



JUNE 2018 MEETING AGENDA

June 5-7, 2018

DoubleTree by Hilton Philadelphia Center City
237 South Broad Street
Philadelphia, PA 19107-5686
Telephone 215-893-1600

Tuesday, June 5th

- 9:00 a.m. – 10:30 a.m.** **Executive Committee (Closed Session) (Tab 1)**
Luisi, Elliott, Batsavage, deFur, DiLernia, Heins, Hemilright, Hughes, Michels, Nolan, Nowalsky, O'Reilly, Winslow, Pentony, Moore
- Advisory Panel Appointments
- 10:30 a.m. – 12:00 p.m.** **Surfclam/Ocean Quahog Committee – Atlantic Surfclam and Ocean Quahog Excessive Shares Amendment (Tab 2)**
deFur, Hughes, Gwin, Heins, Mann, Michels, Pentony, Stutt, Coakley, Montanez
- Committee review and approve a range of alternatives for consideration by the Council
- 12:00 p.m. – 1:30 p.m.** **Lunch**
- 1:30 p.m.** **Council Convenes**
- 1:30 p.m. – 2:00 p.m.** **Law Enforcement Report**
- NOAA Office of Law Enforcement
 - US Coast Guard
- 2:00 p.m. – 3:30 p.m.** **Surfclam/Ocean Quahog Specifications (Tab 3)**
- Review Advisory Panel, SSC, and staff recommendations for 2019 specifications
 - Recommend any changes if necessary
- 3:30 p.m. – 4:00 p.m.** **Mackerel Framework – Meeting 2 (Tab 4)**
- Take final action on modifications to mackerel closure provisions
- 4:00 p.m. – 5:00 p.m.** **Atlantic Herring Amendment 8 Public Hearing (Tab 5)**
Peter Kendall, Herring Committee Chair
- Public hearing on Amendment 8 to the Atlantic Herring FMP with proposed alternatives to; (1) establish an acceptable biological catch control rule for Atlantic herring; and (2) address potential localized depletion and user conflicts in the fishery

Wednesday, June 6th

- 9:00 a.m.** **Council Convenes**
- 9:00 a.m. – 11:00 a.m.** **Chub Mackerel (Tab 6)**
- Update on progress (FMAT, AP, and Committee meetings)
 - Approve draft goals and objectives for inclusion in a public hearing document
 - Consider management unit alternatives for consideration by the SSC
- 11:00 a.m. – 12:00 p.m.** **Summer Flounder Commercial Issues Amendment (Tab 7)**
- Review and approve Draft EIS
- 12:00 p.m. – 1:00 p.m.** **Lunch**
- 1:00 p.m.- 1:30 p.m.** **Estimating and Reducing the Discard Mortality Rate of Black Sea Bass in Offshore Recreational Rod-and-Reel Fisheries (Tab 8)**
Douglas Zemeckis
- 1:30 p.m. – 2:00 p.m.** **Northeast Observer Program (Tab 9)**
NEFSC
- 2:00 p.m. – 3:00 p.m.** **Update on NMFS Climate Strategy and Overview of Recent Research (Tab 10)**
Vince Saba, NMFS
- 3:00 p.m. – 4:00 p.m.** **Mid-Atlantic Coastal Acidification Network Monitoring Plan (Tab 11)**
Sherilyn Lau, EPA
- 4:00 p.m. – 5:00 p.m.** **Regulatory Review Results (Tab 12)**
- Discuss and approve recommendations for regulatory streamlining

Thursday, June 7th

- 9:00 a.m.** **Council Convenes**
- 9:00 a.m. – 9:30 a.m.** **Aquaculture in the Northeast (Tab 13)**
GARFO Staff
- 9:30 a.m. - 1:00 p.m.** **Business Session**
- Committee Reports (Tab 14)**
- Executive Committee
 - Surfclam/Ocean Quahog Committee
- Executive Director's Report (Tab 15)**
Chris Moore

Organization Reports (Tab 16)

- NMFS Greater Atlantic Regional Office
- NMFS Northeast Fisheries Science Center
- NOAA Office of General Counsel
- Atlantic States Marine Fisheries Commission

Liaison Reports (Tab 17)

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

Continuing and New Business

Blueline Tilefish

Move that the blueline tilefish ACT=ACL=ABC be 100,520 pounds for 2019, 2020, and 2021 for the Mid-Atlantic jurisdiction. The ACL and ACT are allocated 73% and 27% to the recreational and commercial fishery, respectively. After discards, the recreational TAL is 71,912 pounds and the commercial TAL is 26,869 pounds.

Heins/Michels (19/0/0)

Motion carries

Move that the blueline tilefish commercial trip limit be changed for 2019, 2020, and 2021 from 300 pounds (gutted/head and fins attached) to 500 pounds until 70% of the quota (18,808 pounds) has been met. Then, the trip limit will be reduced to 300 pounds for the remaining 30% of the quota (8,061 pounds).









Nolan/Hemilright







Motion carries by consent, 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 May 23, 2018)

SPECIES	STATUS DETERMINATION CRITERIA		OVERFISHING	OVERFISHED	REBUILDING PROGRAM / STOCK STATUS
	Overfishing $F_{\text{threshold}}$	Overfished $\frac{1}{2} B_{\text{MSY}}$			
 Summer Flounder	$F_{35\%MSP}=0.31$	69 million lbs	Yes	No	Most recent benchmark assessment was 2013. Most recent assessment update was 2016.
 Scup	$F_{40\%MSP}=0.22$	96.23 million lbs	No	No	Most recent benchmark assessment was 2015. Most recent assessment update was 2017.
 Black Sea Bass	$F_{40\%MSP}=0.36$	10.7 million lbs	No	No	Most recent benchmark assessment was 2016.
 Bluefish	$F_{35\%SPR}=0.19$	111.7 million lbs	No	No	Most recent benchmark assessment was 2015.
 Illex Squid (short finned)	Unknown	Unknown	Unknown	Unknown	Most recent benchmark assessment was 2006; not able to determine current exploitation rates or stock biomass.
 Longfin Squid	Unknown	46.7 million lbs	Unknown	No	Most recent assessment update was 2017; not able to determine current exploitation rates.
 Atlantic Mackerel	$F_{40\%}=0.26$	217.0 million pounds	Yes	Yes	Most recent benchmark assessment was 2017
 Butterfish	$F_{\text{Proxy}}=2/3M=0.81$	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 $\frac{1}{2} B_{\text{MSY}}$			
Surfclam 	$F/F_{\text{threshold}} = 1^a$	$SSB/SSB_{\text{threshold}} = 1^b$	No	No	Most recent benchmark assessment was 2016.
Ocean Quahog 	$F/F_{\text{threshold}} = 1^c$	$SSB/SSB_{\text{threshold}} = 1^d$	No	No	Most recent benchmark assessment was 2017.
Golden Tilefish 	$F_{38\%MSP} = 0.310$	10.46 million lbs	No	No	Most recent assessment update was 2017.
Blueline Tilefish 	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.
Spiny Dogfish (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.
Monkfish (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.

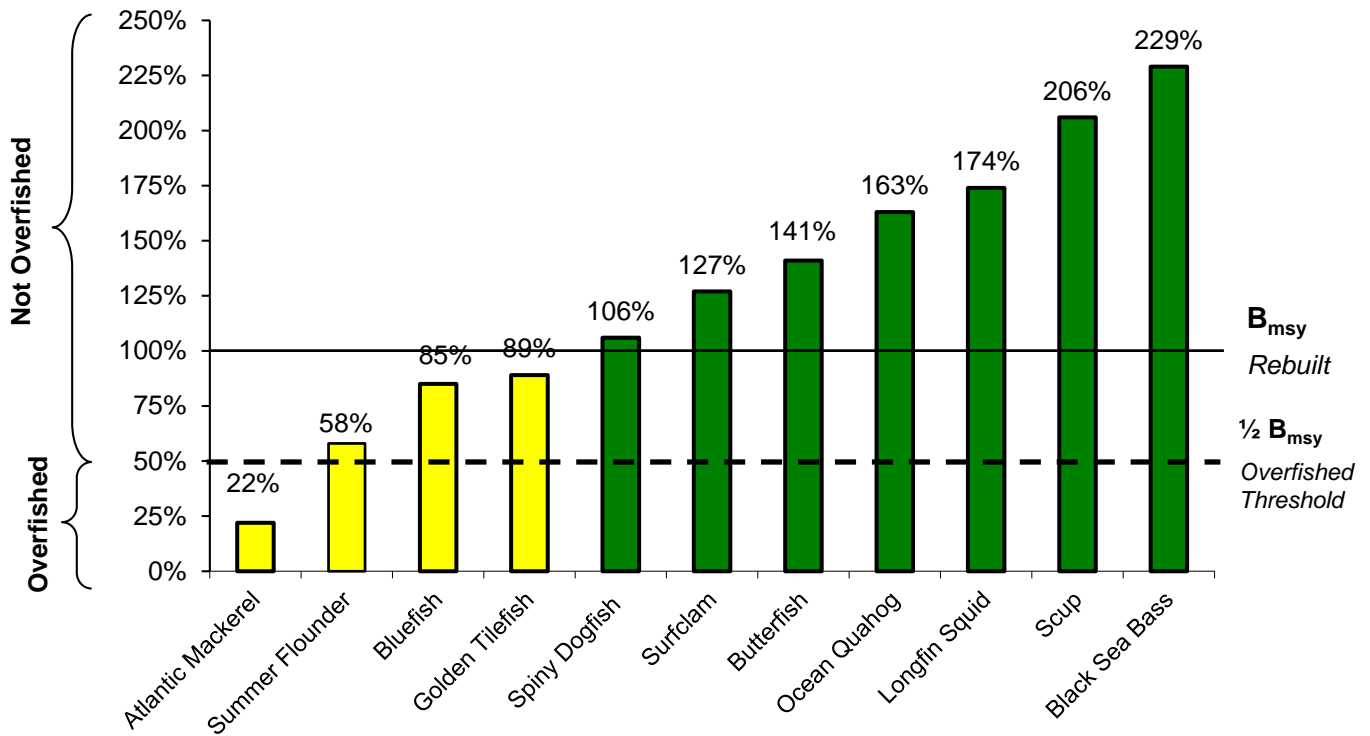
^a $F_{\text{threshold}}$ is calculated as 4.136 times the mean F during 1982 - 2015

^b $SSB_{\text{threshold}}$ is calculated as $SSB_0/4$

^c $F_{\text{threshold}}$ is 0.019

^d $SSB_{\text{threshold}}$ is calculated as $0.4 * SSB_0$

Stock Size Relative to Biological Reference Points (as of May 23, 2018)



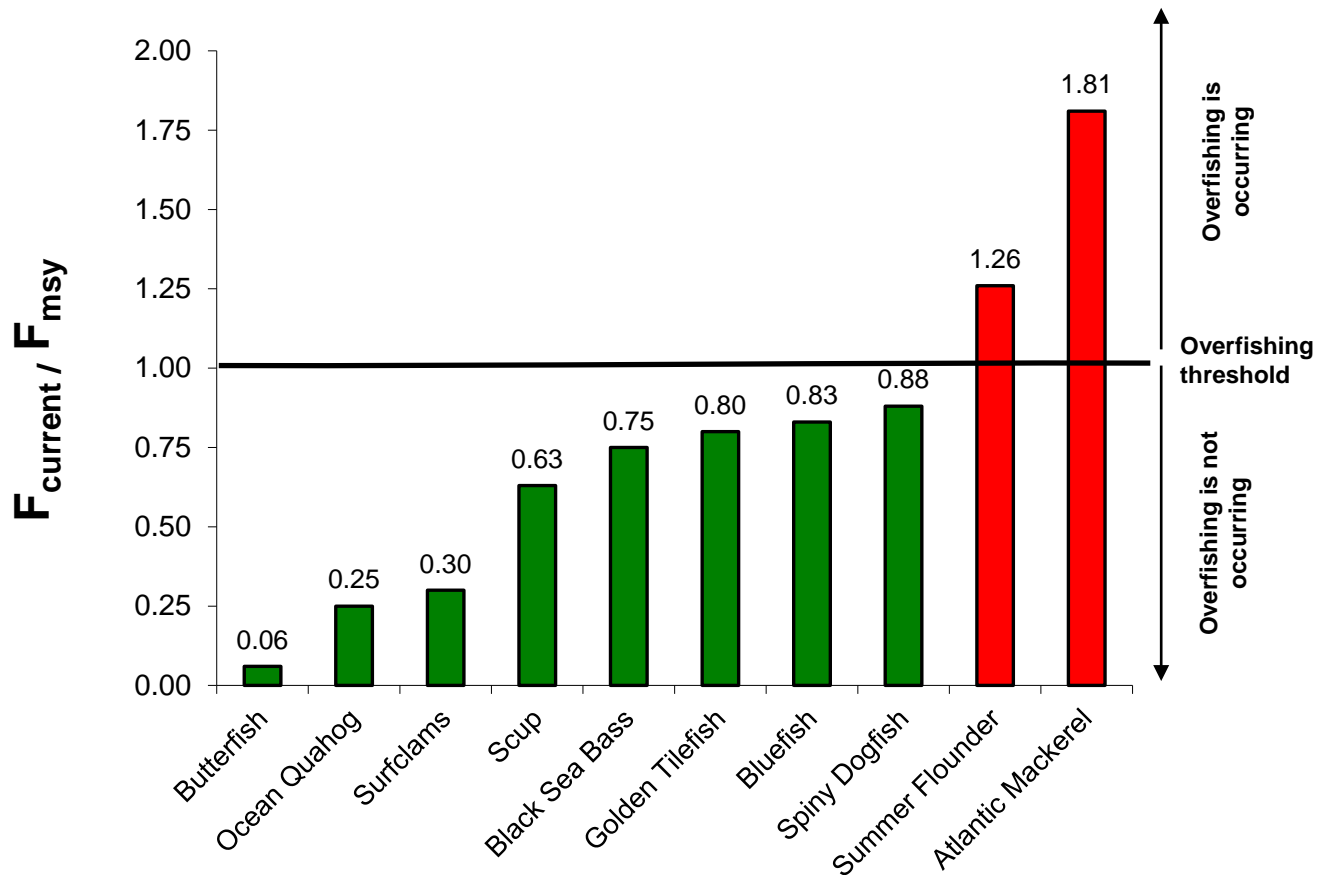
Notes:

- 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 May 23, 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



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: 5/22/2018
To: Executive Committee
From: Mary Sabo
Subject: 2018 Advisory Panel Appointments

The Executive Committee will meet during a closed session on **Tuesday, June 5 at 9:00 a.m.** to review advisory panel applications and develop appointment recommendations. The following documents are included for consideration by the committee:

- 1) Advisory Panel Reappointment Process and Timeline
- 2) MAFMC Statement of Organization Practices and Procedures (SOPPs) – Excerpt pertaining to advisory panels
- 3) Overview of the Council’s advisory panel process

Additional materials will be distributed to committee members during the meeting.

2018 Advisory Panel Reappointment Process

Council advisors serve for 3-year terms. In June 2018, three-year terms for our current advisors appointed in 2015 will be complete. Advisors do not have term limits, but they must reapply to be considered for an additional term.

Timeline for 2018 Advisory Panel Reappointment Process:

March 13, 2018: Opening of advisory panel reappointment process. Council staff distribute a press release and email announcement and post information on the website and social media.

April 20, 2018: Closing date for applications. All applications will be reviewed by Council staff for completeness and compiled for review by Committees.

Late April: FMP coordinators work with Committee Chairs to schedule webinar/conference call to review AP applications. Council staff compile applications for distribution to Committees.

May 1-25, 2018: Committees will meet via conference call or webinar to develop a recommended applicant list which they expect to address the AP needs for representation. All viable applicants (and their applications), including any recommended applicant lists, will be provided to the Executive Committee.

June 5-7, 2018: The Executive Committee will review applicants and Committee recommendations during a closed session and produce an appointment list for each AP. These lists will include those qualified applicants that address the current need for representativeness for each AP. These appointed lists will be provided to the Council Chair for final review and consideration.

June 15, 2018: The Council Chair will make applicant selections for each AP from the Executive Committee appointment lists. Those selected applicant names will be sent to the Office of Law Enforcement for review. After full consideration, the Council Chair will appoint the members of the AP.

June 29, 2018: All applicants will be notified by email about whether they have been appointed. If not appointed, applicants will be informed that their application will be kept on file for future consideration for interim appointments (if needed) for a limited time period of 3 years. The Council Chair has discretionary authority to fill a member position in the interim, if necessary.

2.6.2 Advisory Panels

Advisors shall be appointed as needed to assist the work of the Council and will ordinarily be named to provide advice to a particular Council committee. Such advisors will constitute Advisory Panels which fulfill the requirement for a fishing industry advisory committee as required by Section 302(g)(3)(A) of the Act.

2.6.2.1 Objectives and Duties

- (a) When requested by the Council, through the Council Chair or the Executive Director, Advisory Panels shall:
 - (1) Advise the Council on the assessments and specifications contained in each fishery management plan for each fishery within the Council's geographical area of concern, with particular regard to:
 - i) the capacity and the extent to which the fishing vessels (commercial and recreational) of the United States will harvest the resources considered in fishery management plans,
 - ii) the effect of such fishery management plans on local economies and social structures,
 - iii) potential conflicts between user groups of a given fishery resource,
 - iv) the capacity and the extent to which United States fish processors will process that portion of an optimum yield harvested by United States fishing vessels, and
 - v) enforcement problems peculiar to each fishery with emphasis on the expected need for enforcement resources;
 - (2) Advise and/or prepare comments for the Council on:
 - i) fishery management plans or amendments thereto during preparation of such plans or amendments by the Council, and on
 - ii) fishery management plans prepared by the Secretary and transmitted to the Council for review;
 - (3) Advise the Council on current trends and developments in fishery matters; and
 - (4) Perform such other necessary and appropriate advisory duties as may be required by the Council to carry out its functions under the Act.
- (b) Advisory Panel, subcommittees of the panels, or panel members shall meet and attend Council meetings and public hearings on fishery management plans and amendments as authorized by the Council Chair or the Executive Director.

2.6.2.2 Membership

- (a) Advisory Panel members shall apply for appointment, be recommended by the Executive Committee, and be appointed by the Council Chair. Advisory panel members shall be appointed by the Chairman for a period of three years, and may be reappointed at the pleasure of the Chair. Vacancy appointments shall be filled, when practicable for the remainder of the unexpired term of the vacancy. Neither proxies nor designees can serve in place of an appointed member.
- (b) Advisory Panels shall be composed of persons who are either actually engaged in the harvesting or processing of, or are knowledgeable and interested in the conservation and management of, the fisheries to be managed. Advisory Panels shall also reflect expertise and interest from the standpoint of geographical distribution, industry and other user

groups, and the economic and social groups encompassed in the Council's geographical area of concern.

- (c) Advisory Panel members shall be notified of meetings at least 23 days in advance of each meeting. Advisory Panel members who cannot attend a scheduled meeting shall advise the Executive Director.

2.6.2.3 *Administrative Provisions*

- (a) The Advisory Panels shall meet with the approval of the Council Chair, as often as necessary to fulfill the Advisory Panels' responsibilities, taking into consideration time and budget constraints.
- (b) The Council shall pay the actual expenses of the members of the Advisory Panels, in accordance with Section 302(f)(7)(D) of the Act, while engaged in the performance of Council business. Pursuant to Section 302(g)(1)(F) of the Act, stipends are available, subject to the availability of appropriations, to panel members who are not employed by the Federal Government or a State marine fisheries agency. For the purposes of the section, any personnel from state or tribal agencies that have conservation, management or enforcement responsibility for any marine fishery resource, are not eligible for stipends.
- (c) Notice of meetings of Advisory Panel meetings shall comply with the applicable notice requirements specified for Council meetings.

Mid-Atlantic Fishery Management Council

ADVISORY PANELS

The Mid-Atlantic Fishery Management Council's advisory panels are required under the Magnuson-Stevens Fishery Conservation and Management Act of 1976. Under the Act, the advisory panel process is designed to assure, to the greatest extent practicable, that all aspects of a fishery are considered in developing management plans and the measures to implement them.

The fishery management process seeks relevant information from all interested and affected parties including the general public, commercial and recreational fishermen, the fishing industry, and environmental organizations.

Advisors assist in the collection and evaluation of information and provide recommendations on all aspects of fishery management plans and amendments. They provide fair representation of commercial, recreational, and other interests, and advise the Council on current fishery issues and trends including socioeconomic implications and effects of proposed management measures.

The Council's advisors include those who are active in the commercial or recreational fishing industry and are knowledgeable and interested in the conservation and management of fisheries. Their expertise and interest as advisors is often consistent with their interests as user groups and communities involved in those fisheries.

MAFMC ADVISORY PANELS:

*Mackerel, Squid, Butterfish – Summer Flounder, Scup, Black Sea Bass – Bluefish – Spiny Dogfish
Surfclam and Ocean Quahog – Tilefish – Ecosystems and Ocean Planning – River Herring and Shad*

PURPOSE OF ADVISORS

The advisory panels are intended to facilitate the Council's work in preparing and amending a fishery management plan or in addressing a special issue or problem. Advisors may also provide advice on matters concerning annual quotas and specifications. They reflect expertise and interest from the standpoint of geographical distribution, industry and other user groups, and the economic and social groups encompassed in the Council's geographical area of concern. In addition, they provide advice on the current trends and developments in fisheries under the Council's jurisdiction on the following matters:

- the capacity of commercial and recreational fishermen;
- and processors to harvest and process each species under the Council's management;
- the effects of Council management measures on local communities and their economies;
- potential conflicts between user groups;
- potential enforcement problems specific to a particular fishery.

APPOINTMENT/DURATION

Appointees to the advisory panels serve three-year term appointments. Advisors may be reappointed to serve consecutive terms, but all must reapply in order to be considered for reappointment. Neither proxies nor designees can serve in place of an appointed member. Vacancy appointments shall be filled for the remainder of the unexpired term of the vacancy.

APPLICATION PROCESS

At the end of each three-year term, Council staff solicits applications for advisory panels through press releases, emails, website announcements, and other means as appropriate. Each applicant must submit an Advisory Panel Application before the advertised deadline in order to be considered for appointment.

SELECTION

The relevant Council committee reviews the applicants' qualifications and submits a list of recommended appointees which they expect to address that panel's representation needs. The Executive Committee reviews applications and committee recommendations and produces a list of recommended appointees for final consideration by the Council Chair. The Council Chair makes the appointment decision based on these recommendations, and the Council then notifies the appointees of their selection as advisors.

TERMINATION

An advisor's membership on an advisory panel may be terminated based on lack of participation. After a three-year term of appointment has expired, Council staff initiates membership renewal to advisory panels. At this time, an advisor may reapply to continue to serve in his or her role.

PARTICIPATION

When advisory panels are scheduled to be convened, travel orders for participation will be provided to members by Council staff at least two weeks prior to the meeting date. It is expected that all advisors shall attend such scheduled meetings. The Fishery Management Plan coordinator will notify the advisory panel of scheduled meeting dates, location and issues to be addressed at the meeting. Advisory panel members are encouraged to attend Council meetings and public hearings on fishery management plans related to the species for which they have been appointed as an advisor.



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: 21 May 2018
To: Surfclam and Ocean Quahog (SCOQ) Committee
From: José Montañez and Jessica Coakley, Staff
Subject: FMAT recommendations regarding excessive shares

The FMAT met on 14 May 2018 to develop draft recommendations on alternatives for the Excessive Shares Amendment for the SCOQ Committee and Council to consider. A summary of the FMAT meeting is attached. At this meeting, the Committee will review and approve a range of alternatives for further FMAT work and consideration by the Council.



Fishery Management Action Team (FMAT) Meeting Summary - Excessive Shares Amendment

May 14, 2018

FMAT members in attendance: José Montañez (MAFMC), Jessica Coakley (MAFMC), Douglas Potts (GARFO), Marianne Ferguson (GARFO), Ted Hawes (GARFO), and John Walden (NEFSC).

Others in attendance: Peter DeFur (SCOQ Committee Chair), Peter Himckak (LaMonica Fine Foods), Dave Wallace (Wallace & Associates), Tom Alspach (Sea Watch International, Ltd.), Thomas Hoff (Wallace & Associates), and Katie Connelly (NEFSC).

Background

The Excessive Shares Amendment FMAT met in person on Monday, May 14 from 10:00 am to 4:00 pm in Boston, MA. The purpose of this meeting was to develop management alternatives to address excessive shares issues in the surfclam and ocean quahog fisheries. This was the first time the FMAT met on this issue.

The objective of the surfclam and ocean quahog (SCOQ) excessive shares amendment is to develop measures that ensure no individual, corporation, or entity acquires an excessive share of the surfclam and ocean quahog individual transferable quotas (ITQ) privileges.

National Standard 4 (NS4) of the Magnuson-Stevens Act (MSA) states that “... *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.*”¹

In 1990, Amendment 8 to the SCOQ FMP implemented an ITQ management program that did not include specific measures limiting the maximum amount of shares (e.g., percentage cap) that could be owned by a single entity. The Council is required to develop measures which specifically define what constitutes an excessive share in the SCOQ ITQ program to be consistent with NS4. This could be expressed as a percent cap or other measure.

The FMAT developed recommendations for the SCOQ Committee and Council regarding potential alternatives that they could consider regarding excessive shares.

¹ http://www.fisheries.noaa.gov/sfa/laws_policies/national_standards/.

In addition, to making recommendations regarding excessive shares that could be considered, the FMAT discussed the timeline for amendment development and reviewed the action plan. The FMAT discussed ways to potentially increase competition in these fisheries which could be considered in conjunction with an excessive share definition (measures). Lastly, the FMAT was updated on other issues to be addressed under the Excessive Shares Amendment, i.e., the potential revisions of the FMP goals and objectives.

Amendment alternatives

The FMAT discussed what constitutes ‘excessive shares’ and noted that they may be socially determined and/or economically determined and defined in a manner consistent with the MSA. On the basis of economics, an excessive share would be a level of quota control that results in market power for a firm or entity. An outcome of obtaining market power could be pricing power in either output (product), or factor (input) markets, or the ability to disrupt other firms from participating in the market. In simple terms, not setting excessive shares measures could decrease competition in the market for quota share. From a social perspective, concentration of ownership and control affects the social and community structure and the sense of equity that may, in part, be grounded in the history of fishery management. The FMAT suggests that the Council first needs to define what they mean by excessive shares. The FMAT recommended that a summary of the excessive share cap provisions for existing catch share programs be added to this meeting summary (see Appendix A).

Table 1 summarizes draft amendment alternatives proposed by the FMAT. These alternatives require further discussion and refinement by the SCOQ Committee and Council.

Table 1: Draft amendment alternatives as discussed by the FMAT in May 2018.

- Alternative 1: No Action Alternative (*Status Quo*)
- Alternative 2: Single Cap – Ownership only with unlimited leasing
 - 2.1 - Maximum value based on ownership data, 2016-2018
 - 2.2 - Maximum value at 49%
- Alternative 3: Single Cap – Combined (ownership + lease)
 - 3.1 - Maximum value at 40%
 - 3.2 - Maximum value based on ownership data, 2016-2018
 - 3.3 - Maximum value at 49%
- Alternative 4: Two-Part Cap Approach. A cap on ownership and a cap on control throughout the year
 - 4.1 - Maximum of 30% ownership and a maximum of 60% combined (ownership + lease)
 - 4.2 - Maximum value based on ownership data, 2016-2018
 - 4.3 - Maximum value based on ownership data, 2016-2018 plus X% (for anticipated growth)
- Alternative 5: Cap of 3 entities plus Two-Tier Quota – Cap of 3 entities (the cap is 49% based on ownership) with no restriction on leasing. Plus, Quota A and B shares, where A = current 3-year landings level (to be defined; e.g., rolling average; largest last 3 years) and B shares is the difference between the ACT (or overall quota level) and A shares. B shares are not released until all A shares are used/exhausted.

Table 1 (continued): Draft amendment alternatives as discussed by the FMAT in May 2018.

- Alternative 6: Cap of 3 entities plus Two-Tier Quota – Cap of 3 entities (the cap is 40% based on ownership) with no restriction on leasing. Plus, Quota A and B shares, where A = current 3-year landings level (to be defined; e.g., rolling average; largest last 3 years) and B shares is the difference between the ACT (or overall quota level) and A shares. B shares are not released until all A shares are used/exhausted.

Under the draft no action alternative for excessive shares (alternative 1), the current management approach addressing excessive shares would continue. Therefore, no limit on accumulation of shares is specified within the management plan. The FMAT indicated that this alternative is required under NEPA. However, the no action alternative does not address the Council's requirement to define what constitutes an excessive share in the SCOQ ITQ program and is not consistent with NS4 requirements.

Under alternative 2, a single cap limit would be implemented for each surfclams and ocean quahogs (however, species specific levels could be developed). based on ownership with unlimited leasing Under alternative 2.1, the single cap would be based on the maximum value reported in the ownership data for the 2016-2018 period. Under alternative 2.2, the single cap would be based on a maximum value of 49%. This is based on the tilefish model which allows for a 49% IFQ (Individual Fishing Quota) share cap. In addition, a 49% cap would also result in a minimum of 3 entities participating in the fishery. This implies at least three firms holding quota, which may provide some constraint against predation or foreclosure of competitors. This alternative does not account for leasing or other transactions/business practices that are prevalent in the fishery.

Under alternative 3, a single cap limit would be implemented for each surfclams and ocean quahogs based on combined ownership and leasing; combined "control" in this context means the possession of tags, which is the power to decide if they will be used to harvest clams. Under alternative 3.1, the single cap on control would be based on a maximum value of 40%.² This is based on recommendations found in the Compass Lexicon report and corresponding CIE review. "In the business literature, there is a widely accepted notion that a Rule of Three structure is optimal because three big and efficient companies (e.g., with more than 10% market share) act as a tripod to ensure that neither destructive competition nor collusion prevails." And "An excessive-share cap of 40% assures that there would be at least three processors operating at reasonable output levels." Under alternative 3.2, the single cap on control would be based on the maximum value reported in the ownership data for the 2016-2018 period. Under alternative 3.3, the single cap on control would be based on a maximum value of 49%. This is based on the tilefish model which allows for a 49% IFQ (Individual Fishing Quota) share cap.

Under alternative 4, a two-part cap approach would be implemented for each surfclams and ocean quahogs, with a cap on ownership and a cap on combined control throughout the year. Alternative 4.1 would implement a maximum of 30% ownership and a maximum of 60% control (ownership + lease).² This is based on recommendations for a two-part cap approach found in the Compass Lexicon report. Under alternative 4.2, the two-part cap approach would be based on the maximum value reported in the ownership data for the 2016-2018 period. Under alternative 4.2, the two-part cap approach would be based on the maximum value reported in the ownership data for the 2016-2018 period, plus X% for

² However, species specific cap levels do not have to be the same for surfclam and ocean quahogs.

anticipated growth. The X% for anticipated growth is expected to provide flexibility for efficient firms in the SCOQ fisheries to grow if market conditions allow.

Under alternative 5, Cap of 3 entities plus Two-Tier Quota would be implemented for each surfclams and ocean quahogs (however, species specific levels could be developed). This alternative would implement a cap of 3 entities (the cap is 49% based on ownership) with no restriction on leasing. Plus, Quota A and B shares, where A = current 3-year landings level (to be defined; e.g., rolling average; largest last 3 years) and B shares is the difference between the ACT (or overall quota level) and A shares. B shares are not released until all A shares are used/exhausted. The 49% cap under this alternative is based on the tilefish model. This alternative would align supply in the fishery with market demand (a point made under the Compass Lexicon report and corresponding CIE review). The FMAT noted that the two-part cap would not be needed if the ACT was aligned each year with the anticipated market demand. Alternatively, an advantage of a two-part cap is that it allows additional flexibility for increasing harvests if there is a surge in demand for surfclams or quahogs midway through the fishing year.

Under alternative 6, Cap of 3 entities plus Two-Tier Quota would be implemented for each surfclams and ocean quahogs (however, species specific levels could be developed). This alternative would implement a cap of 3 entities (the cap is 40% based on ownership) with no restriction on leasing. Plus, Quota A and B shares, where A = current 3-year landings level (to be defined; e.g., rolling average; largest last 3 years) and B shares is the difference between the ACT (or overall quota level) and A shares. B shares are not released until all A shares are used/exhausted. The 40% cap under this alternative is based on recommendations found in the Compass Lexicon report and corresponding CIE review. This alternative would align supply in the fishery with market demand (a point made under the Compass Lexicon report and corresponding CIE review). The FMAT noted that the two-part cap would not be needed if the ACT was aligned each year with the anticipated market demand. Alternatively, an advantage of a two-part cap is that it allows additional flexibility for increasing harvests if there is a surge in demand for surfclams or quahogs midway through the fishing year.

In addition, the FMAT also discussed the possibility of using the Compass Lexicon excessive-share proposal which is laid out as a series of 7 steps. Which includes the use of the Herfindahl-Hirschman Index (HHI), assessment of the breadth of the market, the scope and quantity of substitute products, the level of excess capacity, the degree of product heterogeneity, the relative bargaining power of buyers and sellers, the ability to price discriminate, ease of entry, and efficiencies -or economies of scale, the size of the fringe, and the sources of supply to processors. However, the FMAT indicated that this methodology requires a large amount of quantitative information that is not readily available and would also require frequent revision of caps due to changes in market dynamics.

Lastly, none of the alternatives would impact vessel that provide harvesting services only or services for hire. However, the Council could consider a separate vessel piece.

Industry members were provided with opportunities to make comments regarding the alternatives recommended by the FMAT. Below, a summary of the industry/stakeholder comments.

- Industry supports alternative 1.
- The current antitrust laws and DOJ take care of market power issues.
- The SCOQ industry cannot exert market power due to industry dynamics.

- The fishery is one of the best managed fisheries in the country if not the world, so why mess with something that is working well.
- The alternatives developed by the FMAT add a large degree of complexity to the management system (specially proposed alternatives 5 and 6). If a cap needed to be implemented, a cap would be better than the cap plus two-tier quota approach.
- When the Council last worked on this issue back in 2009, the scoping documents prepared by staff contained cap share levels ranging from 22% to 100% for each species. And during the scoping process, all industry members preferred the 100% cap level option.
 - 22% Cap Level - Represents the largest holding currently on record with NMFS.
 - 33% Cap Level - Would allow for a minimum of 3 entities holding up to 33% each to compete with one another.
 - 50% Cap Level - Would allow for a minimum of 2 entities holding up to 50% each to compete with one another.
 - 70% Cap Level - Corresponds to a market share level that is commonly cited in antitrust literature where market power concerns are an issue.
 - 100% Cap Level - Corresponds to cap level that was requested by a number of industry members.

Other Potential Alternatives

- a. Revisit the cap (if implemented) at specific intervals. At least every 10 years or as needed.
- b. Allow for Joint Ventures in these fisheries. The surfclam and ocean quahog harvest levels have been well below the quota levels established for those fisheries for many years. This alternative could allow for additional product to be sold and competition increased.
- c. Set the cap at a specific level. But allow for opportunity for further consolidation upon review by NMFS, if specific data is provided by industry.

Action Plan and Timeline for Amendment Development

The FMAT reviewed the action plan and timeline for amendment development. The FMAT noted that the current draft timeline is probably feasible if staff have no other priorities during this time. The FMAT agreed that the action plan was well developed and recommended that additional information on subsequent meetings (e.g., FMAT, Advisory Panel) be added to the detailed timeline.

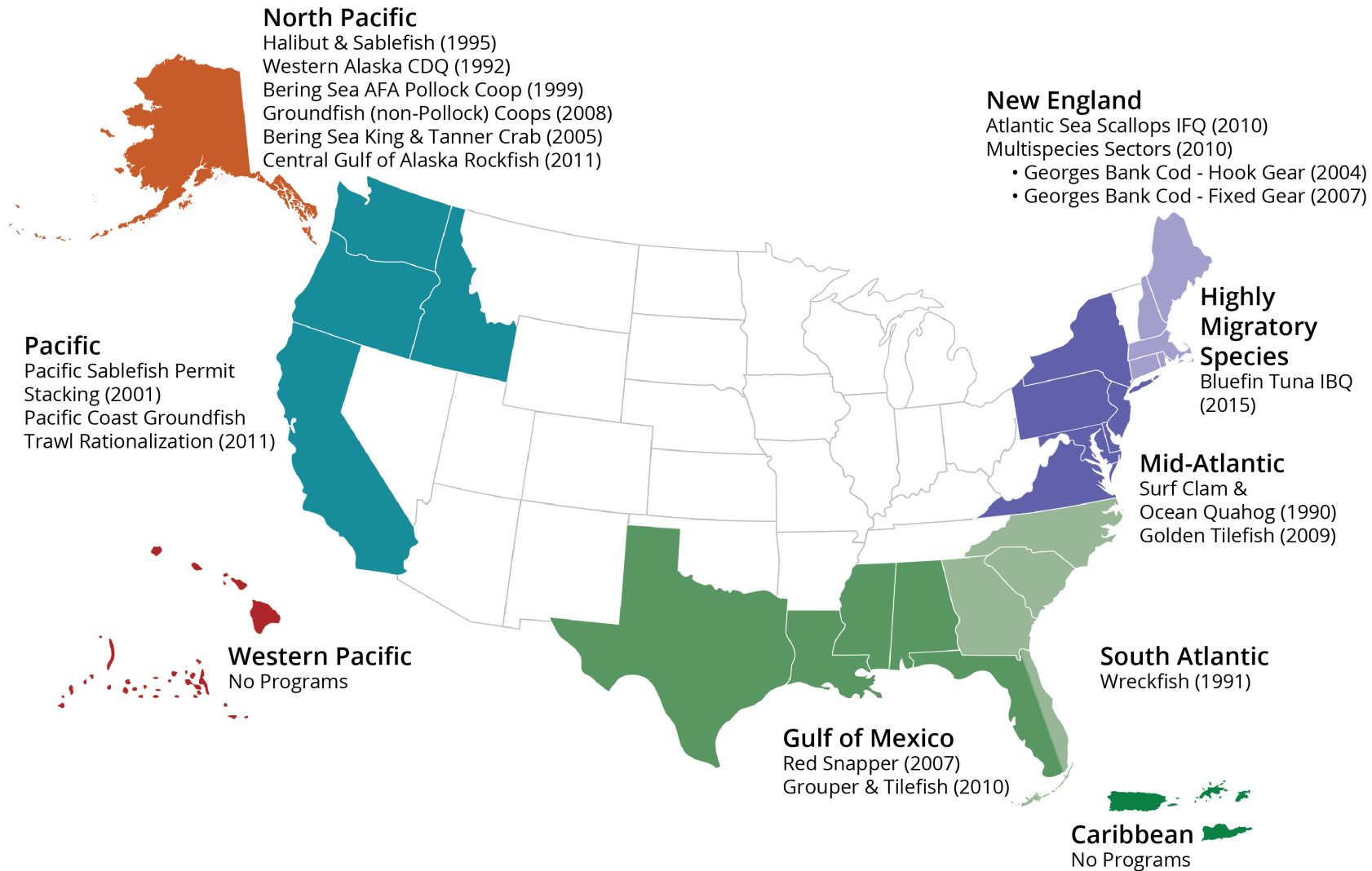
Industry members were provided with opportunities to make comments regarding the action plan discussed by the FMAT. Below, a summary of the industry/stakeholder comments.

- Why is this an EA (environmental assessment) and not an EIS (environmental impact statement)? Council staff consulted with GARFO and it was determined that this action would require an EA. It would be evaluated to an EIS if the FONSI (Finding of no Significant Impact) is not supportable.

APPENDIX A

This appendix presents information on the geographic distribution of the 16 catch share programs throughout the country and the excessive shares provision for each catch share program. The information presented in this section was provided by Lindsay Fullenkamp (NOAA) and Wendy Morrison (NOAA).

Current Catch Shares Programs



Program	Excessive Share Cap
Atlantic Sea Scallops IFQ	Yes. 2.5% of annual quota pounds ³ ; 5% cap on quota share ⁴
Multispecies Sectors	Yes. No individual or entity can hold more than 5% of all limited access groundfish permits. Additionally, there is a limit on the aggregated average of all allocated groundfish stocks of 15.5 Potential Sector Contribution (PSC). (Each permit has a history that brings a percentage of quota to the sector the permit enrolls with.) An entity can hold PSC for a single stock in excess of 15.5%, so long as the total holdings do not exceed 232.5 PSC for all 15 species. In other words, because there are 15 groundfish stocks currently allocated to the fishery, the total PSC across all stocks used by a permit holder cannot exceed 232.5 PSC (an average PSC of 15.5% per stock multiplied by 15 groundfish stocks).
Bluefin Tuna IBQ	No. The IBQ program is designed to account for bycatch in directed pelagic longline fisheries. There are various measures in place to curtail the excessive accumulation of share or allocation, such as no permanent sales and all leases contained within the calendar year.
Surf Clam & Ocean Quahog	No
Golden Tilefish	Yes, 49% of the tilefish IFQ total allowable landings
Wreckfish	Yes, 49% of quota share
Red Snapper	Yes, 6% of quota share
Grouper & Tilefish	Yes, quota share caps are: deep water grouper 14.7%, gag 2.3%, other shallow water grouper 7.3%, red grouper 4.3%, and tilefish 12.2%
Pacific Sablefish Permit Stacking	Yes, no individual can hold more than three permits unless meet requirements of grandfather clause.
Pacific Coast Groundfish Trawl Rationalization	Yes - For IFQ, quota share limits and quota pound vessel limits (annual and daily). Limits vary by species. The 30+ categories can be found here: http://www.westcoast.fisheries.noaa.gov/publications/fishery_management/rawl_program/accumulation-limits.pdf . - For the mothership cooperative program, mothership permit usage limit (no more than 45% of sector allocation). Mothership catcher vessel endorsed permit ownership limit (no more than 20% of the sector allocation).

³ Quota pounds is the annual amount of fish a participant is allowed to catch, usually defined in terms of total weight. It is often calculated as a percentage of the commercial quota based on a participant's quota shares. It varies according to changes in the commercial quota over time.

⁴ Quota share is the percentage of the sector's catch limit to which the holder of quota shares has access to harvest. This percentage is used to calculate the annual allocation, and it is not affected by changes in the catch limit over time.

Halibut & Sablefish	Yes. No one can hold or control more than 0.5%-1.5% of the halibut or sablefish quota shares in various combinations of areas (Gulf of Alaska, Bering Sea, and Aleutians) unless grandfathered in based on original landings history. There are similar restrictions on the amounts of IFQ that can be used on any single vessel.
Western Alaska CDQ	No. The Bering Sea King and Tanner Crab and Halibut Sablefish IFQ have limits on CDQ holdings, but there are no specific excessive share limits in the CDQ Program itself because the allocations were specified by Congress. However, the percentage allocated is reviewed every 10 years.
Bering Sea AFA Pollock Coop	Yes. No entity can harvest more than 17.5% or process more than 30% of the pollock directed fishery allocation.
Groundfish (non-Pollock Coops)	Yes. No single person can hold or use more than 30% of the quota share, unless grandfathered; no single vessel may catch more than 20% of the initial TAC assigned to the non-AFA trawl catcher/processor sector in any given year.
Bering Sea King & Tanner Crab	Yes. No individual or entity may hold/use more than 1-20% of shares (varies by fishery) unless grandfathered. Processors may not possess or use more than 30% of the processor shares for each fishery unless grandfathered, with some limited exceptions for specific fisheries and entities.
Central Gulf of Alaska Rockfish	Yes. There are four types of use caps to limit the amount of rockfish quota share and cooperative fishing quota, unless grandfathered. The caps can be found in Table 1 here: https://alaskafisheries.noaa.gov/sites/default/files/rockfish-faq.pdf



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: May 21, 2018
To: Chris Moore, Executive Director
From: Jessica Coakley and José Montañez, Staff
Subject: Atlantic Surfclam and Ocean Quahog Management Measures (Review of 2019)

As part of the 2018-2020 multi-year specification process for Atlantic surfclams and ocean quahogs, the Scientific and Statistical Committee (SSC) and Council review the most recent information available to determine whether modification of the 2019 specifications is warranted. The following is included for Council consideration on this subject:

- 1) Report of the May 2018 SSC Meeting – See SSC Report Tab 14
- 2) Staff Recommendations Memo (behind this Tab)
- 3) [Surfclam and Ocean Quahog Advisory Panel Fishery Performance Report¹](#)
- 4) [Surfclam Fishery Information Document¹](#)
- 5) [Ocean Quahog Fishery Information Document¹](#)

Neither staff nor the SSC recommended any changes to the 2019 specification for surfclam and ocean quahog.

Should the Council wish to maintain its previously recommended measures for 2019, the minimum surfclam size is the only measure that requires an annual recommendation from the Council to suspend. After the Council makes a recommendation, a report is prepared for the Regional Administrator to determine if the size composition of the landings indicates that 30 percent of the surfclams are smaller than 4.75 inches (12.065 cm). The report for 2017 indicated that approximately 10.4% of the surfclam landings were smaller than 4.75 inches (Georges Back=6.1%, New Jersey=7.8%, and Delmarva=22.7%).

¹ To access these files electronically, either click on the hyperlink in the document, or go to:
<http://www.mafmc.org/ssc-meetings/2018/may-8-9>



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: April 23, 2018
To: Chris Moore, Executive Director
From: Jessica Coakley and José Montañez, Staff
Subject: Atlantic Surfclam and Ocean Quahog Management Measures (Review)

As part of the 2018-2020 multi-year specification process for Atlantic surfclams and ocean quahogs, the Scientific and Statistical Committee (SSC) and Council will review the most recent information available to determine whether modification of the 2019 specifications is warranted.

The NMFS Northeast Fisheries Science Center provided data updates for surfclams and ocean quahogs to support this review.¹ This update includes fishery dependent information (i.e., catch, landings-per-unit-effort, etc.), as well as additional information that was requested by the SSC and Council. For surfclams, this additional information included swept area biomass estimates and survey information, and a discussion of research and analyses that may improve our understanding of survey catchability and reduce the uncertainty in the absolute estimates of surfclam abundance.

Based on a review of the information provided, staff recommends no change to the 2019 fishing year specifications.

In 2019, the SSC and Council will review the 2020 specifications.

¹ Available at: <http://www.mafmc.org/council-events/2018/may-2018-ssc-meeting>



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: 5/22/2018
To: Council
From: Jason Didden
Subject: 5/17/18 Joint MSB Committee and Advisory Panel Meeting (webinar) summary; Mackerel Closure Provisions Framework

Participants

Committee Participants: Peter Hughes (chair), Sara Winslow (vie-chair), Warren Elliott (ex-officio), Pete Christopher, Laurie Nolan, Roger Mann, Maureen Davidson, Eric Reid, Peter deFur, Terry Alexander, Stew Michels, Adam Nowalsky, Sonny Gwin.

Advisory Panel Participants: Peter Moore, Greg DiDomenico, Joseph Gordon, Pete Kaizer, Katie Almeida, Steve Weiner.

Other Participants: Jason Didden, Michael Pratt, Christian Berardi, Tim Krusell, Meghan Lapp, Zack Greenberg, John Maniscalco, Jeff Kaelin, Deirdre Boelke, Doug Christel.

Summary

J. Didden (MAFMC staff) provided an overview of the options for new commercial mackerel trip limits once 100% of the landings quota is reached. Currently at that point the trip limit becomes zero, and the options being considered are 5,000 pounds and 10,000 pounds per trip/day. Staff, in a briefing memo (attached) recommended 5,000 pounds because any landings quota overage at a 5,000-pound trip limit is unlikely to result in an Annual Catch Limit (ACL) overage, and higher trip limits may be more difficult to predict in terms of landings overages.

The Committee, by a vote of 9-1-1, passed the following motion: "I move that the Committee recommend to the Council that the post-100% mackerel trip limit be changed from zero to 5,000 pounds for all permits." The rationale was that this limit appears likely to minimize negative impacts from a zero-possession limit (especially on the Atlantic herring fishery) while likely avoiding an ACL overage. The Committee discussed a motion for a 7,500 pound trip limit but that motion was amended to the final 5,000 pound recommendation.

Several other issues were discussed:

- There is some concern about recent increases in directed landings by handgear fishermen with open access incidental permits. After the call, staff examined landings by this gear type in more detail, which includes automatic jigging machines. Landings by this gear type increased in 2014/2015 and have been in the 1.5-2.0 million pound range from 2015-2017 (11%-16% of total mackerel landings). 73% of landings by this gear type were made by 10 vessels with open access incidental mackerel permits fishing out of SE Massachusetts (including Cape Cod) and landing on average at least 50,000 pounds of mackerel per year. 4 of those 10 vessels landed more than 100,000 pounds on average 2015-2017 and accounted for about half of the landings for this gear type.
- Only 1% of mackerel landings came from vessels with no federal permits, but the proportion of landings made in federal vs state waters can not be calculated due to the spatial scale of required reporting in VTR or dealer data. If federal waters close or have a lowered trip limit, effort could be pushed into state waters where there are currently no trip limits. There was some discussion of sending a letter to the state of Massachusetts asking them to mirror federal mackerel trip limits.
- If the Council wants to develop measures prohibiting targeting of mackerel by holders of the incidental permit or further consider access by different permits types, that could be considered as a Council action. Given the challenges in implementing this action by November/December 2018 (when the relevant measures might be needed), adding any access-control alternatives could prohibitively delay the effective date of this action. This concern would also apply to an alternative that set a post-closure trip limit of 10,000 pounds for directed permits and 5,000 pounds for incidental permits.
- There remain concerns that mixed Atlantic herring and mackerel catches could occur, forcing mackerel discarding due to a low landing limit. This may be unavoidable to a degree if there are low mackerel trip limits (including zero possession). There was also a question about how river herring and shad (RH/S) bycatch could be affected – the existing RH/S caps on the Atlantic herring fishery would remain in place; only trips above 20,000 pounds of mackerel count against the mackerel fishery’s RH/S cap. After the call, staff calculated that during the July-Dec portions of the years from 2015-2017, trips with greater than 5,000 pounds of mackerel accounted for 6% of herring landings in that time period, or 4% of overall herring landings. Trips with greater than 10,000 pounds of mackerel accounted for 5% of herring landings in that time period, or 3% of overall herring landings.


A recording of this meeting is available at: <http://mafmc.adobeconnect.com/p3ja8ibb1ntt/>.

The Council is scheduled to take action on this issue at the June 2018 Council meeting (“Mackerel Framework – Meeting 2” agenda item, June 5th).



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: 5/14/18
To: MSB Committee and Advisory Panel
From: Jason Didden 
Subject: Atlantic Mackerel Closure Options

In April 2018 the Council split off Atlantic mackerel (“mackerel”) closure options from the mackerel rebuilding framework. Instead, the Council is using a separate framework to consider just the mackerel closure provisions. Having a focused framework should allow implementation before any potential closure later in 2018. The April 2018 meeting counted as Framework Meeting 1 and the Council plans to take final action on the mackerel closure provisions in June 2018. The Mackerel, Squid, and Butterfish (MSB) Committee is meeting jointly with the MSB Advisory Panel on May 17, 2018 via webinar to provide input on this issue and make recommendations to the Council on a preferred alternative. A related communication from the New England Fishery Management Council on this issue is attached, and materials from the April 2018 meeting (<http://www.mafmc.org/briefing/april-2018>) include several earlier public comments.

Introduction/Alternatives

The mackerel fishery closed February 27, 2018 because it exceeded its river herring and shad (RH/S) bycatch cap. The mackerel fishery would have closed soon after due to mackerel landings. For data reported through May 09, 2018, 89.26% of the mackerel landings quota had been caught, leaving 2,173,787 pounds of quota for the rest of the year. All vessels with commercial mackerel permits currently have a 20,000-pound trip limit.

At 100% of the quota, the trip limit currently becomes zero, i.e., no possession. The Council has received multiple communications that not being able to possess mackerel could make Atlantic herring fishing infeasible, and small-scale directed mackerel operations have also communicated that a zero-possession limit will have a negative economic impact for them as well.

The Council is considering changing the possession limit once 100% of the quota is harvested from zero to either 5,000 pounds or 10,000 pounds per trip. There is a separate 2,277,375-pound commercial management uncertainty buffer that can be used to absorb any overages occurring with a 5,000-pound or 10,000-pound trip limit. If 100% of the quota is not harvested, the trip limit will remain at 20,000 pounds for the remainder of the year.

Analysis

Given the clear potential negative economic impacts of a total mackerel possession ban, the key question becomes whether additional mackerel catches could negatively impact the mackerel stock given the recent assessment findings that mackerel is overfished with overfishing occurring through at least 2016. Rebuilding projections assume that mackerel catch in 2018 will be 21,898 MT, and lead to a fishing mortality rate ("F") of 0.22, which is below the overfishing threshold. A catch of 21,898 MT assumes full utilization of the U.S. acceptable biological catch (ABC), including the management uncertainty buffer, as well as full harvest of the Canadian quota if Canada maintains a 10,000 MT quota (same as 2017). While there is some uncertainty about U.S. recreational and Canadian harvest, if only a portion of the management uncertainty buffer is used then we would expect that allowing a 5,000-pound or 10,000-pound trip limit would not lead to a U.S. annual catch limit (ACL) overage or overfishing in general. The following table describes the current utilization of catch:

2016-2018 (all numbers are in metric tons)	
Specification	Mackerel
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

The 1,033 MT gap between the commercial allocation (10,327 MT) and commercial annual catch target (9,294 MT) is the 2,277,375 pound commercial management uncertainty buffer (there are approximately 2,205 pounds in 1 MT).

Predictions of 2018 commercial mackerel landings under various non-zero trip limits after 100% of the landings quota is reached can be approximated with 2015-2017 data. The following scenarios start with reported landings through May 9, 2018. If later (i.e. after May 9) 2015-2017 landings over 20,000 pounds are set to 20,000 pounds, then based on average monthly landings the 2018 fishery is predicted to hit 100% of the landings quota around December 1. If larger trips after that point are set to 10,000 pounds, then the quota overage prediction is about 514,000 pounds, which would be 23% of the management uncertainty buffer. If larger trips after that point are set to 5,000 pounds, then the quota overage prediction is about 384,000 pounds, which would be 17% of the management uncertainty buffer.

Actual landings may be higher or lower than predicted and there can be considerable variability in late-season mackerel landings. Some larger trips currently being set as smaller trips may not have occurred at all, while additional smaller trips may take place due to the closure. However, the available information suggests that with a 5,000-pound or 10,000-pound trip limit, only a portion of the commercial management uncertainty buffer would be utilized. As such, ACL or ABC overages would not be expected so overfishing should not occur. Any ACL overages must be repaid.

Public testimony, and analysis of landings and portside sampling data suggest that the herring fishery late in the year can operate with a 5,000-pound trip limit – only a small portion of total herring landings have occurred on late-season trips that also landed over 5,000 pounds of mackerel. A 5,000-pound trip limit would also mitigate impacts on smaller-scale directed operations.

Given the relatively small landings quota overage expected with a 5,000-pound trip limit and the associated herring and mackerel opportunities that would result, staff recommends the Council select a 5,000-pound trip limit for after 100% of the mackerel quota is caught. Although a 10,000-pound trip limit would also probably result in a relatively small overage, staff concluded caution appears warranted given the overfished status of mackerel. A 10,000-pound trip limit could also attract unanticipated directed effort and result in a higher-than-expected landings quota overage.



New England Fishery Management Council

50 WATER STREET | NEWBURYPORT, MASSACHUSETTS 01950 | PHONE 978 465 0492 | FAX 978 465 3116
John F. Quinn, J.D., Ph.D., *Chairman* | Thomas A. Nies, *Executive Director*

May 7, 2018

Dr. Christopher Moore
Executive Director
Mid-Atlantic Fishery Management Council
Suite 201, 800 N. State Street
Dover, DE 19901

Dear Chris:

The Council met on April 19, 2018 and discussed the action the Mid-Atlantic Council is working on to address accountability measures in the mackerel fishery. The 2018 mackerel catch is currently at about 90% of the annual domestic allowable harvest (DAH), and once the full DAH is projected to be caught, all vessels are prohibited from possessing mackerel. This is a large concern for the Atlantic herring fishery, as well as small scale mackerel fishing operations in New England. It was explained that the Mid-Atlantic Council is working on a fast-track action to address this issue before it is expected to be a concern (approximately November 2018 when the remaining DAH is projected to be caught).

The New England Council passed two motions supporting this action. Prohibiting the possession of mackerel would be very detrimental to the herring fishery since mackerel is often caught with herring. Furthermore, there are small scale mackerel fishing operations in New England that target mackerel under lower possession limits. Finally, the current regulations include reference to a prohibition to “take” any mackerel if this accountability measure is triggered. It is our understanding that this was an oversight when the regulations were updated and was not the intent of the measure, and therefore, the Council supports removing that text from the regulations as soon as possible.

That the Council support development of an action by the MAFMC to modify the mackerel possession limit in the range of 5,000 to 10,000 pounds (from zero) when the full mackerel domestic annual harvest (DAH) is projected to be harvested.

*The main motion **carried** unanimously on a show of hands (17/0/0).*

When mackerel regulations are adjusted, NMFS should clarify the definition of “possess” (remove reference to “take”).

*The motion **carried** on a show of hands (16/0/1).*

Sincerely,

Thomas A. Nies
Executive Director

cc: Mr. Michael Pentony, NOAA Fisheries

**DRAFT AMENDMENT 8 TO THE ATLANTIC HERRING
FISHERY MANAGEMENT PLAN
PUBLIC HEARING DOCUMENT**



Prepared by the New England Fishery Management Council
50 Water Street, Mill #2; Newburyport, Massachusetts 01950

The New England Fishery Management Council (Council) is conducting seven public hearings to solicit comments on the alternatives under consideration in Draft Amendment 8 to the Atlantic Herring Fishery Management Plan (FMP). More specifically, the Council is seeking feedback from the public on which alternatives should be selected and why. These hearings are being held by the Council in accordance with the Magnuson-Stevens Fishery Conservation and Management Act and the National Environmental Policy Act (NEPA). Following these hearings, additional opportunities for review and comment on Amendment 8 and Draft Environmental Impact Statement (DEIS) may be provided by the National Marine Fisheries Service (NMFS). The Council plans to take final action on the amendment during its September 25-27, 2018 meeting in Plymouth, MA.

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 19th 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. Atlantic herring has been managed in this region for decades, and this action is being developed as part of an overall plan to prevent overfishing and manage Atlantic herring at long-term sustainable levels.

This public hearing document is a summary of the complete DEIS. **Relevant sections and page numbers from the main Amendment 8 DEIS document have been highlighted in red.** The public is encouraged to review the full DEIS when evaluating the potential impacts of alternatives and making comments on the measures under consideration in Amendment 8. This public hearing document has been prepared as an overview only and does not cover the wide range of issues that are more thoroughly described in the DEIS.

When the Council approved the range of alternatives and analyses in Amendment 8 for public comment in December 2017 it declined to identify preferred alternatives; therefore, at this time there are no preferred alternatives for this action.

SCHEDULE OF PUBLIC HEARINGS

Date and Time	Location
Tuesday, May 22, 2018 6:00-8:00 p.m.	Narragansett, RI University of Rhode Island, Graduate School of Oceanography Coastal Institute Bldg. Hazard Room 215 S. Ferry Road Narragansett, RI 02882
Thursday, May 24, 2018 6:00-8:00 p.m.	Rockport, ME Samoset 220 Warrenton Street Rockport, ME 04856
Wednesday, May 30, 2018 6:00-8:00 p.m.	Gloucester, MA Beauport Hotel 55 Commercial Street Gloucester MA 01930
Tuesday, June 5, 2018 4:00-5:00 p.m. <i>Immediately following the MAFMC meeting</i>	Philadelphia, PA DoubleTree by Hilton 237 South Broad Street Philadelphia, PA 19107
Tuesday, June 12, 2018 5:00-7:00 p.m. <i>Immediately following the NEFMC meeting</i>	Portland, ME Holiday Inn by the Bay 88 Spring Street Portland, ME 04101
Tuesday, June 19, 2018 6:00-8:00 p.m.	Chatham, MA Chatham Community Center 702 Main Street Chatham, MA 02633
Wednesday, June 20, 2018 2:00-4:00 p.m.	Webinar Hearing Register to participate - https://attendee.gotowebinar.com/register/6985865165132506115 Call in information: +1 (415) 930-5321 Access Code: 346-818-026

HOW TO COMMENT

During each hearing, Council staff will brief the public on the draft amendment before receiving comments. The hearings will begin promptly at the time indicated above. If all attendees who wish to do so have provided their comments prior to the end time indicated, the hearing may conclude early. To the extent possible, the Council may extend hearings beyond the end time indicated above to accommodate everyone who wishes to speak.

Members of the public may submit oral and/or written comments at any of the public hearings. You may also choose to submit written comments directly to the Council, in lieu of or in addition to comments provided at the hearings. Written comments must be received on or before close of business, Monday, June 25, 2018. All written and oral comments will be reviewed by the Council's Herring Committee at a meeting before final action by the Council at the September 25-27, 2018 Council meeting.

Written comments can be submitted via mail, email, or fax:

Thomas A. Nies, Executive Director
New England Fishery Management Council
50 Water Street, Mill 2
Newburyport, MA 01950

Email: comments@nefmc.org

Fax: (978) 465-3116

***Please note on your correspondence
"DEIS for Amendment 8 to the Atlantic Herring FMP"***

***Written comments must be submitted
before 5:00 pm on Monday, June 25, 2018.***

The complete DEIS and information about the amendment is posted on the Council's website at <https://www.nefmc.org/library/amendment-8-2>.

For questions, contact the Council office at (978) 465-0492.

CONTENTS

1.0 BACKGROUND	5
1.1 HERRING MANAGEMENT	5
1.2 HERRING FISHERY	5
1.3 HERRING AS FORAGE	5
2.0 WHAT IS THE PURPOSE OF AMENDMENT 8?.....	6
3.0 OVERVIEW OF AMENDMENT DEIS	7
4.0 WHAT IS THE TIMELINE FOR AMENDMENT 8?	8
5.0 MANAGEMENT ALTERNATIVES UNDER CONSIDERATION (SECTION 2.0 OF DEIS).....	9
5.1 ABC CONTROL RULE (SECTION 2.1 OF DEIS)	9
5.2 POTENTIAL LOCALIZED DEPLETION AND USER CONFLICTS (SECTION 2.2 OF DEIS)	11
6.0 WHAT ARE THE IMPACTS OF THE MEASURES UNDER CONSIDERATION?	14
6.1 ABC CONTROL RULE ANALYSES	14
6.2 POTENTIAL LOCALIZED DEPLETION AND USER CONFLICT ANALYSES.....	21
7.0 GLOSSARY	26
8.0 ACRONYMS	27

1.0 BACKGROUND

1.1 HERRING MANAGEMENT

Herring is managed in federal waters by the New England Fishery Management Council, and in state waters by the Atlantic States Marine Fisheries Commission (ASMFC). Individual states may set different regulations, such as possession/landing restrictions or spawning area closures. The Council's Herring FMP became effective on January 10, 2001 and included administrative and management measures to ensure effective and sustainable management of the herring resource. The federal FMP has been improved by several subsequent amendment and framework actions over the years (Amendments 1-7 and Frameworks 1-4).

The herring fishery is a primarily a limited access fishery managed under a stock-wide annual catch limit (ACL) that is allocated among four management areas (sub-ACLs, also known as management area quotas). Two areas are in the Gulf of Maine (Areas 1A and 1B), Area 2 includes southern New England and the Mid-Atlantic, and Area 3 is the Georges Bank area (Figure 1, p.27 of DEIS). The fishery catch limits are currently set every three years, and in recent years about 30% of total catch has been allocated to Area 1A and 1B combined, about 30% to Area 2, and about 40% to Area 3. There are many other measures in place that restrict herring catch and reduce bycatch.

1.2 HERRING FISHERY

Herring is used primarily in the U.S. as bait for the American lobster and tuna fisheries but is also frozen whole and canned for human consumption. 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 2016 (about 65,000 mt). The herring fishery uses predominantly single and paired midwater trawl, bottom trawl, purse seine, and to a lesser extent, gillnet gear throughout the entire range. Most landings are by midwater trawl gear (about 70%), followed by purse seine gear used exclusively in the Gulf of Maine (about 25%), and from bottom trawl gear (5-10%). The average dockside price of herring has increased over the last decade, from \$238 per mt in 2007 to \$426 per mt in 2016. Total revenues for the fishery have been above \$20 million dollars per year for some time, peaking above \$30 million in 2013.

1.3 HERRING AS FORAGE

Atlantic herring play an important role as forage in the Northeast U.S. shelf ecosystem. They are eaten by a wide variety of fish, marine mammals, birds, and (historically) by humans in the region. The Northeast shelf has a complex and diverse food web and herring share the role of forage with many other species including sandlance, mackerels, squids, and hakes. However, herring are distinguished by a high energy density (caloric content) relative to other pelagic prey in the ecosystem. The relative importance of herring as forage varies by predator group, due to differences in predator life history, foraging style, and bioenergetics.

2.0 WHAT IS THE PURPOSE OF AMENDMENT 8?

The primary purpose of Amendment 8 is to modify the fishery management plan for the Atlantic herring fishery by:

1. Proposing a long-term acceptable biological catch (ABC) control rule for the Atlantic herring fishery that may explicitly account for herring's role in the ecosystem and to address the biological and ecological requirements of the Atlantic herring resource.
2. Proposing measures to address potential localized depletion of Atlantic herring to minimize possible detrimental biological impacts on predators of herring and associated socioeconomic impacts on other user groups.

Definition of an Acceptable Biological Catch (ABC) Control Rule

An acceptable biological catch (ABC) control rule is a formulaic approach for setting annual ABCs. For Atlantic herring there is an overfishing limit (OFL) that cannot be exceeded under federal law, and the ABC is generally set below the overfishing limit to prevent overfishing. The law also requires that the Council's Scientific and Statistical Committee (SSC) recommend to the Council the annual ABC, and the control rule helps provide guidance to the SSC and the Council in this process. Annual herring fishery allocations (i.e. area catch limits) are then set based on the approved ABC.

Definition of Localized Depletion and Problem Statement

Localized depletion occurs when harvesting takes more fish than can be replaced either locally or through fish migrating into the catch area within a given time period.

Council Problem Statement:

“Scoping comments for Amendment 8 identified concerns with concentrated, intense commercial fishing of Atlantic herring in specific areas and at certain times that may cause detrimental socioeconomic impacts on other user groups (commercial, recreational, ecotourism) who depend upon adequate local availability of Atlantic herring to support business and recreational interests both at sea and on shore. The Council intends to further explore these concerns through examination of the best available science on localized depletion, the spatial nature of the fisheries, reported conflicts amongst users of the resources and the concerns of the herring fishery and other stakeholders.”

3.0 OVERVIEW OF AMENDMENT DEIS

Amendment 8 is extensive and the DEIS includes detailed analyses required by various federal laws. Volume I of the DEIS is about 500 pages, the content of which is briefly described here.

- **Section 1.0** - background information, the goals of the Herring FMP, why Amendment 8 was initiated, and a summary of the scoping process.
- **Section 2.0** - the alternatives under consideration; there are ten ABC control rule alternatives with two options for how ABCs are set in three-year time periods, and nine alternatives to address potential localized depletion and user conflicts with various seasonal and spatial sub-options.
- **Section 3.0** - the Affected Environment, summarizes the components of the ecosystem: 1) the herring resource; 2) non-target or bycatch species caught incidentally in the herring fishery; 3) protected species in the region such as marine mammals and seabirds; 4) other predator species of Atlantic herring such as Bluefin tuna and striped bass; 5) essential fish habitat (EFH) and physical environment of this ecosystem; and 6) human communities including the herring fishery and related industries (mackerel and lobster), predator fisheries, and ecotourism industries.
- **Section 4.0** - the potential impacts of the alternatives under consideration on all the various components of the ecosystem described in Section 3.0.
- **Section 5.0** - data and research needs – to be completed after the Council selects final measures.
- **Section 6.0** – how the proposed measures comply with various federal laws – to be completed after the Council selects final measures.

In addition, Volume II of the DEIS includes eight appendices with more detailed information including the individual scoping comments, several appendices related to the Management Strategy Evaluation used for the ABC control rules alternatives in this action, and several appendices with analyses related to localized depletion.

What is Management Strategy Evaluation (MSE)?

The Council developed Amendment 8 alternatives for the ABC control rule using Management Strategy Evaluation (MSE). MSE is a decision-making process for comparing the performance of alternatives (management strategies) under multiple, competing objectives. MSEs typically involve computer simulations of a model designed to represent a full system. The model tests various management approaches, in this case ABC control rules, to see how they perform in achieving management objectives (e.g. variability in yield, maintaining high biomass, predator considerations, employment, etc). Because there is not a complete understanding of the ecosystem and all the sources of uncertainty, MSEs are useful to test and compare how alternatives will perform under different states of nature. Atlantic herring, in particular, is a federal resource with many competing interests and tradeoffs with respect to achieving maximum net benefits to the nation. Furthermore, there is some uncertainty related to the current assessment of the resource, which can be a source of contention in the management arena. Therefore, the Council decided to use an MSE approach to help illustrate the uncertainty in the system and evaluate the performance of various ABC control rules across multiple objectives.

As part of this process, the Council held two public workshops to generate stakeholder input to help identify objectives for the MSE analysis. The ideas brought forward by the workshops were presented to the Council, and for the most part, input was adopted and included into the analyses and alternatives for Amendment 8.

4.0 WHAT IS THE TIMELINE FOR AMENDMENT 8?

Amendment 8 has been under development by the Council for four years (2015-2018). The first scoping period was February 26 – April 30, 2015. A number of concerns were raised during the initial scoping period about the potential impacts of localized depletion of Atlantic herring, and therefore, the Council expanded the scope of Amendment 8 and a second scoping period was held from August 21 – September 30, 2015. To date, the Council has hosted over 60 public meetings related to this action including scoping meetings, and opportunities for public comment at Advisory Panel, Committee, and Council meetings.

2015	Council initiates action, revises goals & objectives, two public scoping periods.
2016	Council reviews scoping comments, hosts two MSE workshops, develops alternatives.
2017	MSE peer review, approves range of alternatives, impacts analysis prepared, approves document for public comment.
2018	Submits DEIS to NMFS, hosts seven public hearings, reviews comments, selects final action (Sept), submits final DEIS to NMFS.

What's Ahead?

The Council is conducting public hearings during May-June 2018 to solicit comments on the management measures under consideration. The Council will be accepting public comments on the Draft Amendment 8 document through June 25, 2018. When selecting final management measures for inclusion in Amendment 8, the Council will review and consider *all* public comments – those received during the Council's public hearings as well as any additional comments received during the 45-day comment period on the Amendment 8 DEIS. The Council will also consider comments and recommendations from its Herring Committee, Herring Advisory Panel, and Herring Plan Development Team. Those meetings will likely take place late summer through mid-September.

The Council is then scheduled to select final management measures for Amendment 8 at its September 25-27, 2018 Council meeting in Plymouth, MA. Following that meeting staff finalizes the EIS and submits it to NMFS. After review and approval NMFS would publish proposed and final rule announcements in the Federal Register. If the action stays on that timeline, Amendment 8 is expected to be implemented during the 2019 fishing year, about May 2019.

5.0 MANAGEMENT ALTERNATIVES UNDER CONSIDERATION (SECTION 2.0 OF DEIS)

5.1 ABC CONTROL RULE (SECTION 2.1 OF DEIS)

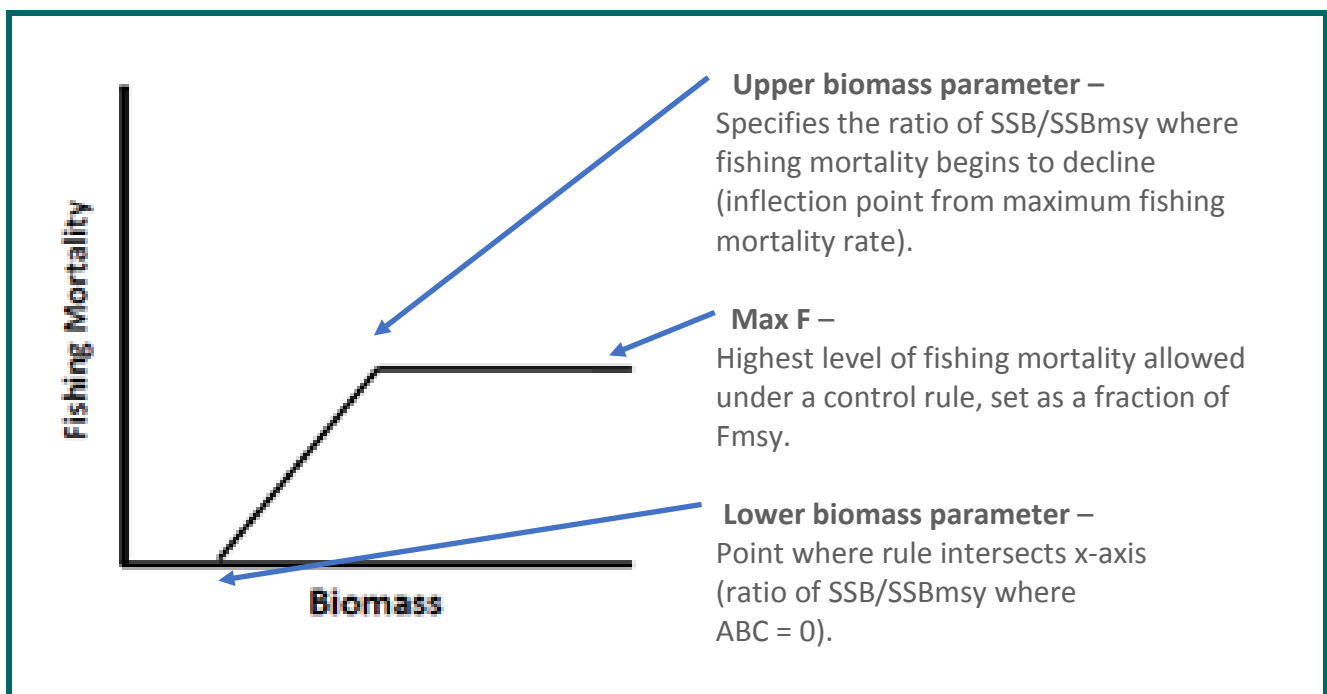
The ABC control rule used in the Atlantic Herring FMP has been modified over time and the FMP is currently using an “interim” control rule (for more details see No Action on [page 33 of DEIS](#)). This action is considering alternatives that may replace the interim control rule with a rule that is more permanent in nature, and could be applied on a longer term basis. The Council can always modify the control rule in a future action, but the intent of this amendment is to identify a control rule that will manage herring sustainably over the long-term. The stated goals of this action relative to the ABC control rule are to:

- 1) account for the role of Atlantic herring within the ecosystem, including its role as forage; and
- 2) stabilize the fishery at a level designed to achieve optimum yield.

Long-term ABC control rules need to include specific parameters, or aspects, that enable them to be used in all conditions (increasing or decreasing biomass). The three fundamental aspects of an ABC control rule are: 1) an upper biomass parameter; 2) maximum fishing mortality; and 3) lower biomass parameter. The values assigned to each of these parameters dictate the overall “shape” or function of an ABC control rule. These values drive whether fishing mortality can increase or decrease depending on the current estimate of biomass. For example, if the lower biomass parameter is greater than zero, that means ABC would be set to zero (no fishery) when biomass falls below that value; this is often referred to as a “fishery cutoff”. Some of the alternatives in Amendment 8 include fishery cutoffs, and some do not.

Table 2 in the DEIS on page 39 includes a table comparing the specific ABC control rule parameter values for all of the alternatives in Amendment 8.

Figure 2 in the DEIS on page 39 compares the shapes of the ABC control rule alternatives based on the different parameter values.



Generic biomass based ABC control rule that reduces fishing mortality as biomass declines

	Brief Description of ABC Control Rule Alternatives in Amendment 8
No Action	The ABC is set at the same level for three years equivalent to the catch that is projected to produce a $\leq 50\%$ probability of exceeding F_{MSY} in the third year. This policy has been used in the last two specification cycles (set at 50%).
Alt 1. Strawman A	A control rule was defined that would resemble No Action, but would be converted into a long-term policy having the parameters needed to set ABC in all cases (increasing or decreasing herring abundance). Includes a maximum fishing mortality rate of 90% of F_{MSY} , an upper biomass parameter of 0.5, and lower biomass parameter of 0.0, no fishery cutoff.
Alt 2. Strawman B	A control rule was defined that would prioritize herring predator forage needs based on limiting fishing mortality to 50% of F_{MSY} ($F_{max} = 0.5$). This alternative also includes an upper biomass parameter of 2.0, and lower biomass parameter of 1.1. That means fishing mortality would begin to decline from the maximum of 0.5 when biomass falls below the value equivalent to two times B_{MSY} ($2 * B_{MSY}$), and ABC would be set to zero when biomass is less than $1.1 * B_{MSY}$ (fishery cutoff at 1.1).
Alt 3. Parameters defined upfront	A control rule was defined that would have similar fishing mortality limits to the current rule ($F_{max} = 0.9$), but reduce fishing mortality when biomass levels are lower to better account for forage. This rule includes an upper biomass parameter of 0.7, and a lower biomass parameter of 0.3. In general, this alternative performs very similar to Alternative 1.
Alt 4a.	<p>This series of alternatives is based on the desired performance of specific metrics, or objectives defined by the Council. Four specific metrics were highlighted from a longer list of 15 metrics evaluated in the MSE for this action. These six alternatives are expected to meet those desired outcomes, and their performance for all 15 can be evaluated.</p> <p>The desired outcomes are: 1) $MSY = 100\%$ (but could be as low as 85%), 2) variation in annual yield $< 10\%$ (but could be as high as 25%); 3) probability of overfishing = 0%, but could be as high as 25%; and 4) probability of no fishery ($ABC = 0$) should be 0%, but could be as high as 10%.</p> <p>All six have slightly different parameters, and rank slightly different in terms of performance across all metrics. In general, this group of alternatives falls somewhere between Alternative 1 and Alternative 2.</p>
Alt 4b.	
Alt 4c.	
Alt 4d.	
Alt 4e.	
Alt 4f.	

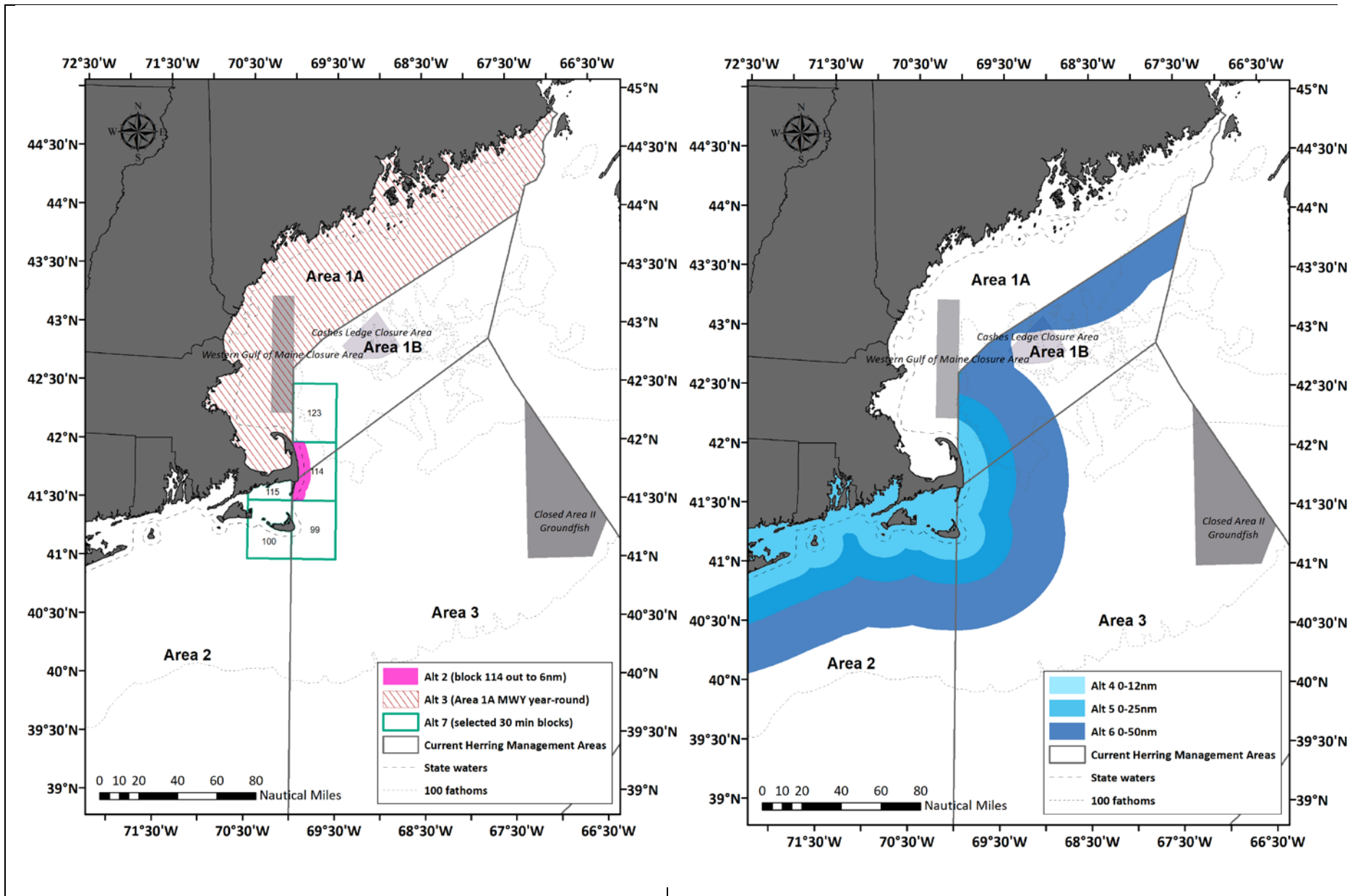
This action also includes two alternatives for how ABCs should be set for three-year time blocks
(See Section 2.1.2, page 40-41)

- Alternative 1 – No Action - set ABC for three years at the same level for each year.
- Alternative 2 – Set ABC for three years, but with annual application of control rule, ABCs may not be the same value each year, expected to vary based on updated short-term projections.

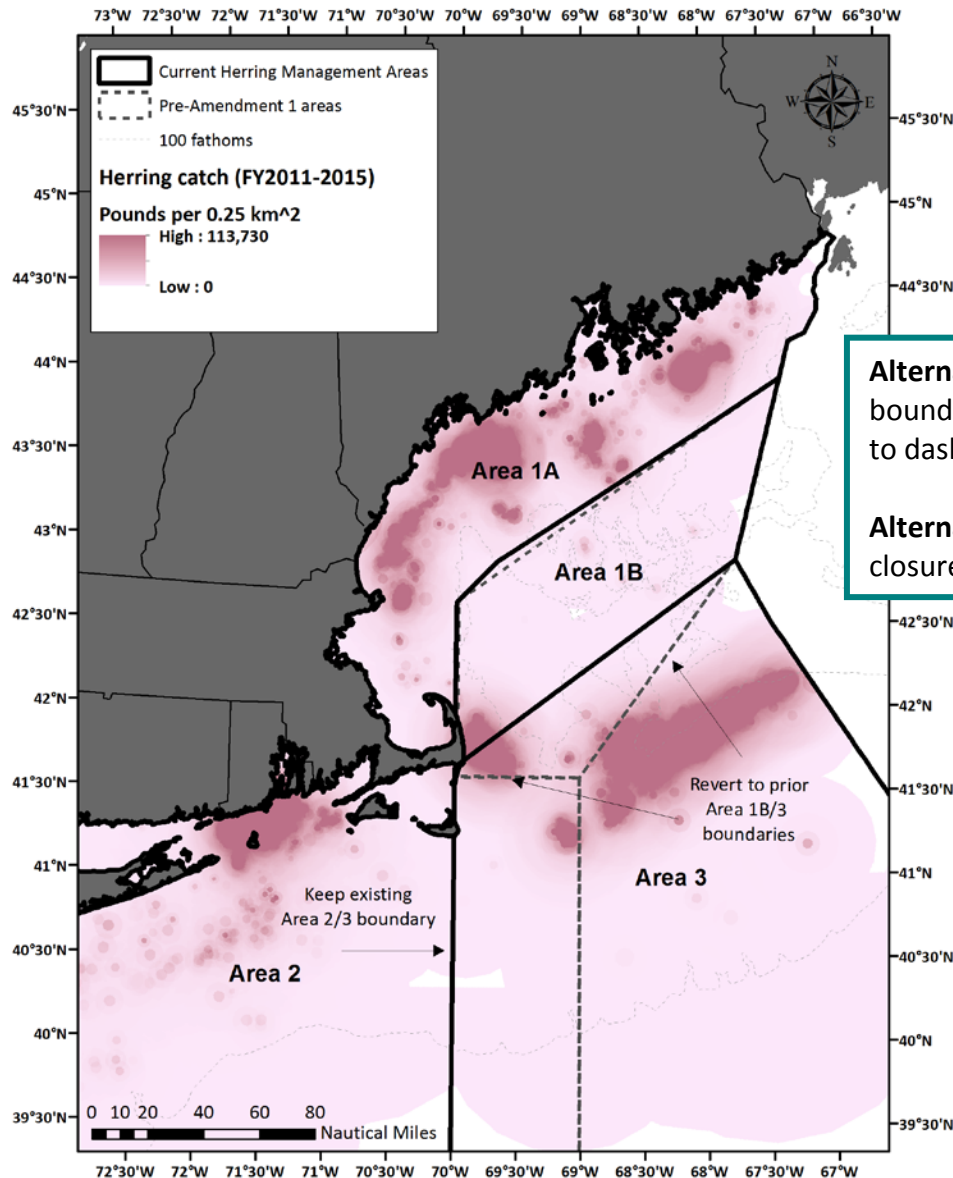
5.2 POTENTIAL LOCALIZED DEPLETION AND USER CONFLICTS (SECTION 2.2 OF DEIS)

A wide range of alternatives was developed to potentially address concerns raised by some stakeholders during the scoping process related to the potential negative socioeconomic impacts on commercial, recreational, and ecotourism businesses that rely on predators of herring from concentrated herring fishing. Figures for these alternatives are included on pages 13 and 14 below.

	Brief Description of Potential Localized Depletion and User Conflict Alternatives in Amendment 8
Alt 1. No Action	Vessels fishing for herring with midwater trawl gear would continue to be excluded from Area 1A from June 1 through September 30. (Implemented by Amendment 1 to the Herring FMP in June 2007)
Alt 2. 6nm closure in Area 114	Waters inshore of 6 nautical miles in the thirty minute square 114 would be closed to all vessels fishing for herring, regardless of gear type or herring permit type. This alternative has 2 seasonal sub-options (June 1-Aug 31 or June 1 – Oct 31).
Alt 3. Extend Area 1A prohibition of MWT gear year-round	The prohibition of midwater trawl gear in Area 1A from June 1 through September 30 would be extended to be a year-round restriction (Jan-Dec); vessels that currently use midwater trawl gear would be permitted to convert to other gear types allowed in the area.
Alt 4. 12 nm prohibition of MWT gear	Waters within 12 nautical miles south of Area 1A would be closed to midwater trawl gear. This alternative has 2 seasonal sub-options (Year-round or June 1-Sept 30 only); and two spatial sub-options (Area 1B, 2 and 3 or Areas 1B and 3 only). Vessels that currently use midwater trawl gear would be permitted to use other gear types allowed in the area.
Alt 5. 25 nm prohibition of MWT gear	Waters within 25 nautical miles south of Herring Management Area 1A would be closed to midwater trawl gear. This alternative has 2 seasonal sub-options (Year-round or June 1-Sept 30 only); and two spatial sub-options (Area 1B, 2 and 3 or Areas 1B and 3 only). Vessels that currently use midwater trawl gear would be permitted to convert to other gear types allowed in the area.
Alt 6. 50 nm prohibition of MWT gear	Waters within 50 nautical miles south of Herring Management Area 1A would be closed to midwater trawl gear. This alternative has 2 seasonal sub-options (Year-round or June 1-Sept 30 only); and two spatial sub-options (Area 1B, 2 and 3 or Areas 1B and 3 only). Vessels that currently use midwater trawl gear would be permitted to convert to other gear types allowed in the area.
Alt 7. Prohibit MWT gear in five 30-minute squares	Vessels with midwater trawl gear would be prohibited to fish within several thirty minute squares around Cape Cod (Areas 99, 100, 114, 115, and 123). This alternative has two seasonal sub-options (Year-round or June 1-Sept 30 only); and two spatial sub-options (30 minute squares in Areas 1B, 2 and 3 or 30 minute squares in Areas 1B and 3 only). Vessels that currently use midwater trawl gear would be permitted to convert to other gear types allowed in the area.
Alt 8. Revert boundary between Areas 1B/3	The boundaries between Area 1B and 3 would revert back to what they were under the original Herring FMP, maintaining the current boundary between Areas 2 and 3. This measure is expected to prevent Area 3 catch from being caught relatively close to shore. This action will not change the sub-ACLs.
Alt 9. Remove seasonal closure of Area 1B	The seasonal closure in Area 1B that currently exists from January 1 – April 30 would be removed. Framework 2 implemented it to boost herring landings when the bait market needed it most (in May before the summer lobster fishing season typically begins).



Amendment 8 Alternatives 2, 3, and 7 on LEFT and Alternatives 4, 5, and 6 on RIGHT



Alternative 8 would revert boundaries between Areas 1B and 3 to dashed lines.

Alternative 9 would remove seasonal closure of Area 1B.

Any measures selected in this section would be additive to the existing measure in the FMP implemented to address potential localized depletion of herring in Area 1A, the seasonal prohibition of midwater trawl gear from June 1 – September 30 (from Amendment 1). Furthermore, RSA compensation fishing is currently exempt from seasonal closures (January – May for Area 1A and January – April for Area 1B), as well as any closures after a sub-ACL is reached for a herring management area. However, RSA compensation fishing with MWT gear is *not* exempt from the prohibition of MWT gear in Area 1A (from June-September). The Council clarified that if any new measures are selected in this action, RSA fishing *would be* exempt from any new restrictions selected. Finally, the Council also discussed that any existing or new closures approved to address potential localized depletion and user conflicts could be modified via Amendment or framework action.

6.0 WHAT ARE THE IMPACTS OF THE MEASURES UNDER CONSIDERATION?

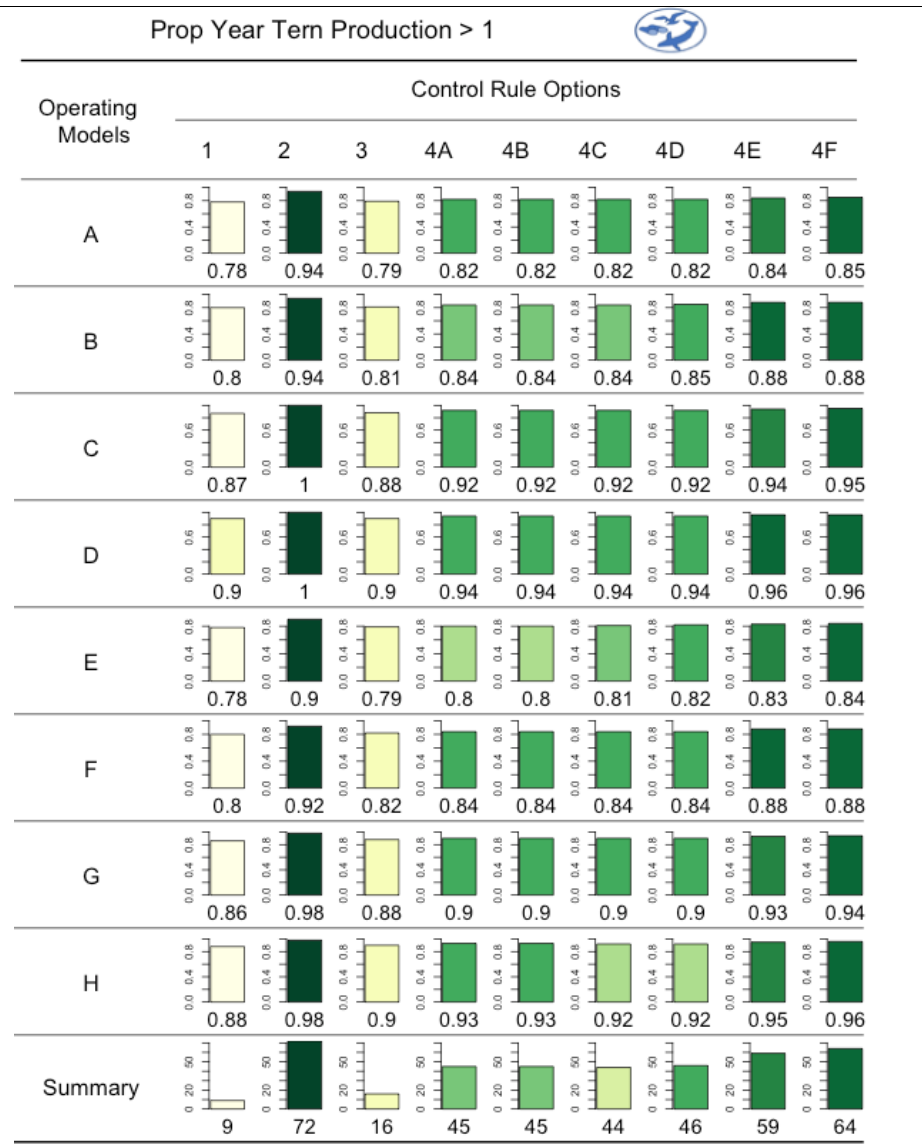
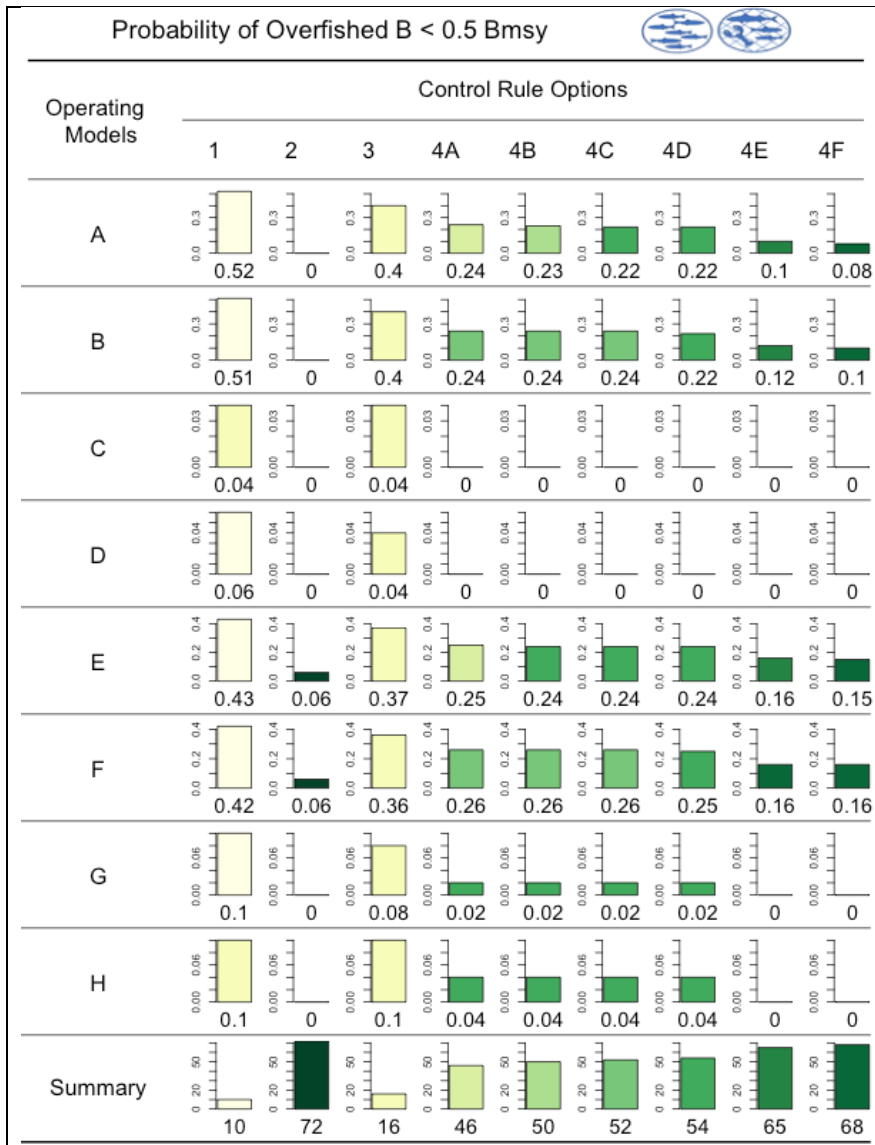
6.1 ABC CONTROL RULE ANALYSES

The primary analyses used to develop and evaluate the ABC control rule alternatives in Amendment 8 are model results from the Management Strategy Evaluation. A general “user guide” was prepared to review why MSE analyses are used in fisheries management, and to help summarize the results ([Appendix V](#)).

This MSE included three models: a Gulf of Maine/Georges Bank Atlantic herring model, a model of Atlantic herring predators, and an economic model. To evaluate the effects of uncertainties in this system eight separate “operating models”, or different states of nature were developed. The operating models vary in terms of assumptions about herring growth, assessment bias, and productivity of herring. The primary predator types identified at the MSE stakeholder workshops were highly migratory species (tuna), groundfish, seabirds, and marine mammals. The time constraint of this MSE did not permit development of integrated multispecies models, or spatial and seasonal models accounting for migrations of wide-ranging predators in and out of this ecosystem. Therefore, the models are limited, but the primary purpose is to help compare the relative performance of control rules in terms of how a predator may react to different levels of herring in the ecosystem, and not to create perfect population models for predators.

The MSE produced a large volume of results to compare alternatives. These have been synthesized in several ways. The results have been summarized by individual “metric” or management objective, as well as combined results for each valued ecosystem component (VEC) in the ecosystem (i.e. herring resource, fishery, predators, etc.). In addition, results have been presented across multiple metrics to help evaluate tradeoffs of different alternatives. Stakeholders identified fifteen different metrics to evaluate the control rule alternatives (i.e. yield relative to MSY, variation in yield, proportion of years with positive term production, etc.). Separate decision support tables were prepared for each metric (two examples provided on the following page). In each table, control rule Alternatives 1, 2, 3, and 4a-4f are listed across the top row, and the eight operating models are listed down the far left column (A through H). The numeric results for each alternative/model is included in the individual bar charts, and the alternatives are ranked from highest to lowest with dark green representing the highest ranked alternative compared to the others. The taller the bar, the better that alternative/model performed for that metric. The bottom row of each table sums the rank of each alternative for all eight operating models. This row is a sum of the rank for an alternative compared to the other alternatives; it is not related to the data for a particular metric (it is just a sum of the relative ranks).

For the examples on the next page, the metric on the left is the probability herring would become overfished under the various control rules and states of nature. For this metric, the lower the value the better the performance. Overall, Alternative 2 (Strawman B) ranks the highest across all operating models. This alternative has essentially a zero chance of causing the stock to be overfished for most operating modes. Another example table has been provided estimating tern productivity, on the right side of the figure on the next page. For this metric, the higher the value the better the performance; a productivity of 1.0 means roughly that the population can replace itself. In general, all control rules maintain tern productivity above the threshold of 0.8 the majority of the time. All of the ABC control rule alternatives rank very high and have minimal differences. Similar tables have been produced for all fifteen metrics ([Section 4.1.1.3 of the DEIS, starting on page 225](#)).



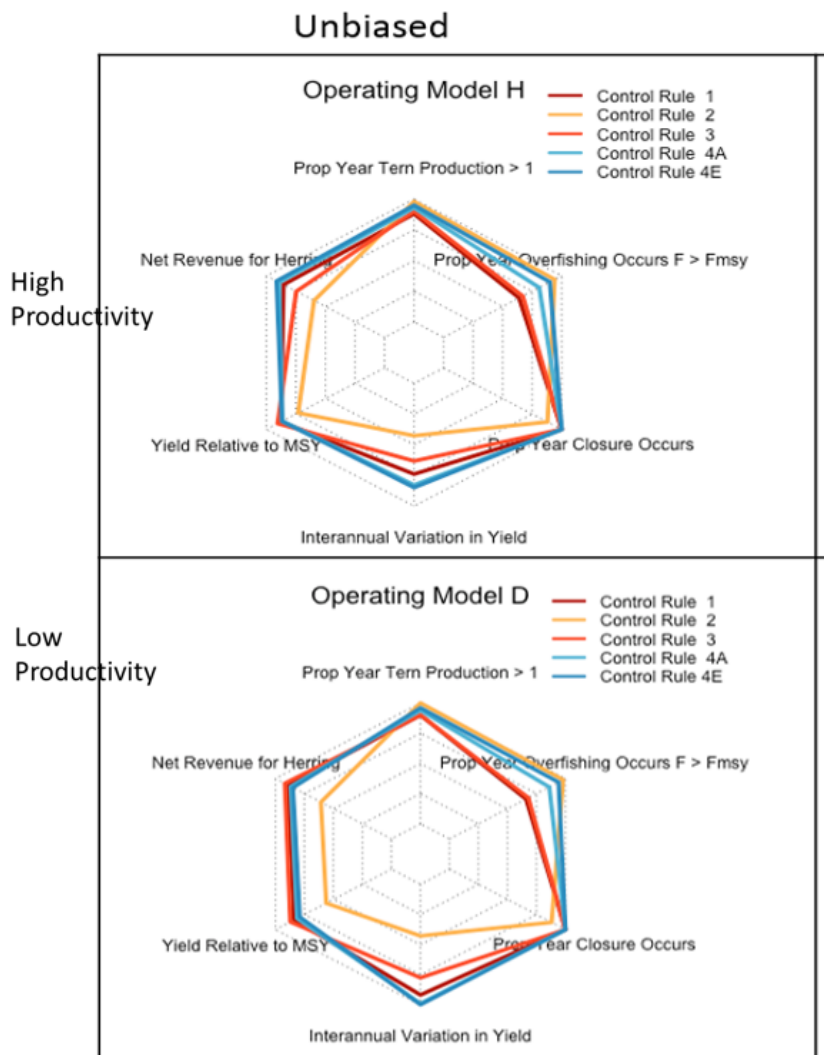
Examples of Decision Support Tables in Amendment 8 per metric (overall rank across different states of nature in bottom row)

LEFT – Probability of herring stock becoming overfished under each control rule and operating model;

RIGHT – proportion of years terns have positive productivity

A benefit of MSE is the ability to compare results of different metrics simultaneously. While the quantitative results are in different units, the models enable comparisons of results across the same time frames and conditions. Radar plots or web diagrams are often used in MSEs to help compare a handful of metrics at once. These plots are useful to see how alternatives stack up against each other for a handful of metrics at once and help inform various tradeoffs for each alternative. The example below compares five different control rule alternatives for a handful of metrics under two operating models (unbiased assessment with either high herring productivity or low herring productivity). Each control rule is a different color, and options that appear toward the outer edge of the web are “best” performers, and options that appear closer to the center perform “worse”.

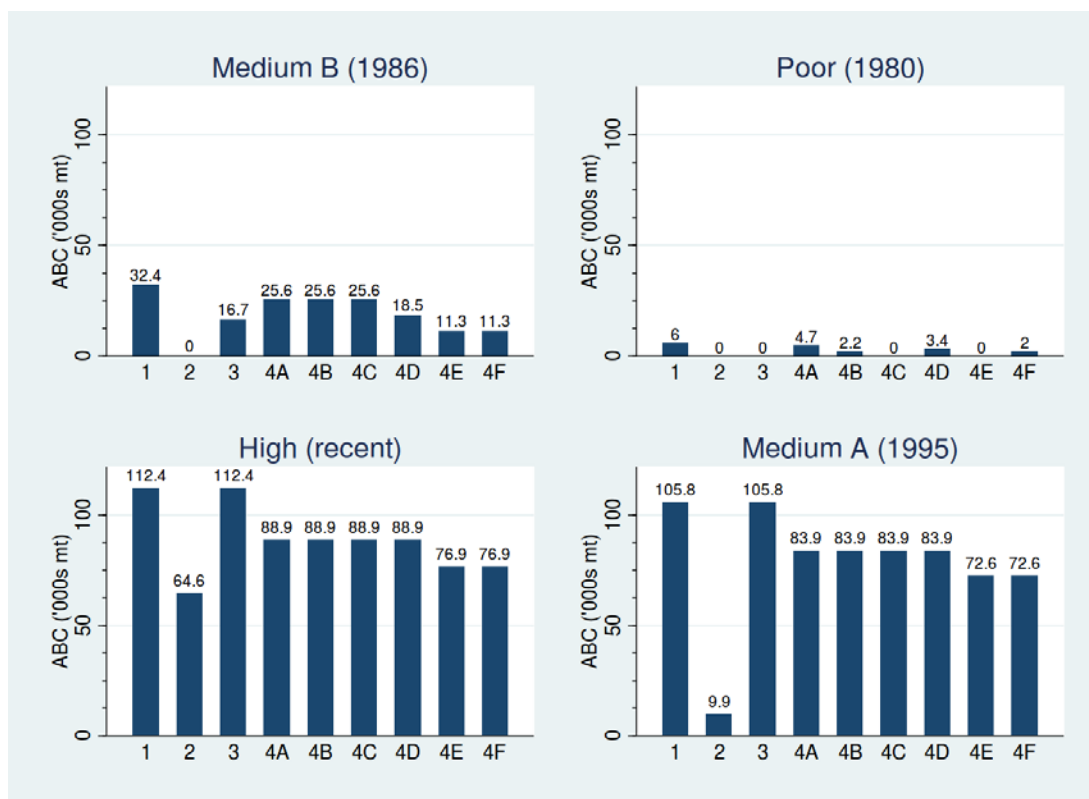
Things to keep in mind when considering the results: 1) these plots show relative performance, the best and worst performing management options may all fall within acceptable performance ranges; 2) the performance of different management options may differ based on the chosen operating model, indicating that our understanding of nature may impact the success of management. An option that does well regardless of operating model is *robust*.



Example of web diagrams evaluating various tradeoffs of several management objectives at once under two different states of nature, or operating models (high and low productivity with an unbiased assessment)

MSE analyses by nature focus on long-term impacts; the model simulations in this case were run for 150 years. However, the Council typically sets fishery specifications on 1-3 year time frames, so people are more accustomed to focus on near-term impacts. Amendment 8 also included an analysis of short-term impacts to help illustrate how various ABC control rules would function in more present day terms. [Section 4.1.1.6 on page 260 of the DEIS](#) summarizes the short term impacts. Two approaches were included: 1) four different herring biomass levels were selected from the past and ABC estimates were calculated from those biomass levels for each ABC control rule; and 2) data from the last assessment were used to prepare three-year projections of herring biomass and ABC for FY2016-2018 to help illustrate how these control rules would function compared to the No Action ABC control rule that was recently used.

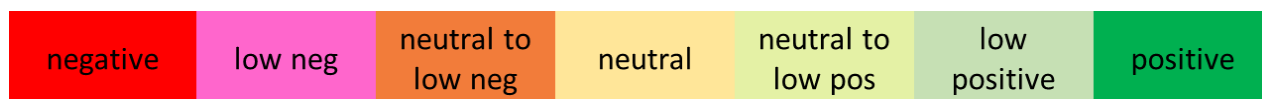
The figure below is a sample of the information included in the short-term analyses of Amendment 8. If biomass is “poor”, as it was in 1980, the ABC control rules produce ABCs that vary between zero and 6,000 mt annually. If biomass is high, as it was estimated to be in the last assessment in 2015, ABCs would vary between 64,000 mt and 112,000 mt, some relatively similar to what the interim ABC control rule produced in the last specification process (111,000 mt). [Table 94 in the DEIS on page 265](#) includes example specifications for FY2016-2018 under the various ABC control rule alternatives, and how those ABCs would be distributed further to each herring management area is summarized in [Table 95 in the DEIS](#), if the same method was used for dividing sub-ACLs by area.



Short term ABC values for Amendment 8 alternatives under four different states of nature (poor biomass in 1980, medium biomass in 1986 and 1995, and high biomass in 2015)

Section 4.0 of the DEIS includes over 250 pages of detailed analyses of the potential impacts of all of the alternatives across all valued ecosystem components. The following pages attempt to boil all that information down to a pages and summary tables. The general impacts are categorized into seven broad categories ranging from negative impacts (colored in red) to positive impacts (colored in green). Separate tables have been developed for the ABC control rule alternatives, as well as the measures to address potential localized depletion and user conflict alternatives. These issues are very complex and it can be misleading to characterize the potential impacts in a few words. Therefore, the Council and stakeholders should review the more detailed analyses in Section 4.0 of the DEIS before making recommendations for preferred alternatives. Several key findings have been included in the bullets below to accompany the general impacts in the summary tables that follow.

Impact Categories for summary of impact tables



General Findings for ABC control rule alternatives

- The eight operating models developed help evaluate variability in the system, but may not reflect the full range of possibilities.
- **Herring resource** – [Figure 78 on page 281 of the DEIS](#) summarizes the long-term impacts on the herring resource based on metrics such as probability of overfished status, biomass relative to unfished biomass, proportion of years overfishing is expected to occur, etc. Overall, the alternatives are expected to perform similar if not better than No Action in terms of positive impacts on the resource.
- However, other factors likely have even greater influence on herring biomass; there is lots of variability in the system and current conditions not likely to persist regardless of control rule.
- **Impacts on bycatch and EFH** – There were no direct metrics developed for impacts on bycatch or EFH. However, generally neutral impacts are expected since fishing levels are similar or lower; bycatch caps used to manage and control bycatch.
- **Predators** - This system is complex and linkages are not as strong between prey and predators because many predators are generalists and the food web in this area is complex. [Figure 97 on page 328 of the DEIS](#) compared the long-term impacts of the ABC control rule alternatives on predators. In general, the results were very similar across alternatives. While the amount of herring available for predators varies, the overall magnitude of the differences is small in terms of the fraction of the total estimated herring biomass, especially in the long-term.
- **Protected species** – Not sufficient data available to build a marine mammal model in the MSE analysis, but a metric was developed for tern production ([Figure 63 page 251 of DEIS](#)). [Figure 98](#) summarizes the metrics that are indicators of potential impacts on protected species ([page 342 of the DEIS](#)).
- **Alternatives for setting three-year ABCs** - Overall, there may be slightly low negative impacts on the herring resource when ABC is set at the same level for three years (Alt2), but the differences are very minor and are not expected to outweigh the low positive impacts on the herring fishery in the short term from more stable catches.

- **Long-term human community impacts** - Economic models aided the long-term impact analysis. [Table 99 to Table 106 and Figure 102 to Figure 107 \(p. 376-383\)](#) show the long-term (MSE) results for the metrics such as net revenue and interannual variability (IAV) of net revenue, which help characterize the potential impacts on the herring, mackerel and lobster fisheries of the alternatives under consideration.

Herring/Mackerel and Lobster industries - Alternatives 1-4 would be viable under all biomass scenarios, providing a degree of certainty about the long-term management of the fishery, a low positive impact relative to No Action. Generally, high net revenues benefit the herring fishery, but high IAV is assumed bad, as it would produce unstable and unpredictable market outcomes. For the lobster fishery, buyers of herring for bait, benefits are assumed when yield (ABC) is high, volatility (IAV) is low, and prices are low. MSE results indicate that net revenue is lowest for Alternative 2, similar between Alternatives 1 and 3 and generally higher for Alternative 4, but also depend on the state of the herring resource ([Figure 61, p.247](#)). IAV of Yield ([Figure 59, p.245](#)) for Alternative 1 and Alternatives 4A-4F is similarly low, and higher for Alternatives 2 and 3 ([Figure 59, p.245](#)). Alternatives 2 and 3 also result in fishery closures (setting ABC=0 for up to 12% of years, depending on the model; [Figure 60, p.247](#)).

Predator fisheries and ecotourism - As industries reliant on herring as a prey item in the ecosystem, the predator fisheries (e.g., groundfish, tuna) and ecotourism (whale and bird watching) are expected to fare better with sufficient herring to sustain their predators. Direct and indirect metrics for the predators of Atlantic herring are reported in [Sections 4.1.1.3.13 to 4.1.1.3.15](#). The performance of tuna weight and dogfish biomass (direct metrics) changes little across the alternatives. Tern production (direct metric) is highest for Alternative 2 and slightly lower for the other control rules.

Fishing Communities - Lowering the Atlantic herring ABC could result in short-term revenue reductions, which may, in turn, have negative impacts on the Size and Demographic Conditions of the Atlantic herring fishery within fishing communities, with ripple effects on the communities involved in the Atlantic mackerel and American lobster fisheries. Likewise, increasing allowable harvests is expected to have positive short-term impacts on fishing communities. In the long term, fishing under a control rule that ensures continued, sustainable harvest of the resource not only benefits the directed herring fishery and its communities, but indirect fisheries that rely on herring as prey in the ecosystem. [The specific communities potentially impacted are identified in Section 3.6.3.](#)

- **Short-term human community impacts – Section 4.1.1.6**

Herring/Mackerel and Lobster industries - If the current, high biomass state of herring continues, No Action and Alternatives 1 and 3 would have neutral impacts, producing essentially the same ABC, and Alternative 2 would produce the lowest ABC. If future biomass is low, there would be negative impacts under all control rules, including No Action, when compared to the current ABC levels of 111,000 mt.

Predator fisheries and ecotourism - These industries fare better under positive Atlantic herring resource conditions, and positive impacts on Atlantic herring are highest under Alternative 2. Alternative 2 is expected to produce the best outcomes for the tuna weight metric, the tern productivity metric, as well as several indirect predator and ecotourism metrics, with possible positive impacts on predator fisheries and ecotourism. Impacts are positive for the other alternatives under consideration, but not as high as Alternative 2.

	Herring Biomass	Non-target species (Bycatch)	Predator Species	Protected Resources	Physical Environment and EFH	Herring Fishery (and related mackerel and lobster fisheries)	Predator Fisheries and Ecotourism
No Action	ST: Low positive LT: more uncertain	Negligible/Neutral	Neutral	Low negative	Neutral	ST: Low positive LT: Uncertain, likely not significant	ST: Neutral to low positive; LT: Uncertain, likely not significant
Alt. 1 (Strawman A)	ST: Low positive; LT: Low positive		Neutral	Low negative, neutral compared to No Action		ST: Neutral to low positive; LT: Low positive	ST: Low positive; LT: Low positive
Alt. 2 (Strawman B)	ST: Positive; LT: Positive		Low Positive	Low negative, Low positive compared to No Action		ST: Low Negative LT: low positive to low negative	ST: Low positive; LT: positive
Alt. 3	ST: Low positive; LT: Low positive		Neutral	Low negative, neutral compared to No Action		ST: Neutral to low positive; LT: low positive to low negative	ST: Low positive; LT: Low positive
Alt. 4A – 4F	ST: Positive; LT: Positive		Low Positive	Low negative, but depending on the option, Neutral to Low Positive compared to No Action		ST: Low negative to low positive LT: low positive	ST: Low positive; LT: low positive

Summary of potential impacts of ABC control rule alternatives across all valued ecosystem components

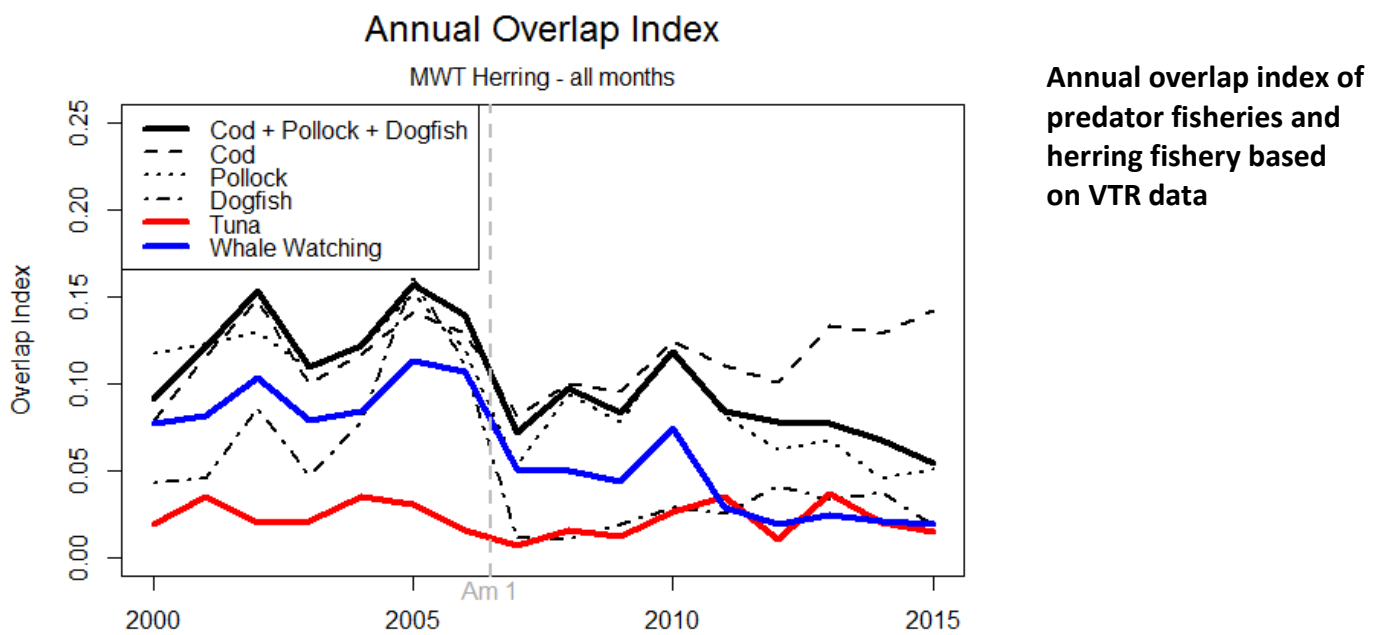
(ST = short-term; LT = long-term)

6.2 POTENTIAL LOCALIZED DEPLETION AND USER CONFLICT ANALYSES

Section 4.1.2 of the DEIS describes the analyses prepared to assess the impacts of the measures to address potential localized depletion and user conflicts under consideration in Amendment 8. This is not a straightforward issue. It is challenging to identify if and how other fisheries have been impacted by herring catches. There are many constraints that determine where and when a fishery is prosecuted (e.g., area closures, weather windows, mobility of fish) that need to be understood in an investigation of whether there is causality to any correlations. Furthermore, the data that is available is limited, often not detailed enough to fully evaluate whether localized depletion is occurring. To date, there has not been sufficient research in this area to directly assess the potential impacts of different fishing gears on herring abundance and potential related effects of localized depletion on predators of herring.

To support this action, the Herring Plan Development Team (PDT) has summarized what is known about the role of herring as forage in this ecosystem, developed mapping tools to describe the footprint of the herring fishery and key predator fisheries, completed an overlap analysis of these fisheries to identify the areas and seasons that have been most important and quantify the degree of overlap, or potential user conflict. The PDT has also evaluated if there is a correlation between herring fishery removals and negative impacts on predator fisheries based on available data. Finally, the PDT worked with industry advisors to help identify possible effort shifts that may result from area closures. **All these analyses are summarized in the DEIS as well as Appendices VI, VII, and VIII.** A few highlights of these analyses are described below, but stakeholders are encouraged to review the more detailed discussions in the DEIS.

In general, the level of overlap between the herring MWT fishery and all other predator users analyzed (commercial groundfish, commercial tuna, and whale watching effort) dropped significantly in 2007 with the passing of Amendment 1. But overlap does not necessarily translate into negative biological impacts on predators. Less overlap may reduce potential user conflicts, with potentially low positive impacts, so long as effort does not shift into areas or seasons with higher overlap.



General Findings for potential localized depletion and user conflict alternatives

- **No Action – Biological impacts** – Not possible to determine direct impacts in isolation of other measures adopted in Amendment 1. Catch limits in Area 1A have been reduced 50%, no research available on differential impacts of gear type, larger catches over shorter time period now for both gear types, capacity of the vessel is the driver.
- **No Action – Economic Impacts** – Neutral on herring fishery overall (but positive for PS and negative for MWT); negative for mackerel fishery, neutral for lobster industry, and potentially positive on predator fisheries and ecotourism industries in the GOM.
- **General PDT input:**
 - 1) *depletion occurs regardless of gear type, all concentrated removals;*
 - 2) *depletion different than user conflicts;*
 - 3) *catch rates not a good measure of depletion for schooling, pelagic fish;*
 - 4) *more direct research needed;*
 - 5) *effort shifts difficult to predict so impacts somewhat uncertain.*
- **Biological impacts** - Overall, there are generally neutral impacts on the resource if the fishery is able to still harvest sub-ACLs, and low positive impacts if alternatives prevent full harvest of sub-ACLs. When the spatial sub-option to exclude Area 2 is considered for many of the alternatives, any potentially positive biological and negative economic impacts are more neutralized, especially when combined with the summer only sub-option.
- **Bycatch impacts** - Somewhat uncertain because too many unknowns about effort shifts. Negative for RH/S if effort shifts inshore or to Area 2 in the winter; generally negative for GB haddock if effort shifts to GB in the fall. Generally negative if fishing pushed to areas and times with higher bycatch rates; generally negative if switch from MWT gear to bottom trawl; uncertain if effort shifts to places not fished now.
- **Impacts on predators** – This is a complex ecosystem - many species in this region are generalists, and utilize multiple prey items. No research in this region on direct impacts of herring fishing on predator abundance.
- **Protected species** - In general, low negative to negative impacts depending on effort shifts. But if effort declines – positive impacts. If less herring is removed when seabirds are feeding their young in Area 1B (Aug-Sept) there could be positive impacts on seabirds.
- **Essential Fish Habitat** – MWT gear assumed to contact the bottom only occasionally. Under No Action generally neutral impacts overall (low + in GOM because less potential contact with hard bottoms, and low – on GB because effort has increased). If vessels convert to BT could be low negative impacts;

- **Human Community Impacts** - Impacts on the herring, mackerel, and lobster fisheries, predator fisheries and ecotourism, and port communities are described in the DEIS (Pages 398-458).
- **Approach for economic impacts** - What were the herring/mackerel landings/revenue from an area/season? How likely are effort shifts: to other gear types, areas or seasons? How likely would a closure hamper harvesting OY? What degree of overlap has existed with other user groups? Some effort may shift to mitigate impacts – but
 - Added cost (travel/search time).
 - Herring may not be available in other seasons and/or areas.
 - Reduced conflict inside closure; crowding outside.
 Some MWT vessels may consider shifting gear type – but
 - Added cost (\$100K for BT and \$1-3M PS).
 - Additional training/time and crew needed to convert.
 - PS not feasible in currents or when herring are in deep water.
 - Regulatory constraints for BT in GOM and off Cape.
 Unintended consequences of effort shifts?
 - EFH, bycatch, other fisheries, etc.
- **General High-level findings**
 - The level of overlap between the herring MWT fishery and all other predator users analyzed dropped significantly in 2007 with the passing of Amendment 1 (Figure 76, p.275). The seasonal profile of overlap has also changed since 2007 (Figure 77, p. 276), with less overlap in summer months in recent years. These changes in seasonal overlap are due, in part, to Amendment 1, but also to changes in the distribution of landings in the predator fisheries caused by modifications to the spatial measures for those fisheries.
 - Some herring effort may shift to mitigate impacts, but there are several constraints to doing so (e.g., carrier limits, operational constraints, herring are migratory, increased costs of fishing offshore).
 - Given the regulatory restrictions on small mesh bottom trawls, it is unlikely that this gear would expand substantially into Areas 1B and 3.
 - Use of purse seines is unlikely on the “back side of the Cape” and offshore, as purse seining is difficult in strong tides, rough ocean conditions, and when herring occur in deep water.
 - Most MWT fishing in Area 1B is currently inside of 12 nm.
 - Herring are migratory and may not necessarily be available in other areas or seasons.
 - User conflicts may be reduced inside a closure, but with effort shifts, impacts on user conflicts, bycatch and essential fish habitat may increase elsewhere.
 - Shifting herring and mackerel effort to winter months may reduce user conflicts, but the price of herring is generally lower in winter.
 - Since at least 2007, the price of herring has been highest in July and August (Section 3.6.1.7), so summertime closures may result in lower annual revenue for the fishery.

Alternative	Herring Resource	Non-target	Predator species	Protected resources	EFH/Physical Environment
Alternative 1 (No Action)	Neutral - Hard to assess impacts in isolation of other measures that have been implemented	Neutral Bycatch caps in place limit impacts on bycatch	Low positive in GOM	Low negative on protected species	Neutral
			Low negative on GB	Neutral on ESA species	
Alternative 2	Neutral – no impact overall Area is relatively small	Neutral, Somewhat uncertain, but minimal	Neutral Relatively small area	Neutral	Neutral
Alternative 3	Neutral Area 1A TAC would still be harvest by other gear types	Neutral Effort shifts could reduce impacts on RH/S but increase impacts on haddock, but caps in place	Depends on how vessels react – impacts could range from low - to low +.	Low negative to negative on protected species.	Neutral to low negative
			Depends on how vessels react – impacts could range from low - to low +.		
Alternative 4	Neutral to low positive If sub-ACLs not harvested could be low + impacts, but fishing activity may adjust, so could be neutral impacts	Neutral, somewhat uncertain due to unknown effort shifts. Effort more likely to move offshore under Alt 6 and longer season sub option	Somewhat uncertain. Low negative to low positive.	Neutral to negative on ESA species if effort shifts to areas and gears with higher interactions.	Neutral to low negative for Alt. 4 and 5. Low negative for Alt 6 if vessels more inclined to convert to bottom trawl
Alternative 5			Somewhat uncertain. Low negative to low positive.		
Alternative 6			More neutral if vessels convert gear and harvest the same level of herring.		
Alternative 7	Neutral – little impact, Area 1B likely impacted, a corridor area	Neutral - Effort shifts could reduce impacts on RH/S but increase impacts on haddock, but caps in place	Mostly neutral with low positive impacts inshore and low negative impacts offshore		Neutral to low negative
Alternative 8	Neutral – if sub-ACLs stay the same, more uncertain if they change in future action, but still relatively low impacts.	Neutral Minimal amount of potential effort shift compared to others	Somewhat uncertain, Low positive to low negative	Neutral	Neutral
			Somewhat uncertain, Low positive to low negative		
Alternative 9	Neutral – little impact, when fish removed not expected to have direct impacts	Neutral Minimal impact – just season	Low positive, but somewhat uncertain	Low negative on protected species	Neutral
				Neutral on ESA species	

Summary of potential impacts of measures to reduce potential localized depletion and user conflicts across biological and physical environment

Alternative	Herring Fishery	Mackerel Fishery	Herring/Mackerel MWT revenue ¹	Lobster Fishery	Predator Fisheries/Ecotourism
1	Fishery-wide = Neutral	Low negative		Neutral	Low positive
	MWT = Low negative				
	PUR = Positive				
2A (J-A) & 2B (J-O)	Low negative	Low negative	0.5-0.6%	Low negative	Low positive
3	Fishery-wide = Neutral	Low negative	18%	Neutral	Low positive
	MWT = Low negative				
	PUR = Positive				
4A/A	MWT = Negative	Negative	18%	Negative	Low positive
	PUR = Neutral				
4B/B	MWT = Low negative	Low negative	0.3%	Low negative	Low positive
	PUR = Neutral				
5A/A	MWT = Negative	Negative	26%	Negative	Low positive
	PUR = Neutral				
5B/B	MWT = Low negative	Low negative	0.6%	Low negative	Low positive
	PUR = Neutral				
6A/A	MWT = Negative	Negative	45%	Negative	Low positive
	PUR = Neutral				
6B/B	MWT = Negative	Low negative	5%	Low negative	Low positive
	PUR = Neutral				
7A/A	MWT = Low negative	Low negative	8.7%	Low negative	Low positive
	PUR = Neutral				
7B/B	MWT = Low negative	Low negative	0.5%	Low negative	Low positive
	PUR = Neutral				
8	Low negative	Low negative	4%	Low negative	Neutral
9	Low negative	Low positive	n/a	Low positive	Low positive

¹ 2007-2015 annualized MWT revenue for the areas/seasons that may be closed/inaccessible as a percent of all MWT revenue for the seasons.

Summary of potential impacts of measures to reduce potential localized depletion and user conflicts across human environment compared to No Action

7.0 GLOSSARY

Acceptable biological catch: The maximum catch that is recommended for harvest, consistent with meeting the biological objectives of the management plan. The MSA interpretation of ABC includes consideration of biological uncertainty (stock structure, stock mixing, other biological/ecological issues), and recommendations for ABC should come from the NEFMC SSC.

Assessment model: Method for determining stock status, the results of which are used by the control rule.

Harvest control rule: Relationship describing how the results of the assessment are translated into advice for management (i.e. turns the assessment result into an allowable biological catch).

Management Objective: Desirable outcomes from management. Objectives can include ecological, economic, societal goals. High level goals/objectives (e.g. what would like) can be unpacked into operational objectives (e.g. how much?).

Management Strategy Evaluation (MSE): Analytical framework for testing and comparing the performance of management options.

Maximum sustainable yield (MSY): Maximum catch that can be removed from a population over an indefinite period. **Fmsy** – measurement of the rate of removal of fish from fishing that if applied constantly would result in MSY. **Bmsy** – long-term average biomass that would be achieved if fishing at a constant F equal to Fmsy.

Operating model (OM): model which represents the real world resource and fishery dynamics, used as the basis for testing management options. Multiple operating models can be considered, each representing a possible state of nature.

Performance metric: Specific quantitative measure that represents a management objective and can be used to evaluate progress towards that objective.

Spawning stock biomass: total weights of fish in a stock that are old enough to spawn. **SSBmsy** is the level of spawning biomass capable of producing maximum sustainable yield.

Trade-off: Degree to which performance against a set of management objectives are related. A strong tradeoff between two objectives implies that gaining on one means forgoing the other.

Valued Ecosystem Component: an element of the environment that has scientific, economic, social or cultural significance. Example valued ecosystem components are: the species targeted by a particular fishery; the non-target or bycatch species caught incidentally; impacts on predator species.

8.0 ACRONYMNS

ABC	Acceptable Biological Catch
ACL	Annual Catch Limit
ASMFC	Atlantic States Marine Fisheries Commission or Commission
DEIS	Draft Environmental Impact Statement
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
ESA	Endangered Species Act
F	Fishing Mortality Rate
FMP	Fishery Management Plan
FW	Framework
FY	Fishing Year
GB	Georges Bank
GOM	Gulf of Maine
IAV	Interannual variation in yield
MAFMC	Mid-Atlantic Fishery Management Council
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSE	Management Strategy Evaluation
MSY	Maximum Sustainable Yield
mt	Metric Tons
MWT	Mid-water trawl fishing gear
NEFMC	New England Fishery Management Council
NEFSC	Northeast Fisheries Science Center
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OY	Optimum Yield
PDT	Plan Development Team
PS	Purse seine fishing gear
SSB	Spawning Stock Biomass
SSC	Scientific and Statistical Committee
VEC	Valued Ecosystem Component
VTR	Vessel Trip Report



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: 5/25/2018
To: Council
From: Julia Beaty
Subject: Chub Mackerel Amendment briefing materials

The following documents are enclosed behind tab 6 for consideration by the Council.

1. 2018 Chub Mackerel Fishery Information Document
2. Summary of April 27, 2018 Fishery Management Action Team (FMAT) meeting
3. Correspondence between the Council and NMFS Greater Atlantic Regional Fisheries Office on chub mackerel management unit options
4. May 8, 2018 staff memo on chub mackerel assessment and ABCs
5. 2018 Advisory Panel (AP) Chub Mackerel Fishery Performance Report
6. Summary of May 15, 2018 Mackerel, Squid, Butterfish AP and Committee meeting
7. Additional comments from AP members
8. Small scombrid ID guide



Chub Mackerel Fishery Information Document

May 2018

This document provides a brief overview of the biology, stock condition, management system, and recent fishery information for Atlantic chub mackerel (*Scomber colias*) in U.S. waters.

1. Biology and Life History

Atlantic chub mackerel are a schooling pelagic species that are found on the continental shelf to depths of about 250-300 meters throughout much of the western and eastern Atlantic Ocean. In the western Atlantic, their range spans from Nova Scotia (where they are rare) through Argentina, including the Gulf of Mexico (Collette and Nauen 1983, Collette 2002).

Chub mackerel can be found throughout U.S. Atlantic waters (Collette and Nauen 1983, Collette 2002). However, they are not commonly encountered in the Northeast Fisheries Science Center's (NEFSC's) bottom trawl survey. Most chub mackerel catches in this survey occur south of the Hudson Shelf Valley in warm water temperatures (i.e. generally higher than about 20°C or about 68°F; personal communication, John Manderson, Michele Traver, and Chris Tholke). State trawl surveys and recreational catch data suggest that chub mackerel can also be found in inshore waters.

The stock structure of chub mackerel in the western Atlantic Ocean has not been well studied. Studies from other regions suggest, based on differences in morphology, spawning seasons, and/or sizes at maturity, that sub-stocks may exist (Chen et al. 2009, Weber and McClatchie 2012, Cerna and Plaza 2014, Yasuda et al. 2014). However, chub mackerel have been found to be genetically uniform across wide areas (Scoles et al. 1998, Zardoya et al. 2004). For example, Scoles et al. (1998) found no significant genetic differentiation between chub mackerel from the eastern Mediterranean Sea, the Ivory Coast, and South Africa; however, they did find significant genetic differentiation between chub mackerel from the western and eastern Atlantic.

Migratory patterns in the western North Atlantic are also not well understood. In the northern hemisphere, chub mackerel migrate between northern areas in warmer months and southern areas in cooler months (Collette and Nauen 1983). Adults prefer temperatures of 15-20°C (about 60-70°F; Collette and Nauen 1983, Perotta et al. 2001). Some studies suggest that juveniles tend to be found closer inshore than adults (Castro 1993).

Atlantic chub mackerel grow rapidly during the first year of life (Krivospitchenko 1979, Lorenzo et al. 1995, Lorenzo and Pajuelo 1996, Hernández and Ortega 2000, Kiparissis et al. 2000, Perrota et al. 2005, Velasco et al. 2011, Daley 2018). For example, Lorenzo and Pajuelo (1996) found that chub mackerel attain 40% of their maximum length in the first year of life. Females and males do not exhibit differences in growth rates (Lorenzo and Pajuelo 1996, Vasconcelos et al. 2011, Velasco et al. 2011) or age at maturity (Lorenzo and Pajuelo 1996). Daley (2018) suggested that chub mackerel in the northwest Atlantic may grow faster and reach smaller

average lengths at age compared to other regions; however, these differences may be partly due to the influence of fishery selectivity on the samples collected.

Chub mackerel have been documented to reach at least age 13 (Carvalho et al. 2002); however, in most regions, ages 0-5 or younger are most commonly observed in commercial fishery and survey catches (e.g. Krivospitchenko 1979, Perotta 1992, Lorenzo and Pajuelo 1996, Martins et al. 2013, Daley 2018). Daley (2018) sampled chub mackerel from commercial fishery and survey catches off the northeast U.S. in 2016 and 2017. Estimated ages ranged from 0 to 7 years, with ages 2 – 4 being the most common.

Atlantic chub mackerel spawn in several batches (Collette and Nauen 1983). They typically spawn in water temperatures of 15-20°C (about 60-70°F). Berrien (1978) found evidence of chub mackerel spawning from North Carolina to Florida during January - July. Richardson et al. (2010) documented Atlantic chub mackerel larvae in the straits of Florida in nearshore waters during January – May. Daley (2018) suggested that spawning occurs in the winter in the Gulf of Mexico based on larval and juvenile concentrations, which were highest during January, February, March, and April. The closely related Pacific chub mackerel (*Scomber japonicus*) is believed to spawn several times throughout the year whenever oceanographic conditions are favorable and sufficient food is available (Crone and Hill 2015). The same may be true for Atlantic chub mackerel.

Daley (2018) performed a histological analysis of chub mackerel caught in commercial fisheries off the mid-Atlantic and found that chub mackerel reach maturity around age two.

2. Ecosystem Considerations

Chub mackerel have a unique ecosystem role as both a forage species and a predator of other forage species (Okey et al. 2014).

No studies of the diet composition of chub mackerel off the U.S. east coast have been found to date. Studies from other regions suggest that they are opportunistic predators with a seasonally-variable diet of small crustaceans (especially copepods), small fish, and squid (Habashi and Wojeiechowski 1973, Collette and Nauen 1983, Castro and Del Pino 1995, Server et al. 2006, Bachiller and Irigoien 2015). Adults tend to consume larger prey and more fish prey than juveniles (Castro 1993).

It can be difficult to visually distinguish partially-digested chub mackerel from other small scombrids such as Atlantic mackerel (*Scomber scomber*), bullet mackerel (*Auxis rochei*), and frigate mackerel (*Auxis thazard*; Paine et al. 2007; John Graves, personal communication; Steve Poland, personal communication; Michelle Staudinger, personal communication). For this reason, there are limited quantitative estimates of the contribution of chub mackerel to the diets of any predator species. Manooch et al. (1984) found that chub mackerel made up 0.2% (by frequency of occurrence) of the diets of dolphinfish sampled off North Carolina through Texas. They have also been documented as important prey for blue marlin at certain times of year off Portugal (Veiga et al. 2011) and Cabo San Lucas (Abitia-Cardenas et al. 1999).

Many diet studies quantify scombrids at the family or genus level, rather than the species level. The family Scombridae, which includes mackerels and tunas, contributes to the diets of many

predators, including common dolphins, pilot whales, yellowfin tuna, wahoo, and others (e.g. Manooch and Hogarth 1983, Manooch and Mason 1983, Smith et al. 2015, Duffy et al. 2017).

In 2018, the Council funded a study to assess the contribution of chub mackerel to the diets of white and blue marlins and bigeye and yellowfin tunas. These predators were identified as priority species by stakeholders. Sampling will occur in commercial and recreational fisheries from New Jersey through North Carolina during 2018 and 2019. This study will use a combination of traditional stomach content analysis, genetic barcoding techniques, and stable isotope analysis.

3. Status of the Stock

The stock status of Atlantic chub mackerel in the western Atlantic Ocean is unknown as there have been no quantitative assessments of this species in this region.

Large fluctuations in Atlantic chub mackerel abundances have been reported around the world, including in the mid-Atlantic and New England (Goode 1884, Hernández and Ortega 2000). These fluctuations may be partly the result of environmental influences such as temperature and upwelling strength on recruitment (Hernández and Ortega 2000). Given that chub mackerel are a fully pelagic species, ocean processes likely influence their availability in any given area, as well as their recruitment.

The stock assessment for the closely-related Pacific chub mackerel suggests that periods of high recruitment success occur “no more frequently than at least every few decades” (Crone and Hill 2015). Several studies suggest that environmental factors, especially sea surface temperature, influence recruitment and abundance of Pacific mackerel (e.g. Sinclair et al. 1985, Avalos-García et al. 2003, Yatsu et al. 2005, Chen et al. 2009, Martins et al. 2013, Yasuda et al. 2014, Crone and Hill 2015, Hilborn et al. 2017).

4. Fishery Characteristics

Commercial Fisheries

Commercial catch and landings data for the northeast (mid-Atlantic and New England) and the southeast (South Atlantic and Gulf of Mexico) were extracted from separate datasets and are summarized separately. Northeast landings and price data for 2017 are preliminary. Southeast landings and price data for 2017 were not available at the time of writing this document.

Mid-Atlantic and New England Commercial Fisheries

Commercial chub mackerel landings from the mid-Atlantic and New England show a notable increase starting in 2013 (Table 1, Figure 1). According to dealer data, during 1998-2012 commercial landings in the mid-Atlantic and New England averaged 62,293 pounds per year with an average ex-vessel price of \$0.29 per pound (adjusted to 2016 dollars). Landings reached a peak of 5.25 million pounds in 2013. Average landings from 2013 through 2017 were about 1.84 million pounds, with an average ex-vessel price of \$0.38 per pound (adjusted to 2016 dollars; Table 1).

This increase in landings is the result of a small number of vessels targeting chub mackerel in some years. According to participants in this fishery, there was little market demand for chub mackerel from this region until recently. This changed due to the efforts of certain commercial fish dealers and changes in other fisheries around the globe.

A small number of bottom trawl vessels which also participate in the *Illex* squid fishery have been responsible for the vast majority of chub mackerel landings since 2013. Some fishermen describe chub mackerel as a “bailout” species which they harvest when they are not able to harvest *Illex* squid. Chub mackerel tend to be harvested in the same areas and times of year when *Illex* squid are also harvested; however, fishermen say they typically will not harvest both species at the same time because the quality of the chub mackerel suffers when the two are stored together. Commercial chub mackerel landings from the mid-Atlantic and New England show an inverse correlation with *Illex* squid landings in recent years (Figure 2).

According to public comments, a small number of vessels on the east coast are large and fast enough to harvest this fast-swimming, low-value species in profitable quantities. Landings data seem to support this. Public comments suggest that most of the chub mackerel landed in this region are processed for use as human food and lesser amounts are used as bait in other fisheries.

During 1998-2017, as many as 29 federally-permitted vessels per year landed chub mackerel in the mid-Atlantic and New England.¹ As many as 9 federally-permitted dealers per year in 4 northeast states purchased these landings. However, a small subset of these vessels and dealers accounted for the majority of landings.

According to data from the Northeast Fisheries Observer Program (NEFOP), during 1997-2016, bottom otter trawls accounted for 93% of observed chub mackerel catch, midwater trawls accounted for 7% of observed catch, and all other gear types accounted for less than 1% of observed catch.

According to northeast dealer data, northeast vessel trip reports (VTRs), NEFOP, and data from vessels participating in the NEFSC’s study fleet, nearly all chub mackerel landings (>95%) over the past 20 years occurred during June-October. The highest proportion of landings occurred in September (35-65%, depending on the dataset), followed by August (16-17%, depending on the dataset).

According to NEFOP data, during 1998-2017, about 90% of the observed chub mackerel catch was kept and about 10% was discarded. VTR data over the same time period show that 97% of the catch was kept and 3% was discarded.

According to VTR data, over 90% of the landings originated from statistical areas south of New York. Much of these landings came from statistical areas which overlap with the shelf break (Figure 5). About 80% of the landings reported through VTRs, the study fleet, and NEFOP resulted from catch at about 50-100 fathoms depth.

¹ The number of vessels without federal permits which landed chub mackerel is unknown.

South Atlantic and Gulf of Mexico Commercial Fisheries

Chub mackerel landings in the South Atlantic and Gulf of Mexico have not shown the same increasing trend as mid-Atlantic and New England landings (Figure 3). Nearly all dealer-reported chub mackerel landings from this region during 1997-2016 occurred in Florida. At least 90% of the landings in each year were reported by Florida Gulf coast dealers. Landings averaged 87,505 pounds per year with an average ex-vessel price of \$0.34 per pound (adjusted to 2016 dollars; Table 2, Figure 2).

According to commercial landings data, about 89% of commercial chub mackerel landings in the Gulf of Mexico during 1997-2016 came from bottom trawls or unspecified trawls and about 8% came from purse seines. All other gear types combined accounted for less than 3% of landings from the Gulf of Mexico. Landings from the South Atlantic were much lower (generally accounting for 10% or less of total annual landings from the South Atlantic and Gulf of Mexico) and were harvested with a greater variety of gear types, including purse seines, hand lines, cast nets, gill nets, and other gears, none of which accounted for more than about one third of the total South Atlantic landings.

Southeast landings were not as seasonally concentrated as northeast landings. About 72% of southeast landings during 1997-2016 occurred during June-October. The highest proportion of southeast landings occurred during August (20%), followed by June (19%).

Southeast dealer data are not compiled in such a way that the number of vessels can be determined. As previously stated, nearly all commercial southeast landings during 1997-2016 occurred in Florida. As many as 7 Florida dealers per year (with an average of 5) reported chub mackerel landings per year.

Fewer details on the locations of commercial chub mackerel catches are available from the South Atlantic and Gulf of Mexico, compared to the mid-Atlantic and New England. Southeast logbook data include information on effort and areas fished; however, they contain very few records of chub mackerel representing only 11 trips since 2000. It is unlikely that informative conclusions could be drawn from these data due to the small number of records.

Commercial Fisheries Bycatch

During development of the Unmanaged Forage Omnibus Amendment (MAFMC 2017a), individuals familiar with the recent targeted commercial chub mackerel fishery said vessels have little incentive to land fewer than about 40,000 pounds of chub mackerel at a time. Forty thousand pounds of chub mackerel can fill a bait truck. Given the low value of chub mackerel (Table 1), and the limited market for chub mackerel in this region, fishermen may have a hard time selling fewer than 40,000 pounds at a time. Thus, for the purposes of examining bycatch in the mid-Atlantic and New England, targeted chub mackerel trips were defined as trips where at least 40,000 pounds of chub mackerel were landed. On such trips, the other species most commonly caught (by weight) were *Illex* squid, longfin squid, butterfish, and round herring, according to NEFOP data for 1998-2017.

Bycatch in South Atlantic and Gulf of Mexico fisheries has not yet been examined; however, based on the information presented above, chub mackerel do not appear to be targeted in these regions to the same extent as in the mid-Atlantic and New England in recent years.

Table 1: Northeast dealer-reported landings and average price per pound of chub mackerel and *Illex* squid, 1998-2017. Data from some years are combined to protect confidential information representing fewer than three vessels and/or dealers. Prices are adjusted to 2016 dollars using the gross domestic product deflator index. Landings and price data for 2017 are preliminary. 2017 average prices are unadjusted.

Northeast region (mid-Atlantic and New England)				
Year	Chub mackerel landings (lb)	Average chub mackerel price per pound	<i>Illex</i> squid landings (lb)	Average <i>Illex</i> squid price per pound
1998	40,219	\$0.13	51,958,751	\$0.13
1999	6,443	\$0.26	16,289,021	\$0.17
2000	16,246	\$0.24	19,866,592	\$0.14
2001	4,384	\$0.74	8,837,567	\$0.16
2002	471	\$0.33	6,061,729	\$0.18
2003	488,316	\$0.04	14,090,521	\$0.22
2004	126	\$0.41	57,534,687	\$0.23
2005	0	--	26,526,087	\$0.26
2006	0	--	30,740,382	\$0.22
2007-2009	21,039	\$0.26	95,549,924	\$0.20
2010-2011	192,301	\$0.16	76,326,551	\$0.37
2012	164,846	\$0.36	25,813,134	\$0.39
2013	5,249,567	\$0.19	8,359,998	\$0.27
2014	1,230,311	\$0.26	19,327,085	\$0.30
2015	2,108,337	\$0.23	5,339,292	\$0.29
2016	610,783	\$0.17	14,736,843	\$0.49
2017	2,202	\$1.20	22,164,447	\$0.45
1998-2017 Average	506,780	\$0.25	26,349,909	\$0.22

Table 2: Southeast dealer-reported landings and average price per pound of chub mackerel, 1997-2016. Data from the Gulf of Mexico and South Atlantic, and for some years, are combined to protect confidential information representing fewer than three dealers. Prices are adjusted to 2016 dollars using the gross domestic product deflator index.

Southeast region (South Atlantic and Gulf of Mexico)		
Year	Chub mackerel landings (lb)	Average chub mackerel price per pound
1997	113,621	\$0.69
1998	93,669	\$0.20
1999	67,665	\$0.37
2000	46,907	\$0.20
2001	268,110	\$0.66
2002	172,914	\$0.35
2003	204,382	\$0.36
2004	170,807	\$0.36
2005	30,069	\$0.37
2006	13,393	\$0.17
2007	18,244	\$0.24
2008	41,841	\$0.36
2009	2,767	\$0.26
2010	82,424	\$0.14
2011	178,006	\$0.19
2012-2013	193,976	\$0.21
2014	117,686	\$0.23
2015	98,503	\$0.24
2016	57,499	\$0.20
1997-2016 average	103,815	\$0.31

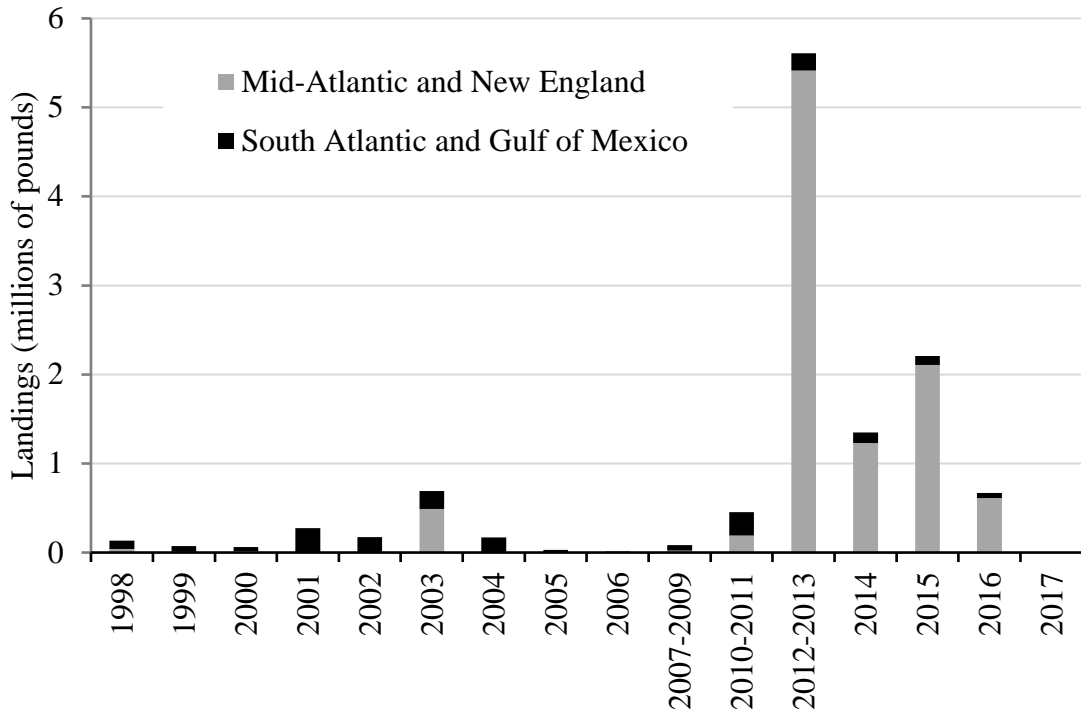


Figure 1: Dealer-reported chub mackerel landings, 1998-2017. Data are combined into two regions and some years are combined to protect confidential information representing fewer than three vessels and/or dealers. Mid-Atlantic and New England data for 2017 are preliminary. South Atlantic and Gulf of Mexico landings data for 2017 are not currently available.

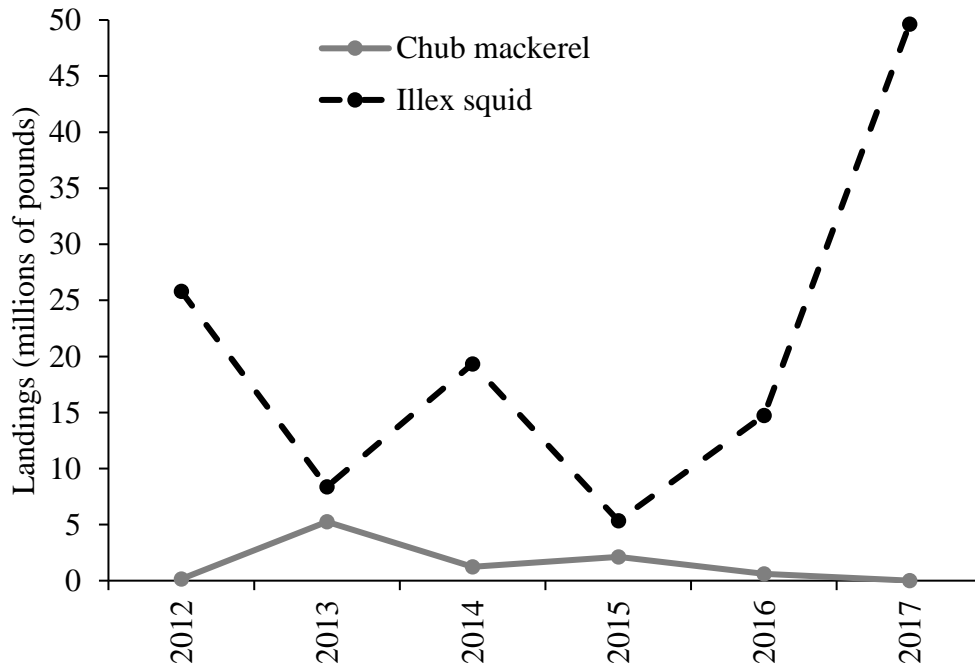


Figure 2: Landings of chub mackerel and *Illex* squid, 2012 - 2017, as shown in northeast commercial dealer data. 2017 landings are preliminary.

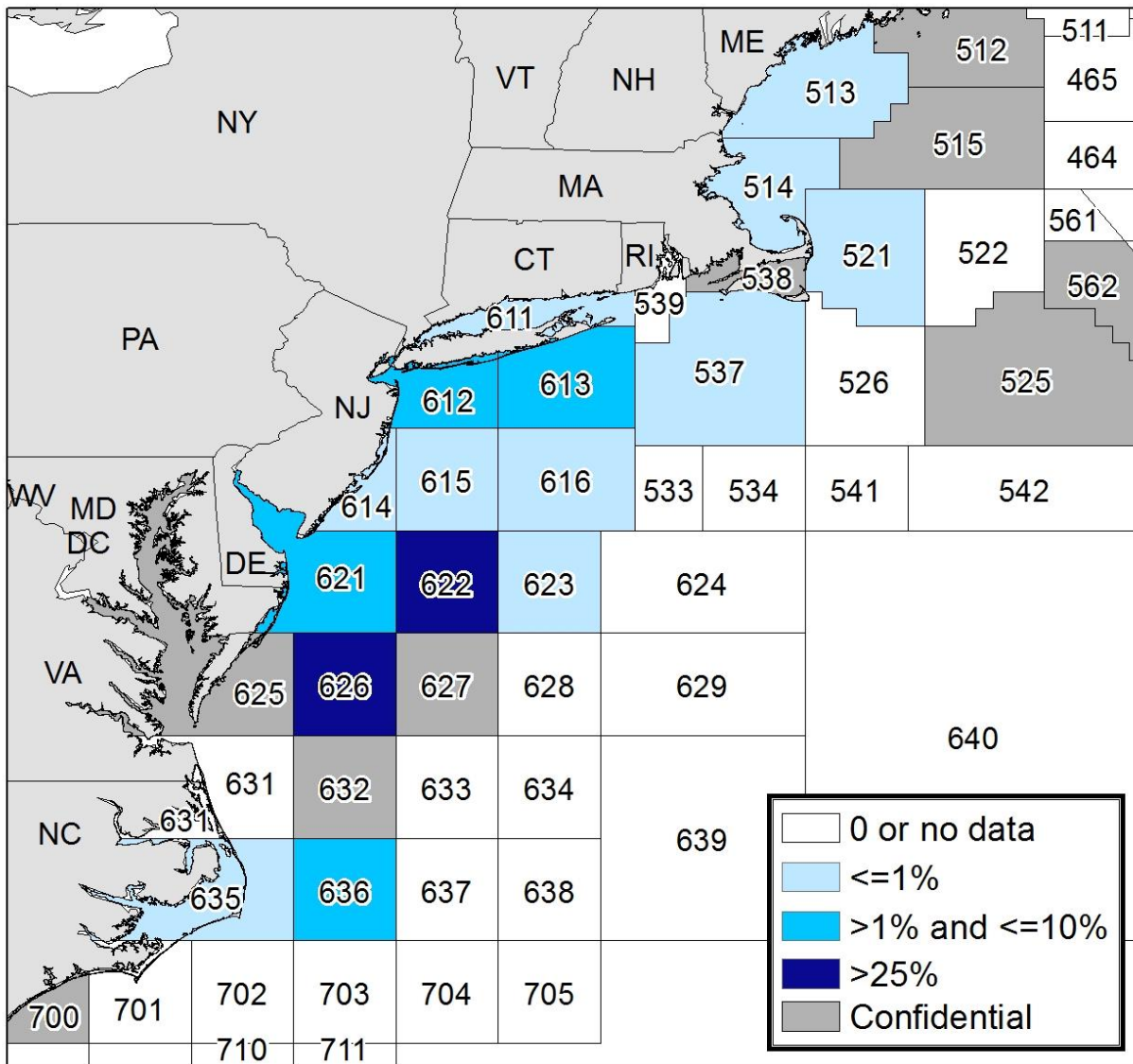


Figure 3: Percent of commercial chub mackerel landings (by weight) by statistical area, 1998-2017 as shown in northeast Vessel Trip Report data. Data associated with fewer than three vessels and/or dealers is confidential. Confidential landings collectively accounted for less than 10% of the total.

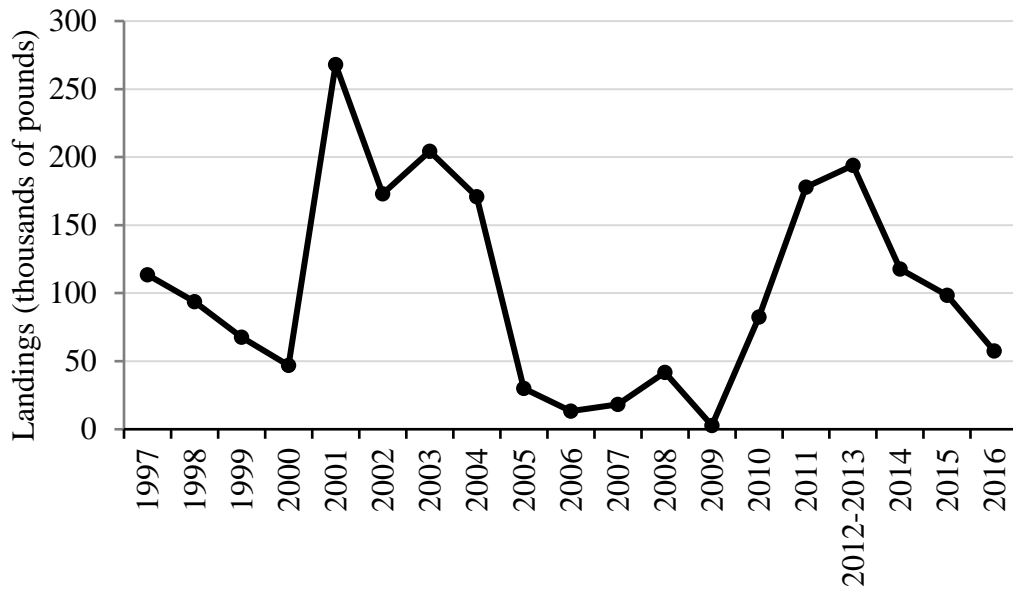


Figure 4: Dealer-reported chub mackerel landings from the Gulf of Mexico and South Atlantic, 1997-2016. Data for both regions and for some years are combined to protect confidential information representing fewer than three dealers.

Recreational Fisheries

Data on recreational chub mackerel catch, landings, and effort are available from the Marine Recreational Information Program (MRIP) and the southeast region headboat survey. Both data sets show sporadic catches. MRIP data for the entire Atlantic coast and the Gulf of Mexico show an average of 10,620 pounds of estimated recreational chub mackerel landings per year during 1998-2017. In about half of those years, no recreational landings were estimated (Table 3, Figure 5). According to self-reported angler data, about 25% of these landings were caught in state waters, with the remaining 75% in federal waters.

Chub mackerel may be rarely encountered on recreational trips. There may also be instances of misreporting chub mackerel as Atlantic mackerel, especially in datasets that rely on self-reported angler data, such as MRIP. Recreational chub mackerel data are should be considered uncertain and imprecise.

The Mid-Atlantic Fishery Management Council has heard anecdotal descriptions of recreational chub mackerel harvest, including reports of catch on for-hire vessels out of New York and New Jersey. There have also been reports of chub mackerel harvest for use as live bait on recreational trips out of Maryland and Virginia for species like white and blue marlin, sailfish, spearfish, yellowfin tuna, bigeye tuna, and wahoo. According to public comments, this live bait fishery occurs on the edges of certain offshore canyons, especially Norfolk Canyon, where chub mackerel and their predators are concentrated in the late summer and early fall (see MAFMC 2016 and MAFMC 2017b for more details).

Table 3: MRIP estimated recreational landings and discards of chub mackerel from New England, the Mid-Atlantic, and Gulf of Mexico combined, 1998-2017. No landings or discards from the South Atlantic was estimated during this time period.

Year	Estimated landings (pounds)	Estimated landings (numbers of fish)	Estimated discards (numbers of fish)	Percent of catch discarded
1998	363	742	0	0%
1999	0	0	0	0%
2000	2,773	1,797	0	0%
2001	0	83,339	28,722	26%
2002	43,676	246,302	18,354	7%
2003	0	0	914	100%
2004	96,344	85,986	786	1%
2005	2,499	2,180	0	0%
2006	6,745	5,883	0	0%
2007	0	5,541	0	0%
2008	0	0	0	0%
2009	0	0	0	0%
2010	0	5,269	771	13%
2011	17	55,016	0	0%
2012	0	481	4,659	91%
2013	0	0	0	0%
2014	48,215	84,157	10,382	11%
2015	0	0	0	0%
2016	1,660	21,810	367	2%
2017	10,103	31,587	2,610	8%
1998-2017 average	10,620	31,505	3,378	13%

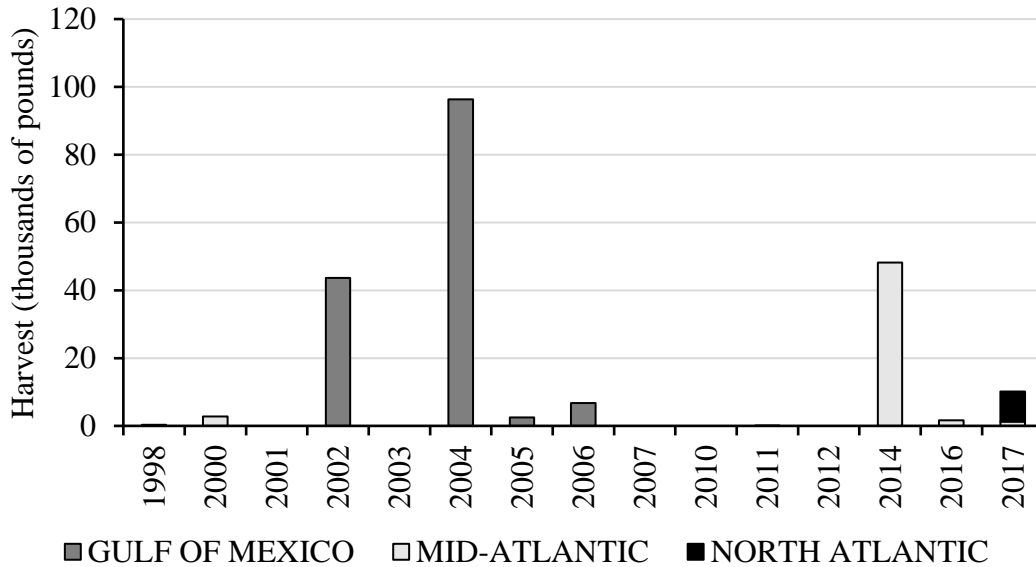


Figure 5: MRIP-estimated recreational landings of chub mackerel by region, 1998-2017. No harvest from the South Atlantic was estimated during this time period.

5. Management System

The Mid-Atlantic Fishery Management Council developed the first management measures for Atlantic chub mackerel in U.S. waters through the Unmanaged Forage Omnibus Amendment (MAMFC 2017a). These measures have been in effect since September 2017 and include the following:

- A 2.86 million pound annual landings limit for all chub mackerel landed by commercial fishermen in the mid-Atlantic and New England
- A 40,000 pound possession limit which applies only to commercial fishermen in the mid-Atlantic after the annual landings limit is reached
- A requirement for all commercial vessels which possess chub mackerel in mid-Atlantic federal waters to have a commercial fishing permit from the Greater Atlantic Regional Fisheries Office

The 2.86 million-pound annual landings limit is equivalent to average annual landings in the mid-Atlantic and New England from 2013 through 2015, according to commercial fish dealer reports.

Forty thousand pounds was chosen as the possession limit to be enforced after the annual landings limit is reached because, as described above, it is approximately the amount of chub mackerel needed to fill a bait truck. Given the low value of chub mackerel (Table 1), vessels may not target chub mackerel when restricted to a 40,000-pound possession limit; however, they would have an incentive to land chub mackerel caught incidentally. A 40,000 pound possession limit could, therefore, discourage discards.

All the chub mackerel management measures listed above will expire after December 31, 2020. The Council intended for these measures to be replaced by longer-term management measures which will be developed through an amendment to add chub mackerel as a stock in the Mackerel, Squid, and Butterfish Fishery Management Plan. If new management measures are not implemented or additional action is not taken by December 31, 2020, then Atlantic chub mackerel will be unmanaged in U.S. waters starting January 1, 2021.

6. References

- Abitia-Cardenas, L. A., F. Galvan-Magaña, F. J. Gutierrez-Sanches, J. Rodriguez-Romero, B. Aguilar-Palomino, and A. Moehl-Hitz. 1999. Diet of blue marlin *Makaira mazara* off the coast of Cabo San Lucas, Baja California Sur, Mexico. *Fisheries Research*. 44(1999):95-100.
- Avalos-García, C., L. Sánchez-Velasco, and B. Shirasago. 2003. Larval fish assemblages in the Gulf of California and their relation to hydrographic variability (autumn 1997 – summer 1998). *Bulletin of Marine Science*. 72(1):63-76.
- Bachiller, E. and X. Irigoien. 2015. Trophodynamics and diet overlap of small pelagic fish species in the Bay of Biscay. *Marine Ecology Progress Series*. 534:179-198.
- Berrien, P. L. 1978. Eggs and larvae of *Scomber scombrus* and *Scomber japonicus* in continental shelf waters between Massachusetts and Florida. *Fishery Bulletin*. 76(1):95-115.
- Carvalho, N., R. G. Perrotta, and E. Isidro. 2002. Age, growth and maturity in the chub mackerel (*Scomber japonicus* Houttuyn, 1782) from the Azores. *Arquipélago Life and Marine Sciences*. 19A: 93-99.
- Castro, J. J. 1993. Feeding ecology of chub mackerel *Scomber japonicus* in the Canary Islands area. *South African Journal of Marine Science*. 13(1): 323-328.
- Castro, J. J. and A. S. Del Pino. 1995. Feeding preferences of *Scomber japonicus* in the Canary Islands area. *Scientia Marina*. 59(3-4):352-333.
- Cerna, F. and G. Plaza. 2014. Life history parameters of chub mackerel (*Scomber japonicus*) from two areas off Chile. *Bulletin of Marine Science*. 90(3):833-848.
- Chen, X., G. Li, B. Feng, and S. Tian. 2009. Habitat suitability index of chub mackerel (*Scomber japonicus*) from July to September in the East China Sea. *Journal of Oceanography*. 65: 93-102.
- Collette, B. B. and C. E. Nauen. 1983. FAO species catalogue. Vol. 2 Scombrids of the word: An annotated and illustrated catalogue of tunas, mackerels, bonitos, and related species known to date. Available at: <http://www.fao.org/docrep/009/ac478e/ac478e00.htm>
- Collette, B. B. 2002. Mackerels, family Scombridae. In: Collette, B. B. and G. Klein-MacPhee, editors. *Bigelow and Schroeder's Fishes of the Gulf of Maine*. Third edition. Smithsonian Institution Press.
- Crone, P. R., and K. T. Hill. 2015. Pacific mackerel (*Scomber japonicus*) stock assessment for USA management in the 2015-16 fishing year. Report to Pacific Fishery Management Council. NOAA Fisheries Southwest Fisheries Science Center. La Jolla, CA. 135 pp.
- Daley, T. 2018. Growth and reproduction of Atlantic chub mackerel (*Scomber colias*) in the Northwest Atlantic. Master's thesis. University of Southern Mississippi.
- Duffy, L. M., P. M. Kuhnert, H. R. Pethybridge, J. W. Young, R. J. Olson, J. M. Logan, N. Goñi, E. Romanov, V. Allain, M. D. Staudinger, M. Abecassis, C. A. Choy, A. J. Hobday, M. Simier, F. Galván-Magaña, M. Potier, F. Ménard. 2017. Global trophic ecology of yellowfin, bigeye, and albacore tunas: Understanding predation on micronekton communities at ocean-basin scales. *Deep-Sea Research II*. 140(2014):55-73.
- Goode, G. B. 1884. The food fishes of the U.S. part 3: natural history of useful aquatic animals. In: *The Fisheries and Fishery Industries of the United States*. U.S. Government Printing Office. Washington, D.C. Available at: <http://celebrating200years.noaa.gov/rarebooks/fisheries/welcome.html>

- Habashi, B. and J. Wojciechowski. 1973. Observations on the biology of *Scomber japonicus* off northwest Africa. *ICES document C.M.* 1973/J:20.
- Hernández, J. J. C. and A. T. S. Ortega. 2000. Synopsis of biological data on the chub mackerel (*Scomber japonicus* Houttuyn, 1782). FAO Fisheries Synopsis No. 157.
- Hilborn, R., R. O. Amoroso, E. Bogazzi, O. P. Jensen, A. M. Parma, C. Szuwalski, and C. J. Walters. 2017. When does fishing forage species affect their predators? *Fisheries Research*. In press.
- Kiparissis, S., G. Tserpes, and N. Tsimenidis. 2000. Aspects on the demography of chub mackerel (*Scomber japonicus* Houttuyn, 1782) in the Hellenic Seas. *Belgian Journal of Zoology*. 130: 3-7.
- Krivospitchenko, S.G. 1979. Mackerel *Scomber japonicus* of the Saharan littoral region. Meeting of the Ad Hoc Working Group on West African Coastal Pelagic Fish from Mauritania to Liberia. Dakar, Senegal. June 19, 1978. FAO Fisheries Department, Rome. Available at: <http://www.fao.org/docrep/003/N0952E/n0952e0t.htm>
- Lorenzo, J. M., J. G. Pajuelo, and A. G. Ramos. 1995. Growth of the chub mackerel *Scomber japonicus* (Pisces: Scombridae) off the Canary Islands. *Scientia Marina*. 59(3-4):287-291.
- Lorenzo, J. M. and J.M. Pajuelo. 1996. Growth and reproductive biology of chub mackerel *Scomber japonicus* off the Canary Islands. *South African Journal of Marine Science*. 17(1):275-280.
- MAFMC (Mid-Atlantic Fishery Management Council). 2016. Unmanaged Forage Omnibus Amendment public hearing summary. Available at: <http://www.mafmc.org/actions/unmanaged-forage>
- MAFMC (Mid-Atlantic Fishery Management Council). 2017a. Unmanaged Forage Omnibus Amendment. Available at: <http://www.mafmc.org/actions/unmanaged-forage>
- MAFMC (Mid-Atlantic Fishery Management Council). 2017b. Summary of November 9, 2017 webinar on chub mackerel in HMS diets. Available at: <http://www.mafmc.org/actions/chub-mackerel-amendment>
- Manooch, C. S. and W. T. Hogarth. 1983. Stomach contents and giant trematodes from wahoo, *Acanthocybium solanderi*, collected along the South Atlantic and Gulf Coasts of the United States. *Bulletin of Marine Science*. 33(2):227-238.
- Manooch, C. S. and D. L. Mason. 1983. Comparative food studies of yellowfin tuna, *Thunnus albacares*, and blackfin tuna, *Thunnus atlanticus*, (Pisces: Scombridae) from the southeastern and Gulf coast of the United States. *Acta Ichthyologica et Piscatoria*. 8(2):25-42.
- Manooch, C. S., D. L. Mason, and R. S. Nelson. 1984. Food and gastrointestinal parasites of dophin *Coryphaena hippurus* collected along the southeastern and Gulf coasts of the United States. *Bulletin of the Japanese Society of Scientific Fisheries*. 50(9):1511-1525.
- Martins, M. M., D. Skagen, V. Marques, J. Zwolinski, and A. Silva. 2013. Changes in the abundance and spatial distribution of the Atlantic chub mackerel (*Scomber colias*) in the pelagic ecosystem and fisheries off Portugal. *Scientia Marina*. 77(4): 551-563.
- Okey, T. A., A. M. Cisneros-Montemayor, R. Pugliese, U. R. Suaila. 2014. Exploring the trophodynamic signatures of forage species in the U.S. South Atlantic Bight ecosystem to maximize system-wide values. The University of British Columbia Fisheries Centre working paper #2014-14.
- Paine, M. A., J. R. McDowell, and J. E. Graves. 2007. Specific identification of western Atlantic Ocean scombrids using mitochondrial DNA cytochrome C oxidase subunit I (COI) gene region sequences. *Bulletin of Marine Science*. 80(2):353-367.
- Perrotta, R. G. 1992. Growth of mackerel (*Scomber japonicus* Houttuyn, 1782) from the Buenos Aires-north patagonian region (Argentine Sea). *Scientia Marina*. 56(1):7-16.
- Perrotta, R. G., M. D. Viñas, D. R. Hernandez, and L. Tringali. 2001. Temperature conditions in the Argentine chub mackerel (*Scomber japonicus*) fishing ground: implications for fishery management. *Fisheries Oceanography*. 10(3):275-283.

- Perrotta, R. G., N. Carvalho, and E. Isidro. 2005. Comparative study on growth of chub mackerel (*Scomber japonicus* Hottuyn, 1782) from three different regions: NW Mediterranean, NE and SW Atlantic. *Rev. Invest. Desparr. Pesq.* 17(2005):67-79.
- Richardson, D. E., J. K. Llopiz, C. M. Guignard, and R. K. Cowen. 2010. Larval assemblages of large and medium-sized pelagic species in the Straits of Florida. *Progress in Oceanography*. 86(2010):8-20.
- Scoles, D. R., B. B. Collette, and J. E. Graves. 1998. Global phylogeography of mackerels of the genus *Scomber*. *Fishery Bulletin*. 96: 823-842.
- Sever, T. M., B. Bayhan, M. Bilecenoglu, and S. Mavili. 2006. Diet composition of the juvenile chub mackerel (*Scomber japonicus*) in the Aegean Sea (Izmir Bay, Turkey). *Journal of Applied Ichthyology*. 22(2006):145-148.
- Sinclair, M., M. J. Tremblay, and P. Bernal. 1985. El Niño events and variability in a Pacific mackerel (*Scomber japonicus*) survival index: support for Hjort's second hypothesis. *Canadian Journal of Fisheries and Aquatic Science*. 42(3):602-608.
- Smith, L. A., J. S. Link, S. X. Cadrin, and D. L. Palka. 2015. Consumption by marine mammals on the Northeast U.S. continental shelf. *Ecological Applications*. 25(5):373-389.
- Vasconcelos, J. V., M. A. Dias, and G. Faria. 2011. Age and growth of the Atlantic chub mackerel *Scomber colias* Gmelin, 1789 off Madeira Island. *Arquipelago – Life and Marine Sciences*. 28: 57-70.
- Veiga, P., J. C. Xavier, C. A. Assis, and K. Erzini. 2011. Diet of the blue marlin, *Makaira nigricans*, off the south coast of Portugal. *Marine Biology Research*. 7:820-825.
- Velasco, E. M., J. D. Arbol, J. Baro, and I. Sobrino. 2011. Age and growth of the Spanish chub mackerel *Scomber colias* off southern Spain: a comparison between samples from the NE Atlantic and the SW Mediterranean. *Revista de Biología Marina y Oceanografía*. 46(1):27-34.
- Weber, E. D. and S. McClatchie. 2012. Effect of environmental conditions on the distribution of Pacific mackerel (*Scomber japonicus*) larvae in the California Current System. *Fishery Bulletin*. 110:85-97.
- Yasuda, T., R. Yukai, and S. Ohshimo. 2014. Fishing ground hotspots reveal long-term variation in chub mackerel *Scomber japonicus* habitat in the East China Sea. *Marine Ecology Progress Series*. 501: 239-250.
- Yatsu, A., T. Watanabe, M. Ishida, H. Sugisaki, and L. D. Jacobson. 2005. Environmental effects on recruitment and productivity of Japanese sardine *Sardinops melanostictus* and chub mackerel *Scomber japonicus* with recommendations for management. *Fisheries Oceanography*. 14(4):263-278.
- Zardoya, R., R. Castilho, C. Grande, L. Favre-Krey, S. Caetano, S. Marcato. 2004. Differential population structuring of two closely related fish species, the mackerel (*Scomber scombrus*) and the chub mackerel (*Scomber japonicus*), in the Mediterranean Sea. *Molecular Ecology*. 13:1785-1798.



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

Chub Mackerel Fishery Management Action Team (FMAT)

Meeting Summary

April 27, 2018

FMAT members in attendance: Greg Ardini (NMFS), Julia Beaty (MAFMC), Doug Christel (NMFS), Ben Galuardi (NMFS), Sarah Gurtman (NMFS), John Manderson (NMFS), Diane Stephan (NMFS), Alison Verkade (NMFS)

Others in attendance: Purcie Bennet-Nickerson (Pew Charitable Trusts), Taylor Daley (University of Southern Mississippi), Greg DiDomenico (Garden State Seafood Association), Joseph Gordon (Pew Charitable Trusts), Jeff Kaelin (Lund's Fisheries), Meghan Lapp (Seafreeze, Ltd.), Robert Leaf (University of Southern Mississippi)

Amendment Goals and Objectives

The FMAT revised their previously recommended goals and objectives for the Chub Mackerel Amendment.¹ The FMAT recommended the following goals and objectives for chub mackerel. The goals are high-level values and priorities. The objectives are specific, actionable steps towards achieving those goals. The Council is in the process of revising the Fishery Management Plan goals and objectives for other Council-managed species. The goals and objectives below reflect the structure of the revisions under consideration for other species (e.g. summer flounder, surf clams, and ocean quahogs).

The goals and objectives are meant to guide development of management actions for chub mackerel. Any management alternatives considered should be consistent with the goals and objectives.

- **Goal 1:** Maintain a sustainable chub mackerel stock.
 - **Objective 1.1:** Prevent overfishing and achieve and maintain sustainable biomass levels that promote optimum yield in the fisheries and meet the needs of chub mackerel predators.
 - **Objective 1.2:** Consider, to the extent practical, the role of chub mackerel in the ecosystem, including its role as prey, as a predator, and as food for humans.
- **Goal 2:** Optimize economic and social benefits from utilization of chub mackerel, balancing the needs and priorities of different user groups.

¹ For more information, see the summary of the June 2017 FMAT meeting, available at: <http://www.mafmc.org/actions/chub-mackerel-amendment>.

- **Objective 2.1:** Allow opportunities for commercial and recreational chub mackerel fishing, considering the opportunistic nature of the fisheries, changes in availability that may result from changes in climate and other factors, and the need for operational flexibility.
- **Objective 2.2:** To the extent practical while meeting the other objectives, allow the *Illex* squid fishery to proceed without additional limiting restrictions when *Illex* are available.
- **Objective 2.3:** Balance social and economic needs of various sectors of the chub mackerel fisheries (e.g. commercial, recreational, regional) and other fisheries, including recreational fisheries for highly migratory species.
- **Goal 3:** Support science, monitoring, and data collection to enhance effective management of chub mackerel fisheries.
 - **Objective 3.1:** Improve data collection to better understand the status of the chub mackerel stock, the role of chub mackerel in the ecosystem, and the biological, ecological, and socioeconomic impacts of management measures, including impacts to other fisheries.
 - **Objective 3.2:** Promote opportunities for industry collaboration on research.

One FMAT member cautioned that the objectives should be phrased in a manner that avoids conflicting with applicable law. He also mentioned that narrowly focused objectives could raise the risk that the final measures may not address every aspect of the amendment's objectives. Broader objectives allow greater flexibility in developing management measures and avoiding conflicts with the Fishery Management Plan (FMP) objectives.

The FMAT discussed the need for special management considerations given that the chub mackerel fishery is opportunistic and prosecuted by a small fleet at the seasonal northern edge of the range of the stock. Climate variability, which may include systematic change, is likely to influence the availability of this species. The FMAT acknowledged that the commercial chub mackerel fishery in the mid-Atlantic and southern New England is an alternative fishery that provides flexibility to commercial fishermen. This type of operational flexibility is an ecosystem consideration as it allows fishermen to target stocks when they are abundant and can help reduce fishing pressure on stocks that are less abundant. The FMAT recommended that such operational flexibility be encouraged, but also cautioned that the chub mackerel fishery should be carefully managed given that it occurs at the seasonal northern edge of the range of the stock. Objective 2.1 is meant to address these considerations.

The FMAT agreed that economic allocations, including within and among different regions, should not be the sole purpose of any management alternative. The goals and objectives above were crafted with this consideration in mind.

The FMAT discussed the possibility of combining objectives 2.2. and 2.3. Objective 2.2 could be considered a specific example of the concerns addressed in objective 2.3. However, the FMAT agreed that the needs of the *Illex* squid fishery are unique enough to warrant a standalone objective (i.e. objective 2.2). There is significant overlap between the *Illex* squid fishery and the chub mackerel fishery. The two species are caught by the same vessels in similar areas at the

same time of year. Fishermen, fish dealers, processors, and other businesses rely on *Illex* squid to a much greater extent than chub mackerel. The *Illex* squid fishery is more established and more valuable than the chub mackerel fishery, which, as stated above, is largely opportunistic. Participants in the *Illex* squid fishery have requested that their fishery operations be considered when developing chub mackerel management alternatives to minimize negative impacts to the *Illex* squid fishery.

Limited quantitative data are available on the contribution of chub mackerel to the diets of any predators in this region. The Council plans to fund a study to help fill this data gap. One member of the public asked how the goals and objectives above would change if this study determines that chub mackerel are not an important prey species for any predator. The FMAT agreed that this would not necessitate a change in the goals and objectives as written above. One FMAT member noted that social concerns related to certain recreational fisheries for apex predators would remain if the study found that chub mackerel are not an important prey species.

One member of the public suggested that the word “consider” in objective 1.2 be replaced with “protect” or “maintain”. The FMAT did not support this recommendation because it would be difficult to measure success in meeting such an objective given currently available data.

Management Unit

National Standard 3 states: “to the extent practicable, an individual stock of fish shall be managed as a unit throughout its range”. The FMAT discussed considerations related to the management unit for chub mackerel, including the National Standard 3 Guidelines and examples from other FMPs.

Chub mackerel are wide ranging. They are found throughout the U.S. east coast, the Gulf of Mexico, the Caribbean, and in South American waters. Only U.S. waters can be included in the management unit. Few data are available on chub mackerel in the Caribbean.

The FMAT reaffirmed their previous recommendation that the chub mackerel management unit include U.S. waters from Maine through Texas. The FMAT noted that the Council could develop separate management measures for different regions within the management unit.

The National Standard 3 Guidelines state that “a less-than-comprehensive management unit may be justified if, for example, ...the unmanaged portion of the resource is immaterial to proper management”. The FMAT cautioned against considering the portions of the chub mackerel stock in the South Atlantic and Gulf of Mexico to be “immaterial to proper management” from both biological and fishery perspectives. The FMAT recommended that the management unit not be decoupled from the biology of the stock. For example, the scientific literature and fisheries-independent survey data suggest that the Gulf of Mexico may include important chub mackerel spawning habitats.

Most commercial landings in recent years occurred at the seasonal northern edge of the range of the stock (i.e. the mid-Atlantic and southern New England). Excluding other areas which may be used more extensively by the stock could lead to management challenges if landings in those areas increase in the future. The FMAT emphasized that a management unit from Maine through Texas would allow the Council to react most efficiently to future changes in the fishery. Given the recently developed market for chub mackerel caught in the mid-Atlantic and the influence of the environment on availability, it is possible that landings in the South Atlantic or Gulf of Mexico could increase rapidly from one year to the next, as occurred in the mid-Atlantic and New England (Figure 1). Given the biology of the stock, major changes in fisheries in other regions could potentially negatively impact the mid-Atlantic and southern New England fishery. Including other regions in the management unit would allow the Council to react to any fishery changes which could negatively impact mid-Atlantic fisheries. This would not preclude the Mid-Atlantic Council from collaborating with other councils as necessary and appropriate.

A comprehensive management unit (e.g. Maine through Texas) is also beneficial for National Environmental Policy Act purposes. Considering a broad stock area from the beginning could help facilitate analysis of future management actions addressing different parts of that range.

The FMAT recommended that future stock assessments consider the full range of the stock.

One FMAT member noted that genetic differentiation is not the only relevant consideration when evaluating sub stock structure. Genetically-similar contingents with distinct migratory patterns, spawning seasons, and other life history characteristics can play important roles in stock dynamics and resiliency of schooling pelagic fish.

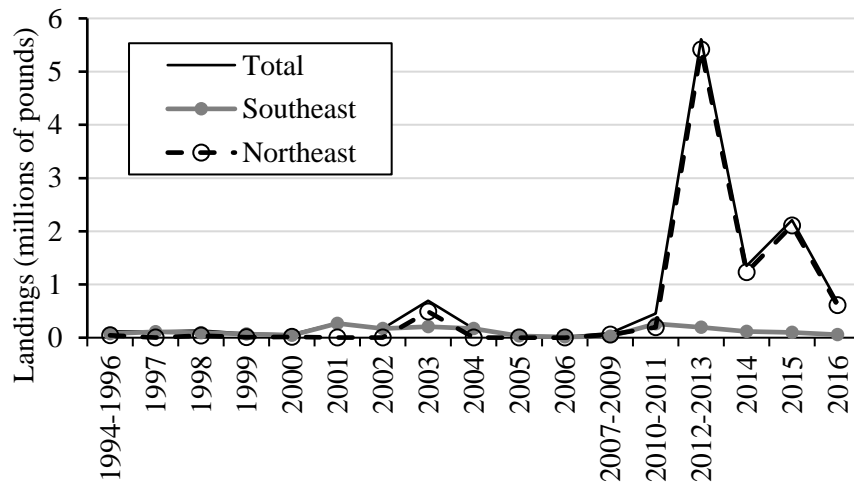


Figure 1: Dealer-reported chub mackerel landings, 1994-2016. Data for some years are combined to protect confidential information representing fewer than three vessels and/or dealers. Southeast data include landings from North Carolina through Texas. Northeast data include landings from Maine through Virginia.²

² Figure 1 does not include recreational harvest. The FMAT did not revisit their previous discussions of recreational data. Due to the similarities in appearance between Atlantic mackerel and chub mackerel, there is likely some degree

Forage Considerations

The FMAT discussed the possibility of accounting for chub mackerel's role in the ecosystem as a forage species through the setting of optimum yield (OY). The regulations for other Council-managed species allow the Council to set OY at a lower level than the acceptable biological catch (ABC) level recommended by the Scientific and Statistical Committee (SSC) based on social, economic, or ecological factors.

The FMAT noted that limited data are available to quantify the appropriate reduction from the ABC to OY (if any). It may be worth bringing in individuals with ecosystems expertise, including SSC members and other experts, when considering how to use OY to address ecosystem concerns.

One FMAT member recommended consideration of a simple metric for calculating OY which could be easily modified as new information becomes available. For example, the ABC could be reduced by a certain percent to ensure that some chub mackerel are set aside for ecosystem considerations. Another FMAT member expressed concern about the uncertainty of any numbers that would be considered, as well as the perception that the Council uses multiple conservative "buffers" when setting quotas.

The FMAT agreed that a forage ABC control rule³ is not currently feasible for chub mackerel given existing data limitations and the lack of a quantitative stock assessment.

One FMAT member noted that forage considerations have been addressed for other species through the calculation of natural mortality and status determination criteria.

Management Measures to Address Potential Localized Depletion of Chub Mackerel Predators

As previously stated, limited quantitative data are available on the contribution of chub mackerel to the diets of any predators in the mid-Atlantic. The Council is funding a study to help fill this data gap. This study will take place over 2018-2019, with final results likely not available until 2020.

The Council developed the first management measures for chub mackerel fisheries in the mid-Atlantic through the Unmanaged Forage Omnibus Amendment. These measures will expire on January 1, 2021. The Council plans to take final action on the Chub Mackerel Amendment in late 2018 or early 2019 to ensure that new management measures can be implemented before the current measures expire.

of undocumented or inaccurately reported catch in recreational fisheries. For more information, see the summary of the June 19, 2017 FMAT meeting, available at: <http://www.mafmc.org/actions/chub-mackerel-amendment>.

³ For an example, see figure 4 in the Council's 2014 white paper on managing forage fishes in the mid-Atlantic region, available at: <http://www.mafmc.org/eafm/>

The results of the diet study will not be available in time to inform development of alternatives in the Chub Mackerel Amendment. For this reason, the FMAT recommended that this amendment not include management alternatives aimed at preventing localized depletion of chub mackerel predators. For example, some stakeholders have requested that the Council consider spatial/temporal closures of the commercial chub mackerel fishery to prevent localized depletion of recreationally-important species such as white and blue marlin and bigeye and yellowfin tunas. Two FMAT members said the potential for localized depletion is very difficult to assess given currently available information on predator diets and chub mackerel patterns of movement and habitat use. The FMAT concluded that this amendment does not need to consider all issues relevant to chub mackerel. Other subsequent actions could address other issues as more information becomes available to support additional analysis.

Other Recommendations

The FMAT did not revisit their previous recommendations on several topics, including research recommendations, essential fish habitat, and their previous recommendations for “considered but rejected” alternatives (including minimum fish size restrictions, gear restrictions, and limited access provisions). For more information on these recommendations, see the summary of the June 19, 2017 FMAT meeting, available at: <http://www.mafmc.org/actions/chub-mackerel-amendment>.



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

April 20, 2018

Mr. Michael Pentony
Regional Administrator
National Marine Fisheries Service Greater Atlantic Region
55 Great Republic Drive
Gloucester, MA 01930-2276

Dear Mike:

Based on a call on April 19 between myself, Julia Beaty of my staff, John Almeida of the Office of General Counsel, and Doug Christel of your staff, it is our understanding that it is the responsibility of the Council to define the management unit for chub mackerel when considering whether to add it as a stock in the Mackerel, Squid, and Butterfish Fishery Management Plan. Based on the biology of the species and recent fishery conditions, possible management unit options could include Maine to North Carolina, Maine to Florida, Maine to Texas, or even the entire Atlantic EEZ (including the Caribbean). Whichever option the Council chooses should be justified based on the objectives of the FMP and the National Standard 3 Guidelines. It is also our understanding that the Council need not apply management measures to entire management unit. For example, the Council could select a management unit from Maine through Texas and develop management measures that apply from Maine through Virginia, with no management measures applied to North Carolina through Texas, provided the Council sufficiently justifies this choice.

If any of this does not align with your understanding of how the management process should work, please contact me as soon as possible. Please call me or Julia Beaty of my staff if you have any questions.

Sincerely,

Christopher M. Moore, PhD.
Executive Director, MAFMC

Cc: Luisi, Elliott, Beaty



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
55 Great Republic Drive
Gloucester, MA 01930-2276

Dr. Christopher M. Moore
Executive Director
Mid-Atlantic Fishery Management Council
Suite 201
800 N. State Street
Dover, DE 19901

MAY 03 2018

Dear Chris:

Thank you for the April 20, 2018, letter documenting your discussions with staff to help define a management unit for chub mackerel. It is important to clarify the difference between a biological stock (geographic distribution of a species based on available scientific information) and a management unit (the fishery or portion of a fishery in which management objectives and associated measures adopted in the fishery management plan (FMP) apply). As you note, available information suggests that the species is distributed beyond the Mid-Atlantic Council's jurisdiction and that the area from Maine through the Gulf of Mexico, at least, may define its biological stock area.

The Council does not need to designate a management unit throughout this entire biological stock area, current National Standard 3 Guidelines suggest that an FMP should cover the biological stock area for planning purposes. The Council could consider specifying the required status determination criteria, overfishing limit, and acceptable biological catch (ABC) for the entire biological stock area, and adopt management measures within a smaller management unit. For example, the Council could adopt an approach that applies all catch within the biological stock area against an overall ABC, but only specify an annual catch limit (ACL) and associated accountability measures (AM) for catch within a management unit from Maine or New York through North Carolina. The Council takes a similar approach with Atlantic mackerel in that it deducts Canadian catch from the overall ABC applicable to the biological stock area that includes Canadian waters, while ACLs and AMs only apply to fishery operations in the Federal Exclusive Economic Zone. This seems consistent with what you described in your letter, with the clarification that the biological stock area can differ from the management unit. As the Council further develops this action, it may determine that a different approach than described above is more appropriate. We are happy to work with you in evaluating any options the Council chooses to pursue.

We appreciate your efforts to proactively engage our staff on these issues, and look forward to continuing to work with you and the Council on this action. If you have any further questions, please call me or Doug Christel.

Sincerely,

Michael Pentony
Regional Administrator





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: May 8, 2018
To: Chris Moore
From: Julia Beaty
Subject: Chub mackerel assessment and ABCs

In 2017, the Council issued a request for proposals for a chub mackerel stock assessment. However, based on the recommendations of a review panel of Council and NEFSC staff and an SSC member, the Council ultimately decided not to fund an assessment.

The review panel agreed that given the extreme data limitations for chub mackerel, even a data limited modeling approach would likely produce highly uncertain results, which could prove risky for setting management measures.

Significant concerns regarding the ability to quantitatively assess the status of the chub mackerel stock include:

- **Low and sporadic catches in fisheries independent surveys**
 - Northeast Fisheries Science Center (NEFSC) bottom trawl survey
 - There are no records of chub mackerel caught in the spring NEFSC bottom trawl survey during 1963-2016.
 - Chub mackerel are periodically encountered in the fall NEFSC bottom trawl survey. Most of these catches occurred south of the Hudson Shelf Valley in warm water temperatures (i.e. generally higher than about 20°C/68°F; personal communication, John Manderson, Michele Traver, and Chris Tholke; Figure 1 and Figure 2).
 - State trawl surveys
 - Catches in state fisheries-independent surveys are rare.
 - Larval surveys
 - The Chub Mackerel Amendment Fishery Management Action Team agreed that a larval survey may be the most appropriate fishery-independent index of abundance, given that recruitment is likely a main driver of abundance.
 - Through 2016, the ECOMON survey collected 67 chub mackerel larvae from North Carolina through southern New England.
 - During 1983 - 2014, the Southeast Fisheries Science Center collected 1,748 chub mackerel larvae throughout the Gulf of Mexico (Figure 3).

- **The influence of factors other than abundance on fishery catch per unit effort (CPUE)**
 - Catch in the mid-Atlantic and southern New England appears to be influenced by factors such as the availability of substitute species (especially *Illex* squid), temperature, price, and market demand.
 - Due to the significant overlap with the *Illex* squid fishery, it can be difficult to determine which trips targeted chub mackerel, as opposed to *Illex* squid.
 - Directed fishing effort on chub mackerel was generally very low until about 2013 and has been variable since that time.
 - Chub mackerel landings in the southeast may be largely incidental.ⁱ
- **Limited data on growth and maturity in U.S. Atlantic waters**
 - The only known information on age, length, and maturity for chub mackerel in U.S. Atlantic waters is included in Daley (2018).ⁱⁱ
 - With additional funding, additional data on age, length, and maturity could be collected from existing sampling programs, such as the NEFSC and state trawl surveys, the southeast Trip Interview Program, and the observer program.
- **Uncertainty regarding stock structure in U.S. waters**
 - In the eastern Atlantic Ocean, chub mackerel are found from southern New England, through the Gulf of Mexico, in the Caribbean, and off South America.
 - No studies on stock structure in U.S. waters have been conducted.
 - Studies from other regions (e.g. Europe and Africa) suggest based on differences in morphology, spawning seasons, and/or sizes at maturity that sub-stocks may exist; however, the species is genetically uniform across wide areas (e.g. the eastern Mediterranean Sea, the Ivory Coast, and South Africa).ⁱⁱⁱ

The Council is developing an amendment to add chub mackerel as a stock in the Mackerel, Squid, and Butterfish Fishery Management Plan. This necessitates adoption of an acceptable biological catch (ABC) level. Given the lack of a stock assessment and the data limitations described above, the ABC may need to be specified based on catch history.

Tables 1-3 include information on commercial and recreational landings and discards for three different regions. This information could be used to inform development of an ABC. Information on three different regions is provided because the Council has not yet selected a preferred management unit for chub mackerel.

For more information on chub mackerel fisheries, see the 2018 Chub Mackerel Fishery Information Document, available at: <http://www.mafmc.org/actions/chub-mackerel-amendment>.

FALL 1963-2016

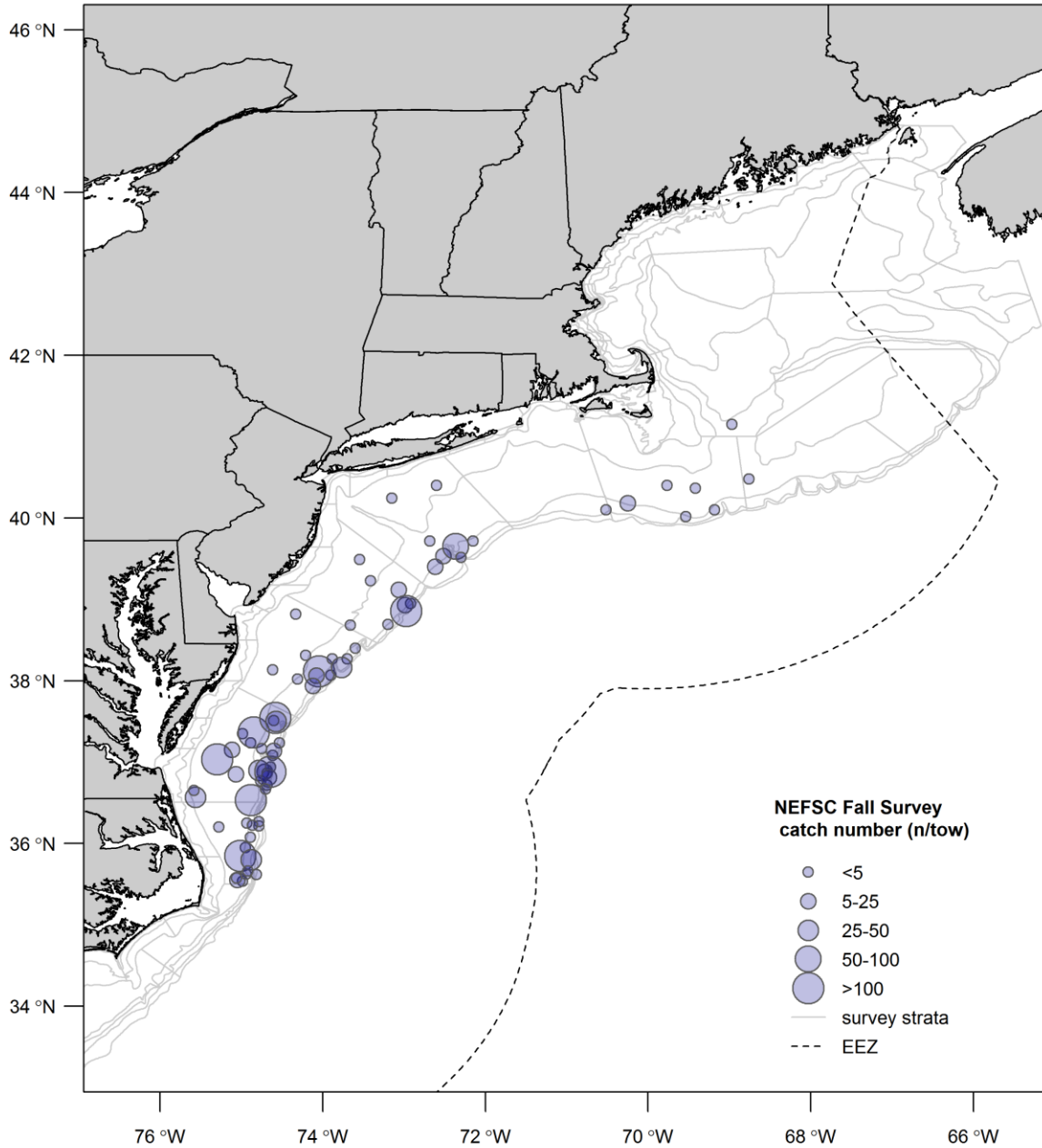


Figure 1: NEFSC fall survey chub mackerel catch in numbers per tow, 1963-2016 (source: Michele Traver and Chris Tholke, personal communication).

FALL 1963-2016

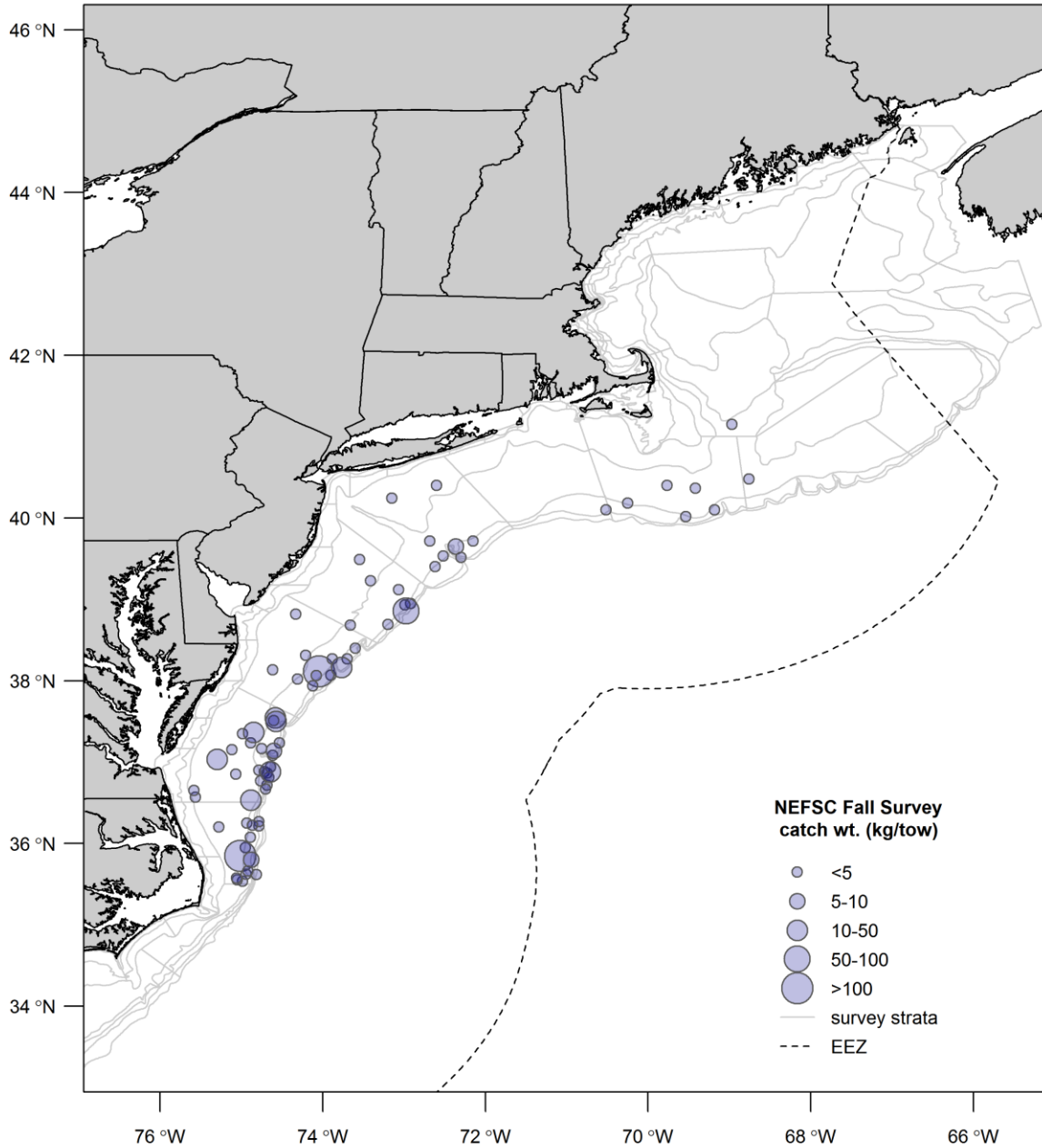


Figure 2: NEFSC fall survey chub mackerel catch in weight per tow (kg), 1963-2016 (source: Michele Traver and Chris Tholke, personal communication).

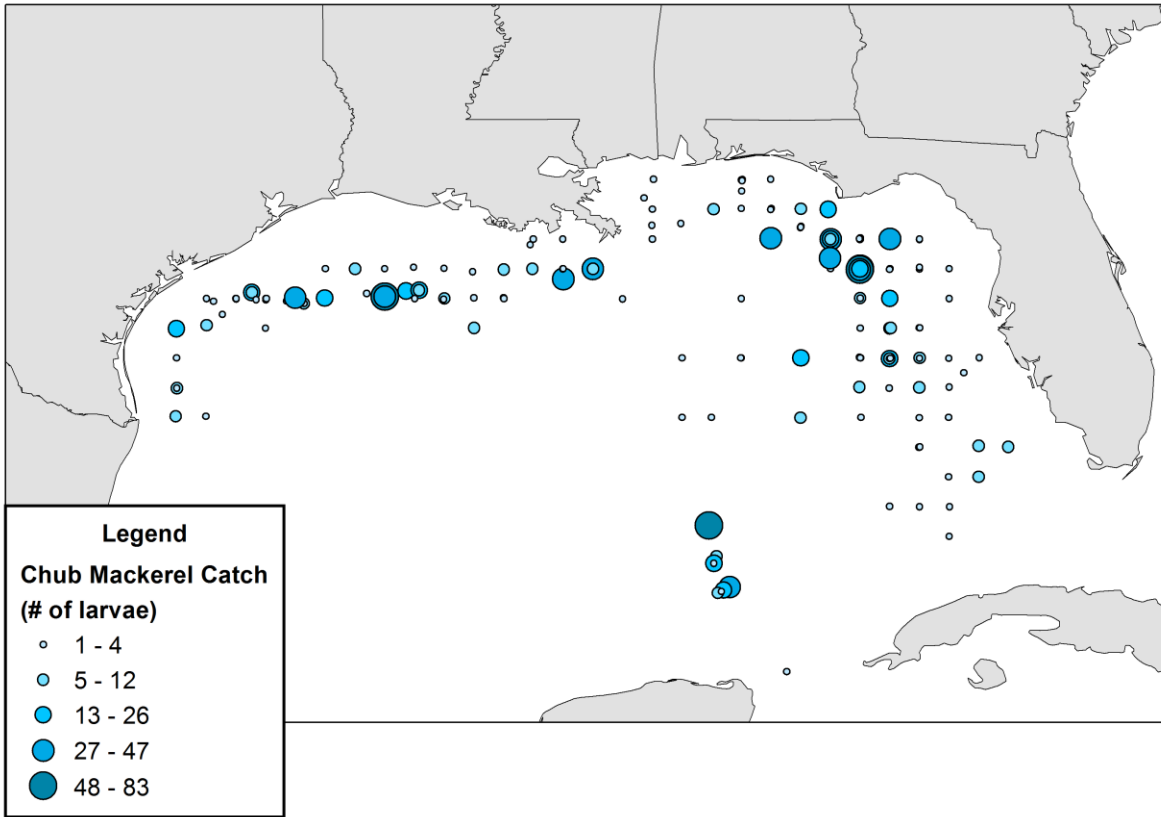


Figure 3: Southeast Fisheries Science Center larval survey catches of chub mackerel larvae, 1983-2014.

Table 1: Average commercial and recreational chub mackerel landings, in pounds, by region. Data from 2017 are not included because they were not available for all regions at the time of writing this document.

Time Period	ME-NC	ME-FL	ME-TX
2002-2016 (15 years)	674,399	676,936	776,518
2007-2016 (10 years)	962,708	966,462	1,041,802
2012-2016 (5 years)	1,882,744	1,883,241	1,976,277
2013-2015 (top 3 and basis for Unmanaged Forage Amendment Measures)	2,878,810	2,879,439	2,966,221

Table 2: Percent of commercial chub mackerel catch that was discarded, based on NEFOP and northeast vessel trip report (VTR) data.

Years	NEFOP Discard %	VTR Discard %
2002-2016 (15 years)	10%	3%
2007-2016 (10 years)	10%	3%
2012-2016 (5 years)	10%	3%
2013-2015	10%	3%

Table 3: Recreational discard rates by year and region, according to the Marine Recreational Information Program. Years with no reported discarded chub mackerel are not shown.

Year	Region	Estimated discard rate
2002	GULF OF MEXICO	7%
2003	GULF OF MEXICO	100%
2004	GULF OF MEXICO	1%
2010	GULF OF MEXICO	13%
2012	MID-ATLANTIC	100%
2014	MID-ATLANTIC	17%
2016	MID-ATLANTIC	16%
2017	NORTH ATLANTIC	8%
2017	MID-ATLANTIC	63%
2017	GULF OF MEXICO	1%

ⁱ For more information, see the 2018 Chub Mackerel Fishery Information Document, available at: <http://www.mafmc.org/actions/chub-mackerel-amendment>

ⁱⁱ Daley, T. 2018. Growth and reproduction of Atlantic chub mackerel (*Scomber colias*) in the Northwest Atlantic. Master's thesis. University of Southern Mississippi.

ⁱⁱⁱ Cerna, F. and G. Plaza. 2014. Life history parameters of chub mackerel (*Scomber japonicus*) from two areas off Chile. *Bulletin of Marine Science*. 90(3):833-848.

Chen, X., G. Li, B. Feng, and S. Tian. 2009. Habitat suitability index of chub mackerel (*Scomber japonicus*) from July to September in the East China Sea. *Journal of Oceanography*. 65: 93-102.

Scoles, D. R., B. B. Collette, and J. E. Graves. 1998. Global phylogeography of mackerels of the genus *Scomber*. *Fishery Bulletin*. 96: 823-842.

Weber, E. D. and S. McClatchie. 2012. Effect of environmental conditions on the distribution of Pacific mackerel (*Scomber japonicus*) larvae in the California Current System. *Fishery Bulletin*. 110:85-97.

Yasuda, T., R. Yukai, and S. Ohshimo. 2014. Fishing ground hotspots reveal long-term variation in chub mackerel *Scomber japonicus* habitat in the East China Sea. *Marine Ecology Progress Series*. 501: 239-250.

Zardoya, R., R. Castilho, C. Grande, L. Favre-Krey, S. Caetano, S. Marcato. 2004. Differential population structuring of two closely related fish species, the mackerel (*Scomber scombrus*) and the chub mackerel (*Scomber japonicus*), in the Mediterranean Sea. *Molecular Ecology*. 13:1785-1798.

2018 Chub Mackerel Advisory Panel Fishery Performance Report

The Mid-Atlantic Fishery Management Council's (Council's) Mackerel-Squid-Butterfish (MSB) Advisory Panel (AP) met on May 15, 2018 to review the 2018 Chub Mackerel Fishery Information Document and develop this Fishery Performance Report. This document summarizes the perspectives and ideas of advisors. These are not necessarily consensus or majority statements.

Advisory Panel members in attendance: Katie Almeida, Vito Calomo, Gregory DiDomenico, Joseph Gordon, Jeffrey Reichle

Others in attendance: Terry Alexander (MSB Committee member), Julia Beaty (Council staff), Purcie Bennett-Nickerson (Pew Charitable Trusts), Douglas Christel (GARFO), Peter Christopher (MSB Committee member), Taylor Daley (University of Southern Mississippi), Peter Hughes (MSB Committee chair), Jeff Kaelin (Lund's Fisheries), Meghan Lapp (SeaFreeze Ltd.), Robert Leaf (University of Southern Mississippi), Laurie Nolan (MSB Committee member), Eric Reid (MSB Committee member), Sara Winslow (MSB Committee vice chair)

Factors Influencing Catch/Landings

One advisor said the recent increase in chub mackerel landings in the mid-Atlantic and southern New England was not influenced by market factors as there has always been a market for chub mackerel. He said the *Illex* squid fishery is the biggest determinant of chub mackerel fishing effort and landings. Vessels won't concentrate on chub mackerel if *Illex* squid are available and if the *Illex* price is higher than that for chub mackerel.

Multiple advisors agreed that chub mackerel are difficult and costly to harvest in profitable quantities. Chub mackerel are fast swimmers; therefore, vessels need high horse power to tow fast enough to catch them. In addition, chub mackerel prefer warm water temperatures (around 15-20°C/60-70°F); therefore, vessels must have refrigerated sea water or freezing capacity to store profitable quantities. For these reasons, few vessels in this region are capable of targeting chub mackerel.

One advisor said fluctuations in landings are not reflective of abundance and are instead the result of the capacity of the fleet, the small number of participating vessels, and the operations of the *Illex* squid fishery.

A few advisors said fishermen see some chub mackerel every year, but the abundance is variable. In addition, in some years, chub mackerel are "bunched", which makes them easier to catch. In other years, they are more spread out. Advisors did not know why chub mackerel bunch in some years but not others. One advisor said fewer *Illex* squid are present when chub mackerel are bunched. He said the two species are mixed together to some extent in the beginning and end of the season (usually May and October), but not when both species are most abundant (usually June - September). Although both species are sometimes caught together, fishermen will not store them together.

One advisor said in his many years of fishing from Maine through Rhode Island, he's seen a few chub mackerel, but never any notable abundances.

One advisor said the pattern of commercial landings in the South Atlantic and Gulf of Mexico could reflect multi-year cycles of abundance influenced by environmental factors.

Research Recommendations

One advisor recommended that additional biological data on chub mackerel (e.g. ages, lengths, maturity), be collected through the existing port sampling program.

One advisor asked if the Northeast Fisheries Science Center's Apex Predator Program collects diet data which could be used to assess the importance of chub mackerel to the diets of any predators.¹

Two advisors said they were frustrated that the Council decided not to fund a chub mackerel stock assessment.²

Chub Mackerel and Highly Migratory Species

Advisors discussed concerns raised by some stakeholders about the potential for negative impacts of commercial chub mackerel harvest on recreationally-important predators such as marlins and tunas.

One advisor asked if the commercial chub mackerel fishery operates in canyon areas where recreational marlin and tuna fisheries occur. Other advisors said the fishery operates inshore of the canyons.

One advisor said his son fishes recreationally for marlins and tunas and he's not aware of any relationship between chub mackerel abundance and marlin or tuna abundance. He added that fisheries must be managed based on science, not politics, and although public opinion is very important to the process, opinions are not facts until they are proven. Specifically, claims regarding the importance of chub mackerel in the diets of tunas and marlins are not supported by science. He added that his own opinion is that chub mackerel are not important prey. He said the requests for spatial/temporal closures of chub mackerel and herring fisheries are driven by recreational fishermen who simply don't want commercial vessels to fish near them.

One advisor expressed frustration that the Council funded a study on chub mackerel in the diets of marlins and tunas instead of funding a chub mackerel stock assessment. He said the November 2017 webinar on the diets of highly migratory species (HMS) should have been the end of the Council's efforts to evaluate HMS diets. During that webinar, three researchers said they did not identify any chub mackerel in HMS stomach contents. One researcher described his own observations of chub mackerel in tuna stomachs, but these observations were not quantified.³ This AP member argued that any results of the new diet study will be inconclusive and based on low sample sizes.

One advisor emphasized the importance of public comments in the Council process and said

¹ Council staff were unable to answer this question at the meeting. The Apex Predator Program is focused on commercially and recreationally important shark species. Food habits are one area of research within the program. More information is available at: <https://www.nefsc.noaa.gov/nefsc/Narragansett/sharks/>.

² For more information, see http://www.mafmc.org/s/Chub_RFP_outcome.pdf.

³ For more information, see http://www.mafmc.org/s/Chub_HMS_diet_webinar_summary.pdf.

spatial/temporal management of the chub mackerel fishery based on HMS concerns should be considered given the number of public comments received on the subject.

Catch Limit Recommendations

One advisor recommended that the Council's Scientific and Statistical Committee consider a range of acceptable biological catch (ABC) levels ranging from 2,000 to 5,000 MT (about 4-11 million pounds). He saw room for expansion of the current fishery and did not support catch limits any lower than that implemented through the Unmanaged Forage Omnibus Amendment (i.e. 2.86 million pounds, or about 1,300 MT, per year).

Another advisor said he did not see the justification for a higher limit than 2.86 million pounds given the unknown ecosystem impacts of any catch level.

Speaking in support of a higher catch limit, one advisor said, given the restrictions in other pelagic fisheries in this region, the chub mackerel fishery can be a way for pelagic fishermen to stay in business.



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

Mackerel, Squid, Butterfish Advisory Panel and Committee Meeting Summary

May 15, 2018

The Mid-Atlantic Fishery Management Council's (Council's) Mackerel-Squid-Butterfish (MSB) Advisory Panel (AP) and Committee met jointly on May 15, 2018 to discuss goals and objectives, the management unit, considerations related to acceptable biological catch (ABC), and other aspects of the Chub Mackerel Amendment. Unless otherwise noted, statements summarized in this document are not consensus or majority statements.

Advisory Panel members in attendance: Katie Almeida, Vito Calomo, Gregory DiDomenico, Joseph Gordon, Jeffrey Reichle

Committee members in attendance: Peter Hughes (Committee chair), Sara Winslow (Committee vice chair), Terry Alexander, Peter Christopher, Roger Mann, Stew Michels, Laurie Nolan, Adam Nowalsky, Eric Reid

Others in attendance: Julia Beaty (Council staff), Purcie Bennett-Nickerson (Pew Charitable Trusts), Douglas Christel (GARFO), Taylor Daley (University of Southern Mississippi), Jeff Kaelin (Lund's Fisheries), Meghan Lapp (SeaFreeze Ltd.), Robert Leaf (University of Southern Mississippi)

Goals and Objectives

Council staff summarized the Fishery Management Action Team's (FMAT's) recommendations for amendment goals and objectives. She also reminded the Committee and AP of the goal of the Unmanaged Forage Omnibus Amendment¹ (through which the Council developed the first management measures for chub mackerel), the Council's ecosystem approach to fisheries management (EAFM) goal statement,² and the current MSB fishery management plan (FMP) goals and objectives.³ The Unmanaged Forage Amendment and EAFM goal statements describe

¹ To prohibit the development of new and expansion of existing directed commercial fisheries on unmanaged forage species in Mid-Atlantic Federal waters until the Council has had an adequate opportunity to both assess the scientific information relating to any new or expanded directed fisheries and consider potential impacts to existing fisheries, fishing communities, and the marine ecosystem.

² To manage for ecologically sustainable utilization of living marine resources while maintaining ecosystem productivity, structure, and function. Ecologically sustainable utilization is defined as utilization that accommodates the needs of present and future generations, while maintaining the integrity, health, and diversity of the marine ecosystem.

³ 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

a precautionary approach, while the MSP FMP objectives are more focused on promoting fishing opportunities.

One AP member, two Committee members, and one member of the public argued that because this amendment will add chub mackerel to the MSB FMP, the goals and objectives for the chub mackerel amendment should be more in line with the MSB FMP objectives than the Unmanaged Forage Amendment and EAFM goals. Further, the Council treated chub mackerel differently than the other species in the Unmanaged Forage Amendment, providing additional justification for applying the MSB FMP objectives, rather than the Forage Amendment goals and objectives.

The Committee approved two specific modifications to the FMAT-recommended amendment goals and objectives (see Committee motions at the end of this document). The goals and objectives recommended by the Committee are listed below.

- **Goal 1:** Maintain a sustainable chub mackerel stock.
 - **Objective 1.1:** Prevent overfishing and achieve and maintain sustainable biomass levels that achieve optimum yield in the fisheries and meet the needs of chub mackerel predators.
 - **Objective 1.2:** Consider, to the extent practicable, the role of chub mackerel in the ecosystem, including its role as prey, as a predator, and as food for humans.
- **Goal 2:** Optimize economic and social benefits from utilization of chub mackerel, balancing the needs and priorities of different user groups.
 - **Objective 2.1:** Allow opportunities for commercial and recreational chub mackerel fishing, considering the opportunistic nature of the fisheries, changes in availability that may result from changes in climate and other factors, and the need for operational flexibility.
 - **Objective 2.2:** To the extent practicable, allow the *Illex* squid fishery to proceed without additional limiting restrictions.
 - **Objective 2.3:** Balance social and economic needs of various sectors of the chub mackerel fisheries (e.g. commercial, recreational, regional) and other fisheries, including recreational fisheries for highly migratory species.
- **Goal 3:** Support science, monitoring, and data collection to enhance effective management of chub mackerel fisheries.
 - **Objective 3.1:** Improve data collection to better understand the status of the chub mackerel stock, the role of chub mackerel in the ecosystem, and the biological, ecological, and socioeconomic impacts of management measures, including impacts to other fisheries.
 - **Objective 3.2:** Promote opportunities for industry collaboration on research.

The Committee discussed the significant overlap between the chub mackerel fishery and the *Illex* squid fishery. Given that the two species are often caught together, measures to constrain chub mackerel harvest have the potential to also constrain the *Illex* squid fishery. Objective 2.2 is intended to minimize the potential for negative impacts of chub mackerel management measures

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.

on the *Illex* squid fishery. The Committee and AP discussed examples of how this could be achieved. For example, if an incidental possession limit is used as a chub mackerel accountability measure, then that limit could be set at a level that does not cause chub mackerel to become a choke species for the *Illex* squid fishery. One AP member said some refrigerated sea water vessels can retain up to 300 tons of *Illex* squid at a time. Chub mackerel are typically not mixed in with *Illex* squid to a great extent; however, when high volumes of squid are retained, a small percentage of chub mackerel mixed in with squid could quickly add up. One Committee member said the Council's considerations of longfin squid catch in the *Illex* squid fishery could be looked at as an example of how to minimize the potential for creating a choke species.

One Committee member asked how the Council could succeed in meeting objective 1.1 given existing data limitations. He asked if an inability to address this objective could be an argument for not managing chub mackerel at all. Another Committee member said objective 1.1 reflects National Standard 1 and the Council's actions must be consistent with the National Standards. Another Committee member said even if it is not possible to measure success in meeting a goal or objective, these aspirational statements still help guide Council actions.

Management Unit

The National Standard 3 guidelines define the management unit as "a fishery or that portion of a fishery identified in an FMP as relevant to the FMP's management objectives". The ABC should apply to the entire management unit and could also apply to areas outside of the management unit. For example, catch from Maine through Texas could count towards the ABC but the management unit could be Maine through Texas, Maine through Florida, or Maine through North Carolina. All these options could be considered as management alternatives in the amendment.

Atlantic mackerel was briefly discussed as an example of the ABC applying to a larger area than the management unit. Canadian catch counts towards the Atlantic mackerel ABC; however, Canada is not part of the management unit. The annual catch limit (ACL), or domestic ABC, is derived by subtracting expected Canadian catch from the ABC. Canadian catch is not considered when determining if the ACL has been exceeded and if accountability measures are triggered.

If chub mackerel catch from Maine through Texas counted towards the ABC, the management unit could include that entire area, or a smaller area such as Maine through North Carolina or Maine through Florida. Management measures do not need to be uniform across the entire management unit. The AP and Committee focused discussion on management measures applicable only from Maine through North Carolina.

The Mid-Atlantic Council might establish specific management measures for all vessels that have an MSB permit regardless of where they fish. Other Councils do not necessarily need to approve management measures developed by the Mid-Atlantic Council, depending on the specifics of those measures, even if the measures apply to areas typically within the jurisdictions of other Councils. For example, the regulations for bluefish and dogfish require GARFO fishery permits and catch reporting through Florida.

Multiple FMAT members recommended that the South Atlantic and Gulf of Mexico be included in the management unit given that they may be used more extensively by chub mackerel than the mid-Atlantic and New England, they likely include spawning areas, and there is some amount of commercial and recreational harvest in those regions. However, the FMAT also noted that it may

be more difficult to control catch and implement measures for a management unit from Maine through Texas and a smaller management unit could simplify development and implementation of this amendment.

One Committee member said vessels based in New England have harvested chub mackerel in the Gulf of Mexico.

Multiple Committee members said they were not comfortable recommending a management unit without knowing the catch limit that would be associated with that management unit. The Committee had concerns about catch in the South Atlantic and Gulf of Mexico counting towards an ABC that is shared with Mid-Atlantic. One Committee member summarized these concerns by saying it's difficult to discuss different management unit options without considering regional allocations. When considering allocations, it is essential to start with the "right" number for the catch limit.

ABC

The SSC plans to discuss chub mackerel ABCs in July 2018. One Committee member asked if the Council will be required to manage chub mackerel as a stock in the fishery once the SSC recommends an ABC. Another Committee member and GARFO representative said the Council may have to decide to manage chub mackerel as a stock in the fishery with an ABC and other required measures, or not manage it at all. Managing chub mackerel as neither a stock in the fishery nor an ecosystem component may not be justified under the Magnuson-Stevens Fishery Conservation and Management Act. Given the existing targeted commercial fishery, it is not appropriate to manage chub mackerel as an ecosystem component.

One AP member said the Council already indicated that they plan to manage chub mackerel as a stock in the fishery. Through the Unmanaged Forage Omnibus Amendment, the Council developed temporary management measures without designating chub mackerel as a stock in the fishery or an ecosystem component. This approach was justified because it was intended to be temporary and the Council planned to develop a separate amendment to manage chub mackerel as a stock in the fishery.

Given existing data limitations, the SSC may recommend an ABC based on catch history. One committee member said the recent fishery operates in just one small area, but the stock covers much of the Atlantic. He said the SSC should consider catch data from the eastern Atlantic when developing ABC recommendations. Another Committee member questioned the logic behind developing an ABC for Maine through Texas based on catch history when only four boats are capable of targeting chub mackerel in profitable quantities.

One Committee member suggested that the Council request multiple ABC options from the Scientific and Statistical Committee (SSC) based on multiple management unit options (e.g. Maine through Texas, Maine through Florida, and Maine through North Carolina).

One Committee member said the ad hoc approaches used to develop ABCs based on catch history, rather than stock assessments, for black sea bass (prior to 2016) and blueline tilefish had negative impacts on the fisheries. He said careful consideration needs to be given to how fish caught in one area but landed in another count towards the ABC.

Multiple Committee members expressed support for an ABC of at least 5 million pounds, which is approximately the historic high for annual commercial landings in the mid-Atlantic and New England.

One Committee member put forward the following suggestion, which was not intended to be a motion as by this point in the meeting there was no longer a quorum:

“The Committee recommends the SSC consider a range of ABC options to include the current ABC to a maximum landings not to exceed 5,000 MT. In the event that the ABC is reached in three consecutive years, potential management options to limit the ABC will be considered by the Council and implemented through frameworking or changes to the FMP.”

“The current ABC” refers to the 2.86 million pound annual landings limit implemented through the Unmanaged Forage Omnibus Amendment. No Committee members voiced opposition to a 5,000 MT ABC (about 11 million pounds). One Committee member said it is fine to recommend a range of ABCs for consideration; however, the SSC will recommend whichever level of catch they deem most appropriate. The Council cannot direct the SSC to consider only a certain range and once the SSC recommends an ABC, the Council is bound by that recommendation.

Another Committee member was concerned that the statement above does not include an automatic reaction to exceeding the ABC in three consecutive years (e.g. an accountability measure). One AP member agreed and asked why the Council would commit to not modifying measures until the ABC is reached in three consecutive years instead of modifying measures as appropriate as new information becomes available. Two other Committee members clarified that the intent was not to have no paybacks for ABC overages.

After much discussion of current data limitations, the group agreed that the main intent behind the statement above is to have a high ABC to allow for as much fisheries-dependent data collection as possible. The high ABC could be coupled with extensive data-collection requirements. Chub mackerel catches in fisheries-independent surveys are generally low and sporadic, likely due to their fast swimming speed and preference for warm temperatures. Fisheries-dependent data are especially valuable given this lack of fisheries-independent data. Restricting the fishery to a low ABC would limit the amount of data that could be collected. However, one Committee member said the SSC shouldn't set an ABC based on a data need.

One Committee member suggested that the Council suspend development of this amendment until more data is available to support development of ABCs.

One Committee member asked what options are available to use a constant catch limit, besides managing chub mackerel as a stock in the fishery. Staff asked if the measures implemented through the Unmanage Forage Amendment could remain in place for an additional three years in the hopes that more information to support management as a stock in the fishery would become available during that time. One Committee member said the legal justification for this is uncertain.

Spatial/Temporal Management

The AP and Committee discussed the possibility of removing spatial/temporal closure alternatives from consideration in this amendment. Specifically, these alternatives would address concerns about the potential for localized depletion of chub mackerel and displacement of recreationally-important predators such as marlins and tunas.

As discussed earlier in the meeting, there is little scientific information to support claims that a commercial chub mackerel fishery could result in displacement of marlins and tunas. A scientist who attended the meeting summarized an evaluation of 16 studies of the diets of highly migratory species such as marlins and tunas. None of those studies identified a single chub

mackerel in the stomachs of the predators sampled. A separate study found that predators tend to consume smaller, younger chub mackerel than are harvested by the fishery.

Most AP and Committee members present agreed that spatial/temporal management alternatives aimed at protecting marlins and tunas should not be pursued at this time given the lack of scientific data to suggest that chub mackerel are important prey. One Committee member said he did not necessarily support removing this type of management alternative from consideration at this time. One AP member said he did not support it.

Committee Motions

I move to modify objective 2.2 to say: “To the extent practicable, allow the *Illex* squid fishery to proceed without additional limiting restrictions.”

Reid/Alexander: 8/0/0 motion carries

I move to change “promote” in objective 1.1 to “achieve”, as recommended by the FMAT.

Alexander/Winslow: 8/0/0 motion carries

Move to change “practical” to “practicable” in obj. 1.2

Moved by consent

From: Greg DiDomenico
To: [Beaty, Julia](#); [Advisors - MSB \(minus Calomo\)](#); [COM - Squid Mack](#)
Cc: ["Douglas Christel - NOAA Federal"](#)
Subject: RE: Materials for next week's meeting
Date: Friday, May 11, 2018 11:24:32 AM

Julia,

I would like you to please clarify the "Management Measures to Address Localized Depletion of Chub Mackerel Predators".

When this topic was discussed I should have asked for clarification but thought at the time it was just a mistake.

Previous discussions related to "localized depletion" consider removals of a targeted species and the temporal and spatial changes due to fishing. The determination of "localized depletion" is difficult to quantify scientifically but is being explored in numerous cases.

I do not agree that the objective of this amendment should consider the "depletion of predators" as it related to fishing.

Please clarify the position of the FMAT as it relates to this topic.

Thank you

Greg DiDomenico

Garden State Seafood Association

From: Beaty, Julia [<mailto:jbeaty@mafmc.org>]
Sent: Thursday, May 10, 2018 4:02 PM
To: Advisors - MSB (minus Calomo); COM - Squid Mack
Cc: Douglas Christel - NOAA Federal
Subject: RE: Materials for next week's meeting

Hi everyone,

Please see attached for a summary of the April 27 meeting of the chub mackerel FMAT.

Thanks,

Julia

Julia Beaty
Fishery Management Specialist
Mid-Atlantic Fishery Management Council

800 North State Street, Suite 201
Dover, DE 19901-3901

302-526-5250
jbeaty@mafmc.org

From: [Beaty, Julia](#)
To: [DiDomenico, Gregory](#); [Advisors - MSB \(minus Calomo\)](#); [COM - Squid Mack](#)
Cc: ["Douglas Christel - NOAA Federal"](#)
Subject: RE: Materials for next week"s meeting
Date: Friday, May 11, 2018 11:58:00 AM

Hi Greg,

Given the limited currently available data on predator diets, chub mackerel movements, and the locations of recreational fishing effort, the FMAT agreed that it would be difficult to quantitatively assess the impacts of any seasonal commercial chub mackerel fishing closures on white marlin availability and on recreational white marlin fisheries (just to give an example of the type of alternative that could be considered). If the Council is interested in considering such alternatives through this amendment, then a qualitative analysis could be done. However, since the Council is funding an HMS diet study, the FMAT thought it would be better to wait until after the results of that study are available to decide if such alternatives should be considered or not. Given the planned timeline for the chub mackerel amendment, this would mean such alternatives would be considered through a separate action, if the Council wants to consider them at all.

I hope that helps. Let me know if you have any other questions.

Thanks,

Julia

p.s.

Just an FYI for everyone, if you want to access all the meeting materials for Tuesday in one place, see the calendar page: <http://www.mafmc.org/council-events/2018/msb-ap-committee-chub-mackerel-meeting>

Julia Beaty
Fishery Management Specialist
Mid-Atlantic Fishery Management Council

800 North State Street, Suite 201
Dover, DE 19901-3901

302-526-5250
jbeaty@mafmc.org



From: Greg DiDomenico
To: [Beaty, Julia](#); [Advisors - MSB \(minus Calomo\)](#); [COM - Squid Mack](#)
Cc: ["Douglas Christel - NOAA Federal"](#)
Subject: RE: Materials for next week"s meeting
Date: Friday, May 11, 2018 12:37:07 PM

Julia...

The issue of "localized depletion" has been in the context of the species that is the target of the directed fishery.

The document suggests that the issue is "localized depletion" of the predators due to fishing.

I understand the forage link but that is a separate topic.

This needs to be clarified.

Thank you.

Greg D

From: Joseph Gordon
To: [Beaty, Julia](#); [DiDomenico, Gregory](#); [Advisors - MSB \(minus Calomo\)](#); [COM - Squid Mack](#)
Cc: ["Douglas Christel - NOAA Federal"](#); [Purcie Bennett-Nickerson](#); [Moore, Christopher](#)
Subject: RE: Materials for next week's meeting
Date: Monday, May 14, 2018 9:07:05 AM

All,

Good morning. I look forward to our meeting tomorrow, but I want to comment on this exchange since it represents the wrong direction that I've seen developing recently. We lack information about chub mackerel, but much of fisheries management involves judgment and reasonable decisions related to uncertainty. When faced with great uncertainty, particularly for a known forage species, it's even more important to be cautious and not assume a lack of information implies a lack of ecological connection or importance.

One of the FMAT members on the last call suggested that chub mackerel are probably too fast for predators, that they are basically the one animal in the ocean that gets a free pass to school in large numbers and travel vast distances in safety. I don't think that's reasonable. It's much more reasonable to think that the fastest predators in the ocean like billfish and sharks have evolved to catch exactly this kind of prey and to migrate to places at times when such a species is abundant. The way that offshore tournaments are sometimes timed and located based on chub abundance supports this theory.

That was the nature of much of the discussion during the Council debate over the Unmanaged Forage Amendment, and public's thousands of comments in writing and at hearings at scoping. For example there was testimony about significant interactions between chub and HMS off Virginia. Another example was at the Ocean City hearing I attended on the Unmanaged Forage Amendment where the head of the White Marlin Open brought his grandson and talked about the past and future importance of forage fish like chub.

If there is an effort now to dismiss chub's role as forage or the potential importance of time/area considerations it would be a disservice to the public and stakeholders like HMS fishermen who may, when we learn more in the future, in reality depend heavily on chub abundance in a way we just don't realize today. There have not been any detailed HMS diet studies throughout the Council jurisdiction. Until those are completed, management options should not be removed. Unfortunately, the FMAT suggestion and staff proposal Julia describes below to potentially expand the fishery, without having basic information about its ecosystem role, reflects the exact opposite approach the Council took with the Unmanaged Forage Amendment from which this chub plan originated.

The Council isn't considering catch reductions with chub. We are talking about an appropriate way to establish conservation and management under the law, and a rational way to protect the ecosystem and other existing fisheries if a larger chub fishery develops.

Best wishes,

Joseph

Joseph Gordon

Senior Manager, U.S. Oceans, Northeast | The Pew Charitable Trusts

o: 202-887-1347 | c: 240-672-2045 | e: jgordon@pewtrusts.org

[Sign up](#) to get our monthly Northeast Fish Newsletter

From: Greg DiDomenico
To: [Gordon, Joseph](#); [Beaty, Julia](#); [Advisors - MSB \(minus Calomo\)](#); [COM - Squid Mack](#)
Cc: ["Douglas Christel - NOAA Federal"](#); ["Purcie Bennett-Nickerson"](#); [Moore, Christopher](#)
Subject: RE: Materials for next week"s meeting
Date: Monday, May 14, 2018 10:13:02 AM

Joe,

1) There has been detailed studies on chub mackerel diets. The two conducted in the South Atlantic saw little or no connection.

2) What information can you share about HMS management and specifically billfish tournaments? Besides billfish being overfished and overfishing occurring?

Thanks

Greg DiDomenico

GSSA

From: Joseph Gordon
To: [Beaty, Julia](#)
Subject: FW: Materials for next week's meeting
Date: Monday, May 14, 2018 5:59:31 PM

Julia,

Could you please send this response?

Thanks for following up Greg. The South Atlantic and Mid-Atlantic are different regions. Oftentimes migratory species only interact in key places and times, like red knots and horseshoe crabs. Two studies is a limited amount of information, especially taken from another region. Even more so when we are talking about fast moving and highly migratory predators and prey. Again, there have not been detailed HMS studies in the Mid-Atlantic Council's jurisdiction.

The fact that HMS are depleted and poorly managed makes forage conservation more important. I'm not defending the actions of HMS fishermen, nor am I an expert in tournaments. Dr. Graves is, and he sent a letter on this subject saying chub are important to HMS. The point I made is that the Council should be cautious when considering whether to expand a chub fishery, and to do its best to understand the impact on predators and other fishermen first.

This gets back to how to approach uncertainty. The burden of proof should be on the side arguing against what seems most reasonable (and what many fishermen reported based on their experience in recent public comment periods): that there is a predator/prey connection between chub and HMS. And if HMS aren't eating chub in the Mid-Atlantic, what is? What is the consequence to the broader ecosystem and other fisheries if we start taking millions more out of the ocean? We don't know yet.

I have some other questions we could cover in the meeting tomorrow. Why have landings been lower in recent years, and so low in 2017? Is it possible that taking more than 5 million pounds in one year has reduced the overall population? Why not wait for the Council's 2018-2019 HMS diet study to be done before considering an increase in catch? Why is there so much pressure to eliminate time/area management before a regional diet study is done and the FMP has even begun development?

I look forward to seeing you all tomorrow.

Best wishes,

Joseph

Joseph Gordon

Senior Manager, U.S. Oceans, Northeast | The Pew Charitable Trusts

o: 202-887-1347 | c: 240-672-2045 | e: jgordon@pewtrusts.org

[Sign up](#) to get our monthly Northeast Fish Newsletter

From: Pam Lyons Gromen
To: [Beaty, Julia](#)
Subject: RE: Materials for next week's meeting
Date: Monday, May 14, 2018 8:41:16 AM
Attachments: [WildOceansCommentsChubMackerelScoping.pdf](#)

Hi Julia-

Thank you for sending out this summary and the previous meeting materials. Attached is the letter I submitted for scoping (so you do not have to dig). Thank you for flagging this for my fellow AP members. I apologize again for not being able to travel to Baltimore. After reading the FMAT summary, I have just a few additional comments:

- Goals and Objectives: I support the FMAT recommendations and appreciate the breadth of considerations reflected in the goals and objectives. The draft goals and objectives accurately capture concerns and ideas submitted by the public during scoping. In the June 2017 FMAT memo, FMAT members mention the project, scheduled for later this year, to revisit the goals and objectives of the Mackerel, Squid and Butterfish FMP. I agree that this initiative should consider chub mackerel in addition to the current suite of managed species. The overarching topics addressed in the current draft of chub mackerel amendment goals and objectives would be a good discussion starting point for updating the FMP goals and objectives. I believe it is important to recognize how the two separate projects intersect.
- Diet Data: It became clear to me during the November 9, 2017 webinar on chub mackerel in HMS diets that a systematic and comprehensive HMS diet study for the Mid-Atlantic region is lacking. I commend the Council for funding the study underway and look forward to the results in 2020. Will the Council receive regular project updates while the study is progressing? Forage considerations should extend beyond HMS to seabirds and marine mammals. (The lack of predation data for HMS, seabirds and mammals was highlighted as a deficiency in the recent Atlantic mackerel stock assessment.)
- Spatial/Temporal Measures: Comments received from the recreational community during scoping stressed the need for the Council to investigate spatial/temporal measures to avoid conflicts between the chub mackerel commercial fishery and recreational fisheries dependent on chub mackerel indirectly as forage. "Localized depletion" doesn't fully capture the concern. Disruption of HMS migratory pathways is at the heart of the issue. I believe it is very important to move forward with a spatial/temporal analysis of HMS migratory patterns and fishing effort (i.e., commercial chub mackerel fishing and offshore HMS tournaments), so we can better understand the potential for conflict and how conflict could be minimized. In short, I believe it is too early in the process to rule out spatial and temporal measures. Even if the Council chose not to implement spatial and temporal measures at this stage, analyses done as part of this amendment could help expedite a future action to address

spatial/temporal issues (i.e., using a framework action as a vehicle as opposed to a full amendment). The Council should closely coordinate with NMFS HMS Division to identify and address data needs and deficiencies.

- Expertise for Development of Amendment Measures: I support the FMAT's idea of bringing in ecosystems expertise, including SSC members, to consider how to use OY to address ecosystem concerns. As the Council repopulates the Mackerel, Squid, & Butterfish AP, individuals with direct experience in offshore angling tournaments would be a valuable addition.

Thanks again, Julia! I look forward to hearing the outcomes of tomorrow's meeting.

Pam

Pam Lyons Gromen

Wild Oceans

Cell: 240-405-6931

Web: www.wildoceans.org

plgromen@wildoceans.org





May 31, 2017

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

RE: Chub Mackerel Scoping Comments

Dear Dr. Moore,

On behalf of *Wild Oceans*, a non-profit organization supported by conservation-minded anglers since 1973, I am pleased to provide recommendations for moving forward with the development of the Amendment to Manage Atlantic Chub Mackerel as a stock in the Atlantic Mackerel, Squid, and Butterfish Fishery Management Plan (MSB FMP). How the Mid-Atlantic Council proceeds with the chub mackerel amendment, the first forage species action to follow the finalization of the *Ecosystem Approach to Fisheries Management (EAFM) Guidance Document*, will be critical to advancing Council EAFM policies and working toward the Council's vision of "healthy and productive marine ecosystems supporting thriving, sustainable marine fisheries that provide the greatest overall benefit to stakeholders."

In the Mid-Atlantic, chub mackerel "occurs in high frequency" in the diets of highly migratory species (HMS), especially billfishes and large tunas,¹ attracting these highly valuable recreational species to the region. According to a 2014 NOAA Technical Memorandum, "Atlantic HMS Angling Permit holders were estimated to have spent \$23.2 million on HMS trip expenditures (e.g., fuel, ice, bait, food), and \$151 million on durable goods (e.g., boats, vehicles, rods and reels). These expenditures are estimated to have contributed \$266 million in total economic output to the economy of the Northeast and Mid-Atlantic regions, \$153 million in value added outputs, \$96 million in labor income, and 1,824 jobs from Maine to North Carolina."²

¹ Letter to Mid-Atlantic Fishery Management Council Chairman Richard B. Robins from VIMS Fisheries Department Chair Dr. John Graves, July 8, 2016.

² Hutt, C.P., Lovell, S.J. and Silva, G., 2014. The Economic Contribution of Atlantic Highly Migratory Species Angling Permit Holders in New England and the Mid-Atlantic, 2011, NOAA Technical Memorandum NMFS-F/SPO-147.

In recognition of chub mackerel's important role as prey for highly migratory species and its great indirect economic value in sustaining HMS fisheries, we request that the Council incorporate the following recommendations as its moves ahead with the development of amendment alternatives.

- **Incorporate the EAFM Guidance Document goal and forage policies as part of the purpose and need statement for this amendment.**

With an overarching goal “to manage for ecologically sustainable utilization of living marine resources while maintaining ecosystem productivity, structure, and function,” the EAFM Guidance Document lays out a roadmap for protecting marine ecosystems that includes 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.” For forage species targeted by fisheries, the Council has committed to establishing optimal harvest strategies based on evaluations of trade-offs between their indirect value of being left in the water as forage versus their direct harvest market value. The ecosystem goal and the forage objectives should be reflected in the purpose and need statement to ensure that amendment alternatives are consistent with and advance the Council's commitment to EAFM as described in the Guidance Document.

- **Consistent with the purpose and need of the Unmanaged Forage Omnibus Amendment from which this action stemmed, prevent the expansion of directed fisheries for chub mackerel “until the Council has had an adequate opportunity to assess the scientific information relating to any new or expanded directed fisheries and consider potential impacts to existing fisheries, fishing communities, and the marine ecosystem.”³**

Alternatives should include holding the quota at 2.86 million pounds until a scientific assessment, as described above, is conducted to evaluate potential impacts, especially impacts to the marine ecosystem and fishing communities dependent on chub mackerel as forage for their target species. Establishing a fishery control date that does not permit the fishery to grow beyond the current fleet of fishery participants should also be presented as an alternative.

- **In order to provide the greatest benefit to all stakeholders, conduct an evaluation of relevant economic, social and ecological factors to inform harvest strategy options for chub mackerel.**

To determine how chub mackerel should be managed for the greatest overall benefit to the Nation – Optimum Yield (OY)¹ – the Council must look beyond core requirements for preventing overfishing. In the case of chub mackerel, the protection of marine

³ MAFMC. 2017. Unmanaged Forage Omnibus Amendment.

ecosystems and recreational opportunities provided by leaving chub mackerel in the water to fulfill its ecological role as forage must also be taken into account. National Standard 1 Guidelines give direction to councils for assessing Optimum Yield,ⁱⁱ and we request that this assessment take the form of an explicit evaluation of management strategies against the ecosystem goal and policies described above. Management strategy evaluation (MSE) is a tool highlighted in the EAFM Guidance Document for determining if management actions are likely to achieve specified objectives and is intended to be an inclusive stakeholder process. We request that the feasibility for conducting an MSE, as a purposeful assessment of Optimum Yield, be explored as part of this amendment.

- **Include alternatives for ecological reference points for chub mackerel. Alternatives should include a biomass threshold of 40% of an unfished population and a biomass target of 75% of an unfished population, reference points that have been widely endorsed for conservatively managing forage fish stocks.**

It is important to acknowledge that, because of the many components, variables, uncertainties and trade-offs involved, “ecological reference points” do not become apparent from even the most rigorous study. They are ultimately a policy decision. Consequently, in the quest to develop ecological reference points for forage species, an overwhelming consensus has emerged around setting a minimum biomass threshold of 40% of an un-fished population (approximating the MSY level) and a target level of 75% of an un-fished population, a level thought to most fairly balance the needs of fisheries with those of the ecosystem.⁴

We are pleased that the Council is seeking a contractor to develop a quantitative assessment for Atlantic chub mackerel and hope that the assessment will deliver information necessary for understanding the condition of the population as well as establishing ecological reference points. As the Council considers applicants who responded to the recent request for proposals, we urge you to prioritize assessment methods most suited for forage fish, methods that can produce biomass estimates and biomass-based reference points, and that explicitly incorporate ecosystem considerations into the assessment model, such as methods described by Moustahfid et al for explicitly modeling predation mortality.⁵

⁴ Hinman, K. 2015. Resource Sharing: The Berkeley Criterion. Wild Oceans. <http://wildoceans.org/wp-content/uploads/2016/01/RESOURCE-SHARING-Updated-4-19-16.pdf>

⁵ 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(3), pp.445-454.

- **Construct time/area/gear closure options for minimizing conflict among HMS anglers and commercial chub mackerel fishermen.**

HMS fishing in the Mid-Atlantic is dependent on a healthy supply of forage to attract and sustain migrating predators like billfishes and tunas. A spatial and temporal analysis of commercial chub mackerel fishing effort should be compared with the locations and timing of HMS tournaments and other offshore recreational activity. Such an analysis could reveal areas of potential overlap between the directed chub mackerel fishery and HMS fishing. Options for closures, including rolling closures, that safeguard a supply of chub mackerel for dependent HMS predators and minimize conflict between the commercial sector and HMS anglers should be explored and presented as alternatives in this amendment. Effectiveness of area-based measures would be enhanced by better understanding foraging patterns of HMS species while they are in the Mid-Atlantic, and we ask the Council to make this a research priority and provide the necessary oversight and funding.

- **Invite HMS recreational fishermen and scientists to serve on technical, scientific and advisory groups to ensure that HMS economics, ecology and fishery knowledge are sufficiently incorporated into amendment analyses and alternatives.**

The Ecosystem and Ocean Planning Committee and its advisory panel should also be involved to provide input and recommendations for upholding EAFM Guidance Document policies.

In closing, we reiterate that the precedent set by this amendment will set the stage for advancing ecosystem-based approaches to forage fishery management both in our region and nationwide. We hope the Mid-Atlantic Council will seize upon this opportunity to demonstrate its commitment to the EAFM Guidance Document policies, and we look forward to working with you as the chub mackerel amendment develops.

Sincerely,



Pam Lyons Gromen
Executive Director

ⁱ The benefits of recreational opportunities include “the quality of the recreational fishing experience” and “the contribution of recreational fishing to the national, regional, and local economies.” Protection of marine ecosystems includes “maintaining adequate forage for all components of the marine ecosystem.” See, 50 CFR §600.310(e)(3).

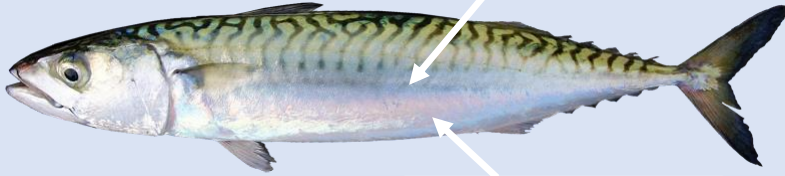
ⁱⁱ 50 CFR § 600.310 (e)(3) (iii): Assessing OY: An FMP must contain an assessment and specification of OY (MSA section 303(a)(3)). The assessment should include: a summary of information utilized in making such specification; an explanation of how the OY specification will produce the greatest benefits to the nation and prevent overfishing and rebuild overfished stocks; and a consideration of the economic, social, and ecological factors relevant to the management of a particular stock, stock complex, or fishery.

Commonly Confused Mackerel & Tuna Species

Atlantic mackerel, *Scomber scombrus*

- Other common names: tinker mackerel, Boston mackerel, common mackerel
- Up to 2 feet

Usually has a broken faint to dark stripe along sides below wavy bars on upper body



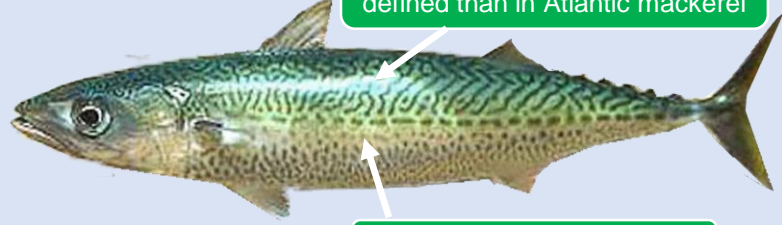
No spots on lower sides

VTR CODE: MACK

Chub mackerel, *Scomber colias*

- Other common names: tinker mackerel, hardhead, bullseye
- Up to 22 inches

Stripes on upper body less defined than in Atlantic mackerel



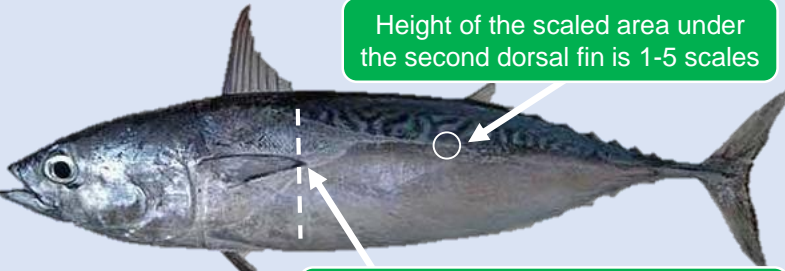
Dusky spots on lower sides

VTR CODE: MACC

Frigate mackerel/tuna, *Auxis thazard*

- Up to 2 feet

Height of the scaled area under the second dorsal fin is 1-5 scales



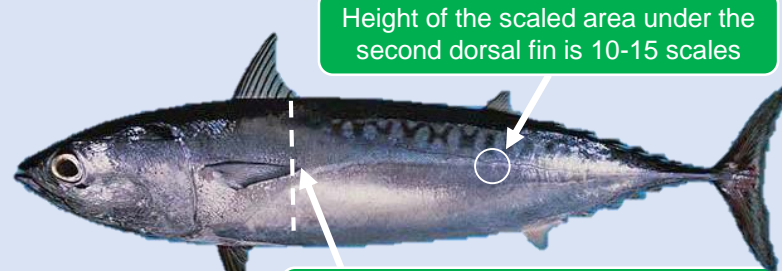
Pectoral fins extend past beginning of scaleless, striped area on upper body

VTR CODE: MACF

Bullet mackerel/tuna, *Auxis rochei*

- Up to 20 inches

Height of the scaled area under the second dorsal fin is 10-15 scales



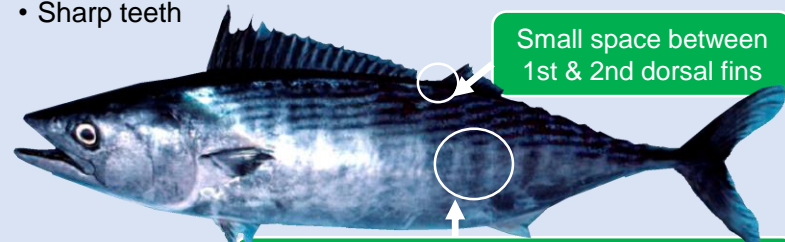
Pectoral fins do not reach past the scaleless, striped area on upper body

VTR CODE: MACB

Atlantic bonito, *Sarda sarda*

- Up to 3.2 feet
- Body covered in scales; larger scales below striped area
- Sharp teeth

Small space between 1st & 2nd dorsal fins



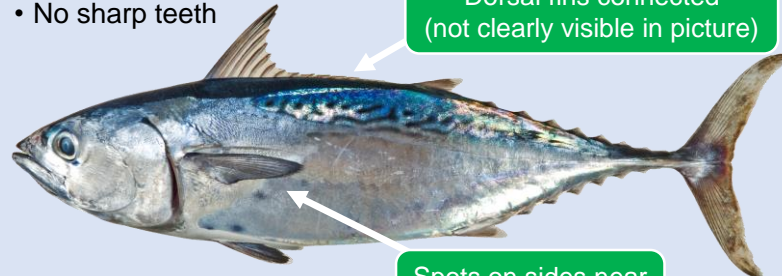
Straight, oblique stripes on upper body sometimes underlain with lighter vertical bars

VTR CODE: BON

Little tunny, *Euthynnus alletteratus*

- Other common names: false albacore, vaquita, bonito
- Up to 3.5 feet
- No sharp teeth

Dorsal fins connected (not clearly visible in picture)



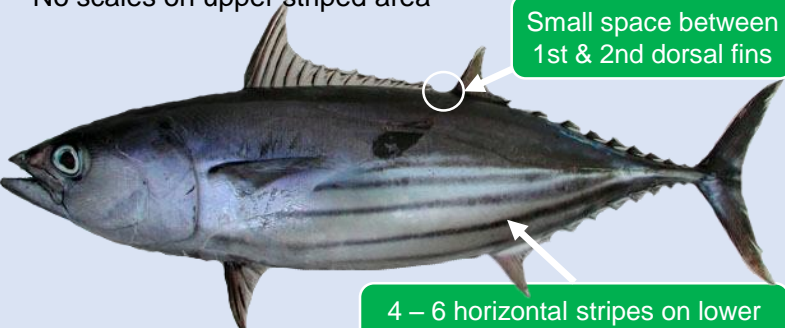
Spots on sides near pectoral fins

VTR CODE: LTA

Skipjack tuna, *Katsuwonus pelamis*

- Up to 3.8 feet
- No scales on upper striped area

Small space between 1st & 2nd dorsal fins



4 – 6 horizontal stripes on lower sides, may be broken or solid

VTR CODE: SKJ

For more information, contact:

NOAA Fisheries Greater Atlantic Region
Sustainable Fisheries Division
55 Great Republic Drive
Gloucester, MA 01930
978-281-9300,
greateratlantic.fisheries.noaa.gov

Mid-Atlantic Fishery
Management Council
800 North State Street, Suite 201
Dover, DE 19901
302-674-2331
mafmc.org



NOAA
FISHERIES



MID-ATLANTIC
FISHERY
MANAGEMENT
COUNCIL

Photos Atl. mackerel: Hans Hillewaert. Chub mackerel: Alessandro Duci. Bullet mackerel: Jack Randall. Frigate mackerel: Robertson & Van Tassell. Bonito: MBL/Flesher Collection. Little tunny: J. T. Williams. Skipjack: R. Freitas.



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

M E M O R A N D U M

Date: May 18, 2018
To: Chris Moore, Executive Director
From: Kiley Dancy, Staff
Subject: Summer Flounder Commercial Issues Amendment Timeline and DEIS Approval

On Wednesday, June 6, the Council will consider approval of a Draft Environmental Impact Statement (DEIS) for the Summer Flounder Commercial Issues Amendment. This document serves as the Council's full amendment document, and will be available during the public hearing process in addition to the public hearing document jointly approved on April 30 and the Atlantic States Marine Fisheries Commission's version of the full amendment document.

While public hearings had been tentatively scheduled for July and August, the timing for hearings has been adjusted to reflect 1) a required 3-week period for official NMFS review of the document before it is submitted to the Environmental Protection Agency (EPA) and 2) additional time to ensure that the final DEIS is available during public hearings and that the public has time to review the document prior to commenting. EIS documents require EPA review, and the EPA will publish a Notice of Availability (NOA) seeking comments on the DEIS, initiating the public comment period. A detailed updated timeline is provided below. **Public hearings would take place in September, and the timing of final action (December 2018) would not change.**

The Executive Summary of the DEIS is included in the briefing tab. Due to its length, the full DEIS is not included in the briefing tab but will be posted on the June Council meeting briefing materials page at <http://www.mafmc.org/briefing/june-2018>.

Planned Timeline for Remainder of Summer Flounder Commercial Issues Amendment

2018	April	Council and Board approve public hearing document and Commission's amendment document
	May	Council staff prepares DEIS for Council approval, working with NMFS on pre-submission review
	June	Council approves DEIS; Council staff finalizes and formally submits DEIS to NMFS (mid-June)
	July	DEIS has a three-week review period for NMFS review. NMFS sends comments back to MAFMC, Council staff addresses comments and resubmits the document (targeting end of July for resubmission).
	August	NMFS submits finalized document to EPA; EPA publishes Notice of Availability, initiating 45-day DEIS public comment period (overlapping with public hearings)

	Sept	Public hearings start 15 days after DEIS NOA publishes to allow public to review the DEIS prior to hearings (targeting early/mid-September for start of hearings) ¹
	Oct	Staff prepares documents for final action (including hearing summaries and written comments)
	Nov	
	Dec	Final action (December 11-13 joint meeting in Annapolis)
2019	Jan	FEIS prepared, submitted and reviewed by NMFS (3-week review period)
	Feb	FEIS finalized
	March	NOAs and proposed rule publish (Amendment NOA has 60-day comment period; Proposed rule has 45-day comment period; FEIS NOA has 30-day comment period. These comment periods overlap to the extent possible.)
	April	
	May	
	June	Amendment decision and final rule publishes (Amendment decision occurs 30 days after Amendment NOA comment period closes).
	July	
	August	Final rule effective (measures are effective 30 days after final rule publishes unless otherwise specified, e.g., adjustments to state allocations would be effective beginning January 1, 2020 and any permit requalification would likely need additional time after final rule to implement)
	Sept	
	Oct	
	Nov	State allocations/quotas adjusted (if applicable) for Jan 1, 2020, in specifications rule ²
	Dec	

¹ Council on Environmental Quality regulations at 1506.6 (c)(2) state that if a DEIS is to be considered at a public hearing, the agency should make the document available to the public at least 15 days in advance.

² Any revisions to state quota allocations would be implemented at the start of a new fishing year. A delay in effectiveness may also be needed for federal permit requalification options.

SUMMER FLOUNDER COMMERCIAL ISSUES AND
GOALS AND OBJECTIVES AMENDMENT
TO THE SUMMER FLOUNDER, SCUP, AND BLACK SEA BASS
FISHERY MANAGEMENT PLAN

Draft Environmental Impact Statement

DRAFT AS OF 5/25/18 - Executive Summary



Prepared by the Mid-Atlantic Fishery Management Council in cooperation with the Atlantic States Marine Fisheries Commission and the National Marine Fisheries Service (NMFS)

Draft adopted by MAFMC: MM-DD-YYYY
Draft submitted to NOAA: MM-DD-YYYY
Final adopted by MAFMC: MM-DD-YYYY
FEIS submitted to NOAA: MM-DD-YYYY
Final approved by NOAA: MM-DD-YYYY

Council Address

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

NMFS Address

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



ABSTRACT

The Mid-Atlantic Fishery Management Council and the Atlantic States Marine Fisheries Commission, in consultation with NOAA's National Marine Fisheries Service, proposes to adopt and implement a Commercial Issues Amendment¹ to the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan (FMP) pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (MSA). This Draft Environmental Impact Statement (DEIS) presents a range of alternatives under consideration in this amendment, which address the amendment purposes outlined in the document. The proposed alternatives are applicable only to the commercial summer flounder fishery, and are focused on measures related to federal commercial moratorium permit qualification criteria for summer flounder, allocation of summer flounder commercial quota, and the list of framework provisions within the FMP. In addition to these alternatives, this document also describes proposed changes to the FMP objectives for summer flounder (applicable to both the recreational and commercial summer flounder fisheries). This document also includes a detailed description of the affected environment and valued ecosystem components, and analyses of the impacts of the measures under consideration on the affected environment. It addresses the requirements of the National Environmental Policy Act (NEPA), the MSA, the Regulatory Flexibility Act (RFA), and other applicable laws.

1.0 EXECUTIVE SUMMARY

The summer flounder, scup and black sea bass fisheries are managed under the Summer Flounder (*Paralichthys dentatus*), Scup (*Stenotomus chrysops*) and Black Sea Bass (*Centropristis striata*) FMP developed cooperatively by the Mid-Atlantic Fishery Management Council (Council) and the Atlantic States Marine Fisheries Commission (Commission).

This amendment to the Summer Flounder, Scup and Black Sea Bass FMP is applicable only to the summer flounder fisheries and could: 1) implement requalifying criteria for federal commercial moratorium permits, 2) modify the allocation of commercial summer flounder quota, and 3) add framework provisions to the FMP that would allow for commercial landings flexibility policies for summer flounder to be developed through later framework actions.

This document includes the draft amendment as well as its Draft Environmental Impact Statement (DEIS). This document provides the background and context for the amendment (sections 4.0 and 6.0), describes in detail all of the management alternatives under consideration in the amendment (section 5.0), evaluates the potential impacts of the management alternatives under consideration (section 7.0), addresses the alternatives under consideration with respect to the MSA and other applicable laws (sections 8.0 and 9.0), and provides the public and the Council and Commission with adequate information about the measures and their impacts to ultimately inform decision-making following the public comment period.

In this executive summary, the purpose of the action is described in section 1.1, a summary of the alternatives is presented in section 1.2, and a brief overview of the impacts of these alternatives is described in section 1.3.

¹ Amendment number to be added after final action.

1.1 PURPOSE OF THE ACTION

The purpose of this action is to consider modifications to the FMP that would impact the **commercial summer flounder fishery as well as the existing FMP objectives for summer flounder**. The three specific purposes associated with the three alternative sets in this action are described in detail in section 4.1 of this document, and briefly summarized here:

1. ***Consider implementing requalifying criteria for federal commercial moratorium permits:*** Federal permit qualification criteria have not changed since establishment in 1993. Stakeholders believe lenient original qualifications criteria resulted in more permits than the fishery could profitably support in the long term. Recent lower quotas and concerns about inactive vessels re-entering the fishery led to a perceived need to adjust fleet size to more closely reflect current stock and fishery conditions. The purpose of alternative set 1 is to consider whether a reduction in the number of commercial moratorium permits for summer flounder is appropriate, and if so, how qualifying criteria should be revised.
2. ***Consider modifications to commercial quota allocation:*** Current commercial allocation was last modified in 1993 and is perceived by many as outdated given its basis in 1980-1989 landings data. Summer flounder distribution, biomass, and fishing effort have changed since then, and some believe initial allocations may not have been equitable or were based on flawed data; therefore, stakeholders requested evaluation of alternative allocation systems. The purpose of alternative set 2 is to consider whether modifications to the commercial quota allocation are appropriate, and if so, how the quota should be re-allocated.
3. ***Consider adding commercial landings flexibility as a frameworkable issue in the Council's FMP:*** Landings flexibility policies would give commercial vessels greater freedom to land or possess summer flounder in the state(s) of their choice. Although such policies may be more effectively developed by state level agreements, the Council and Board are interested in having the option to pursue these policies via framework action/addenda in the future if necessary. This action **does not** consider implementing landings flexibility policies at this time but **does** consider adding landings flexibility policies as a frameworkable item in the Council's FMP, which would allow a future landings flexibility action to be completed through a framework action instead of a full amendment. The Board likely already has the ability to implement these policies via an addendum to the Commission's FMP, and thus this alternative set is applicable only to the Council's FMP. The purpose of alternative set 3 is to consider adding landings flexibility policies to the list of management measures in the Council's FMP that could be modified via framework action.

In addition, ***this action proposes revisions to the FMP objectives for summer flounder***, although these revisions are not proposed as an explicit alternative set in this amendment. These proposed revisions are described in section 4.2.

1.2 SUMMARY OF ALTERNATIVES CONSIDERED

1.2.1 Alternative Set 1: Federal Moratorium Permit Requalification

These alternatives consider revisions to the requalification criteria for federal summer flounder commercial moratorium permits. These alternatives are fully described in section 5.1.

Alternative 1A: No Action/Status Quo

Alternative 1A would make no changes to the current eligibility criteria for commercial moratorium permits for summer flounder. Summer flounder moratorium permits were established via Amendment 2

to the FMP (1993) and issued to the owner or operator of a vessel that landed and sold summer flounder in the management unit between January 26, 1985 and January 26, 1990, OR the vessel was under construction for, or was being re-rigged for, use in the directed fishery for summer flounder on January 26, 1990. Permit holders must renew their permit each year by the last day of the fishing year for which the permit is required, unless a Confirmation of Permit History (CPH) has been issued.² There are currently 941 existing moratorium rights for summer flounder.

Alternative 1B: Requalifying Criteria for Federal Commercial Moratorium Permits

Alternative 1B would impose requalification criteria on current federal summer flounder moratorium permits, including permits in CPH if they qualify. Permits not meeting the requalification criteria would be cancelled and could not be renewed. This alternative would **not** allow new entrants to qualify for a moratorium permit and has no impact on state level permits.

Alternative 1B has seven sub-alternatives with various combinations of qualification time periods and landings thresholds as described in Table 1. Each of the sub-alternatives uses the revised control date for the commercial summer flounder fishery of August 1, 2014, which was published on that date by NMFS at the request of the Council (79 FR 44737).

Table 1: Summary of federal permit requalification alternatives 1A and 1B (one of seven sub-alternatives must be selected if 1B is preferred). Landings thresholds refer to commercial landings of summer flounder associated with each individual moratorium right ID number.

Alternative	Time Period	Landings Threshold	#MRIs eliminated (%)
Alternative 1A (No Action/ Status Quo)	January 26, 1985 - January 26, 1990 (5 yrs)	At least 1 pound in any year over this time period	0 (0%)
Alternative 1B-1	August 1, 2009-July 31, 2014 (5 yrs)	≥1,000 pounds cumulative over this time period	516 (55%)
Alternative 1B-2	August 1, 2009-July 31, 2014 (5 yrs)	At least 1 pound in any year over this time period	448 (48%)
Alternative 1B-3	August 1, 2004-July 31, 2014 (10 yrs)	≥1,000 pounds cumulative over this time period	389 (41%)
Alternative 1B-4	August 1, 2004-July 31, 2014 (10 yrs)	At least 1 pound in any year over this time period	306 (33%)
Alternative 1B-5	August 1, 1999-July 31, 2014 (15 yrs)	≥1,000 pounds cumulative over this time period	295 (31%)
Alternative 1B-6	August 1, 1994-July 31, 2014 (20 yrs)	At least 1 pound in 20% of years in time period (i.e., in at least 4 years over this 20-year period)	271 (29%)
Alternative 1B-7	August 1, 1994-July 31, 2014 (20 yrs)	≥1,000 pounds cumulative over this time period	233 (25%)

² A CPH may be issued when a vessel that has been issued a limited access permit has sunk, been destroyed, or has been sold to another person without its permit history. Possession of a CPH will allow the permit holder to maintain landings history of the permit without owning a vessel.

1.2.2 Alternative Set 2: Commercial Quota Allocation

Alternative set 2 considers modifications to the allocation of commercial quota (currently allocated on a state-by-state basis). These alternatives are fully described in section 5.2.

Alternative 2A: No Action/Status Quo

This alternative would make no changes to the current state-specific commercial allocations, which were established via Amendment 2 to the FMP on the basis of 1980-1989 landings history (see section 5.2.1).

Alternative 2B: Adjust State Quotas Based on Recent Biomass Distribution

This alternative would modify state-by-state allocations based on a shift in relative exploitable biomass by region between 1980-1989 and 2007-2016, calculated using NEFSC trawl survey data for summer flounder above 14 inches length. The relative exploitable biomass and allocations are evaluated on a regional basis, with a Northern and Southern region split approximately at Hudson Canyon, meaning the states of New York and north and the states of New Jersey and south. The concept behind this alternative is taking the current state quotas, which are not based on biomass distribution but instead based on 1980-1989 landings by state, and adjusting them so that they have some basis in recent biomass distribution by region. There are two sub-options for calculating the change in relative exploitable biomass and applying this change to revised allocations; one of these options must be selected if the Council and Board choose alternative 2B. Both options would shift allocation from the Southern region (states of New Jersey through North Carolina) to the Northern region (states of New York through Maine).

- **Alternative 2B-1:** calculates the shift in regional exploitable biomass as a percent change relative to the Northern region starting biomass, and applies this as a percentage change to the combined Northern regional allocation. This results in a shift of 6% of the coastwide quota from the Southern region to the Northern region (see section 5.2.2.1).
- **Alternative 2B-2:** calculates the shift in regional exploitable biomass as an absolute shift relative to the coast and applies this as a 13% shift in regional allocation. This results in a shift of 13% of the coastwide quota from the Southern region to the Northern region (see section 5.2.2.2).

Alternative 2C: Revise State Allocations Above a Commercial Quota Trigger Point

This alternative would create state allocations that vary with overall stock abundance and resulting commercial quotas. For all years when the annual commercial quota is at or below a specified annual commercial quota trigger level, the state allocations would remain *status quo*. In years when the annual coastwide quota exceeded the specified trigger, the trigger amount would be distributed according to *status quo* allocations, and the additional quota beyond that trigger would be distributed by equal shares (with the exception of Maine, New Hampshire, and Delaware, which would split 1% of the additional quota). Alternative 2C has two sub-alternatives for different annual coastwide quota triggers; one of these options must be selected if the Council and Board choose alternative 2C.

- **Alternative 2C-1:** 8.40-million-pound trigger based on the recent five-year average of commercial quotas (2014-2018; see section 5.2.3.1)
- **Alternative 2C-2:** 10.71-million-pound trigger based on the recent ten-year average of commercial quotas (2009-2018; see section 5.2.3.2).

Under both sub-alternatives, the final state allocation percentages would vary in each year depending on the annual coastwide quota and how much "additional" quota is available to be distributed. In years where the quota was at or below the trigger, the allocation percentages would be *status quo* (equivalent to alternative 2A). A range of likely example allocations is described in section 5.2.3 and in Table 2 below.

Alternative 2D ("Scup Model" Quota System for Summer Flounder)

This alternative would allocate quota into three unequal seasonal periods, as is done for scup. During the two winter periods, January-April ("Winter I") and November-December ("Winter II"), a coastwide quota system would be implemented in conjunction with a system of coastwide possession limits and other measures. In a "Summer" period, May-October, a state-by-state quota system would be implemented by the Commission, and state-specific measures would be set to constrain landings to the summer state quotas. Alternative 2D has two sub-alternatives for either exempting or not exempting the state of Maryland; one of these options must be selected if the Council and Board choose alternative 2D.

- **Alternative 2D-1:** Exempt the state of Maryland from this management program due to their Individual Fishing Quota (IFQ) management for summer flounder; Maryland retains their current year-round allocation of 2.03910% of the coastwide quota (see section 5.2.4.1).
- **Alternative 2D-2:** Do not exempt Maryland; Maryland must participate in coastwide management during the Winter quota periods and state-specific management during the Summer period (see section 5.2.4.2).

A summary of the resulting allocations to each state under each of the alternatives above is provided in Table 2. Additional details on the configuration of each alternative is provided in section 5.0 of this document.

Table 2: Summary of allocation outcomes (percent allocated to each state) under alternative set 2. Alternative 2C provides a range under historic high and low quotas since future allocations would vary annually. Alternative 2D provides Summer period allocations only.

State	Alt 2A	Alt 2B-1	Alt 2B-2	Alt 2C-1 ^a		Alt 2C-2 ^a		Alt 2D-1	Alt 2D-2
				Under low quota (5.66 m. lb)	Under high quota (17.9 m. lb)	Under low quota (5.66 m. lb)	Under high quota (17.9 m. lb)		
ME	0.04756	0.05660	0.06661	0.04756	0.19923	0.04756	0.16235	0.015	0.015
NH	0.00046	0.00055	0.00064	0.00046	0.17712	0.00046	0.13417	0.000	0.000
MA	6.82046	8.11635	9.55238	6.82046	9.76840	6.82046	9.05159	19.332	18.525
RI	15.68298	18.66275	21.96477	15.68298	13.92735	15.68298	14.35424	22.476	21.538
CT	2.25708	2.68593	3.16115	2.25708	7.62693	2.25708	6.32121	3.566	3.417
NY	7.64699	9.09992	10.70998	7.64699	10.15627	7.64699	9.54612	18.553	17.779
NJ	16.72499	15.19806	13.50600	16.72499	14.41634	16.72499	14.97770	29.667	28.429
DE	0.01779	0.01617	0.01437	0.01779	0.18526	0.01779	0.14453	0.045	0.043
MD	2.03910	1.85294	1.64664	2.0391	7.52463	2.0391	6.19078	-- ^b	4.171
VA	21.31676	19.37062	17.21401	21.31676	16.57113	21.31676	17.72507	5.648	5.412
NC	27.44584	24.94014	22.16345	27.44584	19.44735	27.44584	21.39225	0.699	0.670

^a Allocation varies with annual quota; range provided covers historic commercial quotas, 1993-2018. Allocations may vary from this range if future coastwide quotas exceed historic high quota of 17.9 million lb. Annual quotas below the historic low would result in *status quo* allocations.

^b Under Alternative 2D-1, Maryland would be exempt from the scup model system and would have an annual allocation of 2.03910% of the coastwide quota (and thus no specific seasonal allocation for the summer period quota).

1.2.3 Alternative Set 3: Landings Flexibility Framework Provisions

This alternative set considers whether to add "landings flexibility" policies to the list of issues in the Council's FMP that can be modified through a framework action. Framework actions are modifications to the Council's FMP that are typically (though not always) more efficient than a full amendment. Framework actions can only modify existing measures and/or those that have been previously considered in an FMP amendment. Landings flexibility policies, depending on their configuration, may allow for commercial summer flounder vessels to land and/or possess summer flounder in states where they are not permitted at the state level.

Alternative 3A: No Action /Status Quo

This alternative would make no changes to the list of framework provisions in the Council's FMP, meaning that any future action to implement landings flexibility policies would likely have to be done through an amendment to the FMP. States would remain free to develop landings flexibility agreements through state-level agreements, provided that such agreements are consistent with other Council and Commission FMP requirements and would not require modification to the federal management measures.

Alternative 3B: Alternative 3B: Add Landings Flexibility as a Frameworkable Issue in the Council's FMP

This action would not implement any landings flexibility policies at this time, but instead would simply allow these policies to be implemented via a future framework action (for the Council; with corresponding addendum from the Commission) rather than through an amendment process. The impacts of any future framework action related to landings flexibility would be analyzed through a separate action, which would include public comment opportunities and documentation of compliance with all applicable laws. Depending on the proposed configuration of landings flexibility in a future action, the level of analysis required may vary and an Environmental Impact Statement (EIS) may be required if impacts are expected to be significant.

1.3 SUMMARY OF ENVIRONMENTAL IMPACTS

The environmental impacts of each alternative are described in section 7.0 of this DEIS. Environmental impacts are analyzed with respect to five valued ecosystem components (VECs):

1. The **managed resources**, including the managed species potentially affected by the measures under consideration (sections 7.1.1, 7.2.1, and 7.3.1);
2. **Non-target species**, including the primary species or species groups that interact with summer flounder, summer flounder habitat, and/or commercial summer flounder fishing gear (sections 7.1.2, 7.2.2, and 7.3.2);
3. The **physical environment and habitat**, including Essential Fish Habitat (EFH; sections 7.1.3, 7.2.3, and 7.3.3);
4. **Protected resources**, including Endangered Species Act (ESA)-listed and Marine Mammal Protection Act (MMPA)-protected large and small cetaceans, pinnipeds, sea turtles, fish, and critical habitat occurring in the affected area (sections 7.1.4, 7.2.4, and 7.3.4);

5. The **human environment**, including socioeconomic aspects of the fisheries (especially commercial fisheries) targeting summer flounder and the communities associated with those fisheries (sections 7.1.5, 7.2.5, and 7.3.5).

Impacts are described both in terms of their direction (negative, positive, or no impact) and their magnitude (slight, moderate, or high). In section 7.0, the alternatives are compared to the current condition of the VEC and also compared to each other. The recent conditions of the VECs include the biological conditions of the target stock, non-target stocks, and protected species over the most recent five years, as well as the characteristics of the commercial fishery and associated human communities over the same time frame. The guidelines used to determine impacts to each VEC is described in section 7.0 (see especially Table 48), and a summary is provided here:

- For **target and non-target species**, in general, alternatives which may result in overfishing or an overfished status may have negative biological impacts for those species, compared to the current condition of the VEC. Conversely, alternatives which may result in a decrease in fishing effort, resulting in ending overfishing or rebuilding to the biomass target, may result in positive impacts for those species by resulting in a decrease in fishing mortality.
- For the **physical environment and habitat**, alternatives that improve the quality or quantity of habitat or allow for recovery are expected to have positive impacts. Alternatives that degrade the quality or quantity, increase disturbance of habitat, or prevent the recovery of degraded habitats are expected to have negative impacts.
- For **protected species**, consideration is given to both ESA-listed species and MMPA-protected species. ESA-listed species include those at risk of extinction (endangered) or endangerment (threatened). Any action that results in interactions with or take of ESA-listed resources is expected to have negative impacts, including actions that reduce interactions. Actions expected to result in positive impacts on ESA-listed species include only those that contain specific measures to ensure no interactions with protected species (i.e., no take). By definition, all species listed under the ESA are in poor condition and any take has the potential to negatively impact that species' recovery. Under the MMPA, the stock condition of each protected species varies, but all are in need of protection. For marine mammal stocks/species that have their potential biological removal (PBR) level reached or exceeded, negative impacts would be expected from any alternative that has the potential to interact with these species or stocks. For species that are at more sustainable levels (i.e., PBR levels have not been exceeded), actions 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.
- Impacts to **human communities** are considered primarily in relation to potential changes in landings and prices, and by extension, revenues, compared to the current fishery conditions. Alternatives which could lead to increased availability of target species and/or an increase in catch per unit effort (CPUE) could lead to increased landings for particular communities or for the fishery as a whole. Alternatives which could result in an increase in landings are generally considered to have positive socioeconomic impacts because they

could result in increased revenues (for fishing businesses as well as shoreside businesses); however, if an increase in landings leads to a decrease in price or a decrease in stock biomass for any of the landed species, then negative socioeconomic impacts could occur. In addition, socioeconomic impacts can be considered in terms of other economic metrics and effects on the social well-being of fishery participants and communities, including factors like effect on community resilience, jobs, and employee income.

A brief summary of the expected impacts of each alternative set is described below. Additional detail can be found in section 7.0 of this DEIS.

1.3.1 Impacts Summary for Alternative Set 1: Federal Moratorium Permit Requalification

Under alternative 1A and all sub-alternatives under 1B, overall annual summer flounder catch and landings will still be constrained by the annual catch limits and commercial quotas, which should remain the primary driving factor for overall fishery effort in a given year. While requalification of moratorium permits theoretically could result in a redistribution of effort among a different pool of vessels, the MRIs that would be eliminated under each sub-alternative of 1B are associated with little to no activity for summer flounder in recent years; therefore, the impacts of reducing permit capacity under alternative 1B may be minimal, as described in section 7.1. From August 2009 through July 2014, the summer flounder landings associated with all eliminated permits under alternative 1B range over the various sub-alternatives from 0 pounds to 181,302 pounds (for all eliminated permits combined over the entire time period). Relative to coastwide summer flounder landings, this represents a range of 0%-0.32% of the coastwide landings and 0%-0.28% of the coastwide revenue. Thus, the practical changes in the fishery resulting from any of the permit requalification alternatives are likely to be negligible, and the impacts of these alternatives would generally be to maintain the current condition of each VEC, as detailed in section 7.0 and summarized below.

Summer Flounder and Non-Target Species

Because overall fishery effort is not expected to be heavily influenced by these alternatives, and catch and landings will remain driven by annual limits, permit requalification alternatives in general are expected to contribute to an overall management strategy designed to prevent the stock from becoming overfished, leading to moderate positive overall impacts on the target resource for all federal permit requalification alternatives. Similarly, for non-target species, the permit requalification alternatives are not expected to result in changes in effort that would meaningfully impact the stock status of these species. All federal permit requalification alternatives under alternative set 1 would thus result similar moderate positive impacts to summer flounder and non-target species by maintaining their overall positive stock status.

Habitat

Overall fishery effort, and spatial patterns of fishing effort impacting habitat, are not expected to be altered by the alternatives related to federal permits. Fishing effort for summer flounder will continue in areas that have been fished by many gear types over many years. This continued effort impedes recovery of any degraded habitats within this footprint, leading to slight negative indirect impacts on habitat. All alternatives under alternative set 1 will have a similar magnitude of slight negative impacts to habitat.

Protected Resources

As described above, protected resources are evaluated with respect to both ESA-listed species and MMPA-protected species. None of the alternatives for permit requalification are expected to have substantial impacts on effort or interaction rates with protected resources, thus, they are expected to maintain the current status of each protected species. Because any action that results in interactions with or take of ESA-listed resources is expected to have negative impacts, the federal permit qualification alternatives described in this action would result in slight to moderate negative impacts to ESA-listed species by maintaining access to the fishery and resulting in continued interactions. For MMPA-protected species, the impacts of a proposed action vary by stock condition of each species. For marine mammal stocks/species that have their PBR level reached or exceeded, slight negative impacts would be expected from all permit requalification alternatives. For species that are at more sustainable levels (i.e., PBR levels have not been exceeded), actions 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. Overall considering all protected resources, federal permit requalification alternatives are expected to result in slight negative to slight positive impacts to protected resources under all alternatives.

Human Communities

Socioeconomic impacts are possible resulting from modified access to the fishery at the vessel level, as described in section 7.1.5. Alternative 1A is likely to result in no changes no current socioeconomic conditions unless incentives change that cause latent effort to re-enter the fishery. In this case, alternative 1A may have slight negative impacts to some vessels if effort is spread between more participants, but will have slight positive impacts to low activity vessels that would otherwise be eliminated from the fishery. Alternative 1B, which would eliminate low or no activity permits to varying degrees under different sub-alternatives, would have impacts to remaining fishery participants ranging from no impacts to slight positive impacts, due to the prevention of latent effort from re-entering the fishery. On permit holders that are eliminated from the fishery, impacts would range from no impacts to slight negative, depending on their current and planned activity for summer flounder.

Given the very small magnitude of recent summer flounder landings and revenues from eliminated permits under requalification alternatives, any of the socioeconomic impacts described above are likely to be small or negligible. However, there is some uncertainty associated with the socioeconomic impacts depending on the realistic potential for latent effort to re-enter the fishery, as described in section 7.1.

A summary of impacts to each VEC is provided in Table 3.

Table 3: Summary of impacts of Alternative Set 1: requalification of existing commercial moratorium permits. + = positive, - = negative.

Alt.	Description	Expected Impacts				
		<i>Summer flounder</i>	<i>Non-target species</i>	<i>Habitat</i>	<i>Protected Resources</i>	<i>Human communities^a</i>
1A	No action/ <i>status quo</i>	Moderate +	Moderate +	Indirect slight -	Slight - to slight +	No impact if conditions remain similar; slight - if incentives to re-enter fishery change; slight + to latent permit holders due to flexibility
1B-1	Requalify at $\geq 1,000$ pounds cumulatively over 8/1/09-7/31/14 (5 yrs)	Moderate +	Moderate +	Indirect slight -	Slight - to slight +	No impact to slight - (for eliminated permit holders), no impact to slight + (for remaining permit holders)
1B-2	Requalify at ≥ 1 pound in any year from 8/1/09-7/31/14 (5 yrs)	Moderate +	Moderate +	Indirect slight -	Slight - to slight +	No impact to slight - (for eliminated permit holders), no impact to slight + (for remaining permit holders)
1B-3	Requalify at $\geq 1,000$ pounds cumulatively over 8/1/04-7/31/14 (10 yrs)	Moderate +	Moderate +	Indirect slight -	Slight - to slight +	No impact to slight - (for eliminated permit holders), no impact to slight + (for remaining permit holders)
1B-4	Requalify at ≥ 1 pound of summer flounder in any one year from 8/1/04-7/31/14 (10 yrs).	Moderate +	Moderate +	Indirect slight -	Slight - to slight +	No impact to slight - (for eliminated permit holders), no impact to slight + (for remaining permit holders)
1B-5	Requalify at $\geq 1,000$ pounds cumulatively over 8/1/99-7/31/14 (15 yrs)	Moderate +	Moderate +	Indirect slight -	Slight - to slight +	No impact to slight - (for eliminated permit holders), no impact to slight + (for remaining permit holders)
1B-6	Requalify at ≥ 1 lb in 20% of years 8/1/94-7/31/14 (20 yrs; i.e., at least 1 lb of landings is required in any 4 years over this time period).	Moderate +	Moderate +	Indirect slight -	Slight - to slight +	No impact to slight - (for eliminated permit holders), no impact to slight + (for remaining permit holders)
1B-7	Requalify at $\geq 1,000$ pounds cumulatively over 8/1/94-7/31/14 (20 yrs).	Moderate +	Moderate +	Indirect slight -	Slight - to slight +	No impact to slight - (for eliminated permit holders), no impact to slight + (for remaining permit holders)

^a All impacts to human communities are uncertain and likely mixed depending on the stakeholder/community affected, as described in section 7.1.5.

1.3.2 Impacts Summary for Alternative Set 2: Commercial Quota Allocation

The quota reallocation alternatives under alternative set 2 are not expected to impact overall fishing effort in terms of annual catch and landings (i.e., total removals of summer flounder from the commercial fishery), which will remain driven by annual catch and landings limits. The allocation alternatives will primarily affect access to the resource at the state/and or individual fishing vessel level within the management unit, depending on the allocation option selected. This could result in a somewhat modified distribution of fishing effort in space and time, although the extent to which this would occur is difficult to predict. In general, the commercial fishery for summer flounder is typically prosecuted by larger trawl vessels fishing offshore in federal waters in the winter months (approximately late October through April), while summer effort (approximately May through early October) takes place primarily in state waters from a mix of gear types and vessels sizes. These patterns correspond with the seasonal inshore-offshore migrations of summer flounder (see section 6.1.3.1.)

Under reallocation alternatives, offshore winter fishing effort is not expected to change substantially in terms of location, as the larger vessels that typically participate in this season have historically been more mobile vessels that target prime summer flounder fishing locations offshore even when long travel distances are required to do so. For this fleet, footprints of fishing effort do not necessarily closely correlate with distance from state of landing. However, it is also possible that there could be a shift in the balance of offshore winter vs. inshore summer effort under some reallocation alternatives, due to changes in the allocation for states that are dominant in the winter fishery.

Nearshore effort observed mainly in the summer months (prosecuted by a variety of vessel types with more representation from smaller day boats) may see a small to moderate shift in location under some reallocation alternatives, as discussed below; however, the extent to which this may occur is difficult to predict and would depend on other factors such as management response to increased or decreased quotas.

The reallocation alternatives are expected to modify the distribution of landings (and thus revenues) by state and port, resulting in impacts to vessels, shoreside businesses, and communities/states. Changes in access could also possibly impact effort changes related to the total number and duration of trips and hauls for summer flounder, if modified allocations resulted in modified participation in terms of vessel types, vessel sizes, or gear types; however, in general these changes are not expected to be substantial.

Summer Flounder

Because the overall catch will remain driven by annual catch limits, reallocation alternatives in general are expected to contribute to an overall management strategy designed to prevent the stock from becoming overfished, leading to positive overall impacts on the target resource. Changes in effort resulting from reallocation are not expected to result in biological consequences to the summer flounder stock that would lead to a negative stock condition. Similar to the impacts described for permit requalification alternatives, all commercial allocation alternatives are expected to result in moderate positive impacts to the summer flounder stock.

Non-Target Species

For non-target species, under **alternative 2A**, no allocation changes would be made and thus this alternative would be expected to have moderate positive impacts on non-target species by maintaining their current overall positive stock status. Any changes in distribution of fishing effort (as discussed above) resulting from reallocation **alternatives 2B-2D** could possibly lead to changes in interaction rates that may influence non-target stock status, although these effects are highly uncertain. The distributions of most relevant non-target species overlap heavily with that of summer flounder (e.g., scup, black sea bass, and spiny dogfish). For Northeast skate complex, it is possible that a northward shift in effort, in particular under **alternatives 2B-1 and 2B-2**, could result in a change in interaction rates with these species, but it is unclear whether this would realistically influence stock status if it did occur. For all species, any shifts in effort toward areas where non-target species are more heavily concentrated in terms of biomass could influence non-target stock status, although the likelihood of this happening is unknown. If little or no changes in effort are observed, or if interaction rates do not substantially change, **alternatives 2B-2D** would have moderate positive impacts on non-target species similar to alternative 2A. If reallocation resulted in increased interaction rates with non-target species, it is possible that slight negative impacts could result. Overall, **alternatives 2A-2D** are likely to result in a range of impacts from slight negative to moderate positive.

Habitat

Similar to the impacts described above for permit requalification, overall fishery effort, and spatial and temporal patterns of fishing effort impacting habitat, are not expected to be altered by the allocation alternatives. Fishing effort for summer flounder will continue in areas that have been fished by many gear types over many years. This continued effort impedes recovery of any degraded habitats within this footprint, leading to slight negative indirect impacts on habitat. All alternatives under alternative set 2 will have a similar magnitude of slight negative impacts to habitat.

Protected Resources

For **alternative 2A**, no changes in the prosecution of the fishery or distribution of effort are expected, and thus this alternative is expected to result in impacts similar to those described above for alternative 1A: slight negative to moderate positive overall. For **alternatives 2B-2D**, impacts are similar to those described above for federal permit requalification, except that reallocation alternatives are more likely to influence the actual distribution of commercial effort, resulting in a wider range of possible impacts. Interactions with protected resources are difficult to predict and can vary based on many environmental and behavioral factors (behavior of both fishermen and protected resources), making conclusions regarding impacts uncertain. In addition, it is unclear how and to what extent effort is expected to shift under these reallocation alternatives, making any changes in interaction rates very difficult to predict.

Alternatives under alternative set 2 are thus could result in slight to moderate negative impacts to ESA-listed species by resulting in continued interactions. Interactions with ESA-listed species could increase or decrease under **alternatives 2B-2D**, depending on resulting behavior and effort changes, however, for ESA-listed species, any action that results in any interactions with or take of ESA-listed resources is expected to have negative impacts. For MMPA-protected species, the

impacts will vary by the stock condition of each species and the actual changes in the prosecution of the fishery resulting from reallocation. For marine mammal stocks/species that have their PBR level reached or exceeded, slight to moderate negative impacts would be expected from all reallocation alternatives 2B-2D. For species that are at more sustainable levels (i.e., PBR levels have not been exceeded), reallocation actions may have impacts ranging from moderate negative to moderate positive, depending on how interaction risks increase relative to what has been in the fishery previously and whether takes are maintained below the PBR level and approaching the Zero Mortality Rate Goal. Overall considering all protected resources, reallocation alternatives are highly uncertain but could range from moderate negative to moderate positive impacts to protected resources under across all alternatives.

Human Communities

The impacts of reallocation alternatives are primarily socioeconomic impacts on states and their fishing communities, including revenues and jobs for vessel owners and crew, shoreside operations, and other associated businesses. **Alternatives 2A, 2B, and 2C** can be generally described in terms of impacts to states, since they either maintain the *status quo* (2A) or propose modified state-by-state quotas (2B and 2C). The socioeconomic impacts from all reallocation alternatives are somewhat uncertain and would vary depending on which sub-alternative is selected. Generally, the magnitude of impacts will vary with the change in allocation relative to a state's existing quota.

Alternative 2A would result in no changes in the current allocation, and therefore would maintain the current condition of the human communities involved in the commercial summer flounder fishery. This condition varies by state and community, with states experiencing varying impacts generally ranging from moderate negative to moderate positive. Generally, states with more allocation currently experience more positive socioeconomic benefits; however, socioeconomic benefits also vary depending on the management approaches used to achieve each allocation, and with external economic and community factors. Overall, the *status quo* socioeconomic condition relative to commercial allocations is mixed.

Alternative 2B is expected to result in mixed socioeconomic impacts that vary by state, with increased revenues in states New York and north and decreased revenues in states New Jersey and south. However, the distribution of positive or negative economic impacts among individual participants and businesses could be highly variable by state depending on restrictions on the overall number of participants and other measures used to manage the fishery in each state. Distribution of economic benefits or costs is also likely to depend on price variations by state and port and other market conditions.

Alternative 2B-2 would be expected to have greater positive socioeconomic benefits to the Northern states compared to alternative 2B-1, as this sub-alternative presents a more substantial shift in allocation from the southern states to the northern states. Likewise, alternative 2B-2 would have more negative socioeconomic impacts on southern states. Under alternative 2B-1, the total amount of allocation shifted from the South to the North would be 6% (with Northern states increasing their relative allocations by 19% and southern states decreasing their relative allocations by 9%), while under alternative 2B-2, allocation shifted to the North from the South would 13% of the coastwide allocation (with the Northern states increasing their allocations by 40% and the

Southern states decreasing theirs by 19%). In both cases, allocation shifts of this magnitude could have substantial impacts on some states. Thus, overall, alternative 2B is likely to result in a range of impacts from high negative to high positive depending on the state, with alternative 2B-2 having impacts on the more extreme ends of that range.

Under **alternative 2C**, final state percentage allocations would vary in each year depending on the overall coastwide quota, because the overall allocation percentages vary depending on how much additional quota there is to be distributed. For quotas up to the trigger point, allocations remain *status quo*. In years when the allocation is below the trigger, allocations would be *status quo* and would result in the same socioeconomic impacts as described under alternative 2A.

As the annual commercial quota level grows beyond the quota trigger, the state quota allocation percentages get closer together, i.e., with increasing quotas above the trigger, quota is distributed more evenly among the states. Under both sub-alternatives, states with current allocations above 12.375% of the coastwide quota (NC, VA, RI, and NJ) will lose allocation percentage as the quota grows beyond the trigger point, likely leading to negative economic impacts for these states. In years when the annual quota was above the trigger, the impacts to each state would vary depending on the final quota and thus the final allocation, with more extreme changes to allocation occurring in years where the quota is well above average. Under annual quotas close to the trigger amount, slight negative impacts (to NC, VA, RI, and NJ) and slight positive impacts (to all other states) are possible; in years where the annual quota is well above the trigger, the impacts have the potential to be high in magnitude due to substantial modifications to the coastwide allocation.

States that currently have allocations between 2% and 12.5% (MD, CT, NY, and MA) are likely to strongly benefit from these alternatives in years where the annual quota is moderately to substantially above the trigger, whereas the states of North Carolina and Virginia may lose a substantial portion of their quota in years where the annual quota is relatively high. The potential negative economic impacts associated with states that lose share of the overall quota could be somewhat mitigated by the fact that this loss would only happen in relatively higher quota years, meaning revenues for these states may be more stable than what would be expected under a permanent reallocation. For all states, the annual variability in allocation under this alternative may lead to reduced predictability in revenues and a reduced ability to plan for business and infrastructure needs.

The difference between alternative 2C-1 and 2C-2 is the annual quota trigger, which would impact in how many future years the allocation is modified. Alternative 2C-1 is likely to have a higher magnitude of impacts (positive or negative depending on the state) in the long-term compared to alternative 2C-2 given that the trigger is lower and thus allocations would be modified in more years under this alternative compared to 2C-2.

Overall, alternatives 2C-1 and 2C-2 are expected to result in a range of socioeconomic impacts from high negative to high positive, depending on the state and the annual quota in each year.

Alternative 2D (the "scup model" allocation) is the most extreme departure from current management given that it opens the winter fishery to any permitted vessel. Because this quota system eliminates the historical year-round state-by-state quota system, the expected impacts of this alternative are highly uncertain, more so than the impacts of the other allocation options.

It is impossible to predict what the socioeconomic impacts of this alternative may be on any given state due to the uncertainty regarding how many vessels would participate in the winter fishery, and what specific management measures would be implemented under each quota period. In addition, alternative 2D could lead to high fishing effort toward the beginning of each winter period, which could lead to increased competition for fishing grounds and market share, and market effects such as price fluctuations and discontinuous supply.

Some vessels would likely be unsuccessful in maintaining stable revenues under this management system, if they are unable to remain competitive during coastwide fishing periods, particularly if an influx of effort increased competition. However, some vessels are highly likely to benefit from a scup model management system. In particular, large vessels that are capable of remaining competitive in the offshore winter fishery, as well as smaller vessels that participate primarily in the summer in states with moderate to high summer allocations are likely to benefit.

Shoreside communities would also be impacted by alternative 2D. Many states have invested heavily in shoreside infrastructure to support their state's vessels. Under alternative 2D, the distribution of landings in the winter would be driven more by vessel preference and market factors, which would positively impact some shoreside businesses and negatively impact others.

Overall, alternative 2D is likely to have impacts to human communities ranging from high negative to high positive, and would vary by individual vessel and shoreside community.

The difference between alternative 2D-1 and 2D-2 is whether or not the state of Maryland is exempt from the three-period quota system. Under alternative 2D-1, Maryland will maintain their existing state allocation and continue managing under their IFQ system. In this case, for Maryland, the socioeconomic impacts are likely to be moderate positive. Under alternative 2D-2, the state of Maryland has indicated that high negative socioeconomic impacts are possible given that the "scup model" system is incompatible with their IFQ management. For all other states, there would likely be a negligible difference between these two sub-alternatives.

A summary of impacts to each VEC is provided in Table 4.

Table 4: Summary of impacts of Alternative Set 2: requalification of existing commercial moratorium permits. + = positive, - = negative.

Alt.	Description	Expected Impacts				
		<i>Summer flounder</i>	<i>Non-target species</i>	<i>Habitat</i>	<i>Protected Resources</i>	<i>Human communities^a</i>
2A	No action/ <i>status quo</i>	Moderate +	Moderate +	Indirect slight negative	Slight - to Slight +	Mixed; Moderate + to Moderate - depending on state
2B-1	Adjust State Quotas Based on Recent Biomass Distribution; as a percent change relative to Northern region	Moderate +	Uncertain; Slight - to Moderate +	Indirect slight negative	Uncertain; Moderate - to Moderate +	Mixed; High - to High+ depending on state
2B-2	Adjust State Quotas Based on Recent Biomass Distribution; as an absolute shift relative to coast	Moderate +	Uncertain; Slight - to Moderate +	Indirect slight negative	Uncertain; Moderate - to Moderate +	Mixed; High - to High+ depending on state
2C-1	Revise state allocations above annual quota trigger point of 8.40 mil lb	Moderate +	Uncertain; Slight - to Moderate +	Indirect slight negative	Uncertain; Moderate - to Moderate +	High - to High + depending on state, variable with annual quota
2C-2	Revise state allocations above annual quota trigger point of 10.71 mil lb	Moderate +	Uncertain; Slight - to Moderate +	Indirect slight negative	Uncertain; Moderate - to Moderate +	High - to High + depending on state, variable with annual quota
2D-1	"Scup model" with coastwide winter periods and state-by-state summer period, Maryland exempt	Moderate +	Uncertain; Slight - to Moderate +	Indirect slight negative	Uncertain; Moderate - to Moderate +	Uncertain; High - to High +; variable by state and vessel
2D-2	"Scup model" with coastwide winter periods and state-by-state summer period, Maryland NOT exempt	Moderate +	Uncertain; Slight - to Moderate +	Indirect slight negative	Uncertain; Moderate - to Moderate +	Uncertain; High - to High+; variable by state and vessel

^a All impacts to human communities are uncertain and likely mixed depending on the stakeholder/community affected, as described in section 7.2.5.

1.3.3 Impacts Summary for Alternative Set 3: Landings Flexibility Framework Provisions

The framework provision alternatives proposed in this action are administrative and intended to simplify and improve the efficiency of future landings flexibility actions to the extent possible. Under this alternative set, the Council and Board would either take no action, or modify the list of framework provisions in the FMP, which would have no effect on summer flounder management until a future framework action was developed and implemented through a separate process.

Because these alternatives are administrative, they are expected to have no impacts on any of the VECs. The impacts of any future framework action relevant to landings flexibility would be analyzed through a separate process, including additional opportunities for public comment. It is not possible to predict the magnitude and direction of impacts of any future landings flexibility framework actions, because impacts will depend on the configuration of landings flexibility. Future actions would need to define how landings flexibility would work, including resolving questions related to who would be allowed to or required to participate in landings flexibility programs, how such policies should be enforced, and how quota would need to be transferred to maintain the underlying state-by-state quota system (if quota remains allocated by state). Given these issues, depending on how landings flexibility is configured, the social and economic impacts associated with a future framework action may be significant and require substantial analysis. Although the timeline for Magnuson Stevens Act requirements could be shortened by completing a framework instead of an amendment, an EIS may still be required for NEPA analysis depending on the expected impacts of future management options, extending the timeline of a typical framework and possibly eliminating time savings entirely.

The full report will be posted to the Council website (www.mafmc.org) upon completion of the reviews.

1. Title Page

Project Title: Estimating and mitigating the discard mortality rate of black sea bass in offshore recreational rod-and-reel fisheries

Lead Institution: Partnership for Mid-Atlantic Fisheries Science (PMAFS); **Raymond Bogan**, Board Chair (rbogan@lawyernjshore.com)

Principal Investigator: **Dr. Olaf P. Jensen**¹ (olaf.p.jensen@gmail.com, 410-812-4842)

Co-Principal Investigators: **Dr. Douglas Zemeckis**^{1,*}, (zemeckis@njaes.rutgers.edu, 732-349-1152), **Dr. Jeffrey Kneebone**² (jkneebone@neaq.org, 617-226-2424), and **Dr. Eleanor A. Bochenek**¹ (eboch@hsrl.rutgers.edu, 609-898-0928 x12)

Scientific Collaborators: Connor W. Capizzano^{2,3}, Dr. John W. Mandelman², Dr. Thomas M. Grothues¹, William S. Hoffman⁴, and Micah J. Dean⁴

¹ Department of Marine and Coastal Sciences, Rutgers University, New Brunswick, NJ 08901

² Anderson Cabot Center for Ocean Life, New England Aquarium, Boston, MA 02110

³ School for the Environment, University of Massachusetts Boston, Boston, MA 02125

⁴ Massachusetts Division of Marine Fisheries, Gloucester, MA 01930

* Present Address: Department of Agriculture and Natural Resources, New Jersey Agricultural Experiment Station, Rutgers University, Toms River, NJ 08755

ASMFC Contract Number: 16-0403

Total Project Award: \$219,344

Project Timeline: April 1, 2016 through December 31, 2017

This report was prepared by our project team under Agreement #16-043 between the Partnership for Mid-Atlantic Fisheries Science and the Atlantic States Marine Fisheries Commission with funding provided through the Collaborative Research Program of the Mid-Atlantic Fishery Management Council.

Final Report submitted February 15, 2018

Revision Submitted April 6, 2018



2. Executive Summary

In late fall and winter, black sea bass migrate offshore towards the edge of the continental shelf and overwinter at deep shipwrecks and reefs (45-80+ m). The recreational fishery catches black sea bass offshore during the winter both as the target species and as bycatch while targeting other species (e.g., scup, pollock, hakes, cod, tilefish). Black sea bass are often discarded by recreational anglers during these offshore winter fisheries due to factors such as size restrictions, daily possession limits, “high-grading”, or closed seasons. The discard mortality rate of black sea bass has been previously investigated for inshore fisheries conducted in relatively shallow water and warmer seasons (i.e., spring through fall), but the discard mortality rate of black sea bass in the winter offshore recreational fishery has not been previously investigated. As a result, this project focused on providing a robust discard mortality rate estimate for the offshore black sea bass recreational fishery in the Mid-Atlantic to inform stock assessments and fishery management, and provide best-practice recommendations for anglers to reduce discard mortality.

We conducted an extensive tagging study involving collaboration among recreational fishing industry stakeholders, volunteer anglers, commercial fishermen, and scientists. Fieldwork was conducted from November 2016 through March 2017, and included eight research tagging charters aboard recreational headboats. Our primary study site was the Ice Cream Cone shipwreck, which is situated in 45 m depth and ~85 km southeast of Sea Isle City, NJ. A total of five research tagging charters were completed to the Ice Cream Cone shipwreck from early December 2016 through early February 2017. Two additional tagging trips were completed to the Baltimore Rocks (67 m depth) in February 2017 and one trip to the Indian Arrow shipwreck (58 m depth) in late March 2017. On all tagging trips, volunteer anglers were provided with standardized terminal tackle rigs, whose configuration was established based on a survey of 282 recreational black sea bass anglers. The use of this standardized terminal tackle ensured that black sea bass were captured under authentic scenarios that are representative of the Mid-Atlantic offshore recreational fishery. For each captured black sea bass, a series of technical (e.g., capture depth, angler experience level, fight time, unhooking time, handling time, hooking location, hook removal method), biological (e.g., total length [TL], release behavior, injury, barotrauma symptoms), and environmental (air temperature, sea surface and bottom water temperature) variables were recorded to investigate which factors significantly influenced discard mortality.

Since black sea bass captured in deep water often experience barotrauma, we also examined the effect of swim bladder venting (when done properly) on fish submergence (i.e., the ability to swim back down to the bottom after release) and discard mortality. To accomplish this, fish were released at the sea surface either with no intervening measures (i.e., unvented) or following swim bladder venting with a hollow needle by a trained scientist. At the Ice Cream Cone shipwreck, we tagged a subsample of fish with pressure sensing Vemco acoustic transmitters and monitored their movements post-release using an array of 30 acoustic receivers maintained in collaboration with commercial fishermen. Almost all other sampled fish were tagged with conventional t-bar anchor tags and released to investigate migration patterns and confirm survival if recaptured.

A total of 1,823 black sea bass (136 - 612 mm TL) were sampled throughout the three study sites. Of all sampled fish, 1,713 were released (i.e., some were retained for ageing), including 957 that were vented and 756 unvented. A total of 1,467 fish were tagged with conventional t-bar anchor tags. At our main study site, the Ice Cream Cone shipwreck, 566 fish were sampled, and a subset of 96 fish (278 - 546 mm TL) tagged with acoustic transmitters, 48 of which were vented (278 - 546 mm TL) and 48 were not vented (279 - 485 mm TL). Fight times for captured fish

ranged from 12 - 251 (Mean \pm SD: 78 ± 32) seconds for the full sample. Capture of larger fish at deeper depths by low speed reels, or capture as part of a double header increased fight time. The majority of fish were hooked in the mouth. Released black sea bass exhibited four release behaviors including erratic swimming, sinking, floating, and swimming down, with the vast majority exhibiting the latter two behaviors. Results of a logistic regression indicated that fish total length, capture depth, venting, and the presence of exophthalmia influenced release behavior, with larger fish, that were not vented, caught at deeper depths, and experienced exophthalmia had a lower probability of swimming down.

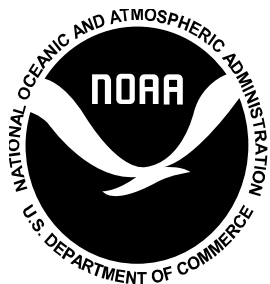
A total of 304 (17%) black sea bass incurred injuries (i.e., wounds > 2 cm), mostly as a result of hooking trauma and/or the hook removal process. Twelve individuals (0.4%) were dead upon landing, with most having been bitten in half by predators or experienced ripped gills from hooking. The majority (82%) of captured individuals exhibited no injury. The vast majority (95%) of captured black sea bass exhibited symptoms of barotrauma. Stomach eversion was the predominant barotrauma symptom, with stomach eversion score 2 (i.e., stomach protruding from the mouth cavity) being present in 68% of all captured fish. Exophthalmia was present in $\sim 10\%$ of all captured fish. Barotrauma symptoms were generally more prevalent at deeper depths, particularly exophthalmia, which was most prevalent at the deepest capture depth of 67 m.

Acoustic detection data were obtained for 94 of the 96 black sea bass tagged with acoustic transmitters. The two undetected fish exhibited floating behavior and both possibly experienced avian predation. Survivorship of individual black sea bass tagged with acoustic transmitters was objectively determined by a multi-step process that compared their vertical and horizontal movements to those of 'known alive' (positive controls, $n=7$) and 'known dead' (negative controls, $n=2$) fish. Of the 94 black sea bass that were detected within the receiver array, 61 survived the capture and handling process and were considered to be alive and 33 died after release. Of the 33 mortalities, nine were attributed to predation following re-submergence. All predation events occurred within 1.8 - 18.4 (7.2 ± 4.5) hours of release. All of the remaining 24 mortalities were assumed to have occurred due to the fishing event, and occurred from 5.0 - 128.0 (17.1 ± 26.7) hours post-release. Of these, 19 (79.2%) mortalities occurred within 24 hours of release, four from 24 - 72 hours post-release (16.7%), and one (4.2%) >72 hours post-release (95.8% of mortality occurred within 72 hours).

Final black sea bass survivorship data were analyzed with the non-parametric Kaplan-Meier estimator and the semi-parametric Cox proportional hazards model to evaluate the suitability of capture-related variables (i.e., covariates) for predicting survival and to identify a parsimonious subset of covariates that best predict survival. Once the subset of influential covariates was identified, a parametric survival analysis modeling approach was used to assess potential models that can describe survivorship over time and estimate overall discard mortality. The results of our survival analyses suggested that swim bladder venting was the most significant predictor of mortality in released black sea bass. Based on the model results, the mean total fishing-related (i.e., discard) mortality rate at the Ice Cream Cone shipwreck in 45 m depth was 0.21 (95% CI: 0.12, 0.37) for vented black sea bass and 0.52 (95% CI: 0.38, 0.67) for unvented black sea bass. When looking only at unvented fish, fight time was the most significant predictor of mortality, with increased fight time (>54 seconds) resulting in a markedly higher discard mortality rate. Based on these findings, discard mortality for both vented and unvented fish may have been elevated at the deeper locations due to the higher mean fight times of 80 seconds at the Indian Arrow shipwreck (58 m) and 94 seconds at the Baltimore Rocks (67 m).

Given that swim bladder venting (when done correctly) was the most influential factor on discard mortality and increased submergence success over all depths, we recommend that anglers vent all black sea bass that are captured during the offshore winter fishery before they are released, particularly those that experience barotrauma symptoms. However, full realization of the benefits of venting will require continued education and outreach on proper venting techniques and recommended venting tools. Based on this study, swim bladder venting would be the best practice for reducing discard mortality, but given that longer fight times significantly increased discard mortality of unvented fish, we recommend the following practices as additional options for reducing fight time and therefore also discard mortality: target black sea bass in as shallow of water as possible, reel in fish at a moderate to fast pace, use appropriate strength tackle that can easily land black sea bass in deep water, and consider using single hook rigs given that double header catches had longer fight times. In addition, the impacts of dead discards could be reduced by avoiding the targeting of other species in fishing locations and seasons when black sea bass retention is prohibited, or avoiding locations and seasons when undersized black sea bass that have to be released are the primary catch.

In conclusion, our study estimated mean discard mortality rates of 21% for vented and 52% for unvented black sea bass following capture and release in 45 m depth. Given that venting is not commonly practiced in the fishery, the 52% estimate for unvented fish is most representative of the current discard mortality rate when the fishery operates at (or near) this depth. However, due to increased fight times, the discard mortality rate is expected to be higher at greater depths. Current black sea bass stock assessments and fishery management plans assume a 15% discard mortality rate for the coastwide, year-round black sea bass recreational fishery. Based on our results, we recommend further evaluation of the appropriateness of this assumption in terms of being able to provide the best possible estimate of total fishery removals and for developing management plans. Because swim bladder venting was the single greatest factor that reduced the discard mortality rate and increased submergence success, fishery managers might consider encouraging, or even mandating, the venting of black sea bass released in offshore and deep water winter recreational fisheries. Yet, as previously stated, this would require extensive education of fishery participants on proper venting technique and tools. Additionally, given that predation events by other fishes primarily occurred early in our field season and that deeper depths had to be fished to catch black sea bass later in the winter, it may be most advantageous to open the fishery in our study areas off southern New Jersey from the period of mid- or late-December through January, which is when fish are more likely to be accessible at 'shallower' depths (i.e., <~55 m) and predation risk is lower. The results of our study are also applicable to other deep water regional fisheries in which black sea bass experience barotrauma, and therefore should assist with the development of regulations that would reduce the number of discards and discard mortality of black sea bass.



NOAA Technical Memorandum NMFS-NE-244

This series represents a secondary level of scientific publishing. All issues employ thorough internal scientific review; some issues employ external scientific review. Reviews are transparent collegial reviews, not anonymous peer reviews. All issues may be cited in formal scientific communications.

2018 Standardized Bycatch Reporting Methodology Annual Discard Report with Observer Sea Day Allocation

Northeast Fisheries Science Center¹
and Greater Atlantic Regional Fisheries Office²

¹*NOAA Fisheries, 166 Water Street, Woods Hole, MA 02543*

²*NOAA Fisheries, 55 Great Republic Drive, Gloucester, MA 01930*

**US DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Fisheries Science Center
Woods Hole, Massachusetts
April 2018**

List of Acronyms and Abbreviations

AA = Access area
ACCSP = Atlantic Coastal Cooperative Statistics Program
ASM = At-Sea Monitoring Program
CV = coefficient of variation
ESA = Endangered Species Act
FMP = fishery management plan
FSB = Fisheries Sampling Branch
FY = Fiscal Year
GEN = General category
IFS = Industry Funded Scallop Observer program
lg = large mesh
LIM = Limited access category
MA = Mid-Atlantic
MMPA = Marine Mammal Protection Act
NE = New England
NEFOP = Northeast Fisheries Observer Program
NEFSC = Northeast Fisheries Science Center
NMFS = National Marine Fisheries Service
NOAA = National Oceanic and Atmospheric Administration
NY DEC = New York Department of Environmental Conservation
OPEN = Nonaccess area
PTNS = Pre-Trip Notification System
SBRM = Standardized Bycatch Reporting Methodology
SE = standard error of the estimate
sm = small mesh
TDD = Turtle Deflector Dredge
US = United States
VTR = Vessel Trip Report
xlg = extra large mesh

EXECUTIVE SUMMARY

This document contains a compilation of the information to meet the 2018 SBRM annual discard report requirements. For fish and invertebrate species groups, several of the required annual discard report elements (discards and precision by fleet) can be found in Wigley and Tholke 2018, along with a description of the data sources, methods, results, and discussion. Similarly, for sea turtles, further information can be found in Murray 2012, 2015a, 2018.

An estimated 69,947 mt (154,206,116 lb) of federally regulated species were discarded during the July 2016 through June 2017 time period.

Estimates of sea turtle interactions in sink gillnet gear in the Mid-Atlantic and Georges Bank region from 2012-2016. There were an estimated 141 loggerhead interactions per year, 29 Kemp's ridley interactions per year, 5 leatherback interactions per year, and 22 unidentified hard-shelled turtle interactions per year in this gear type.

After sea days adjustments, a total of 10,568 sea days is needed to monitor the 15 Standardized Bycatch Reporting Methodology species groups (14 fish/invertebrates species groups and 1 sea turtle species) during the April 2018 through March 2019 period. Of the 10,568 sea days, 7,519 sea days are needed for agency-funded fleets and 3,049 sea days are needed for industry-funded fleets.

The funds available to the NEFSC's Northeast Fisheries Sampling Branch in fiscal year (FY) 2018 are estimated to provide support for 5,122 days and 3,131 days are carried over (i.e., bought ahead) from FY2017 funds for a total of 8,253 days for the April 2018 through March 2019 time period. Based upon an observer set-aside compensation rate analysis for the Industry Funded Scallop program, there is industry funding for 4,101 days. Hence, 12,354 days are available for observer coverage during April 2018 through March 2019.

Within the agency-funded fleets and prioritization-applicable funding, funded days exceed the needed days resulting in an estimated surplus of funds equivalent to approximately 162 days. The 2018 funding does not trigger the SBRM prioritization approach. In addition, practical limitations prevent the observer program from covering the 28 sea days associated with 5 fleets. Hence, a funding equivalent to the 190 sea days will be utilized at the agency's discretion. Any remaining discretionary observer funds disseminated to the NEFSC, if any, will be used at the agency's discretion.

The numbers of sea days allocated by fleet (where a fleet represents gear type, access area, trip category, region, and mesh group combinations) are given for the April 2018 through March 2019 period.

There is a proposed SBRM framework action to expand the sampling frame for the Mid-Atlantic and New England lobster pot fleets. If the framework action is approved, then beginning in the calendar quarter following final approval, all active federal lobster vessels may be eligible for selection to take an observer, regardless of whether they are required to submit VTRs.

INTRODUCTION

The Standardized Bycatch Reporting Methodology (SBRM) Omnibus Amendment was implemented on 27 February 2008 (NMFS 2008, NEFMC 2007) and later vacated by the US District Court for the District of Columbia and remanded back to National Marine Fisheries Service (NMFS) on 15 September 2011 due to a deficiency associated with the prioritization process, an element of the amendment. On 29 December 2011, NMFS removed the regulations implementing the SBRM (NMFS 2011). A revised SBRM Omnibus Amendment (NEFMC 2015), hereafter referred to as the SBRM amendment, was approved on 13 March 2015 and a final rule was implemented on 30 July 2015.

The SBRM amendment requires an annual discard report utilizing information obtained from the Northeast Fisheries Science Center's (NEFSC) Fisheries Sampling Branch's (FSB) observer programs (Northeast Fisheries Observer Program [NEFOP] and Industry Funded Scallop [IFS] observer program) for 14 federally managed species groups¹ and sea turtles (Table 1). Specifically, the SBRM annual discard report requirements include: *"...summaries of the trips observed, fishing modes in the relevant time period, funding issues and other related issues and developments, and projections of coverage across fisheries for upcoming time period. More detailed information would be provided in tables and figures that addressed: The number of observer trips and sea days scheduled that were accomplished for each fishing mode and quarter, as well as the number of trips and sea days of industry activity; the kept weight from unobserved quarters and statistical areas summarized by fishing mode; the amount kept and estimated discards of each species by fishing mode; and the relationship between sample size and precision for relevant fishing modes."*(NEFMC 2015, pages 237-238).

This document contains a compilation of the information to meet the 2018 SBRM annual discard report requirements. For fish and invertebrate species groups, several of the required annual discard report elements can be found in Wigley and Tholke 2018, along with a description of the data sources, methods, results, and discussion. Similarly, for sea turtles, further information can be found in Murray 2012, 2015a, 2018. This document also presents the number of sea days needed to monitor the 15 species groups, the funding available for observer coverage, and the numbers of sea days allocated by fleet² (where a fleet represents gear type, access area, trip category, region, and mesh group combinations) for the April 2018 through March 2019 period.

SUMMARY OF OBSERVER COVERAGE

A total of 3,238 trips (9,149 days) was observed during the July 2016 through June 2017 time period. When these trips were stratified by fleet and quarter, some trips were partitioned between fleets resulting in 3,445 trips (9,654 days). See Tables 2 and 3 in Wigley and Tholke 2018 for a summary of the number of observed trips and industry Vessel Trip Reports (VTR) trips by fleet and

¹ As of December 15, 2017, blueline tilefish became a federally managed species in the [Mid-Atlantic Fishery Management Council's Golden and Blueline Tilefish Fishery Management Plan](#).

² Fleets are synonymous with "fishing modes".

calendar quarter and a summary of the number of observed sea days and industry sea days by fleet and calendar quarter, respectively. There were 68 fleets uniquely identified in the July 2016 through June 2017 data. Based upon the industry activity during this time period, 10 new fleets were added to the collection of fleets analyzed (Wigley and Tholke 2018). Additionally, scallop trawl, twin trawl, shrimp trawl, beam trawl, and mid-water trawl fleets were partitioned into specific mesh size groups to create consistency in mesh size groups among all trawl fleets (Wigley and Tholke 2018).

A spatial and temporal analysis of the kept weight of all species (i.e., any species retained during the trip) from statistical areas and calendar quarter was conducted. Over all fleets, 72% of kept weight of all species occurred in statistical areas and calendar quarters that had observer coverage. For a summary of the percentage of kept weight with observer coverage by fleet for the July 2016 through June 2017 time period, see Table 4 in Wigley and Tholke 2018.

SUMMARY OF DISCARD ESTIMATES

For fish/invertebrate species, the total catch, kept, and estimated discards (in live weight) and their associated coefficient of variation (CV) were derived for fleets using data collected during the July 2016 through June 2017 time period (Wigley and Tholke 2018). Based upon that discard estimation analysis, an estimated 69,947 mt (154,206,116 lb) of federally regulated species were discarded (Table 2). Fleet abbreviations used in this report are described in Appendix Table 1. See Table 5A and 5B in Wigley and Tholke 2018 for summaries by fleet and SBRM species group and by fleet and individual species that compose these 14 species groups, respectively.

The most recent average annual estimates of sea turtle interactions and CVs in U.S. Mid-Atlantic commercial fisheries are listed in Table 3. Methods to estimate sea day needs for the different gear types can be found in either Murray (2012) or Murray (2018).

Table 2 Total catch (live lb), Vessel Trip Report landings (kept; live lb), estimated discards (live lb), associated coefficient of variation (CV), and standard error of the estimated discards (SE; live lb) for 14 Standardized Bycatch Reporting Methodology (SBRM) species groups combined, by fleet, based on July 2016 through June 2017 data. Dark shading indicates fleets not considered or with no observed trips in the annual analysis. These CV were not used in the annual sample size analysis. Blank CV indicates either no discards or discards equals 0. "P" indicates fleets with "pilot" designation. Taken from Table 5C in Wigley and Tholke 2018.

Species: 14 SBRM SPECIES GROUPS COMBINED

Fleet Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Total	Kept	Discarded	CV	SE	Pilot
1	Longline, Bottom	OPEN	all	MA	all	1,858,295	1,643,691	214,605	0.666	142,979	
2	Longline, Bottom	OPEN	all	NE	all	7,093,565	6,336,502	757,063	0.907	687,002	
3	Hand Line	OPEN	all	MA	all	333,468	327,239	6,229	0.694	4,324	P
4	Hand Line	OPEN	all	NE	all	2,228,616	2,222,016	6,599	0.588	3,879	
5	Otter Trawl	OPEN	all	MA	sm	34,589,991	21,721,179	12,868,811	0.090	1,154,165	
6	Otter Trawl	OPEN	all	MA	lg	24,599,124	12,888,606	11,710,518	0.096	1,129,501	
7	Otter Trawl	OPEN	all	NE	sm	73,949,077	61,275,706	12,673,371	0.096	1,213,450	
8	Otter Trawl	OPEN	all	NE	lg	76,348,669	48,380,632	27,968,037	0.105	2,926,736	
9	Otter Trawl, Scallop	AA	GEN	MA	sm	77,385	38,901	38,484	0.275	10,590	
10	Otter Trawl, Scallop	AA	GEN	MA	lg	337,735	273,753	63,982	0.445	28,460	P
11	Otter Trawl, Scallop	OPEN	GEN	MA	sm	147,070	61,744	85,326	0.108	9,176	P
12	Otter Trawl, Scallop	OPEN	GEN	MA	lg	1,820,876	1,308,864	512,012	0.299	152,874	
14	Otter Trawl, Scallop	OPEN	LIM	MA	lg	214,261	62,243	152,017	0.000	0	P
15	Otter Trawl, Twin	OPEN	all	MA	sm	1,446,304	1,038,141	408,163	0.139	56,830	P
18	Otter Trawl, Ruhle	OPEN	all	MA	sm	273,414	273,414				P
19	Otter Trawl, Ruhle	OPEN	all	NE	sm	1,517,081	1,517,081				P
20	Otter Trawl, Ruhle	OPEN	all	NE	lg	316,083	180,166	135,917	0.000	0	P
21	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	4,853,539	2,805,177	2,048,363	0.141	287,885	P
22	Otter Trawl, Shrimp	OPEN	all	MA	sm	45,246	4,270	40,976	0.000	0	P
23	Otter Trawl, Shrimp	OPEN	all	NE	sm	194,950	194,950				P
24	Otter Trawl, Twin, Shrimp	OPEN	all	MA	sm	705,700	2,074	703,626	0.211	148,763	
25	Otter Trawl, Other	OPEN	all	MA	sm	114,143	114,143				P
27	Otter Trawl, Other	OPEN	all	NE	sm	324,228	324,228				P
29	Floating Trap	OPEN	all	NE	all	10,504	10,504				P
30	Gillnet, Sink, Anchor, Drift	OPEN	all	MA	sm	2,532,728	2,312,035	220,692	0.350	77,317	
31	Gillnet, Sink, Anchor, Drift	OPEN	all	MA	lg	6,670,169	6,378,608	291,561	0.124	36,236	
32	Gillnet, Sink, Anchor, Drift	OPEN	all	MA	xl	6,152,429	5,163,692	988,738	0.107	105,415	
33	Gillnet, Sink, Anchor, Drift	OPEN	all	NE	sm	22,845	20,740	2,104	0.000	0	P
34	Gillnet, Sink, Anchor, Drift	OPEN	all	NE	lg	9,523,193	8,736,042	787,151	0.287	225,687	

See Appendix Table 1 for fleet abbreviations.

Table 2, continued. Total catch (live lb), Vessel Trip Report landings (kept; live lb), estimated discards (live lb), associated coefficient of variation (CV), and standard error of the estimated discards (SE; live lb) for 14 Standardized Bycatch Reporting Methodology (SBRM) species groups combined, by fleet, based on July 2016 through June 2017 data. Dark shading indicates fleets not considered or with no observed trips in the annual analysis. These CV were not used in the annual sample size analysis. Blank CV indicates either no discards or discards equals 0. "P" indicates fleets with "pilot" designation. Taken from Table 5C in Wigley and Tholke 2018.

Species: 14 SBRM SPECIES GROUPS COMBINED

Fleet Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Total	Kept	Discarded	CV	SE	Pilot
35	Gillnet, Sink, Anchor, Drift	OPEN	all	NE	xlg	20,475,638	17,442,003	3,033,635	0.081	245,229	
36	Purse Seine	OPEN	all	MA	all	0	0				P
37	Purse Seine	OPEN	all	NE	all	49,977,720	49,967,871	9,849	0.658	6,485	
38	Dredge, Scallop	AA	GEN	MA	all	6,110,147	4,739,975	1,370,172	0.243	333,136	
39	Dredge, Scallop	AA	GEN	NE	all	5,055,291	4,451,449	603,842	0.128	77,258	
40	Dredge, Scallop	AA	LIM	MA	all	84,161,452	69,222,452	14,939,000	0.125	1,864,896	
41	Dredge, Scallop	AA	LIM	NE	all	140,497,949	110,358,100	30,139,849	0.111	3,337,482	
42	Dredge, Scallop	OPEN	GEN	MA	all	15,015,503	12,051,591	2,963,912	0.097	286,370	
43	Dredge, Scallop	OPEN	GEN	NE	all	8,779,208	7,541,948	1,237,260	0.148	182,812	
44	Dredge, Scallop	OPEN	LIM	MA	all	62,681,838	56,629,542	6,052,295	0.096	579,227	
45	Dredge, Scallop	OPEN	LIM	NE	all	141,744,817	126,866,058	14,878,759	0.088	1,312,160	
48	Trawl, Mid-water Paired&Single	AA	all	NE	sm	6,659,240	6,651,575	7,665	0.260	1,992	
49	Trawl, Mid-water Paired&Single	OPEN	all	MA	sm	3,996,203	3,987,192	9,011	0.733	6,607	
50	Trawl, Mid-water Paired&Single	OPEN	all	NE	sm	66,329,205	66,193,957	135,248	0.683	92,333	
53	Pots and Traps, Fish	OPEN	all	MA	all	481,812	335,852	145,960	0.256	37,336	
54	Pots and Traps, Fish	OPEN	all	NE	all	347,401	181,143	166,258	0.179	29,720	
55	Pots and Traps, Conch	OPEN	all	MA	all	7,384	7,292	92	0.899	83	
56	Pots and Traps, Conch	OPEN	all	NE	all	1,519	1,077	442	0.599	265	
58	Pots and Traps, Lobster	OPEN	all	MA	all	254,875	177,963	76,912	1.148	88,300	
59	Pots and Traps, Lobster	OPEN	all	NE	all	154,458	50,383	104,075	0.659	68,587	
61	Pots and Traps, Crab	OPEN	all	MA	all	488,739	305,231	183,508	0.398	73,105	
62	Pots and Traps, Crab	OPEN	all	NE	all	4,023,966	2,893,361	1,130,605	0.233	263,871	
63	Beam Trawl	OPEN	all	MA	sm	30,000	30,000				P
65	Dredge, Other	OPEN	all	MA	all	0	0				P
67	Dredge, Ocean Quahog/Surfclam	OPEN	all	MA	all	243,744,732	241,345,504	2,399,228	0.429	1,028,881	
68	Dredge, Ocean Quahog/Surfclam	OPEN	all	NE	all	218,019,531	216,577,371	1,442,160	0.247	355,587	
Confidential fleets						2,640,668	2,148,638	492,031	0.178	87,703	
Other minor fleets						589,348	589,348				
TOTAL						1,340,569,332	1,186,363,217	154,206,116	0.036	5,621,211	

See Appendix Table 1 for fleet abbreviations

Table 3 The most recent average annual estimates of sea turtle interactions and their associated coefficient of variation (CV) in U.S. Mid-Atlantic commercial fisheries.

Fishery	Estimate	CV	Years Included	Species*	Reference
Bottom trawl, for fish and scallops	231	0.13	01 Jan 2009-2013	Loggerhead	Murray 2015a
Sea Scallop Dredge	22	0.73	01 Jan 2009-2014	Loggerhead	Murray 2015b
Sink Gillnet	141	0.29	01 Jan 2012-2016	Loggerhead	Murray 2018
Sink Gillnet	29	0.43	01 Jan 2012-2016	Kemp's ridley	Murray 2018
Sink Gillnet	5	0.71	01 Jan 2012-2016	Leatherback	Murray 2018
Sink Gillnet	22	0.37	01 Jan 2012-2016	Unidentified hard-shelled	Murray 2018

* Sea day monitoring needs for Kemp's ridley and leatherback turtles in sink gillnet gear were not projected because of the low encounter rate of these species.



NOAA FISHERIES

Federal permits requiring observer coverage:

- Atlantic sea scallops
- Northeast multispecies
- Monkfish
- Skates
- Atlantic mackerel
- Squid
- Butterfish
- Scup
- Black seabass
- Bluefish
- Spiny dogfish
- Atlantic herring
- Tilefish
- Atlantic deep-sea red crab
- Summer flounder (moratorium permit)
- American lobster
- Atlantic surfclam
- Ocean quahog

Any questions about the Northeast Fisheries Observer Program or these requirements should be directed to Amy Martins, Branch Chief, Fisheries Sampling Branch (508) 495-2266

Northeast Fisheries Observer Program (NEFOP) Vessel Selection

If selected to carry an observer am I required to take one?

Yes, as a federal fishery permit holder (see list of permits to left) or Category I or II fishery participant, you are required to take an observer when selected.

Depending on your permits, category or fishing location this requirement is mandated under one of the following Acts: the Magnuson-Stevens Act (MSA), the Atlantic Coastal Fisheries Cooperative Management Act (ACFCMA), the Marine Mammal Protection Act (MMPA) or the Endangered Species Act (ESA).

Is there a limit to how many times a month I can be selected to carry an observer?

No, there are no laws or regulations that limit or specify the number of times a single vessel may be selected for observer coverage within a given month*.

However, the goal is to collect representative data without overburdening an individual vessel. Every effort is made to spread coverage out evenly among all vessels actively fishing in the same fleet (for the purpose of this sea day schedule the fleet you fish in is defined by the gear type and mesh size you are using as well as the region you are fishing in i.e. Large mesh (>5.5") Otter Trawl in New York).

** With the exception of LAGC IFQ vessels (See (50 CFR 648.11(g)(2)(ii))*

How does the observer service provider decide how many times a month to select a vessel for observer coverage?

The NOAA Fisheries, Northeast Fisheries Science Center generates a yearly sea day schedule for the NEFOP with a given number of days at sea that need to be observed every month in active fishing fleets. NOAA Fisheries partners with an observer service provider to complete this sea day schedule. The NEFOP provider attempts to achieve the days at sea tasked, while still spreading coverage throughout the fleet. For some fleets, it is not possible to accomplish the number of tasked NEFOP seadays without covering vessels multiple times per month. An example:

- *The NEFOP sea day schedule requires 30 sea days for the month of March on trawl vessels that are using mesh < 5.5" (small mesh) in a given region.*
- *There are only 10 day trip vessels in March that are using small mesh trawl in that region.*
- *Each vessel will have to be covered 3X to get the 30 days of coverage needed.*

Additionally, if a vessel fishes in multiple fleets on different trips (such as a small mesh trawl and a large mesh trawl trip) they may be selected for coverage for both fleets.

How many days are tasked to the fleets I fish in each month?

The NEFOP sea day schedule shows the breakdown of all of the days tasked for each fleet throughout the year and can be found at: www.nefsc.noaa.gov/fsb/. The NEFOP can provide a summary of sea days tasked to the fleets you participate in upon request.

.....
Your cooperation and assistance in this program is greatly appreciated.
.....



If I'm fishing in state waters am I required to take a federal observer?

Yes, if you hold any of the federal permits listed to the left or are a Category I or II fishery participant, you are required (under the MSA and MMPA) to take an observer, once selected, if you are fishing within waters of the United States (defined in the MSA as "all the States thereof"). It does not matter whether you are fishing in state or federal waters.

How will I be notified of my selection?

You will be contacted by a NMFS employee, designated contractor or observer acting on behalf of the Regional Administrator, in person, by telephone, or in writing and notified that your vessel has been selected to carry an observer. In some situations you may be selected dockside shortly in advance of a fishing trip.

What authority does NOAA have to place observers on my vessel?

NOAA's authority to place observers on your vessel is found in a number of federal statutes, including the Magnuson-Stevens Act, the Atlantic Coastal Fisheries Cooperative Management Act, the Marine Mammal Protection Act and the Endangered Species Act, and their implementing regulations. For example, federal Magnuson-Stevens Act regulations at 50 CFR § 648.14 (e) state that:

It is unlawful for any person to do any of the following:

- (2) **Refuse to carry onboard a vessel an observer or sea sampler if requested to do so** by the Regional Administrator or the Regional Administrator's designee.
- (3) Fail to provide information, notification, accommodations, access, or reasonable assistance to either a NMFS-approved observer or sea sampler conducting his or her duties aboard a vessel as specified in § 648.11.

Similar requirements are found in regulations implemented under the Marine Mammal Protection Act (see language below) and the Endangered Species Act. In addition, as a condition of your federal fishing permit, you must carry an observer when contacted by a NOAA employee or designated contractor.

50 CFR § 229.7 (c) (1)

(c) *Observer requirements for participants in Category I and II fisheries.*

- (1) If requested by NMFS or by a designated contractor providing observer services to NMFS, a vessel owner/operator must take aboard an observer to accompany the vessel on fishing trips.

For a complete list of Category I or II fisheries visit:

<https://www.fisheries.noaa.gov/action/final-list-fisheries-2018>

It is a violation of federal regulations to fail to carry an observer on any fishing trip when the vessel has been selected. A violation may result in the assessment of civil penalties.

For more information on the Northeast Fisheries Observer Program please visit our website at: <http://www.nefsc.noaa.gov/fsb/>

For the full text of these regulations visit:

.....
Magnuson Stevens Act:
<https://www.fisheries.noaa.gov/topic/laws-policies/magnuson-stevens-act>
#magnuson-stevens-act
.....

Marine Mammal Protection Act:
<https://www.fisheries.noaa.gov/topic/laws-policies/marine-mammal-protection-act>
.....

Endangered Species Act:
<https://www.fisheries.noaa.gov/topic/laws-policies/endangered-species-act>
.....



NEFOP Seaday Schedule, Maryland 2018

The Northeast Fisheries Observer Program (NEFOP) is tasked by the Northeast Fisheries Science Center with an annual seaday schedule for a specific number of federally funded observed days at sea. Here is an excerpt from the schedule with the days tasked to vessels fishing out of Maryland for the 2018-2019 SBRM year (April 2018-March 2019). This excerpt accompanies the NEFOP Vessel Selection information sheet.

What is a fleet?

A fleet is a group of vessels all fishing using the same gear type and size in a given region.

Sea days assigned to Maryland fleets for this SBRM year (April 2018 – March 2019)*

Fleet Description	2018 Apr - Jun	2018 Jul - Sep	2018 Oct - Dec	2019 Jan- Mar	Change from 2017
Otter Trawl Small/Medium Mesh (<5.49"), MD	1	0	2	4	No Change
Otter Trawl Large Mesh (>=5.5"), MD	2	21	3	0	No Change
Gillnet Small Mesh (<5.5"), MD	1	11	4	0	33% ↓
Gillnet Large Mesh (5.5-7.99"), MD	10	0	13	23	54% ↓
Gillnet Extra Large Mesh (5.5-7.99"), MD	2	0	0	1	66% ↓
Shared Mid-Atlantic Otter Trawl days (Days to be accomplished among the states of CT, NY, NJ, MD, VA & NC proportional to current effort)	406	598	318	214	No Change

↓ indicates fewer days tasked than the previous year ↑ indicates more days tasked than the previous year

Providers select vessels on a monthly schedule to achieve the quarterly assigned sea days (i.e., achieving 1/3 of the quarterly assigned days each month) as effort allows.

For this SBRM year there are 98 seadays tasked specifically to fleets landing in the state of Maryland. 2,071 additional seadays are tasked to otter trawl, handline, longline, mid-water trawl, shrimp trawl, clam dredge, and conch, crab, fish and lobster pot fleets landing in any Mid-Atlantic state (CT-NC) including MD. There are a total of 6,885 seadays tasked to Greater Atlantic fleets through the NEFOP Seaday Schedule this year.

Vessels participating in a northeast multispecies sector or the Atlantic sea scallop fishery may be subject to additional coverage requirements, not outlined above, via the At-Sea Monitoring or Industry Funded Scallop programs.

For questions on the NEFOP Seaday Schedule please contact:

Observer Program Area Lead, Ken Keene: kenneth.keene@noaa.gov, (732) 872-3070

*This information is subject to change and is current as of 4/10/2018



NEFOP Seaday Schedule, North Carolina 2018

The Northeast Fisheries Observer Program (NEFOP) is tasked by the Northeast Fisheries Science Center with an annual seaday schedule for a specific number of federally funded observed days at sea. Here is an excerpt from the schedule for the days tasked to vessels fishing out of North Carolina for the 2018-2019 SBRM year (April 2018 - March 2019). This excerpt accompanies the NEFOP Vessel Selection information sheet.

What is a fleet?

A fleet is a group of vessels all fishing using the same gear type and size in a given region.

Sea days assigned to North Carolina fleets for this SBRM year (April 2018 – March 2019)*

Fleet Description	2018 Apr - Jun	2018 Jul - Sep	2018 Oct - Dec	2019 Jan- Mar	Change from 2017
Otter Trawl Small/Medium Mesh (<5.49"), NC	6	2	3	10	No Change
Otter Trawl Large Mesh (>=5.5"), NC	30	3	12	27	No Change
Gillnet Small Mesh (<5.5"), NC	5	6	52	90	3% ↓
Gillnet Large Mesh (5.5-7.99"), NC	1	0	0	7	80% ↓
Gillnet Small Mesh (<5") (limited), NC	35	33	72	46	17% ↓
Gillnet Large Mesh (>=5") (limited), NC	4	3	10	16	55% ↓
Shared Mid-Atlantic Otter Trawl days (Days to be accomplished among the states of CT, NY, NJ, MD, VA & NC proportional to current effort)	406	598	318	214	No Change

↓ indicates fewer days tasked than the previous year ↑ indicates more days tasked than the previous year

Providers select vessels on a monthly schedule to achieve the quarterly assigned sea days (i.e., achieving 1/3 of the quarterly assigned days each month) as effort allows.

For this SBRM year there are 473 seadays tasked specifically to fleets landing in the state of North Carolina. 2,071 additional seadays are tasked to otter trawl, handline, longline, mid-water trawl, shrimp trawl, clam dredge, and conch, crab, fish and lobster pot fleets landing in any Mid-Atlantic state (CT-NC) including NC. There are a total of 6,885 seadays tasked to Greater Atlantic fleets through the NEFOP Seaday Schedule this year.

Vessels participating in a northeast multispecies sector or the Atlantic sea scallop fishery may be subject to additional coverage requirements, not outlined above, via the At-Sea Monitoring or Industry Funded Scallop programs.

For questions on the NEFOP Seaday Schedule please contact:

Observer Program Area Lead, Ken Keene: kenneth.keene@noaa.gov, (732) 872-3070

*This information is subject to change and is current as of 4/10/2018

** "Limited" trips are those trips where observers collect only limited data on the discarded fish catch. These days can be completed on both state and federally permitted gillnet vessels under authority of the Marine Mammal Protection Act.



NEFOP Seaday Schedule, New Jersey 2018

The Northeast Fisheries Observer Program (NEFOP) is tasked by the Northeast Fisheries Science Center with an annual seaday schedule for a specific number of federally funded observed days at sea. Here is an excerpt from the schedule with the days tasked to vessels fishing out of New Jersey for the 2018-2019 SBRM year (April 2018 - March 2019). This excerpt accompanies the NEFOP Vessel Selection information sheet.

What is a fleet?

A fleet is a group of vessels all fishing using the same gear type and size in a given region.

Sea days assigned to New Jersey fleets for this SBRM year (April 2018 – March 2019)*

Fleet Description	2018 Apr - Jun	2018 Jul - Sep	2018 Oct - Dec	2019 Jan- Mar	Change from 2017
Otter Trawl Small/Medium Mesh (<5.49"), NJ	69	20	55	61	No Change
Otter Trawl Large Mesh (>=5.5"), NJ	74	140	50	21	No Change
Gillnet Small Mesh (<5.5"), NJ	29	36	22	2	6% ↑
Gillnet Large Mesh (5.5-7.99"), NJ	21	10	42	9	81% ↓
Gillnet Extra Large Mesh (>=8"), NJ	24	0	27	18	83% ↓
Shared Mid-Atlantic Otter Trawl days (Days to be accomplished among the states of CT, NY, NJ, MD, VA & NC proportional to current effort)	406	598	318	214	No Change

↓ indicates fewer days tasked than the previous year ↑ indicates more days tasked than the previous year

Providers select vessels on a monthly schedule to achieve the quarterly assigned sea days (i.e. achieving 1/3 of the quarterly assigned days each month) as effort allows.

For this SBRM year there are 730 seadays tasked specifically to fleets landing in the state of New Jersey. 2,071 additional seadays are tasked to otter trawl, handline, longline, mid-water trawl, clam dredge and conch, crab, fish and lobster pot fleets landing in any Mid-Atlantic state (CT-NC) including NJ. There are a total of 6,885 seadays tasked to Greater Atlantic fleets through the NEFOP Seaday Schedule this year.

Vessels participating in a Northeast Multispecies Sector or the scallop fishery may be subject to additional coverage requirements, not outlined above, via the At-Sea Monitoring or Industry Funded Scallop programs.

For questions on the NEFOP Seaday Schedule please contact:

Observer Program Area Lead, Ken Keene: kenneth.keene@noaa.gov, (732) 872-3070

*This information is subject to change and is current as of 4/10/2018



NEFOP Seaday Schedule, New York 2018

The Northeast Fisheries Observer Program (NEFOP) is tasked by the Northeast Fisheries Science Center with an annual seaday schedule for a specific number of federally funded observed days at sea. Here is an excerpt from the schedule with the days tasked to vessels fishing out of New York for the 2018-2019 SBRM year (April 2018 - March 2019). This excerpt accompanies the NEFOP Vessel Selection information sheet.

What is a fleet?

A fleet is a group of vessels all fishing using the same gear type and size in a given region.

Sea days assigned to New York fleets for this SBRM year (April 2018 – March 2019)*

Fleet Description	2018 Apr - Jun	2018 Jul - Sep	2018 Oct - Dec	2019 Jan- Mar	Change from 2017
Otter Trawl Small/Medium Mesh (<5.49"), NY	125	225	92	16	No Change
Otter Trawl Large Mesh (>=5.5"), NY	27	55	16	8	No Change
Gillnet Small Mesh (<5.5"), NY	15	11	3	0	43% ↓
Gillnet Large Mesh (5.5-7.99"), NY	7	16	23	0	79% ↓
Gillnet Extra Large Mesh (>=8"), NY	40	2	10	1	81% ↓
Shared Mid-Atlantic Otter Trawl days (Days to be accomplished among the states of CT, NY, NJ, MD, VA & NC proportional to current effort)	406	598	318	214	No Change

↓ indicates fewer days tasked than the previous year ↑ indicates more days tasked than the previous year

Providers select vessels on a monthly schedule to achieve the quarterly assigned sea days (i.e., achieving 1/3 of the quarterly assigned days each month) as effort allows.

For this SBRM year there are 692 seadays tasked specifically to fleets landing in the state of New York. 2,071 additional seadays are tasked to otter trawl, handline, longline, mid-water trawl, twin trawl, clam dredge, and conch, crab, fish and lobster pot fleets landing in any Mid-Atlantic state (CT-NC) including NY. There are a total of 6,885 seadays tasked to Greater Atlantic fleets through the NEFOP Seaday Schedule this year.

New York state and federally permitted trawl, gillnet and pot & trap vessels in New York will be subject to an additional 528 days of observer coverage. This coverage is funded by the NY DEC and carried out by the National Marine Fisheries Service's, NEFOP. The purpose of this increased coverage is to provide data for improved bycatch estimates for threatened and endangered species. This includes Atlantic sturgeon, marine mammals and sea turtles. This is an important component of New York State's conservation efforts for these species which are required by NOAA Fisheries, under the Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA), in order for these fisheries to continue operating.

An additional 1,178 SBRM/Limited NEFOP seadays will be tasked through the Pre-Trip Notification System (PTNS) to vessels participating in the Northeast Multispecies Fishery. Vessels participating in a northeast multispecies sector or the Atlantic sea scallop fishery may be subject to additional coverage requirements, not outlined above, via the At-Sea Monitoring or Industry Funded Scallop programs.

For questions on the NEFOP Seaday Schedule please contact:

Observer Program Area Lead, Sara Weeks: sara.weeks@noaa.gov (508) 495-2227

*This information is subject to change and is current as of 4/10/2019

** "Limited" trips are those trips where observers collect only limited data on the discarded fish catch. These days can be completed on both state and federally permitted gillnet vessels under authority of the Marine Mammal Protection Act.



NEFOP Seaday Schedule, Virginia 2018

The Northeast Fisheries Observer Program (NEFOP) is tasked by the Northeast Fisheries Science Center with an annual seaday schedule for a specific number of federally funded observed days at sea. Here is an excerpt from the schedule with the days tasked to vessels fishing out of Virginia for the 2018-2019 SBRM year (April 2018 - March 2019). This excerpt accompanies the NEFOP Vessel Selection information sheet.

What is a fleet?

A fleet is a group of vessels all fishing using the same gear type and size in a given region.

Sea days assigned to Virginia fleets for this SBRM year (April 2018 – March 2019)*

Fleet Description	2018 Apr - Jun	2018 Jul - Sep	2018 Oct - Dec	2019 Jan- Mar	Change from 2017
Otter Trawl Small/Medium Mesh (<5.49"), VA	9	7	13	13	No Change
Otter Trawl Large Mesh (>=5.5"), VA	9	7	25	28	No Change
Gillnet Small Mesh (<5.5"), VA	39	58	66	78	40% ↓
Gillnet Large Mesh (5.5-7.99"), VA	5	0	12	18	83% ↓
Gillnet Extra Large Mesh (>=8"), VA	5	0	0	3	88% ↓
Gillnet (limited**), VA	21	18	20	21	14% ↓
Shared Mid-Atlantic Otter Trawl days (Days to be accomplished among the states of CT, NY, NJ, MD, VA & NC proportional to current effort)	406	598	318	214	No Change

↓ indicates fewer days tasked than the previous year ↑ indicates more days tasked than the previous year

Providers select vessels on a monthly schedule to achieve the quarterly assigned sea days (i.e., achieving 1/3 of the quarterly assigned days each month) as effort allows.

For this SBRM year there are 475 seadays tasked specifically to fleets landing in the state of Virginia. 2,071 additional seadays are tasked to otter trawl, handline, longline, mid-water trawl, shrimp trawl, clam dredge, twin trawl, and conch, crab, fish and lobster pot fleets landing in any Mid-Atlantic state (CT-NC) including VA. There are a total of 6,885 seadays tasked to Greater Atlantic fleets through the NEFOP Seaday Schedule this year.

Vessels participating in a northeast multispecies sector or the Atlantic sea scallop fishery may be subject to additional coverage requirements, not outlined above, via the At-Sea Monitoring or Industry Funded Scallop programs.

For questions on the NEFOP Seaday Schedule please contact:

Observer Program Area Lead, Ken Keene: kenneth.keene@noaa.gov, (732) 872-3070

*This information is subject to change and is current as of 4/10/2018

** "Limited" trips are those trips where observers collect only limited data on the discarded fish catch. These days can be completed on both state and federally permitted gillnet vessels under authority of the Marine Mammal Protection Act.



NOAA Technical Memorandum NMFS-NE-239

This series represents a secondary level of scientific publishing. All issues employ thorough internal scientific review; some issues employ external scientific review. Reviews are transparent collegial reviews, not anonymous peer reviews. All issues may be cited in formal scientific communications.

Northeast Regional Action Plan – NOAA Fisheries Climate Science Strategy

Jonathan A. Hare¹, Diane L. Borggaard², Kevin D. Friedland³,
Jennifer Anderson², Peter Burns³, Kevin Chu⁴, Patricia M. Clay⁵,
Mathias J. Collins², Peter Cooper⁶, Paula S. Fratantoni¹,
Michael R. Johnson², John P. Manderson⁷, Lisa Milke⁸, Timothy J. Miller¹,
Christopher D. Orphanides³, and Vincent S. Saba⁹

¹NOAA Fisheries, Northeast Fisheries Science Center, 166 Water St, Woods Hole, MA 02543

²NOAA Fisheries, Greater Atlantic Regional Fisheries Office, 55 Great Republic Drive, Gloucester, MA 01930

³NOAA Fisheries, Northeast Fisheries Science Center, 28 Tarzwell Drive, Narragansett, RI 02882

⁴NOAA Fisheries, Greater Atlantic Regional Fisheries Office, 177 Admiral Cochrane Drive, Annapolis, MD 21401

⁵NOAA Fisheries, Northeast Fisheries Science Center 1315 East West Hwy, Bldg. SSMC3,
Silver Spring, MD 20910-3282

⁶NOAA Fisheries, Office of Sustainable Fisheries, 1315 East West Hwy, Bldg. SSMC3,
Silver Spring, MD 20910-3282

⁷NOAA Fisheries, Northeast Fisheries Science Center, 74 Magruder Road, Highlands, NJ 07732-4054

⁸NOAA Fisheries, Northeast Fisheries Science Center, 212 Rogers Ave, Milford, CT 06460-6499

⁹NOAA Fisheries, Northeast Fisheries Science Center, 201 Forrestal Road, Bldg. GFDL, Princeton, NJ 08540-6654

US DEPARTMENT OF COMMERCE

Penny Pritzker, Secretary

National Oceanic and Atmospheric Administration

Dr. Kathryn Sullivan, Administrator

National Marine Fisheries Service

Eileen Sobeck, Assistant Administrator for Fisheries

Northeast Fisheries Science Center

Woods Hole, Massachusetts

December 2016

1. EXECUTIVE SUMMARY

The Northeast U.S. Shelf Ecosystem supports a wide array of living marine resources from Atlantic sea scallops, one of the most valuable, to the North Atlantic Right whale, one of the most endangered. All of these resources - fish, invertebrates, marine mammals, sea turtles, plants, habitats, and other ecosystem components - are being impacted by climate change and multidecadal climate variability. In fact, the pace of observed climate change in the Northeast U.S. is faster than in many other U.S. Large Marine Ecosystems, and future change in the Northeast U.S. Shelf ecosystem is projected to be greater than many other portions of the world's oceans. These changes in climate are already creating significant challenges for the region. Species distributions are becoming out of sync with the spatial allocations of management. The productivity of some iconic species is decreasing, making rebuilding and recovery difficult. Some ports rely on one or two fisheries; changes in these fisheries could have dramatic consequences for the human communities connected to these ports. Changes in science and management can be slow, while changes in the physics, chemistry, and biology of the ecosystem are occurring rapidly. Despite these challenges, there are opportunities. Some species in the region are responding positively to the changes in climate: moving into the region and increasing in productivity. For many managed species, management actions can occur relatively rapidly: the New England Fisheries Management Council (NEFMC) and Mid-Atlantic Fisheries Management Council (MAFMC) have developed specification procedures and framework adjustments that can be implemented within a year of receiving new, peer-reviewed advice. The region has an excellent marine science infrastructure and advanced technologies offer new tools for observing, understanding, and adapting to change. Recognizing the opportunities and challenges resulting from climate change, NOAA Fisheries released the Climate Science Strategy in August 2015. This Strategy develops a national framework to meet the growing demand for information to better prepare for and respond to climate-related impacts on the nation's living marine resources and resource-dependent communities.

The Strategy calls on each region to develop a Regional Action Plan to customize and execute the Strategy over the next 3-5 years. The Plan and Strategy cover all NOAA Fisheries mission elements: sustainable fisheries, protected resources, aquaculture, habitat, and ecosystems; work is needed across all of these mission elements. Here, the Northeast Regional Action Plan (NERAP) applies to the Northeast U.S. Shelf Ecosystem, which extends from North Carolina to Maine, and includes watersheds, estuaries, the continental shelf and the open ocean. The Northeast Regional Action Plan identifies 15 NERAP Actions of highest priority. These actions are ordered by the objectives of the NOAA Fisheries Climate Science Strategy (e.g., NERAP Action 1 is associated with Objective 1 of the Strategy). Actions are prioritized for *No New Resources* and *New Resources* scenarios ([Table 1](#)). Under *No New Resources*, the Plan describes actions that can be taken to advance the NOAA Fisheries Climate Science Strategy at current funding and staffing levels. These actions are broadly consistent with activities currently underway at Northeast Fisheries Science Center (NEFSC) and the Greater Atlantic Regional Fishery Office (GARFO) and within the region but will require greater integration across the NEFSC and GARFO and greater collaboration with partners throughout the region. Under *New Resources*, the Plan prioritizes actions that can be taken with \$2 million in additional funding. The description of actions under *New Resources* is limited and does not encompass everything that is needed to accomplish the action.

The recommended Northeast Regional Action Plan (NERAP) actions are:

NERAP Action 1 - Give greater emphasis to climate-related Terms of Reference and analyses in stock assessments.

NERAP Action 2 - Continue development of stock assessment models that include environmental terms (e.g., temperature, ocean acidification).

NERAP Action 3 - Develop climate- related products and decision support tools to support protected species assessments and other management actions.

NERAP Action 4 - Increase social and economic scientist involvement in climate change research through multidisciplinary work on climate that includes both social and natural sciences.

NERAP Action 5 - Develop Management Strategy Evaluation capability to examine the effect of different management strategies under climate change.

NERAP Action 6 - Improve spatial management of living marine resources through an increased understanding of spatial and temporal distributions, migration, and phenology.

NERAP Action 7 - Continue to build industry-based fisheries and ocean observing capabilities and use information to develop more adaptive management.

NERAP Action 8 - Work with NOAA Oceanic and Atmospheric Research and academic scientists to develop short-term (day to year) and medium-term (year to decade) living marine resource forecasting products.

NERAP Action 9 - Work with NOAA Oceanic and Atmospheric Research and academic scientists to develop and improve regional hindcasts and climatologies.

NERAP Action 10 - Conduct research on the mechanistic effects of multiple climate factors on living marine resources with a goal of improving assessments and scientific advice provided to managers.

NERAP Action 11 - Develop and implement vulnerability assessments in the Northeast U.S. Shelf Region.

NERAP Action 12 - Continue production of the NEFSC Ecosystem Status Report, and other related products, and improve the distribution of information from the reports through the formation of an NEFSC Environmental Data Center.

NERAP Action 13 – Maintain ecosystem survey effort in the Northeast U.S. Shelf ecosystem including the Bottom Trawl Survey, Ecosystem Monitoring Program, Sea Scallop Survey, Northern Shrimp Survey, Clam Survey, and Protected Species Surveys and expand where possible (e.g., data poor species).

[NERAP Action 14 – Initiate a Northeast Climate Science Strategy Steering Group \(NECSSSG\) to coordinate, communicate, facilitate, and report on issues related to climate change and living marine resource management.](#)

[NERAP Action 15 – Coordinate with other NOAA Programs to link living marine resource science and management to climate science and research activities](#)

A critical element of this Action Plan is partnerships. The challenges are great, the issues are complex, and resources are limited. By working together, we can reduce the impacts of climate change on living marine resources and increase the resilience of the ecosystem to this change, including living marine resources and the people, businesses, and communities that depend on them.

2. INTRODUCTION

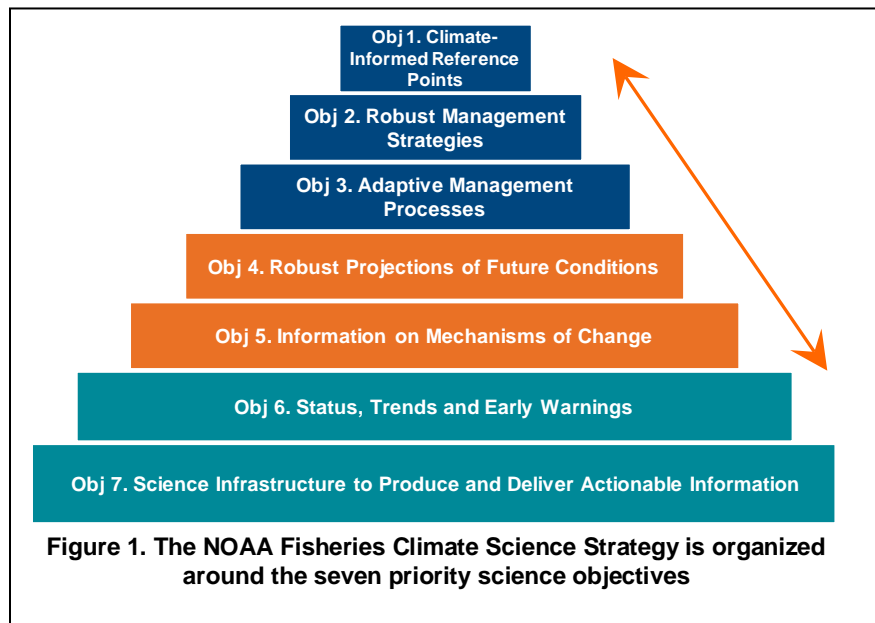
The NOAA Fisheries Climate Science Strategy seeks to increase the production, delivery, and use of the climate-related information required to fulfill the National Marine Fisheries Service (NOAA Fisheries) mandates (Link et al. 2015). These mandates are derived from numerous statutes, primarily the Magnuson-Stevens Fishery Conservation and Management Act (MSA); Fish and Wildlife Coordination Act (FWCA); Atlantic Coastal Fisheries Cooperative Management Act (ACFCMA); Endangered Species Act (ESA); Marine Mammal Protection Act (MMPA); National Aquaculture Act (NAA); Coral Reef Conservation Act (CRCA); and the National Environmental Policy Act (NEPA). There are also a number of other statutes and Executive Orders that have bearing on the mission of NOAA Fisheries including the Federal Ocean Acidification and Monitoring Act (FOARAM); Federal Power Act; Clean Water Act; Coastal Zone Management Act; Comprehensive Environmental Response, Compensation, and Liability Act; Oil Pollution Act; Fish and Wildlife Coordination Act; Coastal Wetlands Planning, Protection, and Restoration Act; American Recovery and Reinvestment Act; Executive Order 13547 Stewardship of the Ocean, Our Coasts, and the Great Lakes; Executive Order 13653 Preparing the United States for the Impacts of Climate Change; Executive Order 13642 Making Open and Machine Readable the New Default for Government Information; Executive Order 12898 Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations; and Executive Order 12866 Regulatory Planning and Review.

In general, these mandates are intended to instruct and support NOAA Fisheries to work in 5 thematic areas: fisheries, protected species¹, aquaculture, habitats, and ecosystems. NOAA Fisheries primarily focuses on fisheries in federal waters, that being generally 3 miles from the coast to the 200 mile extent of the Exclusive Economic Zone (EEZ). However, many marine species also use coastal, estuarine, and fresh waters during some portion of their life cycle, which can broaden the spatial scope of NOAA Fisheries activities in the region. Further complicating the mission, many species migrate outside the U.S. EEZ into other national jurisdictions or international waters. Multiple fisheries also interact with marine mammals and other protected

¹ For the purposes of this document only, “protected species” refers to ESA listed species, MMPA protected marine mammals, ESA Candidate Species and Species of Concern.

species. Moreover, the MSA requires consideration of human communities and fishing industries (Clay and Olson 2008), food production (Olson et al. 2014), and the sustainability of marine species and their habitats (Fluharty 2000). Further, before designation of critical habitat under the ESA, careful consideration must be given to economic impacts ([NOAA Fisheries Critical Habitat website](#)). Clearly, the NOAA Fisheries mission of science and management activities extends from the headwaters of watersheds to the deep ocean and includes interactions among physical, chemical, biological, and human components of ecosystems.

One requirement of the NOAA Fisheries Climate Science Strategy is for each region to develop a Regional Action Plan. The NOAA Fisheries Climate Science Strategy defines 7 interdependent objectives with the goal to inform and fulfill NOAA Fisheries mandates in a changing climate (Figure 1). The Strategy also identifies 4 near-term actions, 1 of which is the



development of Regional Action Plans, to customize and execute the Strategy over the next 3-5 years in a given region. The Northeast Regional Action Plan, addresses this near-term action. The Northeast U.S. Shelf Ecosystem extends from Cape Hatteras, North Carolina to the western end of the Scotian Shelf and includes the Mid-Atlantic Bight, Southern New England, Georges Bank, and the Gulf of Maine. Regional Action Plans are intended to: (1) identify strengths, weaknesses, and priority needs and actions to implement the 7 National Climate Science Strategy Objectives in each region over the next 5 years; and (2) increase awareness, partnerships and support for these efforts internally and externally at regional to national scales. This document provides information related to both of these goals.

This Northeast Regional Action Plan has 3 sections. The first section – [Development of the Northeast Regional Action Plan](#) - describes the process used to develop the Regional Action Plan. This section starts with a summary of the effects of climate change on living marine resources in the Northeast U.S. The strengths, weaknesses, opportunities, and challenges to implementing the Strategy in the Northeast U.S. are then identified. A range of needs is described and prioritized for the region based on the assessment of strengths and weaknesses and relative to the 7 objectives of the NOAA Fisheries Climate Science Strategy. The second section - [Action Plan](#) - provides more detailed information for the NERAP Actions defined in the Plan. Specific actions under budget neutral (*No New Resources*) and budget increase (*New Resources*) scenarios are described. The third section - [Timeline and Metrics](#) - presents a plan for managing actions under the Regional Action Plan and for evaluating success.

The NOAA Fisheries Climate Science Strategy and Regional Action Plans are closely related to the [NOAA Fisheries Ecosystem-Based Fisheries Management \(EBFM\) Policy](#). One purpose of the EBFM policy is to, “*Build on the agency’s (and its partners’) past progress and clarify the agency’s commitment to integrating its management programs for living marine resources and their habitats under changing climate, ecological, and ocean conditions.*” Further, the [draft EBFM Road Map](#) states, “*NOAA Fisheries, in collaboration with its partners and stakeholders, has already begun the process of implementing EBFM, through the recognition of the need for ecosystem considerations in a number of actions including: . . . The need to better understand, prepare for, and respond to effects of climate variability and change on marine ecosystems and fisheries.*” Thus, implementation of the Northeast Regional Action Plan will be in close coordination with the broader implementation of the EBFM Policy and Road Map regionally and nationally.

3. DEVELOPMENT OF THE NORTHEAST REGIONAL ACTION PLAN

The Northeast Fisheries Science Center (NEFSC) and Greater Atlantic Regional Fisheries Office (GARFO) established a Working Group to develop the Northeast Regional Action Plan. The Working Group is representative of the different components of NEFSC and GARFO, as well as other NOAA Fisheries offices in the Northeast Region (see Appendix A). Two NEFSC and two GARFO staff members formed a smaller Leadership Group from the Working Group (see Appendix A). The Action Plan covers the Northeast U.S. Shelf, which extends from Cape Hatteras, North Carolina, to the western end of the Scotian Shelf and includes the Mid-Atlantic Bight, Southern New England, Georges Bank, and the Gulf of Maine.

Each member of the Working Group was asked, individually, to identify regional strengths, weaknesses, opportunities, challenges, and needs related to each objective of the NOAA Fisheries Climate Science Strategy. The idea was to capture a broad perspective across the related, but varied, GARFO and NEFSC organization. Staff from the New England Fishery Management Council (NEFMC), Mid-Atlantic Fishery Management Council (MAFMC), and Atlantic States Marine Fisheries Commission (ASMFC) were also asked to provide input on regional strengths, weaknesses, opportunities, challenges, and needs related to each objective based on their involvement in fisheries management (see Appendix B). Representatives of different line offices of NOAA (National Ocean Service, Office of Oceanic and Atmospheric Research, National Centers for Environmental Information, other NOAA Fisheries offices) that work in the Northeast U.S. (see Appendix B) were also asked to provide similar input. This input was solicited at the individual level and not meant to represent the official comments of NOAA Line Offices. A list of relevant documents was compiled and reviewed to ensure that existing information was used in the development of the Regional Action Plan (see Appendix C). Finally, the NOAA Fisheries Climate Science Strategy was reviewed to ensure that the priorities identified in the Northeast Regional Action Plan were consistent with priorities identified in the NOAA Fisheries Climate Science Strategy.

The input and review of existing documents was used to complete the assessment of regional strengths, weaknesses, challenges, and opportunities ([Regional Assessment Section](#)) and to draft a list of actions to implement the NOAA Fisheries Climate Science Strategy in the Northeast region. These draft lists of strength, weaknesses, and actions were reviewed by the

working group to ensure completeness and to formulate the draft actions at approximately the same level of detail. The working group then prioritized a list of 63 actions. Working group members were asked to rank actions as high, medium, or low priority. There were no restrictions on the number of actions in each category, but working group members were asked to strive for an even distribution to provide a range in individual rankings. Working group members were given the following guidance/questions to help frame their rankings.

- Respondents should consider NOAA Fisheries mission as a whole
 - “Fisheries” refers to harvested species: managed, unmanaged, highly migratory, etc.
 - “Protected species” refers to ESA listed species, MMPA protected marine mammals, ESA Candidate Species, and Species of Concern unless otherwise specified.
 - “Habitat” components include pelagic, benthic, marine, estuarine, and freshwater areas of the Northeast U.S. Shelf ecosystem.
 - “Ecosystem” components range from physical oceanography to the economic and social aspects of human communities.
 - “Aquaculture” refers to the development and sustainability of cultured plants, invertebrates, and vertebrates.
 - “National Environmental Policy Act (NEPA) issues” references the environmental review of potential impacts of planned projects or permits.
- Does the action address a high priority need in the Northeast U.S. Region?
- Does the action advance climate science related to NOAA Fisheries Mission in the Northeast U.S. Region (NOAA Fisheries Mission and NEFSC and GARFO Strategic Plans)?
- Will the action reduce uncertainty of management advice related to NOAA Fisheries Mission in the Northeast U.S. Region (NOAA Fisheries Mission and NEFSC and GARFO Strategic Plans)?
- Does the action lead to tangible improvements or increased knowledge within the 5 year time frame?

Working group members were asked to identify their top 10 actions if no new resources are available and their top 10 actions if new resources are available. In preranking discussions, Working Group members noted that their prioritization may differ depending on the resources available, so top 10 actions were identified separately for the no new resources and the new resources scenarios. For each of the top 10 actions, working group members were asked to identify, to the best of their ability, the specific steps that should be taken in the next 5 years. Working group members were also asked to identify important partners. Members could state why the action is important and provide additional comments if desired, but these latter 2 responses were optional.

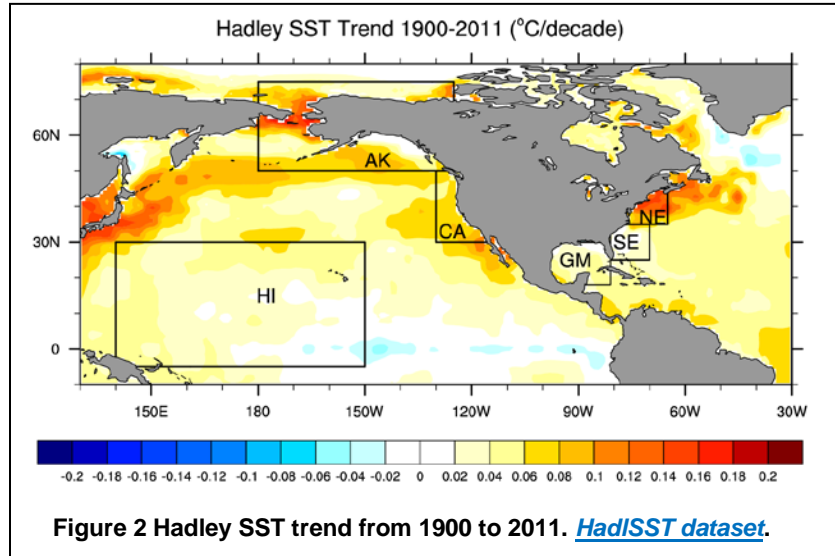
Following Working Group ranking, the leadership group then compiled the ranks and the action statements. The numbers of high, medium, and low ranks were then tabulated for each draft action. The numbers of top 10 ranks were also tabulated for each action. The leadership group then used these rankings, while considering the NOAA Fisheries Climate Science Strategy

and input from external and NOAA Partners (Appendix B), to combine some actions and to identify NERAP actions of highest priority for the region; these NERAP actions are itemized in Section 4 below. The full list of the 63 actions developed and considered by the working group is presented in Appendix D.

NERAP Actions were aligned with the most applicable objective from the NOAA Fisheries Climate

Science Strategy, as well as NOAA Fisheries mission elements. This latter step will help users of the Regional Action Plan to view the actions identified for a particular mission area, as well as the actions identified as overall priorities.

The draft NERAP was then opened for public comment from May 9 – July 29, 2016. Comments were received from 24 individuals / organizations and these comments were considered when finalizing the NERAP.



<http://midatlanticocean.org/wp-content/uploads/2018/04/MACAN-Fact-Sheet.pdf>

Species Habitats Predicted to Move under Continued Ocean Warming

The animations on this site show projected distributions of suitable thermal habitat for fall and spring based on the NOAA Geophysical Fluid Dynamics Laboratory's high-resolution global climate model (CM2.6). In the 80-year model run, atmospheric CO₂ increases by 1% per year and doubles by year 70. This results in a global surface warming of 2°C (3.6°F), which is equivalent to the 2060-80 time period in the IPCC's RCP8.5 (highest emissions scenario). Therefore, the time steps (60-80) correspond roughly to the years 2060-80 in the IPCC's RCP8.5 emissions scenario. It is important to note that these are ONLY projections of thermal habitat and DO NOT include other important factors such as fishing mortality, species interactions, and bottom-up forcing.

IPCC = Intergovernmental Panel on Climate Change; ***RCP*** = Representative Concentration Pathway

<http://midacan.org/>

The US Mid-Atlantic Coastal Acidification Network (MACAN) Presents Draft Monitoring Plan. MACAN will share the details of a draft robust monitoring plan and discuss the importance of carbonate chemistry monitoring, what we know, what we don't know and how existing monitoring could be improved in the Mid-Atlantic. The draft monitoring plan highlights existing monitoring, best available technology, and optimization to improve understanding of carbonate chemistry variability while monitoring in an efficient way. MACAN's presentation will serve as an advance view of the draft plan and an opportunity to gather feedback from resource stakeholders and allow meaningful engagement on monitoring, research priorities in areas that are of ecological, cultural and economic importance in the Mid-Atlantic Bight.



PLANNING FOR A

Changing Ocean

Monitoring Acidification in the Mid-Atlantic

The chemistry of the oceans is changing. Carbon dioxide (CO₂) emissions from tailpipes, smokestacks and other human sources don't simply linger in the atmosphere – they are absorbed and dissolved into the oceans.

Once in the ocean, CO₂ combines with water to form a weak acid and lower pH levels in a process called ocean acidification, which can be harmful to marine life and ecosystems. The Mid-Atlantic's many estuaries and bays are also susceptible to coastal acidification due to their naturally acidic fresher waters.

Around the world, this acidification trend has proven problematic for organisms (e.g., mollusks) that rely on calcium carbonate to build the hard exterior shells that protect them. This is why ocean acidification has been referred to as osteoporosis of the sea. Acidification can also impact organism metabolism, behavior, and reproductive success. Spikes in acidification have led to localized collapses of fisheries in the Pacific Northwest, where government agencies are now devoting more legislative attention and research efforts to the issue.

In the Mid-Atlantic, efforts to understand the impacts of acidification are still in their infancy. However, scientists do believe that certain conditions make the region's ecosystems and economy particularly vulnerable.

About the Project

Planning for a Changing Ocean aimed to understand how a changing climate impacts our ocean and the Mid-Atlantic's diverse marine ecosystems, coastal communities and economies. The project examined the implications for resilience of current trends, including increased acidification of coastal and ocean waters, the availability of offshore sand resources and shifting marine life habitats. The project was a collaboration of the **Mid-Atlantic Regional Council on the Ocean (MARCO)**, the **Mid-Atlantic Regional Association Coastal Ocean Observing System (MARACOOS)** and the **Monmouth University Urban Coast Institute (UCI)**, made possible by a grant from the **National Oceanic and Atmospheric Administration (NOAA)**.



For more information, view the Mid-Atlantic Coastal Acidification Network website at MidACAN.org.



State of the Science

The Mid-Atlantic Bight – an area ranging from Cape Cod, Massachusetts, to Cape Hatteras, North Carolina – is home to a unique “cold pool” along the continental shelf in waters deeper than roughly 50 feet. Temperatures in the cold pool remain low all year round – conditions that species such as scallops, clams, and many finfish thrive in. Yet research has shown that colder, deeper waters are more susceptible to acidification.

To date, no major impacts have been observed to fisheries in the Mid-Atlantic. Nevertheless, water sampling in estuaries and offshore areas has turned up periodic results that are troubling to scientists. Many researchers are now attempting to answer questions such as how prominent acidification is in the region today, how fast conditions are changing, and if marine life can adapt. Others are exploring the viability of measures that have been shown to improve resilience in other places, like planting seagrasses that consume CO₂ in tidal bays and estuaries.

Monitoring Acidification

A consortium of government agencies, NGOs, academic institutions and fishing industry representatives came together in 2016 to enhance understanding of acidification in the five-state region spanning from New York through Virginia. The Mid-Atlantic Coastal Acidification Network (MACAN) has been compiling all of the existing research relevant to this unique region on its website, MidACAN.org, where it can serve as a resource for all who are interested in the subject. MACAN facilitates information exchange, including public webinars, where experts from around the region share their knowledge on the latest science.

MACAN recently developed seven interactive maps for the Mid-Atlantic Ocean Data Portal (portal.midatlanticocean.org) showing sites where waters are or have been monitored for signs of increased acidification. The maps will serve as a valuable tool as MACAN develops a robust network that monitors for changes to the region's water chemistry. If you know of research related to acidification in the Mid-Atlantic or would like to get involved with MACAN's work, email info@MidACAN.org. MACAN also helps to implement the [Mid-Atlantic Regional Ocean Action Plan's](#) Healthy Ocean Ecosystem action 3 on ocean acidification.

Examples of Acidification Vulnerabilities



MOLLUSKS

Shells of mollusks are made of carbonate, a material that can be vulnerable to low pH or acidified conditions. The larval stages of bivalves are especially sensitive to changes in pH and alkalinity, because their shells are thin, newly developing and made of an easily dissolved, highly soluble form of calcium carbonate called aragonite.



FINFISH

To date, only a half-dozen or so fish species of the Mid-Atlantic have been studied for their response and sensitivity to acidification. Among them were summer flounder (fluke), which showed lower egg fertilization rates and, among those that were successfully fertilized, a low rate of survival to hatching.



For more information, view the Mid-Atlantic Coastal Acidification Network website at MidACAN.org.



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: 5/23/18
To: Council
From: Jason Didden *JAD*
Subject: Regulatory Streamlining

In response to discussions at the May 2017 Council Coordination Committee meeting and the “Streamlining Regulatory Processes and Reducing Regulatory Burden” notice published by NOAA on July 7, 2017, Council staff reviewed existing MAFMC-related regulations for text that may be outdated, unnecessary, ineffective, and/or can be streamlined.

Most existing regulations appear designed to achieve a particular policy goal and it was beyond the scope of this review by staff to evaluate all of the Council’s policy goals underlying the existing regulations. There were some specific regulations identified by staff that do appear outdated, unnecessary, and/or ineffective, as described below.

General

-Upgrade restrictions reduce efficiency but may control capitalization and fleet concentration. It is not clear that upgrade restrictions still make sense when fisheries are managed with quotas.

-VTR instructions allow Loran bearings as an alternative to latitude/longitude – this appears outdated given Loran’s discontinuance.

-Keeping old VTR copies on board vessels may be unnecessary and complicates efforts regarding electronic VTRs.

-Instead of plans having options for setting specifications for a set number of years, should they be set for as many years as considered appropriate based on the stock assessment intervals and SSC recommendations?

Mackerel-Squid-Butterfish (MSB)

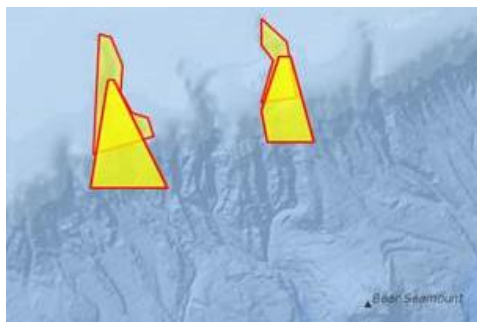
-The mackerel limited access qualification criteria no longer need to be codified into regulations (they will be removed in squid amendment regulatory changes).

-Squid Fthreshold and Fmsy references can be removed – biological reference points are automatically incorporated based on accepted peer-reviewed assessments.

-The description of the Tier 3 mackerel quota (“Commercial ACT is composed of...”) reads like it is a quota-set aside, while it is only a limit.

-The butterfish discard cap is incorrectly described as a “butterfish mortality cap.”

-There is a slight discontinuity between the MSB canyon closed areas for tilefish habitat and the closed areas for trawl gear implemented in the tilefish plan, both around Oceanographer and Lydonia Canyons.



Initially Monkfish Amendment 2 closed the deeper/more southern areas to vessels on a monkfish day at sea to protect deepwater corals. Those same areas were later also closed to bottom trawling by MSB-permitted vessels in MSB Amendment 9, primarily to conserve Tilefish Essential Fish Habitat (EFH) but with a nod to other species, including deep water corals. The shallower/more northern areas were subsequently closed to all bottom trawling in Tilefish Amendment 1 to conserve Tilefish Habitat Areas of Particular Concern (HAPCs - clay outcrop/pueblo village habitats). New England’s deep-water coral amendment also now addresses corals in these areas. Staff is not aware of any on-the-water issues regarding these mismatched areas yet, but it may be worth considering deleting the initial MSB-closed areas to avoid duplication and confusion.

-Directed butterfish landings with mesh greater than 3 inches are limited to once per day. This daily trip limit provision is not needed for directed trips with mesh larger than 3 inches but should likely remain for other situations (e.g. for smaller mesh trips and during closures of the directed fishery).

-A variety of regulatory language clarifications for the squid fishery will be published related to the squid amendment.

(MSB continued...)

-The Council has already provided input to NMFS that current regulations pertaining to some mackerel fishery closures should prohibit mackerel possession rather than prohibiting any encounters with mackerel. Another pending action ending the total ban on possession of mackerel during closures will eliminate this issue.

Surfclam and Ocean Quahog (SCOQ)

-Are the references to DAH and DAP outdated with regards to ACL sections?

-648.72(2): "The Regional Administrator may set quotas at quantities different from the MAFMC's recommendations only if he/she can demonstrate that the MAFMC's recommendations violate the national standards of the Magnuson-Stevens Act or the objectives of the Atlantic Surfclam and Ocean Quahog FMP or other applicable law." This seems like extra language stating the obvious and is similar to language for other species. Perhaps move to an introductory section applying generally?

-648.75(3): Minimum size suspension: This process is burdensome in that it requires votes, analysis in EA, and notifications to annually change the reg. A rollover provision would be more efficient (similar to other specifications).

-648.78(2): Maine Mahogany Quahog Advisory Panel: There is only one SCOQ AP...is this outdated?

Black Sea Bass

648.14(p)(2)(ii)(B): "Possess, retain, or land black sea bass harvested in or from the EEZ in excess of the commercial possession limit established at §648.140." There is no federal waters commercial black sea bass possession limit; in addition, the reference to the possession limit at 648.140 is incorrect. The regulations at 648.140 address black sea bass ACL's.

Tilefish

§648.7 Recordkeeping and reporting requirements. (2) IVR system reports. IVR requirements should disappear when Framework 2 is implemented.



SF/AQ mix on this?

ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

STEPHEN W. MURPHEY
Director

Feb. 9, 2018

Mr. Chris Oliver, Assistant Administrator
NOAA Fisheries
1315 East-West Highway
Silver Spring, MD 20910

Dear Assistant Administrator Oliver:

The North Carolina Division of Marine Fisheries supports and administers the leasing of public trust waters for the culture and harvest of shellfish. In addition, the division permits non-shellfish land based aquaculture operations for marine and estuarine species. However, until recently the use of public trust waters for aquaculture purposes was limited to shellfish species.

During the 2017 session, the North Carolina General Assembly introduced a bill to expand aquaculture of non-shellfish species in the estuarine and state ocean waters of the state. Senate Bill 410 or the Marine Aquaculture Act, (attached) was signed into law by Governor Roy Cooper on July 27, 2017. To allow for the development and expansion of deep water aquaculture opportunities, the law tasked the division to request that the Mid-Atlantic and South Atlantic Fishery Management Councils develop a Fishery Management Plan for regulating offshore aquaculture in federal waters off the North Carolina coast.

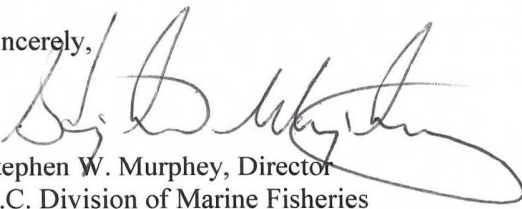
Additionally, the law requires that the division also petition the National Oceanic and Atmospheric Administration to initiate rule making proceedings to implement a comprehensive regulatory program for managing the development of an environmentally sound and economically sustainable aquaculture fishery in federal waters offshore from the North Carolina coast.

Under this law, the North Carolina General Assembly declared it is the policy of the State to encourage the development of private, commercial marine aquaculture in ways that are compatible with other public uses of marine and estuarine resources such as navigation, fishing, and recreation.

In fulfilling the requirements of the law, I would like to respectfully request that NOAA Fisheries provide the division with criteria needed to begin the process outlined in the bill along with estimated timelines for implementation of rulemaking. The division will submit a preliminary report in early 2018 to the North Carolina General Assembly and a final report in April, 2018.

The new Marine Aquaculture Program will be administered under the division's Habitat Enhancement Section. If you need additional information, please contact me at 252-808-8013.

Sincerely,



Stephen W. Murphey, Director
N.C. Division of Marine Fisheries

Enclosure





UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
1315 East-West Highway
Silver Spring, Maryland 20910
THE DIRECTOR

Mr. Stephen W. Murphey
Director
North Carolina Division of Marine Fisheries
3441 Arendell Street
Morehead City, NC 28557

MAR 09 2010

Dear Mr. Murphey:

Thank you for your letter requesting that NOAA's National Marine Fisheries Service (NMFS) initiate rulemaking to implement a comprehensive regulatory system for sustainable aquaculture in the Exclusive Economic Zone off the coast of North Carolina. Aquaculture is an important and growing U.S. industry with the potential to provide a significant sustainable supply of healthy seafood for the nation and global markets. I applaud your state's efforts to expand marine aquaculture, and am eager to work with you to provide complementary federal support to the extent allowed under our existing statutory authorities.

Your letter notes your intent to request that the Mid-Atlantic and South Atlantic Regional Fishery Management Councils develop a fishery management plan for regulating offshore aquaculture in federal waters off the North Carolina coast. If the Councils develop and approve such plan(s), NMFS will review the plan(s) for compliance with the requirements of the Magnuson-Stevens Fishery Conservation and Management Act and any other applicable law and, if approved, initiate rulemaking to implement them. We understand the South Atlantic Council has your letter on their agenda for their March meeting and look forward to the discussion. In addition, we understand you will be working with the Greater Atlantic Regional Office to determine next steps with the Mid-Atlantic Council. NMFS will consult with the Councils to develop a coordinated approach to your request for a comprehensive regulatory program for a sustainable aquaculture fishery in federal waters offshore from the North Carolina coast.

We would also highlight that there are several different approaches to offshore aquaculture. For example, two mussel farms in federal waters off New England have been permitted by the U.S. Army Corps of Engineers in consultation with NMFS but with no NMFS rulemaking or permit required. If you wish to learn more about the various approaches to aquaculture permitting in federal waters, we would be happy to provide more information or set up a briefing for you and your staff.

We look forward to working with you on this important issue. If you have any further questions, please contact Alan Risenhoover, Director of the Office of Sustainable Fisheries, at (301) 427-8500 or Michael Rubino, Director of the Office of Aquaculture, at (301) 427-8325.

Sincerely,

Chris Oliver





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: 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 8th and 9th 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 2nd.

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 5/23/2018

June 5-7, 2018 – Philadelphia, PA

- Atlantic Surfclam and Ocean Quahog 2019 Specifications – *Review*
- Atlantic Surfclam and Ocean Quahog Excessive Shares Amendment – *Review and approve refined range of alternatives*
- Recommend regulatory streamlining options
- Strategic Planning – *Update and discussion*
- ~~Collaborative research program review~~
- NMFS Climate Science Strategy – Update and overview of recent research
- [2018 Mackerel Closure Provisions Framework – Framework Meeting 2 \(final action\)](#)
- [NEFMC Atlantic Herring Amendment 8 - Public Hearing](#)
- [Chub Mackerel Amendment– Update on progress, approve draft goals and objectives, and consider management unit alternatives for consideration by the SSC](#)
- [Summer Flounder Commercial Issues Amendment – Review and approve Draft EIS](#)

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)*
- 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 Recreational Management Framework – *Review alternatives and impact analysis; approve ASMFC public hearing document*
- Black Sea Bass 2019 Wave 1 fishery – *Review and approve*
- ~~[Draft 2019-2023 Strategic Plan – Review](#)~~

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*
- ~~[2019-2023 Strategic Plan – Approve](#)~~
- 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

December 11-13, 2018 – Annapolis, MD

- Atlantic Surfclam and Ocean Quahog Excessive Shares Amendment – *Approve public hearing document*
- 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 Recreational Management Framework – *Final action*
- Black Sea Bass Amendment – *Review initiation and identify issues for consideration*
- Chub Mackerel Amendment – *Final action*
- 2019 Implementation Plan - *Approve*



Status of Council Actions Under Development

AS OF 5/18/2018

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. http://www.mafmc.org/actions/summer-flounder-amendment	The Council will review and approve a draft EIS at the June 2018 Council meeting. Public hearings are tentatively scheduled for September 2018.	Dancy
	Summer Flounder, Scup, and Black Sea Bass Recreational Management Framework	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. http://www.mafmc.org/actions/sfsbsb-recreational-management-fw	A draft public hearing document will be presented at the Council and Board's August joint 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. http://www.mafmc.org/actions/sfsbsb-commercial-am-framework	The Council selected preferred alternatives and approved the framework at the Feb 2018 meeting. Staff is preparing the EA for submission to NMFS	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. http://www.mafmc.org/actions/bsb-wave-1-loa-framework	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, Squids, 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.” http://www.mafmc.org/actions/chub-mackerel-amendment	Staff is developing alternatives.	Beaty
	Atlantic Mackerel Rebuilding Framework	This framework action considers rebuilding options for the Atlantic mackerel fishery. http://www.mafmc.org/actions/atlantic-mackerel-rebuilding-framework	The Council reviewed an initial range of alternatives in April 2018. Final action is expected in August 2018.	Didden
	2018 Mackerel Closure Provisions Framework	This framework action will consider recommending that NOAA Fisheries implement a 5,000 or 10,000 pound trip limit when 100% of the commercial quota for Atlantic mackerel is reached. This action is being considered to allow for the continued operation of the Atlantic herring fishery in the event of a mackerel closure. http://www.mafmc.org/actions/atlantic-mackerel-closure-provisions-framework	Final action will be considered at the June 2018 Council meeting.	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. http://www.mafmc.org/actions/bluefish-allocation-amendment	Staff is developing a scoping document. Scoping is expected to begin in late May 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. http://www.mafmc.org/actions/scoq-excessive-shares-amendment	Staff is continuing to refine the range of alternatives for Council consideration in June 2018	Montañez

FMP	Action	Description	Status	Staff Lead
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. http://www.mafmc.org/actions/omnibus-observer-funding	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
	Commercial Fisheries eVTR Framework	This framework considers requiring electronic submission of vessel trip reports for commercial vessels with permits for Council-managed species.	Staff is preparing initial analyses for Council consideration in October 2018.	Didden
	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 5/23/2018

Status	Amendment/Framework	Action Number	Council Approval	Initial Submission	Final Submission	NOA Published	Proposed Rule Published	Approval/Disapproval Letter	Final Rule Published	Regs Effective
Complete	Tilefish Framework 2	Tilefish FW 2	4/13/16				10/23/17		3/13/18	4/12/18
Complete	Blueline Tilefish Amendment	Tilefish AM 6	4/13/16			6/14/17	6/28/17	9/13/17	11/15/17	12/15/17
Complete	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
Complete	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
Complete	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
Complete	Commercial Scup Quota Period Framework	FW 12	5/10/17	11/16/17	2/15/18	N/A	2/26/18		4/19/18	5/21/18
Open	New Jersey Special Management Zones		12/12/16				2/13/18			
Open	Squid Amendment		6/7/17	12/12/17	3/21/18					
Open	Summer Flounder, Scup and Black Sea Bass Commercial Accountability Measure Framework		2/14/18							

Timeline and Status of Current and Upcoming Specifications for MAFMC Fisheries

As of 5/23/2018

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 <i>(see note)</i>	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			
Black sea bass (recreational measures)	2018	2/14/18	3/5/18	4/10/18	4/11/18			

Upcoming Specifications	Year(s)	Council Meeting (*subject to change)
Bluefish	2019	August 2018
Summer Flounder	2019	August 2018
Black Sea Bass	2019	August 2018
Atlantic Mackerel	2019-2021	August 2018
Spiny Dogfish	2019-2021	October 2018

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 (TENTATIVE) 570 10 th Ave. New York, NY 10036 646-449-7700
August 6-8, 2019	Courtyard Philadelphia Downtown 21 Juniper St. Philadelphia, PA 19107 215-496-3200
October 8-10, 2019	Durham Marriott Center City / Durham Convention Center 201 Foster St / 301 W. Morgan St. Durham, NC 27701 / Durham, NC 27701 919-768-6000 / 919-956-9404
December 10-12, 2019	Westin Annapolis 100 Westgate Circle Annapolis, MD 21401 410-972-4300

PROPOSED 2018 DELIVERABLES

This section provides an overview of deliverables expected by the end of the implementation plan period. Since many of the proposed implementation activities cannot be measured with traditional metrics, the list of deliverables establishes a mechanism for measuring the Council's progress toward achieving the goals and objectives of the strategic plan.

SUMMER FLOUNDER, SCUP, BLACK SEA BASS

- 2019 specifications for summer flounder and black sea bass (develop and approve)
- 2019 specifications for scup (review)
- 2019 recreational management measures for summer flounder, scup, and black sea bass
- Advisory panel fishery performance reports
- Summer flounder amendment: commercial issues and goals and objectives
- Summer flounder, scup, and black sea bass recreational management framework (conservation equivalency, slot limits, and transit provisions)
- Summer flounder, scup, and black sea bass commercial AM framework
- Black sea bass wave 1 LOA framework
- Summer flounder recreational management project (contract)

MACKEREL, SQUID, BUTTERFISH

- 2019 specifications for squids and butterfish (review)
- 2019-2021 specifications for Atlantic mackerel (develop and approve)
- Advisory panel fishery performance reports
- Butterfish cap review
- Review and revise FMP goals and objectives
- Chub mackerel amendment
- Atlantic mackerel framework/amendment to address rebuilding
- Industry funded monitoring amendment (ongoing - GARFO lead)

RIVER HERRING AND SHAD

- RH/S cap for Atlantic mackerel fishery for 2019-2021 (develop and approve)
- RH/S progress update

BLUEFISH

- 2019 specifications for bluefish (develop and approve)
- Advisory panel fishery performance report
- Bluefish allocation amendment (scoping and development)

GOLDEN AND BLUELINE TILEFISH

- 2019 specifications for golden tilefish (review)
- 2019-2021 specifications for blueline tilefish (develop and approve)
- Advisory panel fishery performance reports
- Golden tilefish permit issue

SURFCLAMS AND OCEAN QUAHOGS

- 2019 surfclam and ocean quahog specifications (review)
- Advisory panel fishery performance reports

- Excessive shares amendment (ongoing)
- ITQ review project (contract)

SPINY DOGFISH

- 2019-2021 spiny dogfish specifications (develop and approve)
- Advisory panel fishery performance report

ECOSYSTEM AND OCEAN PLANNING/HABITAT

- EFH redo (ongoing)
- Regional habitat assessment (ongoing)
- Add deep sea coral protection areas to national MPA network
- EAFM risk assessment
- Offshore energy development issues

GENERAL

- 2019-2023 strategic plan development
- Commercial fisheries eVTR framework
- Advisory panel appointments
- For-hire compliance/accountability issue (cooler labeling)

COMMUNICATION AND OUTREACH

- Implementation of council communication and outreach plan (ongoing)
- Council action web pages
- Fact sheets and outreach materials

SCIENCE AND RESEARCH

- Mid-Atlantic collaborative research program review
- 2016 – 2017 Mid-Atlantic collaborative research projects (review results)
- Omnibus amendment for data modernization (ongoing - GARFO lead)
- Risk policy framework

POSSIBLE ADDITIONS

- Black sea bass amendment
- Capacity amendment for *Illex* squid
- FMP for bullet and frigate mackerel, bonito, and false albacore
- Surfclam and ocean quahog framework adjustment to NEFMC habitat amendment
- Allocation review criteria for all FMPs



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: April 17, 2018
To: Dr. Chris Moore, Executive Director
From: Tilefish Survey Review Committee, Council Staff
Subject: Report of the Pilot Tilefish Survey Review

In January 2017, the Council funded a fisheries-independent pilot survey out of SUNY Stony Brook for golden tilefish (GTF) and blueline tilefish (BLT) from Georges Bank to Cape Hatteras. The goals and objectives put forth by the survey are as follows:

1. Establish a comprehensive fishery-independent bottom long-line survey for golden and blueline tilefish along the Atlantic coast
2. Quantify the number of individuals and size-structure of the two species
3. Determine the spatial distribution of both species and identify preferred depth strata across size range
4. Evaluate the role of environmental variables in driving the observed spatial distribution patterns
5. Evaluate proposed sampling intensity and statistical power

Following publication of the final report in December 2017, a Pilot Tilefish Survey Review Committee (Committee) was established to peer review the report and its findings and provide recommendations regarding future tilefish research and survey implementation. The Committee met via webinar on April 16, 2018 with the following Committee members in attendance: Paul Rago (MAFMC SSC), John Carmichael (SAFMC Staff), George Sedberry (SAFMC SSC), Marcel Reichert (SAFMC SSC), Nate Bacheler (SEFSC), Dave McElroy (NEFSC), Matthew Seeley, Brandon Muffley, and José Montañez (MAFMC Staff).

The goals of the meeting were to respond to the terms of reference (TORs) that address the survey objectives and provide recommendations on next steps/future directions for the survey. The meeting began with a welcome and introduction from Council staff followed by an overview of the TORs. The Committee then provided comments to address each TOR.

Pilot Tilefish Survey Review Terms of Reference

1. *State if the final report addressed the goals and objectives stated in the request for proposals.*

The Committee determined that the report addressed all goals and objectives identified in the survey proposal and request for proposal. The requirement in the request for proposals identifying the need for a survey to sample the full range of GTF and BLT from the northern extent of their range to Cape Hatteras was met. The design, execution, and analysis were appropriate, however, the catches, especially for BLT were too low to develop a reliable index with sufficient precision for use in stock assessments. The principal investigators (PIs) adequately demonstrated the feasibility of field methods and provided strong analyses of the results, despite the low sample size of BLT.

2. *Evaluate the appropriateness and robustness of the survey design and methodology. Were the results of the pilot survey clearly interpreted?*

The survey design was robust and conducted in collaboration with all stakeholders, but given the low catches, in particular for BLT, the design may have to be re-evaluated (potentially by increasing the number of stations) to reduce uncertainty. The implementation protocols appeared to be feasible and the interpretation of the data was appropriate and valid given the effective post hoc analyses, which contained good recognition of the limitations.

Comments:

- Bait size should be relative to hook size instead of standardizing bait size across all hook sizes.
- Consider use of Smith (2016) methodology for hook saturation bias.
- Frequency of zero catch (any species) do not cause concerns about 1 gear saturation unless the zero catches are the result of baitless hooks. The overall catch rate was only 5% catch rate (30,000 hooks with 1,300 fish caught, Supplemental Table 1) and about 2.5% for tilefish. However, if the hooks are baitless upon haulback then other species or invertebrates may be stripping the bait, thereby reducing potential catches of the target tilefish species.
 - Provide information on leading hook with bait or not; and if a baited hook came back empty (no catch and no bait)
- Need to have a more consistent soak time. Look into standardizing the soak time with the South Atlantic surveys.
- Look at species composition and bycatch species relative to soak time.
- Update and clarify the supplemental figure that shows total catch relative to soak time as there may be species-specific differences relative to the soak time due to differences in behavior, for tilefish and other species.
- Note bait presence or lack of, on a per hook basis to assist in identifying an appropriate soak time.
- Provide additional information as to when sets were made and how many were before and continued until after sunset.

- There appears to be inconsistent use of “effort” across the report in terms of CPUE (e.g., compare Fig 2 vs Fig 8). This should be defined within each graph or be applied consistently across the report.

Recommendations:

- According to BLT data collected from the MARMAP SEAMAP-South Atlantic Long Bottom Longline survey south of Cape Hatteras, BLT bottom substrate preference may differ from GTF. The shallowest sampled strata were 75 meters, so the survey may have missed BLT in shallow waters (~ <50 meters).
 - Use only one hook size (small or medium) may be more appropriate in future. The small hooks seem to have overall higher catch rates and an increase in the proportion of undersized fish. The current assessment model provides little evidence of incoming recruitment and would therefore be improved with such information.
 - If continued as is, need to think about how a multi-hook survey could be used in an assessment. Either separate indices would be developed or a standardized weighting approach would need to be developed. This may add unnecessary complexity to the relative abundance index without adding much to the assessment. Separate hook-specific abundance indices would have higher variances and proper estimates of the covariance among catch rates for different sizes would be difficult to compute.
 - The pilot survey seems to have clarified the hook selectivity issues for Golden Tilefish. Using the small or medium hook size may be best for moving forward. Analyzing effect of bait size and hook size effects would require another pilot study.
 - Clarify that the same hook brand was used and standardize it with South Atlantic surveys.
 - It would be very useful to have information from hook timers, but the reviewers understand the difficulties associated with them.
 - If an appropriate approach to use hook timers can be developed, data collected from hook timers may only be needed for a year or two and could be stopped.
 - There was limited temporal coverage (just summer), which does not provide much information on temperature preference – need additional sampling to occur.
 - The survey’s timing in mid-summer might have helped to lower spiny dogfish bycatch
3. *Could this survey design and methodology be used to develop an index of abundance and stock dynamics for tilefish?*

If the survey was continued as conducted in the pilot, an index of abundance could be developed for GTF. Due to the low encounter rates for BLT, many aspects of the survey design would need to be modified (depth strata, samples per strata, hook size, bait size, etc.). Furthermore, the Committee stated it is premature to make these recommendations given the magnitude of interannual variability is unknown. The Committee suggested that

the survey may be more effective if the targeted species (and associated habitat/location) was alternated to every other year.

Comments:

- Consider adding a table of hook size (as columns) vs fate (caught, baited, empty) as rows to demonstrate potential effects of gear saturation.
- Consider how rates for different hook sizes would be handled as tuning indices in stock assessment models.

Recommendations:

- Consider a multi-year option with increased sampling intensity; or one targeted species per year with specific design and the other in the next year with a specific design
 - Likely only 1-year break – lose the information on recruits into the fishery (smallest fish caught (30-40 cm) are ~3 years old and are retained by fishery at ~4 years old)
 - Modify strata in future surveys to cover the shallower BLT habitat.
4. *Could the survey design and methodology presented in the final report (or a modification of it) be coupled with fishery-independent surveys conducted by SEAMAP-South Atlantic?*

The Committee concluded that modifications are necessary to make the surveys directly compatible. Survey compatibility would only apply to BLT due to the one-unit stock's extensive range. GLT are separate stocks, so the development of one comprehensive survey index would not be helpful to the assessments for GLT in the Southeast.

The MARMAP SEAMAP-South Atlantic Long Bottom Longline is the most compatible survey. A detailed description of this report is available in Carmichael et al. (2016). The main differences are the strata and depth sampled, number of hooks, hook size (one versus 3), bait (whole squid vs 1"x1"), and sampling season. (The survey in the SA is conducted and funded as a collaborative effort by SEAMAP-SA and MARMAP, both housed at SCDNR).

5. *Identify strengths and weakness on the continuation (development) of a comprehensive tilefish survey, including comments on applicability of the survey design, and comprehensive versus single species survey approach.*

Overall, the investigators have done an outstanding job of evaluating the results to date through identifying relationships between environmental data and catch rates. This information should be used in the future to assist in refining the survey coverage.

The Committee agreed there is a clear need of a comprehensive long-term survey for tilefishes in the mid- and south Atlantic regions. This type of survey has been listed as a high priority research area in various (SEDAR) stock assessments and other reports, and has strong support from the South Atlantic and Mid-Atlantic SSCs and Councils.

Continuation of this survey in a form that will increase catches and is comparable with survey efforts South of Cape Hatteras (SEAMAP-SA/MARMAP) will be extremely useful for (region wide) BLT stock assessments. Whether the survey is conducted annually or every other year will depend highly on availability of funds and cost-benefit of conducting a survey for either or both GLT and BLT.

Sampling efforts in collaboration with the industry can be cost effective and powerful in terms of buy-in (stakeholder involvement). However, the nature of a long-term fishery independent survey requires consistency (e.g. sampling methods and seasons) and longevity. This means that it is imperative that participants are cognizant of the scientific constraints and long-term commitment requirements for participation.

Comments:

- The investigators recognize the limitations of an optimal allocation scheme, when compared to the current survey design, since it depends strongly on the magnitude of estimated variance. In many instances, optimal configurations are not stable over time. Implementation of optimal design for year t in year $t+1$ may in fact lead to worse performance.

Recommendations:

- Consider how the hook size data would be used to either create an estimate of abundance or be used in a stock assessment model.

6. *Make recommendations to improve the survey design and implementation; e.g., sampling effort for golden and blueline tilefish, cost-benefit of changes to the survey design. Comment on potential funding sources for the implementation of future fishery-independent tilefish surveys.*

The Committee agreed that it may be highly cost effective to run the survey for a single species every other year (GTF, BLT, GTF, BLT, etc.). This will hopefully reduce fuel costs, boat time, staff effort, etc. due to not having to cover as much spatial coverage in each survey. This will allow for more stations per species and ultimately increase the overall precision of the survey.

See TOR 2 for additional specific comments on ways to improve the survey design and implementation.

Comments:

- Consider effects of bait loss and saturation on abundance estimation, using methodology of Smith 2016.
- Consider the effects of multiple hook sizes and rationale for retaining.
 - Need a more detailed consideration of size selectivity.
 - Propose table of hook size vs size composition—supplemental figure 3. But, scaled for numbers caught.
- Work up the current (flow) meter data.

- This may serve as an adjunct with a camera related system and may also help define a bait plume footprint.
- Analyses of effect of soak time was inadequate because there was not enough variation in soak time. Regression is pretty much determined by high leverage points on boundaries. A plot of confidence intervals would be helpful.
- Stratum variances can be expressed as a negative binomial with $\text{predicted_var} = \text{mean} + \alpha * \text{mean}^2$, with alpha about ~ 1.04 . This has important implications for precision of estimates and for future survey designs.
- Can boost the revenue slightly by only using the small hooks.

Potential funding sources: Marine Fisheries Initiative (MARFIN), NOAA Cooperative Research Program (CRP), Southeast/Northeast Fisheries Science Centers.

Recommendations:

- The survey may not have adequately sampled BLT habitat. BLT bottom type preference may differ from GTF. The shallowest sampled strata were 75 meters, so the survey may have missed BLT in shallow waters ($\sim <50$ meters). Alter survey strata locations to gather more informative data and thus, become more cost effective.
- There was limited temporal coverage (just summer), which does not provide much information on thermal habitat preference across seasons – need additional sampling to occur.

7. *Could the survey design and methodology presented in the final report (or a modification of it) be coupled with other fishery-independent surveys? E.g., method for assessing blueline and golden tilefish stocks using a baited underwater video system.*

Yes, this survey design could be coupled with other fishery-independent surveys. Coordination of efforts and survey design will significantly increase the utility of the collected data for assessments and management. Coupling with additional survey methods can be useful yet, many surveys use different gear, sample at various times, target different regions, etc. The lack of consistency between surveys needs to be considered and adjusted on a survey-to-survey basis to help all variables become more consistent.

Comments:

- The use of video may be limited due to the water depth and associated low light conditions, as well as, the need to cover a much larger area.
 - This may require a light source, which may affect the survey observations and survey design.

Recommendations:

- Think in the context of what is needed for future assessments and what is actually feasible in a single survey.
 - Video surveys may be an effective approach for evaluating habitat/burrows, but there is no way to know if they are occupied/

- Is this an attempt to build a mechanistic, multi-gear estimator of abundance?
- OR, is it part of a population model that incorporates removals with fishery independent and dependent abundance indices?
- One potential linkage would be to use the bottom current measurements to develop a bait plume footprint.
- Differences in soak time, hook size, and hook spacing may be important. May need to rely on literature or conduct separate experiments.

8. *Other Comments or Issues*

- How important is it to conduct a BLT survey index of abundance – considering the cost-benefit of the survey and the fishery?
- Survey experienced limited bycatch and was able to focus on tilefish.
- Commercial vessel platform – probably the best approach from a practical (set-up, crew etc.) and public relations approach; need clear protocols for captains to follow to minimize their effects and minimize leeway.
- Operational costs (\$6,000) was quite reasonable for other fishing-based platforms and when compared to the use of a scientific vessel.
- Depth and area stratification is appropriate for GTF – may want to reconsider for BLT.
- The easiest way to increase the precision is to increase the number of stations. Increasing the catch per station does very little to nothing for the precision (see additional comments on survey catch rates and variance).
- Standardize methods (including type and number of hooks, length of gangions, length of ground line, soak time, sampling season, and bait) among surveys regionally.
 - There are significant operational and analytical challenges to making the different surveys similar enough to combine data.
 - In some cases, this may not be surmountable or creates significant analytical problems (e.g. different habitat and bottom types).
- Consider (continued) use of hook timers.

References

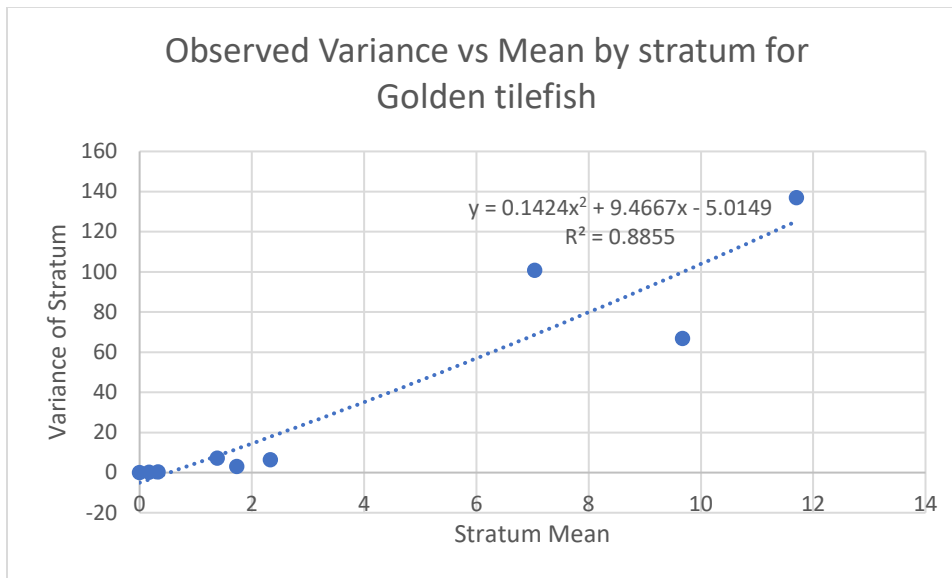
Carmichael, J, M Duval, M Reichert, N Bacheler and T Kellison. 2015. Workshop to determine optimal approaches for surveying the deep-water species complex off the southeastern U.S. Atlantic coast. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SEFSC-685. 24 p. doi:10.7289/V5GB222C

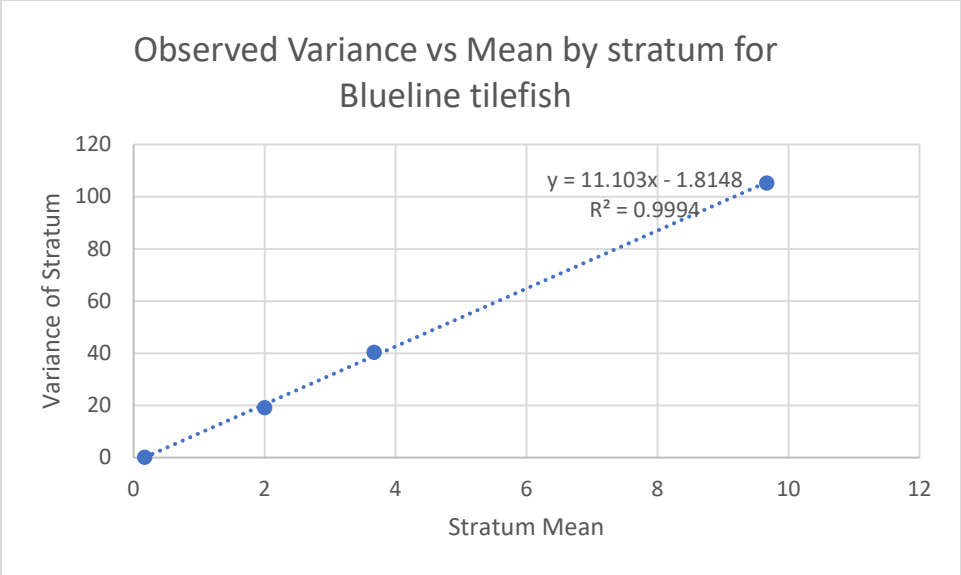
Smith, S. J. 2016. Review of the Atlantic Halibut longline survey index of exploitable biomass. Can. Tech. Rep. Aquat. Sci. 3180: v + 56 p

Appendix

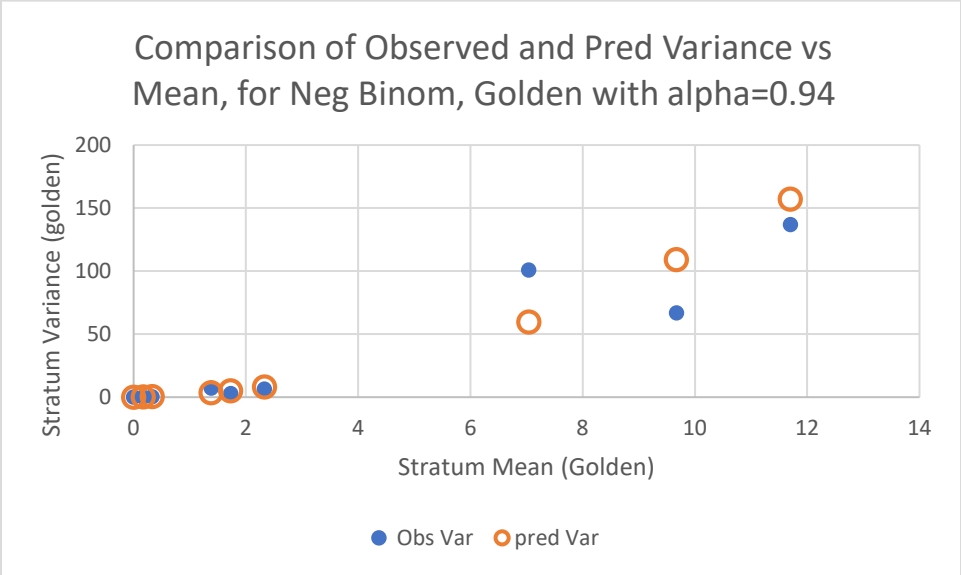
Additional comments on survey catch rates and variance.

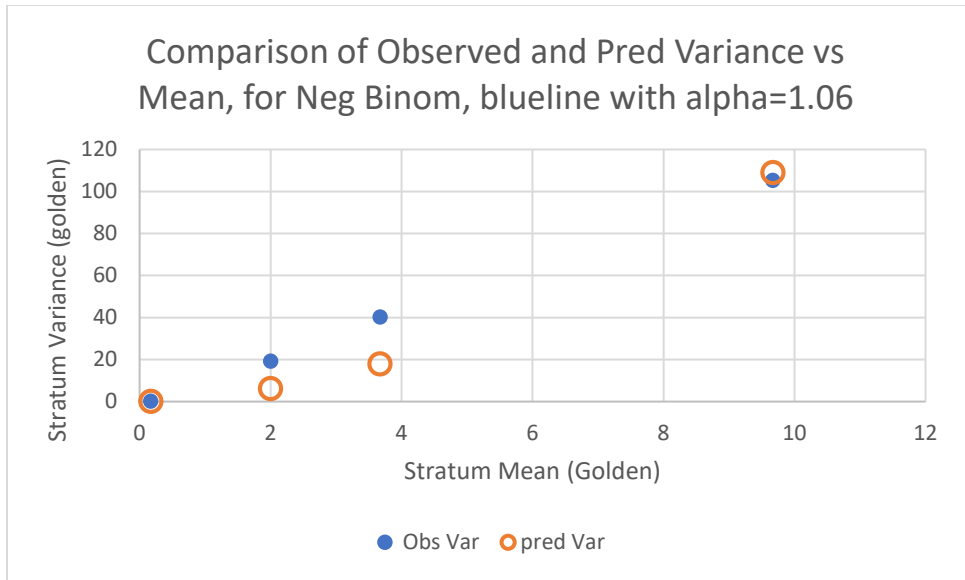
At several times during the discussion last week, we noted the low catches of blueline tilefish in particular, and the difficulties that posed for developing an abundance index. Such concerns are warranted for the collection of biological samples. Moreover, we are generally more comfortable stating that relative abundance has declined 50% when catch rates go from 10 per set to 5, rather than 0.1 to 0.05 per set. However, increasing the total average catch per set should not be the primary determinant of that comfort level. Instead it is the relative precision of the estimate that should give us comfort, not the magnitude per se. To examine this, I first looked at the relationship between the variance and mean catch rates per stratum. If fish are distributed in patches, then theory suggests that the catches should follow a negative binomial model wherein the variance is a function of the mean plus the mean squared. In a Poisson model the variance will equal the mean. Using the data in the report, (Table 7, Table 8, Table 9) I plotted the variance vs the mean for Golden, Bluelines and combined and fitted a negative binomial model as $\text{Var} = \text{mean} + \alpha * \text{mean}^2$. The results are shown below:





Negative Binomial parameterization of Mean variance relationship for Golden Tilefish





The negative binomial model seems plausible for golden but less so for blueline. To examine the effects of increased catch per set, I used the above fit for the negative binomial to predict the variance for an increase in the mean of 10X. Since the variance increases with the square of the mean, you might expect that very little gain in precision occurs. The computations are given below.

Baseline Scenario

Species	stratum	n_h	Wh	ybar_h	sd_h	var_h	var_h/n_h	Wh^2
Golden	3.2	10	0.157	0.17	0.41	0.1681	0.01681	0.024649
Golden	3.3	26	0.215	7.04	10.04	100.8016	3.876984615	0.046225
Golden	3.4	3	0.012	0.33	0.58	0.3364	0.112133333	0.000144
Golden	4.2	10	0.147	1.38	2.67	7.1289	0.71289	0.021609
Golden	4.3	20	0.172	9.67	8.17	66.7489	3.337445	0.029584
Golden	4.4	3	0.016	2.33	2.52	6.3504	2.1168	0.000256
Golden	5.2	6	0.084	0	0	0	0	0.007056
Golden	5.3	22	0.184	11.7	11.7	136.89	6.222272727	0.033856
Golden	5.4	3	0.014	1.73	1.73	2.9929	0.997633333	0.000196

y-strata 5.62465

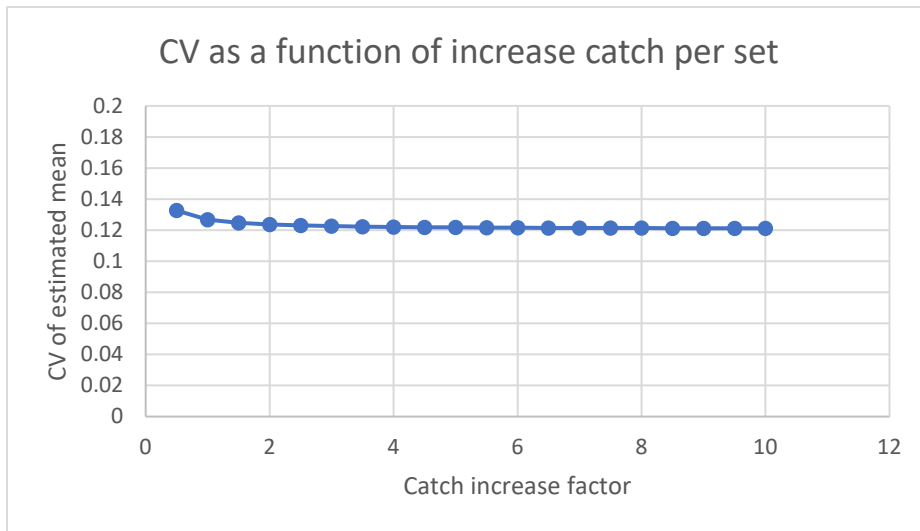
Var_stratified 0.505182626
 SD stratified 0.710762004
 CV_stratified 0.126365552

The 10X scenario is below

10X Catch Scenario

				Factor 10	Pred SD	Pred Var				
<i>Species</i>	<i>stratum</i>	<i>n_h</i>	<i>Wh</i>	<i>ybar_h</i>	<i>sd_h</i>	<i>var_h</i>	<i>var_h/n_h</i>	<i>Wh²</i>		
Golden	3.2	10	0.157	1.7	2.169239	4.7056	0.47056	0.024649		
Golden	3.3	26	0.215	70.4	72.28282	5224.806	200.9540923	0.046225		
Golden	3.4	3	0.012	3.3	3.824343	14.6256	4.8752	0.000144		
Golden	4.2	10	0.147	13.8	14.55533	211.8576	21.18576	0.021609		
Golden	4.3	20	0.172	96.7	99.10411	9821.626	491.08128	0.029584		
Golden	4.4	3	0.016	23.3	24.24676	587.9056	195.9685333	0.000256		
Golden	5.2	6	0.084	0	0	0	0	0.007056		
Golden	5.3	22	0.184	117	119.8063	14353.56	652.4345455	0.033856		
Golden	5.4	3	0.014	17.3	18.12627	328.5616	109.5205333	0.000196		
y-strata				56.2465				Var_stratified	46.44781339	
								SD stratified	6.815263267	
								CV_stratified	0.121167775	

Note that the CV is almost the same. I examined the predicted CV over a range of multipliers in the following graph.



The obvious take-home message is that increasing the catch, when the catches follow a negative binomial distribution, does not have much effect on relative precision.

In contrast, sampling theory suggest that the biggest gains in precision come when you can increase the number of stations. To examine this effect, I looked at a range of increases in the number of stations.

Sampling Effort Increase Scenario

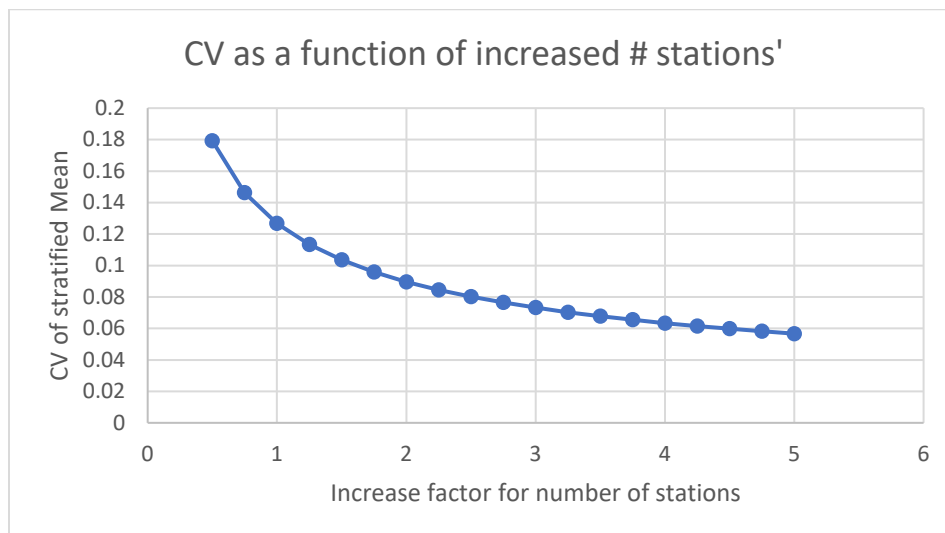
		Sample Size Adj Factor 2		Mean Adj Factor 1	Pred SD	Pred Var		
<i>Species</i>	<i>stratum</i>	<i>n_h</i>	<i>Wh</i>	<i>ybar_h</i>	<i>sd_h</i>	<i>var_h</i>	<i>var_h/n_h</i>	<i>Wh^2</i>
Golden	3.2	20	0.157	0.17	0.447276	0.200056	0.0100028	0.024649
Golden	3.3	52	0.215	7.04	7.654023	58.58406	1.126616615	0.046225
Golden	3.4	6	0.012	0.33	0.665775	0.443256	0.073876	0.000144
Golden	4.2	20	0.147	1.38	1.833187	3.360576	0.1680288	0.021609
Golden	4.3	40	0.172	9.67	10.34018	106.9193	2.6729814	0.029584
Golden	4.4	6	0.016	2.33	2.824191	7.976056	1.329342667	0.000256
Golden	5.2	12	0.084	0	0	0	0	0.007056
Golden	5.3	44	0.184	11.7	12.41232	154.0656	3.501490909	0.033856
Golden	5.4	6	0.014	1.73	2.200594	4.842616	0.807102667	0.000196

y-strata 5.62465 Var_stratified 0.254088446

SD stratified 0.504071866

CV_stratified 0.089618352

In this example a two-fold increase in sampling stations reduces the CV from 0.126 to 0.090. Over a range of sample size increases the effects are even more pronounced.



Of course the costs of increased sampling stations vs longer strings are not equal, but it is clear that increases in average catch per se will not do much to increase the precision (ie reduced the variance).



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

5:30 p.m. – 7:30 p.m.

Welcome Reception

Gloucester House Restaurant, 63 Rogers St, Gloucester, MA 01930

Tuesday, May 1

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)

11:45 a.m. – 12:30 p.m.	Roundtable discussion on EAFM issues - U.S./European perspectives
12:30 p.m. – 2:00 p.m.	Lunch
2:00 p.m. – 5:00 p.m.	Site visits in Gloucester, MA
2:00 p.m. – 3:30 p.m.	Swan Net <i>41 Great Republic Dr., Gloucester, MA 01930</i>
3:45 p.m. – 5:00 p.m.	Cape Seafood <i>3 State Fish Pier, Gloucester, MA 01930</i>

Wednesday, May 2

9:00 a.m. – 9:10 a.m.	Day 2 Overview
9:10 a.m. – 9:45 a.m.	Bycatch 1: Gear/Mesh approaches (Shannon Bayse, UMass)
9:45 a.m. – 10:30 a.m.	Bycatch 2: Communication and fishermen behavior-based approaches – Shoreside Monitoring (Dave Bethoney, SMAST; Brad Schondelmeier, Mass DMF; and Gerry O’Neil, Cape Seafoods)
10:30 a.m. – 11:15 a.m.	Bycatch 3: Electronic Monitoring (Nicole Rossi, NEFSC; Morgan Wealti, Saltwater Inc.)
11:15 a.m. – 12:00 p.m.	Roundtable discussion on bycatch issues – U.S./European perspectives
12:00 p.m. – 1:30 p.m.	Lunch
1:30 p.m. – 2:30 p.m.	Industry involvement in surveys/assessment (Jon Hare, NEFSC Director)
2:30 p.m. – 3:30 p.m.	Role of acoustics in U.S. science/management (Mike Jech, NEFSC)
3:30 p.m. – 4:30 p.m.	Open discussion/public comment
4:30 p.m. – 5:00 p.m.	Recap

Thursday, May 3

9:30 a.m. – 11:00 a.m.	Wrap-up, open discussion, public comment
11:00 a.m. – 1:00 p.m.	Travel to New Bedford / Lunch on the way
1:00 p.m. – 2:00 p.m.	Tour of the Buyers and Sellers Exchange (the Auction) <i>62 Hassey Street, New Bedford 02740; www.baseseafood.com</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
- 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
- 6:00 p.m.** **Dinner**
The Waterfront Grille, 36 Homer's Wharf, New Bedford, MA 02740

2018 SPRING NRCC MEETING AGENDA

Hotel Providence – 139 Mathewson Street, Providence RI 02903

Conference call-in information: (866) 822-6179

Participant Code: 5003656

The conference call line will be available on an as-needed basis. Members should inform NRCC coordinators if anyone will be calling in for a particular agenda item.

All times are approximate

Tuesday, May 15

0900-0910

1. Welcome, Introductions, Announcements
(Pentony, Hare, Gilbert)

0910-1200 (Break as needed)

2. Long-term Assessment Prioritization Progress and Other General Assessment Topics (*Note: the NRCC will review/finalize the assessment schedule on Day 2*)
Discussion leader: NEFSC
 - Update on Progress of the NRCC Assessment Working Group
 1. Review suggested process and definitions for management track and research track
 2. Review strawman schedules for the two tracks
 3. Present plan for forming future NRCC research working groups
 - Marine Recreational Information Program (MRIP)-impacted Assessments: Discuss strategies for MRIP management track assessments including timing (e.g., draft alternative schedule) and process for these assessments (apply new management track process?)

1200-1300 Lunch

1300-1400

3. Report on Differences in Discard and Landing Estimates
Discussion leaders: Lanning/Simpkins
 - GARFO and NEFSC will provide an update on coordinated efforts to align methodologies, where possible.

1400-1445

4. Discuss and Refine Current List of Analytical Tools
Discussion leader: Simpkins

1445-1615

5. Discuss Where Various Datasets are Stored and the Feasibility of Developing a Single Warehouse
Discussion leader: Beal/ACCSP

1615-1700

6. Update on Northeast Trawl Advisory Panel (NTAP)

Discussion leaders: *Identified below*

- Review NTAP Charter (Stockwell)
- Review NTAP engagement in Bigelow trawl survey performance (NEFSC)

1700 *Adjourn Day 1*

1800 *Cocktails and Dinner at Andino's, 171 Atwells Ave*

(<http://andinosprovidence.com>)

- Located 0.6 miles (13-minute walk) from hotel
- Complimentary valet parking available
- Cocktails at 6pm, followed by dinner at 7pm

Wednesday, May 16

0830-1000

7. Formalize Assessment Schedules

Discussion leader: NEFSC

- Consider modifications and approval of proposed assessment schedules, based on discussions from yesterday.
- Discuss strategies for MRIP management track assessments

1000-1015 *Break*

1015-1030

8. NEFMC Program Review

Discussion leader: Nies

- Discuss results of the independent review of the NEFMC, specifically recommendations that relate to NRCC activities

1030-1115

9. Review of NRCC: Current Process and Procedures

Discussion leader: Pentony

- Discuss thoughts on NRCC: *How do we think the NRCC is functioning currently and what improvements could be made?*

1115-1145

10. MRIP Transition: Potential Management Implications

Discussion leaders: Kerns/Gilbert

- Update NRCC on potential short-term and long-term recreational/commercial allocation implications following the MRIP transition.

1145-1215

11. Aquaculture in Federal Waters

Discussion leader: Gilbert

- Status of permitted and proposed Exclusive Economic Zone (EEZ) water aquaculture projects
- Update on status of developing a regulatory process for aquaculture in EEZ waters

1215-1315 *Lunch*

1315-1415

12. Updates on Fall 2017 Action Items

Discussion leaders: *Identified below*

- Update on forming a standing committee between NEFMC, MAFMC, and SAFMC to discuss straddling and moving stocks through the Council Coordination Committee process (Nies/Moore)
- Update on continued development on the 2018 Climate Workshop (Hare)
- Status of funding opportunities for coastwide deepwater species longline survey (Hare)
- Update on vessel trip report instructions and incorporation of species codes for species that are landed but not reported (Gouveia)
- Update on 508 Compliance (Weinberg/Gilbert)

1415-1515

13. Meeting wrap up

- Complete any unfinished discussions or unresolved new business
- Review action items and assignments
- Identify Fall 2018 (NEFMC host) meeting date
- Adjourn meeting

1515 *Meeting adjourns*

2018 May Council Coordination Committee Meeting

About

The Council Coordination Committee meets twice each year to discuss issues relevant to all councils, including issues related to the implementation of the Magnuson-Stevens Act.

Schedule – Day 1

TIME	SUBJECT	PRESENTER
1:00 - 1:10	Welcome/Introductions	Dan Hull/Chris Oliver
1:10 - 1:15	NOAA Fisheries Update	Chris Oliver
1:15 - 2:30	Budget Update > Presentation	Brian Pawlak
2:30 - 3:00	Bycatch Update > Presentation	Sam Rauch
3:00 - 3:15	Break	
3:15 - 3:45	Electronic Monitoring Policy Directive > Presentation	Brett Alger/Councils
3:45 - 4:00	Data Modernization > Net Gains Report > Net Gains Presentation	Dorothy Lowman
4:00 - 4:30	Development of Electronic Monitoring (EM) in the North Pacific > Presentation	Diana Evans
4:30	Adjourn for the Day	
4:30 - 5:00	Demonstration of EM (dock outside)	Alaska Fishermen Stephan Rhoads

Schedule – Day 2

TIME	SUBJECT	PRESENTER
8:00 - 8:30	Coffee and Pastries	
8:30 - 9:30	Legislative Update and CCC comments > Legislative Committee Update > Congressional Activities Report > Legislative Committee Call Report > Working Paper Additions > Working Paper > Draft Letter to Congressman Don Young	Gregg Waugh/Dave Whaley
9:30 - 10:15	Recusal Policy- Discussion Paper	Adam Issenberg
10:15 - 11:00	EBFM Regional Implementation plans > Presentation	Sam Rauch
11:00 - 11:15	Break	
11:15 - 11:45	Exempted Fishing Permits – Use and review > Presentation	Glenn Merrill/Councils
11:45 - 12:15	BSIA Update > Presentation > White Paper	Cisco Werner/Councils
12:15 - 1:30	Lunch on your own	
1:30 - 2:30	NMFS Policy Directives & Prioritization > Presentation > Policy Directive System	Jennifer Lukens/Chuck Tracy
2:30 - 3:15	Allocation Reviews > NPFMC Allocation Review Progress > Policy Implementation	David Witherell Alan Risenhoover
3:15 - 3:30	Break	

TIME	SUBJECT	PRESENTER
3:30 - 4:30	Research Priorities > Presentation > Research Priorities Letter > NMFS Response	Tom Nies/Cisco Werner
4:30	Adjourn	

Schedule – Day 3

TIME	SUBJECT	PRESENTER
8:00 - 8:30	Coffee and Pastries	
8:30 - 9:30	Aquaculture Policy Updates > Lessons from GMFMC FMP	Sam Rauch/Carrie Simmons
9:30 - 10:00	International Affairs/Seafood Inspection	Sam Rauch
10:00 - 10:30	Regulatory Reform progress reports	Alan Risenhoover/Councils
10:30 - 10:45	Break	
10:45 - 11:45	Recreational Fisheries Overview > Presentation	Russ Dunn
11:45 - 12:00	Citizen Science > Cornell/SAFMC Poster Narrative > Citizen Science Program	Mark Brown
12:00 - 1:30	Lunch on your own	

TIME	SUBJECT	PRESENTER
1:30 - 2:45	NEFMC Program Review > Presentation > Touchstone Report > FAO Overview > Final Prospectus	Tom Nies
2:45 - 3:00	NOAA Fisheries Website Transition	Rebecca Ferro
3:00 - 3:15	Break	
3:15 - 4:15	CCC Workgroup Reports >Overview <ul style="list-style-type: none"> • Communications Group • Habitat Committee > Habitat Update Presentation • Scientific Coordination Subcommittee 	Maria Shawback/ Diana Evans/ Chuck Tracy
4:15 - 4:30	CCC TOR and Meeting Schedules > CCC TOR > 2020 Calendar and Meeting Schedule > Meeting History	David Witherell/ Tom Nies
4:30 - 4:45	Other Business and next meeting	Gregg Waugh
4:45 - 5:00	Wrap up and next meeting	Dan Hull
5:00	Adjourn	



Atlantic States Marine Fisheries Commission

2018 Spring Meeting Summary

Vision: Sustainably Managing Atlantic Coastal Fisheries

2018 Spring Meeting
Alexandria, VA
April 30 – May 3, 2018

Toni Kerns, ISFMP, or
Tina Berger, Communications
For more information, please contact
the identified individual at
703.842.0740

Meeting Summaries, Press Releases and Motions

TABLE OF CONTENTS:

SUMMER FLOUNDER, SCUP AND BLACK SEA BASS MANAGEMENT BOARD JOINTLY WITH THE MID-ATLANTIC FISHERY MANAGEMENT COUNCIL (APRIL 30, 2018)	3
<i>Meeting Summary</i>	3
<i>Motions</i>	5
BLUEFISH MANAGEMENT BOARD JOINTLY WITH THE MID-ATLANTIC FISHERY MANAGEMENT COUNCIL (APRIL 30, 2018)	6
<i>Meeting Summary</i>	6
<i>Motions</i>	6
COASTAL SHARKS MANAGEMENT BOARD (MAY 1, 2018)	7
<i>Meeting Summary</i>	7
<i>Motions</i>	8
LAW ENFORCEMENT COMMITTEE (MAY 1, 2018)	9
<i>Meeting Summary</i>	9
TAUTOG MANAGEMENT BOARD (MAY 1, 2018)	10
<i>Meeting Summary</i>	10
<i>Motions</i>	11
LEGISLATORS AND GOVERNORS' APPOINTEES (MAY 1, 2018)	11
<i>Meeting Summary</i>	11
ATLANTIC STRIPED BASS MANAGEMENT BOARD (MAY 1, 2018)	12
<i>Meeting Summary</i>	12
<i>Motions</i>	13
ATLANTIC HERRING SECTION (MAY 1, 2018)	13
<i>Meeting Summary</i>	13

<i>Motions</i>	14
NORTHERN SHRIMP SECTION (MAY 1, 2018)	14
<i>Meeting Summary</i>	14
<i>Motions</i>	15
ATLANTIC COASTAL COOPERATIVE STATISTICS PROGRAM COORDINATING COUNCIL (MAY 1, 2018) ..	15
<i>Meeting Summary</i>	15
<i>Motions</i>	15
ANNUAL AWARDS OF EXCELLENCE (MAY 1, 2018)	16
<i>Press Release</i>	16
EXECUTIVE COMMITTEE (MAY 2, 2018)	18
<i>Meeting Summary</i>	18
<i>Motions</i>	19
ATLANTIC MENHADEN MANAGEMENT BOARD (MAY 2, 2018)	19
<i>Press Release</i>	19
<i>Meeting Summary</i>	20
<i>Motions</i>	20
AMERICAN LOBSTER MANAGEMENT BOARD (MAY 2, 2018)	21
<i>Meeting Summary</i>	21
<i>Motions</i>	22
WINTER FLOUNDER MANAGEMENT BOARD (MAY 2, 2018)	22
<i>Meeting Summary</i>	22
<i>Motions</i>	22
INTERSTATE FISHERIES MANAGEMENT PROGRAM POLICY BOARD (MAY 3, 2018)	22
<i>Meeting Summary</i>	22
<i>Motions</i>	24
SUMMER FLOUNDER, SCUP AND BLACK SEA BASS MANAGEMENT BOARD (MAY 3, 2018)	26
<i>Press Release</i>	26
<i>Motions</i>	27
SOUTH ATLANTIC STATE/FEDERAL FISHERIES MANAGEMENT BOARD (MAY 3, 2018)	27
<i>Press Release</i>	27
<i>Meeting Summary</i>	28
<i>Motions</i>	29

SUMMER FLOUNDER, SCUP AND BLACK SEA BASS MANAGEMENT BOARD JOINTLY WITH THE MID-ATLANTIC FISHERY MANAGEMENT COUNCIL (APRIL 30, 2018)

Meeting Summary

The Summer Flounder, Scup, and Black Sea Bass Management Board (Board) and the Mid-Atlantic Fishery Management Council (Council) met jointly to consider a number of issues. These include (1) approving a joint Summer Flounder Commercial Issues Amendment Public Hearing Document (PHD) for public comment; (2) a draft discussion document regarding a strategic plan for reforming recreational black sea bass management; (3) draft alternatives for the recreational management framework and addendum for all three species; and (4) preliminary harvest estimates from the February 2018 recreational black sea bass fishery.

Summer Flounder Commercial Issues Amendment Public Hearing Document

The PHD serves as an abridged version of the Draft Summer Flounder Commercial Issues Amendment, which the Board also approved for public comment. This action proposes potential modifications to the commercial summer flounder fishery, as well as the existing fishery management plan objectives for summer flounder.

This amendment was initiated in 2014 in response to stakeholder feedback received during the Council's visioning project regarding concerns with the current summer flounder commercial management program. Specifically, the Draft Amendment seeks public input on four issues:

- 1. Requalifying criteria for federal commercial moratorium permits to address latent effort in the fishery** – Federal permit qualification criteria have not changed since establishment in 1993. Some stakeholders believe the original permit qualifications criteria resulted in the current number of federal permits being too high relative to recent stock size estimates and resulting quotas. Additionally, given restrictions and stock trends in other fisheries, there is concern that inactive permits may reenter the summer flounder fishery, putting further economic strain on participating vessels. The Amendment offers options to reduce the number of commercial federal moratorium permits based on qualifying criteria.
- 2. Modifying commercial quota allocation** – The current commercial allocation was last modified in 1993 and is perceived by many as outdated given its basis in 1980-1989 landings data. Summer flounder distribution, biomass, and fishing effort have changed since then, and some believe the initial allocations may not have been equitable or were based on flawed data; therefore, stakeholders requested evaluation of alternative allocation systems. The Amendment offer a range of options to modify and re-allocate the current annual commercial state by state quota allocations.
- 3. Adding commercial landings flexibility as a framework issue in the Council's FMP** – Landings flexibility policies would give commercial vessels greater freedom to land or possess summer flounder in the state(s) of their choice. Although such policies may be more effectively developed by state level agreements, the Board and Council are interested in having the option to pursue broader landings flexibility policies via framework action/addenda in the future if necessary. This action does not consider implementing landings flexibility policies at this time.

4. **Revise the FMP objectives for summer flounder** – Many managers and stakeholders believe that the current objectives have become outdated and could provide more meaningful guidance if updated. Although the revisions to FMP objectives are not proposed as an explicit set of options in the Amendment, they are provided for public comment.

The Board and Council will determine the public comment period as well as the schedule of public hearings following the June Council Meeting, and notify the public through a joint press release. The Board and Council will consider taking final action on this amendment in December 2018.

Draft Strategic Plan for Reforming Recreational Black Sea Bass Management

A draft discussion document on reforming recreational black sea bass management was developed by the Board Chair and Vice-Chair in response to wide-ranging concerns with the current management program. The draft is aimed at providing a starting point for discussion on the development of a comprehensive reform initiative. At the meeting, the draft was presented and briefly discussed. The Board and Council offered support for continued development of the strategy over the next few months, first, through direct input from members, then through a joint working group process. The draft document, as modified through the initial review process, will be brought back before the Board and Council.

Draft Alternatives for the Recreational Management Framework and Addendum

The Council and Board considered draft alternatives for the Summer Flounder, Scup and Black Sea Bass Recreational Management Framework and Addendum. This action was initiated at the December 2017 joint meeting. After considering the recommendations of the Fishery Management Action Team (FMAT), and the Council's Demersal Committee and a subset of the Board, the Board and Council approved alternatives to include in a draft public hearing document. The draft alternatives include options for conservation equivalency for recreational black sea bass, conservation equivalency rollover, slot limits in recreational fisheries for all three species, and Block Island Sound transit provisions. The transit provision alternatives include two alternative transit zone areas that could apply to recreational fisheries only, or both commercial and recreational fisheries for all three species, depending on the alternatives selected. The Board and Council considered but chose not to include alternatives for evaluating and modifying recreational management measures based on a comparison of catch to the Annual Catch Limit in this action. A draft document will be presented at the August joint meeting of the Board and Council with final action tentatively scheduled for December 2018.

Preliminary February 2018 Recreational Black Sea Bass Harvest Estimates

Finally, the Board and Council received a report on the preliminary harvest estimates for the February 2018 black sea bass recreational fishery. Virginia and North Carolina were the only states to participate in the fishery, and the total harvest between both states is estimated between 4,826 and 5,206 pounds of black sea bass.

For more information on black sea bass, please contact Caitlin Starks, Fishery Management Plan Coordinator, at cstarks@asmfc.org and Kirby Rootes-Murdy, Senior Fishery Management Plan Coordinator, at krootes-murdy@asmfc.org for more information on summer flounder and scup.

Motions

Summer Flounder Draft Amendment

Move to include two additional options to the summer flounder draft amendment:

- to negotiate new state quota shares
- to include coastwide quota and management

MAFMC: Motion made by Mr. DiLernia and seconded by Ms. Nolan. Motion fails (6 in favor, 10 opposed).

ASMFC: Motion made by Mr. Hasbrouck and seconded by Mr. Gates.

Move to develop two additional options to the summer flounder draft amendment:

- to negotiate new state quota shares
- to include coastwide quota and management

MAFMC: Motion made by Mr. Heins and seconded by Ms. Nolan. Motion fails (Roll Call: In favor – Maniscalco, Heins, Nolan, DiLernia, Nowalsky, Warren, Pentony; Opposed – Baab, Michels, Gwin, DeFur, Mann, O’Reilly, Batsavage, Hemilright, Winslow).

ASMFC: Motion made by Mr. Hasbrouck and seconded by Mr. Gates. Motion passes (Roll Call: In Favor- MA, RI, CT, NY, DE, NMFS; Opposed- NJ, MD, PRFC, VA, NC).

Move to approve the draft summer flounder commercial issues amendment hearing document for public comment as modified today.

MAFMC: Motion made by Mr. Mann and seconded by Mr. Batsavage. Motion carries (12 in favor, 4 opposed).

ASMFC: Motion by Mr. O’Reilly, second by Mr. Clark. Motion passes (9 in favor, 2 opposed).

Move to approve the Commission's Summer Flounder Commercial Issues Draft Amendment document for public hearings.

Board: Motion made by Mr. O’Reilly and seconded by Mr. Clark. Motion carries (9 in favor, 2 opposed).

Draft Alternatives for Framework/Addendum on Recreational Issues

Move to include an additional option that defines a discrete transit zone from Rhode Island state waters around Block Island, Rhode Island to Rhode Island state waters to the north. Any legally Rhode Island permitted fisher fishing in Rhode Island waters for summer flounder, black sea bass, and scup will be allowed to transit the EEZ in this zone with legally harvested regulated species as long as gear stowage requirements are met and no fishing occurs in the zone while transiting.

ASMFC: Motion made by Mr. Reid and seconded by Ms. Meserve. Motion passes by consent.

MAFMC: Motion made by Mr. O’Reilly and seconded by Mr. Michels. Motion passes by consent.

Move to approve the draft alternatives, as presented by staff and as modified today, for the recreational framework and addendum.

MAFMC: Motion made by Mr. Heins and seconded by Mr. deFur. Motion carries unanimously.

ASMFC: Motion made by Mr. Hasbrouck and seconded by Rep. Peake. Motion carries unanimously.



New England Fishery Management Council

FOR IMMEDIATE RELEASE
April 25, 2018

PRESS CONTACT: Janice Plante
(607) 592-4817, jplante@nefmc.org

Council Discusses Offshore Wind, Clam Dredge FW, Skates, Groundfish, Herring, IFM, and More at Mid-April Meeting

The New England Fishery Management Council met April 17-19 in Mystic, CT and discussed a wide range of issues that touched on everything from industry-funded monitoring to whether or not river herring and shad should be considered as stocks in the Atlantic herring fishery. In several cases, the Council directed its species committees to conduct additional analyses for further consideration before taking action.

The Council received an overview of offshore wind energy initiatives in the Atlantic region. The federal Bureau of Ocean Energy Management (BOEM) is collecting public comment on several projects. Since the comment periods end before the Council meets again June 12-14, 2018 in Portland, ME, the Council authorized its Habitat Committee and staff to draft comment letters for the following solicitations:

- **Vineyard Wind** – BOEM has issued a notice of intent to prepare an Environmental Impact Statement;
- **New York Bight** – BOEM has issued a “call for information.” The Council’s letter, among other things, will include an analysis of fisheries active in the call areas;
- **Massachusetts Areas** – BOEM has issued a proposed sale notice for additional lease areas off Massachusetts. Within its comments, the Council will express its position that, if granted, any lease provisions should require developers to have a Fishery Communication Plan and Fisheries Liaison; and
- **Path Forward** – BOEM is collecting comments on a proposed “path forward for offshore wind leasing.” In addition to providing specific suggestions, the Council will request a 90-day extension to the comment deadline, which at present is May 21.



BOEM representatives Brian Hooker, left, Isis Farmer, and Luke Feinberg held an April 17-18 Open House in Mystic, CT in conjunction with the New England Council meeting, which was occurring across the hall. Council meeting attendees had the opportunity to stroll through the Open House, ask questions, and provide comments on proposed offshore wind projects in the Atlantic region. – NEMFC photo



New England Fishery Management Council

The Council also will request an extension to the comment periods for the Vineyard Wind, New York Bight, and Massachusetts lease area notices.

Once finalized, the comment letters for all of these projects will be available on the Council’s website at: <https://www.nefmc.org/library/nefmc-comments-to-federal-agencies>.

Clam Dredge Framework

The Council is working on a Clam Dredge Framework to consider whether to allow continued use of hydraulic clam dredges in the new Great South Channel Habitat Management Area. The area was implemented April 9 as part of the Council’s Omnibus Essential Fish Habitat Amendment 2 with a one-year exemption for hydraulic clam dredges in all but the northeast corner. This exemption expires April 9, 2019. The Council directed its Habitat Committee to consider three alternatives among its range of proposals:

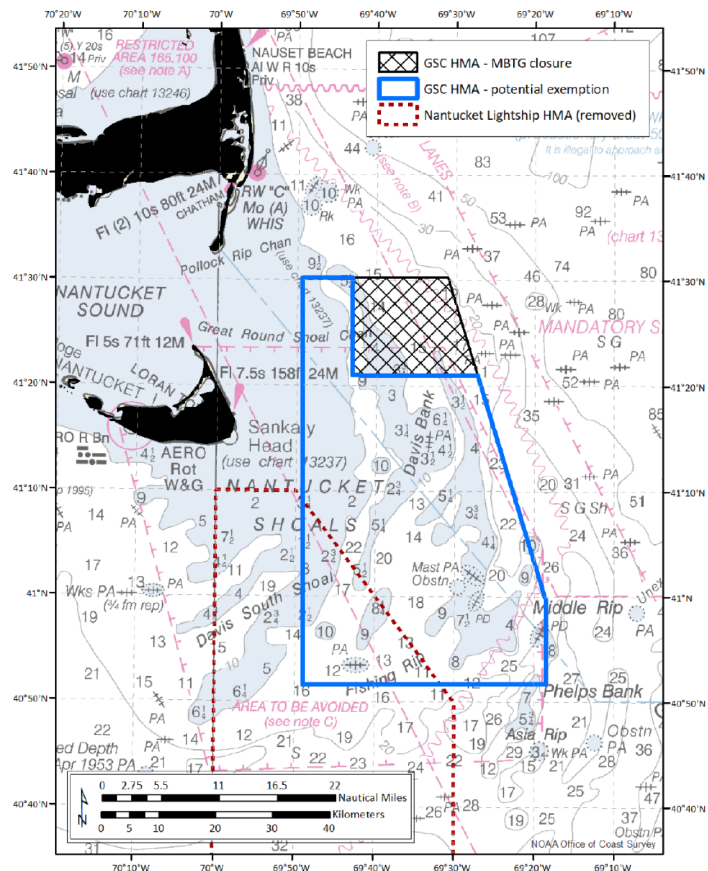
- (1) no action, meaning the entire Great South Channel area would be closed to hydraulic dredges, similar to all other mobile bottom-tending gear types, after April 9, 2019;
- (2) opening all but the northeast corner to continued use of hydraulic dredges; and
- (3) closing three specific sub-areas within the overall area as proposed by Habitat Advisory Panel members.

In addition, the Council directed its Habitat Committee to consider a potential exemption for mussel dredges within the list of measures being developed for the framework. The Council intends to select the full range of alternatives for further analysis at its June meeting.

Skate Wing Fishery

The Council reviewed Framework Adjustment 6 to the Northeast Skate Complex Fishery Management Plan, which is being developed to prolong the length of the skate wing fishery within allowable catch limits.

The Council approved one action for the framework – reducing the “uncertainty buffer” from 25% to 10% – since the fishery recently has not exceeded landing targets.



Great South Channel Habitat Management Area. The Council is considering a long-term exemption for hydraulic dredges in the portion outlined in blue. – NEFMC graphic



New England Fishery Management Council

In turn, a reduction in the uncertainty buffer will increase the amount of total allowable landings available to both the skate wing and skate bait fisheries. The Council then tasked its Skate Committee with developing additional alternatives to consider seasonal catch triggers and associated possession limit reductions to minimize the likelihood of premature closures. The Council will revisit the framework at its June meeting and potentially take final action.

Northeast Multispecies - Groundfish

The Council received a progress report on Groundfish Monitoring Amendment 23, which is being developed to improve reliability and accountability of catch reporting in the groundfish fishery and to “ensure a precise and accurate representation of catch,” including both landings and discards. The Council may approve the range of alternatives for further analysis at its June meeting.

The Council also received a short update on its new Fishery Data for Stock Assessment Working Group, which was formed following the January meeting as a vehicle for discussing how fishery dependent data can be used to “inform stock abundance.” The following members were named to serve on the working group, which will meet for the first time on April 26:

- **Science/management/academia:** Steve Cadrin (chair), Rich Bell, Chad Demarest, Robin Frede, Mark Gibson, Emily Keiley, Brian Linton, JJ Maguire, and Paul Rago
- **Industry:** Chris Brown and Vito Giacalone



Weighing the catch. – Portland Fish Exchange photo

Sector Operations Plans

In other groundfish-related business, staff from the National Marine Fisheries Service (NMFS, NOAA Fisheries) Greater Atlantic Regional Fisheries Office (GARFO) consulted with the Council on a new “lease only” operations plan submitted by Northeast Fishery Sector IX for fishing years 2017 and 2018. GARFO’s regional administrator withdrew approval of Sector IX’s previous plan on November 20, 2017 due to violations and overages of sector quota by Carlos Rafael-affiliated vessels. NMFS also presented the Council with a proposed amendment to Northeast Fishery Sector VII’s operations plan and information about numerous sector roster changes between Sectors VII, VIII, and IX.

In response to the consultation, the Council voted 7-5-5 to recommend that NOAA Fisheries:

- “Authorize the fishing year 2017 and 2018 Sector IX “lease only” operations plan with the condition that all overages attributable to the known misreporting are repaid in full”; and



New England Fishery Management Council

- “Following the full repayment of the Sector IX overages, authorize the fishing year 2018 sector sub-annual catch limit associated with permits now enrolled in Sector VII by working with the sector to ensure that the fishing year 2018 Sector VII operations plan and associated conditions are fully implemented. These vessels (ones with Carlos Rafael ownership interests) will remain inactive except for trading purposes until they are sold.”

All documents related to the sector discussion and NOAA Fisheries’ consultation with the Council are available at <https://www.nefmc.org/library/april-2018-northeast-fishery-sector-nefs-ix>.

Atlantic Herring – River Herring/Shad

The Council spent a considerable amount of time discussing whether or not two species of river herring and two species of shad should be included as “stocks” in the Atlantic Herring Fishery Management Plan (FMP). Back in 2015, the Council decided *not* to include them in the FMP but agreed to revisit the issue in three years.

In January, the Council engaged the services of Dr. Erika Zollett and Jill Swasey to revise a white paper called *“Adding River Herring and Shad as Stocks in the Atlantic Herring Fishery: Updated Information and*

Discussion of Management and Legal Considerations.” The Council was presented with the results of this work during its April meeting and, after asking several questions, decided to task its Herring Committee with thoroughly debating the “stocks in the herring fishery” issue and developing a recommendation for full Council consideration at the June meeting.

The Council also voted to support actions by the Mid-Atlantic Council for 2018 and for the longer term to modify the Atlantic mackerel possession limit to somewhere between 5,000 pounds and 10,000 pounds instead of zero when the domestic annual harvest for mackerel is projected to be harvested. Herring vessels often encounter mackerel, so mackerel-related actions have impacts on the herring fishery. The Council also asked NMFS to clarify the definition of “possess” in the mackerel fishery and remove the reference to “take,” which has different implications.



Atlantic herring. – Meghan Lapp photo

Omnibus Industry-Funded Monitoring Amendment

In a separate action related to the Omnibus Industry-Funded Monitoring (IFM) Amendment, the Council voted to support the use of electronic monitoring (EM), coupled with portside sampling, as an adequate substitute for at-sea monitors aboard Atlantic herring midwater trawl vessels. The Council also supported



New England Fishery Management Council

NMFS's proposal to use exempted fishing permits (EFPs) to initially administer the EM/portside sampling program given that total costs for this type of monitoring coverage will not be reasonably known until the program is fully implemented and operational.

The Council took these steps after receiving NMFS's final report on a project that tested EM on midwater trawl vessels. The study found that the cameras operated successfully on 97% of the footage, and video quality was "excellent" or "good" on 77% of the footage. Only 8% of the footage was rated "poor" due to low light, water drops on lens, snow, glare, or condensation, yet even the "poor" footage still was determined to be sufficient for video review. As such, the Electronic Monitoring Review Panel determined that EM was suitable for detecting discard events in the herring midwater trawl fishery, and NMFS subsequently recommended that the Council approve EM/portside sampling as an option for the herring midwater trawl fishery.

The Council took final action on the Omnibus IFM Amendment in April 2017. The amendment: (1) establishes a streamlined process for developing *future* FMP-specific industry-funded monitoring programs without impacting programs already in place; and (2) contains monitoring measures that apply to Atlantic herring Category A and B vessels. The New England Council's provisions are expected to be implemented this fall. The Mid-Atlantic Council deferred action on the amendment but intends to revisit it later this year.



The New England Council paid tribute to two retiring Council members – Mark Alexander of Connecticut, left, who served on the Council for 10 years, and Mark Gibson of Rhode Island, who served for 14 years. Council Chairman Dr. John Quinn made special note of Alexander's extensive contributions to research steering and ocean planning and Gibson's staunch support of science-based management while considering stakeholder needs. – NEFMC photos



Over the course of its three-day meeting, the Council also received:

- The Council Program Review Panel's recommendations for how the Council can improve its operations – next steps will be discussed in June;
- A NMFS presentation on the agency's Draft Procedural Directive for EM cost allocations in fishery programs proposing or using electronic monitoring; and
- Numerous other presentations about, among others: the 2018 Saltwater Recreational Fisheries Summit; the Atlantic Large Whale Take Reduction Team's recent meetings; NMFS's proposals to rebuild North Atlantic shortfin mako sharks; and the status of the Northeast Continental Shelf ecosystem.

All documents and presentations used during the Council's April 17-19, 2018 meeting are available at <https://www.nefmc.org/calendar/april-2018-council-meeting>.

The Council issued two other news releases from its April meeting – one for Atlantic sea scallops and another to announce the 2018 Award for Excellence presentation to Dr. Bill DuPaul. These are available respectively at:

- <http://s3.amazonaws.com/nefmc.org/NEFMC-Streamlines-Scallop-Specs-Process-Ranks-Priorities.pdf>.
- <http://s3.amazonaws.com/nefmc.org/NEFMC-Presents-2018-Award-to-Dr.-Bill-DuPaul.pdf>.