples in the spring<sup>1</sup> (MA, RI, CT, NY). States appear to be making good faith efforts to acquire samples; as noted below, the TC should periodically review the adequacy of the biological sampling plan. Refer to Table 3 for state monitoring and reporting requirements, Table 4 for fishery regulations by state in 2017, and Table 5 for commercial quota monitoring and harvest.

Maine, South Carolina, and Georgia requested *de minimis* status for 2018. Maine, South Carolina, and Georgia qualify for *de minimis* status because their commercial landings from the most recent year were less than 0.1% of the coastwide commercial landings estimate (Table 5).

### **VIII. Prioritized Research Needs**

The following research recommendations were identified at the 60<sup>th</sup> SAW/SARC:

#### *High Priority*

1. Determine whether NC scale data from 1985-1995 are available for age determination; if available, re-age based on protocols outlined in ASMFC (2001); if re-aging results in changes to age assignments, quantify the effects of scale data on the assessment.
2. Develop additional adult bluefish indices of abundance (e.g., broad spatial scale longline survey or gillnet survey).
3. Expand age structure of SEAMAP index.

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<sup>1</sup> This appears to be largely due to timing of migrating fish being unavailable prior to July.



### *Moderate Priority*

4. Investigate species associations with recreational angler trips targeting bluefish (on a regional and seasonal basis) to potentially modify the MRIP index used in the assessment model.
5. Explore age- and time-varying natural mortality from, for example, predator-prey relationships; quantify effects of age- and time-varying mortality on the assessment model.
6. Continue to evaluate the spatial, temporal, and sector-specific trends in bluefish growth and quantify their effects in the assessment model.
7. Continue to examine alternative models that take advantage of length-based assessment frameworks. Evaluate the source of bimodal length frequency in the catch (e.g., migration, differential growth rates – also multiple cohorts as noted by the PRT).
8. Modify thermal niche model to incorporate water temperature data more appropriate for bluefish in a timelier manner [e.g., sea surface temperature data & temperature data that cover the full range of bluefish habitat (SAB and estuaries)].

### **IX. Plan Review Team Comments and Recommendations**

- The PRT found that all states implemented regulations consistent with the intent of Amendment 1 and Addendum I of the Bluefish Interstate FMP.
- Maine, South Carolina and Georgia requested and meet the requirements for *de minimis* status for 2017.
- The TC should periodically review the effectiveness of the Addendum I sampling design and evaluate the optimal geographic range and sample size for bluefish age data.
- The PRT notes that Massachusetts, Rhode Island and New York have received quota transfers in recent years (though only RI did in 2017), and that the commercial fishery has accounted for 33% of the coastwide harvest (commercial landings plus recreational harvest), on average, since 1990.
- The PRT recommends adding language to the annual compliance report reminder memo about including an overview of permitting requirements for commercial and party/charter vessels and commercial dealers in annual compliance reports.
- The PRT notes that the MAFMC and ASMFC have initiated an amendment process that will involve a comprehensive review of the Bluefish Fishery Management Plan's sector-based allocations, commercial allocations to the states, transfer processes, as well as FMP goals and objectives, and any other issues highlighted by the Council and Commission through the scoping process.

### **X. References**

Mid-Atlantic Fishery Management Council (MAFMC) and Atlantic States Marine Fisheries Commission (ASMFC). 1998. Amendment 1 to the Bluefish Fishery Management Plan.

Northeast Fisheries Science Center. 2015. 60th Northeast Regional Stock Assessment Workshop (60th SAW) Assessment Summary Report. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 15-07; 36 p. doi: 10.7289/V5D21VKV

Fisheries of the Northeastern United States. Atlantic Bluefish Fishery; 2015 Final Atlantic Bluefish Specifications. 50 CFR Part 648. Vol 80, No. 151. Thursday, August 6, 2015.

Fisheries of the Northeastern United States. Atlantic Bluefish Fishery; 2014 Final Atlantic Bluefish Specifications. 50 CFR Part 648. Vol 79, No. 119. Friday, June 20, 2014.

## XI. Tables

Table 1. Estimated bluefish recreational harvest (A + B1), releases (B2), dead discards (DD; 15% of B2), total catch (A+B1+B2), and total removals (Harvest+DDs) in numbers of fish by marine recreational anglers, 2007 to 2017. Source: MRIP. These estimates may differ from MRIP estimates depending on query date (Data queried June 25, 2018).

<b>Year</b>	<b>Total Catch (A+B1+B2)</b>	<b>Harvest (A+B1)</b>	<b>Released (B2)</b>	<b>DDs (15% of B2)</b>	<b>Total Removals (Harvest + DD)</b>
2007	24,815,049	8,644,146	15,006,420	2,250,963	10,624,863
2008	20,879,315	6,847,629	13,290,567	1,993,585	8,657,736
2009	14,493,953	5,401,481	8,450,232	1,267,535	6,461,777
2010	16,746,826	6,248,480	10,051,309	1,507,696	7,598,527
2011	15,213,810	5,219,606	9,630,257	1,444,539	6,505,930
2012	14,781,365	5,643,975	8,587,312	1,288,097	6,811,379
2013	15,432,234	6,018,343	8,097,800	1,214,670	6,958,640
2014	17,195,058	6,092,017	10,214,824	1,532,224	7,407,997
2015	11,359,189	4,155,492	6,746,280	1,011,942	5,008,745
2016	13,047,451	4,584,515	7,355,898	1,103,385	5,404,605
2017	8,702,682	3,120,542	5,253,864	788,080	3,801,748
<b>Average</b>	<b>15,696,994</b>	<b>5,634,202</b>	<b>9,334,978</b>	<b>1,400,247</b>	<b>7,034,449</b>

Table 2. Bluefish Commercial Landings and Recreational Harvest (A + B1) by weight (metric tons, pounds), 2007-2017. Source: SAFIS and MRIP. Estimates may differ from source websites depending on query date (2017 commercial data queried June 29, 2018; recreational data queried June 25, 2018).

Year	Commercial		Recreational (A + B1)		Total	
	MT	Pounds	MT	Pounds	MT	Pounds
2007	3,390	7,474,642	9,871	21,760,882	13,261	29,235,524
2008	2,731	6,020,096	8,978	19,793,321	11,709	25,813,418
2009	3,119	6,877,128	6,565	14,472,305	9,684	21,349,434
2010	3,304	7,284,417	7,411	16,339,283	10,716	23,623,698
2011	2,454	5,409,347	5,215	11,497,371	7,669	16,906,718
2012	2,212	4,876,858	5,372	11,842,303	7,584	16,719,161
2013	1,977	4,359,166	7,468	16,464,369	9,445	20,823,535
2014	2,251	4,962,921	4,743	10,455,687	6,994	15,418,609
2015	1,917	4,225,765	5,297	11,677,909	7,214	15,899,008
2016	1,945	4,288,726	4,327	9,538,528	6,272	13,826,648
2017	1,873	4,128,715	4,318	9,519,745	6,191	13,648,459
<b>Average</b>	<b>2,470</b>	<b>5,446,162</b>	<b>6,324</b>	<b>13,941,494</b>	<b>8,795</b>	<b>19,387,656</b>

Table 3. Status of compliance with monitoring and reporting requirements, 2017 (Y = compliance standards met, N = compliance standards not met, NA = not applicable).

State/ Jurisdiction	Fishery-independent monitoring		Fishery-dependent monitoring		Annual Reporting Status
	Survey(s)	Status	Type(s)	Status (num. of age samples)	
ME	NA	NA	Rec and Com harvest	NA	Y
NH	Juvenile	Y	Rec and Com harvest	NA	Y
MA	Juvenile	Y	Rec and Com harvest, Age Samples	Y (112)	Y
RI	Juvenile, Adult	Y	Rec and Com harvest, Age Samples	Y (98)	Y
CT	Juvenile, Adult	Y	Rec and Com harvest, Age Samples	Y (125)	Y
NY	Juvenile	Y	Rec and Com harvest, Age Samples	Y (95)	Y
NJ	Juvenile, Adult	Y	Rec and Com harvest, Age Samples	Y (120)	Y
DE	Juvenile, Adult	Y	Rec and Com harvest	NA	Y
MD	Juvenile	Y	Rec and Com harvest	NA	Y
PRFC	Juvenile	Y	Rec and Com harvest	NA	Y
VA	Juvenile, Adult	Y	Rec and Com harvest, Age Samples	Y (462)	Y
NC	Adult	Y	Rec and Com harvest, Age Samples	Y (662)	Y
SC*	NA	NA	Rec and Com harvest	NA	Y
GA*	NA	NA	Rec and Com harvest	NA	Y
FL	Juvenile, Adult	Y	Rec and Com harvest	NA	Y

\*granted *de minimis* for 2017 fishing season

Table 4. Fishery regulations by state, 2017. Minimum size are in total length (TL) except for GA and FL are in fork length (FL).

State/ Jurisdiction	Recreational			Commercial	
	Bag Limit	Season	Size Limit	Trip and Size Limit	Open Season
ME	3 fish	All year	None	No Restrictions	All year
NH	10 fish	All year	None	No Restrictions	July 1 - Sept 30
MA	10 fish	All year	None	5,000 lbs/day or trip (whichever is longer)	All year
RI	15 fish	All year	None	12" min size; 500 lbs/wk (1.1- 4.30,11.12-12.31) 6,000 lbs/wk (5.1-11.11)	All year
CT	10 fish	All year	None	9" min size; 1,200 lbs/trip	All year
NY	15 fish	All year	Only 10 fish <12"	9" min size; Trip Limit: 2,000 lbs (Jan- April); 500 lbs (May-Aug); 1,000 lbs (Sept-Dec)	All year
NJ	15 fish	All year	None	9" min size	Closed to H&L from 1.1-6.15 and 8.8-12.31
DE	10 fish	All year	None	No Restrictions	All year
MD	10 fish	All year	8" min size	8" min size	All year
PRFC	10 fish	All year	8" min size	Trip limits after 80% of VA- MD quota is landed	All year
VA	10 fish	All year	None	No Restrictions	All year
NC	15 fish	All year	Only 5 fish > 24"	No Restrictions	All year
SC	15 fish	All year	None	No directed fishery	All year
GA	15 fish	All year	10" min size	10" min size; 15 fish	All Year
FL	10 fish	All year	12" min size	12" min size; 7,500 lbs/day	All year

Table 5. 2017 state-specific shares of commercial bluefish quota and estimated harvest. Landings data source: SAFIS (query date: June 29, 2018). C = landings values are confidential.

State	% of Federal Quota	2017 Initial Quota*	2017 Transfers	2017 Final Quota	2017 Landings	Overages	% Quota Used	% Coastwide Total	2018 Initial Quota
ME	0.6685	57,105		57,105	0	0	0%	0%	48,424
NH	0.4145	35,408		35,408	C	C	C	C	30,025
MA	6.7167	573,755		573,755	364,770	0	63.4%	8.9%	486,539
RI	6.8081	581,563	150,338	731,901	647,257	0	88.4%	15.7%	493,160
CT	1.2663	102,036**		108,170	42,539	0	39.3%	1.0%	91,727
NY	10.3851	887,118		887,118	709,163	0	79.9%	17.2%	752,268
NJ	14.8162	1,265,633	-50,000	1,215,633	305,552	0	25.1%	7.4%	1,073,245
DE	1.8782	160,440		160,440	10,040	0	6.3%	0.2%	136,052
MD	3.0018	256,420		256,420	37,035	0	14.4%	0.9%	217,442
VA	11.8795	1,014,773	-338	1,014,435	201,616	0	19.9%	4.9%	860,518
NC	32.0608	2,738,704	-100,000	2,638,704	1,544,015	0	58.5%	37.4%	2,322,397
SC	0.0352	3,007		3,007	C	C	C	<0.1%	2,550
GA	0.0095	812		812	C	C	C	<0.1%	688
FL	10.0597	859,322		859,322	266,728	0	31%	6.5%	728,697
<b>TOTAL<sup>^</sup></b>	<b>100</b>	<b>8,542,230</b>	<b>0</b>	<b>8,542,230</b>	<b>4,128,715</b>	<b>0</b>	<b>48%</b>		<b>7,243,726</b>

<sup>^</sup> totals in table may not match listed quotas due to rounding

\*accounts for a mid-season transfer of 5,033,101 pounds from the recreational to commercial sector (effective March 10, 2017), and any quota overages from the previous season

\*\*accounts for 2016 overage of state-specific commercial quota by 6,134 pounds

Table 6. 2017 state commercial quota bluefish transfers. These transfers were made as quota adjustments and a safe harbor adjustment. Data source: Federal Register.

<b>State</b>	<b>Total Transfer Amount (lbs)</b>
ME	0
NH	0
MA	0
RI	+150,338
CT	0
NY	0
NJ	-50,000
DE	0
MD	0
VA	-338
NC	-100,000
SC	0
GA	0
FL	0



## XII. Figures

Figure 1. Bluefish spawning stock biomass (SSB), 1985-2014. Source: SAW 60 Assessment report, 2015.

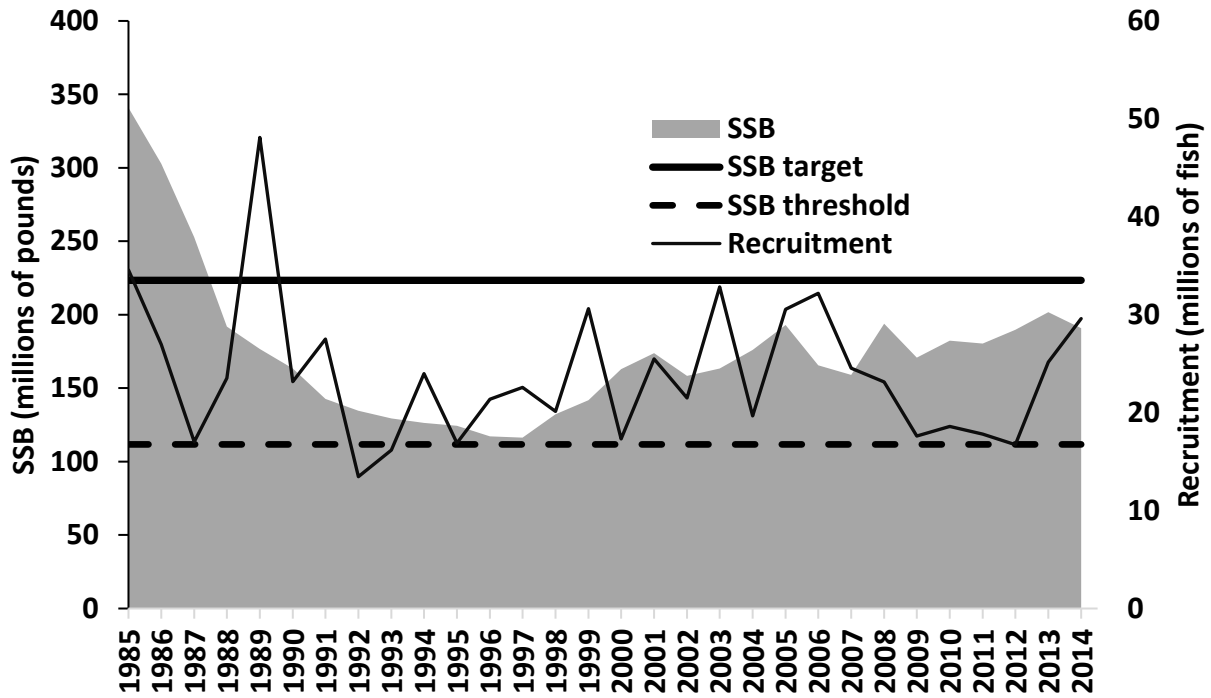


Figure 2. Bluefish fishing mortality (F), 1985-2014. Source: SAW 60 Assessment report, 2015.

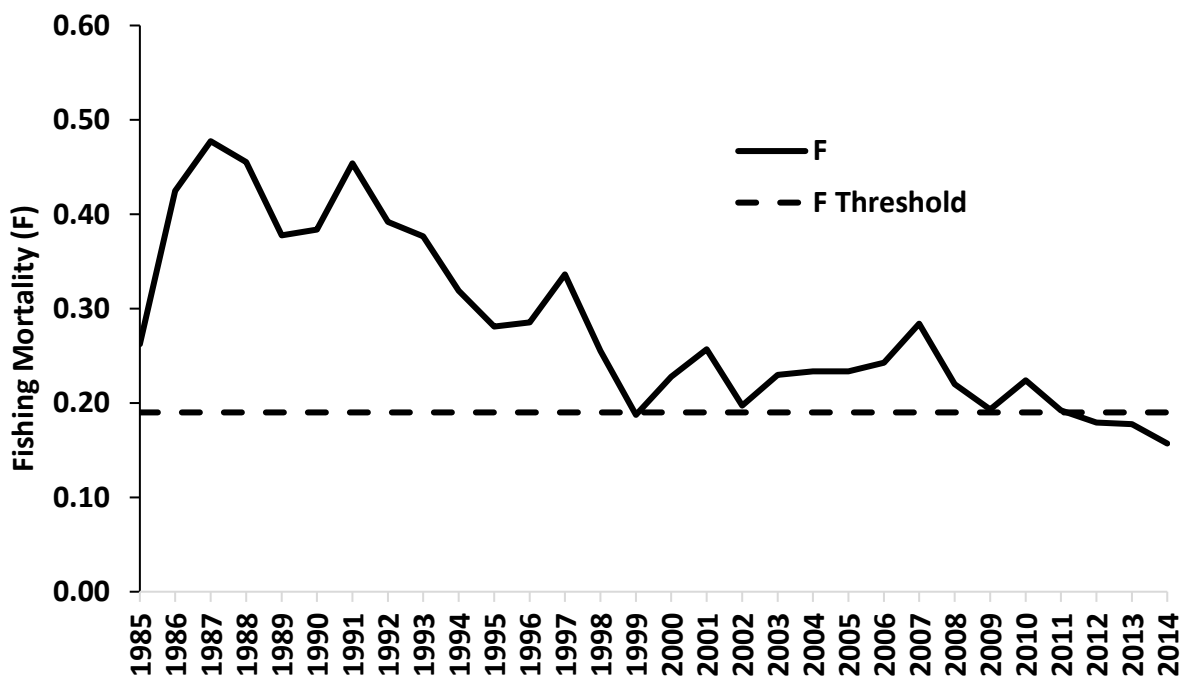


Figure 3. Estimated recreational bluefish harvest (A + B1), releases (B2) and dead discards by recreational anglers in numbers of fish, 1985-2017. Source: MRIP. Estimates may differ from source websites depending on query date (2017 data queried June 26, 2018).

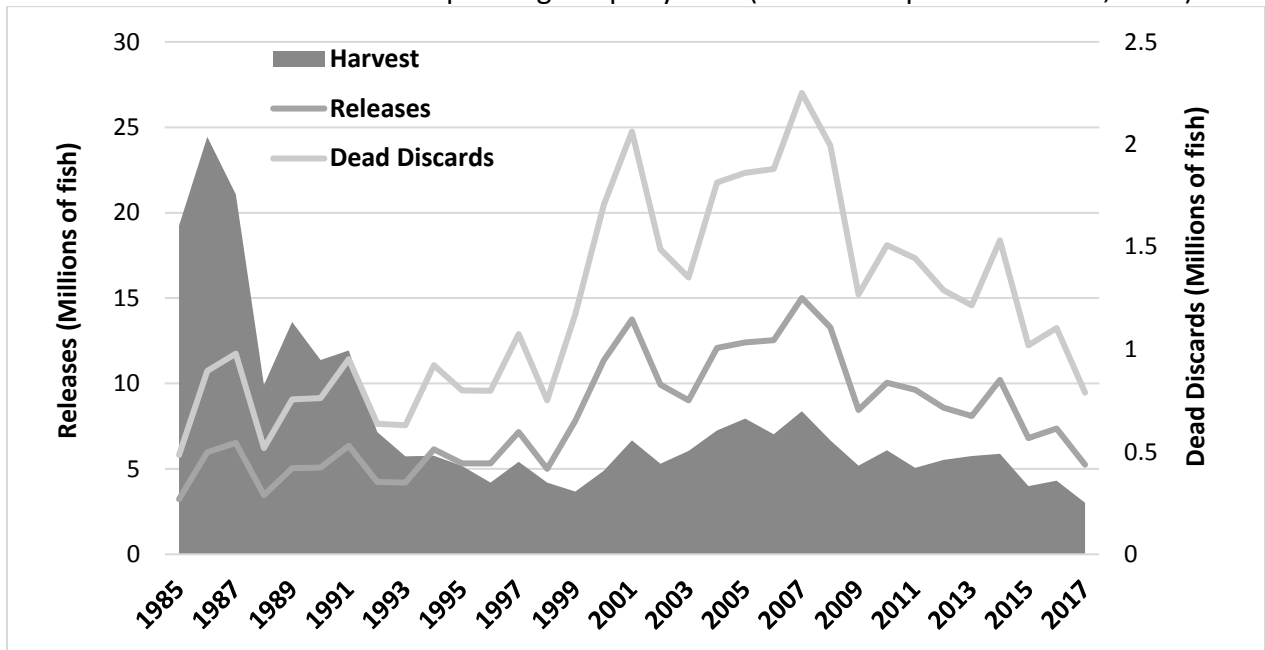
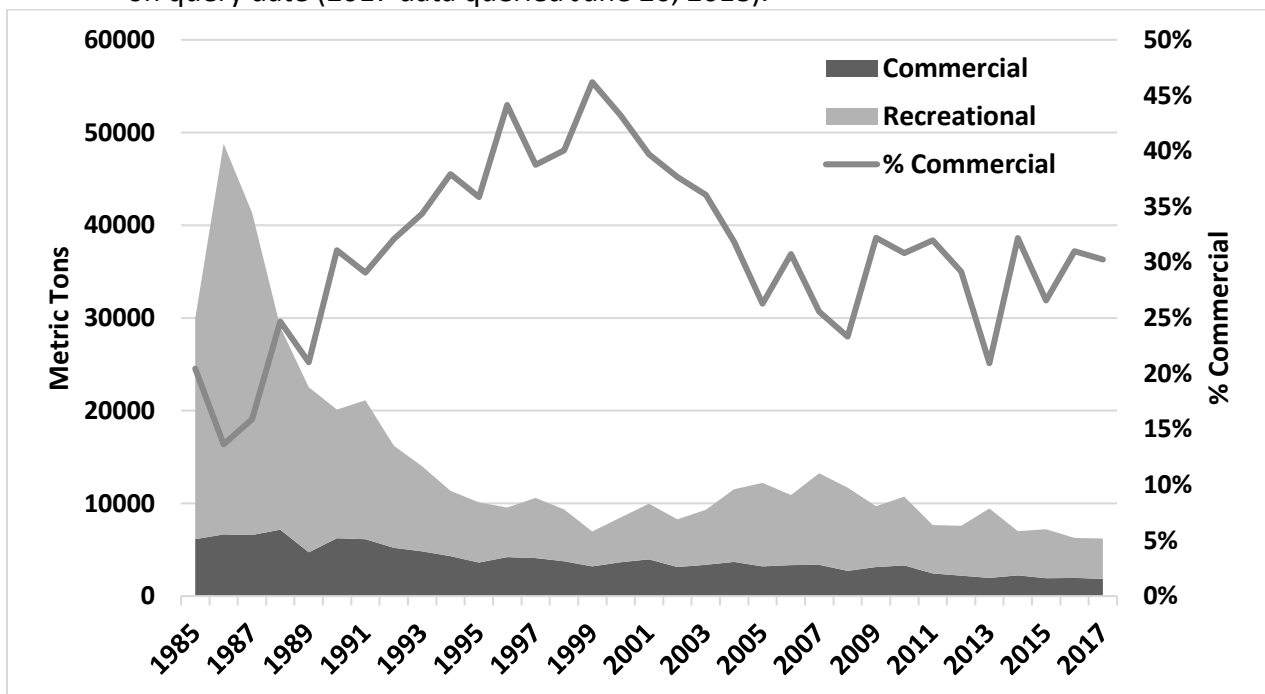


Figure 4. Bluefish recreational harvest and commercial landings estimates by weight, 1985-2017. Source: SAFIS and MRIP. Estimates may differ from source websites depending on query date (2017 data queried June 26, 2018).





Responsible Offshore Development Alliance

The Responsible Offshore Development Alliance (RODA) is a broad membership-based coalition of fishing industry associations and fishing companies with an interest in improving the compatibility of new offshore development with their businesses. It endeavors, through proposed collaborations with the National Marine Fisheries Service (NMFS) and other partners, to coordinate science and policy approaches to managing development of the Outer Continental Shelf (OCS) in a way that minimizes conflicts with existing traditional and historical fishing.

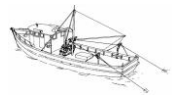
Background:

The National Ocean Policy of 2009 and subsequent initiatives have increased the rate of proposals for new development of the OCS. The Bureau of Ocean Energy Management (BOEM) has leased 13 sites and counting in the Atlantic Ocean for offshore wind energy facilities. Further leasing is underway for sand and gravel extraction, offshore aquaculture, and other uses. These processes have been poorly designed and executed, especially with regard to effectively engaging fishing communities and considering the needs of the commercial fishing industry. Permitting authorities have not adequately considered advice from the industry, NMFS, or the Fishery Management Councils to date, nor have they paid attention to the scientific research necessary to properly plan, site, operate, and mitigate such projects. Much of this research needs to be conducted collaboratively with fishing industry members. The June 2018 Executive Order (EO) revising the 2009 National Ocean Policy calls for increasing ocean-related collaboration and modernizing science, while highlighting the importance of fisheries resources to food security and the national economy. In order to facilitate the Administration's implementation of the new EO, RODA will:

- Provide a unified voice regarding issues of mutual interest to the commercial fishing industry, related to the siting and operations of new and proposed offshore developments, in order to promote seafood sustainability;
- Act as a bridge between developers and fishermen to mandate, design, and implement a fair, equitable, and effective fisheries mitigation framework addressing potential direct and indirect fisheries impacts;
- Coordinate among existing local, project-specific, and state advisory groups to streamline advice and minimize duplication of effort, and increase awareness of the need for improved interagency coordination on matters related to ocean planning and development;
- Work to achieve adequate funding for scientific research to inform leasing processes, support mitigation programs, and guide future offshore development planning; and
- Serve as clearinghouse of scientific information and project updates for a better-informed industry and to inform Fishery Management Councils on industry needs and concerns.



Navigating Together into the Future



Executive Director: Anne Hawkins

Chairman: Peter Hughes

Treasurer: Eric Reid

For information, contact [ahawkins@kelleydrye.com](mailto:ahawkins@kelleydrye.com)



Responsible Offshore Development Alliance

Scientific Research and Monitoring:

RODA intends to formally engage with NMFS and other entities on collaborative research and monitoring. It initially seeks to partner with NMFS’ Northeast Fisheries Science Center; however, it will structure to allow expansion into other regions and to include other participants as appropriate. The research program would: (1) improve overall understanding and inform dialogues regarding siting and operations; (2) support mitigation requirements (in terms of minimizing and compensating impacts to users and resources), including development of mitigation frameworks (i.e. a standard structure for how to compensate for gear or revenue loss, how to allocate mitigation funds for specific projects, etc.); and (3) inform agency decision-making and industry engagement through existing consultative processes.

RODA proposes to design and implement with NMFS a new model for a persistent, long-term, holistic, and collaborative research program that effectively gathers and incorporates fishery-dependent and independent data and expertise. Existing science programs would be strengthened—but not supplanted—through this partnership, by developing ecosystem-level information for use in assessing fisheries stocks and impacts of ocean use and development.

RODA also seeks to create regional “science panels” or bodies in cooperation with NMFS to (1) identify priority research and monitoring needs (2) prioritize research funding; and (3) provide technical recommendations. Current efforts to put together equivalent panels by BOEM and the states are premature, involve separation of participants by discipline and background, focus on too narrow a geographic area, and relegate fishing interests to minor roles. Only the fishing industry and NOAA have the comprehensive data and expertise to develop this information. Industry must not be involved as simply an “advisory panel” to an executive body, as it needs to be directly involved in study identification, prioritization, design, and execution instead of simply being relegated to “public comment.”

*Science Program Highlights*

- Work closely with federal, state, and other partners to design and implement a regionally-based collaborative research and monitoring program for transparent, trusted, and accurate scientific information to address the impacts of offshore development on fisheries;
- Identify monitoring, research, and funding needs prioritized by industry and develop channels for collaborative research on all phases of offshore development (planning, assessment, construction and operations, mitigation of fisheries impacts, and decommissioning);
- Articulate a strategy, through development of formal public-private partnerships, for private and public research and monitoring investments to be gathered, coordinated, and streamlined to address joint priorities;
- Support broad monitoring and research needs relevant to offshore energy and other OCS leasing that intersect with existing scientific efforts in regional-scale ecosystem monitoring, stock assessment, and fisheries management; and
- Determine prioritization of data gaps regarding, among other items, baseline conditions, fisheries-specific impacts, cumulative impacts (including intentional and unintentional impacts), site-specific concerns, and ecosystem-scale impact monitoring and assessment.



**Mid-Atlantic Fishery Management Council**  
 800 North State Street, Suite 201, Dover, DE 19901  
 Phone: 302-674-2331 | FAX: 302-674-5399 | www.mafmc.org  
 Michael P. Luisi, Chairman | G. Warren Elliott, Vice Chairman  
 Christopher M. Moore, Ph.D., Executive Director

## MEMORANDUM

**Date:** July 27, 2018

**To:** Dr. Chris Moore, Executive Director

**From:** Matthew Seeley, Staff

**Subject:** Amendment 11 to the Consolidated Highly Migratory Species Fishery Management Plan

**Summary**

Amendment 11 to the Consolidated Highly Migratory Species Fishery Management Plan proposes a range of management measures for shortfin mako sharks. These measures are based on the recent International Commission for the Conservation of Atlantic Tunas (ICCAT) assessment determining that shortfin mako sharks are overfished and experiencing overfishing and ICCAT Recommendation 17-08. The below information can be found at this [link](#).

**Who is affected?**

- Any commercial fishermen with HMS permits.
- Any recreational fishermen who target or catch shortfin mako sharks.
- Any dealers who buy or sell sharks or shark products.

**What will it do?**

The full range of alternatives considered can be found in the [draft environmental impact statement](#) (PDF, 230 pages) and/or proposed rule.

	<b>Preferred Alternatives in DEIS</b>
Commercial Measure	<i>Alternative A2</i> Allow retention of a shortfin mako shark by persons with a Directed or Incidental Shark Limited Access Permit, but only if the shark is dead at haul back and there is a functional electronic monitoring system on board the vessel.

Recreational Measures	<p><i>Alternative B3</i> Increase the minimum size of all shortfin mako sharks from 54 inches fork length to 83 inches (210 cm) fork length.</p> <p><i>Alternative B9</i> Require use of circle hooks for recreational shark fishing in all areas (i.e., remove the current management line established for dusky sharks near Chatham, MA).</p>
Monitoring Measure	<p><i>Alternative C1</i> No action. Do not require reporting of shortfin mako sharks outside of current reporting systems.</p>
Rebuilding Measure	<p><i>Alternative D3</i> Establish the foundation for developing an international rebuilding program for shortfin mako sharks.</p>

### **Request for Comments**

NOAA Fisheries will accept comments on the proposed rule and draft amendment through **October 1, 2018**.

Written comments, identified by “NOAA-NMFS-2018-0011,” may be submitted electronically via the [Federal eRulemaking Portal](#), or by U.S. mail to the Highly Migratory Species Management Division, 1315 East-West Highway, Silver Spring, MD 20910.

All comments received are a part of the public record and will be posted to the Internet without change. Personally identifying information (for example, name, address, etc.) voluntarily submitted by the commenter may be publicly accessible. Do not submit confidential business information or otherwise sensitive or protected information. NOAA Fisheries will accept anonymous comments (enter N/A in the electronic fields to remain anonymous). You may submit attachments to electronic comments in Microsoft Word, Excel, or Adobe PDF file formats only.

### **Public Hearings**

NOAA Fisheries will hold public hearings along the Atlantic Coast, Caribbean, and Gulf of Mexico regions until the end of the comment period

August 22, 2018 from 5:00 – 8:00 p.m.

*Dr. Clotilde Garcia Public Library  
5930 Brockhampton Street  
Corpus Christi, TX 78414*

August 23, 2018 from 5:00 – 8:00 p.m.

*Linwood Public Library  
301 Davis Avenue  
Linwood, NJ 08211*

August 28, 2018 from 5:00 – 8:00 p.m.

*Commissioners Meeting Room, Dare County Administration Building  
954 Marshall C. Collins Dr.  
Manteo, NC 27954*

August 29, 2018 from 5:00 – 8:00 p.m.

*NCDMF Central District Office  
5285 Highway 70 West  
Morehead City, NC 28557*

August 30, 2018 from 5:00 – 8:00 p.m.

*NOAA Fisheries  
Greater Atlantic Regional Office  
55 Great Republic Drive  
Gloucester, MA 01930*

August 30, 2018 from 5:00 – 8:00 p.m.

*NOAA Fisheries  
Southeast Regional Office  
263 13<sup>th</sup> Avenue South  
St. Petersburg, FL 33701*

**Conference Call Public Hearing**

*September 12, 2018 from 2:00 – 4:00 p.m.*

To participate in the webinar, please [RSVP here](#). A confirmation email with webinar log-in information will be sent after RSVP is registered.

In addition to the public hearings and webinar, NOAA Fisheries has requested to present information regarding this draft amendment and proposed rule to the New England, Mid-Atlantic, South Atlantic, Gulf of Mexico, and Caribbean Fishery Management Councils and the Atlantic and Gulf States Marine Fisheries Commissions. Please see the Councils' and Commissions' meeting notices for times and locations.

Official notice of federal actions is made through filing such notice with the Office of Federal Register. For further information on this proposed rule and draft environmental impact statement, contact Guý DuBeck or Karyl Brewster-Geisz at 301-427-8503. Copies of the proposed rule, draft environmental impact statement, and other supporting documents are available upon request from the Highly Migratory Species Management Division, 1315 East-West Highway, Silver Spring, MD 20910, or by calling 301-427-8503.

# DRAFT AMENDMENT 11 TO THE 2006 CONSOLIDATED ATLANTIC HIGHLY MIGRATORY SPECIES FISHERY MANAGEMENT PLAN

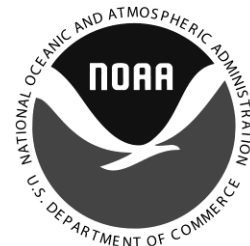
Including:

A Draft Environmental Impact Statement,  
A Draft Regulatory Impact Review,  
An Initial Regulatory Flexibility Analysis,  
A Draft Social Impact Analysis



July 2018

Highly Migratory Species Management Division  
Office of Sustainable Fisheries  
National Marine Fisheries Service  
1315 East-West Highway  
Silver Spring, Maryland 20910





## **Amendment 11 to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan**

**Actions:** Implement management measures to address overfishing and establish the foundation for rebuilding North Atlantic shortfin mako sharks consistent with the 2017 ICCAT stock assessment and ICCAT Recommendation 17-08.

**Type of Statement:** Draft Environmental Impact Statement; Initial Regulatory Impact Review; Initial Regulatory Flexibility Analysis; Initial Social Impact Statement

**Lead Agency:** National Marine Fisheries Service

**For Further Information:** Atlantic Highly Migratory Species Management Division (F/SF1)  
1315 East West Highway  
Silver Spring, MD 20910  
(301) 427-8503; (301) 713-1917

**Abstract:** The National Marine Fisheries Service (NMFS) is amending the 2006 Consolidated Atlantic Highly Migratory Species (HMS) Fishery Management Plan (FMP) based on the new stock assessment for shortfin mako sharks (*Isurus oxyrinchus*) and measures required by the International Commission for the Conservation of Atlantic Tunas (ICCAT). The stock assessment indicated that the North Atlantic population of shortfin mako sharks is overfished and experiencing overfishing. In November 2017, ICCAT adopted management measures in Recommendation 17-08 to address overfishing and establish a timeline for rebuilding North Atlantic shortfin mako sharks. ICCAT will review the effectiveness of these measures from the first six months of 2018 and again in 2019. NMFS published an emergency interim final rule in response to this Recommendation to meet U.S. obligations at ICCAT and under the Atlantic Tunas Convention Act, and the Magnuson-Stevens Fishery Conservation and Management Act. The proposed measures in this action are intended to reduce fishing mortality on North Atlantic shortfin mako sharks to address the U.S. contribution to overfishing and to take steps toward rebuilding the stock. The cumulative ecological impacts of the preferred alternatives are expected to be minor and beneficial, while the socioeconomic impacts are expected to be minor and adverse.

## EXECUTIVE SUMMARY

The National Marine Fisheries Service (NMFS) is considering conservation and management measures to address overfishing and establish a foundation for rebuilding North Atlantic shortfin mako shark stock.

Atlantic Highly Migratory Species (HMS) fisheries are managed under the dual authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) and the Atlantic Tunas Convention Act (ATCA). Under the Magnuson-Stevens Act, NMFS must, consistent with ten National Standards, manage fisheries to maintain optimum yield on a continuing basis while preventing overfishing. ATCA authorizes the Secretary of Commerce (Secretary) to promulgate regulations, as may be necessary and appropriate to carry out recommendations of the International Commission for the Conservation of Atlantic Tunas (ICCAT). The authority to issue regulations under the Magnuson-Stevens Act and ATCA has been delegated from the Secretary to the Assistant Administrator for Fisheries. The measures proposed in this amendment and associated rulemaking are taken under the authority of the Magnuson-Stevens Act and ATCA. Currently, Atlantic sharks, tunas, swordfish, and billfish are managed under the 2006 Consolidated Atlantic HMS Fishery Management Plan (2006 Consolidated HMS FMP) and its amendments.

On December 13, 2017, based on the results of ICCAT's stock assessment on the North Atlantic shortfin mako shark, NMFS determined the stock to be overfished with overfishing occurring. Through an interim final rule using emergency Magnuson-Stevens Act authority, NMFS temporarily and immediately implemented commercial and recreational measures consistent with ICCAT Recommendation 17-08 focused on maximizing live releases of shortfin mako sharks, allowing retention only in certain circumstances, increasing minimum size limits, and improving data collection in ICCAT fisheries (83 FR 8946; March 2, 2018). The temporary regulations initially may remain in effect for up to 180 days, but may be extended for an additional 186 days as described in section 305(c) of the Magnuson-Stevens Act. As the interim final rule could only be effective for at most 366 days, NMFS also announced its intent to prepare an Environmental Impact Statement (EIS) for Amendment 11 to the 2006 Atlantic Consolidated HMS FMP (Amendment 5) (83 FR 9255; March 5, 2018).

On March 5, 2018, NMFS also released an Issues and Options document presenting options for long-term conservation and management of the stock (<https://www.fisheries.noaa.gov/bulletin/submit-comments-options-address-overfishing-north-atlantic-shortfin-mako-sharks>). To facilitate discussions and input from the public and others during the development of Amendment 11, NMFS examined an initial range of options to meet specified objectives and National Environmental Policy Act (NEPA) requirements, and invited the public to comment on those options and on whether additional options should be examined. The comments received during the scoping phase helped NMFS develop the range of alternatives to analyze in a draft EIS and the proposed rule. As a result of additional public comment on these document, NMFS may make changes in Final Amendment 11 by modifying the preferred alternatives, selecting different alternatives, or adding new measures, to meet the same purpose and need of the Amendment.

In this document, we consider a reasonable range of alternative management measures to address overfishing and establish a foundation for rebuilding the shortfin mako shark stock, including: no action; modifying the commercial retention restrictions; using electronic monitoring and/or observers for verification of status of boarded sharks and size limit; prohibiting commercial and recreational retention; modifying the recreational size limit by sex and seasonal retention; expanding the requirement of the use of circle hooks by recreational shark fishermen; establishing a recreational tagging program; mandatory reporting on vessel monitoring systems; mandatory reporting of recreational catches; establishing a domestic rebuilding plan without ICCAT; foundation for an international rebuilding plan; species specific quota if established by ICCAT; and area management if established by ICCAT.

Consistent with the regulations published by the Council on Environmental Quality, 40 C.F.R. 1501-1508 (CEQ Regulations), we have identified our preferred alternatives. A full description and analysis of the different alternatives can be found in Chapters 2.0 and 4.0 of this document. We have identified preferred alternatives that would address overfishing and establish a foundation to rebuild North Atlantic shortfin mako sharks, consistent with the 2017 ICCAT stock assessment and ICCAT Recommendation 17-08, while appropriately considering the needs of fishermen and communities and maximizing sustainable fishing opportunities. The list of preferred alternatives can be found below (Table 0.1); the list of the full range of alternatives considered can be found in Chapter 2.0. The cumulative ecological impacts of the preferred alternatives are expected to be minor and beneficial, while the socioeconomic impacts are expected to be minor and adverse.

NMFS will take public comment into consideration before finalizing any alternatives, and the proposed measures may be altered or different alternatives may be adopted at the final rule stage. The CEQ regulations direct Federal agencies to the full extent possible to integrate the requirements of NEPA with other planning and environmental review procedures required by law or by agency practice so that all procedures run concurrently rather than consecutively. To that end, this document integrates the Draft Environmental Impact Statement (DEIS) required by NEPA with the fisheries planning and management requirements associated with proposed amendment to an FMP under the Magnuson-Stevens Act, the Initial Regulatory Flexibility Analysis required under the Regulatory Flexibility Act, 5 U.S.C. §§601-603; and the Regulatory Impact Review prepared in accordance with Executive Order 12866, "Regulatory Planning and Review."

Full document is available at <http://www.mafmc.org/briefing/august-2018>



## Mid-Atlantic Fishery Management Council

800 North State Street, Suite 201, Dover, DE 19901  
Phone: 302-674-2331 | FAX: 302-674-5399 | [www.mafmc.org](http://www.mafmc.org)  
Michael P. Luisi, Chairman | G. Warren Elliott, Vice Chairman  
Christopher M. Moore, Ph.D., Executive Director

# MEMORANDUM

**Date:** 25 July 2018  
**To:** Michael P. Luisi, Chairman, MAFMC  
**From:**  John Boreman, Ph.D., Chair, MAFMC Scientific and Statistical Committee  
**Subject:** Report of the July 2018 SSC Meeting

The SSC met in Baltimore on the 17<sup>th</sup> and 18<sup>th</sup> of July 2018. The main objectives of the meeting were to develop new ABC specifications for Chub Mackerel, Summer Flounder, and Bluefish, and affirm (or develop new) ABC specifications for Black Sea Bass and Scup based on data updates (Attachment 1). Other topics discussed at the meeting included updates on the progress being made by the SSC Surfclam OFL Working Group, the NRCC Assessment Scheduling Working Group, and revisions to the State of the Ecosystem Report prepared annually by the Northeast Fisheries Science Center.

A total of 10 SSC members were in attendance on July 17<sup>th</sup> and 11 members were in attendance on July 18<sup>th</sup> (Attachment 2), which constituted quorums for both days. Also attending were MAFMC staff, staff from the NEFSC, and representatives from Pew Charitable Trust and Lund's Fisheries. Documents referenced in the report can be accessed via the SSC's meeting website (<http://www.mafmc.org/ssc-meetings/2018/july-17-18>).

## Chub Mackerel

Julia Beaty (MAFMC staff) reviewed the status of management and summarized her literature review of the advisory panel's comments and the life history, catch history, stock structure, and population dynamics of Chub Mackerel. Julia drew on information published on the species and closely related species in other parts of the world. She also presented several catch time series options for the SSC to consider in developing the ABC recommendation. Based on her summary, the SSC concluded that insufficient information exists to assess the status and trends of the Chub Mackerel stock in the northwest Atlantic region and instead relied on expert judgment to derive an ABC recommendation.

Responses by the SSC to the terms of reference provided by the Council (*in italics*) are as follows:

*For Chub Mackerel, the SSC will provide a written report that identifies the following for fishing years 2021-2023:*

*1) The level of uncertainty that the SSC deems most appropriate for the information on which the acceptable biological catch (ABC) determination was made, based on criteria listed in the Omnibus Amendment.*

The SSC determined that an OFL cannot be specified based on the available information.

*2) If possible, the level of catch (in weight) associated with the overfishing limit (OFL) based on the maximum fishing mortality rate threshold or, if appropriate, an OFL proxy, and the geographic range associated with the OFL.*

No OFL could be calculated.

*3) The level of catch (in weight) and the probability of overfishing associated with the ABC for the stock, and the geographic range associated with the ABC, the number of fishing years for which the ABC applies and, if possible, interim metrics that can be examined to determine if multi-year specifications need reconsideration prior to their expiration.*

The SSC recommends **2,300 mt** (= 5.07 million pounds) as a placeholder ABC for fishing years 2021-2023. This value does not exceed the observed highest catch in the fishery (2013), but permits limited fishery growth beyond the current limit specified in the temporary forage measures established by the MAFMC, thus permitting additional data collection. The expert judgment of the SSC is that this level of catch is unlikely to result in overfishing given the general productivity of this species in fisheries throughout the world, combined with the relatively low fishery capacity in our region. The SSC is requesting specific data collection in association with this ABC, and may revert to a lower value if data cannot be collected to assess the risk associated with the higher ABC.

Lacking information on stock structure, the SSC assumes that the geographic range associated with the ABC spans from the New England Council through the South Atlantic Council jurisdictions.

Interim metrics (data to be collected) should include catch and effort information in the directed Chub Mackerel fishery, age and length composition in the catch and fishery independent surveys, and spatial distribution of catch.

*4) The most significant sources of scientific uncertainty associated with determination of OFL and/or ABC.*

- Stock size and productivity cannot be determined, there is no information to determine reference points for stock biomass levels, and little information exists to determine reference points for fishing mortality rates.

- There is no information the source of recruits; it is unknown whether Chub Mackerel are episodic in the Mid-Atlantic, whether this is a range expansion with localized spawning, or neither.
- There is no information on predation mortality, or on the role of Chub Mackerel in predator diets.
- There is very high uncertainty in recreational landings and discards.
- Observer coverage on fisheries likely to catch Chub Mackerel may be low (*Illex* fleet, Mid-Atlantic small mesh bottom trawl).

5) *Any ecosystem considerations, particularly with regard to Chub Mackerel's role as forage for predators in the Mid-Atlantic, that the SSC took into account in determining the ABC, including the basis for those considerations.*

No ecosystem considerations were included. The SSC was unable to evaluate Chub Mackerel's role as forage by using the information available; however, MAFMC has recently funded a study to examine predator prey relationships.

6) *Prioritized research or monitoring recommendations that would reduce the scientific uncertainty in the ABC recommendation and/or improve the assessment level.*

- Catch and effort information in the directed Chub Mackerel fishery.
- Age and length composition in the catch and fishery independent survey.
- Spatial distribution of catch.
- An expanded fishery should allow for the collection of more information on how this stock responds to fishing in our region.
- Recruitment, and an egg survey in the South Atlantic.
- Stock structure and definition. Potential habitat area occupied by Chub Mackerel in the Western Atlantic to compare with Chub Mackerel productivity in the Eastern Atlantic.
- Ageing precision and validation.
- Information on Chub Mackerel diet that may help establish links to ecosystem productivity to assess potential stock productivity.

7) *The materials considered in reaching its recommendations.*

- Staff memo: ABC considerations
- AP Fishery Performance Report
- Fishery Information Document
- MSB May 15, 2018 AP and Committee Meeting Summary
- NEFSC survey data on Chub Mackerel
- Growth and Reproduction of Atlantic Chub Mackerel (*Scomber colias*) in the Northwest Atlantic (Daley 2018)
- Summary of Dr. Robert Leaf's current Chub Mackerel research
- 2015 Pacific Chub Mackerel stock assessment
- Pacific Chub Mackerel stock assessment review (STAR) panel meeting report
- Global phylogeography of mackerels of the genus *Scomber* (Scoles et al. 1998)

- Chub Mackerel literature review by MAFMC staff
- Eggs and larvae of *Scomber scombrus* and *Scomber japonicus* in continental shelf waters between Massachusetts and Florida (Berrien 1977)

All documents listed above are available on the SSC meeting website:  
<http://www.mafmc.org/ssc-meetings/2018/july-17-18>.

8) *A certification that the recommendations provided by the SSC represent the best scientific information available.*

The ABC recommendation is based on best expert judgment that this level of catch is unlikely to result in overfishing. There is insufficient information for the SSC to certify the ABC as best scientific information available. The ABC represents a placeholder level of harvest, which will support fishery development and improved data collection and analysis.

## **Black Sea Bass**

Julia Beaty (MAFMC staff) and Gary Shepherd (NEFSC) briefed the SSC on the management history and recent NEFSC data update for Black Sea Bass. Julia also summarized the relevant sections of the Fishery Performance Report prepared by the MAFMC and ASMFC Joint Summer Flounder/Scup/Black Sea Bass Advisory Panels. The data update indicates that Black Sea Bass biomass continues to be high; the 2015 year class appears to be above average in both the northern and southern surveys, as well as appearing in the 2017 fishery discard data. The SSC noted the decline in the 2018 NEFSC trawl survey index in the northern region and a corresponding increase in the index for southern region. NEFSC attributes this observation to timing: a shift in the spring distribution of Black Sea Bass relative to the demarcation line between the north and south regions resulting from changes in survey timing likely influenced the 2018 indices for both regions. Based on the information presented, the SSC concluded that there was no compelling reason to change its previous ABC recommendation for 2019.

## **Scup**

Julia Beaty (MAFMC staff) and Mark Terceiro (NEFSC) briefed the SSC on the management history and recent NEFSC data update for Scup. Julia also summarized the relevant sections of the Fishery Performance Report prepared by the MAFMC and ASMFC Summer Flounder/Scup/Black Sea Bass Advisory Panels. According the NEFSC's data update, the NEFSC fall 2015 and spring 2016 survey biomass indices were record highs for the time series, although both seasonal indices then decreased; the NEFSC 2017 fall survey did not sample the scup assessment strata, and so no 2017 fall index is available. The MADMF spring and fall 2017, RIDFW spring and fall 2016, URIGSO 2015-2017, CTDEP spring 2016-2017, NYDEC 2016-2017, and NEAMAP spring 2016 indices were also at or near record highs, while the NJDFW index decreased during 2013-2017. Some of the indices of recruitment (RIDFW, NYDEC,

NEFSC; age 0 fish) indicate the recruitment of a large year class in 2015, which is the likely cause for a higher proportion of commercial discards in recent years.

The biomass projections, which serve as the basis for the 2019 ABC, assumed that 87% of the 2017 ABC would be caught; however, preliminary catch information indicates that 113% of the 2017 ABC was caught. The SSC agreed that this is a source of implementation error in setting the 2019 ABC.

Based on the information presented, the SSC concluded that there was no compelling reason to change its previous ABC recommendation for 2019.

## **Summer Flounder**

Kiley Dancy (MAFMC staff) and Mark Terceiro (NEFSC) briefed the SSC on the latest data update prepared by the NEFSC and the updated fishery performance plan prepared by the MAFMC and ASMFC Summer Flounder/Scup/Black Sea Bass Advisory Panels. The data update for 2018 includes catch, landings, and fishery independent survey indices through 2017. In addition, projections of stock biomass were provided for 2019. The projections used the 2016 stock assessment model run, updated to reflect realized catch from 2016 and 2017, and the assumption that the 2018 Acceptable Biological Catch (ABC) will be caught. The data update indicates that most state and federal survey indices of abundance, with the exception of Massachusetts and Delaware, have seen declines from their most recent peaks (generally during 2009-2012) through 2017, although most indices are variable in recent years, and some have shown signs of slight to moderate rebounding. The NEFSC fall survey was unable to sample the Summer Flounder strata in fall 2017; however, the NEFSC spring survey biomass index for Summer Flounder increased between 2017 and 2018. Indices of recruitment (age 0 fish) have generally been below average over the last 6-7 years. Recruitment indices in 2017 were highly variable among the various fishery-independent surveys.

A benchmark assessment of Summer Flounder is currently being conducted, and the results are expected by the end of 2018 or early 2019. Therefore, the OFL and ABC specifications recommended by the SSC for 2019 may change once the SSC has a chance to review the new benchmark assessment.

Responses by the SSC to the terms of reference provided by the Council (*in italics*) are as follows:

*For Summer Flounder, the SSC will provide a written report that identifies the following for the 2019 fishing year:*

*1) The level of uncertainty that the SSC deems most appropriate for the information content of the most recent stock assessment, based on criteria listed in the Omnibus Amendment.*

The SSC reviewed the data update and noted no information in the data that would require the SSC to revise its approach to setting ABC specifications.



The assessment model framework has not changed since the previous benchmark (SAW/SARC 57). Accordingly, the SSC maintained its determination that the assessment should be considered an “SSC-modified OFL” status.

*2) If possible, the level of catch (in weight) associated with the overfishing limit (OFL) based on the maximum fishing mortality rate threshold or, if appropriate, an OFL proxy.*

The 2019 OFL, assuming fishing at  $F_{MSY}$  ( $F=0.309$ ), is anticipated to be **9,343 mt** (= 20.60 million pounds).

*3) The level of catch (in weight) and the probability of overfishing associated with the acceptable biological catch (ABC) for the stock.*

The SSC continued to apply its standard approach for implementing the Council’s risk policy in estimating ABC. Assuming an OFL with a lognormal distribution having a 60% CV, and a stock status lower than  $B_{MSY}$ , the Council’s policy, given a  $B/B_{MSY}$  ratio = 0.78, provides a  $P^* = 0.300$ . This yields an ABC for 2019 of **6,988 mt** (= 15.41 million pounds).

The SSC notes it will re-evaluate the CV associated with the OFL when it receives the results from the next benchmark assessment.

*4) The most significant sources of scientific uncertainty associated with determination of OFL and ABC.*

- The ABC is based on an additional year’s projection from the last updated assessment (2016).
- Retrospective patterns were evident in the assessment update that have substantial implications for the reliability of model projections and inferences regarding the status of the stock. The causes of the retrospective patterns are unknown, but might include changes in the following:
  - 1) Sources of mortality that are not fully accounted in the assessment. These could include:
    - Under-estimation of discards in both the commercial and recreational fisheries, and lower estimates of mortality rates applied to the discards than are actually occurring; and
    - Under-reported landings.
  - 2) Natural mortality, which may be underestimated – but the presence of older male flounder in the population suggest this is unlikely.
  - 3) Availability or catchability of fish due to changes in stock distribution.
- Changes in life history are apparent in the population – there have been changes in sex ratio, declines in maturity at age, declines in recruitment, and declines in weights at age.
- Potential changes in availability of fish to some fishery-independent surveys and to the fishery as a result of changes in the distribution of the population.

*5) Ecosystem considerations accounted for in the stock assessment, and any additional ecosystem considerations that the SSC took into account in selecting the ABC, including the basis for those additional considerations.*

No specific, additional ecosystem information was provided to the SSC for consideration in forming its ABC recommendation.

*6) Prioritized research or monitoring recommendations that would reduce the scientific uncertainty in the ABC recommendation and/or improve the assessment level.*

- 1) Determine and evaluate the sources of the over-optimistic stock projections.
- 2) Conduct socio-economic research on the objectives and performance measures for the fishery to understand the balance of costs and benefits of ABC specifications.
- 3) The SSC recognizes the research recommendations provided in the last benchmark assessment report. Also, the SSC recommends research is conducted to:
  - Evaluate the causes of decreased recruitment and changes in recruitment per spawner in recent years;
  - Evaluate uncertainties in biomass to determine potential modifications to the OFL CV employed;
  - Evaluate fully the sex- and size distribution of landed and discarded fish, by sex, in the Summer Flounder fisheries;
  - Evaluate past and possible future changes to size regulations on retention and selectivity in stock assessments and projections;
  - Incorporate sex-specific differences in size at age into the stock assessment; and
  - Explore if and how changes in distribution and movement of the Summer Flounder stock may affect survey indices and fishery performance.

*7) The materials considered in reaching its recommendations.*

- Staff memo: 2019 Summer Flounder Management Measures
- 2018 Summer Flounder AP Fishery Performance Report
- 2018 Summer Flounder Data and Projection Update
- 2018 Summer Flounder Fishery Information Document

All documents listed above are available on the SSC meeting website:  
<http://www.mafmc.org/ssc-meetings/2018/july-17-18>.

*8) A certification that the recommendations provided by the SSC represent the best scientific information available.*

To the best of the SSC's knowledge, these recommendations are based on the best available scientific information.

## Bluefish

Matt Seeley (MAFMC staff) and Mark Terceiro (NEFSC) briefed the SSC on the latest data update prepared by the NEFSC and the updated fishery performance plan prepared by the MAFMC and ASMFC Bluefish Advisory Panels. An updated assessment of Bluefish is expected by April 2019. Therefore, the OFL and ABC specifications recommended by the SSC are for 2019 only. According to the data update, total fishery catch for Bluefish in 2017 was 100% of the 2017 ABC. The commercial length frequency distribution of Bluefish in 2017 was similar to the previous two years; the recreational length frequency distribution of Bluefish in 2017 is more spread out, not showing the bi-modal distribution seen in previous years. Vessel repairs caused a significant delay in the NEFSC Fall Bottom Trawl Survey, and as a result the fall NEFSC survey abundance index for Bluefish was not calculated. All the available fishery-independent indices of recruitment for 2017, except the NJ ocean trawl survey, showed a decrease from 2016 values.

Responses by the SSC to the terms of reference provided by the Council (*in italics*) are as follows:

*For Bluefish, the SSC will provide a written report that identifies the following for the 2019 fishing year:*

*1) The level of uncertainty that the SSC deems most appropriate for the information content of the most recent stock assessment, based on criteria listed in the Omnibus Amendment.*

The SSC was provided with only a data update in 2018. Accordingly, the SSC maintained its evaluation of the level of uncertainty associated in the assessment. The SSC continues to categorize the Bluefish assessment as an SSC-modified OFL.

*2) If possible, the level of catch (in weight) associated with the overfishing limit (OFL) based on the maximum fishing mortality rate threshold or, if appropriate, an OFL proxy.*

The SSC noted that the  $F_{msy}$  proxy of  $F_{40\%}$  might be inappropriate for Bluefish, a highly productive species (Thorson et al. 2012; Rothschild et al. 2012). A proxy of  $F_{35\%}$  is indicated by various published meta-analyses for the order Perciformes.

Based on the evidence provided to the SSC in the 2018 data update, the SSC determined there was no compelling reason to change the OFL from its previous determination. Accordingly, using  $F_{35\%}$ , the SSC recommends an OFL for 2019 of **12,688 mt** (= 27.97 million pounds).

3) *The level of catch (in weight) and the probability of overfishing associated with the acceptable biological catch (ABC) for the stock.*

The SSC was not provided with stock projections. Recent catches have been consistent with previous projections. Thus, the SSC carried forward its 2018 recommendation for ABC for 2019. Accordingly, the ABC for 2019 is **9,895 mt** (= 21.82 million pounds).

4) *The most significant sources of scientific uncertainty associated with determination of OFL and ABC.*

- The SSC-recommended ABC is based on rolling over a projection from 2016 for 2018 for an additional year.
- Uncertainty in the stock recruitment relationship adds to uncertainty in appropriate reference points.
- The uncertainty in MRIP sampling overall, which is the most influential data in the assessment. Questions have been raised about the uncertainty in the historical MRFSS/MRIP estimates in general, and are particularly relevant here given the highly episodic nature of Bluefish catches in the recreational fisheries coast wide.
- Approximately 60% of the population biomass is in the aggregated 6+ age group for which there is relatively little information.
- Commercial discards are assumed to be insignificant, which may not be the case.

5) *Ecosystem considerations accounted for in the stock assessment, and any additional ecosystem considerations that the SSC took into account in selecting the ABC, including the basis for those additional considerations.*

The ABCs were not modified by the SSC based on ecosystem considerations.

The stock assessment included ecosystem considerations:

- An index of habitat suitability was calculated based on a thermal niche model. It was fit as a covariate to survey catchability but did not improve model fits.
- Diet compositions from multiple surveys were included as auxiliary information.

6) *Prioritized research or monitoring recommendations that would reduce the scientific uncertainty in the ABC recommendation and/or improve the assessment level.*

- Develop a fishery-independent index that better captures older, larger fish, which would reduce reliance on MRIP sampling.
- Develop Bluefish-specific MSY reference points or proxies.
- Evaluate species associations with recreational angler trips targeting Bluefish to potentially modify the MRIP index used in the assessment.
- Low frequency (long term) environmental variability may have caused changes in the timing of the movement of juvenile Bluefish through the region that, in turn, may have affected availability. Changes in the selectivity of age-0 Bluefish in the survey relative to water column or surface temperature and date should be examined.

- Evaluate methods for integrating disparate indices produced at multiple spatial and temporal resolutions into a stock-wide assessment model, especially for a migratory species like Bluefish.
- Initiate fishery-dependent and fishery-independent sampling of offshore populations of Bluefish.

7) *The materials considered in reaching its recommendations.*

- Staff memo: 2019 Bluefish Management Measures
- 2018 Bluefish AP Fishery Performance Report
- 2018 Bluefish Data Update
- 2018 Bluefish Fishery Information Document

All documents listed above are available on the SSC meeting website:  
<http://www.mafmc.org/ssc-meetings/2018/july-17-18>.

- Thorson, J. T., J. M. Cope, T. A. Branch, and O. P. Jensen. 2012. Spawning biomass reference points for exploited marine fishes, incorporating taxonomic and body size information. *Canadian Journal of Fisheries and Aquatic Sciences* 69: 1–13 (2012).
- Rothschild, B. J., Y. Jiao, and S.-Y. Hyun. 2012. Simulation Study of Biological Reference Points for Summer Flounder. *Transactions of the American Fisheries Society* 141: 126-136.

8) *A certification that the recommendations provided by the SSC represent the best scientific information available.*

To the best of the SSC's knowledge, these recommendations are based on the best available scientific information.

## **Other Business**

Surfclam OFL Working Group: Brandon Muffley (MAFMC staff) updated the SSC on progress being made by the SSC Surfclam OFL Working Group. The Working Group comprises Mike Wilberg, Tom Miller, Brian Rothschild, Paul Rago, and Dan Hennen (NEFSC), and was created to further refine Dan Hennen's methodology for estimating a Surfclam OFL. A report of the entire Working Group will be developed and presented to the SSC that will outline analyses and outcomes that provide a clear path/decision process for OFL and ABC recommendations. This report will likely use a lot of the information contained in the report Dan presented to the SSC in May 2018. Information and details on stock-wide biomass estimates from the benchmark stock assessment will also be added to the Working Group report, since this information will also be considered by the Working Group as a possible method to determine an OFL/ABC.

Given other commitments and scheduling conflicts, the Working Group felt it was overly optimistic to get all of the work done and documents ready for the in-person SSC meeting in

September 2018. The group did not express any concerns about completing the tasks and getting the SSC together prior to the Council imposed deadline (February 2019 Council meeting). The Working Group will have another call (likely a webinar) in the early fall to discuss the results of Dan's analyses, and to step through the process of making OFL and ABC recommendations using the different approaches (i.e., assessment results and swept area biomass results) for both 2019 and 2020.

State of the Ecosystem Report: Sarah Gaichas reported on work being done by NEFSC on the annual State of the Ecosystem Report to address information needs of user groups, including the Councils. A workshop with user group representatives is planned for August that will be devoted to refining the report; Brandon Muffley will attend and represent MAFMC interests.

NRCC Assessment Scheduling Working Group: John Boreman and Brandon Muffley briefly discussed progress being made by the Working Group assigned by the NRCC to develop a process for scheduling stock assessments. This process includes defining and developing guidelines for the different levels of assessments, based on the type of peer review needed, and balancing assessment needs of the Councils and ASMFC with workload capabilities of NEFSC. A full SSC briefing is scheduled for the September 2018 SSC meeting, by which time the Working Group should be in the final stages of assessment scheduling development.

c: SSC Members, Warren Elliott, Chris Moore, Brandon Muffley, Kiley Dancy, Julia Beaty, Matt Seeley, Mark Terceiro, Gary Shepherd, Tony Wood, Jan Saunders

**Mid-Atlantic Fishery Management Council  
Scientific and Statistical Committee Meeting**

July 17-18, 2018

Hyatt Place Inner Harbor

511 South Central Avenue, Baltimore, MD, 21201

AGENDA

**Tuesday, July 17, 2018**

12:30 Chub Mackerel ABC specifications for 2021-2023 (J. Beaty)

3:00 Black Sea Bass data and fishery update; review of previously recommended 2019 ABC (J. Beaty)

4:30 Scup data and fishery update; review of implemented 2019 ABC (J. Beaty)

5:30 Adjourn

**Wednesday, July 18, 2018**

8:30 Summer Flounder ABC specifications for 2019; data and fishery update (K. Dancy)

10:30 Bluefish ABC specifications for 2019; data and fishery update (M. Seeley)

12:30 Adjourn

MAFMC Scientific and Statistical Committee  
17-18 July 2018  
Baltimore, Maryland

Meeting Attendance

<u>Name</u>	<u>Affiliation</u>
<i>SSC Members in Attendance:</i>	
John Boreman (SSC Chairman)	NC State University
Tom Miller (SSC Vice-Chairman)	University of Maryland – CBL
Sarah Gaichas	NMFS Northeast Fisheries Science Center
Ed Houde	University of Maryland – CBL (retired)
Mike Wilberg	University of Maryland - CBL
Olaf Jensen	Rutgers
Dave Secor	University of Maryland - CBL
Paul Rago	NMFS (retired)
Yan Jiao	Virginia Tech
Cynthia Jones (7/19 only)	Old Dominion University
Wendy Gabriel	NMFS Northeast Fisheries Science Center
 <i>Others in attendance:</i>	
Kiley Dancy	MAFMC staff
Julia Beaty (7/17 only)	MAFMC staff
Brandon Muffley	MAFMC staff
Matt Seeley (7/18 only)	MAFMC staff
Mike Luisi (7/17 only)	MAFMC Chair
Mark Terceiro (by phone)	NMFS Northeast Fisheries Science Center
Gary Shepherd (by phone, 7/17 only)	NMFS Northeast Fisheries Science Center
Tony Wood (by phone, 7/18 only)	NMFS Northeast Fisheries Science Center
Emily Gilbert	NMFS GARFO
Caitlin Starks	ASMFC
Kirby Rootes-Murdy (7/18 only)	ASMFC
Jeff Kaelin (7/17 only)	Lund's Fisheries
Purcie Bennett-Nickerson (7/17 only)	Pew Charitable Trust

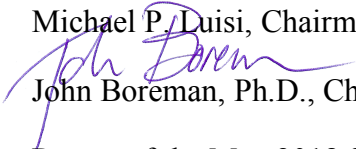




## Mid-Atlantic Fishery Management Council

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Michael P. Luisi, Chairman | G. Warren Elliott, Vice Chairman  
Christopher M. Moore, Ph.D., Executive Director

# MEMORANDUM

**Date:** 18 May 2018  
**To:** Michael P. Luisi, Chairman, MAFMC  
**From:**  John Boreman, Ph.D., Chair, MAFMC Scientific and Statistical Committee  
**Subject:** Report of the May 2018 SSC Meeting

The SSC met in Baltimore on the 8<sup>th</sup> and 9<sup>th</sup> of May 2018. The main objectives of the meeting were to develop new ABC specifications for Atlantic Mackerel in light of the results of the recent SAW/SARC benchmark assessment and affirm (or develop new) ABC specifications for Longfin Squid, *Illex* squid, Butterfish, Surfclam, and Ocean Quahog based on data updates (Attachment 1). Other topics discussed at the meeting included a presentation and discussion of the MRIP transition to new sampling designs for the catch and effort surveys and a report from the SSC panel assigned to review the proposed re-design of the Northeast Fisheries Science Center's Surfclam and Ocean Quahog Survey.

A total of 14 SSC members were in attendance each day (Attachment 2), which constituted quorums. Also attending were MAFMC staff, staff from the NEFSC and NMFS Headquarters, and representatives from VIMS, Pew, SeaFreeze, Lund's Fisheries, Sea Watch International, Wallace and Associates, and the Garden State Seafood Association. Documents referenced in the report and associated meeting presentations can be accessed via the SSC's meeting website (<http://www.mafmc.org/ssc-meetings/2018/may-8-9>).

## MRIP Fishing Effort Survey Update

Kelly Denit and John Foster (NMFS Headquarters) briefed the SSC on the status of implementing the new fishing effort survey under the Marine Recreational Information Program (MRIP), as well as progress in calibrating MRIP data collected on catch and effort using new survey designs with the time series of data from previous years (1981-2017). The main part of the discussion and questions from the SSC centered around factors influencing or driving the large increase in effort estimates between the old coastal household telephone survey and the new fishing effort (mail-in) survey. The "gate keeper" effect caused by the telephone survey (person who answered the phone) biased how that survey got to anglers in a household; the mail-in survey allows for a more complete survey coverage and has a much higher response rate. Discussion also addressed how the new intercept and mail-in surveys will lead to improvements in the precision of the catch estimates, and how the new survey weights the sampling of households with licensed fishermen versus the general population of households in coastal states.

The SSC was re-assured that the calibrated estimates linking the data currently being collected under the new MRIP catch and effort surveys with the data series dating back to 1981 will be released on July 2<sup>nd</sup>.

## Atlantic Mackerel

Kiersten Curti (Northeast Fisheries Science Center) presented the most recent benchmark assessment for Atlantic Mackerel, which was approved by the SARC (SARC 64), followed by a summary by Jason Didden (MAFMC staff) of the fishery performance report and staff recommendations. John Boreman, who chaired the SARC review of the benchmark assessment, summarized the SARC panel findings. Besides accepting the benchmark assessment, the SARC panel concluded that the stock is currently overfished (spawning stock biomass is below one-half of  $SSB_{MSY}$ ) and experiencing overfishing (the fishing mortality rate is above the  $F_{MSY}$  threshold). Dr. Curti provided stock biomass projections for several management scenarios, including a five- or seven-year stock rebuilding strategy, based on the biological reference points in the benchmark assessment.

Responses by the SSC to the terms of reference provided by the Council (*in italics*) are as follows:

*For Atlantic Mackerel, the SSC will provide a written report that identifies the following for fishing years 2019-2021:*

*1) The level of uncertainty that the SSC deems most appropriate for the information content of the most recent stock assessment, based on criteria listed in the Omnibus Amendment.*

The SSC acknowledges the tremendous progress made for Atlantic Mackerel, a stock that previously required *ad hoc* ABC specifications. The SSC accepted the overfishing limit (OFL) estimate for 2019 provided in the assessment and determined the level of uncertainty of OFL in the assessment requires an SSC-specified coefficient of variation (CV).

*2) For 3A below, if possible, the level of catch (in weight) associated with the overfishing limits (OFLs) based on the maximum fishing mortality rate threshold or, if appropriate, an OFL proxy.*

New biological reference points were proposed in the benchmark assessment, which were reviewed and accepted by SARC 64. Unable to parameterize a stock recruitment relationship, SAW 64 recommended  $F_{40\%}$  be used as a proxy for  $F_{MSY}$  and total spawning stock biomass at  $F_{40\%}$  ( $SSB_{40\%}$ ) be used as the proxy for the stock biomass reference point. The  $F_{40\%}$  value produced an  $F_{MSY}$  proxy of 0.26.

Updated projections produce an OFL of **31,764 MT** for 2019 from the  $F_{MSY}$  proxy of 0.26 applied to the projected 2019 biomass and assuming preliminary 2017 catch and expected 2018 catch. OFL will change for 2020 and 2021, based on the expected catch scenario.

*3) Provide the acceptable biological catch (ABC) for the stock under the following Council risk policy alternatives for Atlantic Mackerel:*

*A. Consistent with the current risk policy typically used by the SSC, the level of catch (in weight) and the probability of overfishing associated with the ABC for the stock, the number of fishing years for which the ABC specification applies and, if possible, interim metrics that can be examined to determine if multi-year specifications need reconsideration prior to their expiration.*

Trends in the egg production ratio of northern to southern contingents suggests varying composition over time. Such differences may be attributable to varying recruitment or exploitation between contingents. Analyses of ecosystem factors suggest potential climatic influences on distribution patterns and biological production. High levels of recruitment before 1975 were not incorporated into the final model due to uncertainty about re-establishing similar levels of recruitment under current conditions. This reduces the overall estimates of  $B_{MSY}$  and associated yields.

Catches varied over nearly two orders of magnitude but have oscillated downward from the late 1960s to present. Fishing mortality has varied over an order of magnitude over the same period, but age-specific selectivity obscures the force of mortality on the population when the age composition is truncated. The recovery of the population in response to increases in recruitment and relaxation of fishing mortality suggests that estimates are reasonably accurate. Management strategy evaluations were not conducted to test the robustness of model performance under these levels of fishing mortality.

In developing its OFL CV determination, the SSC considered the following areas and make the observations noted.

**Data Considerations:** The development of a stock-wide egg production index for Atlantic mackerel constituted a major advance for this assessment. The pattern in the time series of the NEFSC spring bottom trawl survey was substantially different to the pattern evident in the stock-wide egg production index, in the catch time series, and in the abundance time series estimated in the assessment model. Tracking of cohorts in the trawl survey and total catch-at-age is detectable for strong cohorts, but occasionally inconsistent for weaker cohorts. Missing catch in Canadian fisheries averages about 5000 mt per year. Recreational catches and discards were generally a minor proportion of total removals

**Model considerations:** Three alternative age-based models were considered (ASAP, SAM, CCAM). All three models considered Atlantic Mackerel as a single unit stock and did not include any contingent dynamics known to be present empirically. The ASAP model was the preferred model for management. Over 150 model configurations of the ASAP model were evaluated in a logical progression for model identification and sensitivity.

**Retrospective adjustment:** No important retrospective patterns were apparent in the ASAP results.

**Comparison with empirical scale:** Even though an independent, empirical index of population scale is lacking (because all data are used in the assessment), the ASAP model appears to be robust with respect to both trend and scale.

**Trend in recruitment:** There was no trend in recruitment evident in the three assessment models evaluated (ASAP, SAM and CCAM). However, there were differences among the models with respect to terminal year estimates of recruitment, which were particularly important given the incomplete sampling of the 2015 year class. The ASAP model estimates of terminal recruitment were about two to three times higher than the SAM and CCAM estimates and also less precise. These discrepancies in the terminal year abundance have important implications for biomass projections. This source of model uncertainty may have substantial consequences for the reliability of the short-term projections based on the ASAP model.

**Assessment accuracy under different fishing pressures:** Although the overall trend in abundance has been a downward trend, and the overall trend in fishing pressure has been generally upwards, the SSC was convinced that there was sufficient interannual contrast in the pattern of stock biomass and fishing mortality to be informative.

**Simulations/ MSE:** No MSE was conducted.

**Ecosystem factors accounted:** The assessment assumed a constant  $M = 0.2$  for all ages and across time. However, the role of Atlantic Mackerel as an important forage species suggest this assumption introduces uncertainty into short-term population projections.

Collectively, the attributes of the Atlantic Mackerel assessment suggest a high degree of confidence in the results, but the SSC expressed particular concern about the reliance of the OFL on a moderately high and uncertain terminal year recruitment estimate in the ASAP model; comparably high estimates were not obtained in the SAM or CCAM models. Furthermore, lack of confirmation of the strength of the 2015 year class in commercial landings or bottom trawl surveys suggests that a CV of 100% is appropriate for estimation of ABC.

Based on the assumption that the OFL CV is 100% with a lognormal distribution, and a typical life history, the ABC recommendations for 2019-2021 are as follows:

2019: **19,025 mt**,  $P^* = 0.269$

2020: **26,183 mt**,  $P^* = 0.333$

2021: **33,001 mt**,  $P^* = 0.386$

Interim metrics:

- Age structure in the fishery, as well as the survey
- Continued evidence of the influence of the 2015 year class (and other strong year classes)
- Egg index

- Fishery performance reports (especially factors influencing catch)

*B. Consistent with the Council's proposed risk policy change for using a 5-year Atlantic Mackerel rebuilding timeline (see staff memo), the level of catch (in weight) for the stock associated with a 5-year rebuilding fishing mortality rate, the number of fishing years for which the ABC applies and, if possible, interim metrics that can be examined to determine if multi-year specifications need reconsideration prior to their expiration.*

[The SSC notes that both options B and C (Options 2 and 3 in the staff memo) suggest a more aggressive harvest policy than the Council would use under the P\* approach for both an overfished stock and for a stock at or above its target biomass. Both options result in a smaller difference between the ABC and OFL than the SSC would recommend under the standard risk policy for a stock above its target biomass.]

ABCs for 2019-2021 based on a 5-year rebuilding F ( $F = 0.237$ ):

2019: **29,184 mt**

2020: **32,480 mt**

2021: **35,195 mt**

Interim metrics:

- Age structure in the fishery, as well as the survey
- Continued evidence of the influence of the 2015 year class (and other strong year classes)
- Egg index
- Fishery performance reports (especially factors influencing catch)

*C. Consistent with the Council's proposed risk policy change for using a 7-year Atlantic Mackerel rebuilding timeline (see staff memo), the level of catch (in weight) for the stock associated with a 7-year rebuilding fishing mortality rate, the number of fishing years for which the ABC applies and, if possible, interim metrics that can be examined to determine if multi-year specifications need reconsideration prior to their expiration.*

ABCs for 2019-2021 based on a 7-year rebuilding F ( $F = 0.252$ ):

2019: **30,868 mt**

2020: **34,016 mt**

2021: **36,551 mt**

Interim metrics:

- Age structure in the fishery, as well as the survey

- Continued evidence of the influence of the 2015 year class (and other strong year classes)
- Egg index
- Fishery performance reports (especially factors influencing catch)

*4) The most significant sources of scientific uncertainty associated with determination of OFL and ABC.*

- The estimated size of the most recent year class in the assessment (substantially higher than most recent recruitments) drives assumptions about rebuilding times, OFLs, and ABCs;
- Conversion of egg survey results to the spawning stock biomass estimate;
- The assessment is sensitive to the distribution of Atlantic Mackerel, which has been changing and may continue to change;
- Trawl survey representation of abundance and age structure;
- The assumption of fixed natural mortality rate and data gaps associated with major predators of mackerel; and
- Missing catch information from bait and recreational fisheries in Canada.

*5) Ecosystem considerations accounted for in the stock assessment, particularly with regard to Atlantic Mackerel's role as forage for predators in the Mid-Atlantic, and any additional ecosystem considerations that the SSC took into account in selecting the ABC, including the basis for those additional considerations.*

An ecosystem criterion was applied in determination of OFL CV (but was not the primary consideration). The SSC did not include specific ecosystem considerations in the ABC.

Working papers prepared for the assessment addressed habitat changes, changing availability, and changes to the fishery. The information contained in the working papers provided useful background for the assessment and contributed to the model identification process, as well as the decision on which portion of the recruitment time series to use.

The SAW 64 did not explicitly account for predation mortality in the assessment. Ancillary analysis contained as a working document and considered by the working group indicated low incidence in the diets of fishes sampled within the NEFSC bottom trawl survey. Predation by highly migratory species, sharks, marine mammals, and birds remains unknown.

*6) Prioritized research or monitoring recommendations that would reduce the scientific uncertainty in the ABC recommendation and/or improve the assessment level.*

The SSC supports all of the recommendations from SAW/SARC 64. In particular, the SSC recommends continuing the U.S. component of the Atlantic Mackerel egg survey so that the range-wide egg index can be updated and used in future assessments. This recommendation requires a continuation of the work done to identify and quantify Atlantic Mackerel eggs collected in the survey. Continuing collaboration with both the fishing industry and Canadian scientists to maintain the assessment is also recommended by the SSC.

In addition, the SSC recommends:

- Ensuring all components of the fishery (e.g., emerging jig fishery) are sampled biologically;
- Investigating acoustic survey methods for Atlantic Mackerel;
- Investigating methods for using the egg survey as an absolute estimate of spawning stock biomass; and
- Investigating eDNA methods for Atlantic Mackerel.

7) *The materials considered in reaching its recommendations.*

- SAW 64: Summary Report / Assessment Report / Panelist Reports
- Atlantic Mackerel Data Update for 2019 Specifications
- Mackerel Rebuilding Memo for Council
- Mackerel Projections (P\*) (Excel file)
- Mackerel Projections (rebuilding) (Excel file)
- 2018 Atlantic Mackerel, Squid, Butterfish AP Fishery Information Document
- 2018 Atlantic Mackerel, Squid, Butterfish AP Fishery Performance Report
- MSB Staff Memo

All documents listed above are available on the SSC meeting website:  
<http://www.mafmc.org/ssc-meetings/2018/may-8-9>

8) *A certification that the recommendations provided by the SSC represent the best scientific information available.*

To the best of the SSC's knowledge, these recommendations are based on the best available scientific information.

## ***Illex* Squid, Longfin Squid, and Butterfish**

Jason Didden (MAFMC staff) presented the data updates prepared for *Illex* squid, Longfin Squid, and Butterfish prepared by the NEFSC, along with the respective fishery performance reports prepared by the advisory panel. The 2017 fall NEFSC survey indices for the three species were not computed because a substantial proportion of habitat was not sampled (vessel mechanical problems). Landings of *Illex* squid increased in 2016, and in 2017 reached the third highest level (22,516 mt) since the 1987 origin of the US fishery, and the fishery was closed in September 2017 when 95% of the annual quota was met. The 2017 preliminary landings statistics for Longfin Squid, while incomplete, were down from 2016 by about half. Landings of Butterfish in 2017 were 3,666 mt, the highest since the resumption of the directed fishery; estimates of fishery discards for 2017 were not available in time for the SSC meeting. Based on this information, as well as the information contained in the fishery performance reports, the SSC concluded that no adjustments to the standing ABC recommendations for *Illex* squid, Longfin Squid, and Butterfish were necessary for the 2019 fishing year.

## **Surfclams and Ocean Quahogs**

Dan Hennen (NEFSC) presented survey and fishery updates for Atlantic Surfclam and Ocean Quahog, and Jessica Coakley (MAFMC staff) summarized the fishery performance reports and MAFMC staff recommendations. Based on the information presented, the SSC concluded that no changes to the standing ABC recommendations for the 2019 fishing year were necessary for either species.

Following his update of the survey and fishery catch information for Surfclam, Dan Hennen presented a method he developed for calculating a proxy for the Surfclam OFL. Several SSC members expressed interest in working with Dan to refine the method so it can be considered for use with a P\* approach to estimating an ABC. Pending approval from the Council and NEFSC, a joint SSC/NEFSC working group will be established for this project with delivery of the results at a future SSC meeting.

## **New Design for Surfclam and Ocean Quahog Survey**

The Northeast Fisheries Science Center is proposing changes to the design of the NEFSC's Surfclam and Ocean Quahog Survey as developed by a working group (WG) of NEFSC and MAFMC staff, academic partners, and other interested parties. The goals of the proposed changes are to improve the precision and utility of survey data used in stock assessments and to use survey resources more efficiently. NEFSC requested the MAFMC to have its SSC review the proposed new survey design to ensure that it will assist the SSC in development of scientific advice and improve management of the clam resources by the Council.

In the March 2018 SSC meeting, Larry Jacobson and Dan Hennen (NEFSC) presented an in-depth description of the proposed survey changes, their basis, and the anticipated improvements in scientific information resulting from the new survey design. Subsequently, an SSC Review Panel, comprising Ed Houde (Chair), Olaf Jensen, Rob Latour, and Mike Wilberg, undertook a detailed review of the proposed changes, based on the following terms of reference jointly developed by the NEFSC and SSC:

- 1A. Will the alternative survey design options recommended in the NEFSC report substantially improve 1) survey data, 2) stock assessment model results, and 3) management advice for surfclams and ocean quahogs?
- 1B. Review the report's justifications, evaluations, and recommendations to conduct separate surveys for surfclams and ocean quahogs. Will the recommended design improve the Council's ability to assess and manage these resources?
2. Are recommended options for the redesign of the NEFSC clam survey appropriate based on 1) life history and biology of surfclams and ocean quahogs, 2) ongoing climate induced distributional shifts, and 3) fishery patterns? Do answers differ for surfclams and ocean quahogs?
3. Critique the report's recommendations for surfclams and ocean quahogs, with respect to proposed changes in survey scheduling and the reduction in survey spatial coverage.



4. Review and evaluate proposed stratifications in the sampling design recommended by the NEFSC WG. Are the recommended strata, primarily defined by depth and location, appropriate or would an alternative stratification plan, e.g., based on clam abundances, be preferable?
5. Will the proposed changes in the surfclam and ocean quahog survey compromise ability to utilize the lengthy historical time series of survey data in future assessments?
6. Will the recommended changes in survey design affect observation and estimation of biological characteristics, such as length-weight relationships and growth rates? What are the likely effects?

In this meeting, Ed Houde presented the following findings of the Review Panel:

- The WG's proposed design revises the current survey design, resulting in substantial reductions in area covered by the survey, and proposes separate surveys for Surfclam and Ocean Quahog in contrast to the current combined-species survey.
- The Review Panel, while in overall agreement with the WG's recommended new design, recognized that alternative design approaches could have been considered.
- The new design proposes a survey frequency similar to that currently conducted for Surfclam, which will increase precision of the surveys, improve estimates of abundance, and is likely to improve management advice for this species. Improvements for Ocean Quahog and utility for management are likely, but less certain because of reduced frequency of the proposed surveys for this species.
- Alternative approaches to survey designs were noted by the Review Panel and discussed relative to the design-based approaches proposed by the WG. The Review Panel recommended model-based spatial simulations be undertaken to support longer-term consideration and research on survey design for the clam species.
- The Review Panel also noted that the WG had not considered habitat and environmental variables (beyond location and depth) to optimize survey design. The WG argued that its recommended stratification largely avoids discontinuous strata, but the Review Panel noted that such stratification has merit under some circumstances.
- The Review Panel believes that multivariate techniques for survey optimization (i.e., finding a design that minimizes some combination of the variances for both species) are available that could have been tested to define an appropriate base case against which to compare a survey design in which each species is surveyed separately. Further research and in-depth consideration of alternative stratification schemes is recommended.
- The Review Panel believes there will be little loss of historical information if the new survey design is adopted. It also is unlikely that there will be a loss of biological data and information.
- It is noted that, if the new proposed survey design is adopted, a change in stock assessment schedules for Surfclam and Ocean Quahog will be necessary. Current assessments are conducted on a 3-4-year timetable. If the new design is adopted, assessment for Surfclam would be conducted every four years and that for Ocean Quahog every six years.
- The WG believes that a decadal reconsideration of survey design will be adequate for these species. This may be sufficient, although some evaluation is desirable. The Review Panel recommends that a new Term of Reference be added to the stock assessment protocol for these species that addresses the possible need for re-evaluation of survey designs during deliberations for each stock assessment.

In addition to its findings, the Review Panel provided ten short- and longer-term recommendations to the NEFSC WG for its consideration.

A main topic of SSC discussion of the Review Panel's report was the potential impact on the clam dredge survey (as well as the clam fisheries) of proposed wind farms and associated transmission cables that are contemplated for the Northeast US Continental Shelf, which could be extensive. SSC members also expressed concern about "edge effect" in the survey caused by a shift in distribution of Surfclam and Ocean Quahog induced by climate change. Dan Hennen responded that the overlap of sampling strata for Surfclam with those for Ocean Quahog would enable detection of such an effect, and the survey design could be adjusted accordingly.

The SSC endorsed the report from the Review Panel and agreed to adopt it as a product of the committee. The SSC also looks forward to seeing the formal response from the NEFSC to the report's findings and recommendations.

c: SSC Members, Warren Elliott, Chris Moore, Brandon Muffley, Jason Didden, Jessica Coakley, José Montañez, Kiersten Curti, Dan Hennen, Kelly Denit, John Foster, Jan Saunders

**Mid-Atlantic Fishery Management Council  
Scientific and Statistical Committee Meeting**

8-9 May 2018  
Baltimore, MD

**Agenda**

**Tuesday, May 8, 2018**

10:00 MRIP FES update (K. Denit/J. Foster)

11:00 Atlantic Mackerel benchmark assessment; Council rebuilding framework (K. Curti/J. Didden)

12:30 Lunch

1:30 Develop Atlantic Mackerel ABC recommendations

- Current risk policy approach and rebuilding plan options

3:00 Illex, Longfin Squid, and Butterfish data and fishery updates; review of implemented 2019 ABCs (J. Didden)

5:00 Adjourn

**Wednesday, May 9, 2018**

8:30 Surfclam and Ocean Quahog data and fishery update; review of implemented 2019 ABCs (D. Hennen/J. Coakley)

11:00 NEFSC clam dredge survey SSC Working Group review (E. Houde)

12:30 Adjourn

MAFMC Scientific and Statistical Committee  
8-9 May 2018  
Baltimore, Maryland

Meeting Attendance

<u>Name</u>	<u>Affiliation</u>
<i>SSC Members in Attendance:</i>	
John Boreman (SSC Chairman)	NC State University
Tom Miller (SSC Vice-Chairman)	University of Maryland – CBL
Mark Holliday	NMFS (Retired)
Sarah Gaichas	NMFS Northeast Fisheries Science Center
Ed Houde (5/9 only)	University of Maryland – CBL (retired)
Lee Anderson	University of Delaware (retired)
Mike Wilberg	University of Maryland - CBL
Brian Rothschild	UMass Dartmouth (retired)
Rob Latour	VIMS
Olaf Jensen	Rutgers
Dave Secor	University of Maryland - CBL
Paul Rago	NMFS (retired)
Yan Jiao	Virginia Tech
Cynthia Jones (5/8 only)	Old Dominion University
Wendy Gabriel	NMFS Northeast Fisheries Science Center
<i>Others in attendance:</i>	
Jessica Coakley	MAFMC staff
Jason Didden (5/8 only)	MAFMC staff
Brandon Muffley	MAFMC staff
José Montañez	MAFMC staff
Chris Moore (5/9 only)	MAFMC staff
Kiersten Curti (5/8 only)	NMFS Northeast Fisheries Science Center
Dan Hennen (5/9 only)	NMFS Northeast Fisheries Science Center
Greg DiDomenico (5/8 only)	Garden State Seafood Association
Jeff Kaelin (5/8 only)	Lund's Fisheries
Kelly Denit (5/8 only)	NMFS Headquarters
John Foster (5/8 only)	NMFS Headquarters
Jay Peterson (5/8 only)	NMFS Headquarters
John Manderson (5/8 only)	NMFS Northeast Fisheries Science Center
Doug Christel (5/8 only)	NMFS GARFO
Purcie Bennett-Nickerson (5/8 only)	Pew Charitable Trust
Guy Simmons (5/9 only)	SeaFreeze
Roger Mann (5/9 only)	VIMS, Council member
David Wallace (5/9 only)	Wallace and Associates
Tom Alspach (5/9 only)	Sea Watch International



# 2018 Planned Council Meeting Topics

as of 8/2/2018

## August 14-16, 2018 – Virginia Beach, VA

- Swearing-in of new and reappointed Council members
- Election of officers
- Bluefish 2019 Specifications – *Develop and approve*
- Bluefish Allocation Amendment – *Review scoping comments and present potential range of alternatives*
- Atlantic Mackerel Rebuilding Framework With 2019-2021 Specifications and RH/S Cap and Progress Update – *Framework meeting 2 (final action)*
- *Illex* Control Date and 2018 and 2019 Fishery – *Consider a new or existing control date; review and consider adjustment to 2018 and 2019 Illex specifications.*
- Summer Flounder 2019 Specifications – *Develop and approve*
- Scup 2019 Specifications – *Review*
- Black Sea Bass 2019 Specifications – *Develop and approve*
- Summer Flounder, Scup, and Black Sea Bass Framework on Conservation Equivalency, Block Island Sound Transit, and Slot Limits – *Framework meeting 1*
- Black Sea Bass 2019 Wave 1 fishery – *Review and approve*

## October 2-4, 2018 – Cape May, NJ

- 2019-2021 Spiny Dogfish Specifications – *Develop and approve*
- 2019 Specifications for Squids and Butterfish - *Review*
- ~~Commercial Fisheries eVTR Framework – Framework meeting 1~~
- Chub Mackerel Amendment – *Approve public hearing document*
- Industry-Funded Monitoring Amendment update – *Decide whether to proceed*
- Revised MSB goals and objectives – *Adopt*
- Risk Policy Framework – *Update on summer flounder economic MSE analysis*
- EAFM Risk Assessment – *Next steps and determine high risk priorities*
- Atlantic Surfclam and Ocean Quahog Excessive Shares Amendment – *Approve public hearing document (moved from December)*
- 2020-2024 Strategic Plan – *Discuss timeline and approach*

## December 11-13, 2018 – Annapolis, MD

- ~~Atlantic Surfclam and Ocean Quahog Excessive Shares Amendment – Approve public hearing document (moved to October)~~
- Bluefish Allocation Amendment – *Approve range of alternatives for public hearings*
- ~~Commercial Fisheries eVTR Framework – Framework meeting 2 (final action)~~
- Summer Flounder, Scup, and Black Sea Bass 2019 Recreational Management Measures - *Adopt*
- Summer Flounder Amendment: Commercial Issues/Goals and Objectives – *Final action*

- Summer Flounder, Scup, and Black Sea Bass Framework on Conservation Equivalency, Block Island Sound Transit, and Slot Limits – *Framework meeting 2 (final action)*
- Black Sea Bass Amendment – *Review initiation and identify issues for consideration*
- Chub Mackerel Amendment – *Final action*
- 2019 Implementation Plan – *Approve*



## MAFMC 2019 COUNCIL MEETINGS

February 12-14, 2019	Hilton Virginia Beach Oceanfront 3001 Atlantic Avenue Virginia Beach, VA 23151 757-213-3000	
April 9-11, 2019	Icona Golden Inn 7849 Dune Drive Avalon, NJ 08202 609-368-5155	
June 4-6, 2019	Yotel Hotel 570 10 <sup>th</sup> Ave. New York, NY 10036 646-449-7700	
August 12-15, 2019	Courtyard Philadelphia Downtown 21 N. Juniper St. Philadelphia, PA 19107 215-496-3200	
October 8-10, 2019	<i>Lodging:</i> Durham Marriott Center City 201 Foster St Durham, NC 27701 919-768-6000	<i>Meeting:</i> Durham Convention Center 301 W. Morgan St. Durham, NC 27701 919-956-9404
December 10-12, 2019	Westin Annapolis 100 Westgate Circle Annapolis, MD 21401 410-972-4300	



# Status of Council Actions Under Development

AS OF 8/2/2018

FMP	Action	Description	Status	Staff Lead
Summer Flounder, Scup, Black Sea Bass	Summer Flounder Commercial Issues Amendment	The Council and ASMFC are developing this joint amendment to consider revisions to the FMP goals and objectives for summer flounder and commercial management measures and strategies, including federal commercial moratorium permit requalification, commercial allocation, and landings flexibility FMP framework provisions. <a href="http://www.mafmc.org/actions/summer-flounder-amendment">http://www.mafmc.org/actions/summer-flounder-amendment</a>	Public hearings will be held in September 2018. Final action is expected at the December 2018 Council meeting.	Dancy
	Summer Flounder, Scup, and Black Sea Bass Framework on Conservation Equivalency, Block Island Sound Transit, and Slot Limits	The Council and the ASMFC are developing a joint framework action and addendum to consider adding the following management options to the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan: (1) Conservation equivalency for the recreational black sea bass fishery, (2) Summer flounder conservation equivalency rollover, (3) Transit provisions for Block Island Sound for all three species, and (4) Slot limits for recreational fisheries for all three species. <a href="http://www.mafmc.org/actions/sfsbsb-recreational-management-fw">http://www.mafmc.org/actions/sfsbsb-recreational-management-fw</a>	The Council and Board will review alternatives and a draft impacts analysis at their joint August meeting, with final action tentatively scheduled for December 2018.	Beaty
	Summer Flounder, Scup, and Black Sea Bass Commercial Accountability Measures Framework	This framework considers alternatives to the existing commercial accountability measures for the commercial summer flounder, scup and black sea bass fisheries, with a focus on evaluating and accounting for commercial discards. <a href="http://www.mafmc.org/actions/sfsbsb-commercial-am-framework">http://www.mafmc.org/actions/sfsbsb-commercial-am-framework</a>	EA submitted to GARFO on June 12, 2018. Anticipated publication of proposed rule sometime in mid-August.	Muffley
	Recreational Black Sea Bass Wave 1 Letter of Authorization Framework	This framework considers opening the Wave 1 black sea bass fishery under a Letter of Authorization (LOA) program. <a href="http://www.mafmc.org/actions/bsb-wave-1-loa-framework">http://www.mafmc.org/actions/bsb-wave-1-loa-framework</a>	For 2019, a Wave 1 fishery will be considered through the recreational specification process. Staff will continue development of the LOA framework for potential implementation in 2020.	Muffley



FMP	Action	Description	Status	Staff Lead
Mackerel, Squid, Butterfish	Chub Mackerel Amendment	This amendment considers adding Atlantic chub mackerel to the Atlantic Mackerel, Squid, and Butterfish FMP. The amendment will consider potential catch limits, accountability measures, and other conservation and management measures required for stocks to be considered “in the fishery.” <a href="http://www.mafmc.org/actions/chub-mackerel-amendment">http://www.mafmc.org/actions/chub-mackerel-amendment</a>	Staff is developing alternatives.	Beaty
	Atlantic Mackerel Rebuilding Framework	This framework action considers rebuilding options for the Atlantic mackerel fishery. <a href="http://www.mafmc.org/actions/atlantic-mackerel-rebuilding-framework">http://www.mafmc.org/actions/atlantic-mackerel-rebuilding-framework</a>	The Council reviewed an initial range of alternatives in April 2018. Final action is expected in August 2018.	Didden
Bluefish	Bluefish Allocation Amendment	This amendment considers potential revisions to the allocation of Atlantic bluefish between the commercial and recreational fisheries and the commercial allocations to the states. As part of this amendment the Council and ASMFC will also review the goals and objectives of the bluefish FMP and the quota transfer processes. <a href="http://www.mafmc.org/actions/bluefish-allocation-amendment">http://www.mafmc.org/actions/bluefish-allocation-amendment</a>	Scoping hearings were held in June/July 2018. The Council and ASMFC will review scoping comments and discuss next steps in August 2018.	Seeley
Surfclams and Ocean Quahogs	Excessive Shares Amendment	This amendment considers options to ensure that no individual, corporation, or other entity acquires an excessive share of the Surfclam and Ocean Quahog Individual Transferable Quota (ITQ) privileges. In addition, the goals and objectives for the SCOQ FMP will be reviewed and potentially revised. <a href="http://www.mafmc.org/actions/scoq-excessive-shares-amendment">http://www.mafmc.org/actions/scoq-excessive-shares-amendment</a>	Staff is continuing to refine the range of alternatives and develop a public hearing document.	Montañez
Omnibus	Industry-Funded Monitoring Amendment	This amendment considers measures that would allow the Council to implement industry-funded monitoring coverage in some FMPs above levels required by the Standard Bycatch Reporting Methodology in order to assess the amount and type of catch, monitor annual catch limits, and/or provide other information for management. The Amendment also considers specific coverage levels for the Atlantic mackerel fishery. <a href="http://www.mafmc.org/actions/omnibus-observer-funding">http://www.mafmc.org/actions/omnibus-observer-funding</a>	Action was postponed until completion of NMFS’ electronic monitoring pilot project being conducted by NMFS. The Council expects to receive an update and discuss next steps in October 2018.	GARFO/ Didden

FMP	Action	Description	Status	Staff Lead
	Risk Policy Framework	The purpose of this framework action is to provide for a review of the ABC control rule framework and Council Risk Policy established in 2010 and to recommend any changes.	Development of the MSE model for summer flounder is continuing with a focus on further incorporation of social and economic factors. The Council will review initial MSE results later in 2018.	Muffley
	Omnibus Amendment for Data Modernization	This amendment will address the regulatory changes needed to fully implement the Agency's Fishery-Dependent Data Visioning Project	The Greater Atlantic Regional Fisheries Office (GARFO) and the Northeast Fisheries Science Center (NEFSC) are continuing to work on the Fisheries Dependent Data Visioning (FDDV) project	GARFO/ NEFSC

## Timeline and Status of Recent MAFMC Actions and Amendments/Frameworks Under Review

As of 8/2/2018

Status	Amendment/Framework	Action Number	Council Approval	Initial Submission	Final Submission	NOA Published	Proposed Rule Published	Approval/Disapproval Letter	Final Rule Published	Regs Effective
<b>Complete</b>	Tilefish Framework 2	Tilefish FW 2	4/13/16				10/23/17		3/13/18	4/12/18
<b>Complete</b>	Blueline Tilefish Amendment	Tilefish AM 6	4/13/16			6/14/17	6/28/17	9/13/17	11/15/17	12/15/17
<b>Complete</b>	Omnibus Unmanaged Forage Amendment	SFSBSB AM 20; MSB AM 18; SCOQ AM 19; Bluefish AM 6; Tilefish AM 5; Dogfish AM 5	8/8/16	11/23/16	3/20/17	3/28/17	4/24/17	6/19/17	8/25/17	9/27/17
<b>Complete</b>	Omnibus eVTR Framework	MSB FW 10; Bluefish FW 2; SFSBSB FW 10; Tilefish FW 3	8/10/16		11/17/16		5/24/17		9/11/17	3/12/18
<b>Complete</b>	Omnibus ABC Framework	MSB FW 11; Bluefish FW 3; SFSBSB FW 11; SCOQ FW 2; Tilefish FW 4; Dogfish FW 3	6/12/14		7/31/15		7/19/17		4/11/18	5/11/18
<b>Complete</b>	Commercial Scup Quota Period Framework	SFSBSB FW 12	5/10/17	11/16/17	2/15/18	N/A	2/26/18		4/19/18	5/21/18
<b>Complete</b>	New Jersey Special Management Zones	N/A	12/12/16				2/13/18		7/9/18	8/8/18
<b>Open</b>	Squid Amendment	TBD	6/7/17	12/12/17	3/21/18	7/27/18				
<b>Open</b>	Summer Flounder, Scup and Black Sea Bass Commercial Accountability Measure Framework	TBD	2/14/18	6/12/18	7/20/18	N/A				
<b>Open</b>	Atlantic Mackerel Closure Provisions Framework	TBD	6/5/2018							

## Timeline and Status of Current and Upcoming Specifications for MAFMC Fisheries

As of 8/2/2018

Current Specifications	Year(s)	Council Approval	Initial Submission	Final Submission	Proposed Rule	Final Rule	Regs Effective	Notes
Atlantic Mackerel	2016-2018	6/9/15		8/24/15	1/22/16	4/26/16	5/26/16	
Bluefish	2016-2018	8/11/15			3/31/16	8/4/16	8/1/16	
Spiny Dogfish	2016-2018	12/7/15	3/11/16	5/20/16	6/22/16	8/15/16	8/15/16	
Summer Flounder	2017-2018	8/9/16	10/11/16	11/17/16	11/15/16	12/22/16	1/1/17	
Black Sea Bass	2017-2018	2/15/17	3/15/17	5/1/17	4/14/17	5/25/17	5/25/17	
Golden Tilefish	2018-2020	4/12/17		7/5/17	9/7/17	11/7/17	11/2/17	
Blueline Tilefish*	2018	4/12/17			6/28/17	11/15/17	12/15/17	* 2018 specifications set via final rule implementing Amendment 6 to the Tilefish FMP
Surfclam and Ocean Quahog	2018-2020	6/6/17			12/8/17	2/6/18	3/8/18	
Squid and Butterfish	2018-2020	6/7/17		8/24/17	12/13/17	3/1/18	4/2/18	
Scup	2018-2019	8/8/17	10/2/17	12/1/17	11/7/17	12/22/17	12/22/17	
Blueline Tilefish	2019-2021	4/11/18						
Summer flounder (recreational measures)	2018	12/12/17	3/5/18	4/10/18	4/11/18	5/31/18	5/31/18	
Black sea bass (recreational measures)	2018	2/14/18	3/5/18	4/10/18	4/11/18	5/31/18	5/31/18	

Upcoming Specifications	Year(s)	Council Meeting (*subject to change)
Bluefish	2019	August 2018
Summer Flounder	2019	August 2018
Black Sea Bass	2019	August 2018
Scup	2019 Review	August 2018
Atlantic Mackerel	2019-2021	August 2018
Spiny Dogfish	2019-2021	October 2018
Squid and Butterfish	2019 Review	October 2018



## Mid-Atlantic Fishery Management Council

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Michael P. Luisi, Chairman | G. Warren Elliott, Vice Chairman  
Christopher M. Moore, Ph.D., Executive Director

# MEMORANDUM

**Date:** August 3, 2018  
**To:** Chris Moore  
**From:** Mary Sabo  
**Subject:** Magnuson-Stevens Reauthorization Update

The following memo summarizes recent developments related to reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act.

### House of Representatives

On July, 11, 2018, the House of Representatives passed H.R. 200, the Strengthening Fishing Communities and Increasing Flexibility in Fisheries Management Act, by a vote of 222-193. Several amendments were passed by voice vote:

- Manager's Amendment to strike section 302(c) and 307, and modify sections 205, 207, 304, 306, 406, and 408. The amendment also includes a new section regarding voting procedures for the Western Alaska Community Development Quota Program's administrative panel (Young, R-Alaska)
- To create an industry-based pilot trawl survey for the New England and Mid-Atlantic Fishery Management Council regions (Courtney, D-Connecticut)
- To waive compensatory mitigation requirements for maintenance dredging projects in certain inland waterways, inlets, or harbors (Frankel, D-Florida)
- To require the Comptroller General to submit a report to Congress on LAPPs in the Gulf of Mexico and South Atlantic Fishery Management Councils (Graves, R-Louisiana)
- To direct the Secretary to submit a plan to establish fully operational electronic monitoring and reporting procedures for the Northeast Multispecies Fishery (Keating, D-Massachusetts)
- To require NOAA to conduct a study on all fees it charges the lobster industry and report those findings to Congress, (Poliquin, R- Maine)
- To lift the ban on striped bass fishing in the Block Island transit zone between Montauk, NY and Block Island, RI (Zeldin, R-New York)
- To direct the Secretary to use funds collected from penalties and fines for monitoring in addition to traditional enforcement activities, (Keating, D-Massachusetts)
- To reward the elimination of lionfish from United States waters by allowing individuals to exchange lionfish for tags authorizing fishing for certain species (Gaetz, R-Florida)

The text of the amendments can be accessed from this link: <https://rules.house.gov/bill/115/hr-200>. The text of H.R. 200, as passed by the House of Representatives, can be found at <https://www.congress.gov/115/bills/hr200/BILLS-115hr200rfs.pdf>.

## **Senate**

On February 28, 2018, the Senate Commerce, Science, and Transportation Committee met to mark up S. 1520, the “Modernizing Recreational Fisheries Management Act of 2017”. A substitute amendment, offered by Senator Wicker (R-Mississippi) the sponsor of the legislation, was offered. An amendment by Senator Blumenthal (D-Connecticut) was also offered. The bill, as amended by the Wicker substitute and the Blumenthal amendment, was passed by voice vote. Following the vote, Senator Sullivan (R-Alaska) noted that the committee would continue to refine S. 1520, but also work on “reauthorizing, updating, and improving the Magnuson-Stevens Act” and that he was “looking forward to bipartisan support on that broader bill from this Committee and trying to move it onto the Floor sometime this year.” On June 5, 2018, the Senate Commerce, Science and Transportation Committee filed the report to accompany S. 1520 and the legislation was placed on the Senate Legislative Calendar.

## **Council Coordination Committee Comments**

On March 8, 2018, Congressman Don Young requested comments on H.R. 200 from the Council Coordination Committee (CCC). The CCC reviewed a draft comment letter at its May 2018 meeting in Sitka, Alaska. The final letter was submitted to Congressman Young on June 8, 2018 and is available at [http://www.fisherycouncils.org/s/060818\\_CCC\\_CongressmanYoung.pdf](http://www.fisherycouncils.org/s/060818_CCC_CongressmanYoung.pdf).

During the May meeting, the CCC also reviewed and approved several additions to the CCC Working Paper on MSA Reauthorization Issues. The current version of the working paper is available at <http://www.fisherycouncils.org/s/CCCWorkingPaper052418.pdf>.

Additional information and resources related to MSA reauthorization are available on the joint fishery management council website at <http://www.fisherycouncils.org/msa-reauthorization/>.

## **Other Legislative Updates**

On June 26, 2018, Senator Roger Wicker (R-Mississippi) introduced S. 3138, the “Advancing the Quality and Understanding of American Aquaculture Act” or “AQUAA Act,” a bill to streamline the permitting process for aquaculture farms in federal waters, and fund research and development to advance the aquaculture industry. The bill calls for the creation of the Office of Marine Aquaculture within NOAA Fisheries, which would be charged with coordinating the federal permitting process. The bill was referred to the Senate Commerce, Science, and Transportation Committee.

**NATIONAL MARINE FISHERIES SERVICE  
PROCEDURAL DIRECTIVE ON COST ALLOCATION  
IN ELECTRONIC MONITORING PROGRAMS FOR  
FEDERALLY MANAGED U.S. FISHERIES**

**Purpose**

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This Procedural Directive establishes a framework for allocating costs for electronic monitoring (EM)<sup>1</sup> programs in federally managed U.S. fisheries between NOAA Fisheries and the fishing industry, and a timeline for implementing the framework.<sup>2</sup> Currently, all appropriated funds designated for implementing systems to monitor the landings of fishing vessels at sea are fully subscribed. As a result, any new monitoring system must either be funded through discretionary spending appropriations or be substantially funded through non-appropriated funds, such as industry funding.<sup>3</sup> Even in situations where federally appropriated funds may cover the initial startup of a monitoring program, such a program must be designed to either cease or be adjusted should those funds expire or there must be a transition plan to require the cost be covered by non-appropriated funds upon expiration of federal funding.

**Introduction**

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The demands for more precise, timely, and comprehensive fishery-dependent data continue to rise every year. As a result, the complexity and cost of fishery-dependent monitoring has increased over time. Constraining budgets and increasing demands for data are driving the need to evaluate and improve existing fishery-dependent data collection programs, in particular with respect to cost-effectiveness, economies of scale, and sharing of electronic technology solutions across regions.

Against this backdrop, NOAA Fisheries issued the Policy Directive on Electronic Technologies and Fishery Dependent Data Collection (Policy Directive) in 2013.<sup>4</sup> The Policy Directive encourages the agency to consider electronic technologies in implementing new and/or improving existing fishery-dependent data collection programs to achieve the most cost-effective and sustainable monitoring approach that ensures alignment of management goals, data needs, funding sources, and regulations.

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<sup>1</sup> For a definition of electronic monitoring and other terms used in this document, please see the Glossary of Terms in [Appendix A](#) of this document.

<sup>2</sup> This policy does not apply to EM programs in federally managed U.S. fisheries where the program is mandated or administered by an authority other than NOAA Fisheries.

<sup>3</sup> Industry participants may partner with non-governmental organizations or other entities to secure funding for its portion of costs.

<sup>4</sup> Please see the NOAA Fisheries Office of Science and Technology's website on Electronic Monitoring and Reporting: <https://www.st.nmfs.noaa.gov/advanced-technology/electronic-monitoring/index>.

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The Policy Directive also outlines a number of considerations for fisheries managers when developing electronic technology-based data collection programs, including:

*No electronic technology-based fishery-dependent data collection program will be approved by NOAA if its provisions create an unfunded or unsustainable cost of implementation or operation contrary to applicable law or regulation. Funding of fishery dependent data collection programs is expected to consider the entire range of funding authorities available under federal law, including those that allow collection of funds from industry. Where cost-sharing of monitoring costs between the agency and industry is deemed appropriate and approved under applicable law and regulation, NOAA Fisheries will work with Councils and stakeholders to develop transition plans from present to future funding arrangements.*

In order to effectively implement the Policy Directive, this procedural directive is being issued to explain the categories of costs associated with EM programs and describe how such program costs should be allocated between NOAA Fisheries and industry participants. NOAA Fisheries will use this procedural directive as a framework to evaluate EM implementation. Further, Regional Fishery Management Councils (Councils)<sup>5</sup> are expected to use the cost allocation framework set forth in this directive when creating new EM programs and evaluating existing EM programs. NOAA Fisheries believes that allocating costs as described in this directive is consistent with applicable law and will provide a transparent and consistent framework for discussing and identifying the agency's and industry's respective cost responsibilities in new and existing EM programs. Further, NOAA Fisheries expects that the framework described in this document will allow for the implementation or maintenance of EM programs that could not otherwise be initiated or maintained solely with federal appropriations.

As described in the Policy Directive, fishery-dependent data collection programs often include a combination of data collection methods in addition to EM, such as electronic reporting, on-board observers, and dockside monitoring. It may be appropriate to create cost allocation frameworks for these additional methods in the future; however, this procedural directive only applies to EM. Further, this procedural directive does not apply to small-scale pilot projects or programs using exempted fishing permits where NOAA Fisheries and industry participants are working collaboratively to test the viability of EM approaches for specific purposes and in limited circumstances.

### **Cost Responsibilities**

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<sup>5</sup> In the context of this procedural directive, "Council" includes NOAA Fisheries for the purposes of preparing Fishery Management Plans or amendments for Atlantic highly migratory species. See 16 U.S.C. § 304(g).



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As noted in the Policy Directive, cost allocation for EM programs must be consistent with all applicable appropriations law, the Magnuson-Stevens Fishery Conservation and Management Act (MSA), and other Federal requirements. Typically, NOAA Fisheries' programs and activities are financed by funds appropriated by Congress. In addition to providing the necessary funds, a congressional appropriation establishes a maximum authorized program level, meaning that an agency cannot, absent specific statutory authorization, operate beyond the level that can be funded by its appropriations.<sup>6</sup>

NOAA Fisheries has identified two categories of costs associated with EM programs: sampling costs and administrative costs (described in the cost categories section). For all EM programs, NOAA Fisheries will be responsible for the administrative costs, including the costs of setting standards for such programs, monitoring program performance, and providing administrative support to address science, enforcement, and management needs, except where the MSA specifically authorizes the collection of fees for these costs. For EM programs that are initiated by a Council, for example, to provide greater operational flexibility to industry participants or an exemption from otherwise applicable requirements, industry will be responsible for the sampling costs of such programs. If NOAA Fisheries determines that EM is necessary and appropriate to meet legal obligations (*e.g.*, requirements of the Endangered Species Act), as a policy matter, NOAA Fisheries would also fund the sampling costs of such programs, unless the MSA specifically provides otherwise, as long as it has sufficient appropriated funds to do so.

NOAA Fisheries expects it will fund the EM program costs for which it is responsible through annual appropriations, and that industry will be directly responsible for paying for the sampling costs of EM programs in the circumstances described above. However, NOAA Fisheries is specifically authorized by the MSA to collect fees for certain costs associated with data collection in Limited Access Privilege Programs (LAPPs)<sup>7</sup>. In such fisheries, NOAA Fisheries may collect fees from industry to pay for administrative costs, sampling costs, or both, as consistent with statutory and regulatory requirements. In those cases, NOAA Fisheries would

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<sup>6</sup> See 72 Comp. Gen. 164, 165 (1993). An agency may not circumvent these limitations by augmenting its appropriations from sources outside the government, unless Congress has so authorized the agency. Although there is no statute that specifically prohibits augmentation, the concept has a statutory basis: 31 U.S.C. § 3302(b), the "miscellaneous receipts" statute; 31 U.S.C. § 1301(a), which restricts the use of appropriated funds to their intended purpose; and 18 U.S.C. § 209, which prohibits the payment of, contribution to, or supplementation of the salary of a government officer or employee as compensation for his or her official duties from any source other than the government of the United States.

<sup>7</sup> 16 U.S.C. § 1853a(e). The MSA requires that, when establishing a LAPP, a Council must provide for a program of fees paid by LAPP privilege holders that will cover the costs of management, data collection and analysis, and enforcement programs directly related to and in support of the LAPP. NOAA Fisheries may collect fees to recover the actual costs directly related to the management, data collection, and enforcement of a LAPP (*i.e.*, those costs that would not have been incurred but for the LAPP). *Id.* § 1854(d)(2). The fees are capped at three percent of the ex-vessel value of fish harvested. *Id.*

not collect fees for costs that industry has paid for directly. NOAA Fisheries is also authorized to assess fees in certain North Pacific fisheries for the purpose of stationing observers and EM systems aboard fishing vessels or at fish processors.<sup>8</sup> While NOAA Fisheries could pay for sampling or other directly incurred EM costs, unlike the LAPP fee authority, the North Pacific fees could not be used to pay for certain administrative costs.

Councils should be aware that NOAA Fisheries cannot guarantee the availability of appropriated funds for EM program administrative costs. If NOAA Fisheries at any point determines that it no longer has sufficient authorized appropriated funds to cover the administrative costs of a program, NOAA Fisheries will not approve a new program (if it has yet to be approved) or would adjust or end an existing program (if it has already been approved). In either case, a Council and NOAA Fisheries will need to consider what, if any, action might be needed to ensure that its fishery management plans are consistent with the MSA or other legal obligations.

For EM programs where costs are allocated between NOAA Fisheries and industry, NOAA Fisheries expects Councils to categorize costs associated with EM programs into sampling costs and administrative costs (described below), and to allocate responsibility for paying these costs consistent with the framework explained in this procedural directive. Councils should coordinate early with NOAA Fisheries when developing a cost allocation or fee collection arrangement for any EM program to ensure consistency with all applicable laws and regulations.

### Cost Categories

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NOAA Fisheries has identified the following costs commonly associated with EM programs, based on the pre-implementation and implementation of ongoing EM programs throughout the country.

**Sampling costs** may include, among others:

- **Equipment purchases, leases, and installation**, including, but not limited to, the cameras, hard drive, video screen, and other materials needed to outfit the vessel to comply with the requirements of the EM program.

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<sup>8</sup> 16 U.S.C. § 1862(a). The MSA contains a North Pacific-specific observer provision that allow the North Pacific Fishery Management Council to prepare a fisheries research plan for any fishery in the Council's jurisdiction (with the exception of salmon), which requires observers to be stationed on fishing vessels, and establish a system of fees to pay for the cost of implementing the plan. The North Pacific Fishery Management Council has prepared a fisheries research plan pursuant to this authority, and NOAA Fisheries recently issued a final rule integrating proposed a rule to amend the plan to integrate EM into the North Pacific Observer Program (82 FR 1485336991).

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- **Equipment maintenance and upkeep**, including, but not limited to, regular software and system upgrades, ensuring that cameras are clean and free of debris, replacing cameras as needed, and periodically checking the system to ensure operation.
- **Training for captain and crew** (as appropriate) to use, troubleshoot, and maintain EM equipment and systems while at sea.
- **Development of vessel monitoring plans (VMPs)**, including identification of camera placement, catch handling protocols, and other requirements to facilitate third party video review.
- **Data transmittal**, *i.e.*, transmitting data collected through the EM system, including raw footage and metadata, to the appropriate review entity (or entities), whether by physical transfer of hard drives or sending data electronically.
- **Video processing and storage**,<sup>9</sup> including initial review and summary of EM video<sup>10</sup> and storage of raw video footage or photos and associated metadata.
- **Service provider fees and overhead**, including any fees or overhead the service provider charges as part of its EM system service contract with industry.

**Administrative costs** may include, among others:

- **Program administration support** to address science, enforcement, and management needs, including staff time and equipment to review VMPs, troubleshoot system issues that arise; facilitate communication between industry participants and EM service providers, as needed; and manage vessel selection processes, as needed.
- **Certification of EM service providers**, including staff time to review EM provider contracts and output reports to ensure data quality standards are met.
- **EM program performance monitoring**, including auditing service provider reviewers, reviewing video to determine optimal sampling rates, and analyzing data to ensure quality and effective program performance.
- **Data analysis and storage of Federal records**, including analysis of data that are submitted to NOAA Fisheries and storage of that data consistent with Federal record retention requirements.

Cost Category	Cost Responsibility Options
Sampling costs	<ul style="list-style-type: none"> <li>• Industry;</li> </ul>

<sup>9</sup> Review of EM video footage by a third party is considered a sampling cost; reviewing the video and summarizing the data is similar to the function of an at-sea monitor collecting commercial fisheries data on the vessel at-sea.

<sup>10</sup> In addition to this procedural directive on cost allocation, NOAA Fisheries will be developing a procedural directive on EM data storage for EM video held by a third party, contracted by the fishing industry. The policy will consider the costs and benefits of storing video for various lengths of time, as well as the management, scientific, and enforcement needs of any EM program. NOAA Fisheries will also consider different types of data storage to reduce costs to industry.

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	<ul style="list-style-type: none"><li>• NOAA Fisheries using fees collected from industry (if applicable and consistent with statutory and regulatory requirements);</li><li>• NOAA Fisheries for specific programs where agency has determined that EM is necessary to comply with legal obligations</li></ul>
Administrative costs	<ul style="list-style-type: none"><li>• NOAA Fisheries;</li><li>• NOAA Fisheries using fees collected from industry (if applicable and consistent with statutory and regulatory requirements);</li></ul>

**Implementation Timelines**

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NOAA Fisheries generally expects that both new and existing EM programs will include cost allocation provisions consistent with this procedural directive within two years of its approval. In programs in which industry is responsible for certain costs, but NOAA Fisheries has historically been paying those costs, the costs should transition to industry over time. Depending on the availability of appropriated funds, NOAA Fisheries may cover sampling costs in the initial stages of implementing a program. However, in such cases, transition plans should be developed to transition those costs to industry over time (not to exceed 3 years). The pace of the transition to industry funding will be specific to each fishery and will be determined by NOAA Fisheries and the Regional Fishery Management Councils, taking into account the status of the fisheries and the amount of funding appropriated to NOAA Fisheries for fishery monitoring programs.

Therefore, the provisions of new and existing EM programs should include:

- 1) A list of the costs associated with the EM program, categorized and allocated between NOAA Fisheries and industry participants in a manner consistent with this document.
- 2) Either a statement that the program is discretionary based on available appropriations or a mechanism to ensure third party funding of the appropriate costs.
- 3) In the event that the federal government provides limited startup funds for a monitoring program; a plan to transition to industry funding of the cost categories that are allocated to industry. The transition plan should include a timetable for the transition, including step-wise transitions to industry funding per year, where appropriate.

**Measuring Effectiveness**

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Updates on the status of cost allocation provisions and cost allocation transition plans will be included in the metrics within updates on Regional Electronic Technology Implementation Plans to the Regulatory and Science Boards. NOAA Fisheries will track the number of EM

programs that include cost allocation strategies and cost allocation transition provisions as a metric of overall program efficacy.

### **Appendix A. Glossary of Terms**

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**Electronic Monitoring (EM)** – The use of technologies – such as vessel monitoring systems or video cameras – to passively monitor fishing operations through observing or tracking. Video monitoring is often referred to as EM.

**Electronic Reporting (ER)** – The use of technologies – such as smart phones, computers and tablets – to record, transmit, receive, and store fishery data.

**Electronic Technology(ies)** – Any electronic tool used to support catch monitoring efforts both on shore and at sea, including electronic reporting (e.g., e-logbooks, tablets, and other input devices) and electronic monitoring (Vessel Monitoring Systems, electronic cameras, and sensors on-board fishing vessels).

**Fishery-dependent Data Collection Program** - Data collected in association with commercial, recreational or subsistence/customary fish harvesting or subsequent processing activities or operations, as opposed to data collected via means independent of fishing operations, such as from research vessel survey cruises or remote sensing devices.



## US/EU Pelagic Fisheries Workshop

The Mid-Atlantic Fishery Management Council held a workshop in collaboration with the European Union's (EU) Pelagic Advisory Council (Pelagic AC) on May 1-3, 2018 in Gloucester, MA. The objective of this workshop was to provide a forum for US and EU fishermen, managers, scientists, and other stakeholders to interact and discuss possible solutions to the complex problems associated with the small-mesh pelagic fisheries in their countries. Additional information, presentations, and background materials are available on the Council's website at <http://www.mafmc.org/workshop/us-eu-pelagics-workshop>.

### Summary of Key Points from the Workshop

The following bullets highlight the overarching themes, ideas, areas of concern, and key issues that emerged during workshop presentations and discussions. The points below represent the perspectives of individuals who participated in the workshop and are not intended to reflect the viewpoints of all participants or of the Council or the Pelagic AC.

#### **General**

- Intercontinental exchange of ideas shows commonalities and differences, with opportunities to learn in each case. Gear experiences are an example of close commonalities. The US is ahead on ecosystems considerations, while the EU is ahead on experiences with wind siting and MPAs. In all cases, there are opportunities to examine what's gone right and wrong so we don't repeat mistakes.
- There is a need to better integrate industry into research with the assessment teams so fishermen can have an impact on the assessment.
  - There have been improvements in the North Sea since the early 2000s. Interacting with ICES was a long struggle. The Pelagic AC was heavily involved in science from beginning, and was asked to become observers at first. Other sectors (e.g. demersal) are starting to get more involved.
- Utilizing part of a quota to encourage research by industry can help bring industry into the process and improve the science. It's not clear how it can work in the current US quota system and you need to make sure projects are actually going to help (i.e. be integrated into assessments or management).
- The concept of embedding NMFS economists with fishermen and/or processors to deepen socioeconomic understanding was discussed and should be considered as a follow-up.
- The EU focuses more on operational practicality vs the US focus on theory and subjective measures. This makes it more difficult for US fishermen to navigate scientific and management processes and increases the role of politics in the US.
- There is a need to include maximizing Optimum Yield in Ecosystem Considerations and general management discussions (for example Atlantic Herring and Haddock). Neither species is fully harvested, but the bycatch cap on haddock limits Atlantic herring fishing. The current approach is not pragmatic.
- Fishery participants need to present a united front and get involved earlier.
- Councils never select status-quo but sometime should – there are likely times when no action is best but there is a predisposal to always do something.

## Ecosystem Approaches to Fishery Management (EAFM)

- Don't forget it's a "wicked problem" because of the inherent complexity, multiple perspectives of stakeholders, and lack of easy answers. The key is to not get paralyzed or fall for what *appears* be easy answers.
- We need to evaluate the impacts of leaving forage in the water – what are they eating? How are they impacting other species?
- There is still lots of uncertainty about what EAFM means for fishermen and other stakeholders – it's defined differently by each group.
  - Have to clearly describe the goals and objectives of any particular EAFM endeavor – The Council's Guidance Document and Risk Assessment work is heading in that direction.
  - There is a lack of clarity about how things are going to be operationalized/tracked/measured.
- EAFM is perceived as a danger by fishery participants in terms of EAFM leading to reduced catches. If EAFM increases our perception of uncertainty catch buffers will increase under the current system.
  - Initial results of EAFM have only meant quota cuts (e.g. Atlantic herring, and the forage discussion in the Council's EAFM Guidance Document).
  - We need a discussion about when EAFM could lead to quota increases.
- We need to ensure the implementation of EAFM, whatever that becomes, is rooted in data and tested.
- We should organize and communicate the research questions that are currently being pursued by EAFM, and integrate stakeholders into deciding what happens next.
- The role of marine mammals in EAFM should be examined and clarified.
- EAFM needs to account for different approaches by neighboring management entities.
- Pelagic fish, and the ecosystems used by pelagic fish in all their life stages, are both "common-pool resources" that affect diverse stakeholder interests well beyond commercial fishing interests. It is important that a diverse audience of stakeholders have standing and be involved in the management of pelagic fisheries.
- Next steps/first steps
  - Evaluate/coordinate each Council's research needs relative to this "wicked problem."
  - Consider how/when EAFM can lead to higher quotas.

## Bycatch Issues

- Gear solutions seem unlikely but it's worth having ongoing discussions with industry (worst approach is for gear solutions to be developed without industry).
- Fleet communications are used informally in the EU and formally in US Herring/Mackerel and seem to be effective. You need to have good incentives to encourage participation.
- Not having information on impacts of bycatch on any species of concern makes evidence-based decisions difficult.
- Restricting the fleet based on uncertain estimates does not encourage participation in bycatch avoidance.
- Be careful about assuming something that works in one place is going to work everywhere – need fishery by fishery ground-truthing.
- The US seems to have a high degree of management/enforcement relative to small quotas.
- We need to make sure rules don't work counter to reducing bycatch. Some current rules are forcing fishery to not be able to avoid bycatch and this should be further evaluated.
- SBRM creates a problematic feedback loop: low discards = low coverage = concern by public about what bycatch is and high uncertainty about bycatch relative to low bycatch caps.

## Acoustics

- Unstructured data dumps are not going to be useful.
- We need further discussions about how we could utilize industry acoustic platforms/data.
- There is a large potential for value for pelagic fisheries, for either creating an index (long term) or for biomass scaling (short term).

## Assessments

- Butterfish and Mackerel are examples of how to include industry in the assessment process. They started with discussions with stakeholders early on before the data and modeling meetings. Otherwise fishermen come into the process too late.
- Cooperation is dependent on personalities – leadership can break down barriers to openness.
- Research is a key opportunity for more EU/US collaboration & progress. We need to find more ways to actually get data that is collected into assessments.
  - A database of successes could point the way to what works.

## Other Issues to watch, discuss more in future

- Wind and other competing ocean uses (marine spatial planning) will be an ongoing issue.
  - Aquaculture – larger in EU than East Coast. EU has separate Advisory Council, limited ability of Pelagic AC to comment on other (Aquaculture) issues.
  - Sand Extraction
  - Deep Sea Mining
  - Wave/tidal power.
  - Marine Protected Areas & effort shifts
  - Marine Portal (pros and cons, limited data included, can used in multiple ways)
- There is a danger for fisheries to be overwhelmed by other interests in marine spatial planning processes.
- Sustainability Certification Issues.
- Existing fishery restrictions (time/area).
- Uses of ITQs for catch or bycatch.
- Seismic issues and impacts on fisheries.

The Gloucester Pelagics workshop was followed up by a workshop in June 2018 in Denmark involving more European participants. The agendas from both workshops are included following this summary but a report is not yet available for the Denmark workshop. In general it reinforced many of the concepts that emerged from the Gloucester workshop.

Based on both workshops, two areas seem likely for initial next steps. First, the lessons learned from the European egg survey work for mackerel should be considered for future US egg surveys, and prospecting for eggs beyond the range of the current US survey collections should be considered to determine if current efforts are capturing the primary range of mackerel eggs. Second, the application of acoustics for surveying mackerel is an area of interest by both researchers and industry, and collaborative efforts on acoustic surveying should be considered.







## PELAGIC FISHERIES: U.S. AND EUROPEAN PERSPECTIVES AND SHARED EXPERIENCES

The Mid-Atlantic Fishery Management Council will hold a workshop in collaboration with the European Union's Pelagic Advisory Council. The objective of the workshop is to provide a forum for U.S. and European fishermen, managers, and scientists to interact and discuss possible solutions to the complex problems associated with the small-mesh pelagic fisheries in their countries. The workshop will involve a combination of presentations, group discussions, and field trips designed to give participants first-hand knowledge of local fishery operations and issues. Additional information and updates will be posted on the Council's website at <http://www.mafmc.org/workshop/us-eu-pelagics-workshop>.

### Agenda

**April 30 – May 3, 2018**

Beauport Hotel Gloucester  
55 Commercial St  
Gloucester, MA 01930  
Telephone 1-844-282-0008

#### **Monday, April 30**

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**5:30 p.m. – 7:30 p.m.**      **Welcome Reception**  
*Gloucester House Restaurant, 63 Rogers St, Gloucester, MA 01930*

#### **Tuesday, May 1**

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**9:00 a.m. – 9:30 a.m.**      **Introduction and Welcome** (Chris Moore, MAFMC Executive Director, and Mike Pentony, GARFO Regional Administrator)

**9:30 a.m. – 10:15 a.m.**      **Overview of the relevant fisheries, their management, bycatch issues, and stakeholder participation** (Jason Didden and Verena Ohms)

**10:15 a.m. – 11:00 a.m.**      **Implications of Ecosystem Approaches to Fishery Management (EAFM) for pelagic fisheries** (Sarah Gaichas, NEFSC)

**11:00 a.m. – 11:45 a.m.**      **Recent/upcoming NMFS Science Center Socio-Economic work on EAFM and/or bycatch** (Min-Yang Lee, NEFSC)

<b>11:45 a.m. – 12:30 p.m.</b>	<b>Roundtable discussion on EAFM issues - U.S./European perspectives</b>
<b>12:30 p.m. – 2:00 p.m.</b>	<b>Lunch</b>
<b>2:00 p.m. – 5:00 p.m.</b>	<b>Site visits in Gloucester, MA</b>
<b>2:00 p.m. – 3:30 p.m.</b>	<b>Swan Net</b> <i>41 Great Republic Dr., Gloucester, MA 01930</i>
<b>3:45 p.m. – 5:00 p.m.</b>	<b>Cape Seafood</b> <i>3 State Fish Pier, Gloucester, MA 01930</i>

### **Wednesday, May 2**

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<b>9:00 a.m. – 9:10 a.m.</b>	<b>Day 2 Overview</b>
<b>9:10 a.m. – 9:45 a.m.</b>	<b>Bycatch 1: Gear/Mesh approaches</b> (Shannon Bayse, UMass)
<b>9:45 a.m. – 10:30 a.m.</b>	<b>Bycatch 2: Communication and fishermen behavior-based approaches – Shoreside Monitoring</b> (Dave Bethoney, SMAST; Brad Schondelmeier, Mass DMF; and Gerry O’Neil, Cape Seafoods)
<b>10:30 a.m. – 11:15 a.m.</b>	<b>Bycatch 3: Electronic Monitoring</b> (Nicole Rossi, NEFSC; Morgan Wealti, Saltwater Inc.)
<b>11:15 a.m. – 12:00 p.m.</b>	<b>Roundtable discussion on bycatch issues – U.S./European perspectives</b>
<b>12:00 p.m. – 1:30 p.m.</b>	<b>Lunch</b>
<b>1:30 p.m. – 2:30 p.m.</b>	<b>Industry involvement in surveys/assessment</b> (Jon Hare, NEFSC Director)
<b>2:30 p.m. – 3:30 p.m.</b>	<b>Role of acoustics in U.S. science/management</b> (Mike Jech, NEFSC)
<b>3:30 p.m. – 4:30 p.m.</b>	<b>Open discussion/public comment</b>
<b>4:30 p.m. – 5:00 p.m.</b>	<b>Recap</b>

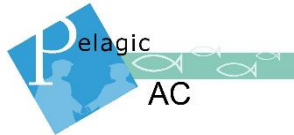
### **Thursday, May 3**

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<b>9:30 a.m. – 11:00 a.m.</b>	<b>Wrap-up, open discussion, public comment</b>
<b>11:00 a.m. – 1:00 p.m.</b>	<b>Travel to New Bedford / Lunch on the way</b>
<b>1:00 p.m. – 2:00 p.m.</b>	<b>Tour of the Buyers and Sellers Exchange (the Auction)</b> <i>62 Hassey Street, New Bedford 02740; <a href="http://www.baseseafood.com">www.baseseafood.com</a></i>

- 2:15 p.m. – 3:15 p.m.**      **Tour of the NORPEL Pelagics Processing Plant**  
*4 Fish Island, New Bedford 02740; [www.norpel.com](http://www.norpel.com)*
- 3:30 p.m. – 5:00 p.m.**      **Tour of the New Bedford Whaling Museum**  
*18 Johnny Cake Hill, New Bedford 02740; [www.whalingmuseum.org](http://www.whalingmuseum.org)*
- 6:00 p.m.**                      **Dinner**  
*The Waterfront Grille, 36 Homer's Wharf, New Bedford, MA 02740*





## ▶ Pelagic AC

### Joint Workshop of the Mid-Atlantic Fisheries Management Council and the Pelagic AC

**Montra Skaga Hotel**  
Willemoesvej 1, 9850 Hirtshals  
Denmark

Louis Braillelaan 80  
2719 EK Zoetermeer  
The Netherlands  
Phone: +31 (0)70 336 9624  
E-mail: [info@pelagic-ac.org](mailto:info@pelagic-ac.org)  
Website: [www.pelagic-ac.org](http://www.pelagic-ac.org)

## Agenda (draft)

### **Monday, 4<sup>th</sup> June 2018**

19:00 – 20:00 Welcome reception with drinks

### **Tuesday, 5<sup>th</sup> June 2018**

- 09:30 – 10:00 Opening speech by the chairman, Esben Sverdrup-Jensen
- 10:00 – 10:45 The role of the ICES advice in EU fisheries management (Eskild Kirkegaard, Lotte Worsøe Clausen) -tbc
- 10:45 – 11:00 Coffee break
- 11:00 – 11:45 Claus Reedtz-Sparrevohn: On the role of fisheries scientists working for the pelagic industry
- 11:45 – 12:30 Martin Pastoors: The use of (historic) fisheries-dependent data for scientific assessments - tbc
- 12:30 – 14:00 Lunch
- 14:00 – 17:00 Excursion? Maybe visit the bunker museum and the lighthouse?

### **Wednesday, 6<sup>th</sup> June 2018**

- 09:30 – 10:15 Industry acoustic surveys on 6a herring (Steven Mackinson)
- 10:15 – 11:00 Edward Farrell: Genetic stock identification methods
- 11:00 – 11:15 Coffee break
- 11:15 – 12:00 Daniel Valentinsson: Gear trials in Skagerrak- A new pelagic grid



- 11:45 – 12:30 Thomas Brunel: The biology, assessment and recent dynamics of Northeast Atlantic mackerel
- 12:30 – 13:00 Paulina Ramirez: ACs on their route toward EAFM in the EU
- 13:00 – 14:00 Lunch
- 14:00 – 17:00 Visit of the Flume tank and the aquarium
- 17:00 – 18:00 Reflection on the workshop

**Thursday, 7<sup>th</sup> June 2018**

- All day Excursion to Skagen shipyard and skipper academy
- 19:00 – 21:00 Closing dinner

**Friday, 8<sup>th</sup> of June 2018**

- Departure





## VACANCY ANNOUNCEMENT

The Mid-Atlantic Fishery Management Council (Council) is seeking candidates for the position of Assistant Plan Coordinator. The Council manages fishery resources in the U.S. Exclusive Economic Zone off the coast of the Mid-Atlantic region (New York through North Carolina). Additional information about the Council is available at [www.mafmc.org](http://www.mafmc.org).

<b>Position:</b>	Assistant Plan Coordinator
<b>Opening Date:</b>	July 2, 2018
<b>Closing Date:</b>	August 10, 2018
<b>Location:</b>	Dover, Delaware
<b>Position Overview:</b>	The Assistant Plan Coordinator candidate will assist the Executive Director and other members of the Council staff in the identification and analysis of issues pertaining to the science and management of marine fisheries in the Mid-Atlantic region (New York through North Carolina). The candidate will also assist in the analysis of proposed fishery management measures and the development of Council documents that comply with the provisions of the Magnuson-Stevens Fishery Conservation and Management Act (MSA), National Environmental Policy Act (NEPA), and other applicable statutes.
<b>Duties:</b>	Specific responsibilities of this position include, but are not limited to: <ul style="list-style-type: none"> <li>• Developing policy papers and decision documents to help the Council respond to ocean policy issues and assist in the development of solutions to complex marine resource problems, including ecosystem-related challenges.</li> <li>• Preparing biological, economic, and social analyses and reports for use in the development of fishery management plans and their amendments.</li> <li>• Coordinating management activities with the National Marine Fishery Service (NMFS) Greater Atlantic Regional Fisheries Office and the Northeast Fisheries Science Center, Atlantic States Marine Fisheries Commission, other regional Councils, and NMFS Headquarters.</li> <li>• Acting as a spokesperson for the staff in discussions with the Council or the Council's committees on matters relating to proposed fishery management regulations.</li> <li>• Attending and facilitating public hearings, committee meetings, and other meetings as required.</li> <li>• Other duties as assigned.</li> </ul>
<b>Salary and Benefits:</b>	The starting salary range for this position is \$44,670 - \$78,226 annually, depending on prior experience. Benefits include health insurance, life insurance, annual (vacation) and sick leave, and a 401K retirement program.
<b>Qualifications:</b>	<b>Minimum Requirements:</b> <ul style="list-style-type: none"> <li>• Bachelor's degree in marine policy or science related discipline.</li> </ul>



Vacancy Announcement – Assistant Plan Coordinator

	<ul style="list-style-type: none"> <li>• Ability to effectively communicate technical information to non-technical audiences clearly and succinctly, both verbally and in writing.</li> <li>• Knowledge of U.S. fishery management institutions and relevant laws, including MSA, NEPA, Endangered Species Act, and others.</li> <li>• Proficiency in the use of computers and software packages for report generation and data analysis (for example, using Excel, SAS, R, or other programs).</li> </ul> <p><b>Preferred Qualifications:</b></p> <ul style="list-style-type: none"> <li>• Master's degree in fishery science, natural resource economics, or closely related disciplines.</li> <li>• Familiarity with Mid-Atlantic fisheries and their management.</li> <li>• Demonstrated ability in fisheries management policy analyses, quantitative data analysis, and technical writing.</li> <li>• Experience with multi-disciplinary teams.</li> <li>• Experience in preparation of NEPA documents (Environmental Assessments and/or Environmental Impact Statements).</li> </ul>
<p><b>To Apply:</b></p>	<p>Qualified applicants should submit the following items:</p> <ol style="list-style-type: none"> <li>1. <b>A resume</b> detailing your education, relevant experience, training, skills, and other information to support your qualification for the position.</li> <li>2. <b>A written narrative assessment</b> that provides clear, concise descriptions of your qualifications relative to the following areas: <ul style="list-style-type: none"> <li>▪ Knowledge of the Council's activities, functions and responsibilities;</li> <li>▪ Skill in developing solutions to complex natural resource management problems;</li> <li>▪ Data analysis skills;</li> <li>▪ Skill working on a team to help coordinate activities and programs related to the conservation and management of natural resources;</li> <li>▪ Ability to effectively communicate technical data and information to non-technical audiences, and efficiently provide information to various constituencies both verbally and in writing;</li> </ul> </li> </ol> <p><i>References and education transcripts are not needed at this time but may be requested prior to hiring.</i></p> <p>Please submit these materials to Dr. Christopher Moore, Executive Director, by email (<a href="mailto:cmoore@mafmc.org">cmoore@mafmc.org</a>) or U.S. Mail: Mid-Atlantic Fishery Management Council, Attn: Chris Moore, 800 N. State Street, Suite 201, Dover, DE 19901. Applications must be received or postmarked by <b>August 10, 2018</b>.</p>
<p><b>Terms of Employment:</b></p>	<p>Upon hiring, the selected applicant will enter an initial probationary period of one year during which his or her performance will be evaluated by the Executive Director. Unsatisfactory performance, and/or failure to demonstrate the skills required for this position, may result in termination of employment at the end of the probationary period.</p>
<p><b>Contact:</b></p>	<p>Questions about the position should be directed to Dr. Christopher Moore at (302) 526-5255.</p>



## Atlantic States Marine Fisheries Commission

### Summer Meeting

August 7 – 9, 2018

### The Westin Crystal City

Arlington, Virginia

## 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 7**

8:00 – 10:00 a.m.

#### **Executive Committee**

**Breakfast will be served  
as members arrive;  
members may arrive  
as early as 7:30 a.m.**

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

*Members: Abbott, Blazer, Cimino, Bowman, Boyles, Jr., Clark, Estes, Gilmore  
Grout, Haymans, Keliher, McNamee, Miller, Miner, Murphey, Pierce, Shiels  
Chair: Gilmore  
Staff: Leach*

1. Welcome/Call to Order (*J. Gilmore*)
2. Committee Consent
  - Approval of Agenda
  - Approval of Meeting Summary from May 2018
3. Public Comment
4. Consider Changes to the Appeals Process (*J. McNamee*)
5. Update on Right Whale Lawsuit (*R. Beal*)
6. Update on Federal Appropriations (*R. Beal*)
7. Discuss the Commission's Role in Aquaculture Activities (*R. Beal, L. Daniel*)
8. Discuss Development and Use of Ecosystem Reports (*T. Kerns*)
9. Review White Paper on Future Scope of Recreational Data Collection Programs (*R. Beal, M. Cahall*)
10. Other Business/Adjourn

10:15 a.m. - Noon

#### **Atlantic Herring Section**

*Member States: Maine, New Hampshire, Massachusetts, Rhode Island,  
Connecticut, New York, New Jersey  
Other Participants: Zobel, Eastman, Cieri  
Chair: Keliher  
Staff: Ware*

1. Welcome/Call to Order (*P. Keliher*)
2. Section Consent
  - Approval of Agenda
  - Approval of Proceedings from May 2018

3. Public Comment
4. Review and Consider Approval of the 2018 Atlantic Herring Benchmark Assessment (SAW 65)

**Action**

- Presentation of Stock Assessment (*M. Cieri*)
- Presentation of Peer Review Report (*P. Campfield*)
- Consider Acceptance of Benchmark Stock Assessment and Peer Review Report for Management Use

5. Recess

6. Noon – 1:00 p.m. **Lunch (On Your Own)**

1:00 – 2:00 p.m. **Atlantic Herring Section (Continued)**

5. Reconvene
6. Discuss Recent New England Fishery Management Council (NEFMC) Recommendation to NOAA Fisheries on the 2018 Sub-Annual Catch Limits (*M. Ware*)
  - Reconsider the ASMFC 2018 Sub-Annual Catch Limits **Final Action**
7. Provide Recommendations to NEFMC for 2019-2021 Fishery Specifications (*M. Ware*)
8. Other Business/Adjourn

2:15 – 3:15 p.m. **NOAA Fisheries Presentation on Revised Recreational Catch Histories Resulting from Changes to the Marine Recreational Information Program Survey**

3:30 – 5:00 p.m. **Atlantic Menhaden Management Board**

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

*Other Members:* NMFS, PRFC, USFWS

*Other Participants:* Ballenger, Kersey

*Chair:* Meserve

*Staff:* Appelman

1. Welcome/Call to Order (*N. Meserve*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from May 2018
3. Public Comment
4. Consider Postponed Motion from the May 2018 Board Meeting (*N. Meserve*) **Action**

*Postponed Motion:* "Move the Atlantic Menhaden Board recommend to the ISFMP Policy Board that the Commonwealth of Virginia be found out of compliance for not fully and effectively implementing and enforcing Amendment 3 to the Atlantic Menhaden Fishery Management Plan if the State does not implement the following measure from section 4.3.7 (Chesapeake Bay Reduction Fishery Cap) of Amendment 3: The annual total allowable harvest from the Chesapeake Bay by the reduction fishery is limited to no more than 51,000 mt. Motion made by Mr. Batsavage and seconded by Mr. Estes.
5. Elect Vice-Chair **Action**
6. Other Business/Adjourn

**Wednesday, August 8**

8:00 – 10:30 a.m.

**American Eel Management Board**

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

*Other Members:* DC, NMFS, PRFC, USFWS

*Other Participants:* Zimmerman, Cloutier, DeLucia, Rademaker

*Chair:* Gary

*Staff:* Rootes-Murdy

1. Welcome/Call to Order (*M. Gary*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from February 2018
3. Public Comment
4. Update on Illegal Glass Eel Harvest in Maine (*P. Keliher, R. Cloutier*)
5. Consider Addendum V for Final Approval **Final Action**
  - Review Options and Public Comment Summary (*K. Rootes-Murdy*)
  - Reports from the Law Enforcement Committee, Technical Committee, and Advisory Panel (*M. Robson, J. Zimmerman, M. DeLucia*)
  - Consider Final Approval of Addendum V
6. Consider Maine Aquaculture Proposal **Action**
  - Maine Proposal for 2019 Fishing Season (*S. Rademaker, P. Keliher*)
  - Reports from the Law Enforcement Committee, Technical Committee, and Advisory Panel (*M. Robson, J. Zimmerman, M. DeLucia*)
7. Update on North Carolina Aquaculture Plan: 2018 Fishing Season (*C. Batsavage*)
8. Other Business/Adjourn

10:45 a.m. – 12:15 p.m.

**Atlantic Sturgeon Management Board**

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

*Other Members:* DC, NMFS, PRFC, USFWS

*Other Participants:* Park, Gadomski, Crocker

*Chair:* Nowalsky

*Staff:* Appelman

1. Welcome/Call to Order (*A. Nowalsky*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from October 2017
3. Public Comment
4. Update on 5-Year Status Review of the Endangered Species Act Listing and Recovery Plan (*J. Crocker*)
5. Review Technical Committee Report Regarding Highest Priority Data Sources for Stock Assessments (*K. Drew*) **Possible Action**

6. Consider Approval of 2018 Fishery Management Plan Review and State Compliance Reports (*M. Appelman*) **Action**
7. Review Recommendation to Disband the Advisory Panel (*T. Berger*) **Action**
8. Other Business/Adjourn

12:15 – 1:00 p.m.            **Lunch (*Provided for Commissioners, Proxies, and Board Members*)**

1:00 – 2:15 p.m.            **Coastal Sharks Management Board**

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

*Other Members:* NMFS, USFWS

*Other Participants:* Frazier, Garner

*Chair:* Miller

*Staff:* Rootes-Murdy

1. Welcome/Call to Order (*R. Miller*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from May 2018
3. Public Comment
4. Consider Draft Addendum V for Public Comment (*K. Rootes-Murdy*) **Action**
5. Update on NOAA Fisheries Highly Migratory Species Draft Amendment 11 (*K. Brewster-Geisz*)
6. Discuss Best Practices for Safe Handling and Release of Coastal Sharks from Shore Sites (*K. Brewster-Geisz*)
7. Other Business/Adjourn

2:30 – 4:30 p.m.            **Summer Flounder, Scup, and Black Sea Bass Management Board**

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

*Other Members:* NMFS, PRFC, USFWS

*Other Participants:* Wojcik, Snellbaker

*Chair:* Ballou

*Staff:* Rootes-Murdy, Starks

1. Welcome/Call to Order (*R. Ballou*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from April and May 2018
3. Public Comment
4. Update on Strategic Plan for Black Sea Bass Management (*C. Starks*)
5. Consider Options for 2019 Black Sea Bass and Summer Flounder Recreational Management (*C. Starks, K. Rootes-Murdy*) **Possible Action**
6. Consider Approval of 2018 Fishery Management Plan Reviews and State Compliance Reports for Summer Flounder, Scup, and Black Sea Bass (*K. Rootes-Murdy, J. Kuesel*) **Action**
7. Other Business/Adjourn

4:45 – 5:30 p.m.

**Atlantic Striped Bass Management Board**

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

*Other Members:* DC, NMFS, PRFC, USFWS

*Other Participants:* Lengyel, Blanchard

*Chair:* Armstrong

*Staff:* Appelman

1. Welcome/Call to Order (*M. Armstrong*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from May 2018
3. Public Comment
4. Consider Approval of 2018 Fishery Management Plan Review and State Compliance Reports (*M. Appelman*) **Action**
5. 2018 Benchmark Stock Assessment Progress Update (*K. Drew*)
6. Elect Vice-Chair **Action**
7. Other Business/Adjourn

**Thursday, August 9**

8:00 – 10:30 a.m.

**Interstate Fisheries Management Program Policy Board**

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

*Other Members:* DC, NMFS, PRFC, USFWS

*Chair:* Gilmore

*Staff:* Kerns

1. Welcome/Call to Order (*J. Gilmore*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from May 2018
3. Public Comment
4. Update from State Director's Meeting and Executive Committee (*J. Gilmore*)
5. Review Annual Performance of the Stocks (*T. Kerns*)
6. Coordination Between ASMFC and NEFMC (*J. Gilmore*) **Possible Final Action**
  - Consider Changing the Atlantic Herring Section to a Management Board
7. Update from the Atlantic Coastal Fish Habitat Partnership (*L. Havel*)
8. Update on the Risk and Uncertainty Policy (*J. McNamee*)
9. Progress Update on Benchmark Stock Assessments
  - Shad (*J. Kipp*)
  - Horseshoe Crab (*K. Anstead*)
10. Review Noncompliance Findings, If Necessary **Action**
11. Other Business/Adjourn

10:30 – 11:00 a.m.

**Business Session**

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

1. Welcome/Call to Order (*J. Gilmore*)
2. Committee Consent
  - Approval of Agenda
  - Approval of Proceedings from October and November 2017
3. Public Comment
4. Review Noncompliance Findings, If Necessary **Final Action**
5. Other Business/Adjourn

11:15 a.m. – Noon

**South Atlantic State/Federal Fisheries Management Board**

*Member States:* New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida  
*Other Members:* PRFC, NMFS, SAFMC, USFWS  
*Other Participants:* Jiorle, McDonough, Rickabaugh, Lynn  
*Chair:* Geer  
*Staff:* Schmidtke

1. Welcome/Call to Order (*P. Geer*)
2. Board Consent
  - Approval of Agenda
  - Approval of Proceedings from May 2018
3. Public Comment
4. Consider 2018 Traffic Light Analyses for Atlantic Croaker and Spot (*C. McDonough*)
5. Consider Postponed Motion from May 2018 Board Meeting (*P. Geer*) **Action**  
*Postponed Motion: "Move to initiate an addendum to the spot and croaker fishery management plans that incorporates the new traffic light analyses and management response to those analyses."* Motion made by Mr. Batsavage and seconded by Mr. Gary.
6. Recess

12:05 – 12:35 p.m.

**Lunch (*Provided for Commissioners, Proxies, and Board Members*)**

12:35 – 1:45 p.m.

**South Atlantic State/Federal Fisheries Management Board (Continued)**

7. Reconvene
8. Update on Revised SEDAR 58 Schedule (*M. Schmidtke*)
9. Review Cobia Technical Committee Report on Recreational Landings (*M. Schmidtke*)
10. Consider Draft Public Information Document for Amendment 1 to the Cobia Fishery Management Plan for Public Comment (*M. Schmidtke*) **Action**
11. Consider 2018 Fishery Management Plan Reviews and State Compliance Reports for Atlantic Croaker and Red Drum (*M. Schmidtke*) **Action**
12. Review and Populate Advisory Panel Membership (*T. Berger*) **Action**
13. Elect Vice-Chair **Action**
14. Other Business/Adjourn

## New England Fishery Management Council Timelines

June 6, 2018

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1. *FRAMEWORK 58 FY 2019 GROUNDFISH SPECIFICATIONS, REBUILDING. ETC. ..	4
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1. *AMENDMENT 8 – ABC CONTROL RULE / LOCALIZED DEPLETION.....	6
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2. *SOUTHERN RED HAKE REBUILDING PLAN; <i>TITLE OF ACTION - TBD</i> .....	9
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1. HABITAT - CLAM DREDGE EXEMPTION FRAMEWORK .....	10
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\* Indicates preliminary timeline – not yet reviewed by GARFO



## **Background**

Preliminary or draft timelines may be provided for actions for which Action Plans have not been formally approved; however, they will be revised as needed when Actions Plans Itr is misleading in many ways09plans for all regulatory actions as soon as practicable.

Timelines are provided for actions until they have been approved or disproved by NMFS. They are updated only after review by the Executive Committee or at the direction of the Council Chair between Executive Committee meetings or as part of the process for updating action plans.

# Scallops

## 1. \*Framework 30 Specifications - FY 2019

**Scope:** 2019 scallop specifications, 2020 default specifications, etc.

STAFF PROJECT MANAGER: Jonathon Peros

<b>2018</b>	
<b>APR 17</b>	<b>NEFMC – Council modifies 2018 priorities</b>
MAY	PDT work on 2018 priorities
JUN	Committee / PDT develop alternatives
<b>JUN 12-14</b>	<b>NEFMC – Council receives information on development of management measures</b>
JUN	Scallop benchmark assessment
JUL-SEP	Committee / PDT develop alternatives
<b>SEP 26-28</b>	<b>NEFMC – Council receives information on the development of specifications</b>
OCT	SSC recommends ABC for FY18 and FY19
OCT-NOV	Committee and PDT complete documents
<b>DEC 4-6</b>	<b>NEFMC – Council takes final action</b>
DEC-JAN	Council staff submits decision draft completes pre-submission
<b>2019</b>	
JAN	NMFS publishes proposed rule
JAN	EA reviewed by NMFS
FEB	Staff completes final submission for NMFS review and approval
MAR	NMFS publishes final rule
APR 1	Target Implementation

\* Preliminary timeline

## Groundfish

### 1. \*Framework 58 FY 2019 Groundfish Specifications, Rebuilding, etc.

**Scope:** (1) 2019 total allowable catches (TACs) for US/Canada stocks of Eastern Georges Bank (GB) cod, Eastern GB haddock, and GB yellowtail flounder, (2) rebuilding plans for several stocks, and (3) other measures

STAFF PROJECT MANAGER:

Jamie Cournane

<b>2018</b>	
MAR-JUN	Committee/AP/PDT preliminary discussion and analysis
<b>JUN 12-14</b>	<b>NEFMC – Council initiates framework</b>
JUL 10-12	TRAC assessments for US/CA stocks including EGB Cod, EGB haddock, and GB yellowtail flounder
JUL-AUG	PDT develops options for the SSC to consider for OFLs/ABCs for GB yellowtail flounder
AUG 15	SSC recommends ABC for GB yellowtail flounder
SEP 11-14	TMGC/SC recommends TACs for US/CA stocks
JUL-SEP	Committee/AP/PDT develop alternatives and analysis
<b>SEP 25-27</b>	<b>NEFMC – Receives an update on the development of the action, approve range of alternatives, including discussing US/CA stocks</b>
OCT-DEC	Committee/AP/PDT develop alternatives and analysis
<b>DEC 4-6</b>	<b>NEFMC – Council takes final action/approves framework</b>
DEC-JAN	PDT completes submission document
<b>2019</b>	
JAN	Preliminary submission
FEB	Final submission of framework document to NMFS
MAY 1	Implementation

\* Preliminary timeline

**2. Amendment 23 Groundfish Monitoring**

**Scope:** Consider changes to the groundfish monitoring and reporting system to ensure it is providing accurate catch information necessary to manage the fishery efficiently

STAFF PROJECT MANAGER:

Jamie Cournane

<b>2017</b>	
MAR - APR	Council holds scoping hearings
APR- MAY	Groundfish Committee/PDT review scoping comments
MAY	AP develops recommendations
<b>JUN</b>	<b>Council receives scoping comments; discusses purpose/need and range of alternatives</b>
TBD	Groundfish Committee/PDT develop alternatives and analyses
<b>SEP</b>	<b>Council receives progress report</b>
NOV	Groundfish Committee/AP/PDT continue develop alternatives and analyses
<b>2018</b>	
<b>JAN 30-31</b>	<b>Council receives progress report</b>
FEB-APR	PDT develops analyses and no action alternatives
<b>APR 17-19</b>	<b>Council receives progress report, no action alternatives</b>
APR-JUN	Fishery Data for Stock Assessment Working Group forms, meets to discuss objective of how fishery dependent data can be used to inform stock abundance
APR	PDT provides analyses for development of alternatives
MAY	AP/Committee meetings to review PDT analyses
MAY	PDT develops analyses and alternatives
JUN	AP/Committee meetings to review PDT analyses, recommend range of alternatives
<b>JUN / SEP</b>	<b>Council approves range of alternatives</b>
<b>TBD</b>	<b>Council takes final action</b>
<b>2019</b>	
TBD	Submission
TBD	Target Implementation

# Herring

## 1. \*Amendment 8 – ABC control rule / localized depletion

**Scope:** Account for the role of Atlantic herring within the ecosystem including its role as forage (via the ABC control rule) and to address localized depletion in inshore waters.

STAFF PROJECT MANAGERS: Deirdre Boelke/Rachel Feeney

2015	
JAN	NEFMC - review action plan and approve scoping document
FEB-APR	NOI for developing an EIS is published – Scoping period
JUN	NEFMC - Review EBFM Report and A8 scoping comments; revise goals and objectives; recommends peer review of Management Strategy Evaluation
AUG-SEP	Supplemental scoping period regarding expanded scope of A8 (localized depletion)
DEC	Herring PDT reviews scoping comments, discusses technical analyses to support A8
2016	
JAN	NEFMC - Review scoping comments, approve MSE approach to developing ABC control rule alternatives
FEB-APR	Herring PDT, AP, Committee work to develop background information and alternatives regarding localized depletion. Planning for MSE workshop.
MAY	Public workshop on MSE.
JUN	NEFMC – approve range of ABC control rule objectives, performance metrics and control rules to be evaluated. Continue development of localized depletion alternatives.
JUL - DEC	MSE and localized depletion-related work continues
2017	
JAN	NEFMC – Discuss range of alternatives for MSE control rule alternatives only
MAR	Independent peer review of MSE analysis
APR	NEFMC – Approve range of alternatives for Draft EIS
MAY- SEP	Impacts analysis
SEP	NEFMC – Select preferred alternatives for ABC control rule
DEC	NEFMC - Review/approve Draft EIS for public hearings, select preferred alternatives for localized depletion measures
2018	
JAN 29	Staff completes draft DEIS submission
JAN-MAR	NMFS review of DEIS
APR	Final submission of DEIS to NMFS
MAY 1	NMFS publishes DEIS
MAY-JUN	Public comment period and public hearings
JUL-SEP	Committee and AP meetings
SEP	NEFMC – Review public comments, select final preferred alternatives
TBD	Preliminary submission of amendment document including EIS
TBD	Final submission of amendment document including EIS
2019	
TBD	Implementation

\* Preliminary timeline

2. \*Herring Specifications for 2019-2021

STAFF PROJECT MANAGER: Deirdre Boelke

2018	
<b>JUN 20-22</b>	<b>Council initiates action</b>
JUN	Herring benchmark assessment
<b>SEP 26-28</b>	<b>Council – receives presentation on herring benchmark assessment</b>
OCT	SSC recommends ABC for 2019 - 2021
OCT-NOV	Herring PDT develops analyses of sub-ACL options, specs, and river herring/shad catch cap options
NOV	Herring Committee - develop recommendations for final 2019-2021 herring fishery specifications package
<b>DEC 2-4</b>	<b>Council selects final 2019-2021 fishery specifications and river herring/shad catch caps</b>
2019	
JAN	Preliminary submission of 2019-2021 Atlantic herring fishery specifications package
MAR	NEFMC staff receives NMFS' comments and makes revisions to specifications package
APR	Final submission of 2019-2021 Atlantic herring fishery specifications
TBD	NMFS publishes proposed rule for 2019-2021 Atlantic herring fishery specifications
TBD	NMFS publishes final rule
TBD	Target Implementation

\* Preliminary timeline

## Whiting (Small-mesh Multispecies)

### 1. Amendment 22 – Limited Access

**Scope:** Develop Limited access program for the Small Mesh Multispecies FMP, which includes whiting, red hake and offshore hake. (A control date for this action was published on November 28, 2012)

STAFF PROJECT MANAGER: Andrew Applegate

<b>2015</b>	
MAY-AUG	Draft scoping document
AUG-SEP	Whiting PDT finalizes annual monitoring report with management advice
<b>SEP 29-OCT 1</b>	<b>NEFMC - approve scoping document for Amendment 22; receive annual monitoring report; decide whether additional whiting management action is needed</b>
DEC -JAN	Staff conducts scoping hearings and summarizes comments
<b>2016</b>	
<b>JAN 26-28</b>	<b>NEFMC - review scoping comments and approve scope of amendment</b>
FEB-NOV	Whiting Committee/AP develop range of alternatives
MAR-SEP	PDT prepares preliminary analysis of alternatives and potential effects; committee and advisory panel identify range of qualification criteria alternatives
<b>NOV</b>	<b>NEFMC - Committee report on limited access qualification criteria alternatives</b>
<b>2017</b>	
<b>APR</b>	<b>NEFMC – Approve range of alternatives for DEIS analysis</b>
MAR-MAY	Whiting PDT analyzes range of alternatives and develops Draft EIS
MAY-AUG	Whiting AP/Committee review Draft amendment /DEIS, recommend preferred alternatives
<b>SEP</b>	<b>NEFMC - Review draft amendment and select preferred alternatives</b>
OCT-NOV	Staff works with PDT to finalize analyses and complete draft document
<b>DEC</b>	<b>NEFMC – Approve range of alternatives for DEIS analysis</b>
<b>2018</b>	
JAN	Submit draft Amendment 22 document for preliminary review
FEB-APR	Preliminary GARFO review
MAY	Revise and submit final Draft Amendment 22
JUN-JUL	NEPA comment period begins; Staff conducts public hearings & summarizes comments
JUL-AUG	PDT and Advisory panel make recommendations; Committee considers choosing final preferred alternatives
<b>SEP</b>	<b>NEFMC – Review public comments, committee recommendations and select final measures to submit for review and approval</b>
OCT	PDT revises analyses if needed; Staff revises Amendment 22 document
NOV	Amendment 22 Final submission
NOV-JAN	NMFS review and approval of final Amendment 22
<b>2019</b>	
JAN	Publish proposed rule
JAN-FEB	Qualify vessels and hear appeals
MAR	Publish final rule
MAY	Target Implementation

**2. \*Southern Red Hake Rebuilding Plan; Title of action - TBD**

**Scope:** Measures to address the overfished status of southern red hake and begin stock rebuilding.

STAFF PROJECT MANAGER: Andrew Applegate

<b>2018</b>	
<b>MAY 18</b>	<b>NEFMC – Council initiates action</b>
MAY	Joint PDT and Advisors recommend types of measures that may be required
JUL- AUG	Committee / PDT develop alternatives
<b>SEP 26-28</b>	<b>NEFMC – receives information on development of management measures (Framework meeting 1?)</b>
OCT-JAN	Develop and analyze potential alternatives
<b>2019</b>	
<b>JAN 29-31</b>	<b>NEFMC – chooses range of alternatives for action (Framework meeting 2?)</b>
FEB-MAR	Staff and PDT develops action
APR	GARFO reviews action and provides comments
<b>APR 16-18</b>	<b>NEFMC – Council approves final action</b>
MAY	Council staff submits decision draft completes pre-submission
JUN	NMFS publishes proposed rule
JUN	EA reviewed by NMFS
JUL	Staff completes final submission for NMFS review and approval
SEP	NMFS publishes final rule
SEP 2019 to MAY 2020	Target Implementation

\* Preliminary timeline



# Habitat

## 1. Habitat - Clam Dredge Exemption Framework

**Scope:** Identify possible exemption areas for hydraulic clam dredges within two management areas proposed in Omnibus EFH Amendment 2

STAFF PROJECT MANAGER:

Michelle Bachman

<b>2015</b>	
<b>SEPT 29-OCT 1</b>	<b>NEFMC – Initiates framework</b>
NOV 23	Habitat PDT meeting
<b>DEC 1-3</b>	<b>NEFMC – Identifies as 2016 priority</b>
<b>2016</b>	
MAR, AUG	Habitat Committee meetings – PDT update
NOV-DEC	PDT work
<b>2017</b>	
<b>JAN, SEP</b>	<b>Council updates</b>
OCT	Notice of availability for OHA2
JUL-DEC	PDT work on data to support framework
<b>2018</b>	
JAN	Decision date for OHA2
FEB-MAR	Continued PDT work
	OHA2 implementation (starts one-year clock on exemption from habitat closure)
MAR-MAY	PDT, AP, Committee develop alternatives
<b>JUN</b>	<b>Council selects range of alternatives for analysis in clam framework</b>
JUL-AUG	Draft framework document/EA, Committee identifies preferred alternatives
AUG	OHA2 implementation (starts one-year clock on exemption from habitat closure)
<b>SEP</b>	<b>Council takes final action on framework</b>
NOV	Staff submits framework
<b>2019</b>	
APR	Implementation

## 2. Omnibus Deep-Sea Coral Amendment

**Scope:** Designate deep-sea coral protection zones in the Gulf of Maine, continental slope and canyons, and New England seamounts, and develop fishing restrictions to protect corals within those zones.

STAFF PROJECT MANAGER:

Michelle Bachman

<b>2008-2013</b>	
FEB 2008	Council directed PDT to evaluate information related to deep-sea corals and develop alternatives for deep-sea coral protection
2010-2012	Committee and PDT develop alternatives
<b>APR 2012</b>	<b>Council approves range of alternatives for analysis</b>
AUG 2012	Notice of intent to split habitat amendment
<b>SEP 2012</b>	<b>Council splits coral alternatives from Omnibus Habitat Amendment 2</b>
<b>JUN 2013</b>	<b>Council approves MOU to coordinate with MAFMC and SAFMC on coral protection</b>
<b>2015</b>	
<b>JUN</b>	<b>Council approves remaining aspects of OHA2</b>
<b>DEC</b>	<b>Council identifies coral amendment as 2016 priority</b>
DEC 4 & 15	Habitat PDT meetings
<b>2016</b>	
MAR	Habitat Committee meeting
AUG-FEB 2017	PDT analysis, development of draft EA
<b>SEP</b>	<b>Council receives update</b>
<b>NOV</b>	<b>Council reviews preliminary impacts analysis; refines range of alternatives</b>
<b>2017</b>	
MAR	Develop EA, Advisory Panel review, additional Committee work, workshop
<b>APR</b>	<b>Council finalizes range of alternatives including final zone boundaries, prior to hearings, selects preferred alternatives</b>
MAY-JUN	Public hearings
<b>JUN</b>	<b>Final action postponed for Council to consider new alternative</b>
JUL 2017 - JAN 2018	PDT/Committee work to further analyze/consider new alternative for continental slope/canyons
<b>SEP, DEC</b>	<b>Updates on work to further analyze/consider new alternative for continental slope/canyons</b>
<b>2018</b>	
<b>JAN</b>	<b>Council takes final action</b>
APR	Submission of Deep-Sea Coral Amendment and final EA
<b>2019</b>	
TBD	Implementation (assuming 7 months for review and rulemaking)

# Skates

## 1. Framework 6

**Scope:** Adjust measures so the wing fishery remains open as long as possible

STAFF PROJECT MANAGER: Fiona Hogan

2018	
<b>JAN</b>	<b>Council initiates framework/specifications</b>
JAN-MAR	Committee & PDT develop & analyze alternatives
<b>JUN</b>	<b>Council approves framework</b>
JUL	Preliminary submission of framework/specifications document to NMFS
AUG/SEP	Final submission of framework/specifications document to NMFS
TBD	Implementation

## 2. Amendment 5 – Limited Access for Skate FMP

**Scope:** Develop Limited access program for the Skate FMP

STAFF PROJECT MANAGER: Fiona Hogan

2016	
<b>NOV</b>	<b>Council approves scoping document</b>
2017	
JAN-FEB	Scoping hearings
<b>APR</b>	<b>Council reviews scoping comments</b>
MAY-NOV	Committee/PDT develop alternatives and preliminary analyses
2018	
<b>SEP</b>	<b>Council receives progress report</b>
<b>TBD</b>	<b>Council approves range of alternatives for analysis in draft EIS</b>
TBD	PDT completes DEIS
<b>TBD</b>	<b>Council approves draft EIS for public review</b>
TBD	Public hearings
<b>TBD</b>	<b>Council takes final action</b>
TBD	Implementation

## Industry-funded Monitoring Amendment

**Scope:** Develop an industry-funded monitoring program to meeting monitoring objectives for all FMPs.

PROJECT MANAGERS:

Fiona Hogan– NEFMC Staff

Carly Bari/Carrie Nordeen - GARFO FMAT

<b>2013</b>	
FEB	FMAT begins work on action
NOV	NMFS provides NEFMC guidance on type of action required and possible funding mechanisms
<b>2015</b>	
<b>JAN / FEB</b>	<b>Councils approve draft coverage target range of alternatives of alternatives to be analyzed</b>
FEB–OCT <sup>1</sup> .	PDT/FMAT/Councils develop alternatives, draft EA
<b>APR 2</b> <sup>2</sup> .	<b>Councils approve additional alternatives for inclusion in an Environmental Assessment</b>
<b>2016</b>	
<del>JAN</del> <sup>3</sup> JUN	<b>Councils approve draft EA for public review</b>
OCT-NOV	Public hearing(s)
<b>DEC</b>	<b>MAFMC postponed final action</b>
<b>2017</b>	
<b>JAN</b>	<b>NEFMC considers final action and selects several alternatives</b>
<b>APR</b>	<b>NEFMC final vote to submit preferred alternative</b>
<b>2018</b>	
<b>JAN</b>	<b>NEFMC receives monitoring service provider presentation</b>
FEB	NMFS conducts internal review of EM pilot project
FEB	Proposed rule published
<b>APR</b>	<b>NEFMC reviews final EM pilot project report, and considers whether EM/Portside is an adequate substitute for ASM for MWT</b>
JUN??	Proposed rule published/EFP drafting begins
<b>AUG</b>	<b>MAFMC reviews final EM pilot project report</b>
OCT	Final rule published
NOV	Omnibus measures effective
<b>2019</b>	
JAN	Herring measures effective

1. New timeline proposed by NMFS in response to comments at NEFMC and MAFMC meeting that the public and Councils would like more opportunity to provide input and consider the implications of the action.
2. Council added portside sampling alternative required additional analysis.
3. Delayed because Council added monitoring set-aside option to the IFM Amendment at its Sept-Oct 2015 meeting. The MAFMC tasked the PDT/FMAT with continuing to refine cost assumptions and economic analysis of mackerel coverage target alternatives.

## Ecosystems Based Fishery Management

**Scope:** Phase II – Develop worked example of integrated Example Fishery Ecosystem Plan for Georges Bank.

STAFF PROJECT MANAGER: Andrew Applegate

2017	
JAN	<b>NEFMC - Georges Bank Example Fishery Ecosystem Plan (eFEP) - Committee progress report</b>
FEB – MAY	Committee and PDT continue work on examples of GB Ecosystem Production Unit (EPU) operating models and draft ecosystem forage fish mgt. policy
SEP	<b>NEFMC - Georges Bank Example Fishery Ecosystem Plan – report on quantitative worked examples of GB EPU operating models and harvest control rules</b>
TBD	PDT develops MSE work plan
2018	
JAN	<b>DELAYED</b> – Center for Independent Experts (CIE) peer review of EBFM catch framework and application of operating models
APR 30-MAY 4	Center for Independent Experts (CIE) peer review of EBFM catch framework and application of operating models
JUN	<b>NEFMC – Council receives summary of CIE review</b>
JUN	EBFM Committee develops course of action to further development of eFEP
JUN 2018 – APR 2019	PDT fleshes out remaining details of eFEP framework; NEFSC and others continue operating model development, incorporating CIE recommendations
2019	
APR	<b>Council receives complete eFEP framework and establishes steering committee to develop MSE process.</b>
MAY- JUN	Management strategy evaluation (MSE) steering committee develops recommendations
JUN	<b>Council approves MSE plan and begins MSE meetings</b>
JUN-NOV	Council conducts MSE meetings and analysis
DEC	<b>Council receives report from MSE and determines whether and how to proceed with an actual Fishery Ecosystem Plan</b>

**Status, Assessment and Management Information for NEFMC Managed Fisheries  
June 1, 2018**

**Fishery Management Plan: Northeast Multispecies**

<b>Stock</b>	<b>Status</b>	<b>Rebuilding Status</b>	<b>Last / Next Planned Assessment or Update<sup>1,B</sup></b>	<b>Acceptable Biological Catch Annual Catch Limit (ABC/ACL) Default Management Uncertainty Buffer<sup>2</sup> for components of the fishery with sub-ACLs</b>	<b>Accountability Measures (AMs)</b>
Cod, GB	Overfishing Overfished	Rebuild by 2026	SEP 2017/ TBD 2019	95% of sub-ABC	<p><b>Proactive:</b></p> <p><u>Common pool:</u> Trimester TAC, DAS, and stock area closures</p> <p><u>Sectors:</u> In-season ACL, stock area closures</p> <p><u>Recreational</u> – GOM cod and haddock - NMFS, in consultation with the Council, will implement measures to prevent recreational fishery from exceeding applicable sub-ACL in following years, AMs may include adjustments to fishing season, minimum fish size, and possession limits.</p> <p><b>Reactive:</b></p> <p><u>Sectors</u> - Overages deducted from a sector's allocation in next fishing year</p> <p><u>Common pool</u> –Overages deducted from sub-ACL</p> <p><u>Non-allocated stocks</u>- gear restrictions in year 2 or 3 following the overage, depending on timing of information</p> <p><u>Other fisheries</u> – sub-ACLs with associated AMs for certain groundfish stocks caught by the scallop fishery (windowpane flounder stocks, GB and SNE/MA yellowtail flounder stocks), small mesh fisheries (GB yellowtail flounder); and mid-water trawl herring fishery (haddock stocks).</p>
Cod, GOM	Overfishing Overfished	Rebuild by 2024	SEP 2017/ TBD 2019	95% of sub-ABC comm.; 93% of sub-ABC rec.	
Haddock, GB	No overfishing Not overfished	Rebuilt	SEP 2017/ TBD 2019	95% of sub-ABC 93% of sub-ABC MWT	
Haddock, GOM	No overfishing Not overfished	Rebuilt	SEP 2017/ TBD 2019	95% of sub-ABC comm.; 93% of sub-ABC rec. 93% of sub-ABC MWT	
YTF, GB	Overfishing Overfished	Rebuild by 2032	JUL 2017/ JUL 2018	97% of sub-ABC 93% of sub-ABC small-mesh 97% of sub-ABC scallops	
YTF, SNE/MA	Overfishing Overfished	No longer rebuilt	SEP 2017/ TBD 2019	95% of sub-ABC 100% of sub-ABC scallops	
YTF, CC/GOM	Overfishing Overfished	Rebuild by 2023	SEP 2017/ TBD 2019	95% of sub-ABC	
American Plaice	No overfishing Not overfished	Rebuild by 2024	SEP 2017/ TBD 2019	95% of sub-ABC	
Witch Fl.	Unknown Overfished	Rebuild by 2017	SEP 2017/ TBD 2019	95% of sub-ABC	
Winter Fl., GB	No overfishing Not overfished	Rebuild by 2017	SEP 2017/ TBD 2019	97% of sub-ABC	
Winter Fl., GOM	No overfishing Unknown	Stock status unknown	SEP 2017/ TBD 2019	95% of sub-ABC	
Winter Fl., SNE/MA	No overfishing Overfished	Rebuild by 2023	SEP 2017/ TBD 2019	95% of sub-ABC	
GB/GOM Acadian Redfish	No overfishing Not overfished	Rebuilt	SEP 2017/ TBD 2019	95% of sub-ABC	
Pollock	No overfishing Not overfished	Rebuilt	SEP 2017/ TBD 2019	95% of sub-ABC	
White Hake	No overfishing Not overfished	Rebuild by 2014	SEP 2017/ TBD 2019	95% of sub-ABC	
Ocean Pout	No overfishing Overfished	Rebuild by 2014	SEP 2017/ TBD 2019	93% of sub-ABC	
SNE/MAB Windowpane	No overfishing Not overfished	Rebuilt	SEP 2017/ TBD 2019	93% of sub-ABC	

<sup>1</sup> Terminal year for data used in assessments typically is the year before the assessment.

<sup>B</sup> Indicates a benchmark assessment.

<sup>2</sup> The following default management uncertainty buffers are used for groundfish stocks: 3% for stocks with no state waters catch; 7% for zero possession stocks; 7% for recreational allocations; and 5% for all other stocks/components of the fishery.

**Status, Assessment and Management Information for NEFMC Managed Fisheries  
June 1, 2018**

**Northeast Multispecies - continued**

Stock	Status	Rebuilding Status	Last / Next Planned Assessment	Acceptable Biological Catch Annual Catch Limit (ABC/ACL) Buffer	Accountability Measures (AMs)
Atlantic Halibut	No overfishing Overfished	Rebuild by 2055	DEC 2017/ TBD 2019	95% of ABC	Same as above
Atlantic Wolffish	No overfishing Overfished	Unable to determine rebuilding period	SEP 2017/ TBD 2019	93% of ABC	

**Fishery Management Plan: Skates**

Stock	Status	Rebuilding Year	Last / Next Assessment	ABC/ACL Buffer	Accountability Measures (AMs)
Barndoor	No overfishing Not overfished	NA	Last: DEC 2008  Next: (data update) 2018	ABC=ACL ACT = 75% ACL determined for catch of all skate species combined	<b>Proactive:</b> In-season possession limit triggers  <b>Reactive:</b> Adjustments to TAL triggers and ACL-ACT buffer
Clearnose	No overfishing Not overfished	NA			
Little	No overfishing Not overfished	NA			
Smooth	No overfishing Not overfished	Rebuild by 2020			
Thorny	No overfishing Overfished	Rebuild by 2028			
Winter	No overfishing Not overfished	NA			
Rosette	No overfishing Not overfished	NA			

**Fishery Management Plan: Herring**

Stock	Status	Rebuilding Year	Last / Next Assessment	ABC/ACL Buffer	Accountability Measures (AMs)
Herring	No overfishing Not overfished	NA	Last: (operational assessment) April 2015  Next: (benchmark) June 2018	Total of management area ACLs = 94.1% ABC	<b>Proactive:</b> Closure of stock-wide directed fishery at 95% of ACL; sub-ACL triggers for specific management areas are 92% of each sub-ACL; closure of directed fishery for haddock incidental catch sub-ACL in appropriate area; closure of directed fishery for river herring catch caps by area.  <b>Reactive:</b> ACL overage payback (for herring as well as bycatch overages)

**Status, Assessment and Management Information for NEFMC Managed Fisheries  
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**Fishery Management Plan: Sea Scallops**

Stock	Status	Rebuilding Year	Last / Next Assessment	ABC/ACL Buffer	Accountability Measures (AMs)
Scallops	No overfishing Not overfished	Rebuilt	Last: (benchmark) July 2014 (update) July 2017  Next: (benchmark) June 2018	ABC=ACL sub-ACLs for limited access (LA) & limited access general category (LAGC) fleets	<b>Reactive:</b> 1) LA – DAS reduced in next year; 2) LAGC – IFQs reduced in next year

**Fishery Management Plan: Monkfish**

Stock	Status	Rebuilding Year	Last / Next Assessment	ABC/ACL Buffer	Accountability Measures (AMs)
Northern Management Area	No overfishing Not overfished	Rebuilt	Last: (update) 2016  Next: (benchmark) TBD	ACL=ABC ACLs for northern (NMA) & southern management areas (SMA)	<b>Proactive:</b> SMA ACT = 97% of ABC NMA ACT = 97% of ABC  <b>Reactive:</b> ACL overages to be deducted from ACT by adjusting mgt. measures in 2 <sup>nd</sup> year after overages or Regional Administrator may adjust DAS and trip limits by notice action.
Southern Management Area	No overfishing Not overfished	Rebuilt			

**Fishery Management Plan: Red crab**

Stock	Status	Rebuilding Year	Last / Next Assessment	ABC/ACL Buffer	Accountability Measures (AMs)
Red crab	No overfishing Not overfished (2009 Data Poor Work Group)	NA	Last: DEC 2008**  Next: TBD	ACL=ABC (ABC is defined in terms of landings)	<b>Proactive</b> (options): A) NMFS will close fishery when it is projected to reach the ACL B) ACT  <b>Reactive</b> (option): Payback excess catch over the ACL in the next period

\*\* Northeast Fisheries Science Center Reference Document 09-02



**Status, Assessment and Management Information for NEFMC Managed Fisheries  
June 1, 2018**

Fishery Management Plan: **Small Mesh Multispecies** (Whiting, Red hake, Offshore hake)

Stock	Status	Rebuilding Year	Last / Next Assessment	ABC/ACL Buffer	Accountability Measures (AMs)
Silver hake, Northern	No overfishing Not overfished	NA	Last: (operational assessment): July 2011  Last (update assessment): July 2017  Next: (operational): 2019 for red hake Unscheduled for silver hake	ACL = 95% of ABC	<p><b>Proactive:</b></p> <ul style="list-style-type: none"> <li>Incidental possession limits when 90% of TALs reached. 37.5% for northern red hake due to prior overages.</li> </ul> <p><b>Reactive:</b></p> <ul style="list-style-type: none"> <li>In-season triggers are reduced by the proportion of prior overages, when the overages exceed 5% of the ACL.</li> </ul>
Silver hake, Southern	No overfishing Not overfished	NA			
Red hake, Northern	Not overfished Not overfished	NA			
Red hake, Southern	Overfishing in 2016 Overfished	NA			
Offshore hake	Status unknown	NA			



# SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

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Charlie Phillips, Chair | Captain Mark Brown, Vice Chair  
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## JUNE 10-15, 2018 COUNCIL MEETING REPORT FORT LAUDERDALE, FLORIDA

The following summary highlights the major issues discussed and actions taken at the South Atlantic Fishery Management Council’s June 2018 meeting in Fort Lauderdale, Florida. Briefing materials, presentations, and public comments are available on the Council’s website at:

<http://safmc.net/safmc-meetings/council-meetings/>

Final Committee Reports contain more details of what was accomplished for each committee and are located on the June 2018 briefing book page. In addition, the Summary of Motions on the Council’s website includes all motions from the meeting. Read further details and see images and other links at the March 2018 Council Meeting Round-up Story Map:

<https://www.arcgis.com/apps/MapJournal/index.html?appid=a88e097b4bcd4a289251d0a59303a1de>

The Meeting News Release is available at: <http://safmc.net/news-releases/06-15-18-safmc-news-release/>

<b>Issue:</b>	<b>Action Taken:</b>	<b>Schedule:</b>
Red Snapper	<p>Amendment 43 is currently under review by NMFS. The amendment was sent to NMFS on November 20, 2017. Comments on the proposed rule are due by June 18, 2018.</p> <p>The Council provided guidance on actions to include in Amendment 46:</p> <ul style="list-style-type: none"> <li>• Private Recreational Permit</li> <li>• Private Recreational Electronic Reporting</li> </ul> <p>The Council provided guidance on Regulatory Amendment 29:</p> <ul style="list-style-type: none"> <li>• Require use of Best Fishing Practices (e.g., descending devices, venting, hook type)</li> <li>• Adjust Powerhead Prohibitions in the South Atlantic (allow in the EEZ off SC or prohibit use of powerheads in entire EEZ)</li> </ul>	<p>If approved, the 2018 recreational and commercial seasons would begin sometime in August. [In future years, the recreational season would begin on July 13, 2018 (2<sup>nd</sup> Friday) and the commercial season on July 9, 2018.]</p> <p>Recreational bag = 1 with no size limit. Commercial trip limit = 75 pounds gutted weight with no size limit.</p> <p>Approved for scoping.</p> <p>Approved for scoping in August.</p>

<b>Issue:</b>	<b>Action Taken:</b>	<b>Schedule:</b>
Recreational Visioning Amendment	<p>Regulatory Amendment 26: reviewed comments and simplified document:</p> <ul style="list-style-type: none"> <li>•Deep-water species aggregate to include snowy grouper, misty grouper, golden tilefish, blueline tilefish, wreckfish, and yellowedge grouper</li> <li>•Removal of minimum size limits for the three deep-water snappers (queen snapper, blackfin snapper, silk snapper)</li> <li>•Season and aggregate bag limit for deep-water species aggregate</li> <li>•Recreational bag limits for the current 20-Fish Aggregate species (the Council can select some or all of these) <ul style="list-style-type: none"> <li>○ no more than 10 gray triggerfish</li> <li>○ no more than 10 Atlantic spadefish</li> <li>○ no more than 10 of any one species</li> </ul> </li> <li>•Gray triggerfish minimum size limit (so that folks in FL will match the rest of the South Atlantic region)</li> </ul>	Review/modify document and approve all actions in September 2018. Review and approve for formal review in December 2018.
Commercial Visioning Amendment	Regulatory Amendment 27: reviewed comments and provided guidance. Approved all actions.	Review and approve for formal review in September 2018.
For-Hire Moratorium Amendment	Reviewed the scoping document and provided guidance on what to include.	Approved for webinar scoping in August with additional scoping in September and October. Review and provide guidance at September meeting.
Golden Tilefish	The Council discussed the conversion factor for whole weight to gutted weight and decided to use the factor included in the stock assessment that results in a slightly higher ACL. The Council approved all action and approved for formal review.	The document will be revised and sent for formal review so that the new ACL can be in place by January 1, 2019. The Council also requested and extension of the interim rule for an additional 186 days.
Red Grouper	The Council added actions to the amendment and approved for public hearings.	Hold public hearing at the September meeting and approve for formal review.
Yellowtail Snapper	The Council is proposing to modify the accountability measure as a short-term solution to the early closure of the commercial fishery.	Approved for scoping in August. Review at September meeting.
Modifications to Sea Turtle Release Gear	The Council reviewed scoping comments and provided guidance on actions and alternatives to include.	Review at a future meeting.
Vermilion Snapper & Black Sea Bass	The Council directed staff to begin an abbreviated framework document to increase the ACL for vermilion and reduce the ACL for black sea bass.	Public hearing at September meeting and approve for formal review.

<b>Issue:</b>	<b>Action Taken:</b>	<b>Schedule:</b>
Mackerel Cobia	<p>The Council approved CMP Amendment 31 (Atlantic Cobia) for formal review and retained Alternative 2 as preferred: Remove Atlantic cobia from the CMP Fishery Management Plan.</p> <p>The Council retained Preferred Alternative 3 in the framework amendment to change the Atlantic king mackerel commercial trip limit.</p>	<p>The Gulf Council is scheduled to take final action at their June 18-21, 2018 meeting.</p> <p>The Council approved the document for a public hearing at the September meeting and they will consider final action then also.</p>
Spiny Lobster	The Council revised the Actions & Alternatives to be analyzed in Spiny Lobster Amendment 13 (Modifications to Gear Requirements & Cooperative Management Procedure).	This is a joint Amendment with the Gulf Council. Public hearings are expected in July/August with final approval by the Gulf in August and the South Atlantic in September.
Habitat and Ecosystem Based Management	The Council reviewed the AP report and Habitat Dashboard.	Support completion of Ecopath model for the fall SSC meeting.
Citizen Science Program	The Council made appointments to the Operations Team and received updates on the program and research needs.	Work will continue on the pilot and the program infrastructure.
For-Hire Recreational Reporting	<p>The Council received an update on the amendment: the Amendment was approved on June 12, 2018 and the Final Rule is expected to publish in August.</p> <p>Council staff conducted a training session at the meeting.</p>	<p>Regulations are likely to be effective 1/1/19 to give individuals time to become familiar with the program.</p> <p>For-Hire reporting training and outreach will continue in 2018.</p>
MyFishCount	Council staff gave a presentation at a local store on Wednesday and for the Council on Friday.	The app is now available and Council staff will be working with private recreational fishermen to have them report. This experience will be used by the Council as they continue to work on a permitting and reporting amendment.

<b>Issue:</b>	<b>Action Taken:</b>	<b>Schedule:</b>
SEDAR	Dr. Clay Porch, SEFSC Director, participated during the meeting this week. The Council made appointments to SEDAR 64 (Yellowtail), SEDAR 58 (Cobia), Cobia Stock ID, Red Porgy Assessment, and to the SEDAR AP. The Council also approved the terms of reference and schedule for the yellowtail and cobia stock assessments.	The Council approved the schedules for upcoming stock assessments.
ABC Control Rule & Accountability Measures	The Council provided directions to staff.	Review at a future meeting.
Highly Migratory Pelagics	The Council reviewed the issue of pelagic longline gear in spawning special management zones and the process for reviewing the pelagic longline EFP.	Letters will be sent on both topics.
Golden Crab, Habitat, Shrimp	The Council reviewed recommendations from the advisory panels and approved development of an amendment to review alternatives to modify fishing areas.	Conduct scoping later this year and review at a future meeting.
SSC Selection	The Council approved appointments to the Scientific and Statistical Committee.	