



FEBRUARY 2016 MEETING AGENDA

February 9-11, 2016

Double Tree by Hilton New Bern, 100 Middle Street, New Bern, NC 28560
Telephone 252-638-3585

Tuesday, February 9th

- 9:00 a.m. - 10:00 a.m.** **Executive Committee – CLOSED SESSION (Tab 1)**
– SSC membership and process
- 10:00 a.m. – 12:30 p.m.** **Collaborative Research Committee (Tab 2)**
– Review and discuss preliminary alternatives for long-term collaborative research
- 12:30 p.m. – 1:30 p.m.** **Lunch**
- 1:30 p.m.** **Council convenes**
- 1:30 p.m. – 4:30 p.m.** **Unmanaged Forage Fish (Tab 3)**
– Consider comments from the Fishery Management Action Team, Ecosystems and Ocean Planning Advisory Panel, and Ecosystems and Ocean Planning Committee meetings list of species, management alternatives, and other aspects of the amendment
– Review and approve public hearing document
- 4:30 p.m. – 5:30 p.m.** **NROC Party/Charter Electronic Reporting Project (Tab 4)**
George Lapointe
- For Hire Reporting Amendment – SAFMC**
Gregg Waugh

Wednesday, February 10th

- 9:00 a.m.** **Council convenes**
- 9:00 a.m. – 11:00 a.m.** **Ecosystem Approach to Fisheries Management (Tab 5)**
– Review Interactions White Paper
– Discuss EAFM Guidance Document (First Draft)
- 11:00 a.m. – 12:00 p.m.** **Fisheries Dependent Data Project**
Jen Anderson – GARFO
- 12:00 p.m. – 12:15 p.m.** **Ricks E Savage Award**

- 12:15 p.m. - 1:30 p.m.** **Lunch**
- 1:30 p.m. – 2:00 p.m.** **Law Enforcement Report (Tab 6)**
- NOAA Office of Law Enforcement
 - U.S. Coast Guard
- 2:00 p.m. – 4:00 p.m.** **Scup Gear Restricted Areas – Framework Meeting 2 (Tab 7)**
- Review AP input
 - Review analysis of impacts
 - Select final alternative
- 4:00 p.m. – 5:00 p.m.** **Omnibus Industry Funded Monitoring Amendment (Tab 8)**
- Select preferred alternatives for standard cost responsibilities, framework provisions for IFM programs, service provider requirements, a prioritization process to allocate federal funding, and monitoring set-asides

Thursday, February 11th

- 9:00 a.m.** **Council Convenes**
- 9:00 a.m. – 9:30 a.m.** **Marine Recreational Information Program (Tab 9)**
- Update on implementation activities
- 9:30 a.m. – 10:00 a.m.** **Naming the Deep Sea Coral Protection Areas (Tab 10)**
- 10:00 a.m. - 1:00 p.m.** **Business Session**
- Organization Reports (Tab 11)**
- NMFS Greater Atlantic Regional Office
 - NMFS Northeast Fisheries Science Center
 - Stock Assessment improvement strategies
 - NOAA Office of General Counsel
 - Financial disclosures and conflict of interest
 - Atlantic States Marine Fisheries Commission
- Liaison Reports (Tab 12)**
- New England Council
 - South Atlantic Council
 - Regional Planning Body
- Executive Director's Report (Tab 13)**
Chris Moore
- Review and approve proposed changes to SOPPs
- Science Report (Tab 14)**
Rich Seagraves
- Trawl Advisory Panel December meeting
- Committee Reports**
- Collaborative Research Committee

Continuing and New Business

December 2015 motions

Monday, December 7, 2015

Comprehensive 5-year Research Priority Plan

Move to approve the Comprehensive 5-year Research Priority Plan.

Heins/deFur

Moved by consent

Non-Fishing Activities that Impact Fish Habitat

Motion to approve Non-Fishing Impact policies.

deFur/Linhard

Moved by consent

Golden Tilefish Framework – Meeting 2

In section 5.1, move alternative 5.1.2 (alternative 2), modification to the GTF catch and landings limits flow chart as the preferred alternative.

Council: Nolan/Linhard (17/0/0/1) - **Recusal by Laurie Nolan**

Motion carries

In section 5.2, move alternative 5.2.2 (alternative 2), eliminate the IVR reporting requirement as the preferred alternative.

Council: Nolan/King (17/0/0/1) - **Recusal by Laurie Nolan**

Motion carries

In section 5.3, move alternative 5.3.2 (alternative 2), prohibit vessels from fishing more than one allocation at a time as the preferred alternative.

Council: O'Reilly/Heins (17/0/0/1) - **Recusal by Laurie Nolan**

Motion carries

In section 5.4, move alternative 5.4.2 (alternative 2), prohibit vessels from landings GTF with the “*head-off*” as the preferred alternative.

Council: Nolan/DiLernia (17/0/0/1) - **Recusal by Laurie Nolan**

Motion carries

In section 5.5, move to add to section 5.5 the following alternative “that the council restricts the recreational golden tilefish fishery to a rod and reel fishery only (with a five hook limit).”

Council: DiLernia/Nolan (18/0/0/1) - **Recusal by Laurie Nolan**

Motion carries

Move that there is no designated preferred alternative for section 5.6.

King/Elliott (18/0/0/1) - **Recusal by Laurie Nolan**

Motion carries

Blueline Tilefish Alternatives

Move that the Council select 2a as preferred (NC/VA line).

O'Reilly/Anderson (19/0/0)

Motion carries

Move to add to objectives:

5. Management would reflect blueline tilefish's susceptibility of overfishing and the need of an analytical stock assessment.

O'Reilly/deFur (19/0/0)

Motion carries

Move that a 750 pound trip limit be added to the range of alternatives.

Hemilright/Batsavage (19/0/0)

Motion carries

Spiny Dogfish

Move to revise the spiny dogfish ABCs for 2016-2018 (2016:23,617 mt, 2017: 23,045 mt, 2018: 22,635 mt) *and associated management measures.*

Batsavage/Hemilright (20/0/0)

Motion carries

Tuesday, December 8, 2015

Unmanaged Forage Fish Amendment

Move to amend the Purpose and Need proposed by the FMAT to: "Use the Council's discretionary authority to prohibit the expansion of existing or development of new directed fisheries on unmanaged forage species in the Mid-Atlantic *until adequate scientific information is available to promote ecosystem sustainability.*"

McMurray/Anderson

Move to table motion until Ecosystem and Ocean Planning Committee meeting.

Kaelin/DiLernia (15/3/0)

Motion carries

Scup GRA Framework – Meeting 1

Move to add to range of alternatives for scup GRAs the Hank Lackner proposal with modifications for the western boundaries of the discrete and broad coral zones where needed on the eastern boundary of the GRA.

Nolan/Kaelin (20/0/0)

Motion carries

Move to remove draft alternatives 4 and 5 from the document.

Heins/DiLernia (18/0/0)

Motion carries

Wednesday, December 9, 2015

Summer flounder, scup, black sea bass commercial measures review

Move to change the scup incidental possession limit for November-April from 500 to 1000 lb and to change May – Oct from 200 to 500 lb.

Council: Nolan/Kaelin

Board: Heins/Baum

Move to divide above motion.

Board: Borden/Simpson (9/0/0/1)

Council: Linhard/DiLernia (17/0/0)

Motion carries

Move to change the scup incidental possession limit for November-April from 500 to 1000 lb.

Council: Nolan/Kaelin (19/0/0)

Board: Heins/Baum (Motion carries with one abstention from PRFC)

Motion carries

Move to change the scup incidental possession limit for May – Oct from 200 to 500 lb.

Council: Nolan/Kaelin (6/13/1)

Board: Heins/Baum

Motion fails

Summer Flounder Recreational Measures

Move to approve the summer flounder portions of the ASMFC Addendum XXVII for public comment.

Board: Heins/Baum (11/0/0/0)

Motion carries

Move to manage summer flounder under Conservation Equivalency in 2016.

Council: Heins/Batsavage (19/0/1)

Board: Heins/Batsavage (10/0/0/0)

Motion carries

Move that the summer flounder non-preferred coastwide measure in 2016 consist of an 18-inch TL minimum fish size, 4 fish possession limit, and an open season from May 1-September 30. In addition, the precautionary default would consist of a 20-inch TL minimum fish size, 2 fish possession limit, and an open season from May 1-September 30.

Council: Nowalsky/Kaelin (19/1/0)

Board: Nowalsky/Hasbrouck (11/0/0/0)

Motion carries

Move to approve the black sea bass portion of the ASMFC Addendum XXVII for public comment.
Board: Simpson/Grout (11/1/0/0)
Motion carries

Move to approve the full Draft ASMFC Addendum XXVII for public comment as modified today.
Board: Simpson/Hasbrouck
Motion carries by consent

Move that black sea bass federal measures in 2016 include a 12.5-inch TL minimum size, a 15 fish possession limit, and an open season May 15-September 21 and Oct 22-December 31, if the ad-hoc regional measures in the northern states address the required reduction. If the northern states' adjustments do not address the required reduction in state waters, the coastwide measures would include a 14-inch TL minimum size, a 3 fish possession limit, and a season from July 15-September 15 on a coastwide basis.
Council: Heins/King (15/3/2)
Board: Borden/Grout (9/3/0/0)
Motion carries

Move that the Council and ASMFC move forward with an amendment to address accountability and issues highlighted today in the commercial black sea bass fishery as well as investigate the recreational issues brought forward today.
Council: O'Reilly/DiLernia (19/1/0)
Board: O'Reilly/Borden (9/1/0/0)
Motion carries

Scup Recreational Measures

Move that for 2016, federal recreational scup measures remain *status quo*, including a 9-inch TL minimum size, a 50 fish possession limit, and an open season of January 1-December 31.
Council: Heins/DiLernia (20/0/0)
Board: Heins/Nowalsky (7/0/0/1)
Motion carries

Move that the Commission continue the regional approach to management in state waters, with state measures to be finalized at the February 2016 Board meeting.
Board: Heins/O'Reilly (7/0/0/1)
Motion carries

Thursday, December 10, 2015

Implementation Plan

Move to adopt the 2016 Implementation Plan as amended.
deFur/Elliott (18/0/0)
Motion carries

Executive Director's Report









Move to approve changes to SOPPs.
deFur/Anderson (17/0/0)






Committee Reports

I move to approve research priority list and publish an RFP.
King/deFur
Moved by consent

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.

MID-ATLANTIC FISHERY COUNCIL - SPECIES STOCK STATUS
(AS OF JANUARY 28, 2016)

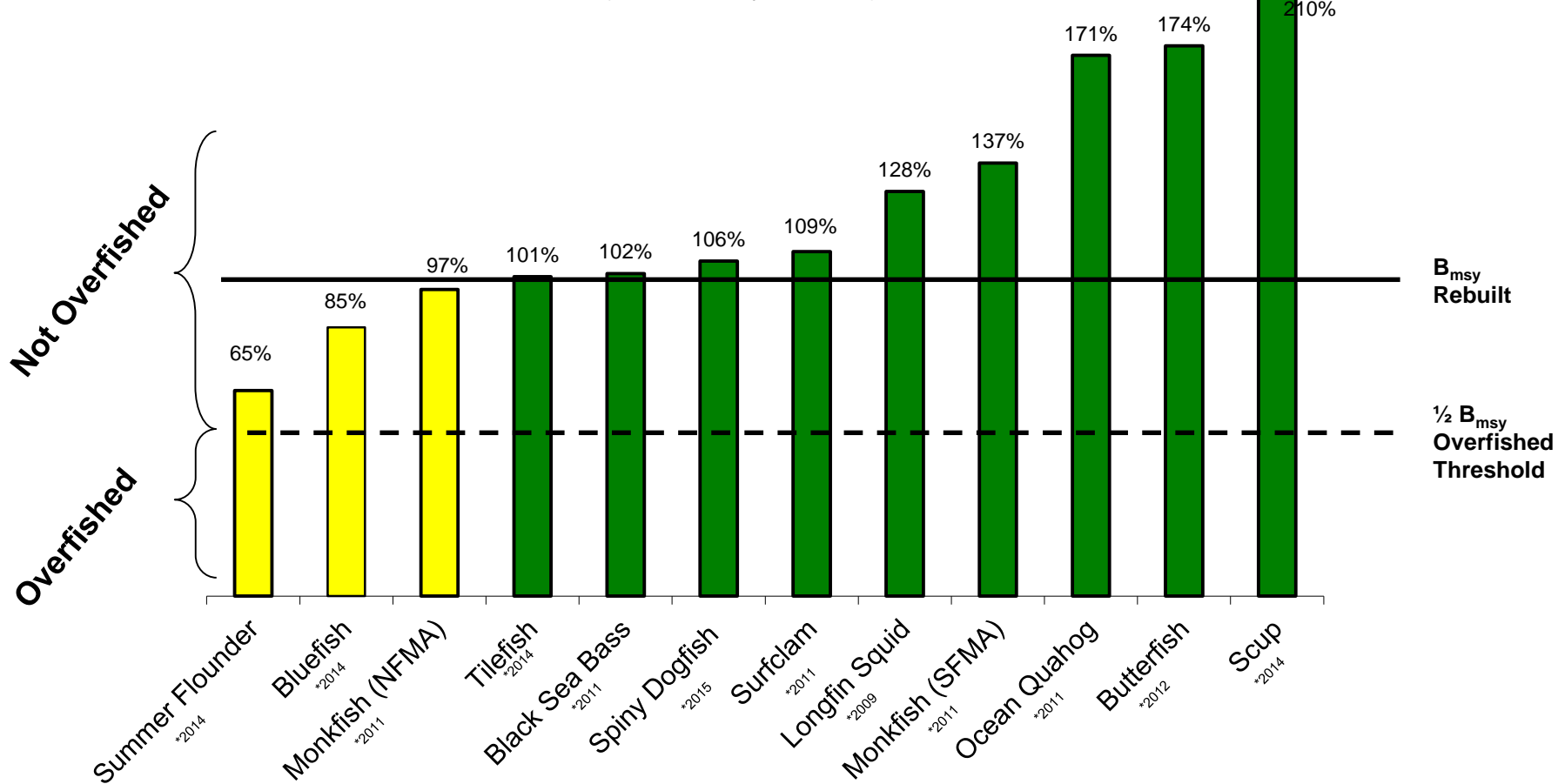
SPECIES		STATUS DETERMINATION CRITERIA		OVERFISHING	OVERFISHED	REBUILDING PROGRAM / STOCK STATUS
		Overfishing $F_{\text{threshold}}$	Overfished $\frac{1}{2} BMSY$			
Summer Flounder		$F_{35\%MSP}=0.31$	69 million lbs	Yes	No	Most recent benchmark assessment was 2013. Most recent assessment update was 2015.
Scup		$F_{40\%MSP}=0.22$	96.23 million lbs	No	No	Most recent benchmark assessment was 2015.
Black Sea Bass		$F_{40\%MSP}=0.44$	12 million lbs	No	No	Most recent assessment update was 2012. Most recent benchmark assessment was 2011.
Bluefish		$F_{35\%SPR}=0.19$	111.7 million lbs	No	No	Most recent benchmark assessment was 2015.
<i>Illex</i> 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 benchmark assessment was 2010; not able to determine current exploitation rates.
Atlantic Mackerel		Unknown	Unknown	Unknown	Unknown	Most recent benchmark assessment was 2010; not able to determine current exploitation rates or stock biomass.
Butterfish		$F_{\text{Proxy}}=2/3M=0.81$	50.3 million lbs	No	No	Most recent benchmark assessment was 2014.

SPECIES		STATUS DETERMINATION CRITERIA		OVERFISHING	OVERFISHED	REBUILDING PROGRAM / STOCK STATUS
		Overfishing $F_{\text{threshold}}$	Overfished $\frac{1}{2} B_{\text{MSY}}$			
Surfclam		$F=M=0.15$	1,071 million lbs	No	No	Most recent benchmark assessment was 2013.
Ocean Quahog		$F_{45\%MSP}=0.022$	3,064 million lbs	No	No	Most recent assessment update was 2013. Most recent benchmark assessment was 2009.
Tilefish		$F_{25\%MSP}=0.370$	5.68 million lbs	No	No	Most recent benchmark assessment was 2014.
Spiny Dogfish (Joint management 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 management with NEFMC)		NFMA & SFMA $F_{\text{MAX}}=0.2$	NFMA - 1.25 kg/tow SFMA - 0.93 kg/tow (autumn trawl survey)	No (north and south management areas)	No (north and South management areas)	Most recent assessment update was 2013. Most recent benchmark assessment was 2010.

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

Stock Size Relative to Biological Reference Points

(as of January 28, 2016)

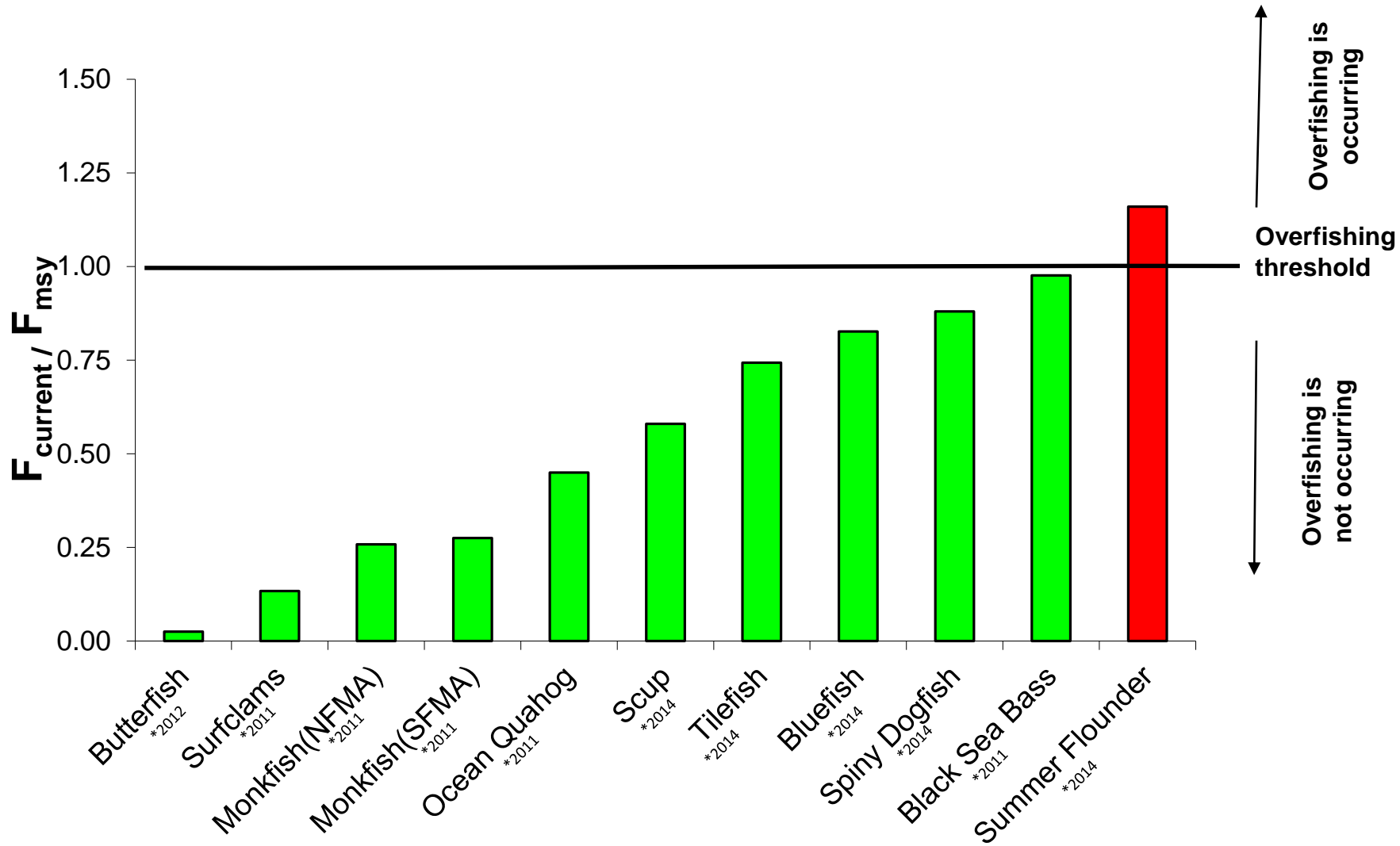


* Year of the data used to determine stock size.

NOTE: Unknown B_{msy} - *Illex* squid, and mackerel.

NOTE: Of the 14 stocks managed by the Council, 9 are above B_{msy} , 3 are under B_{msy} , and 2 are unknown.

Fishing Mortality Ratios for MAFMC Managed Species



* Year of the data used to determine fishing mortality.

NOTE: Unknown - *Illex* squid, Longfin squid, and mackerel.

Moore, Christopher

From: Moore, Christopher
Sent: Monday, December 14, 2015 10:15 AM
To: COM_SSC
Subject: MAFMC SSC membership

Everyone - the Mid-Atlantic Council's SOPPs specify that the SSC members serve three year terms and may be reappointed for additional terms at the discretion of the Council. Most of you (with the exception of Sunny and Sarah) have served for more than three years. In order to be consistent with the SOPPs the Council will be considering SSC membership at their February meeting. The new terms for members will begin on March 1, 2016.

Please indicate in writing whether or not you wish to continue to serve on the Council's SSC by COB January 8th.

Please contact me if you have any questions or concerns – Thanks! C

**MID-ATLANTIC FISHERY MANAGEMENT
SCIENTIFIC AND STATISTICAL COMMITTEE**
(1/21/2016)

John Boreman, Ph.D. (Chairman) – 2008, North Carolina State University, Department of Applied Ecology

Tom Miller, Ph.D. (Vice-Chairman) – 2002, University of Maryland Center for Environmental Science, Chesapeake Biological Lab

Michael Frisk, Ph.D. – 2010, Stony Brook University, School of Marine and Atmospheric Science

Wendy Gabriel, Ph.D. – 2000, National Marine Fisheries Service

Sarah Gaichas, Ph.D. – 2014, NMFS Northeast Fisheries Science Center, Ecosystem Assessment Program

Mark Holliday, Ph.D. – 2000, National Marine Fisheries Services, Policy Office – Retired

Ed Houde, Ph.D. – 2000, university of Maryland Center for Environmental Science, Chesapeake Biological Laboratory

Sunny Jardine, Ph.D. – 2014, University of Delaware, School of Marine Science and Policy

Olaf Jensen, Ph.D. – 2014, Rutgers University, Institute of Marine and Coastal Sciences

Yan Jiao, Ph.D. – 2008, Virginia Tech College of National Resources, Department of Fisheries and Wildlife Sciences

Cynthia Jones, Ph.D. – 2000, Center for Quantitative Fisheries Ecology, Director

Robert Latour, Ph.D. – 2008, Virginia Institute of Marine Science

Douglas Lipton, Ph.D. – 2010, National Marine Fisheries Service, Office of Science and Technology

Bonnie McCay, Ph.D. – 2000, Cook College, Department of Human Ecology

Brian Rothschild, Ph.D. – 2008, University of Massachusetts Dartmouth, School for Marine Science and Technology – Retired

David Secor, Ph.D. – 2010, University of Maryland, Center for Environmental Science

David Tomberlin, Ph.D. – 2000, National Marine Fisheries Service, Office of Science and Technology

Douglas Vaughan, Ph.D. – 2011, National Marine Fisheries Service, Beaufort Laboratory – Retired

Michael Wilberg, Ph.D. – 2008, University of Maryland Center for Environmental Science, Chesapeake Biological Laboratory

2.6 Advisory Groups

2.6.1 SCIENTIFIC AND STATISTICAL COMMITTEE

2.6.1.1 Objectives and Duties

- (a) The Council will establish a Scientific and Statistical Committee (SSC) which shall:
 - (1) Assist the Council in the development, collection, evaluation, and peer review of such statistical, biological, economical, social and other scientific information as is relevant to the Council's development and amendment of any fishery management plan;
 - (2) Provide the Council ongoing scientific advice for fishery management decisions, including recommendations for acceptable biological catch, preventing overfishing, maximum sustainable yield, and achieving rebuilding targets, and reports on stock status and health, bycatch, habitat status, social and economic impacts of management measures, and sustainability of fishing practices. Specifically in order to allow the Council to fulfill its obligations under Section 302(h)(6), the Committee shall, based on current stock conditions, the status determination criteria specified in the Fishery Management Plans (FMPs), and consistent with 50 C.F.R. Part 600.310, National Standard 1- Optimum Yield, provide the "fishing level recommendation" in terms of harvest for each of the Council's managed species.
 - (3) Assist the Council in determining what statistical, biological, economical, social or other scientific information is needed for the development of a management plan that meets the requirements of the Act; and shall advise the Council as to the best way of obtaining this information, including identifying entities with ongoing research programs that may be able to develop the needed information.
- (b) When requested by the Council, through the Council Chair or the Chair's designee, the Committee shall:
 - (1) Provide expert scientific and technical advice to the Council on the development of fishery management policy, on establishing the goals and objectives of fishery management plans or amendments thereto, and on the preparation of such plans or amendments thereto. However, The Committee will not provide another peer review of the Northeast Regional Stock Assessment Workshop (SAW) results or the Stock Assessment Review Committee (SARC).
 - (2) Advise the Council on preparing comments on any fishery management plan or amendments thereto prepared by the Secretary or Secretary's delegate.
 - (3) Comment on any proposed regulations which the Council deems necessary to implement any fishery management plan or amendment to a fishery management plan which is prepared by the Council;
 - (4) Assist the Council in establishing criteria for judging plan effectiveness;
 - (5) Perform such other necessary and appropriate duties as may be required by the Council to carry out its functions under the Act; and
 - (6) Attend Council meetings as requested by the Council Chair. Members of the Committee may be tasked to serve as Chair or member of the Northeast Stock Assessment Review

Committee (SARC) when requested by the Northeast Fisheries Science Center (NEFSC).

2.6.1.2. Development of ABCs

- (a) Section 302(g)(1)(B) of the Act provides that the Committee shall provide recommendations for acceptable biological catch (ABC) that prevent overfishing.
- (b) The Council Chairman, in consultation with the Executive Director and the Chair of the Species Committee that has responsibility for a stock under consideration, shall develop a set of terms of reference based on the relevant ABC control rule that will guide the work of the Committee in developing ABC recommendations for that stock. The terms of reference will specify a date by which all material to be considered by the Committee will be provided. This date shall be at least 15 working days prior to the Committee meeting. The Committee is not obligated to consider any material submitted after this date.
- (c) Any Committee member who has a financial conflict of interest in providing advice on the species under consideration shall recuse him/herself from discussion and voting.
- (d) Only those Committee members present at the meeting may participate in developing the ABC recommendation. At least 50% of the members must be present to establish a quorum for ABC recommendations.
- (e) The Committee Chair may request oral presentations or comments from analysts and/or interested stakeholders during the meeting.
- (f) On the basis of the submitted material, the Committee shall provide an ABC recommendation for the upcoming fishing year(s) that follows the ABC control rule adopted by the Council for a given species (stock). The recommended ABC will reflect the level of scientific uncertainty inherent in the assessment of stock status and the Council's risk policy, such that the recommended ABC is less than or equal to the overfishing limit in line with the Act and 50 C.F.R. § 600.310, *National Standard 1—Optimum Yield*. The Committee recommendation will be provided to the Council in the form of a written report that clearly identifies the:
 - (1) materials considered in developing the ABC;
 - (2) the overfishing limit;
 - (3) the magnitude and sources of uncertainty in the overfishing limit that were considered by the Committee; and
 - (4) the level of risk adopted in the ABC control rule recommended by the Committee following the Council's risk policy.
- (g) The ABC report shall include a statement in writing to accompany any scientific advice provided to the Council that the advice is based on the best scientific information available, as defined in 50 C.F.R. § 600.315, *National Standard 2 – Scientific Information*.
- (h) The Committee report shall be transmitted to Council staff within 10 working days following the Committee meeting.
- (i) The Council may remand back to the Committee its ABC recommendation based on the following criteria:
 - (1) failure of the Committee to follow the terms of reference provided to it by the Council;
 - (2) an error, in fact or omission, in the materials provided to the Committee;

- (3) an error in fact in the calculations, if any, undertaken by the Committee in developing its ABC recommendation; and
- (4) failure of the Committee to follow its standard operating procedures.
- (j) These criteria do not limit the ability of the Council to seek clarification of the foundation for the Committee recommendation.
- (k) The Committee Chair, or designee, shall present the Committee's ABC recommendation at a subsequent Council meeting.

2.6.1.3. Members and Chair

- (a) The Committee shall have up to 20 members, all of whom shall be nominated for membership on the Committee by Council members, and shall be appointed to the Committee by a majority vote of the Council. The Committee may be composed of Federal employees, State employees, academicians, or independent experts, and each shall have strong scientific and/or technical credentials and experience in the biological, statistical, economical, social, and other relevant disciplines. The goal will be to structure the committee such that there is a balance in both home bases and expertise of its members. Each member of this committee shall be treated as an affected individual for purposes of paragraphs (2), (3)(B), (4), and (5)(A) of subsection (j) of Section 302 of the Act. The Secretary shall keep disclosures made pursuant to this subparagraph on file.
- (b) Members of the Committee will be appointed by the Council for a period of three years, and may be reappointed at the discretion of the Council. Appointments to the Committee will be staggered to allow overlap of membership. Vacancy appointments shall be for the remainder of the unexpired term of the vacancy. When vacancies arise the Committee shall provide the Council with a list of recommended candidates for consideration; the Council is not bound by the Committee's list of recommended nominees.
- (c) In addition to the 20 members identified in (a) above, interim or special appointments to the Committee of limited duration (not to exceed one year) may also be made to add expertise in special topic areas being addressed by the Committee. These interim appointments have all the rights and privileges of regular Committee members.
- (d) Committee members shall be notified of meetings at least 30 days in advance of each meeting. Committee members who cannot attend a scheduled meeting shall so advise the Executive Director. The terms of members who are absent for three consecutive SSC meetings without notifying the Executive Director in advance of the absence and without a reasonable excuse may be revoked. In addition, Committee members shall attend at least half of the meetings each year in person. Failure to do so may also lead to loss of membership on the Committee.
- (e) From within the membership of the Committee, the Council Chair shall appoint a Chair of the SSC.
- (f) From among their membership, the Committee may elect a Vice-Chair. The Committee Vice-Chair assists the Committee Chair in running meetings, and may represent the Committee to the Council if requested.

2.6.1.4 Administrative Provisions

- (a) The Committee shall meet as a whole, or in part, at the call of the Committee Chair, with the approval of the Council Chair, as often as necessary to fulfill the Committee's responsibilities, taking into consideration time and budget constraints.

- (b) The Council staff, in consultation with the Council Chair and SSC Chair, shall be responsible for developing an agenda for Committee meetings.
- (c) The Committee shall report to the Council Chair or the Chair's designee.
- (d) The Executive Director of the Council shall, upon request of the Committee Chair, provide such staff and other support, as the Council considers necessary for Committee activities, within budgetary limitations.
- (e) The Council shall pay the actual expenses of the Committee members, in accordance with Section 302(f)(7)(D) of the Act, while engaged in the performance of Council business, and subject to the availability of appropriations.
- (f) Meetings shall be open to the public. Public comments may be received during the meeting at the discretion of the Committee Chair. Notice of meetings of the SSC shall comply with the applicable notice requirements specified for Council meetings.
- (g) Committee decisions shall be made by consensus whenever possible. The Committee Chair retains the right to call for a vote if it becomes apparent that a consensus cannot be reached on decision that is considered vital. All voting will be anonymous and not by roll call. Proxy votes will not be allowed.
- (h) Minutes of each meeting of the Committee shall be kept and posted on the Council website. The minutes shall contain a record of the persons present, a description of matters discussed, and conclusions reached. ABC reports will also be posted on the Council website.
- (i) The Committee can establish subcommittees or working groups to address specific issues and provide feedback to the general SSC membership for action.
- (j) Pursuant to Section 302(g)(1)(F) of the Act, stipends are available, subject to the availability of appropriations, to SSC members who are not employed by the Federal Government or a State marine fisheries agency. For the purposes of this 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.
- (k) SSC members shall file Financial Interest Forms as described in section 2.3.6

Excerpt from September 2016 SSC Meeting

Other Business

SSC Membership

Given the likelihood that there may be vacancies on the SSC, the committee discussed future composition of SSC membership. The SSC cautions the Council to make sure there is a role to fill on the SSC before selecting new members with a specific scientific background. There was general agreement that the SSC needs to maintain a strong social sciences component. A sociologist or cultural anthropologist would bring a unique perspective in human dimensions to the SSC, but a lot depends on how the Council envisions utilizing the committee. An expert in quantitative risk assessment would also be a useful addition. The SSC sees its role as going beyond simply responding to requests from the Council. Many of the SSC members see participation on the committee as a means of providing direction to their own research programs, thus expanding the influence and benefits of participating in the SSC's deliberations. Committee members also expressed interest in adding socio-economics and ecosystems topics as regular agenda items in SSC meetings in order to further engage and benefit from the members who are experts in these disciplines.



Mid-Atlantic Fishery Management Council

North State Street, Suite 201, Dover, DE 19901
Phone: 302-674-2331 | Toll Free: 877-446-2362 | FAX: 302-674-5399 | www.mafmc.org
Richard B. Robins, Jr., Chairman | Lee G. Anderson, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: January 29, 2016
To: Collaborative Research Committee
From: Mary Clark
Subject: MAFMC Collaborative Research Options

The Council's Collaborative Research Committee will meet on Tuesday, February 9, 2016 from 10:00 a.m. – 12:30 p.m. to review and discuss preliminary alternatives for long-term collaborative research.

The Council voted in August 2014 to suspend its Research Set-Aside (RSA) program in order to address serious administrative and enforcement issues with the program and consider alternative options for involvement in collaborative research. Since mid-2015, the Council and Collaborative Research Committee's efforts have been focused on development of a short-term collaborative research initiative for 2016/2017. While these projects are ongoing, staff will work with the Committee and Council to determine the best long-term option for the Council to facilitate and promote collaborative research.

The purpose of this meeting is for the Committee to reinstate its discussion of the Council's role in collaborative research and long-term collaborative research program options.

Collaborative Research Objectives

The following objectives were developed by the Committee to guide the future consideration of collaborative research program options:

- 1) Facilitate scientific research that addresses the Council's research priorities;
- 2) Provide opportunities primarily for fishing industry involvement in research projects and ensure that opportunities for participation are appropriately communicated;
- 3) Establish a thorough and uniform process for the scientific review of research results;
- 4) Promote the use of collaborative research products in management decisions;
- 5) Communicate research results to the public and to appropriate management partners;
and
- 6) Promote effective administration and enforcement.

Approach

Staff previously proposed a four-pronged approach for identifying and evaluating cooperative research program alternatives. The proposed process would involve developing discrete sets of alternatives for each of the four components of a collaborative research program:

- Funding: What source(s) of money are (or could be) available to fund the Council's cooperative research activities? Do funding levels need to be constant from year to year, or is fluctuation acceptable? Should the Council consider options to derive funds from the sale of quotas of MAFMC-managed fisheries?
- Program Administration: Who will be responsible for performing administrative tasks necessary for program operation such as soliciting proposals; managing and disbursing funds; overseeing ongoing research projects; and collecting results? How much Council staff time should be devoted to administration of a cooperative research program?
- Research Priority Setting: How should research needs be prioritized, and how often should these priorities be evaluated? How should input from the fishing industry and other stakeholders be incorporated into the research priority-setting process?
- Review and Use of Research Products: What standards will be used to determine the suitability of research products for Council use? How will the Council ensure that the results of collaborative research projects are incorporated into the management decisions in a useful and timely manner?

During the upcoming Committee meeting, staff is proposing that the Committee focus primarily on the funding and program administration aspects of a collaborative research program. Staff has identified four general approaches and will present a range of options associated with each for Committee discussion and feedback:

- 1) Collaboration with NMFS/NEFSC to expand and enhance existing collaborative research initiatives.
- 2) Formation of an independent regional collaborative research consortium.
- 3) Development of a Council-managed collaborative research program.
- 4) Renewal and reconfiguration of the Research Set-Aside Program.

Input provided by the Committee will be used to develop a suite of alternatives for further Committee and Council consideration at the April and/or June 2016 Council Meetings.

Resources

Enclosed for Committee consideration is a compilation of excerpts from a NOAA Technical Memorandum from August 2015: *Cooperative Research and Cooperative Management: A Review with Recommendations*.

Cooperative Research and Cooperative Management: A Review with Recommendations

Cooperative Research and Cooperative Management Working Group



U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service

NOAA Technical Memorandum NMFS-F/SPO-156
August 2015

Cooperative Research and Cooperative Management: A Review with Recommendations

*Submitted to NOAA Fisheries Leadership by the Cooperative Research and
Cooperative Management Working Group:*

Sally Bibb, Alaska Regional Office
Scott Bloom, Pacific Islands Regional Office
Ayeisha Brinson, Science and Technology
Mark Chandler, Science and Technology
Guy Davenport, Southeast Fisheries Science Center
Kelly Denit, Sustainable Fisheries
Gerard Dinardo, Pacific Islands Fisheries Science Center
Joshua Gange, Office of Policy
Steve Giordano, Southeast Regional Office
Alexis Gutierrez, Protected Resources
John Hoey, Northeast Fisheries Science Center
Steve Ignell, Alaska Science Center
Rosemary Kosaka, Southwest Fisheries Science Center
Caroline Park, Fisheries & Protected Resources Section, NOAA General Counsel
Tauna Rankin, Habitat Conservation
Heather Sagar, Policy Office and Working Group Lead
Ryan Silva, Greater Atlantic Regional Office

Interview Helpers:

Brian Langseth, Pacific Islands Fisheries Science Center
Rita Hawkins, West Coast Regional Offices

**NOAA Technical Memorandum NMFS-F/SPO-156
August 2015**



U.S. Department of Commerce
Penny S. Pritzker, Secretary

National Oceanic and Atmospheric Administration
Kathryn D. Sullivan, Administrator

National Marine Fisheries Service
Eileen Sobeck, Assistant Administrator for Fisheries

Executive Summary

For several years, NOAA Fisheries has carried out cooperative management and cooperative research under several statutes. A diverse group of environmental non-governmental organizations (ENGO), fishing industry, and academic stakeholders sent a letter to Dr. Sullivan, NOAA Administrator, in November 2013 requesting that NOAA strengthen the use of co-management in fisheries management. The letter writers suggested that co-management could be a means to bring new resources to fisheries management, enhance NOAA's capabilities, and improve stakeholder relationships.

Specifically, the stakeholders recommended that NOAA devolve more substantial research and management roles to states and stakeholders. In addition, they requested that NOAA develop guidance for (1) cooperative research and management authorized under section 318 of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) (focus of this document), (2) confidentiality of fisheries data, (3) electronic monitoring, and (4) cost recovery. NOAA Fisheries Leadership responded to this letter in writing, held a roundtable with all the letter writers, and held three separate 1-hour meetings on confidentiality of fisheries data, electronic monitoring, and cost recovery.

In addition, the NOAA Fisheries Leadership Council also requested a broader review than the stakeholders requested, with the focus being on the agency's co-management and cooperative research activities undertaken pursuant to NOAA Fisheries' major statutes (e.g., Endangered Species Act (ESA), Marine Mammal Protection Act (MMPA), and MSA). A NOAA Fisheries working group conducted this review and also interviewed 50 NOAA Fisheries staff and nine external stakeholders on the successes and challenges of these existing activities. This White Paper provides an overview of those activities to date and provides recommendations to the NOAA Fisheries Leadership Council on how to move forward. The paper is divided into the following sections:

- Review of relevant literature and legal mandates.
- Examples of NOAA Fisheries' existing activities.
- Analysis of internal and external interviews.
- Recommendations for NOAA Fisheries' future engagement in cooperative management and cooperative research.

Given the various definitions and understandings of "co-management," this White Paper uses (and recommends use of) the term "cooperative management," except when the former term is used in literature cited or by interviewees. Based on its analysis, the working group determined that successful cooperative management and cooperative research activities have several key attributes. These include:

- A clear legal framework.
- An organized stakeholder group, with leadership.
- Clear roles for partners, stakeholders, and NOAA Fisheries personnel.
- Clear goals.
- Buy-in of partners and stakeholders.

- Trust between stakeholders and NOAA Fisheries personnel.
- Transparent and clearly understood decision-making process.
- Strong and regular communication.
- Matching the scale of the cooperative management system with the distribution and mobility of the managed species.
- Use of results to make fishery management decisions.
- Funding.

The Working Group found that cooperative research can support cooperative management, but is not a pre-requisite for cooperative management arrangements to be established. Further, cooperative research is often conducted independently of a cooperative management framework.

The Working Group recommends several ways that NOAA Fisheries can use existing legislative mandates and resources to build upon current cooperative management and cooperative research efforts. These recommendations include the following (more detail can be found on page 40):

Communication:

- 1) The HQ Communications Office, Regional Offices, and Science Centers should review the specific communication mechanisms and platforms being used to assist agency partners and stakeholders interested in learning more about participating in cooperative management (e.g., regional points of contact, information on how to obtain an EFP, grants, etc.).
- 2) NOAA Fisheries Leadership should create or facilitate more opportunities to engage possible cooperative research/cooperative management partners.

Cooperative Management Policy:

- 1) Provide guidance to NOAA Fisheries Employees, partners, and stakeholders on the range of cooperative management tools that NOAA Fisheries has available.
- 2) NOAA Fisheries Policy Office should evaluate our partnership with Sea Grant.
- 3) Improve in-reach by training all appropriate NOAA Fisheries staff on the common understanding of co-management, cooperative management, and cooperative research and the suite of tools available to NOAA Fisheries under the MMPA, ESA, and MSA.
- 4) NOAA Fisheries Leadership and their staff should develop and maintain good working relationships with cooperative management partners and be accountable for the success of those relationships.
- 5) NOAA Fisheries Leadership and the NOAA Fisheries Office of Management and Budget should continue to push for statutory language needed to accept private donations and determine the proper guidelines regarding the use of private funds.
- 6) Employees and cooperative management partners should establish clear objectives and expectations of their respective roles, as well as regularly review whether there are challenges that need to be addressed.
- 7) Regional Offices should explore whether NEPA review/analysis for EFPs and grants can be streamlined.

Cooperative Research:

- 1) Request the Science Board to review how Cooperative Research feeds into management priorities. If necessary, engage the Regulatory Board.
- 2) The Cooperative Research Program should ensure that cooperative research projects are aligned with management priorities and focus on science gaps (e.g., habitat science and its integration into stock assessments).
- 3) The Cooperative Research Program and other cooperative research activities (i.e., Saltonstall-Kennedy Grants and BREP) should ensure that both stakeholders and NOAA Fisheries are involved from start to finish to set goals and objectives to ensure results have the best chance to be used for science and management purposes. Likewise, it is important to have the appropriate suite of expertise engaged in a given cooperative research project to ensure that the resulting data can best be used toward practical applications for science and management purposes. For example, if a project addresses a social science concern, it is vital that social scientists be included in the design, implementation, and analysis of that project.
- 4) NOAA Fisheries Leadership should ensure cooperative research is visible in Science Center planning and program reviews, engage their staff, and be accountable for good working relationships with cooperative research partners.
- 5) NOAA Fisheries should encourage peer review products as a preferred outcome of the research activities. Peer reviewed products can provide maximum impact in support of NOAA Fisheries science (e.g., stock assessments) and management priorities. If possible, NOAA Fisheries should also aid authors in publishing so as not to extend the publication periods.
- 6) The Cooperative Research Program should review existing long-term/multi-year cooperative research projects and develop recommendations for how to maintain data streams and transition funding for these projects to other sources (internal or external).
- 7) Working with NOAA Office of General Counsel, develop a way to help program offices to quickly identify which legal authorities and types of agreements might be relevant to cooperative research activities with external partners (academics, industry, NGOs, etc.).
- 8) NOAA Fisheries should conduct cooperative research, such as testing new fishing gear, within MSA established fishing mortality limits and consistent with other applicable law, such as the ESA and MMPA. A variety of mechanisms have been developed and should be applied to allow such cooperative research to move forward and not impede partnerships.

Metrics:

- 1) NOAA Fisheries' Office of Science and Technology should survey external partners on their perceptions of NOAA's cooperative management and cooperative research programs and re-survey them in 2 to 3 years to see if perceptions have changed. The survey should be re-evaluated as needed.
- 2) NOAA Fisheries' Office of Science and Technology should review 2014 cooperative research program projects and determine how many of them supported management decisions.
- 3) In FY16 develop reporting tool that tracks how each Cooperative Research Program project fits into the Agency's science based management of living marine resources.

Process for Sharing White Paper:

- 1) This white paper was shared for review and comment on the recommendations with the following advisory groups:
 - Marine Fisheries Advisory Committee
 - Council Coordination Committee
 - Marine Mammal Commission
- 2) Share the final white paper with all internal and external interviewees.

Cooperative Research

In the United States and in many other developing countries, the dominant method for obtaining information for the management of fisheries and protected species has been through centralized, government-staffed research programs. A different approach under the general umbrella term “cooperative research” involves a broad range of external stakeholders, including state and tribal managers and scientists (including interstate fishery commissions), fishing industry participants (including commercial and recreational fishermen), ENGOs, and educational institutions.

Cooperative research is defined as a scientific activity involving two or more partners who gain more collectively than each would separately in the pursuit of a shared research goal. A scientific activity uses statistically robust methodology, maximizes precision, and either minimizes or accounts for bias. In cooperative partnerships, all parties contribute in some manner to the scientific activity, and all parties gain from the results.

For NOAA Fisheries, there are various levels of technical involvement in the design and implementation of cooperative projects depending on regional and fishery-specific information needs and opportunities, program and survey costs, and potential benefits of the proposed research. Cooperative research activities range in scope from limited involvement by stakeholders (e.g., fishermen keeping logbooks) to greater participatory involvement where stakeholders are included in all phases of the research program (e.g., survey and statistical design, analysis of the collected data, interpretation of the results, and communication of study findings). Cooperative research designed and conducted by NOAA Fisheries scientists using commercial or recreational fishing vessels typically has involved fishermen through using their fishing vessels, as well as handling of fishing gear (e.g., conservation engineering studies).

Given the number of fishermen, their expertise, and their regularity on the water, cooperative research between NOAA Fisheries and fishermen is valuable. The agency’s cooperative research can: (a) be used to increase the precision and expand the scope of resource surveys; (b) provide supplemental information about fishing operations; (c) use the knowledge gained from fishing to help design and implement research; and (d) build mutual understanding and respect among scientists and fishermen.

The formal Cooperative Research Program portfolio has a number of mature/longstanding projects that have been deemed essential to the agency’s overall science enterprise, but their continuation under cooperative research funding limits the agency’s ability to address new issues and establish new partnerships.

Legal Authority

Cooperative research programs and projects have existed in NOAA Fisheries for most of the agency’s history and are considered an important component for conducting fisheries research. On January 12, 2007, the Magnuson-Stevens Reauthorization Act created Section 318 (16 U.S.C.

§ 1867), which requires the Secretary of Commerce, in consultation with the Regional Fishery Management Councils, to establish a program to address needs identified under the Act and under any other marine resource laws enforced by the Secretary. Under Section 318, this program will:

1. Be implemented on a regional basis;
2. Be developed and conducted through partnerships among federal, state, and tribal managers and scientists (including interstate fishery commissions), fishing industry participants (including commercial charter or recreational vessels for gathering data), and educational institutions;
3. Promote and encourage efforts to utilize sources of data maintained by other federal agencies, state agencies, or academia; and
4. Be funded on a competitive basis and based on regional fishery management needs.

Section 318 also identifies priority areas that should be addressed by projects conducted under the research program including:

1. Collecting data to improve, supplement, or enhance stock assessments, including the use of fishing vessels or acoustic or other marine technology (Section 318(c)(i));
2. Assessing the amount and type of bycatch or post-release mortality occurring in a fishery (Section 318(c)(ii));
3. Conducting conservation engineering projects designed to reduce bycatch, including avoidance of post-release mortality, reduction of bycatch in high seas fisheries, and transfer of such fishing technologies to other nations (Section 318(c)(iii));
4. Identifying habitat areas of particular concern as well as conducting projects relevant to the conservation of habitat (Section 318(c)(iv)); and
5. Collecting and compiling economic and social data (Section 318(c)(v))

In addition, MSA Section 408(a)(4) (16 U.S.C. § 1884(a)(4)) requires the agency, subject to availability of appropriations, to establish a program "to conduct research, including cooperative research with fishing industry participants, on deep sea corals and related species, and on survey methods" and to engage in other specified activities.

Project Identification

NOAA Fisheries, through the regional cooperative research coordinators and in collaboration with Fishery Management Councils/Marine Fishery Commissions, solicits stakeholder involvement using a variety of methods, including workshops, regional and area outreach forums, trade show booths and presentations, websites, and one-on-one engagement of key stakeholders.

The project identification occurs under the umbrella of current agency guidance (including the Fisheries Priorities and Annual Guidance for 2015 and other agency strategic planning documents). Additionally, all proposed projects are linked to respective Regional Fishery

Management Council multi-year research priority plans. MSA Section 302(h)(7) directs the Regional Fishery Management Councils, in conjunction with their Scientific and Statistical Committees, to develop multi-year research priorities for fisheries, fisheries interactions, habitats, and other areas of research that are necessary for management purposes, for 5-year periods.

NOAA Cooperative Research Examples

Southern California Hook and Line Survey in Cooperation with Sportfishing Industry

Now in its 11th year, this fishery-independent survey of groundfish species that inhabit untrawlable habitats in the Southern California Bight utilizes recreational charter vessels that have been selected through a bidding process and meet the survey specifications. As a result of the survey, strong and successful working relationships have developed between NOAA Fisheries scientists and the sportfishing industry. The survey provides NOAA better-quality information for stock assessments, more engaged stakeholders, low charter costs, and a track record of 10 years without a single day lost due to mechanical problems, crew delays, or other issues. More specifically, the data derived from this survey are used to support stock assessments and other research for multiple species of shelf rockfish. The survey's design, protocols, and analytical methods have undergone rigorous peer review through publications, the stock assessment review (STAR) process, and a Center for Independent Experts (CIE) review in 2012.

Bycatch Reduction Engineering Program

The Bycatch Reduction Engineering Program (BREP) supports the development of technological solutions and fishing practices to minimize bycatch and reduce post-release injury and mortality of non-target species in our nations' fisheries. U.S. fishermen are involved with all aspects of BREP research, from designing new gear and assisting with data collection, to verifying and testing the application of gear in the field. Fishermen often identify needed innovations to reduce non-target bycatch while maintaining target catch. Based on congressional direction, BREP transitioned from funding internal projects to funding external projects in FY 2012. NOAA/BREP supported 14 projects across the country in 2012 (\$2.44 million). In September 2013, NOAA Fisheries/BREP awarded 16 grants totaling \$2.39 million.

SaKe (Sardine-Hake) Survey

NOAA Fisheries developed a new procedure for surveying both Pacific hake and sardine at the same time. This combined survey method, SaKe, requires a shared effort by both NOAA and the fishing industry, allowing for more frequent abundance estimates for both species, and for better managed and potentially more productive fisheries. The SaKe survey estimates the biomasses, distributions, and biological compositions of populations of Pacific hake and sardines (as well as other coastal pelagic species) using data from an integrated acoustic and trawl survey off of the West Coast of the United States and Canada from approximately San

Diego to the northern end of Vancouver Island. The survey data are combined with other sources of data to produce the stock assessments for both species, which are used to determine allowable catch limits. In the case of sardine, acoustic-trawl data are combined with data from aerial surveys run by the industry. In the case of both species, industry-reported landings and data from state monitoring programs are also incorporated into the analysis, resulting in more robust stock assessments for both species. Additional details can be found online at: http://www.nmfs.noaa.gov/stories/2012/11/11_26_12sake_survey.html

Community Fishing Associations in the West Coast Groundfish Fishery

There is also a Cooperative Research component to the West Coast Groundfish Fishery Cooperative Management example. In addition to the TNC effort, there is a Cooperative Research project investigating the distribution of rebuilding rockfish stocks, and potential to utilize modified hook and line gear to target healthy rockfish populations in currently closed habitats while minimizing the catch of rebuilding species. The objectives include validating the predictive maps by performing scientific sampling (visual surveys and directed fishing) to assess encounter rates with overfished species in a subset of locations inside the rockfish conservation area, and demonstrating the potential to efficiently fish healthy populations using vertical hook and line gear within the conservation areas.

Successful/unsuccessful attributes of cooperative research projects/programs

Internal analysis

Respondents provided numerous examples of cooperative research projects and programs covering all of the U.S. regions.

Successful Attributes

These examples had varying levels of industry involvement, but there were similarities throughout these projects and programs. Generally, **successful cooperative research projects and programs proactively engage with industry very early in the process**. Industry can identify research questions that are of importance to their own operations or, in other examples, the agency identified a management question and the agency and industry collaboratively determined the data needs and assessed the current status of data collection. Successful cooperative research projects should have a clear management focus, have a tightly designed process, and feed into the research and management process. This should include clear and open communication from the beginning, shared priorities, resources to support the work, transparent and clear protocols for data management, data collection, and proper incentives for stakeholder engagement.

In many instances, industry collected data on their own vessels and these results were compared to agency-collected data. Or the agency charters vessels and works with the crew, so they see the scientific process and understand how data are collected. These simple arrangements built credibility and trust between the agency and industry.

Unsuccessful attributes

The most important attribute that contributed to unsuccessful cooperative research was **misalignment of the management objectives of the agency, the science needs, and the needs of the fishermen**. An attribute of successful cooperative research projects is that practical input from stakeholders or fishermen can improve the results of cooperative research. For example, a scientific program was designed and mandated for use by the fishing industry. Fishermen rejected this program because they felt it was flawed and felt that if they had been involved, the results would have been better. This can be seen as the opposite of one of the main successful attributes of cooperative research – projects are closely aligned with fishermen’s interests and the agency’s science and management needs.

Cooperative research programs that were unsuccessful tended to be directive projects rather than bottom-up. Another attribute to consider was the level of mandates for management. For example, high authority mandates (such as those from Congress or the United Nations) issued without considering the research results, negatively affected cooperative research collaborations.

Respondents noted that a lack of management commitment to the results of the cooperative research outcome can undermine the program. Likewise, if fishermen have preconceived expectations for how the data would be used and these expectations are not met, this can lead to unsuccessful projects.

Cooperative research projects that do not identify a solution to a problem are not necessarily failures. For instance, the buoy-less lobster gear feasibility study improved NOAA Fisheries' understanding of fisheries operations (e.g., gear deployment and retrieval processes), even though it did not necessarily lead to a regulatory change.

Respondents reported that unsuccessful cooperative research projects occurred when there were **uncooperative partners**. Partners were not inclined to participate in cooperative research because they believed they already had a solution and were not interested in testing alternative hypotheses. Successful communication early in the process may remedy this issue.

External interview

The results of the external interviews reveal a very similar pattern as the internal interviews. Stakeholders repeatedly mentioned the need for clear communication and stakeholder involvement from the beginning of the project.

Successful Attributes

All external respondents noted that **industry, including tribes, must be involved in the design of the project from the beginning**. Partners should be included in the design and implementation of the research. This improves confidence and buy-in in the project results, and these arrangements improve knowledge of all those involved.

Respondents noted that cooperative research could include cases where industry is given the freedom to evaluate a management problem and devise a solution without the government's interference. For example, in Hawaii, fishermen were given the opportunity to try different hook sizes in their operations, with the collaboration of NOAA Fisheries scientists, to evaluate which hooks best minimized interactions with false killer whales.

One respondent noted that successful cooperative research is not necessarily led by NOAA Fisheries, but it includes cases where federal, state, and academic partners use common consensus techniques. The respondent noted that this type of independent monitoring is costly and could be the reason for its limited use.

Another component of successful cooperative research was **making sure that all the stakeholders, including industry or tribal partners, had access to the data**. Also, respondents noted that cooperative research must feed into the management process. For instance, one respondent noted that the results of cooperative research in their respective region dovetailed with the process of setting Annual Catch Limits.

Unsuccessful attributes

External respondents noted that cooperative research projects were unsuccessful when **assessment scientists were not involved in the projects because the results were not incorporated into future stock assessments**. This angered fishermen, as they thought it was a waste of their effort.

Another example noted by the external respondents was when government agencies assessed beaches on tribal properties to identify areas for fishery closures. This assessment was conducted without the involvement of the affected tribes. They were presented the results without **being involved in the process** and were outraged.

Cooperative research can be unsuccessful in certain communities if a **social network** is not in place to establish and create community capacity.

Attributes of unsuccessful cooperative research included cases where **adequate funding was not provided**. This was especially an issue for regions with few academic partners.

Another issue for unsuccessful projects was a **lack of accountability**, with an example being the Research Set-Aside quota in the Mid-Atlantic. There were inadequate controls over compensation fishing activities, which allowed abuses of the system, quota overharvest, and the eventual suspension of the program.

Under the current laws and regulations, what can NOAA Fisheries do to advance cooperative research?

Internal Interviews

Nationwide, 50 NOAA Fisheries employees were interviewed. These interviewees provided insight into how NOAA Fisheries can advance cooperative research efforts. These responses were categorized into the following seven themes and topics:

- Foster collaboration by communicating opportunities, building relationships and trust.
- Define and communicate cooperative research standards and goals.
- Foster collaboration by changing agency attitudes.
- Assess where cooperative research would be beneficial and what allows for success.
- Funding: increase, re-allocate, or consider non-federal sources.
- Improve or change the current cooperative research process.
- Increase leadership toward promoting cooperative research.

Within each of these theme and topic areas, responses varied. For example, interviewees differed in whether they preferred NOAA Fisheries researchers leading cooperative research projects. Variation in responses likely signals that differences between regions exist and/or the level of direct, cooperative research experience varies between our interviewees.

Foster collaboration by communicating opportunities, building relationships and trust

Sixteen interviewees mentioned the importance of building trust and collaborative opportunities with cooperative research partners, suggesting ways the agency might facilitate this. One suggested that the agency “... develop guidelines for setting new cooperative research agreements to help facilitate partnership building.” That is, make partnership building a requirement of cooperative research projects. Four interviewees mentioned that the agency should be proactive about seeking out partners—“don’t wait for them to come to you.” Two interviewees suggested that NOAA Fisheries actively seek feedback from cooperative research partners. One suggested that research set-aside (RSA) programs could serve as a model in this regard.

Other interviewees suggested that cooperative research partners should be fully engaged in all stages of the process, including strategic planning and the development of cooperative research programs, formulating research questions and proposals, and data collection and analysis. That is, “... take a look at the research that needs to be done; early on... [ask] is there a way to involve the industry through cooperative research? Be more deliberate in finding opportunities.”

Seven interviewees suggested that the agency engage in more outreach and publicize cooperative research opportunities, past projects, and successes. “[Cooperative research] project results need more outreach and notoriety... Communicate successes.” One individual suggested involving Sea Grant to assist with this outreach. Similarly, some interviewees

mentioned the importance of communicating the agency's scientific needs and capabilities to potential cooperative research partners in order to facilitate discussions about where stakeholders might be able to fill a niche, data gap, or help address existing issues and challenges. Several forums—such as the Council, Alaska Native Organizations (ANOs), and others—could be used to discuss cooperative research needs and strategies with existing and potential partners.

Regardless of the type of outreach, one interviewee suggested that it was important to have “ongoing engagement rather than periodic visits from on high” to encourage and promote cooperative research. As one respondent said, the agency needs to “... create dialogue, common ground, and trust...” between Agency staff and fishermen, and a better understanding of each other's perspectives. This “... is built over time and frequent conversations...” and promotes transparency, which “... is critical and feeds directly into trust and support for scientific advice.”

Seven interviewees mentioned who they believed the key cooperative research partners were. Some focused on seeking partners who had a “stake” in the research; others mentioned the fishing industry, academic institutions, states, tribes, NGOs, and other governments. At the same time one interviewee was concerned that if a cooperative research partner (e.g., industry partner) had a stake in the outcome, then they will want a certain outcome. In contrast, the same concern was not mentioned when partnering with academic institutions, as they were seen as strengthening NOAA Fisheries' science and credibility.

Define and communicate cooperative research standards and goals

Four interviewees mentioned data quality and sharing as important considerations. Some voiced concern about the quality of data collected from cooperative research projects and how NOAA Fisheries can ensure that the collected data are reliable. This is critical if the data will be used, for example, in stock assessments or for validating electronic monitoring technologies. How data will be shared with cooperative research partners should be discussed and decided early in the process. This related to the identification and communication of a project's goals and objectives. Five interviewees mentioned the importance of communicating project goals and objectives. One stated that, “[c]ooperative research's most important factor or function is to impart a shared understanding of why the agency is collecting or analyzing data and how that data is synthesized and used.” Similarly, another interviewee mentioned that communicating management priorities within the agency was also important, so that research can be more aligned with these priorities.

Foster collaboration by changing agency attitudes

Respondents (4) mentioned that attitudes within the agency related to cooperative research should change. It was mentioned that the agency should embrace “equal involvement among parties” and a “cooperative spirit,” and increase the role of stakeholders in cooperative research activities. Similarly, another interviewee suggested that cooperative research partners should be engaged in analyses, not just data collection. Another individual mentioned that partners should be involved in “... science beyond just bycatch reduction, such as surveys and

assessments.” Two additional interviewees also suggested that the agency should embrace the use of fishery-dependent data.

Assess where cooperative research would be beneficial and what contributes to success

Eleven interviewees suggested that some assessment of past and current cooperative research projects was necessary to better understand what worked and what did not. One respondent suggested these should be regional assessments, while others suggested these assessments could be conducted through workshops with past participants. Assessments could aid in:

- 1) identifying the capabilities of cooperative research;
- 2) identifying where this research can fill gaps;
- 3) identifying opportunities for cooperative research within the agency’s “science framework”; and
- 4) assessing the feasibility of multi-year or periodic projects toward developing a time series.

Funding: increase, re-allocate, or consider non-federal sources

Comments about funding from 38 interviewees were divided into the following five subcategories:

1. Increase funding of cooperative research efforts. Eighteen interviewees suggested that more funding would help to advance cooperative research programs. For example, it was noted by one interviewee that part of the reason the agency is not more proactive in its interactions with tribal governments on groundfish and marine mammals comes down to funding.

Some of these interviewees expressed their views on specific funding problem areas. Regarding the Bycatch Reduction Engineering Program, money should not be awarded to agency principal investigators as they have been in the past. However, it was unclear from this interview why this was a problem. Several interviewees mentioned increasing the flexibility of funding. Also, NOAA Grants Management was noted as an area where improvements in timeliness could be focused, particularly when they are involved in moving funds from the agency to cooperative institutions like academic institutions.

2. Funding that is stable and multi-year. Five interviewees suggested that “stable” or multi-year funding was key to advancing cooperative research programs. This would provide for more predictability in whether funds are available each year (which “facilitates an ongoing dialog on cooperative research”) and flexibility in how cooperative research funds can be used and invested over time (which “would allow broader research programs,” making it “easier to attract and retain people to do the research when funding is assured over multiple years”). Similarly, one interviewee suggested developing “long term programs for continued data collection in perpetuity.”

Eleven interviewees suggested that lack of additional funding was not an issue. Instead, a re-allocation or re-prioritization of existing funding was needed. For example, one individual stated that “... just having the agency’s leadership be on board is the important thing, it sounds like the end result of this [working group] will be a report to leadership and I hope they take it

to heart and basically provide guidance and free up their staff to think about this more, both on the science side and management side.” If cooperative research projects are a priority, this direction needs to be given and weighed against other agency priorities.

Several interviewees identified needs for more funding:

- Staff should be increased so as to facilitate, assist with, and evaluate cooperative research efforts, such as Research Set-Aside (RSA) programs and Exempted Fishing Permits (EFPs). EFPs in particular can help the Agency evaluate new fishing opportunities by allowing new gear to be tested that may more efficiently target desired species and reduce bycatch of protected species.
- Science Centers should emphasize and prioritize cooperative research projects.
- There should be better coordination between the agency and cooperative partners, such as the Councils, so that they can provide input on research needs, there is a clear process of data collection, and research results are shared.

These interviewees recognized that prioritizing agency resources toward cooperative research would require the Agency to “... give up some core research/monitoring work to process” if additional funding is not available and that this would need to be evaluated carefully to determine whether this is the best resource allocation.

3. Allocate resources to non-fish cooperative research. Four interviewees suggested that more cooperative research funds (either new or existing) could be focused on non-fishery species such as marine mammals or protected species. There was a perception by some of these interviewees that existing cooperative research funding was “directed toward fish-centric research” when it could, instead, be more inclusive of “ecosystem components, not just harvested species.” One interviewee suggested, “[f]or example, providing research to protected species like turtles so that you can have an idea of how many turtles can be [taken] before the fishery is affected. The effective number of turtles that can be caught before the fishery is closed is dependent not just on the number of turtles caught but also on the size of the turtle population. If you do not have information on the protected species (i.e., there are no funds available to research them), the fishery may be shut down prematurely or even unnecessarily.” Another interviewee mentioned that in the past there was a “Species of Concern” list toward which “pro-active conservation efforts” were supported by a grant program. However, the “[c]urrent ESA listing workload has impacted the ability to” pursue this type of research.

4. Funding from non-federal sources. Four interviewees mentioned that cooperative research programs would benefit by allowing the agency to accept non-federal funding (e.g., private gifts, donations). One interviewee mentioned that the fishing industry funds research in New Zealand. Another suggested that the agency could “identify funding mechanisms for cooperative research associations or conglomerates” as a way to do this. Others suggested that allowing the agency to receive non-federal funding “may require legislative authorization.” Similarly, one interviewee stated “... if they [the fishing industry] want a newer, broader, more extensive survey, it takes time and resources... If they see it as beneficial to them, then how do we set it up so they can give us [NOAA Fisheries] money to do that?”

Improve or change the current cooperative research process

Twenty-seven interviewees suggested ways that the current cooperative research proposal or process could be improved or changed. These ideas include: 1) improve proposal development process, 2) examine who receives funding, 3) streamline the current processes, 4) allow regions more discretion, and 5) align cooperative research goals with management priorities

Provide incentives for researchers to use the cooperative research model. One interviewee suggested that requests for proposals (RFPs) be “incentive-based... e.g., if you conduct this research through [a] cooperative research model, then we [NOAA Fisheries] can provide 75% of the funding, or some other incentive.”

Examine who receives cooperative research funds. Respondents provided varying views as to whether cooperative research projects were best led by NOAA Fisheries scientists or those outside of the agency. Respondents suggested examining what strengths each might bring in conducting the research

Streamline current processes. Three interviewees mentioned the need to streamline existing processes: a reduction in “regulation and bureaucracy of formal agreements” and “[p]rocedural issues such as permitting and ESA Section 7 reviews” was necessary to prevent delays to research. Also, one acknowledged that cooperative research is confusing for non-NOAA Fisheries partners because “... there are multiple grant programs with different timeframes and varying priorities... some program priorities overlap and others don’t.”

Allow regions more discretion. One interviewee recommended that regions should have more discretion to set priorities for their regional cooperative research programs and to choose which cooperative research projects are funded.

Align cooperative research goals with management priorities. Four interviewees mentioned that science priorities and management needs could be better aligned to ensure resources are spent wisely.

Identify and acknowledge how cooperative research data are used and communicate this. One interviewee noted that most cooperative research data go into “benchmark assessments” rather than a “stock assessment update.” Benchmark assessments occur less frequently and so these data may not be used immediately. This needs to be communicated to stakeholders.

Acknowledge existing cooperative efforts. One interviewee noted that there are “... a lot of agency efforts/mechanisms that operate in a ‘cooperative-mode,’ but aren’t formally designated as ‘cooperative research’ or funded through cooperative research dollars. A good example is the Fishery Information Networks (FINs). These are regional cooperative state-federal programs to design, implement, and conduct marine fisheries statistics data collection programs and to integrate those data into a single data management system that will meet the needs of fishery managers, scientists, and fishermen.”

Identify impediments to cooperative research. Four interviewees identified the following impediments to engaging in more cooperative research:

- Insurance requirements related to worker safety and having non-federal staff on government vessels or federal staff on non-government vessels can impede research.
- Data confidentiality restrictions and the “... the ability to utilize the data collected for agency priorities” can be a problem.
- Logistical difficulties with contracts and cooperative agreements.
- Institutional impediments such as whether quota or research set-asides are used for cooperative research projects.

Increase leadership toward promoting cooperative research. Respondents gave varying feedback on how cooperative research could be better promoted. One said current programs were sufficient, while others suggested that NOAA Fisheries should enhance its leadership of and promotion of cooperative research. For example, one individual suggested that a “clear national-level leader and strategic plan,” similar to the recreational fishing initiative, was a way to promote cooperative research programs. Another interviewee similarly stated that the agency’s leadership “...needs to make it known to those out there in the management and science realm that this is important... So it’s just making it a priority.”

External interviews

This analysis includes results from nine “external” (non-NOAA Fisheries) interviews and feedback from the attendees at the “roundtable.” These interviews identified themes or topics that related to improving or changing the current cooperative research process to increase or enhance cooperative research within the agency. These themes were divided into five categories:

- Foster collaboration/be more inclusive by engaging communities early.
- Define/communicate research goals.
- Increase leadership.
- Streamline the EFP and grants processes.
- Increase or better utilize funding.

Foster Collaboration

Two interviewees mentioned the importance of **engaging both commercial and recreational fishermen in research projects**. Engagement referred to making an effort to let fishermen know about cooperative research opportunities as well as education and training about the research process (from data collection to analysis to interpreting results to use in management). Another interviewee stated that the agency should, “[f]igure out how to involve anglers. Start with simple data collection. A good example is the research... to determine what kind of toxins were involved in the fish kills. Constituents were actively involved in bringing in carcasses to collection centers—getting [that] kind of constituent involvement yields tremendous results and saves money.”

Two additional interviewees reflected on cooperative research between NOAA Fisheries and tribal scientists. One mentioned that despite all the work done on tribal consultation (under Executive Order 13175 that requires consultation and coordination with tribal governments), this requirement to consult with tribes “... hasn’t done much of anything” to improve the status quo. Another interviewee suggested that if additional resources were available, it may be beneficial to create a “full-time well-defined position focused on cooperative research and cooperative management” who would serve as a **liaison between each tribe and the agency**. This interviewee suggested that creating such positions would go “a long way” in improving research collaboration and relationships. In lieu of additional funding, this interviewee suggested having organized, well-defined “summit meetings” on a periodic basis to discuss cooperative research priorities, projects, and progress. It was suggested that better structured meetings at Council meetings that agency and tribal representatives already attend could facilitate cooperative research.

Define and communicate research goals

Respondents indicated that all the relevant stakeholders should work together to define **research goals collaboratively**. Further, the research outcomes should be clearly identified and it should be understood how they will fit into existing or future management needs. For pilot studies, such as EFPs, it may be necessary to emphasize that the outcomes of such a study may or may not be applicable to a particular management need, so expectations of how the results will be use are tempered. Likewise, additional barriers to engaging partners in cooperative research (e.g., data-sharing) should be identified.

Increase leadership

One interviewee noted the importance of **good leadership**. “We need to have good leaders, not just people who go to meetings. We need to have people who will check back with the people they represent and bring a good product to them.” Within the context of this interview, the call for “good leaders” applied to all cooperative research partners (i.e., not just agency representatives) and suggests that a good leader is one who communicates progress on and outcomes of research projects to all partners and the groups they represent.

Streamline the EFP and grants processes

Two interviewees mentioned the importance of having more cooperative research opportunities to conduct **pilot studies or the issuance of experimental or exempted fishing permits (EFPs)**. The agency should work to “streamline” and increase the “timeliness” of the EFP process, and communicate why EFPs are not always issued. This comment ties back to the importance of communicating research (and management) priorities and goals to partners, to help temper expectations. Streamlining the cooperative research grants process was also mentioned. An additional interviewee mentioned that this streamlining included the interaction between the federal and state permitting processes.

Increase or better utilize funding

Six of the nine external interviewees mentioned that to advance cooperative research, **funding should either be increased or better utilized**. Suggestions included that NOAA Fisheries look at

the National Science Foundation's process of cooperative research, and also suggested that the NOAA Fisheries Science Centers should consider changing policies on how they conduct fisheries research.

One interviewee suggested that cooperative research programs and projects would be improved if existing funds were re-allocated: update the proportion of funds that are allocated to each region. This interviewee stated that the Northeast and Southeast received the majority of funds, and the other regions had to compete for the remaining funds. This interviewee said that, if regions were allocated and allowed to administer their own cooperative research funds, then competition for funding could (and should) occur regionally, rather than nationally.

Recommendations to Leadership on Cooperative Management and Cooperative Research

Note: These recommendations will be tracked by the NOAA Leadership Council.

Communication

- 1) The Headquarters Communications Office, Regional Offices and Science Centers should review the specific communication mechanisms and platforms being used to assist agency partners and stakeholders interested in learning more about participating in cooperative management (e.g., regional points of contact, information on how to obtain an EFP, grants, etc.). As part of this, the Regions and Science Centers—through their Regional Communications Council lead—should:
 - a. Identify and evaluate the cooperative management information currently available on their own websites and via other communications tools used by the agency (e.g., brochures, workshops, etc.); and
 - b. Identify and evaluate their related Regional Fishery Management Council websites to determine what cooperative management information exists there.
 - c. The Fisheries Office of Communications will lead a similar evaluation of the headquarters program websites, including SF, PR, S&T, and others. In addition to reporting on the headquarters evaluation, the Communications Office will work with the Regional Communication Council to collect and report Regional and Science Center information.
 - d. Consider using other government agencies to publicize opportunities (e.g., Marine Mammal Commission).
- 2) The headquarters programs, Regional Offices, and Science Centers should create or facilitate more opportunities to engage possible cooperative research/cooperative management partners. This could range from encouraging NOAA Fisheries staff to work with outside partners including regular, regional town halls, roundtable discussions, or other meetings to engage stakeholders in addition to the existing Council process, consistent with the recently adopted Engagement Principals (11/2014).

Cooperative Management Policy

- 1) Provide the guidance below to NOAA Fisheries Employees, partners, and stakeholders on the range of cooperative management tools that NOAA Fisheries has available.

Given the various definitions and understandings of “co-management,” this White Paper recommends that use of the term “co-management” be reserved for when there is shared management with similar authorities between NOAA Fisheries and states or tribes. The working group recommends that a common definition of the term “cooperative management” be used to differentiate between “cooperative management” and “co-management” as well as “cooperative research.”

It may be helpful to explicitly establish a common understanding of what “cooperative management” means to NOAA, as the working group noted internal and external differences in views regarding such arrangements. We recommend:

“Cooperative management” refers to when stakeholders, after coordinating with NOAA, carry out certain conservation and management responsibilities. This may require those stakeholders to incur the burden of investing additional human and financial resources. As a general rule, cooperative management should be pursued when NOAA and the stakeholders gain mutual benefits and when legal authority permits.

As reflected in Figure 3, cooperative management has an analog in cooperative research: stakeholders work together with NOAA to develop the research design and collect data, consistent with standards that ensure that the data can be used for scientific and management purposes.

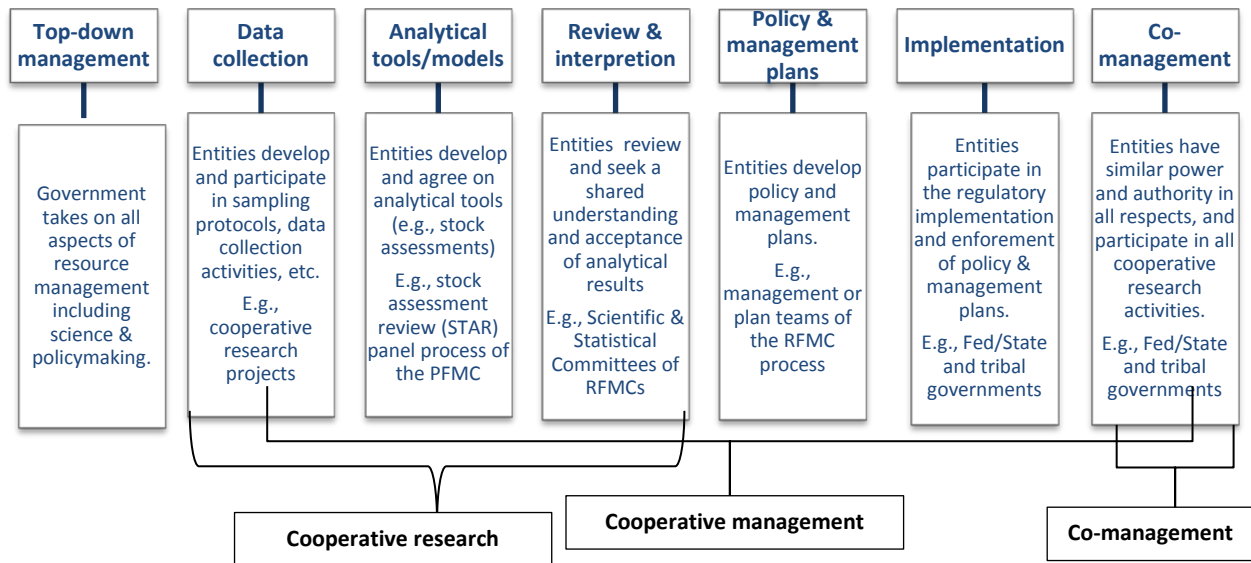


Figure 3: Levels of cooperative management, modified from Berkes.²¹

It is important to note that, under existing authorities related to cooperative management between NOAA and most user groups, final decision-making and enforcement authority would rest with NOAA. This is different in the case of co-management, i.e., government-to-government arrangements in which statutory and other legal principles and authorities prescribe the jurisdiction and authority of federal, state, tribal, and local governments.

²¹ *Ibid.* 1, p. 19.

- 2) The NOAA Fisheries Policy Office should evaluate our partnership with Sea Grant, particularly regarding research, outreach, and education, to determine if there are additional ways to engage the academic and stakeholder communities.
- 3) The NOAA Office of Communications and Office of Policy should facilitate in-reach by training all appropriate NOAA Fisheries staff on the common understanding of co-management, cooperative management, and cooperative research and the suite of tools available to NOAA Fisheries under the MMPA, ESA, and MSA. Facilitation and/or customer service training may be appropriate for specific staff to improve interactions between NOAA Fisheries staff and constituents. Training could take place through webinars, field training, training videos, and publicized information on the NOAA Fisheries intranet. This recommendation may initially require additional funding resources but may be offset by gains in management efficiency.
- 4) NOAA Fisheries Leadership and their staff should develop and maintain good working relationships with cooperative management partners and be accountable for the success of those relationships.
- 5) NOAA Fisheries Leadership and NOAA Fisheries Management and Budget should continue to push for statutory language needed to accept private donations and determine the proper guidelines regarding the use of private funds.
- 6) Employees and cooperative management partners should establish clear objectives and expectations of their respective roles, as well as regularly review whether there are challenges that need to be addressed. Dialog is needed in both directions.
- 7) Regional Offices and Science Centers should explore whether NEPA review/analysis for EFPs and grants can be streamlined.

Cooperative Research

- 1) The Science Board should review how Cooperative Research feeds into management priorities and, if necessary, engage the Regulatory Board.
- 2) The Cooperative Research Program should ensure that cooperative research projects are aligned with management priorities and focus on science gaps (e.g., habitat science and its integration into stock assessments).
- 3) The Cooperative Research Program and other cooperative research activities (i.e., Saltonstall-Kennedy Grants and BREP) should ensure that both stakeholders and NOAA Fisheries are involved from start to finish to set goals and objectives and to ensure results have the best chance to be used for science and management purposes. Likewise, it is important to have the appropriate suite of expertise engaged in a given cooperative research project to ensure that the resulting data can best be used toward practical applications for science and management purposes. For example, if a project addresses a social science concern, it is vital that social scientists be included in the design, implementation, and analysis of that project.
- 4) NOAA Fisheries Leadership should ensure cooperative research is visible in Science Center planning and program reviews, engage their staff, and be accountable for good working relationships with cooperative research partners.

- 5) NOAA Fisheries should encourage peer review products as a preferred outcome of the research activities. Peer reviewed products can provide maximum impact in support of NOAA Fisheries science (e.g., stock assessments) and management priorities. If possible, NOAA Fisheries should also aid authors in publishing so as not to extend the publication periods.
- 6) The Cooperative Research Program should review existing long-term/multi-year cooperative research projects and develop recommendations for how to maintain and transition funding for these projects to other sources (internal or external).
- 7) Working with the NOAA Office of General Counsel, develop a way to help program offices to quickly identify which legal authorities and types of agreements might be relevant to cooperative research activities with external partners (academics, industry, NGOs, etc.).
- 8) NOAA Fisheries should conduct cooperative research, such as testing new fishing gear, within MSA-established fishing mortality limits and consistent with other applicable law, such as the ESA and MMPA. A variety of mechanisms has been developed and should be applied to allow such cooperative research to move forward, not impeding partnerships.

Metrics

- 1) NOAA Fisheries' Office of Science and Technology should survey external partners on their perceptions of NOAA's cooperative management and cooperative research programs and re-survey them in 2 to 3 years to see if perceptions have changed. The survey should be re-evaluated as needed.
- 2) NOAA Fisheries' Office of Science and Technology should review 2014 cooperative research program projects and determine how many, and which, projects better informed, facilitated, or supported improved management decisions or enriched scientific products.
- 3) In FY16 develop reporting tool that tracks how each Cooperative Research Program project fits into the Agency's science based management of living marine resources.

Process for sharing White Paper

- 1) This white paper was shared for review and comment on the recommendations with the following advisory groups:
 - ✓ Marine Fisheries Advisory Committee
 - ✓ Council Coordination Committee
 - ✓ Marine Mammal Commission
- 2) Share the final white paper with all internal and external interviewees.

Conclusion

The November 25, 2013, letter recommended that NOAA support cooperative management and cooperative research as a means to bring new resources to fisheries management, enhance NOAA's capabilities, and improve stakeholder relationships. Through this review, NOAA has examined its current activities and engagements, identified areas that could benefit from improvement and new resources, and considered ways to better draw upon the strengths that state, tribal, and local governments and stakeholders bring to fishery conservation and management efforts. While NOAA Fisheries does a lot of cooperative management and cooperative research, more can be done to promote these activities. The working group believes that the recommendations provided here offer a path forward.

It is important to acknowledge the role of the Regional Fishery Management Councils as part of the spectrum of cooperative management. The Councils are responsible for the fisheries that require conservation and management in their regions and are composed of both voting and non-voting members representing the commercial and recreational fishing sectors in addition to environmental, academic, and federal and state government interests. The Council process itself is on the spectrum of cooperative management. In addition, there are several examples of cooperative management approaches the Councils have developed over the years, ranging from the AFA Pollock cooperatives and other examples described in this paper to the development of the Sector program in the Northeast to charter/headboat cooperative management being piloted in the Gulf of Mexico.

"Cooperative management" refers to when stakeholders, after coordinating with NOAA, carry out certain conservation and management responsibilities. This may require those stakeholders to incur the burden of investing additional human and financial resources. As a general rule, cooperative management should be pursued when NOAA and the stakeholders gain mutual benefits and when legal authority permits.

"Cooperative research" allow stakeholders to contribute to the overall base of knowledge, enabling NOAA to make informed decisions. In general, NOAA should support stakeholder research and advise the stakeholder on how to best structure their research efforts. Also, NOAA may choose to confer with stakeholders where multiple overlapping research initiatives exist, in an effort to determine whether one or more of the research projects could be modified to increase the overall knowledge. NOAA should consider how best to be a partner and facilitator to create a positive environment for cooperative research projects.



Mid-Atlantic Fishery Management Council
800 North State Street, Suite 201, Dover, DE 19901-3910
Phone: 302-674-2331 | FAX: 302-674-5399 | www.mafmc.org
Richard B. Robins, Jr., Chairman | Lee G. Anderson, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: January 29, 2016
To: Council
From: Julia Beaty
Subject: Unmanaged Forage Omnibus Amendment

The following documents are included for your consideration:

1. Summary of the January 6, 2016 Fishery Management Action Team (FMAT) meeting
2. Summary of January 11, 2016 Ecosystems and Ocean Planning (EOP) Advisory Panel (AP) meeting
3. Summary of January 22, 2016 EOP Committee meeting
4. Memo on NMFS process for Exempted Fishing Permits
5. Public comments on Unmanaged Forage Amendment received since December 2015 Council meeting

Staff recommendation for February 2016 Council meeting

The Council planned to review and approve a draft public hearing document during the February 2016 Council meeting. Council staff have not yet prepared this document, but will present an outline of the document during the February Council meeting.

Staff recommend that the Council review the recommendations of the EOP Committee, which include recommendations for a goal statement, a range of management alternatives, and a list of unmanaged forage species to include in public hearing documents. Staff propose that additional meetings of the FMAT, EOP AP, and EOP Committee occur prior to the April 2016 Council meeting and that public hearings take place starting in late April or early May 2016.



Unmanaged Forage Fishery Management Action Team January 6, 2016 Meeting Summary

The Unmanaged Forage Fishery Management Action Team (FMAT) met via webinar on Wednesday January 6, 2016 to discuss several aspects of the Council's developing Unmanaged Forage Omnibus Amendment.

Goals, Objectives, and Purpose and Need Statement

The FMAT discussed a draft statement of purpose and need for the amendment. The FMAT previously drafted the following purpose statement: "to use the Council's discretionary authority to prohibit the expansion of existing or development of new directed fisheries on unmanaged forage species in the Mid-Atlantic." The FMAT revisited this topic because the Council expressed concerns about the draft purpose statement during their December 2015 meeting. Specifically, some Council members wished to add "until adequate scientific information is available to promote ecosystem sustainability" to the end of the purpose statement. One FMAT member noted that purpose and need statements must meet specific requirements under the National Environmental Policy Act (NEPA). There is already an established process to allow new fisheries to develop, or existing fisheries to expand, through the use of exempted fishing permits (EFPs) issued by the National Marine Fisheries Service (NMFS). Because this process already exists, it does not need to be included in the purpose and need statement and does not require NEPA analysis. The FMAT recommended that the Council adopt a statement of goals and objectives, which is the usual framework for the Council to direct the development of an action. The statement of goals and objectives could address the issue of allowing new fisheries to develop and existing fisheries to expand. The FMAT recommended that the Council use the following as a starting point for discussion: "The goal of this action is to prohibit the development of new and expansion of existing directed commercial and recreational 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." This goal statement is modeled on the December 2014 Council motion which initiated this amendment and on the purpose and need statement of the Pacific Fishery Management Council's Comprehensive Ecosystem-Based Amendment 1, which is very similar in intent to the Mid-Atlantic Council's Unmanaged Forage Omnibus Amendment. The FMAT recommended that the Council consider the following objectives to meet this goal: 1) Develop criteria to identify unmanaged forage species that are important for Council-managed predators, 2) Regulate catch of those forage species, and 3) Allow new fisheries for those species to develop, or existing fisheries to expand, only after the Council has had an adequate opportunity

to both assess the scientific information relating to the fishery and consider potential impacts to existing fisheries, fishing communities, and the greater marine ecosystem.

List of Species to Consider for Inclusion in the Amendment

The FMAT discussed a draft list of unmanaged forage taxa to consider for possible inclusion in the amendment. The list contains 286 unmanaged forage taxa and includes:

- Taxa identified as important or potentially important prey for Council-managed predators based on stomach content data from the NMFS Northeast Fisheries Science Center's (NEFSC) biannual bottom trawl survey and the Northeast Area Monitoring and Assessment Program (NEAMAP) bottom trawl survey¹
- Taxa identified as potentially important prey for any sampled fish (not just species managed by the Mid-Atlantic Council) in the Mid-Atlantic region of the NEFSC bottom trawl survey
- Taxa recommended during the public scoping process
- Taxa identified during literature reviews as forage species in the Mid-Atlantic region, including a review focused on the diets of highly migratory species (i.e. tunas, sharks, swordfish, and billfish)² and marine mammals

The FMAT divided the list of 286 unmanaged forage taxa into four levels to describe priorities for inclusion in the amendment. The four levels were defined based on the criteria shown in Table 1. The FMAT identified 47 taxa as priority 1 (the highest priority), 54 taxa as priority 2, 39 taxa as priority 3, and 146 taxa as priority 4 (the lowest priority). The FMAT intends for this prioritization scheme to be a starting point for consideration by the Ecosystem and Ocean Planning Committee and the full Council. The FMAT will add additional information on trophic level as a decisional criteria in the prioritization scheme in the near future. The list currently contains some taxa which are not considered forage; however, the FMAT did not wish to remove these species from the list without information on the trophic level of each taxa and an agreed upon definition of which trophic level defines "forage". The FMAT recently obtained a list of numerical trophic levels used by the NEFSC for ecosystem modeling. The FMAT will use this information to update the list in the near future and may use it to refine the prioritization scheme. Another factor that could affect the priority rankings and was not included in this initial prioritization is the likelihood that a given taxa could become the target of a directed fishery in the near future, based in part on whether it has ever been harvested anywhere in the world.

¹ The FMAT used the NEFSC's bottom trawl survey data from Mid-Atlantic offshore strata (which roughly correspond to Federal waters) and data from the entire survey area of NEAMAP (which includes depths from about 20 to 90 feet from Aquinnah, Massachusetts to Cape Hatteras, North Carolina). The FMAT defined "important" prey as those which made up more than 0.1% of the relative mean stomach weight of one or more predators of interest. The FMAT defined "potentially" important prey as those which made up at least 0.001% of the relative mean stomach weights. These stomach content data often do not identify items to the species level due to digestion and the limits of macroscopic inspection. Additionally, these trawl survey data may not accurately represent the diets of the fish captured due to gear selectivity, sampling only during the spring and fall, and other reasons. The FMAT set low thresholds for importance in order to improve the taxonomic resolution of the prey included in the list.

² The literature review of highly migratory species diets is ongoing. The FMAT plans to conduct a literature review of the diets of sea turtles and sea birds in the Mid-Atlantic in the future.

Catch and Landings Data

In December 2015, the Council requested that the FMAT compile catch and landings data and develop draft possession limits for key forage species. The FMAT began this process by compiling Vessel Trip Report (VTR) data, dealer data, and observer data on landings and/or discards (depending on the dataset) for as many taxa on the FMAT's species list as possible. Some taxa in the FMAT's list did not have corresponding species codes in the VTR, dealer, and observer databases. For this reason, and because some taxa may not have any reported landings and/or discards, the FMAT was only able to examine landings and/or discard information for a subset of the taxa of their list. The FMAT examined data summed over the entire Northeast region over about a 20 year time period. Because these data were not checked for confidentiality issues³ prior to the FMAT meeting, the FMAT shared this information in the form of ranked lists without associated poundage values. The FMAT agreed to remove confidential data and prepare new summaries with associated poundage values in time for consideration at the January 11, 2016 Ecosystems and Ocean Planning Advisory Panel meeting. This task was completed shortly after the FMAT meeting. Landings of some unmanaged taxa of interest as reported by Federally-permitted dealers are shown in Table 2. Landings as reported in VTRs are shown in Table 3. It is important to emphasize the limitations of Federal dealer and VTR data, particularly in relation to reporting requirements. Dealers which are not Federally-permitted are not required to report landings to NMFS. The VTR data is self-reported and is only required from fishermen with Federal permits. Additionally, there are no VTR requirements for the lobster fishery. For these reasons, dealer and VTR data potentially under-represent actual landings of some unmanaged forage taxa.

The FMAT also agreed to examine these data over smaller time increments and smaller areas (e.g. statistical area, state of landing, port state) prior to the January 22, 2016 Ecosystems and Ocean Planning Committee meeting. The FMAT agreed to further examine the VTR data to determine which unmanaged forage species have been caught by which gear types and in what quantities over the past 20 years.

The FMAT examined summaries of observer data shown as observed catches ranked from highest to lowest without associated poundage values (to protect confidential data). The FMAT concluded that these summaries had limited utility and that the observer data would be best used to examine discards. One FMAT member questioned the goal of examining discards. After some discussion, the FMAT agreed that they did not recommend regulatory action on discards of unmanaged forage species, but thought it would be important to analyze discards to determine which species could easily become the target of directed fisheries if new markets develop, to know when directed fisheries are developing or growing, and to better understand fishing mortality for these species.

³ Defined as data representing less than three individual dealers or fishing entities.

One FMAT member cautioned that the reporting requirements for vessels and dealers have changed over past 20 years. For example, VTR estimates of landings of species without Federal reporting requirements are likely to be underestimated, particularly if they are caught by vessels without a Federal permit. Similarly, Northeast Fisheries Observer Program protocols for collecting observer data have evolved over the past several years. Another FMAT member noted that some unmanaged species with relatively high landings in recent years, such as hagfish, may still have confidential data in recent years (Tables 2 and 3).

Abundance Data

In December 2015 the Council tasked the FMAT with compiling information on abundance of key unmanaged forage species in the Mid-Atlantic, as well as information on variability in abundance over time. The FMAT plans to compile historical data on frequency of occurrence in catches of NEFSC trawl surveys and state trawl surveys in the Mid-Atlantic in time for the January 22, 2016 Ecosystem and Ocean Planning Committee meeting.

Public Comment

About ten members of the public listened to the FMAT discussion. Four individuals provided public comments at the end of the meeting.

Three individuals were concerned that the amendment has changed significantly from how it was described during the public scoping process in August-September 2015. Specifically, over 200 species are now under consideration, compared to the nine that were presented during scoping. One individual said many fishermen thought this amendment wouldn't affect them at the time of scoping and now the amendment is likely to affect many fishermen; therefore, the Council should hold a second round of scoping hearings to inform the public of recent developments.

Two individuals stated that this amendment will have serious negative economic consequences for commercial fishermen and will shut down existing fisheries. One individual said there is a very low likelihood of directed fisheries developing for the vast majority of the species on the FMAT's list. Two individuals thought the amendment is developing too quickly. Two individuals said there are no measurable criteria to evaluate the success of this amendment.

One member of the public said the Council should present a large list of species, including low and mid-trophic level species, during public hearings and narrow down the list afterwards.

One individual said the purpose and need statement should contain "until adequate scientific information is available to promote ecosystem sustainability" and should make it clear that the Council intends to not only prohibit the development of new fisheries, but also to prevent existing fisheries from expanding. This is a key difference between the Mid-Atlantic Council's

amendment and the Pacific Council's amendment. One individual said the FMAT doesn't have the authority to define the goals of the amendment.

One individual said the FMAT should consider the possibility of localized depletion and the seasonal and local needs of predators.

One individual expressed support for the Pacific Council's approach of setting daily and annual catch limits that are high enough to account for most past landings and added that it is important to monitor discards so the Council can know when a new directed fishery develops.

Table 1: Criteria used to rank taxa by priority for inclusion in the Unmanaged Forage Omnibus Amendment.

<p>Priority 1 taxa (strong justification for inclusion in the amendment based on information collected by the FMAT)</p>
<ul style="list-style-type: none"> a) Distribution includes the Mid-Atlantic, and b) Identified as important or potentially important prey for Council-managed predators based on stomach content data from the NEFSC and/or NEAMAP trawl surveys, and c) Present in Federal waters (i.e. not primarily an inshore species)
<p>Priority 2 taxa (moderate justification for inclusion in the amendment based on information collected by the FMAT)</p>
<ul style="list-style-type: none"> a) Meet the criteria for priority 1, but not generally found in Federal waters (i.e. primarily an inshore species), or b) Meet the criteria for priority 1, but classified at too high a level (e.g. order, phylum) in the opinion of the FMAT, or c) Meet the criteria for priority 1, but adults commonly larger than 25 cm in length⁴
<p>Priority 3 taxa (limited justification for inclusion in the amendment based on information collected by the FMAT)</p>
<ul style="list-style-type: none"> a) Distribution includes the Mid-Atlantic, and b) Not identified as important or potentially important prey for Council-managed predators but identified as potentially important prey for other fish predators in Mid-Atlantic Federal waters (based on the NEFSC trawl survey), or c) Meet the criteria for priority 1, or criteria <i>a</i> for priority 2, but classified at too high a level (e.g. order, phylum) in the opinion of the FMAT, or adults are commonly larger than 25 cm in length⁴
<p>Priority 4 taxa (very weak justification for inclusion in the amendment based on information collected by the FMAT)</p>
<ul style="list-style-type: none"> a) Distribution does not include the Mid-Atlantic (i.e. rarely found in the Mid-Atlantic), or b) Not identified as important or potentially important prey for Council-managed predators, or other predators in the Mid-Atlantic, or c) Identified as potentially important prey for predators not managed by the Council but not generally found in Federal waters, or d) Meet criteria <i>a</i> and <i>b</i> for priority 3, but classified at too high a level (e.g. order, phylum) in the opinion of the FMAT, or adults are commonly larger than 25 cm in length³

⁴ The FMAT plans to remove this criteria and replace it with “considered a high trophic level taxa”.

Table 2: Federal dealer reported landings (in pounds) of unmanaged taxa of interest from Mid-Atlantic states from 2006-2015. “C” refers to confidential data representing less than three dealers or permit holders. (Unmanaged is defined as not managed by the Mid-Atlantic, New England, or South Atlantic Fishery Management Councils or by the Atlantic States Marine Fisheries Commission. Some taxa in this table may be managed at the state level.)

SPECIES	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
ARGENTINE	4,806	18,905	2,404	C	C	C	C	C	C	C
BAY ANCHOVY	C	C	C	C	C	C	C	C	264	337
CLAM, RAZOR	121,482	C	C	C	C	C	C	C	C	C
CONCHS	358,211	623,572	922,800	2,249,468	2,333,456	2,531,395	1,161,741	467,671	156,325	1,610,514
CRAB, HERMIT	C	C	26,898	17,042	C	C	C	C	C	C
CRAB, LADY	C	C	4,770	4,860	C	C	C	C	C	C
CRAB, ROCK	6,656	14,510	39,199	38,360	16,019	26,566	41,079	14,655	39,003	366,718
CUNNER	3,646	3,172	6,018	3,281	2,768	10,900	9,723	5,840	4,055	3,439
CUSK	C	C	C	C	C	C	C	C	C	C
CUTLASSFISH, ATLANTIC	5,180	26,820	42,168	24,591	6,926	2,028	21,442	116,457	169,687	183,313
DRUM, BRANDED	C	C	C	C	C	C	C	C	C	C
EEL, CONGER	43,950	60,527	59,696	29,864	33,754	26,155	33,759	46,636	55,301	28,207
EEL, SAND (LAUNCE)	C	C	C	C	C	C	C	C	C	C
FLOUNDER, FOURSPOT	10,915	14,740	20,430	13,292	15,786	11,956	24,930	19,501	6,231	10,177
FLOUNDER, GULFSTREAM	C	C	C	C	C	C	C	C	C	C
GIZZARD SHAD	359,665	561,302	1,286,308	1,902,067	1,896,053	1,258,974	1,830,491	1,392,844	1,638,201	1,384
HAGFISH	C	C	C	C	C	C	C	C	C	C
HAKE,SPOTTED	C	C	C	C	C	C	C	C	C	C
HARVEST FISH	139,452	278,075	267,738	172,304	123,547	146,638	334,087	175,353	138,602	163,295
HOGCHOKER	C	C	C	C	C	C	C	C	C	C
KINGFISH,NORTHERN	C	C	C	C	C	C	C	353	172	176
MACKEREL, CHUB	C	C	C	C	175,788	C	63,484	4,393,230	701,591	1,419,355
MACKEREL, FRIGATE	420	735	2,232	1,351	709	2,954	C	C	186	C
MULLETS	10,958	13,328	24,515	40,426	19,722	22,446	23,464	19,065	7,895	3,331
MUMMICHOG	C	C	C	C	C	C	C	C	C	C
MUSSELS	C	C	C	C	C	C	C	C	C	C

Table 2, continued: Federal dealer reported landings (in pounds) of unmanaged taxa of interest from Mid-Atlantic states from 2006-2015.

SPECIES	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
OCTOPUS	992	1,207	1,105	229	C	60	177	129	81	202
PERCH, SAND	1,802	6,871	3,280	1,059	1,344	C	716	4,893	1,338	495
PERCH, WHITE	847,697	1,136,623	1,039,895	1,587,390	1,965,886	2,363,017	2,098,530	1,360,556	1,569,417	53,607
PIGFISH	2,801	4,067	6,291	1,504	3,124	3,131	5,632	11,343	5,853	8,026
PINFISH	1,351	2,621	9,944	1,863	5,745	77	51	207	36	377
POMFRETS	C	C	C	95	126	84	32	41	52	44
PUFFER	8,159	76	104	139	5	2,926	2,602	934	1,134	200
PUFFER, NORTHERN	3,393	15,161	30,438	75,886	112,664	59,000	74,055	20,437	27,841	36,578
RIBBONFISH	C	12,674	27,070	7,576	71,687	4,791	55,437	33,819	19,159	4,034
RN GRENADIER	C	C	C	C	C	C	C	C	C	C
ROSEFISH, BLACK BELLIED	116	952	252	1,873	744	1,037	409	821	1,667	5,900
SCAD, ROUND	C	C	C	C	C	C	C	C	C	C
SCULPINS	C	C	628	C	C	C	C	C	C	C
SEA RAVEN	217	969	1,872	788	2,533	223	246	371	249	17
SEA ROBIN, ARMORED	C	C	C	C	C	401	C	C	C	C
SEA ROBIN, NORTHERN	C	395	C	530	234	55	288	2,938	1,190	983
SEA ROBIN, STRIPED	3,371	5,757	1,235	C	1,098	850	997	4,097	5,965	4,027
SEA ROBINS	27,353	20,441	18,681	45,824	44,237	59,778	39,366	26,107	26,678	65,373
SHEEPSHEAD	28,440	64,473	80,353	70,206	69,754	68,832	67,305	103,481	87,413	84,551
SHRIMP (MANTIS)	C	143	68	45	347	99	122	323	2,114	120
SHRIMP, CRANGON	C	C	C	C	C	C	C	C	C	C
SILVERSIDE, ATLANTIC	C	C	14,289	1,542	8,428	2,967	21,774	12,520	22,909	20,810
SMELT	C	C	C	C	C	C	C	C	C	C
STARFISH	C	C	C	C	C	C	C	C	C	C
STRIPED MULLET	525,625	510,537	972,931	538,550	561,423	706,429	987,505	828,735	1,039,460	612,726
TOADFISH, OYSTER	4,764	9,385	34,475	44,744	30,630	58,181	38,668	15,460	14,069	12,341
TRIGGERFISH	24,853	33,497	88,264	67,321	85,092	71,085	55,072	92,970	67,758	75,718
TUNA, LITTLE	101,312	133,795	175,959	101,372	93,347	91,781	161,230	180,229	234,487	160,030
WHITING, KING	312,064	462,391	1,046,183	361,070	459,644	164,045	342,187	321,184	570,034	490,399
WORMS	C	C	C	C	C	C	C	C	C	C

Table 3: Landings (in pounds) of unmanaged taxa of interest from Mid-Atlantic states from 2006-2015, as shown on Vessel Trip Reports. “C” refers to confidential data representing less than three dealers or permit holders. (Unmanaged is defined as not managed by the Mid-Atlantic, New England, or South Atlantic Fishery Management Councils or by the Atlantic States Marine Fisheries Commission. Some taxa in this table may be managed at the state level.)

SPECIES	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
BLACK BELLIED ROSEFISH	C	1,184	665	2,073	228	305	298	503	822	2,569
CLAM, RAZOR	C	C	C	C	C	C	C	C	C	C
CRAB, ROCK	17,805	13,400	6,457	11,771	9,920	12,926	3,775	4,313	8,992	24,223
CUNNER	3,655	4,085	6,400	5,295	2,788	11,591	8,565	6,116	4,095	2,718
CUSK	C	C	C	C	270	C	C	C	C	C
EEL, CONGER	17,391	13,067	18,495	9,580	13,952	11,730	23,161	44,190	45,237	27,596
FLOUNDER, FOURSPOT	11,725	22,422	19,751	14,534	11,929	8,849	4,875	2,596	2,253	5,562
HAGFISH	C	881,962	2,103,810	618,668	C	C	C	C	C	C
HAKE, SPOTTED	C	C	C	C	C	C	C	C	C	390
HARVEST FISH	41	613	1,469	976	635	316	1,067	1,044	2,574	2,038
KILLIFISH	C	C	C	C	C	C	C	C	C	C
MACKEREL, CHUB	C	C	38	C	C	345	533,318	4,318,431	741,705	1,411,171
MACKEREL, FRIGATE	208	679	3,565	7,403	831	2,703	661	109	7,401	444
MULLETS	13,357	15,002	28,509	18,063	13,640	6,935	26,519	16,332	27,932	2,379
MUSSELS	C	C	C	C	C	C	C	C	C	C
OCTOPUS, SPECIES NOT SPECIFIED	135	120	331	86	C	C	1,516	135	51	22
PERCH, SAND	C	C	C	C	C	C	C	C	C	C
PERCH, WHITE	5,433	10,295	1,975	13,690	4,885	C	872	C	3,492	1,099
PIGFISH	C	C	C	C	C	C	C	C	C	C
PUFFER, NORTHERN	503	167	1,525	218	362	1,863	2,147	790	140	20
RIBBONFISH	476	2,364	5,470	2,419	158	132	8,258	106,233	162,316	166,449
ROUGH SCAD	C	C	C	C	120	C	C	C	C	C
SCULPINS	484	2,059	798	39,021	135	504	40	478	229	73
SEA RAVEN	478	1,024	1,659	2,407	1,953	493	122	188	134	86
SEA ROBINS	35,810	43,127	13,787	26,812	25,193	29,441	21,161	15,918	17,689	47,012
SHAD, GIZZARD	50	101	C	C	C	C	C	C	C	C

Table 3, continued: Landings (in pounds) of unmanaged taxa of interest from Mid-Atlantic states from 2006-2015, as shown on Vessel Trip Reports.

SPECIES	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
SHEEPSHEAD	12,938	45,958	4,042	13,494	7,145	11,335	4,414	2,895	1,560	936
SHRIMP (MANTIS)	454	110,399	152,261	67,607	182,175	130,331	173,821	77,356	30,457	65,105
SILVERSIDES, ATLANTIC	9,188	7,794	C	C	C	C	C	100	C	443
SMELT	C	C	C	C	C	C	C	C	C	C
STARFISH	C	210	43	C	C	C	C	103	C	C
TOADFISH, OYSTER	7,889	2,249	858	11,391	17,097	7,210	5,187	10,708	5,258	420
TRIGGERFISH	2,218	6,559	3,479	9,657	4,019	7,378	8,165	5,604	4,922	1,688
TUNA, LITTLE	38,805	39,834	8,765	19,239	6,887	12,120	33,226	10,923	32,065	22,573
WHELK / CONCH, SPECIES NOT SPECIFIED	182,595	120,275	249,895	127,191	183,890	152,728	157,513	529,325	155,574	84,319
WHITING, KING / KINGFISH	195,297	268,486	303,704	97,635	247,273	181,687	68,433	68,241	122,312	54,537



Ecosystem and Ocean Planning Advisory Panel Meeting

January 11, 2016

Meeting Summary

The Ecosystem and Ocean Planning Advisory Panel (AP) met to discuss the Council's developing Unmanaged Forage Omnibus Amendment. The AP discussed a draft purpose and need statement, a draft range of alternatives, a process for prioritizing forage species for inclusion in the amendment, and landings information for some unmanaged forage species.

Advisory Panel (AP) members in attendance: Fred Akers, Bonnie Brady, Gregory DiDomenico, Joseph Gordon, Monty Hawkins, Roman Jesien, David Kaplan, Meghan Lapp, Carl LoBue, Pam Lyons Gromen, Peter Moore, Timothy O'Brien, Steven Ross, Robert Ruhle, Brad Sewell, David Wallace, Stephen Weiner, Judith Weis

Others in attendance: Aaron, Carly Bari, Chris W, David Stevenson, Erica Fuller, Jay Hermsen, Kate Wilke, Katie Almeida, Laurie Nolan, Purcie Bennett-Nickerson, Rick Robins, Tom Rudolph, Warren Elliott, Steve Marx, Gilly Lyons

Summary of comments:

Several AP members thought this meeting should have taken place in person rather than over webinar. A few AP members thought the AP should have been asked for input earlier. A few AP members thought the amendment is developing too quickly. A few AP members stressed that much more analysis of impacts needs to be done, especially before public hearings take place. Several AP members expressed frustration with the limited data available to assess impacts and to determine which forage species to include.

Several AP members thought the amendment should not shut down or constrain existing fisheries. Several individuals said the amendment will create unintended negative consequences for existing fisheries. One AP member worried that even if exempted fishing permits are allowed, they will take too long to obtain and fishermen will not be able to take advantage of forage species when they are abundant. Some AP members thought the purpose and need statement should include "until adequate information is available to promote ecosystem sustainability".

A few AP members said the Council should not regulate unmanaged forage species in the absence of reliable information on biological and economic impacts. However, a few others expressed an opposing opinion, that the Council should not allow fisheries to occur in the absence of reliable information on ecosystem impacts.

The AP did not reach a consensus of which forage species should be included in the amendment and how those species should be chosen. Some AP members thought the list should focus on those species with the most information or those with the highest potential for large-scale harvest. Other AP members thought the list should be broad and inclusive as a way of considering the whole ecosystem. Many AP members thought the current list is too long, but there was little agreement as to how to narrow it down. Many AP members thought the 0.1% and 0.001% thresholds used to define importance and potential importance in the diets of predators were far too low. One AP member suggested a 20% threshold, others suggested 5% and 1%. A few AP members said they did not want to recommend different thresholds without first understanding why 0.1% and 0.001% were chosen by the FMAT.

A few AP members thought the Council should hold a second round of scoping hearings. When this amendment was brought out to public scoping in August-October, 2015, a list of nine species was presented, along with a definition of “forage” agreed upon by the SSC. After scoping, the FMAT generated a list of 286 taxa for consideration for possible inclusion in the amendment. The FMAT was not able to use the SSC’s definition of forage to narrow down the list. Some AP members said that when the much shorter list was presented during scoping, many fishermen thought this amendment would not impact them and so they did not provide comments. Now that the FMAT has generated a much longer list, those fishermen may want to comment and should be given a second opportunity to do so.

Detailed comments:

Peter Moore: If a species is only partly covered in this because of the state/federal divide, it seems to me that’s not a good use of people’s time to develop an amendment that’s not going to look at the entirety of the ecosystem.

Pam Lyons Gromen: The FMAT has been focused on trophic pathways as the connection to Council-managed plans, but that idea wasn’t in the Council motion, correct? So that doesn’t mean that the FMAT won’t look at other ways to connect forage species to FMPs, such as catch?

Laurie Nolan: The chub mackerel fishery has been occurring sporadically over time. In some years there are significant landings, in other years it could seem that there is not fishery.

Peter Moore: I think we need to be careful when we say these are developing fisheries. I believe it is important historical perspective to note that we were landing chub mackerel off Cape May for most of the 1990’s when we operated the Russian freezing ships under the terms of our IWP (Internal Waters Processing Permits), which were approved by the governors. At the time I was VP Pelagic Operations for Resource Trading Company, based in Portland, Maine. We were buying pelagic species from Cape May fishermen, and this included some chub mackerel, along with Atlantic mackerel and sea herring. Chub mackerel was retained and sold to a different market than the Atlantic mackerel. We were separating the chub mackerel and sending it to a market in Japan. I do not recall if it was documented by the federal observers on the processing ships. I don’t know if they were identifying to the species. If that’s not in some landings information somewhere, it should be looked for. It was ephemeral, it wasn’t something we could always count on. I think it needs to be carefully done in this amendment. If it’s been a commercial fishery, why are you going to shut it off when people are able to do it ephemerally? Or at least let people do it and learn from it instead of shutting it off.

Joseph Gordon: This same group worked on the Deep Sea Corals Amendment. We largely agreed that corals were worth protecting and we worked together to find a good way to do it that was respectful of current industry. I hope we'll do the same with this amendment. As far as the purpose and need, I think the Council's motion was really clear. The motion was tabled at the last Council meeting was tabled because they thought the original motion was clear and the FMAT should be operating from it. What happened at this last FMAT meeting is rather than adding in that very important part, "until adequate information is available to promote ecosystem sustainability", the FMAT is proposing goals and objectives. While that is important, it's important that the Council develop a range of alternatives, which should include a pathway to a fishery and a Council review process. I don't know of anyone who supports any of the management alternatives proposed except for 2b (prohibit directed fishing, but allow an incidental possession limit). Pretty much everyone I've talked to wants to follow the Pacific approach. It's not about bycatch, it's about targeting. We need to determine the exact amount from a trip perspective and an annual perspective. I hope we can get past some of the debate that's been happening. This is not about shutting down fisheries. I think the only fishery that deserves a special focus is chub and only because there was a pretty large and unusual event of 7 million pounds in one year. If that's a unique event, then it shouldn't drive the discussion of this amendment, but we may want to consider some sort of cap.

Greg DiDomenico: If we have adequate alternatives in the rest of the document, why do we need alternative 3 (alternatives to limit capture – spatial closures, seasonal closures, and gear regulations)? I don't see any good in taking it out to public comment.

Pam Lyons Gromen: Given the definition of Ecosystem Component species, that they should be non-target species, how could the Council use alternative 2c (prohibit possession once a catch limit is met)? How could you set catch limits to encourage directed fishing, unless it's small-scale? It doesn't seem consistent with the Ecosystem Component approach. Also, for the purpose and need statement, why did the FMAT adopt language from the Pacific Council, instead of using "until adequate information is available to promote ecosystem sustainability"? Also, can you do an omnibus framework? I've never heard of one.

David Wallace: I'm very sorry that this meeting is not in person and set aside for a whole day. There are a lot of different, complex issues. For example, a list of 286 different species that we really need to get into with species-by-species deliberations. It's going to be impossible to have a meaningful discussion in four hours. And this is the first time the AP has been asked for our opinion. In the past, all the Councils developed amendments when there was some issue that needed to be addressed in a very focused manner. I want to use the analogy, if you're hunting deer you use a high powered rifle because if you use a shotgun, it's ineffective. In my opinion, this is a shotgun approach to fisheries management that doesn't take into consideration the unintended consequences that are going to come out of this. At this point in time we just don't have enough information to say what are we protecting and what are the impacts versus what is the loss of opportunity to the commercial and recreational fishing industry to expand and grow into new product that will take pressure off some of the fisheries that have already been severely restricted because of regulatory changes that have reduced their quota. A classic example is summer flounder in the current situation. I'm sorry that we're doing this on the fly. This is a very complex system. I would expect it's going to take years to get through this. The first thing we should have tried to do is at least get a consensus out of the AP.

Bonnie Brady: I think it would be important for the AP to meet in person. This amendment is too important to do piecemeal.

Meghan Lapp: I think we would benefit from in-person meetings and a lot more development of this. I don't think we're going to be able to discuss all of the issues with this. I think we would benefit from more AP meetings. Also, I want to echo what others have said about herring historically not being identified as either river herring or Atlantic herring in landings records. They were lumped together as just "herring" when reported. I think we're missing the time series of landings information with chub mackerel for the same reason, it was counted just as "mackerel" when reported. I've seen catch information for chub mackerel going back to the 1800s, even as far north as the Gulf of Maine.

Greg DiDomenico: Within the purpose and need and goals and objectives, I'd like additional language that specifically states that the amendment is intended not to constrain existing directed fisheries. I'd also like consideration of unique events for incidental catch of these species. I think it's in line with what the Pacific Council did and I don't see it as being an impediment to the goals of the amendment.

David Kaplan: I agree that we should meet in person. Is the concern from industry that this would create insurmountable barriers?

Greg DiDomenico: Yeah. The issue is that this is going to create an impossible and negative regulatory situation in the future that we will not be able to unravel. It will require frameworks and future amendments.

David Kaplan: If there were some reasonable legal limit so if just by chance if you catch these species you're not in trouble, that wouldn't address those issues?

Greg DiDomenico: Depending on what's on the list, that's a major problem. We're dealing with such sparse information. What are we going to base these numbers on? We're setting this up for a situation where we're going to create an apparent bycatch problem in fisheries where there never was a problem before.

David Wallace: It's going to happen that there is a forage species out there that has a huge biomass and has a very high reproductive system and someone finds a purpose for that fishery and it would take years to get permission to go catch that species if you are restricted under this proposed rule. If there was ever a killer for economic development in fisheries, this could be the poster child. The unintended consequences for that would just be unbelievable.

Bonnie Brady: I want to echo what everybody else said. The goal is not to create new choke species. Any kind of discard limit, to the extent that it becomes prohibitive, would be similar to the butterfish and squid scenario of years ago and that's not something industry can support.

Joseph Gordon: I think the Pacific Council's process would reassure people. If we take that path, it's not going to shut down fisheries. The Council should have a rational process for allowing new fisheries. The Council should have a consultative role if a new fishery is to develop. That's not saying never allow fishing. It basically sets up a process where there's a limit, it's a *di minimus* level, a level beyond which is clearly targeted fishing. Anything over that and you set up a Council review process and experimental fishery process that results in a stock assessment and FMP before a full fishery is allowed. I think that's a reasonable approach.

David Wallace: I've applied for a lot of exempted fishing permits. It takes a year to get one of those at best. Sometimes you can't get them at all. These EFPs were never designed for starting fisheries. They were designed for protecting fisheries that already exist.

Peter Moore: One of the things that distinguishes the Mid-Atlantic from the New England Fishery Management Council is that the process has been very thoughtful and results in fewer unintended consequences than what has happened in New England. I'm on different advisory bodies for both Councils. Going back to Dave Wallace's comment, this is definitely a shotgun approach. Chub mackerel is one of the species I can point to on this list and say this had a fishery. Back in the '90s things were not necessarily identified properly. We called river herring "herring". We have to be very careful. One of the things this Council has prided itself on is maintaining a balance between creating opportunity and – think of the butterfish and squid situation. The butterfish fishery was essentially closed because there was not a proper process. Now we have one and now it's open and it contributes to well-being. I think that's the mission of the Council, to manage stocks and create opportunities. I think this is a big ball of yarn that is not being given the typical amount of time that the Council has typically operated on. Others have mentioned the Deep Sea Corals process. That whole process was really pulled out of the fire by Greg DiDomenico. Had it gone the way it was going, it would have been a horrible outcome. I just hope that we learn from the process. We have not been given the face time together to bring our expertise together and ask the hard questions and get answers.

Meghan Lapp: When I look at a lot of the things that have been proposed so far, I see things like bycatch reduction devices, spatial closures, temporal closures, gear restricted areas, and those have serious potential to limit existing fisheries. That's the kind of analysis that if we rush through this and don't look at the interactions, we have the potential to shut down multiple fisheries. That's clearly not the intent. We need to include in the purpose and need statement that the purpose is not to shut down existing fisheries. Just like with the coral amendment, there was a freeze the footprint approach so as not to shut down operational fisheries. We should not constrict or constrain existing fisheries.

Brad Sewell: This amendment, to us, seems particularly progressive in how it guides economic development and ecological protection. This enables economic development to not occur in a vacuum, but to occur with oversight of the Council and to allow for maximum benefits to existing fisheries and the ecosystem. It seems that what's occurring currently is a shotgun approach in terms of development of these fisheries, as opposed to a thoughtful approach.

David Kaplan: In terms of determining a level to define directed catch, I'm not sure how that would be done for recreational fisheries.

Joseph Gordon: The Pacific Council set a relatively high threshold for *di minimus*. Depending on what this Council decides, recreational fisheries could become irrelevant.

David Kaplan: There are some very important recreational fisheries here. I'm not sure if the catch of those fisheries add to something significant, but *a priori*, I wouldn't think it's important.

Robert Ruhle: There's no information on what's the appropriate amount of interaction between these fish and any given fishery. There's no talk of taking a certain time period to assess what's the appropriate level of interaction. There are no stock assessments to determine how much bycatch is too much, how much interaction is too much. As others have said, up until the early 2000s, there wasn't a

distinction between river herring and herring. And most of these species on the list, I've never even heard of. They're not data-poor stocks, they're data non-existent stocks. You need to find out what the current level of interaction is before you put any kind of bounds on it.

Meghan Lapp: I think we need to return to the original definition of forage that was included in the scoping document. A lot of these species don't meet that definition and were added after scoping. I don't believe that's right. It precluded a lot of people who would be affected by this from commenting on the scoping document. Now with the inclusion of stuff that does not meet the original definition, it could affect them, but the scoping period is closed. In the scoping document, what was considered a forage fish, and I'll read it from the document, it says "comprises a considerable portion of the diet of other predators in the ecosystem in which it resides throughout its lifespan, usually greater than 5% diet composition for greater than 5 years". 0.1% is a lot different than 5% and there's no time series information. To tell me that something that is 0.1% of relative mean weight of a stomach content, I don't think that's important. I think it needs to be higher and it needs to be consistent over a time period. 0.1% could just be while it's in the net, in the codend, this fish ate another fish. That doesn't mean it would be a consistent part of the diet. Because this amendment is supposed to be Mid-Atlantic Federal waters only, are you limiting the diet data to Mid-Atlantic Federal waters only? *(Yes, for trawl survey data. NEAMAP data is inshore waters- mostly state waters, but some Federal waters.)* Does it include southern New England? *(Yes.)* I know the way the science center processes stomach contents is very subjective. They basically eyeball it. If you have something with a very low threshold, that subjectivity may not be erased, which is all the more reason for a higher threshold and time series information to make sure that something really is an important food source.

Greg DiDomenico: I agree with what Meghan just said. We've seen numerous citations of thresholds infinitely higher than what you're talking about. From a practical matter, I can't believe the reasoning for choosing such a low threshold is because of the difficulty of identifying what people are finding in the survey. If someone would have said, we're going to do an amendment based on stomach contents and I think you need to do a better job of identifying stomach contents, even the digested components. Even if it means genetic testing. We're going to make future decisions on what you're collecting so you better do it even better. I think the threshold needs to be in the 20% range.

Bonnie Brady: I'll echo what Meghan and Greg said. 0.1%, that's one one thousandth of one percent? Which basically means that if we eat three meals a day for a year, one of those meals in an entire year is considered important. It doesn't make any sense to use that as important in the diet. These fish eat what's abundant and near to them. They're not always going to eat their favorite food. They vary. I just think the numbers are crazy. I think this is exactly why some of us in industry are fearful of this amendment. You have so many species based on 0.1%.

Pam Lyons Gromen: I'm looking at the revised criteria to rank the list by priority. One change from the last meeting was the potential for a fishery to develop. That's not included any more, correct? I think it should be considered. For example, chub mackerel, all of us are concerned one way or another with how this will be treated. It has fallen out to the last tier of priority with no concern given to how these species are vulnerable to fisheries now. I think we have to include that in the criteria. We need something that talks about the potential for a fishery to develop, or if it's already caught in existing fisheries. This would help us decide on a much smaller list of species. We can make changes to the list through frameworks.

Joseph Gordon: I'm worried that we're heading down a path driven by a bad interpretation of the Ecosystem Component species role. I don't think this process of proving importance in the diet is necessary. I think it's up to the Council to decide what they think is important to protect. I want to give a quote from the Pacific Council: "All of the subject species would be identified in all four FMPs as Ecosystem Component species, to recognize that, as a group, these species serve as prey for many higher order California Current Ecosystem predators, including FMP species. The advantage of this pathway is that it does not require the Council to assess the specific links each of the species or species groups have to FMP fisheries. Under this pathway Ecosystem Component species would be identified in all FMPs to address 'other ecosystem issues,' because these species are the broadly used prey of marine mammal, seabird, and fish species in the West Coast EEZ." The data in the spreadsheet are limited. It would be great if the FMP had more time to do more review of HMS and marine mammals. I think we could simplify this by looking at the taxonomic levels that are higher such as families.

Steve Ross: This subject seems to be complex enough that we really need to have a different kind of meeting. In terms of how we define prey items that are driving this list, stomach content analysis is imprecise, and that's frustrating. There are other tools that we could use, stable isotope analysis, genetic analysis, different kinds of chemical analysis. Nobody's got the money for those. These data are from big programs that have been going on for a long time. What we're suffering from is not having enough information for why these numbers were put in front of us. It seems like all of us are wondering where these numbers come from. Instead of trying to say if one number is better than another, we need more background information. There are other ways to examine prey. Frequency can be just as important as weight. It seems that we're getting bogged down in details. I would like to caution that this prey analysis is probably as good as we're going to get in the northeast, at least for now.

Fred Akers: I think the marine food web is much too complex for science to sort out any time soon. The column that has what species are listed in the Mid-Atlantic should be the ones to focus on. The more inclusive the better because this is about ecosystem protection.

Judith Weis: We have to trim down this list a lot. We should go for a 1%, rather than 0.1%, and 0.1 instead of 0.001. We should insert a bit of realism and practicality. The odds of developing a fishery for amphipods or for these various kinds of worms or brittle stars or jellyfish is so incredibly low. If a fishery ever develops for any of those, that would mean we've fished everything else out. I would recommend getting rid of those extremely impractical taxa.

Monty Hawkins: This whole thing about stomach content analysis is troubling to me. I believe sea bass primarily eat krill. We also know they eat sand lance, butters, even surf clams once in a while. But if you look at the science, the only thing they eat is crabs and lobsters. We haven't come terribly far with the stomach content analysis yet. I certainly don't agree with 0.1% unless science says otherwise.

David Kaplan: It does seem that the stomach content analysis is more dangerous than it's worth. If we're going to do it, we should probably do it better. It's true that in stomach contents a lot of the stuff is all mush and you can't really tell what it is. Usually in stomach content analysis there's an indication of how digested the stuff was. You could limit your analysis to just the fresh stuff. Maybe we could reduce the data so we could get a more robust number of out if. People have mentioned lipids and stable isotopes. I don't think those would help at all. You wouldn't be able to get species. You could do genetic bar coding, but that's really expensive. I think stomach contents are the best you're going to get. The problem is that whatever percentage we chose will seem arbitrary. It would be better if that percentage

could be backed up in some way. It could come from the literature or you could look at what's biologically important. One worry with this type of analysis is that maybe the percentages aren't low enough. Maybe there are species that are eaten at certain times of year that aren't even showing up. In pelagic species modeling, consumption is usually treated as random, they eat whatever species they encounter. In those cases, the most important forage species will be at a certain trophic level and will represent a certain level of biomass. We could just forget the stomach content analysis and just look at what's out there, according to trawl surveys.

Erica Fuller: I'd like more clarification on the GARFO advice that if you chose to amend the existing FMPs that you have to restrict this amendment to just Council-managed predators. Based on my reading of the National Standard Guidelines, the Ecosystem Component category can be used for a lot of reasons and in a lot of ways. If the intent is to advance EAFM, the whole idea that you need a nexus or a very specific food content percentage seems like a policy choice, not a legal limitation. I think it would be helpful if GARFO could point to exactly what they're relying on when making that advice. The Pacific did tie their species to Council-managed predators, but that wasn't the primary reason for doing it. I've heard lots of talk during FMAT meetings of prey for HMS, marine mammals, and even sea turtles. It seems like it's a Council choice just to limit to Council-managed predators, rather than an FMAT choice.

Monty Hawkins: What I left off in my comment was the reason crabs show up so often in the sea bass stomach contents is because they take so long to digest. The bigeye krill comes out as a mush.

David Kaplan: This list - do we want it to be as inclusive or as exclusive as possible? You could see it either way. Maybe we want to err on the side of being more inclusive, in which case the exact details of how you make that list are not important. Or maybe we want to be more strict. Maybe we're making a big deal out of the details of the analysis and maybe those details aren't important. But it really depends on how those details are going to be used. If it's going to be used to place restrictions, then it's useful. If it's just saying we want to keep track of these species, then maybe it's important that the list include all the important species.

Meghan Lapp: We catch swordfish with huge chunks taken out of them. Clearly that fish was forage for something. By this definition, swordfish could be a forage fish and I don't think that's what the Council intended. I do think there needs to be a more restrictive set of criteria. Otherwise you could have that showing up.

David Kaplan: Forage is probably intended to refer to a mid-trophic level.

Bonnie Brady: I believe the Clay paper said 5%, wasn't that the rule? Even if we go with 1% instead of 0.1%, why are we going with such a small value for importance? Important to me means something that is a vital component of their daily diet. To me, even 1% isn't an important component of their diet. Can we not as an advisory panel chose a higher number? Can we come up with a consensus?

Unknown: I would rather not until I understand how they came up with these numbers in the first place.

Unknown: I would echo that. I would say that in the end it's going to have to be more than just a percentage that ends up on the final list.

David Kaplan: Looking across the ecosystem at some percentage indicator is probably a bad way to go. What's lost in this discussion is when you talk in an ecosystem sense, you usually talk about important

prey species that are important for individual predators or for a wide swath of the ecosystem. That ecosystem effect is lost in this discussion. I would almost put more confidence in expert opinion. We know what the important species are. I'd rather go with that than try to choose an arbitrary percentage.

Robert Ruhle: This list is mammoth. There's not enough information to drive any of this. You're using ludicrously low values for stomach content information, and that's all you're basing this off of. I think the list should start small. Start with the species you have the most information for and build off that. You've got to have the science to back it up and it's not there. To me, from an industry standpoint, to include things and then remove them after you have the science, is not going to work. I think you should start small and use solid information on dietary complexes of known species and the importance of forage as a food source, but you also need to understand the natural biological fluctuations in these species. Most of these species I'm looking at, there's just no information on them.

Joseph Gordon: This is about landings. This is about directing and this is about large scale. We don't have those defined yet, but once we do, a lot of these species will become irrelevant for the amendment. The length of the list – we could get caught up in it and I hope we don't. Going from here there's the talk of a PID and another public process so there'll be ample opportunity for input, for all stakeholders including industry to provide their data. I think we can do what the Pacific did and focus on the higher taxonomic levels like families and get beyond the need to prove importance and focus on what scientists and stakeholders believe are the most important forage, and hopefully that's a big list, and come up with a rational policy for adding new fisheries.

Julia Beaty: I've heard a few comments like, "We know what's important." Would anyone be willing to share which species they personally think are important for including, or not including?

Greg DiDomenico: I'd just as soon go back to the original list you took out to public comment.

Joseph Gordon: I would argue that the larger list that came out of public comment should be included, for example, Spanish sardines, chub mackerel, sand lance, and copepods.

Greg DiDomenico: I don't argue with you over chub mackerel and Spanish sardines. The list should be less than a dozen.

Bonnie Brady: If the list is supposed to cover those with emerging fisheries...to pare down to those fisheries which are probably...*(poor reception, did not catch full comment)*.

Carl LoBue: I think eventually there will be some whittling down of this. I think there's danger with going too far with too big a list. It raises red flags with things that might not be that abundant and could already be harvested as bycatch. I think the intent was to focus on things that could be harvested in large volumes.

Pam Lyons Gromen: In looking at the landings numbers, is there a way to discern what was part of incidental catch and what gears? I think it would be helpful to understand more about the nature of these landings.

Meghan Lapp: I think stuff like this landings information needs to be analyzed in more detail at future AP meetings. We only got this Friday afternoon. I haven't had time to look it over and compare it to any of our landings reports. I think it would be worth looking at this in more detail at a future AP meeting.

Greg DiDomenico: Can we access these landings data after we chose the list of species? I think it would only be helpful once we have the list of species. I don't think we're going to make heads or tails of this list, with the exception of removing those with landings that we know are from inshore state fisheries or something like that. For example, hermit crabs, razor clams, bay anchovy. Otherwise, I don't see this being particularly helpful right now.

Judith Weis: I think these landings data could be useful for what's not on it. Like the little things that nobody pays attention to that I mentioned early, like amphipods and brittle stars and comb jellies and jellyfish and copepods. I think that might be one use for this.

Joseph Gordon: I think we can give advice on that, but I don't think that should be decided here. There's an active copepod fishery elsewhere in the world, so I definitely think that should be included. At high volumes, they can be marketed, like krill is. I think krill and copepods should be on the list.

David Wallace: There was one comment earlier today that was appropriate. The original scoping document had one set of alternatives and then others were added after scoping. There were additions to the list which were not part of the scoping process. So the real question is should it go back out to scoping so everyone has an opportunity to look at the new list, which is very much expanded to 286 species or groups? I think there's some real consideration to be given to re-scoping this amendment.

Robert Ruhle: Do we have any stock status information for any species on this list or any biological information at all to go by? A lot of these species don't show up in trawl surveys. It's going to be hard to get an estimate of abundance for a lot of these species.

Fred Akers: I thought the purpose of this amendment was to protect the species that we don't have data on and don't know a lot about and that we wouldn't direct on them until there's more data to tell us how many we could take. I'm interested in the landings information. Those are unmanaged species on that list. Is there any sustainability information for those species? How are we fishing for them without that information?

David Wallace: I'm trying to remember all the NEPA requirements. There's going to have to be a lot of scientific analysis, a cost benefit analysis for each one and a cumulative analysis after the public hearings and then the Council decides if they are going to come up with a preferred alternative. There's huge amounts of work that have to be done that aren't illustrated here at all. I don't know how you can move forward until you pull that information together and run it through the committee and council process. I don't think this amendment is ready for show time.

Bonnie Brady: The difference between 12 species and 280 is exponential. When industry got the scoping packet and saw what was there, they're not going to pull nematodes and sea squirts out of their back pocket if they don't see them on the list. I think it's the only fair thing to do. If you want to actually find out from a variety of stakeholders, you'd need to re-scope or stay with something that's limited. Use the list in the white paper as a starter and add whatever the rest of us can agree on. Otherwise I don't think it's an adequate scoping process.



Ecosystem and Ocean Planning Committee Meeting

January 22, 2016

Meeting Summary

Committee members in attendance: Warren Elliott (committee chair), John McMurray (vice-chair), Lee Anderson, Patricia Bennett, Peter deFur, Jeff Kaelin, Mike Luisi, Laurie Nolan, Adam Nowalsky, Rob O'Reilly, Sara Winslow

Others in attendance: Rick Robins (Council chair), Julia Beaty (Council staff), Rich Seagraves (Council staff), Jessica Coakley (Council staff), Kiley Dancy (Council staff), Fred Akers, Katie Almeida, Carly Bari, Purcie Bennett-Nickerson, Noah Chesnin, Greg DiDomenico, Emilie Franke, Erica Fuller, Joseph Gordon, Annie Hawkins, Bev Landstreet, Meghan Lapp, Carl LoBue, Katie Richardson, Tom Rudolph, Laurel Smith, David Stevenson, David Wallace, Kate Wilke, Aaron, Rebecca

The Ecosystems and Ocean Planning (EOP) Committee met via webinar to discuss several aspects of the Unmanaged Forage Omnibus Amendment and to develop recommendations for the full Council. The Committee ended their meeting earlier than planned due to hazardous weather conditions and was not able to discuss all items on the agenda. Committee recommendations are summarized below.

Purpose statement, goals and objectives

The Committee discussed a draft purpose statement and a draft statement of goals and objectives developed by the Unmanaged Forage Fishery Management Action Team (FMAT). The full FMAT recommendations can be found in the summary of the January 2016 FMAT meeting, which is included in the February 2016 Council meeting briefing materials. The Committee debated whether or not "...until adequate information is available to promote ecosystem sustainability" should be included in the purpose statement. The Committee ultimately agreed that this phrase should not be included in the purpose statement and recommended adding "to advance ecosystem approaches to fisheries management in the Mid-Atlantic" to the FMAT-recommended goal statement. The full goal statement recommended by the Committee reads:

"The goal of this amendment is to prohibit the development of new and expansion of existing directed commercial and recreational 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, in order to advance ecosystem approaches to fisheries management in the Mid-Atlantic."

Management alternatives

Council staff presented the following management alternatives, which were developed by the FMAT:

1: No action

2: Prohibit harvest

2a: Prohibit all possession

2b: Prohibit directed fishing, but allow an incidental possession limit

2c: Prohibit possession once a catch limit (e.g. a directed fishery possession limit or an annual landings limit) is met

3: Limit capture

3a: Spatial closures

3b: Seasonal closures

3c: Gear regulations

4: Administrative alternatives

4a: Modify list of approved fisheries and gear types (50 CF 600.725)

4b: Frameworkable items

i: List of ecosystem component species

ii: Spatial and seasonal closures (if any)

iii: Gear regulations (if any)

iv: Possession limits (if any)

The Committee agreed to add an additional sub-alternative to alternative 2. The new alternative (alternative 2d) would allow an incidental possession limit once an annual catch limit is met.

The Committee also agreed to remove alternative 3 from further consideration; however, they wished to retain alternatives 4b ii-iv, which would make the items previously listed under alternative 3 frameworkable.

List of unmanaged forage species to include in the amendment

The committee recommended that the following taxa be included in a public hearing document and considered for inclusion in the amendment (excluding species which are currently managed and those that are not found in Federal waters):

- Engraulidae (anchovies)
- Clupeidae (herrings, sardines) – round and thread herring/Spanish sardines
- Argentinidae (argentines)
- Atherinopsidae (silversides)
- Ammodytidae (sand lances)
- Sternoptychidae (pearlsides)
- Moronidae (perches)
- Chlorophthalmidae (greeneyes)
- Trachipteridae (ribbonfish)
- Scombridae (chub, bullet, frigate, little tuna “false albacore”)
- Scomberesox saurus (Atlantic saury)
- Hemiramphidae (halfbeaks)

- Peprilus paru (harvestfish)
- Tautogolabrus adspersus (cunner),
- Ophidiiformes (cusk eels)
- Pelagic molluscs (squids, cuttlefish etc.)
- Copepods, Krill, Amphipods and any other species under 1 inch as adults

The Committee agreed that this list seemed appropriate for presentation at public hearings. A few committee members requested that the species within each family on the list be delineated. The Committee recommended that the FMAT review the list to determine if any species of high ecological importance are missing. An incomplete version of an expanded list is included in the appendix to this document.

Process for allowing new fisheries to develop

The Committee recommended that the FMAT develop a proposal for a process to allow new fisheries for unmanaged forage species to develop. Several Committee members thought the existing process for obtaining Exempted Fishing Permits from the NMFS Greater Atlantic Regional Office was insufficient, namely because it does not ensure meaningful involvement of the Council and also because, in the opinion of some Committee members, it does not require sufficient consideration of the ecosystem impacts of new fisheries.

APPENDIX: Expanded list of taxa recommended by EOP Committee

Council staff expanded the list of taxa recommended by the EOP Committee to the species level where possible. The list recommended by the EOP Committee included 17 taxa. Council staff identified at least 51 unmanaged species and 10 higher-level groupings (e.g. orders and families) based on the Committee's list. The following list was not reviewed by the Committee. It has not been reviewed by the FMAT or other experts and is incomplete. Council staff will solicit feedback from the FMAT prior to the February 2016 Council meeting.

Engraulidae (anchovies)

This family contains 146 species, at least four of which are found in the Mid-Atlantic:

- Striped anchovy, *Anchoa hepsetus*
- Dusky anchovy (aka shortfinger anchovy), *Anchoa lyolepis*
- Bay anchovy, *Anchoa mitchilli*
- Silver anchovy, *Engraulis eurystole*

No anchovy species in the Mid-Atlantic are managed by a regional fishery management council or by the Atlantic States Marine Fisheries Commission (ASMFC)¹.

Clupeidae (herrings, shads, sardines, menhadens)

This family contains 198 species, 11 of which occur in the Mid-Atlantic. The following five species are not currently managed by a regional fishery management Council or by the ASMFC:

- Gizzard shad, *Dorosoma cepedianum*
- Round herring, *Etrumeus teres*
- Scaled sardine, *Harengula jaguana*
- Atlantic thread herring, *Opisthonema oglinum*
- Spanish sardine, *Sardinella aurita*

Staff recommend that gizzard shad not be included in the amendment as they occur primarily in freshwater and estuaries.

This family contains six species which are managed by the ASMFC and/or the New England Fishery Management Council: blueback herring (*Alosa aestivalis*), hickory shad (*Alosa mediocris*), alewife (*Alosa pseudoharengus*), American shad (*Alosa sapidissima*), Atlantic menhaden (*Brevoortia tyrannus*), and Atlantic herring (*Clupea harengus*). These species will not be included in the Unmanaged Forage Omnibus Amendment. Because this family contains more managed species than unmanaged species, staff recommend that the species proposed for inclusion in the amendment be listed individually, rather than grouped at the family level.

¹ The Council has indicated that, for the purposes of this amendment, "unmanaged" means not managed by the New England, Mid-Atlantic, or South Atlantic Fishery Management Councils, or by the Atlantic States Marine Fisheries Commission.

Argentinidae (argentines or herring smelts)

This family contains 27 species, at least three of which are found in the Mid-Atlantic. No argentine species are managed by a regional fishery management council or by the ASMFC.

- Atlantic argentine, *Argentina silus*
- Striated argentine, *Argentina striata*
- Pygmy argentine, *Glossanodon pygmaeus*

Atherinopsidae (neotropical silversides)

This family contains 110 species, at least three of which are found in the Mid-Atlantic. None of these species are managed by a regional fishery management council or by the ASMFC.

- Rough silverside, *Membras martinica*
- Inland silverside, *Menidia beryllina*
- Atlantic silverside, *Menidia menidia*

Ammodytidae (sand lances)

This family contains 31 species, two of which are found in the Mid-Atlantic. Neither of these species are managed by a regional fishery management council or by the ASMFC.

- American sand lance, *Ammodytes americanus*
- Northern sand lance, *Ammodytes dubius*

Sternoptychidae (marine hatchetfishes)

This family contains 73 species, at least two of which are found in the Mid-Atlantic. Neither of these species are managed by a regional fishery management council or by the ASMFC.

- Muller's pearlside, *Maurolicus muelleri*
- Weizman's pearlside, *Maurolicus weitzmani*

Moronidae (temperate basses)

This family contains 6 species, two of which are found in marine waters in the Mid-Atlantic. Both of these species occur primarily in freshwater, brackish water, and coastal marine environments. This family contains striped bass (*Morone saxatilis*), which is managed by the ASMFC. This family contains one marine species which is not managed in the Mid-Atlantic:

- White perch, *Morone Americana*

Chlorophthalmidae (greeneyes)

This family contains 17 species, at least one of which is found in the Mid-Atlantic. No species of greeneye are managed by a regional fishery management council or by the ASMFC.

- Shortnose greeneye, *Chlorophthalmus agassizi*

Trachipteridae (ribbonfishes)

This family contains ten species, at least two of which are found in the Mid-Atlantic. No species of ribbon fish are currently managed by a regional fishery management council or by the ASMFC.

- Polka-dot ribbonfish, *Desmodema polystictum*
- Scalloped ribbonfish, *Zu cristatus*

Scombridae (mackerels, tunas, bonitos)

This family contains 54 species, at least 16 of which are found in the Mid-Atlantic. At least 6 species in this family are not currently managed by a regional fishery management council or by the ASMFC:

- Bullet mackerel, *Auxis rochei*
- Frigate mackerel, *Auxis thazard*
- Little tunny (aka false albacore), *Euthynnus alletteratus*²
- Skipjack tuna, *Katsuwonus pelamis*
- Atlantic bonito, *Sarda sarda*
- Atlantic chub mackerel, *Scomber colias*
- Blackfin tuna, *Thunnus atlanticus*

The following nine species of scombridae are managed by the Mid-Atlantic or South Atlantic Fishery Management Council or by the NMFS Office of Highly Migratory Species: wahoo, *Acanthocybium solandri*, Atlantic mackerel, *Scomber scombrus*, King mackerel, *Scomberomorus cavalla*, Spanish mackerel, *Scomberomorus maculatus*, Cero, *Scomberomorus regalis*, Albacore, *Thunnus alalunga*, Atlantic bluefin tuna, *Thunnus thynnus*, Yellowfin tuna, *Thunnus albacares*, and Bigeye tuna, *Thunnus obesus*.

Because this family contains more managed species than unmanaged species, staff recommend that the species proposed for inclusion in the amendment be listed individually, rather than grouped at the family level.

***Scomberesox saurus* (Atlantic saury)**

The Atlantic saury, *Scomberesox saurus*, is the only member of the Scomberesocidae family that is found in the Mid-Atlantic. It is not managed by a regional fishery management council or by the ASMFC.

² Little tunny were included in the South Atlantic Council's Coastal Migratory Pelagics Fishery Management Plan for over two decades for data collection purposes to determine if future management was warranted. The South Atlantic Council never developed regulations for little tunny and removed them from the FMP in 2011 through Amendment 18.

Hemiramphidae (halfbeaks)

This family contains 63 species, four of which are found in the Mid-Atlantic. None of these species are managed by a regional fishery management Council or by the ASMFC. Two of these species, balao and ballyhoo, are managed by the Florida Fish and Wildlife Conservation Commission.³

- Flying halfbeak, *Euleptorhamphus velox*
- Balao, *Hemiramphus balao*
- Ballyhoo, *Hemiramphus brasiliensis*
- False silverstripe halfbeak (aka American halfbeak), *Hyporhamphus meeki*

Peprilus paru (harvestfish)

The EOP Committee recommended that harvestfish, *Peprilus paru*, be included in the amendment at the species level, rather than being listed at the family level. Harvestfish are a member of the Stromateidae family. Only one other member of the Stromateidae family is found in the Mid-Atlantic: the butterfish, *Peprilus triacanthus*, which is managed by the Mid-Atlantic Council.

Tautogolabrus adspersus (cunner)

The EOP Committee recommended that cunner, *Tautogolabrus adspersus*, be included in the amendment at the species level, rather than being listed at the family level. Cunner are a member of the labridae family. Only one other member of the labridae family is found in the Mid-Atlantic: tautog, *Tautoga onitis*, which is managed by the ASMFC.

Ophidiiformes (cusk eels)

Ophidiiformes is an order which contains three families and 506 species, at least three of which are found in the Mid-Atlantic. None of these species are managed by a regional fishery management council or by the ASMFC.

- Chain pearlfish, *Echiodon dawsoni*, carapidae family (pearlfishes)
- Fawn cusk-eel, *Lepophidium profundorum*, ophidiidae family (cusk-eels)
- Striped cusk-eel, *Ophidion marginatum*, ophidiidae family (cusk-eels)

³ <http://myfwc.com/fishing/saltwater/recreational/history/a-g/>

Pelagic molluscs (squids, cuttlefish, etc.)

There are over 50,000 species of molluscs. Council staff were unable to delineate all pelagic mollusc species in the Mid-Atlantic prior to the briefing book deadline for the February 2016 Council meeting. Council staff identified the following taxa which contain at least one pelagic mollusk species; however, this list is likely not comprehensive:

- Squids
 - Ommastrephidae (the arrow squid family)
 - This family contains northern shortfin squid, *Illex illecebrosus*, which is managed by the Mid-Atlantic Council
 - This family contains at least three species which are not managed by a regional fishery management council or by the ASMFC:
 - Sharptail shortfin squid, *Illex oxygonius*
 - Neon flying squid, *Ommastrephes bartramii*
 - Oceanic squid, *Todarodes sagittatus*
 - Loliginidae (the pencil squid family)
 - This family contains longfin squid, *Doryteuthis pealii*, which is managed by the Mid-Atlantic Council.
 - This family contains at least two unmanaged species:
 - Slender inshore squid, also known as arrow squid, *Doryteuthis plei*, which is not managed. Staff recommend that this species not be included in the Unmanaged Forage Omnibus Amendment as it is not possible to visually distinguish *D. pealii* from *D. plei*.⁴
 - Atlantic brief squid, *Lolliguncula brevis*
 - Sepiolidae (bobtail squids). No species in this family are managed by a regional fishery management council or by the ASMFC. At least five species are found in the Mid-Atlantic:
 - Odd bobtail squid, *Heteroteuthis dispar*
 - Big fin bobtail squid, *Rossia megaloptera*
 - Warty bobtail squid, *Rossia palpebrosa*
 - Lesser shining bobtail squid, *Semirossia tenera*
 - Butterfly bobtail squid, *Stoloteuthis leucoptera*
 - Cranchiidae (glass squid, aka bathyscaphoid squid). Council staff were unable to identify how many species in this family occur in the Mid-Atlantic prior to the briefing book deadline. No members of this family are managed by a regional fishery management council or by the ASMFC.
- Cuttlefish
 - Cuttlefish are in the family sepiidae. Council staff were unable to identify how many species of cuttlefish are found in the Mid-Atlantic prior to the briefing book deadline. No members of this family are managed by a regional fishery management council or by the ASMFC.

⁴ Cohen, A. 1976. The systematics and distribution of Loligo (Cephalopoda, Myopsida) in the western north Atlantic, with description of two new species. *Malacologia*. 15 (2). 299-367

- Octopods
 - The order octopoda contains twelve families and at least 600 species.
 - No species in this order are currently managed by a regional fishery management council in the Mid-Atlantic or by the ASMFC.
 - Council staff identified one unmanaged species in this order which could be considered pelagic. This order could contain other pelagic species.
 - Tuberculate pelagic octopus, *Ocythoe tuberculata*, family Ocythoidea
- Pteropods
 - Order gymnosomata (sea angels). This order contains seven families. Council staff were unable to identify how many species in this order are found in the Mid-Atlantic. No species in this order are currently managed by a regional fishery management council or by the ASMFC.
 - Order thecosomata (sea butterflies). This order contains five families. Council staff were unable to identify how many species in this order are found in the Mid-Atlantic. No species in this order are currently managed by a regional fishery management council or by the ASMFC.

Copepods, krill, amphipods, and other species under 1 inch as adults

Council staff were unable to identify all species which meet this definition prior to the briefing book deadline. This category includes the following taxa, at a minimum:

- Calanidae (the copepod family)
- Euphausiidae (the euphausiid krill family)
- Order amphipoda (amphipods)
- Class ostracoda (ostracods)
- Order isopoda (isopods)

None of the taxa listed above are currently managed by a regional fishery management council in the Mid-Atlantic or by the ASMFC.



Mid-Atlantic Fishery Management Council
800 North State Street, Suite 201, Dover, DE 19901-3910
Phone: 302-674-2331 | FAX: 302-674-5399 | www.mafmc.org
Richard B. Robins, Jr., Chairman | Lee G. Anderson, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: January 15, 2015
To: Ecosystems and Ocean Planning Committee
From: Julia Beaty
Subject: NMFS Exempted Fishing Permit Guidance

The Council requested that the Unmanaged Forage Fishery Management Action Team (FMAT) develop a draft process to allow new fisheries for unmanaged forage species to develop as part of the Unmanaged Forage Omnibus Amendment. The FMAT noted that the National Marine Fisheries Service (NMFS) Research Documentation Guidance includes a process for obtaining Exempted Fishing Permits (EFPs), which can be a first step to allowing new fisheries to develop on a small scale with NMFS and Council oversight. The NMFS Research Documentation Guidance describes the process through which EFPs may be obtained. Relevant sections of this guidance are included in this memo. The full NMFS Research Documentation Guidance is available at:

www.greateratlantic.fisheries.noaa.gov/aps/permits/forms/efploaeeaaapossessionloaguidance.pdf

An EFP is a permit issued by the Greater Atlantic Regional Fisheries Office (Regional Office) that authorizes a fishing vessel of the United States to conduct fishing activities that would be otherwise prohibited under the regulations at 50 CFR part 648 or part 697. Generally, EFPs are issued for activities in support of fisheries-related research, including seafood product development and/or market research, compensation fishing, and the collection of fish for public display. Anyone who intends to engage in an activity that does not meet the definition of scientific research but that would be otherwise prohibited under these regulations is required to obtain an EFP prior to commencing the activity.

Exempted fishing may not be conducted unless authorized by an EFP issued by a Regional Administrator or Director. An EFP exempts a vessel only from those regulations specified in the EFP. All other applicable regulations remain in effect. The Regional Administrator shall consult with the Executive Director of the MAFMC regarding such exemptions for the Atlantic mackerel, squid, butterfish, summer flounder, scup, black sea bass, spiny dogfish, bluefish, and tilefish fisheries. The Regional Administrator may not grant an exemption unless he/she determines that the purpose, design, and administration of the exemption is consistent with the management objectives of the respective FMP, the provisions of the Magnuson-Stevens Act, and other applicable law, and that granting the exemption will not:

1. Have a detrimental effect on the respective resources and fishery;
2. Cause any quota to be exceeded; or
3. Create significant enforcement problems.

Individuals may apply for an EFP by submitting a letter and a complete EFP application to the Regional Office, along with a copy of a research plan. The EFP application, including applicable NEPA documents (if necessary), must be submitted at least 60 days before the desired effective date of the EFP. The application must include the following items:

1. The date the application is submitted.
2. The applicant's and/or project coordinator's name, mailing address, telephone number, email, and fax number, if available.
3. A point of contact who can respond to any questions regarding the project that Regional Office staff may have during consideration of the application.
4. A statement of the purposes and goals of the activity for which an EFP is needed.
5. A list of the specific regulations from which an exemption is being requested and why each exemption is required for the experiment to succeed.
6. The following catch information:
 - a. The species (target and incidental species must be clearly differentiated) expected to be harvested and/or discarded under the EFP.
 - b. The weight, by species, of such harvest and/or discard anticipated to occur during the experimental fishing, regardless of whether or not it is retained for sale.
 - c. The expected disposition of all regulated species harvested under the EFP (e.g., what will happen to the fish once it is caught).
 - d. Any anticipated impacts on marine mammals or endangered species.
7. The following anticipated effort information for each vessel:
 - a. For fixed gear:
 - i. Type and size of gear to be used.
 - ii. Amount of gear to be used (e.g., number of pots, number of gillnets, etc.).
 - iii. Number of gear hauls.
 - iv. Average soak time.
 - b. For mobile gear:
 - i. Type and size of gear to be used.
 - ii. Number of tows to be made per day.
 - iii. Duration and speed of each tow.
 - iv. Number of days during which the experiment will be conducted.

Applications for an EFP trigger review under the National Environmental Policy Act (NEPA). This review may require the preparation of additional documentation beyond the EFP application, including analyses of the potential environmental impacts associated with the EFP project. If the EFP project may result in any interactions with endangered or otherwise protected species (e.g., sea turtles, dolphins, whales, sea birds, etc.), the EFP application may trigger additional review under either the Endangered Species Act (ESA) or the Marine Mammal Protection Act (MMPA). This review may require the preparation of additional documentation beyond the EFP application.

The Pacific Fishery Management Council developed a formalized Protocol for Consideration of Exempted Fishing Permits for Shared Ecosystem Component Species (Council Operating Procedure 24; available at: <http://www.pccouncil.org/wp-content/uploads/2015/12/cop24.pdf>) as part of their omnibus amendment on unmanaged and unfished forage species. The Pacific Council approach to EFPs for their Shared Ecosystem Component Species differs from the NMFS Greater Atlantic Region approach described above in that it involves more thorough review by Pacific Council advisory bodies, as illustrated by the following paragraph from Council Operating Procedure 24:

“The [Pacific] Council and its advisory bodies [Ecosystem Advisory Subpanel (EAS), Scientific and Statistical Committee (SSC), and any applicable FMP-specific advisory bodies] shall review EFP proposals prior to issuance; the advisory bodies may provide comment on methodology and relevance to science and management data needs and make recommendations to the Council accordingly. The public may also comment on EFP proposals...The EAS and any other applicable advisory bodies identified by the Council will review EFP proposals in November and make recommendations to the Council for action; the Council will consider those proposals for preliminary action. Final action on EFPs will occur at the March Council meeting. Only those EFP applications that were considered in November may be considered in March; EFP applications received after the November Council meeting for the following calendar year will not be considered.”

**HERRING ALLIANCE
THE PEW CHARITABLE TRUSTS
WILD OCEANS
EARTHJUSTICE
STEVEN ROSS, PH.D.
TIMOTHY O'BRIEN, PH.D.
NATURAL RESOURCES DEFENSE COUNCIL
GREAT EGG HARBOR WATERSHED ASSOCIATION
ANGLERS CONSERVATION NETWORK
GOTHAM WHALE
CONSERVATION LAW FOUNDATION
PECONIC BAYKEEPER
MATTAWOMAN WATERSHED SOCIETY
SPRUILL FARM CONSERVATION PARTNERSHIP
AUDUBON CONNECTICUT
RIVERS ALLIANCE OF CONNECTICUT
CONNECTICUT ORINTHOLOGICAL ASSOCIATION
NAUGATUCK RIVER REVIVAL GROUP
PAWTUXET RIVER AUTHORITY**

January 20, 2016

Chairman Rick Robins
Executive Director Chris Moore
Ecosystems and Ocean Planning Committee Chairman G. Warren Elliot
Mid-Atlantic Fisheries Management Council
800 North State Street, Suite 201
Dover, Delaware 19901

RE: Unmanaged Forage Amendment Comments

Dear Chairman Robins, Executive Director Moore, and Committee Chairman Elliot:

We are writing to provide our consensus comments to the Ecosystems and Ocean Planning Committee (EOPC) on the Mid-Atlantic Fishery Management Council (MAFMC or Council) Amendment on Unmanaged Forage (UMF). We commend the MAFMC and the EOPC for proactively initiating an action to protect unmanaged forage species as part of its overall policy for conserving the forage base. Although the Squid, Mackerel, Butterfish Fishery Management Plan is composed entirely of forage species, the vast majority of forage species in the mid-Atlantic, including a wide variety of fish and invertebrates that hold vital roles in ecosystems, are not part of a directed fishery. These species are referred to as “unmanaged” because harvesting them is not regulated by the MAFMC or the Atlantic States Marine Fisheries Commission (ASMFC). The MAFMC, and other councils around the United States (e.g., Pacific Fishery Management Council and North Pacific Fishery Management Council), recognize the need to implement proactive policies protecting these species to preserve the health of ecosystems and dependent predators, including larger predatory fish targeted by recreational and

commercial fisheries. Regulatory protection for unmanaged forage species is a crucial early step toward comprehensive Ecosystem-Based Fisheries Management (EBFM), a healthy Northeast Large Marine Ecosystem (NLME), and productive fisheries.

At its December 2015 meeting, the MAFMC tasked the UMF Fisheries Management Action Team (FMAT) with several issues to analyze in order to advance the omnibus amendment. We strongly support the Council's firmly stated intent to keep the amendment on schedule. The FMAT and the EOP Advisory Panel (EOP AP) have met to assist the EOPC in resolving important UMF issues. Considering all of the information available, we support the following actions:

1. **Maintain a purpose and need statement that accurately reflects the Council's intent for**, "a regulatory action to prohibit the development of new, or expansion of existing, directed fisheries on unmanaged forage species until adequate scientific information is available to promote ecosystem sustainability;"¹
2. **Include a comprehensive list of Ecosystem Component Species** "to address 'other ecosystem issues,' because these species are broadly used prey of marine mammal, seabird, and fish species"² of the NLME;
3. **Determine appropriate *de minimis* exemptions** to the prohibition on fishing for unmanaged forage species, generally following the methodology chosen by the Pacific Council to prohibit directed fishing while allowing for reasonable existing levels of catch and transition to managed stocks as necessary,
4. **Describe a Council review process to monitor and review catch of EC Species** so that large catch events that exceed the *de minimis* threshold can be expeditiously addressed, including through accountability actions;
5. **Detail a robust and transparent process for issuing Experimental Fishing Permits (EFP)** under this amendment that advances the Council's objectives for ecosystem sustainability;
6. **Outline requirements necessary to open a new directed fishery**, including reclassifying the target species through an amendment process, as an actively managed stock, fulfilling all MSA requirements for adding stocks to a fishery in accordance with a recent peer-reviewed stock assessment and the Council's *Ecosystem Approaches to Fisheries Management Guidance Document*; and
7. **Update the List of Allowable Fisheries and Gear (LOAF)** to be consistent with measures established by the amendment and strengthen protections for forage.

These requests are discussed in further detail below:

1. Purpose and Need

The Purpose and Need for the Amendment is not only critical to guide policy development, but it also has legal significance under NEPA because the identification and evaluation of a reasonable range of alternatives must flow from it.³ The MAFMC clearly stated

¹ August 2015, MAFMC, [Scoping Document for Council Action on Unmanaged Forage](#).

² September, 2015. PFMC. [CEBA-1., Section 2.1.2, p. 7.](#)

³ November 1, 2008, NOAA, [Guidance related to the Purpose and Need](#) section of an EIS.

the purpose and need for the amendment (see 1 above). This language is contained in the motion initiating the amendment and is the purpose and need stated in the scoping document. The FMAT, however, only recommended including the first half of the original motion, effectively eliminating the need to analyze a range of alternatives that would determine the scientific basis for opening a fishery or expanding an existing fishery. This issue central to the Council's stated intent and its elimination has significant legal implications. We recommend that the Council formally re-add "...until adequate scientific information is available to promote ecosystem sustainability" to the Purpose and Need.

The Council record for this action can provide a definition of "ecosystem sustainability" for use in this action. For example, the Forage Fish White Paper discusses maintaining an adequate forage base in the ecosystem; increasing the beneficial contribution of forage fish to the dynamics of both managed and unmanaged species; bolstering the resilience of the system; and, enhancing the role forage fish play in the economy, and society more generally.⁴ The National Standard 1 guidelines also provide support for this goal.⁵ Amendment objectives should be developed that clarify the Council's goal of ecosystem sustainability along the lines of the biological principles described above.

The FMAT offered the purpose and need used by the PFMC as an alternative to the MAFMC's current purpose and need. The Purpose and need of CEBA-1 fails to meet the needs of the MAFMC in ensuring adequate protections for forage species.⁶ There are many similarities between the PFMC's efforts to protect forage and that of the MAFMC. However, their purpose and need falls short in two places. First, the intent of the MAFMC is to "prohibit the development of new, or expansion of existing, directed fisheries on unmanaged forage species." CEBA-1 only prohibits new directed commercial fishing. The MAFMC's inclusion of the prohibition of the expansion of existing fisheries was deliberate. There is current and ongoing directed commercial fishing effort on forage species. While there is no intent to eliminate such fisheries, there is a desire to prevent their expansion.

Second, CEBA-1 prohibits directed commercial fishing until scientific information is *assessed* and impact *considered*. The MAFMC's proposed purpose and need would require a comparable analysis, but additionally it would prohibit fishing unless and until it can be demonstrated that the fishery can be done in a way that promotes ecosystem sustainability. A new or expanded directed fishery, or one no longer meeting EC classification criteria, could only

⁴ Managing Forage Fishes in the Mid-Atlantic Region: A White Paper to Inform the Mid-Atlantic Fishery Management Council, pp. 4, 22, [Forage White Paper](#).

⁵ The National Standard 1 guidelines recommend that Councils should "maintain[] adequate forage for all components of the ecosystem," 50 C.F.R. §600.310(e)(3)(iii)(C), by "managing forage stocks for higher biomass than B MSY to enhance and protect the marine ecosystem," *id.* § 600.310(e)(3)(iv)(C), and reducing MSY to account for ecological factors, including identification as a "forage fish stock[]," *id.*

⁶ The purpose and need of CEBA-1 states: "The purpose of this action is to prohibit new directed commercial fishing in Federal waters on unmanaged, unfished forage fish species until the Council has had an adequate opportunity to both assess the scientific information relating to any proposed directed fishery and consider potential impacts to existing fisheries, fishing communities, and the greater marine ecosystem. This action is needed to proactively protect unmanaged, unfished forage fish of the U.S. West Coast Exclusive Economic Zone (EEZ) in recognition of the importance of these forage fish to the species managed under the Council's FMPs and to the larger CCE. This action is not intended to supersede tribal or state fishery management for these species, and coordination would still occur through the existing Council process." See September, 2015. PFMC. [CEBA-1](#). p. 2.

proceed if the Council is prepared to reclassify the target species, through an amendment process, as a managed stock in the fishery, fulfilling all Magnuson-Stevens Fishery Conservation and Management Act (MSA) requirements in accordance with a recent peer-reviewed stock assessment and the Council’s *Ecosystem Approaches to Fisheries Management Guidance Document*.

2. List of EC Species

The current FMAT list of species is robust and the Coalition supports inclusion of nearly all species identified. However, the list could be more manageable and streamlined if redundancy was eliminated using the following methodology:

1. Review the first tier of the diet data offered by the FMAT and round up to taxonomic family or order where appropriate.
2. Consider current catch of all species and ensure that species already being caught in large numbers are included in the list.
3. Consider market drivers and whether there are other fisheries and markets for the same or similar species in other parts of the world.
4. Review the remaining three tiers of the FMAT diet data and include any species the MAFMC demonstrates was erroneously omitted.

Using this methodology, we have created a manageable, comprehensive list for forage species that must be protected in the mid-Atlantic. For your convenience, it is attached as Appendix 1.

a) A nexus to managed predators is not required

Certain representatives from NOAA Fisheries have stated that forage EC Species included in this Omnibus Amendment must have a nexus to a council managed species, however, they have not articulated any authority for this assertion. Further, it is counter to PFMC precedent, the MSA (which provides “exclusive fishery management authority over *all fish* ... within the exclusive economic zone”),⁷ and the National Standard 1 Guidelines. The EOP committee and the Council should follow the precedent of the Pacific Council and create a truly comprehensive list of forage species to address “ecosystem issues”⁸ because these forage species “are the broadly used prey of marine mammal, seabird, and fish species in the” Northeast Large Marine Ecosystem.⁹

- i. *Magnuson-Stevens Fishery Conservation and Management Act and National Standard 1 Guidelines*

The MAFMC will determine the scope of its forage protection when it finalizes the development of a list of EC forage species. Using its discretionary authority under the MSA, the MAFMC can “...include management measures in a plan to conserve target **and non-target species** and habitats, considering the variety of ecological factors affecting fishery

⁷ 16 U.S.C. § 1811(a).

⁸ 50 C.F.R. § 600.310(d)(5)(iii).

⁹ September 2015. PFMC. [CEBA-1](#).

populations.”¹⁰ The National Standard 1 Guidelines state: “In determining the greatest benefit to the Nation, the values that should be weighed and receive serious attention when considering the economic, social, or ecological factors used in reducing MSY to obtain OY are: ... The benefits of protection afforded to marine ecosystems are those resulting from maintaining viable populations (**including those of unexploited species**), **maintaining adequate forage for all components of the ecosystem**, maintaining evolutionary and ecological processes (e.g., disturbance regimes, hydrological processes, nutrient cycles), maintain the evolutionary potential of species and ecosystems, and accommodating human use”, (emphasis added).¹¹

There is no legal limitation to creating a truly comprehensive list of forage species. In fact, National Standard 1 guidance suggests that MAFMC can and should consider *all* predators in the ecosystem. The NS1 definition of EC Species says: “EC species may, **but are not required to, be included in an FMP or FMP amendment** for any of the following reasons: for data collection purposes; for ecosystem considerations related to specification of OY for the associated fishery; as considerations in the development of conservation and management measures for the associated fishery; **and/or to address other ecosystem issues** (emphasis added). While EC species are not considered to be “in the fishery,” “the Council should consider measures for the fishery to minimize bycatch and bycatch mortality of EC species consistent with National Standard 9, and to protect their associated role in the ecosystem...”¹² **Stocks that do not meet the definition of an EC species should be reclassified as stocks “in the fishery” as soon as possible.**

ii. *Similar Action Taken By the Pacific Council*

The Pacific Council considered three pathways when determining the CEBA species list. They considered using a gear nexus, a “managed predators” nexus, or a much broader approach of bringing “all EC species into all of the FMPs to acknowledge their broad trophic role as the prey of Council managed fish species and other predators.”¹³ The PFMC rejected the gear nexus and managed species nexus options and chose to include species for their broader roll as prey in the ecosystem.

The National Standard 1 guidelines state: “EC species may, but are not required to, be included in an FMP or FMP amendment for any of the following reasons:... to address other ecosystem issues.”¹⁴ This recommendation provided the Pacific Council with support and justification for its action to protect unmanaged forage using an ecosystem approach. CEBA-1 states:

[A]ll of the Shared EC Species would be identified in all four FMPs as EC species, to recognize that, as a group, these species serve as prey for many CCE predators, including FMP species. Shared EC Species would be identified in the FMPs as EC species under 50 CFR 600.310(d)(5)(iii) to address “other ecosystem issues,” because these species are the

¹⁰ 16 USC § 1853(b)(12).

¹¹ 50 C.F.R. § 600.310(e)(3)(iii)(C).

¹² 50 C.F.R. § 600.310(d).

¹³ September 2015. PFMC. [CEBA-1](#).

¹⁴ 50 C.F.R. § 600.310(d)(5)(iii).

broadly used prey of marine mammal, seabird, and fish species in the U.S. West Coast EEZ. Shared EC Species are among the known prey of FMU species of all four of the Council's FMPs; therefore, Shared EC Species support predator species' growth and development and may also be identified as EC species under 50 CFR 600.310(d)(5)(iii) "for ecosystem considerations related to specification of optimum yield for the associated fishery."¹⁵

The Council's clear intent in this amendment is to protect the unmanaged forage base in the mid-Atlantic marine ecosystem. Thus, there is no reason to arbitrarily limit which species are protected by the action. By definition, all forage species are important at some level to one or more predators and to marine ecosystems as a whole. Including marine mammals, highly migratory species, turtles, and seabirds as predators to be considered when determining which forage species to protect is exactly what is required by an ecosystem approach to fisheries management.

3. De minimis Possession Exemption for EC Species

The EOPC should recommend and the Council should implement an appropriate *de minimis* exemption to the prohibition on fishing forage species generally following the methodology chosen by the Pacific Council. The PFMC approach prevents: 1) relatively small bycatch levels from limiting current fisheries; 2) shutting down small-scale forage fishing; and 3) large-scale targeting of forage species. The *de minimis* limits should be designed to prevent intense, directed fishing but allow for existing, low levels of incidental catch consistent with the EC classification, so that managed and small-scale fisheries are not unduly restricted. The PFMC and NOAA Fisheries set a precedent with their chosen methodology to determine an appropriate *de minimis* catch exemption. In the PFMC's case, it and NOAA Fisheries compiled catch data for all EC Species on per-trip and annual bases, separating squids from these analyses. They determined that for the combined EC Species and for the combined EC squid species, there were several significantly higher incidents of catch that indicated targeting. They also determined that 99 percent of per-trip catch and 97 percent of annual catch was incidental. This allowed them to prevent large-scale directed fishing on EC species while simultaneously minimizing or eliminating any impact on existing small-scale fisheries for bait.

4. Council Review Process to Monitor EC Catch

It is important to consider how Council operations will be adapted to ensure successful implementation of the amendment, including which of the Council's committees will oversee the effectiveness of measures designed to protect EC species. The EOPC should describe a Council review process for monitoring EC catch so that large catch events that exceed the *de minimis* threshold can be expeditiously addressed, including through accountability actions and possible management follow up. The designated committee should review EC species catch data (e.g., Vessel Trip Reports, observer data, and dealer reports) on an incidental (large event) and annual basis to determine if existing regulations are effective or if additional action, through a framework or amendment, is required to prevent overages and provide necessary management. Options for accountability actions, designed to ensure that any established catch limits (either

¹⁵ September 2015. PFMC. [CEBA-1](#).

vessel limits or an annual catch limit) are not exceeded, should also be developed as part of the amendment.

5. Experimental Fishing Permits to Advance Ecosystem Sustainability Prerequisite for New Fisheries

While developing CEBA-1, the Pacific Council recognized the need to adapt their operational procedures in order to satisfy their purpose and need statement, which reads, “The purpose of this action is to prohibit new directed commercial fishing in Federal waters on unmanaged, unfished forage fish species **until the Council has had an adequate opportunity to both assess the scientific information relating to any proposed directed fishery and consider potential impacts to existing fisheries, fishing communities, and the greater marine ecosystem** [emphasis added].” Council Operating Procedure 24 (COP 24) was developed on a separate but parallel track to CEBA-1 to clarify how the Council will “assess scientific information” and “consider potential impacts.” COP 24 outlines how the exempted fishing permit program will be used to gather data about shared ecosystem component species and the potential for sustainable fisheries to develop. EFP applicants must include a science plan, describing the data to be collected by the EFP fishery and the likely analyses needed to assess the potential effects of converting the fishery to a managed fishery with an FMP over the long term. The purpose of COP 24 is as follows:

This Council Operating Procedure (COP) provides a standard process for the Council, its advisory bodies, and the public to consider EFP proposals for Shared EC Species. The specific objectives of a proposed exempted fishing activity may vary. EFPs can be used to explore ways to develop stock surveys and assessments, explore the potential for a new non-tribal commercial fishery on Shared EC Species, or to evaluate current and proposed management measures. The scope of this COP is limited to EFP proposals for exempted commercial fisheries intended to target species identified in all four of the Council’s FMPs as Shared EC species for the purpose of developing scientific information useful to evaluating the potential for a future fishery on one or more Shared EC species.¹⁶

Currently, experimental fishing permits submitted to the Greater Atlantic Regional Fisheries Office (GARFO) are reviewed by NMFS personnel with minimal review by the Council and very little opportunity for public review. The application requirements do not entail any criteria that would help the Council advance its stated goal of promoting ecosystem sustainability. For EFPs to be a useful tool in this regard, the EOPC must detail a process, to be incorporated into Council operating procedures, for opening a prerequisite small-scale “experimental” fishery on ecosystem component species protected through the unmanaged forage amendment. These procedures should require a minimum of two council meetings and an SSC meeting for EFP review, discussion and revisions before the EFP is submitted to GARFO.

Criteria for EFP approval should reflect the purpose and need of the amendment, “to promote ecosystem sustainability.” The following priority considerations described in COP 24 would serve as an excellent starting point:

¹⁶ September 2015. PFMC. [COP 24](#).

- “The Council will give priority consideration to those EFP applications that:
- a. Emphasize resource conservation and management with a focus on evaluating the effects of catching Shared EC Species on the larger California Current Ecosystem;
 - b. Can assess the potential effects of a directed fishery for one or more Shared EC Species on:
 - i. Any Council-managed species;
 - ii. Species that are the prey of any: Council-managed species, marine mammal species, seabird species, sea turtle species, or ESA-listed species;
 - iii. Habitat that is identified as essential fish habitat or otherwise protected within one of the Council’s FMPs, critical habitat identified or protected under the Endangered Species Act, or habitat managed or protected by state or tribal fishery or habitat management programs;
 - iv. Species that are subject to state or tribal management within 0-3 miles offshore of Washington, Oregon, or California; or
 - v. Species that migrate beyond the U.S. EEZ.
 - c. Encourage full retention of fishery mortalities;
 - d. Involve data collection on fisheries stocks and/or habitat; and
 - e. Encourage innovative gear modifications and fishing strategies to reduce bycatch.”¹⁷

The Coalition recommends that the EOPC undertakes a review of COP 24 and initiates a process, separate from the scope of the Unmanaged Forage Amendment, to develop a Mid-Atlantic Council operating procedure for reviewing ecosystem component species EFPs that would meet the Council’s intent of promoting ecosystem sustainability.

6. Requirements to Open a New, Directed Fishery

A new or expanded directed fishery that does not meet the EC classification criteria should only proceed if the Council is prepared to reclassify the target species, through an amendment process, as a managed stock in the fishery, fulfilling all MSA requirements in accordance with a recent peer-reviewed stock assessment and the Council’s *Ecosystem Approaches to Fisheries Management Guidance Document*.

The EOPC should define and codify the process for starting a new fishery on an unmanaged forage species, specifically including requirements for a stock assessment for the specific population or stock, and an analysis of ecosystem impacts, including an evaluation of the impacts to predators. Robust scientific information must be available that provides the SSC with sufficient information to establish catch limits in accordance with strategies for protecting the role of forage species. The Council should work in concert with the SSC to determine what scientific information would be necessary to ensure ecosystem sustainability, and the gathering of this information should be prioritized in the EFP program described above.

7. Updating the List of Allowable Fisheries and Gear (LOAF)

¹⁷ September 2015. PFMC. [COP 24](#).

To avoid administrative confusion and potential loopholes that would weaken conservation measures for unmanaged forage fish, the List of Allowable Fisheries and Gear (LOAF) should be updated to be consistent with the amendment.

Conclusion

The Coalition appreciates the Ecosystem and Ocean Planning Committee and Mid-Atlantic Council's ongoing efforts to protect the region's forage base and to transition to ecosystem-based approaches to fisheries management. As Brad Sewell from Natural Resources Defense Council stated on the January 11 advisory panel webinar, "This amendment, to us, seems particularly progressive in how it guides economic development and ecological protection. This enables economic development to not occur in a vacuum, but to occur with oversight of the Council and to allow for maximum benefits to existing fisheries and the ecosystem." As work on the amendment continues, we urge the Committee and the Council to ensure unmanaged forage protections achieve the council's bold vision encompassed in its Purpose and Need, and can ultimately be supported by regulations that are effective and enforceable. We look forward to our continued participation in this important action.

Sincerely,

Herring Alliance

(A coalition of 110 organizations representing nearly 2.5 million individuals from every coastal state from Maine to North Carolina, including most of the undersigned groups:

www.herringalliance.org/alliance-members)

The Pew Charitable Trusts

Peter Baker, Director, U.S. Oceans, Northeast

President of the Herring Alliance

Joseph Gordon, Manager, U.S. Oceans, Northeast

MAFMC Ecosystems and Ocean Planning AP Member

Purcie Bennett-Nickerson, Senior Policy Associate, U.S. Oceans, Northeast

Wild Oceans

Pam Lyons Gromen, Executive Director

MAFMC Ecosystems and Ocean Planning AP Member

Ken Hinman, President

Earthjustice

Roger Fleming, Attorney

Erica Fuller, Attorney

Steven Ross, Ph.D.

MAFMC Ecosystems and Ocean Planning AP Member

Timothy O'Brien, Ph.D.

MAFMC Ecosystems and Ocean Planning AP Member

Natural Resources Defense Council

Brad Sewell, Senior Attorney
MAFMC Ecosystems and Ocean Planning AP Member

Great Egg Harbor Watershed Association

Fred Akers, Administrator
MAFMC Ecosystems and Ocean Planning AP Member

Anglers Conservation Network

Captain Paul Eidman, Founder
MAFMC River Herring and Shad AP Member

Gotham Whale

Paul L. Sieswerda, President

Conservation Law Foundation

Peter Shelley, Vice President and Senior Counsel

Peconic Baykeeper

Dan Gulizio, Executive Director

Mattawoman Watershed Society

Jim Long, President

Spruill Farm Conservation Partnership

John R. Spruill, Director

Audubon Connecticut

Patrick M. Comins, Director of Bird Conservation

Rivers Alliance of Connecticut

Margaret Miner, Executive Director

Connecticut Ornithological Association

Tom Robben, COA Research Committee

Naugatuck River Revival Group

Kevin Zak, President

.

Pawtuxet River Authority

Robert J. Nero, Chairman

cc: Julia Beaty, Assistant Plan Coordinator, and MAFMC staff

cc: Ecosystems and Ocean Planning AP

cc: Unmanaged Forage Amendment FMAT

Appendix 1: Ecosystem Component Species to be included in the Unmanaged Forage Species Amendment at the MAFMC

*****Managed species (such as Atlantic menhaden, Atlantic herring, Atlantic mackerel, American eel, and Atlantic bluefin tuna) are excluded from this amendment, so please don't consider them part of the list below, which is simplified to higher taxonomic levels. Species that are not found in Mid-Atlantic federal waters would also be excluded*****

a. Order

- i. Anguilliformes (eels)
- ii. Ophidiiformes (cusk eels)
- iii. Sepiolida (bobtail squids)
- iv. Teuthida (squids)
- v. Sepiida (cuttlefish)
- vi. Octopoda (octopus)

b. Families

- i. Engraulidae (anchovies)
- ii. Clupeidae (herrings, sardines)
- iii. Argentinidae (argentines)
- iv. Atherinopsidae (silversides)
- v. Triglidae (sea robins)
- vi. Scombridae (mackerel and tuna)
- vii. Ammodytidae (sand lances)
- viii. Mugilidae (mulletts)
- ix. Osmeridae (smelts)
- x. Myctophidae (lanternfish)
- xi. Sternoptychidae (pearlsides)
- xii. Lotidae (cusk, rockling)
- xiii. Chlorophthalmidae (greeneye)
- xiv. Hemiramphidae (halfbeaks)
- xv. Myxinidae (hagfishes)
- xvi. Moronidae (perches)
- xvii. Stromateidae (harvestfish)
- xviii. Tetraodontidae (pufferfish)
- xix. Sparidae (sheepshead)
- xx. Trachipteridae (ribbonfish)
- xxi. Batrachoididae (toadfish)
- xxii. Carangidae (scads)
- xxiii. Tautogolabrus (cunner)
- xxiv. Osmeridae (smelt)
- xxv. Chlorophthalmidae (greeneyes)
- xxvi. Gasterosteus (sticklebacks)
- xxvii. Fundulidae (killfish)

c. Copepods, Krill, Amphipods and any other species under 1 inch as adults

January 21, 2016

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

Dear Ecosystem and Ocean Planning Committee Members,

I am writing to express our concerns with some of the recent developments of the Unmanaged Forage Fish Amendment. We do not believe the direction of this amendment is in keeping with its original intent and is straying into the realm of scientific unsoundness. There are also other issues of constraining existing fisheries which need to be addressed.

The original definition of a “forage fish”, given in the scoping document and agreed upon by the Council’s Ecosystem Approach to Fisheries Management Working Group and the Ecosystem Subcommittee of the SSC to be used to identify “forage fish” species in the Mid Atlantic, has been virtually abandoned. On October 2, the last day of scoping, the FMAT met and decided that the definition should be “broadened” to include benthic fish and other species.¹ This memorandum was only made available to the public and affected stakeholders on October 5, after the public comment period had ended. All subsequent analysis of the amendment has used the new FMAT definition, and not the Council/SSC definition. Including benthic fish in the amendment has the potential to affect every bottom trawl fishery in Southern New England and the Mid Atlantic. Not only were engaged stakeholders unable to comment on this broadened scope, but other stakeholder groups that were unaffected by the original definition but may be seriously affected by the new definition, have been completely bypassed in this procedure. If this amendment is not being sent back to the public for additional scoping, it should be returned to the original forage definition.

Also of concern is that the Council limited this Amendment to apply to “Mid Atlantic federal waters only”. However, analysis for the amendment is not being limited to the Mid Atlantic. In its diet data analysis, the FMAT is using stomach samples collected from the trawl survey in Southern New England. This is inappropriate if the amendment is to apply to Mid Atlantic waters only. While there are similar species present in both jurisdictions, some may be more or less prevalent in one or the other. To take an example of a managed species, Southern New England yellowtail flounder is a managed stock found primarily in Southern New England waters. While some of these fish may be present in Mid Atlantic waters, they are present in smaller numbers, and the bulk of the biomass is in New England waters. If this species were unmanaged, based on the current analysis protocol, it would be considered in the Unmanaged Forage Fish Amendment. Since Southern New England has no voting representation

¹ “Revised Unmanaged Forage FMAT Recommendations”, Council Memorandum, October 5, 2015. Available at: http://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/5612e600e4b0472d47ee0db3/1444079104766/UnmanagedForageFMAT_Oct2015.pdf.

on the Mid Atlantic Council, and since this area is outside the scope of the amendment, this data should be removed from analysis.

The threshold being used to define “important” and “potentially important” prey species is extremely unsound. The FMAT defined “important” prey as those which, according to diet data, make up more than 0.1% of the mean stomach weight of one or more predators of interest, and “potentially” important prey as those which make up at least 0.001% of the mean stomach weights.² This stunningly low threshold means that a bird found in the stomach of a monkfish is “important” prey for the purposes of this amendment, as are sunglasses and beer cans for striped bass (all of which have occurred). It also means that documented “net feeding” that occurs when a predator is caught in a survey trawl with another species that it would normally never eat has the possibility of becoming “important” or “potentially important” forage species. In fact, even an “importance” threshold as low as 2% of mean stomach weights would indicate that striped bass and white perch are “important” forage species for bluefish.³ The low percentage threshold, combined with the requirement that the prey in question be found in only two fish stomachs in the diet database⁴, is too low to erase the possibility for error or misrepresentation in the resulting analysis.

It is also too low to erase the subjectivity in the stomach sampling process itself. The FMAT is utilizing both NEFSC and NEAMAP trawl survey data in its analysis. In the NEFSC survey, fish stomachs are sampled on board the vessel, in contrast with the NEAMAP survey which preserves the stomachs and brings them back to a lab for sampling. As a result, historically, the percentages of species composition found in each fish stomach on the NEFSC survey are recorded as an eyeball estimate by the sampler. If a threshold of 0.1% and 0.001% of mean stomach weights for a minimum of two fish is the standard, that subjectivity will not be statistically smoothed out. NEAMAP, on the other hand, weighs each piece of prey present in every sampled fish stomach, for a precise weight. However, even VIMS in its Fish Food Habits Data Summary System cautions against using raw databases of individual specimens, due to spatial/temporal variations, variations in size groups, prey concentrations and other factors.⁵ All of these issues with bias the FMAT results at such low prey thresholds.

Importance of specific prey to specific predators is not a new type of analysis. In fact, the Atlantic herring assessment conducted by the NEFSC incorporates time varying natural mortality of the primary herring predators on the stock. The determination as to the top 13 predators that comprise 97%

² “Materials for Ecosystems and Ocean Planning Committee Meeting on Unmanaged Forage Omnibus Amendment”, Council Memorandum, January 15, 2016, p.2. Accessible at: http://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/569e594aa976af8774fa5219/1453218122976/EOP_commJan20_2016_briefing.pdf.

³ Gartland, et. Al., “Diet Composition of Young-of-the-Year Bluefish in the lower Chesapeake Bay and Coastal Ocean of Virginia”, “Transactions of the American Fisheries Society”, 2006, p. 373.

⁴ “Unmanaged Forage Amendment- list of species and range of alternatives”, Council Memorandum, November 30, 2015. Accessible at: http://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/565c76a3e4b06edc0ae3a274/1448900258998/Tab08_Forage_Unmanaged+Forage.pdf.

⁵ Fish Food Habits Data Summary System, Virginia Institute of Marine Science. Accessible at: http://www.vims.edu/research/departments/fisheries/programs/multispecies_fisheries_research/fish_food_habit_s/index.php. See explanations for the necessity of cluster sampling analysis when analyzing raw data.

of all herring consumption was analyzed using the food habits database for the entire survey time series, from 1973 (for Gadiformes) and 1977 (for all other species) until the present. However the *adequacy of stomach sample sizes was assessed and a minimum sample size was equal to approximately 20 stomachs for each predator per season (spring and fall), and minimum herring consumption was estimated with a minimum of 100 stomachs per predator-year-season to compare with the original approach.*⁶ This is a far more rigorous and adequate way to assess major consumptive needs of Mid Atlantic predators, and a far cry from the Unmanaged Forage Fish Amendment's current methodology. Unless a time series of consistent and considerable consumption can be determined, no species can be claimed to be "important" to the dietary need of another.

Furthermore, the SSC Ecosystems Subcommittee has *already* set a dietary threshold in its definition of a "forage fish". This definition, found on page 12 of the scoping document, states that a forage fish "comprises a considerable portion of the diet of other predators in the ecosystem in which it resides throughout its lifespan", and this is usually greater than 5% diet composition for greater than 5 years. A >5% diet composition for >5 years should have been the starting point of analysis by the FMAT. Not 0.1% and 0.001% mean stomach weight with a two fish stomach threshold. The current analysis is unacceptable.

Many of the current alternatives in the amendment are also unacceptable. All of the facets of Alternative 3, Limit Capture- spatial closures, seasonal closures, and gear regulations- are completely unacceptable. These alternatives should be removed from the document immediately. The Unmanaged Forage Fish Amendment was designed to prevent new directed fisheries from occurring on unmanaged species, not constrain currently managed fisheries. The alternatives are potentially disastrous for the current operations of regulated fisheries, and these fisheries should not be inhibited in any way by the adoption of this amendment. In addition to being unjustified and costly burdens to industry, they are nonsensical. For most of the species under consideration, we have little or no data upon which to base a spatial or seasonal closure. Gear regulations, or modifications as they have been suggested at prior meetings, are species specific and take time and experimentation to be developed, and are unsuitable as a panacea for an "Omnibus" amendment, as this amendment has been recently termed.

Another issue not yet raised, even as the Mid Atlantic Council looks to the Pacific Council for guidance, is the fact that unlike the Pacific coast which has one Council, the Atlantic Coast is comprised of three Councils and jurisdictions. This makes a very real difference between the two coasts, and the fact that this amendment is to apply to Mid Atlantic federal waters only. Vessels may cross the New England/Mid Atlantic line multiple times in one fishing trip. Vessels fishing in New England land in the Mid Atlantic, and vessels fishing in the Mid Atlantic land in New England. The enforcement implications are obvious. Rather than develop a complex, on the water system which will inevitably make existing fishing operations more costly and difficult to execute, the Committee and the Council should consider a simple way to enforce landings at the dock.

⁶ 54th Northeast Regional Stock Assessment Workshop (54th SAW), Assessment Report, Northeast Fisheries Science Center, 2012, p. 131-132.

Finally, it is troubling that the pervasive sentiment of this amendment seems to be that fishing on “forage” species is not desirable and should not be encouraged. On the contrary, healthy fisheries for “forage” species exist worldwide, and fisheries considered relatively “new” such as the Antarctic krill fishery have been MSC certified.⁷ Even fisheries on “unmanaged forage” species in the Mid Atlantic have been encouraged by the National Marine Fisheries Service.

In 2003-2004, NMFS awarded Saltonstall-Kennedy Program funding to a project entitled “Development of the Chub Mackerel Fishery, An Underutilized Species”.⁸ The purpose of the grant and project, as reported by NMFS to the US Congress in its 2004 Saltonstall-Kennedy Grant Program, Fisheries Research and Development Report, was to “develop a fishery for chub mackerel” in the Mid Atlantic.⁹ The project itself concluded that, in certain conditions and situations, the “chub mackerel fishery may be a viable option for fishermen when illex squid are not available in the Mid Atlantic Bight”¹⁰, although many caveats exist in the form of significant investment in the gear, electronics, and time required to gain expertise in the fishery¹¹. Considering the federal encouragement in creating and developing a Mid Atlantic chub mackerel fishery, we suggest that the Council continue to allow this fishery to operate and develop. Encouraging the US fishing industry to invest in developing an underutilized fishery and then restricting or barring access once that investment has been made is inequitable.

Thank you for your attention to these matters.

Sincerely,

Meghan Lapp
Fisheries Liaison, Seafreeze Ltd.

⁷See <https://www.msc.org/newsroom/news/msc-responds-to-questions-about-antarctic-krill-certification> .

⁸ “Development of the Chub Mackerel Fishery, An Underutilized Species”, Grant No.: NA03NMF4270275, by Haskin Shellfish Research Laboratory, Rutgers, The State University, 2004.

⁹ “The Saltonstall- Kennedy Grant Program Fisheries Research and Development Report 2004”, National Marine Fisheries Service, p. 8. Accessible at: http://www.nmfs.noaa.gov/mb/sk/2004_report/2004_sk_report_to_congress.pdf.

¹⁰ See n. 8, p. 5.

¹¹ Ibid, p. 1.

Beaty, Julia

From: Squarespace <customercare@squarespace.info>
Sent: Wednesday, January 27, 2016 5:02 PM
To: Beaty, Julia
Subject: Form Submission - Unmanaged Forage

Comments: The loss of New England's adult menhaden schools has wreaked havoc on our fisheries here. If you are eating fish on the east coast you are eating menhaden. This has been going on for fifty years with no attitude change in sight?

We need a FMP from NMFS for Atlantic menhaden . This plan should seek immediate changes that leave 70% or more of the unfished biomass in the water. ASMFC's management has been corrupted by Omega and bait industry money.

This is a national disgrace.

Name: Wendelin Giebel

Email Address: captainwen@optonline.net

Keep Me Informed: Please add my email address to the Unmanaged Forage Interested Parties email list to receive future updates about this action.

(Sent via [Mid-Atlantic Fishery Management Council](#))

South Atlantic Fishery Management Council
FOR-HIRE REPORTING AMENDMENT

SUMMARY

January 15, 2015



What is being proposed?

The South Atlantic Fishery Management Council is considering mandatory electronic reporting for charter (six-pack) vessels and changes to existing reporting requirements for headboats.

Who has to do this?

Federally permitted charter vessels and headboats in the Snapper Grouper, Dolphin Wahoo, and Coastal Migratory Pelagics (mackerel and cobia) fisheries along the Atlantic Coast. A federal permit is required for all for-hire vessels (charter and headboats) operating more than 3 miles offshore (federal waters).

Why is this being done?

Electronic reporting will improve the accuracy and timeliness of data collection. Fishery managers can better monitor landings and discards, and more accurately assess the impacts of regulations on the charter/headboat (for-hire) industry fishing in federal waters.

The Council is proposing to implement the same reporting requirements for federally permitted charter (6-pack) vessels that currently exist for headboats, and modify the timing of headboat reports.

How many charter vessels will be impacted and will there be a cost for doing this?

There are currently 1,984 charter vessels and 76 headboats in the South Atlantic with Federal For-Hire Permits.

Cost: If you have a computer or access to a computer (for example in a library), it will only cost you the time to input the data. The Council is working on a pilot project, in cooperation with charter vessels (and some headboats), to develop very user-friendly software to make it easy and quick to enter this data.

(Continued)

Actions in the For-Hire Reporting Amendment

Action 1. Operators of charter vessels would report electronically:

- Alternative 1. No Action. If selected, a charter vessel operator must maintain a fishing record for each trip or portion of such trip. Reports must be postmarked no later than 7 days after the end of each week (Sunday).
- **Preferred Alternative 2.** Weekly or at intervals shorter than a week if notified. Electronic reports would be due by Tuesday following each week that ends on Sunday.
- Alternative 3. Daily. Electronic reports would be due by noon of the following day.

Action 2. Operators of headboats would report on a new deadline:

- Alternative 1. No Action. If selected, a headboat operator must submit an electronic fishing record for each trip of all fish harvested through the Southeast Region Headboat Survey. Electronic fishing records (reports) must be submitted weekly (or at intervals shorter than a week if notified) by 11:59 p.m., local time, the Sunday following a reporting week.
- **Preferred Alternative 2.** Weekly or at intervals shorter than a week if notified. Electronic reports would be due by Tuesday following each week that ends on Sunday instead of Sunday; change from 7 --> 2 days.
- Alternative 3. Daily. Electronic reports would be due by noon of the following day.

Action 3. Operators of charter vessels would report catch locations the same way headboats currently report location:

- Alternative 1. No action. Charter vessels in the for-hire survey report area fished (inshore, state, or federal waters) if selected.
- **Preferred Alternative 2.** Operators of charter vessels would report location electronically by latitude/longitude in degrees and minutes or by clicking on a headboat chart. This is how headboats report now.

(Continued)

Timing for the For-Hire Reporting Amendment

- **December 7-11, 2015** (Atlantic Beach, NC) - Council reviews document, picks preferred alternatives, and approves for public hearings.
- **January 19, 2016** – Informal Question & Answer Webinar
- **January 25-February 3, 2016** – Public hearings from NC -> FL
- **February 8, 2016** – Webinar Public Hearing for Mid-Atlantic and New England fishermen
- **February 10, 2016** – Written comments due by 5 pm
- **March 7-11, 2016** (Jekyll Island, GA) – Council reviews public comments, modified preferred alternatives as required, and approves all actions. Public comment on Wednesday, March 9th beginning at 5:30 pm
- **June 13-17, 2016** (Cocoa Beach, FL) – Council reviews complete document and approves for formal review. Public comment on Wednesday, June 15th beginning at 5:30 pm
- **June 30, 2016** - Send for review and implementation by Secretary of Commerce/NMFS
- **January 1, 2017** – target date for regulations to be effective; operators of charter vessels begin electronic reporting and new deadline effective for headboats



Mid-Atlantic Fishery Management Council

800 North State Street, Suite 201, Dover, DE 19901
Phone: 302-674-2331 | Toll Free: 877-446-2362 | FAX: 302-674-5399 | www.mafmc.org
Richard B. Robins, Jr., Chairman | Lee G. Anderson, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: January 28, 2016

To: Council

From: Rich Seagraves

Subject: Interactions Framework for EAFM Guidance Document

Enclosed is a DRAFT white paper "A framework for incorporating species, fleet, habitat, and climate interactions into fishery management" (Gaichas *et al* 2016). The document is a synthesis of information presented at the Council's Interactions Workshop held in June 2015, the last in a series of workshops the Council held to examine key considerations to be addressed in the Ecosystem Approach to Fisheries Management Guidance Document. Given the complexity of the issues associated with ecosystem level considerations in fisheries management, our strategy was to break down the problem into manageable units (forage fish management, climate change, species interactions and habitat) to facilitate discussion by the Council and the public. While this approach proved reasonably successful to get us to this point, ultimately taking an ecosystem approach to the management of fisheries involves recognition that each of these ecosystem related considerations can't be considered in isolation.

Our intent in the EAFM Guidance document was to develop specific policy guidance on how to implement measures or approaches which address ecosystem considerations within and across the Council's existing FMPs. Given the complex nature of these issues, it is apparent that there is no simple answer to most, if not all, of these questions. In addition, while the workshops identified the current state of knowledge regarding the science and information available to address key ecosystem considerations identified by stakeholders and the Council during the Visioning Project, it is also apparent that a substantial amount of additional information and analysis is required before specific answers to these questions can be provided to the Council. As such, staff recommend that the EAFM Guidance Document be built around the framework approach described in the attached white paper. Our intent is to provide the Council with a systematic approach (i.e., the "framework") to evaluation of the primary considerations and tradeoffs associated with each issue (including analysis of multiple interactions or considerations). Staff is requesting feedback from the Council and public on this approach to the problem before a draft EAFM Guidance document is presented, including discussion about the prioritization or triage of the major issues/considerations identified.

A framework for incorporating species, fleet, habitat, and climate interactions into fishery management

A DRAFT white paper for the Mid Atlantic Fishery Management Council

January 2016

S. Gaichas, R. Seagraves, J. Coakley, G. DePiper, J. Hare, P. Rago, and M. Wilberg

Introduction

The Mid-Atlantic Fishery Management Council (Council) recently articulated objectives for the living marine resources under its management authority in its Strategic Plan. Foremost among these objectives is the need to advance ecosystem approaches to fisheries management in the Mid-Atlantic. This will be accomplished by moving beyond single species assessment and management to the development and implementation of assessments and management frameworks that incorporate, 1) environmental drivers, 2) habitat and climate change, 3) species interactions, and 4) fleet interactions, into fisheries management.

In June 2015, the Council convened a workshop with scientists and managers to discuss potential strategies to more fully consider species interactions and climate drivers in the stock assessment and management process (including determination of catch limits), and to build capacity within the region to conduct comprehensive management strategy evaluations (MSEs) as part of the Mid-Atlantic Council's Ecosystem Approach to Fisheries Management (EAFM). The workshop reviewed existing single species approaches as well as information and analytical tools available to address key interactions between species and their environment, between species within the food web, and between the ecosystem and fisheries, and between fleets due to technical or management issues. The workshop and this resulting white paper explore alternative pathways to incorporating species and fisheries interactions into the Council's fishery management policies and programs as part of the development of its EAFM Policy. Here, we develop a framework and process for defining key questions, evaluating the adequacy of information and analytical tools to address the questions, and developing analyses to evaluate management strategies to achieve Council management objectives.

In the first section, we briefly review information and analytical tools currently available to address climate, habitat, species, and fleet interactions in the Mid- Atlantic region. In the second section, we outline other tools which may help the Council address interactions more broadly. In the third section, we propose a potential framework for the Council to address these interactions in management, which would be tailored to specific questions to ensure the best management outcomes for the Council. In the final section, we outline example questions that the Council could address to illustrate how a structured decision making process within the framework could work.

1. Information available to address interactions in fishery management

Key Concepts

Definitions:

Predator-prey interactions: Predator: an animal that eats other animals. Prey: an animal that is eaten by other animals. Fishery managers are interested because managed fish eat each other at various life stages, and managed fish are eaten by protected species. Predator prey interactions are quantified with food habits or other diet data.

Competition: "Interaction between organisms, populations, or species, in which birth, growth and death depend on gaining a share of a limited environmental resource." Competition can be for food, space, or mates. Competition is difficult to quantify in the marine environment with current information and understanding.

Mutualism, symbiosis: Species interactions with mutually beneficial outcomes. Mutualism is difficult to quantify in the marine environment with current data.

Multifleet interactions: Vessels may participate in multiple target fisheries, and catch fish in different fishery management plans (FMPs). Commercial and recreational fleets target overlapping species. Fleets have varying footprints, gear configurations, catch compositions, and abilities to adapt to change. Quantified with landings, catch, observer, permit and other data.

Key questions:

Can our current management system adequately address these interactions?

- Can ecological and fleet relationships be addressed across FMPs?
- How do we address species and fleet interaction across multiple jurisdictions?
- Can we link ecological and fishery interactions with existing data?
- How will environmental changes alter interactions between habitats, species ranges, economic markets, and community conditions and the needs of the management system?

What tools can help managers look at the big picture?

- Model suites including single stock, multispecies, multifleet, and full ecosystem levels to address different questions
- Conceptual models linking key components, interactions, management objectives to see issues in the larger context
- Risk assessment methods for prioritizing issues to address
- Management Strategy Evaluation addressing specific questions
- Tracking indicator and proxies of the parameters and processes of interest
- Understand past and present regulations from a species, FMP, and ecosystem perspective

The Mid-Atlantic region has considerable available resources for addressing interactions, both in terms of available data and in terms of analytical tools. There is a wealth of environmental, ecological, and social and economic data that could potentially be integrated into analyses to support management decisions. An overview of available information (but not an exhaustive list) is synthesized in the NEFSC Ecosystem Status Report (ESR; available at <http://www.nefsc.noaa.gov/ecosys/ecosystem-status-report/sitemap.html>). Despite this wealth of data, information to address particular interactions may be sparse, such that information needs should be evaluated for each management issue, and uncertainties arising from missing information should be considered, as is current practice.

A spectrum of assessment and modeling methods are available to assist the Council with incorporating species, fleet, and climate interactions into management. Models range from conceptual to statistical and mechanistic mathematical models, from single species population dynamics to integrated ecosystem assessment, and from tactical to strategic. Ultimately, the Council will need to prioritize which interactions to deal with first, and risk assessment methods can contribute to this decision process. Similarly, the Council will need to evaluate management strategies to determine how they perform in achieving Council objectives, as well as evaluate tradeoffs between those objectives, which may be inevitable when considering a range of interactions and possible outcomes. A combination of these tools designed to address particular interactions can be developed for each management issue as with data above, as is also current practice.

Current state of the art

Single species stock assessments

In some ways, environmental, species, and fleet interactions are already accounted for in current stock assessments, depending on data inputs and model configuration. For example, single species stock assessments that use changing weight-at-age data over time as input are incorporating the effects of a changing environment and ecology on fish growth, although the sources of this variation cannot be identified. Further, some assessments incorporate changes in natural mortality (M) over time which can represent changing species interactions (most often, predation), but could also represent habitat or other environmentally mediated changes. Some effects of technical interactions between fisheries are included for individual species using the standardized bycatch reporting methodology (SBRM) to ensure that mortality from both directed fisheries and incidental catch are accounted for in assessments.

Successful fishery management can actually make the effects of interactions more important. As fishing mortality declines, natural mortality becomes a more important fraction of total mortality and therefore more influential on population dynamics. Reductions in fishing mortality also tend to increase lifespan and reveal traits obscured by high exploitation. To understand dynamics for rebuilding depleted stocks requires multiple disciplines, including population biology and ecology as well as bioeconomics, ecological

and environmental change. Forecasting these changes can be challenging, but some key research at the interface of these disciplines can help.

Determination of absolute abundance is greatest challenge for single species, multispecies, and ecosystem models. To address this challenge, managers and scientists should foster an environment where there is increased interaction between gear technologists and stock assessment scientists (see e.g. Somerton *et al.*, 1999). Within a single species model, the ability to estimate changes in natural mortality (M) is dependent on ability to fix the quantity scaling the fishery independent index of population size to absolute population size (Q or survey catchability; Fig 1).

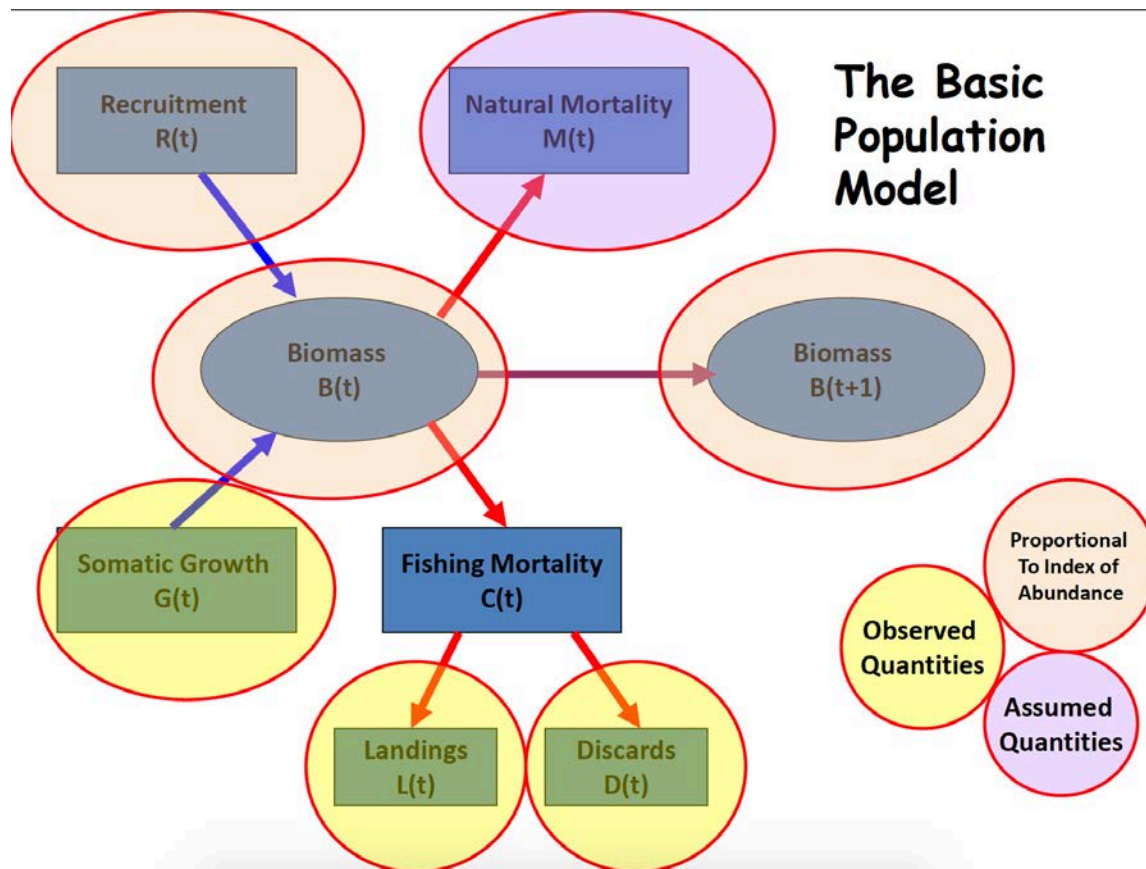


Figure 1. Mass balance in a basic population dynamics model, with sources of information. Considerable improvement in estimation of Fishing Mortality and other management reference points requires determination of scale, whether the model is of a single population or of interacting populations.

Determination of abundance is an essential ingredient of any model used for management, but there are multiple ways to determine scale and therefore several possible avenues for the Council to address this issue. Single species models currently in use to provide management advice are one method to estimate population abundance. Reliable estimates of total catch also provide a means of gauging the importance of other factors influencing stock dynamics. Catch is a measure of flux from the ecosystem to the economy—it is vital to measure catch with precision to analyze interactions properly. Stomach samples similarly

provide a measure of potential energy fluxes between ecosystem components and a map of the links among species. However, the approach to scaling abundance requires measures of mass for at least some parts of the network.

Effective fisheries management also increases the need for research on the magnitude of natural mortality. Single species models summarize the joint effects of multiple factors on realized growth, recruitment, maturation, and total mortality, but cannot disentangle causative factors. The most recent butterfish assessment was improved by consideration of predation, but the major gain came from determination of the scale of abundance, which came about through and improved definition of survey catchability. The SBRM summarizes technical interactions among fleets and species. Major advances in assessments will come at interfaces among disciplines, especially for independent estimates of population scale.

The Northeast Trawl Advisory Panel (NTAP) was recently established to bring commercial fishing, fisheries science, and fishery management professionals together to identify concerns about regional research survey performance and data, to identify methods to address or mitigate these concerns, and to promote mutual understanding and acceptance of the results of this work among their peers and in the broader community. The NTAP is a joint advisory panel of the Mid-Atlantic and New England Fishery Management Councils. It is composed of Council members, fishing industry, academic, and government and non-government fisheries experts who will provide advice and direction on the conduct of trawl research. In addition, the Council has recently revised its research funding initiative (formerly the Research Set Aside Program) under the MAMFC Collaborative Research Program. The new Collaborative Research Program, in combination with advice and recommendations from the NTAP, offers an excellent venue to develop and conduct cooperative research with industry to address the critical issue of NEFSC survey catchability and to improve our understanding of the relationship between fishery independent indices of the abundance from the survey and true abundance in the ocean.

Trophic and multispecies interactions

In addition to the stock assessments currently used to provide management advice, information on predator-prey interactions can be derived from the extensive food habits databases maintained at NEFSC and VIMS. Food web models exist for 4 regions of the Northeast US shelf, including the Mid Atlantic, Southern New England, Georges bank, and Gulf of Maine (Link *et al.*, 2008, 2009). Updated models with more detail for individual species in each region and multi-fleet fisheries are currently under construction. Food web models are useful for estimating the relative proportion of fishing and predation mortality to evaluate whether assessments should consider including variable predation mortality. Food web models also quantify major prey for key species and can be used to evaluate whether assessments should consider including food-limited growth when prey fluctuate.

Multispecies models are in development for the Northeast US shelf to extend the suite of modeling tools available for assessment of species and fleet interactions. A suite of multispecies and ecosystem models already exist in this region, with several more currently in development. These include Atlantis (a spatially explicit bio-geochemical end-

to-end ecosystem model), MS-PROD (a multispecies production model), MSVPA-X (an age structured multispecies model extended to include predators), several static mass-balance food web models, and several single species population dynamics models extended to include predators. Currently in development is a multispecies size structured assessment model and a set of linked static and dynamic food web models for each subregion. Another approach that has been used is to develop an index of predator abundance and use this index to scale natural mortality. While many of these models have an established role in providing strategic advice, the current challenge is to provide tactical management advice for fisheries in a multispecies context that can be readily used within the existing management framework. NEFSC is developing a system of simulation and assessment models to meet this challenge.

Models intermediate in scale between single stock and full ecosystem may be most promising in terms of providing tactical advice that incorporates species and fleet interactions as well as some environmental factors (Collie *et al.*, 2014; Plagányi *et al.*, 2014). Work is in progress by many research groups testing the capabilities of multispecies assessment models (e.g. Curti *et al.*, 2013; Van Kirk *et al.*, 2015). A prototype multispecies assessment project has been initiated for Georges Bank, which incorporates multispecies production models, multispecies delay difference models, and empirical nonlinear time series forecast models as assessment models within a multi-model inference framework. The multispecies assessment models were fit to simulated data, and assessment model estimates of biomass and catch trends were compared with "true" operating model values for each time series. This process both improves the multispecies models and informs managers of their strengths and weaknesses. Based on this work, multispecies models can be designed and evaluated for Mid-Atlantic stocks where appropriate.

Habitat and climate interactions

Fish require healthy surroundings to survive and reproduce. Habitat for a fish is the environment which supports it; this includes the benthic habitat, water column habitat, and ecological connections and linkages that occur throughout. The concept of habitat is simple and adaptable for describing a very complex system. Under MSA (16 U.S.C. 1802(10)), essential fish Habitat is, "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity". Fish habitat plays an essential role in the reproduction, growth, and sustainability of commercial and recreational fisheries and supports the biodiversity on which these ecosystems depend. Habitat can be described in different ways. One approach is a top-down stock-based approach to description, where you start with a species and then describe its associated habitat. The latter is a more landscape ecology type of approach from the bottom up, starting with the habitat and then associated species. Essential fish habitat for mid-Atlantic species uses the stock based approach of defining its habitat for individual species and life stages (eggs, larvae, adults, juveniles).

Some areas of the ocean are more productive for fish and shellfish than others. However, the importance of habitats in fish production and essential ecosystem services is poorly understood. A better understanding of habitat and its linkages to productivity is essential

with the multiple demands and pressures on the ecosystem. Human activities have significantly altered coastal and marine habitat over time. Fish habitat continues to be degraded or lost due to a variety of factors, including coastal development, land-based pollution, fishing gear impacts, invasive species, dams and other blockages that restrict access for migratory fish species, and reduction in the amount and delivery of freshwater to estuaries. In addition, climate change and the demand for new sources of energy have the potential to cause wide-ranging impacts on fish and shellfish habitat. Given the continuing trend for coastal development, and projected impacts of climate change, the pressures on coastal and marine habitats will only increase.

Fleet interactions

Social and economic linkages across species are important due to the fact that they can bind species that otherwise have no strong biological interactions (for example, yellowtail flounder as a bycatch in the scallop fishery), or generate effects that either reinforce or dampen the signals from biological interactions. These fishery interactions have the potential to greatly impact fishing behavior, with implications for both human and marine communities. The linkages manifest themselves in seafood and other commercial markets for marine resources, technological interactions of the fishing gear themselves, management policies, and social networks, among others. In the context of EAFM, the currently available tools for assessing these interactions are high level, due to the complexity of the interactions, and generate indicators that can be tracked over time. More nuanced tools aimed at understanding drivers of fleet behaviors can be developed, but must be customized to answer specific questions.

As a brief introduction to the available tools, Figure 2 presents the revenue of MAFMC FMP species for the period 2005 – 2014, in 2014 equivalent dollar terms. The revenue peaks in at \$250 million in 2006, with what seems to be a downward trend since then. Revenue is dominated by summer flounder, surf clam and ocean quahog, monkfish, and long-finned squid, and landed primarily in Massachusetts, New Jersey, and Rhode Island ports. Of interest is the fact that a relatively large number of ports in both New York and Maine have

landed MAFMC FMP species historically, although the total revenue landed in these states is comparatively low.

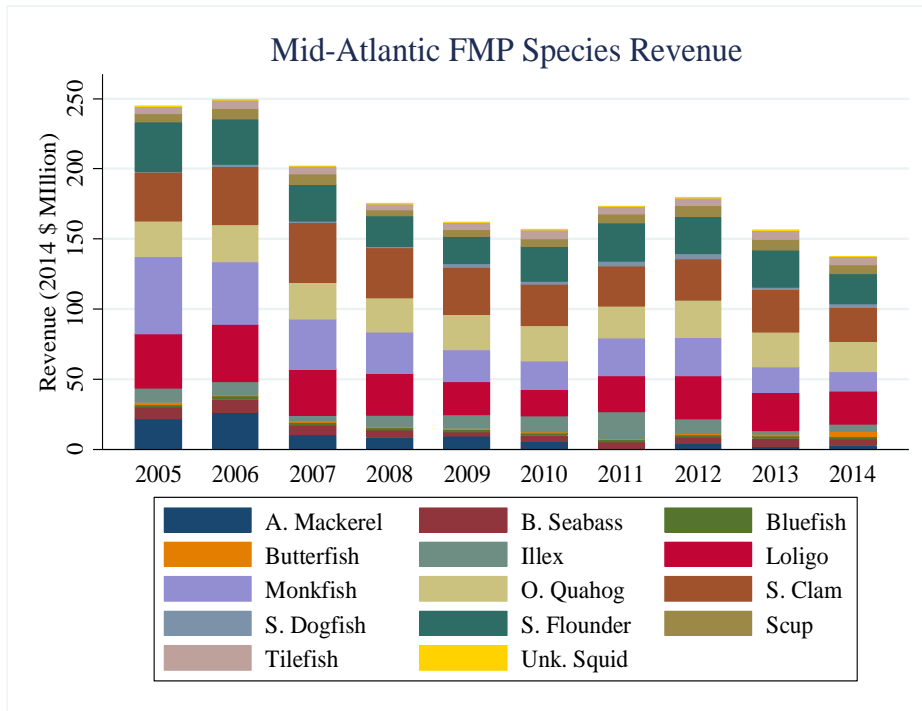


Figure 2. Revenue generated from MAFMC FMP species, by species.

Figure 3 presents the total revenue generated from permits that landed MAFMC FMP species in each year. Although the general trend is similar to Figure 2, the total revenue generated from these permits is roughly 4 times greater than the previous graphs. This means that the majority of the revenue generated from fishermen that catch MAFMC FMP species actually comes from species not managed by the MAFMC, and speaks to the scale of the fishery interactions faced by the MAFMC.

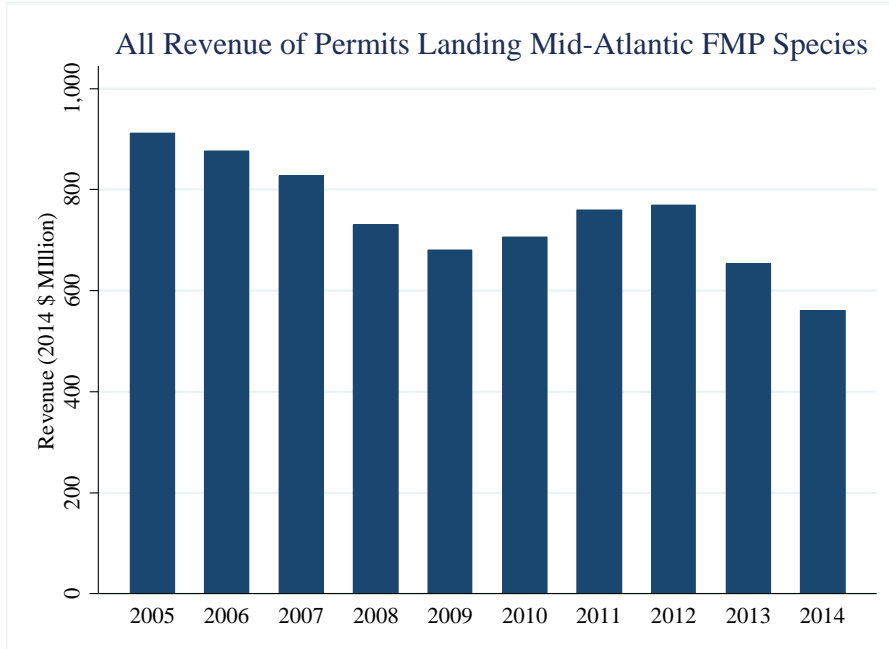


Figure 3. Total revenue generated by permits landing MAFMC species in that year.

Figures 4 and 5 present the predominant gear and vessel class associated with permits landing MAFMC FMP species. Bottom trawl serves as the dominant gear for much of the series, although in more recent years the number of permits for scallop dredge, hand gear, and gillnets are on par with the bottom trawl permit numbers. Conversely, the 30 to 50 ft. vessel class seems to have increased in proportion over the time series, primarily to the detriment of the largest vessel category (75 ft. and above).

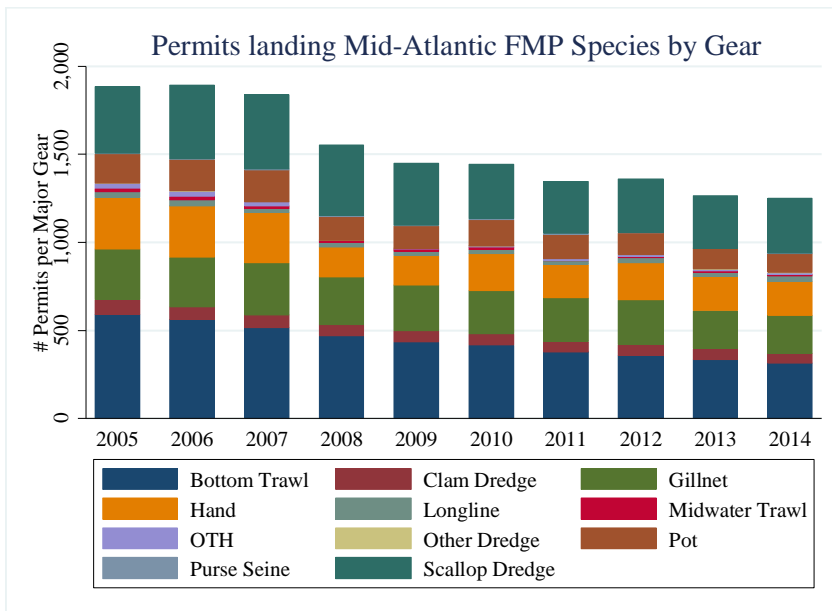


Figure 4. Number of permits landing MAFMC FMP species, by gear.

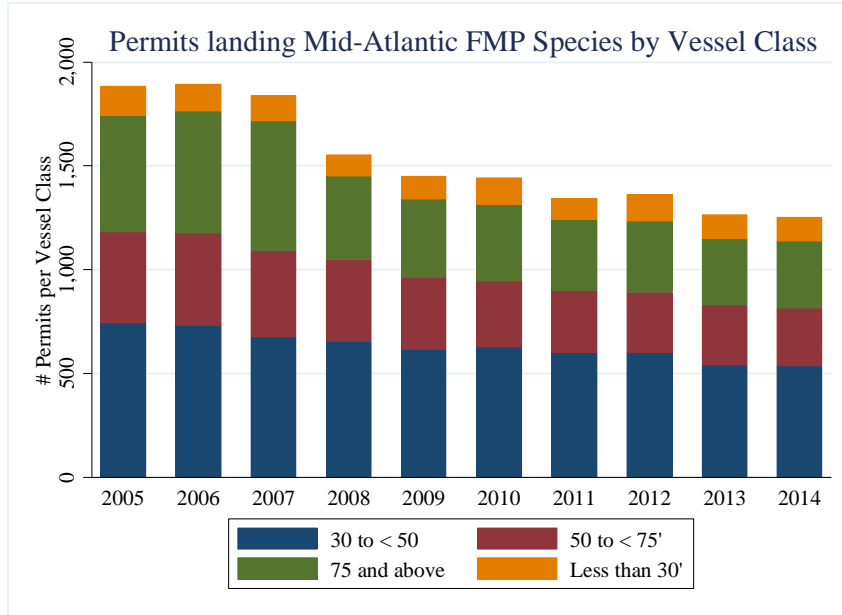


Figure 5. Number of permits landing MAFMC FMP species, by vessel class.

Estimates of diversity have been developed to better understand the dynamics embodied in Figures 2 – 5. These diversity estimates seek to understand whether specialization, or alternatively stovepiping, is occurring. Figure 6 presents the distribution of effective Shannon indices for species revenue at the permit level, for all permits landing MAFMC FMP species within a year. This index is calculated as $\exp(-\sum_{i=1}^N p_i \ln(p_i))$, with p_i representing the proportion of revenue generated by species i , and is a composite of richness (the number of species landing) and abundance (the revenue generated from each species). Although the exact value of the effective Shannon index is relatively uninformative, the distribution presented in Figure 6 indicates substantial heterogeneity in the diversity of species landed across permit holders. Further, this distribution is relatively constant across the time series, with no trend apparent. These results seem to indicate that specialization/stovepiping has not been a dominant force in the recent past.

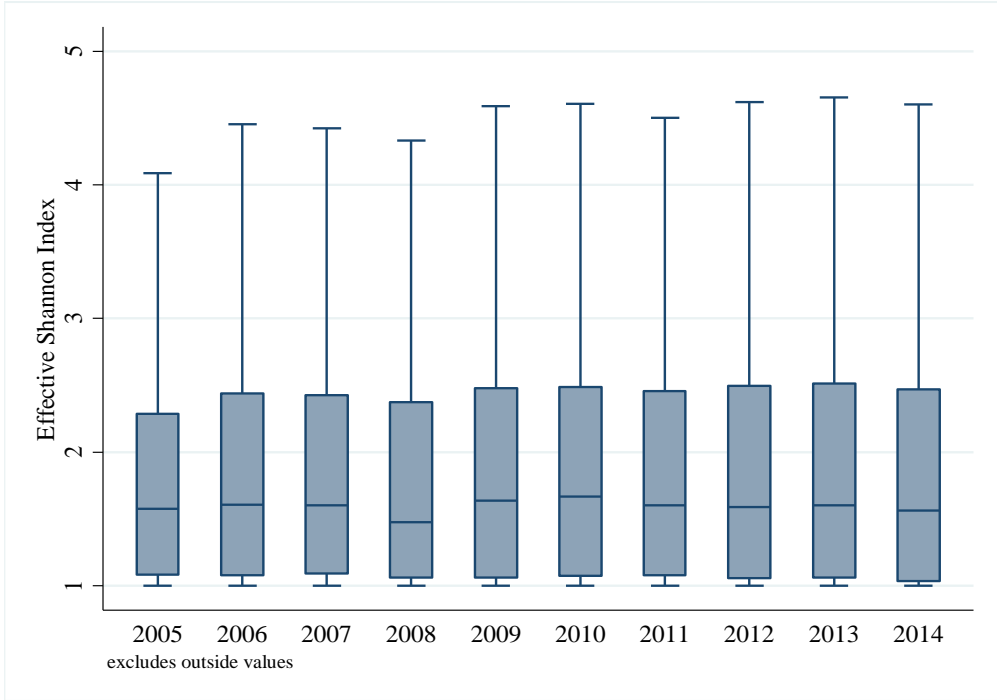


Figure 6. Distribution of effective Shannon indices for the diversity of species revenue at the permit level.

Figure 7 presents the effective Shannon index for fleet diversity, with diversity defined as the revenue generated by the combination of major gear and vessel class, as identified in Figures 4 and 5. This downward trend suggests that fleet diversity has decreased over time. Similar indices can be calculated to look at the diversity of ports landing MAFMC FMP species, to investigate the expansion or contraction of the suite of ports within the Mid-Atlantic, and better understand the dynamics within the system.



Figure 7. Fleet diversity, as measured by the revenue generated by each subfleet.

Regulatory Interactions

Regulations designed for one fishery, fleet, or issue may also interact with other fisheries or fleets, creating unintentional side effects or constraining fishing opportunities. For example, limits on the catch of one depleted species may cause it to act as a “choke” species, limiting the catch of other species caught in the same habitats to well below their allowable biological catch if the limiting species cannot be avoided. Similarly, time and or area management designed to meet an objective for a single species may also limit the catch of other associated species, causing fleets targeting the other species not to meet economic objectives. Fishery closures resulting from exceeding Total Allowable Catches under the Marine Mammal Protection Act are another example of regulatory interactions. These management-related interactions should be considered and analyzed prior to implementation of new management measures.

2. Additional comprehensive tools for addressing interactions

Integrated Ecosystem Assessments for Northwest Atlantic ecosystems

The NW Atlantic region has well-developed ocean observation systems, marine ecosystem surveys and habitat studies, though social and economic data collection systems are less well developed, and steps are being taken throughout the region to organize existing information and effectively communicate it to stakeholders and decision-makers. The Levin *et al.* (2009) IEA framework (Figure 8a) outlines the general process of integrated ecosystem assessment. Visualization of the IEA framework has evolved since then (Figure 8b), but its components remain the same.

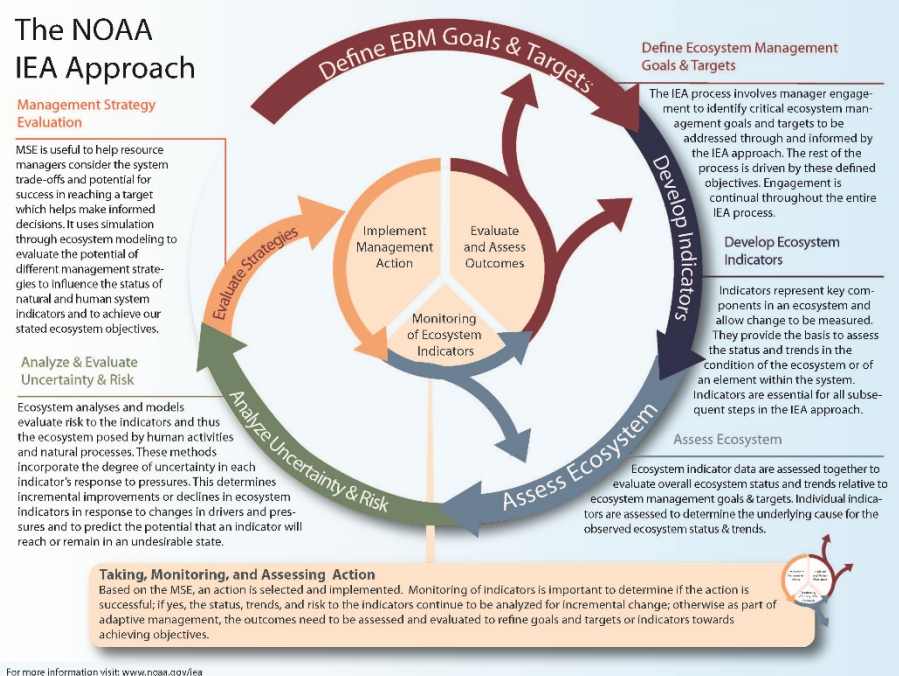
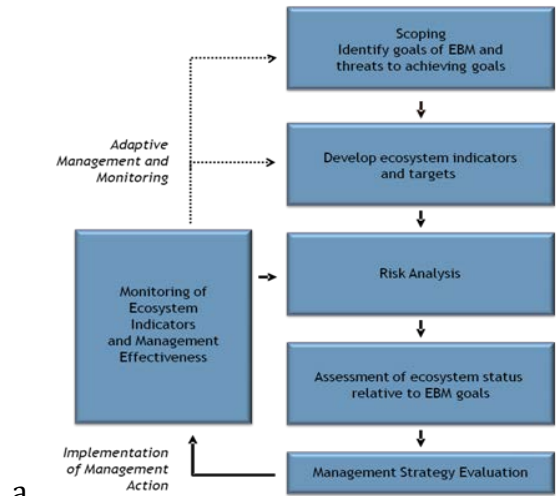


Figure 8. Visualizing IEAs. a. Levin et al (2009) b. Refined IEA representation.

Work is under way in a variety of contexts around the North Atlantic to develop Integrated Ecosystem Assessment (IEA) methods and approaches to support an Eco-system Approach to Management (EAM). For example, the International Council for the Exploration of the Seas Working Group on the Northwest Atlantic Regional Sea (ICES WGNARS) is comprised of scientists and managers from Canada and the US. The overarching objective of WGNARS is to develop Integrated Ecosystem Assessment (IEA) capacity in the Northwest Atlantic region to support ecosystem approaches to science and management. Considerable work has already been done compiling and reviewing ecosystem indicators across the themes of climate, biodiversity and habitat. Social sciences were integrated within the group early on, and the group continues to work on more fully integrated ecological and human dimensions in IEAs. Issues of spatial scale are important because the Northwest Atlantic

Regional Sea encompasses a variety of diverse ecoregions across a wide range of latitudes, physical oceanographic regimes, and habitats, as well as multiple administrative and management jurisdictions and boundaries, sociocultural groups and regional economies. Since 2013, WGNARS has been reviewing IEA component methods and applying them to test cases in the region. The 2013 sessions on IEA scoping, ecosystem indicator thresholds and performance testing, and risk analysis led to related peer-reviewed publications and established the context for development of a three-year workplan to address linked IEA components including assessment of ecosystem status relative to EBM goals and management strategy evaluation. Ultimately, WGNARS plans to continue to develop parallel products: (1) “worked examples” of linked IEA components, and (2) advice on developing processes for operational IEA implementation emphasizing the need for iteration between science, policy, and management.

NOAA’s Integrated Ecosystem Assessment (IEA) program (www.noaa.gov/iea) continues to make progress in all 5 regions where it is currently being implemented (i.e. California Current, Gulf of Mexico, Northeast Shelf, Alaska Complex, Pacific Islands). On the Northeast Shelf, there is an updated Northeast US Ecosystem Status Report, an entirely web-based product (<http://www.nefsc.noaa.gov/ecosys/>). Relative to previous releases, this version features an expansion of human dimensions, stressors and impacts, status determination, and summary sections. The summary section can also be provided as a stand-alone printed annual “state of the ecosystem” report. Plans are in place to develop cumulative impact analysis and a marine ecosystem services assessment index, which would assign numerical scores for the status of delivery of a suite of ecosystem services that we’ve identified. Research continues into identifying regime shifts, and in multispecies and ecosystem modeling.

Conceptual Models

“Conceptual models” developed for the California Current IEA are being adapted for the Northeast US shelf, and could be a useful tool for Fishery Management Councils to address species and fleet interactions. Conceptual models are intended to provide a unifying framework that crosses disciplines, and clarifies system boundaries and any gaps in knowledge (Heemskerk *et al.*, 2003; Orians *et al.*, 2012). They are invaluable as a communication tool within an IEA working group, with other scientists, and with the public. This frame-work allows linking of indicators with elements of the conceptual models, as well as linking concepts across ecological and social components of a given system. The California Current IEA project worked for over a year to produce a set of linked conceptual models in December, 2014, as illustrated in Fig 9.



Next-tier models
flesh out key details

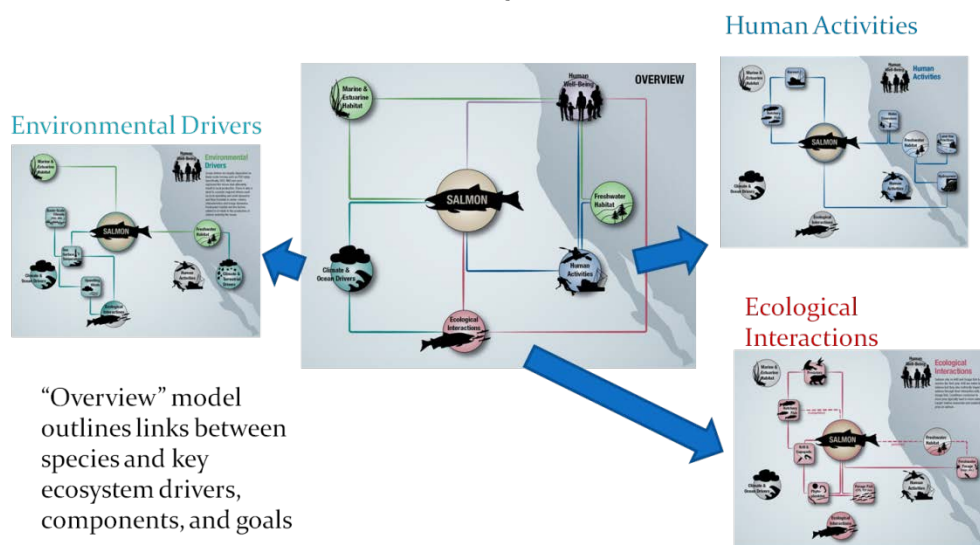


Figure 9. California Current conceptual models: overall system and detailed models linking environmental drivers, human activities, and ecological interactions for key ecosystem components. A set of models was developed for each focal component (salmon are shown here but others include coastal pelagics, marine mammals, etc).

In developing these conceptual models, the IEA team looked at each focal ecosystem component to develop links between ecological interactions (e.g. what are the strongest

food web interactions), environmental drivers (what are the acknowledged drivers of abundance and community composition?), human activities (what are the strongest known human interactions or human risks posed to this focal ecosystem component?) and human wellbeing (what is the human dimensions context?). Detailed linkage models were developed for six ecosystem components: salmon species, coastal pelagic species, groundfish species, marine mammals, seabirds, biodiversity, and habitat. The California Current IEA project has used these conceptual models to improve communications with regional fishery management councils regarding key linkages between managed species and the environment, in groundfish stock assessment ecosystem considerations sections, and on their webpages for navigation by users to see linked information on status, trend, indicators, etc.

Risk Assessment

Risk assessment is a process to evaluate the potential, magnitude, and consequence of negative events occurring. This is a best practice adopted originally from business management fields and encoded by the International Standards Organization (ISO) standard 31000 (ISO, 2009a, 2009b, 2009c). The ISO standard bases risk management on a three-step risk assessment process: identification, analysis, and evaluation, which ultimately determines whether risk treatment is required to meet management objectives. Built into the standard are requirements for risk communication, consultation, review, and continued monitoring. The advantage of this approach is that it is consistent, transparent, and standardized. Furthermore, the approach has been adapted to evaluate a wide range of environmental issues (e.g. Cormier *et al.*, 2013; Standards Australia, 2012; US EPA, 1998) including some instances of risk assessment for fisheries stocks (e.g. Fletcher, 2005; Hobday *et al.*, 2011; Hollowed *et al.*, 2013; Martin-Smith, 2009; Patrick *et al.*, 2010; Smith *et al.*, 2007).

A simple ecosystem based risk assessment for the Aleutian Islands Fishery Ecosystem Plan in Alaska demonstrates how this tool can be used to prioritize key interactions within a region for further research, analysis, and or management strategy evaluation (AIFEP Team, 2007). In this application, expert opinion was used to first develop a set of key ecosystem interactions not currently assessed or monitored within the fisheries management system, and then to rate the probability of key ecosystem interactions occurring and the impact of the interaction to identify the highest risk interactions as those with high probability and high impact. Similar to the Australian Level 1 assessment, this risk assessment both identified high priority interactions and potential indicators suited to monitoring changes in the interactions. A quick assessment like this can form the basis for further development of management objectives. This contrasts with a more quantitative risk analysis that would be done once objectives are established, which would evaluate the risk of not meeting the management objectives, possibly under alternative management scenarios as in a management strategy evaluation.

Identifying climate risks to Mid Atlantic managed species

Climate vulnerability assessment has already been conducted for Mid-Atlantic managed fish species at both the general community (Gaichas *et al.*, 2014) and species specific (Hare

et al., 2016) levels. These analyses applied similar vulnerability assessment frameworks which used currently existing knowledge and expert opinion. Both used quantitative data when available, and qualitative information when data was lacking. In both analyses, “Vulnerability” was defined as the risk of changes in stock abundance or productivity in a changing climate. Stocks with ability to shift distributions in a changing climate may receive a “low vulnerability” ranking using these methods. Therefore, a subset of the attributes may be useful in identifying stocks that possess the ability to shift distributions, which is also important to fishery managers.

The community level analysis showed that the most vulnerable Mid-Atlantic stocks were commercially important and non-target benthic organisms, followed by commercially important demersal fish, with pelagic fish generally least vulnerable (Gaichas *et al.*, 2014). The species level analysis used model projections of climate conditions and evaluated individual species. This analysis also found that exposure to climate change throughout the Northeast US shelf is high to very high, and that climate sensitivity is higher for shellfish species and lower for groundfish and pelagics. Within the Mid-Atlantic region, 1 managed species received a very high vulnerability rating, 3 were rated high vulnerability, 3 were rated moderate, and only 6 was rated low (Figure 10). In addition, the NEVA (Hare *et al.* 2016) identifies which species are likely to shift distributions in response to projected climate patterns within the region: all but one managed species had high to very high distribution change potential (Figure 11). Finally, the NEVA evaluated the directional effect of climate change on fish and shellfish species. Three MAFMC managed species are likely to respond negatively, while six species are likely to respond positively (Figure 12).

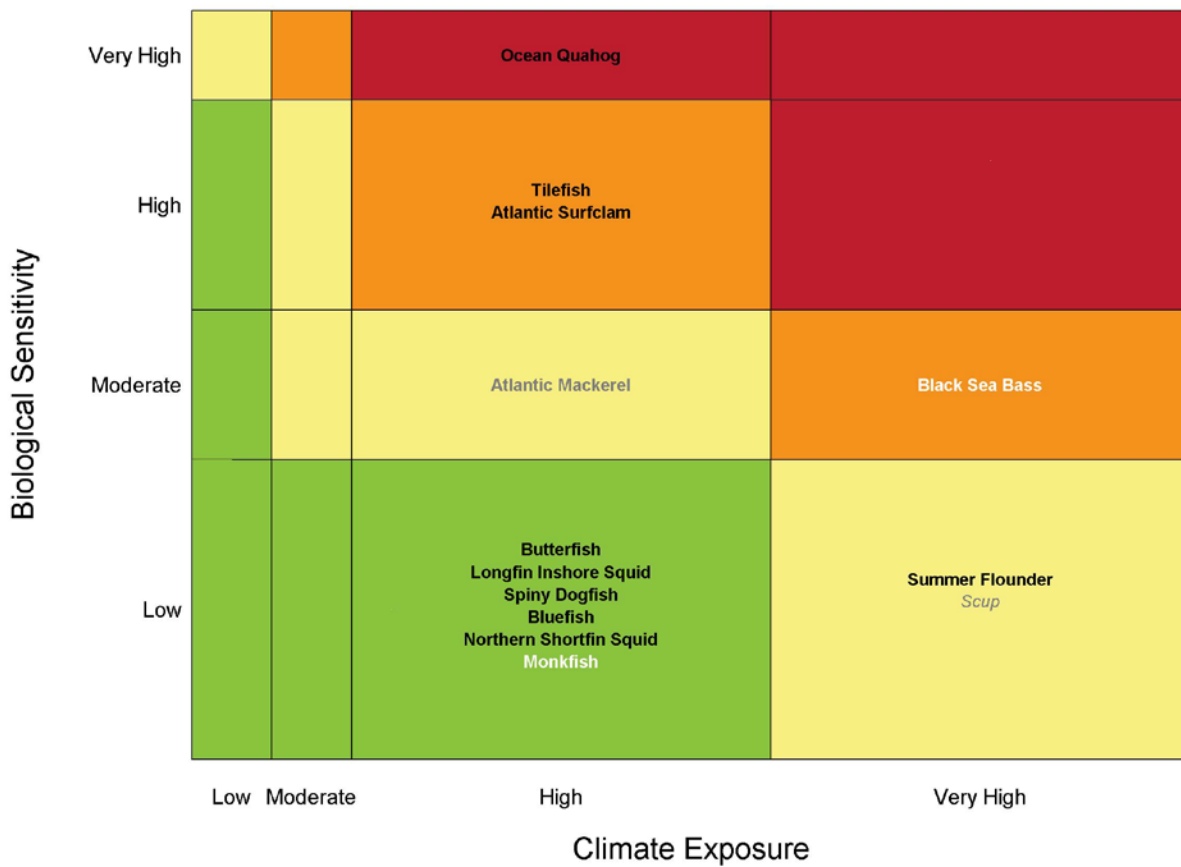


Figure 10. Summary of results from the Northeast Fisheries Climate Vulnerability Assessment (NEVA): First Implementation of a National Methodology for MAFMC managed species. Overall climate vulnerability is denoted by color: low (green), moderate (yellow), high (orange), and very high (red). Certainty in score is denoted by text font and text color: very high certainty (>95%, black, bold font), high certainty (90-95%, black, italic font), moderate certainty (66-90%, white or gray, bold font), low certainty (<66%, white or gray, italic font).

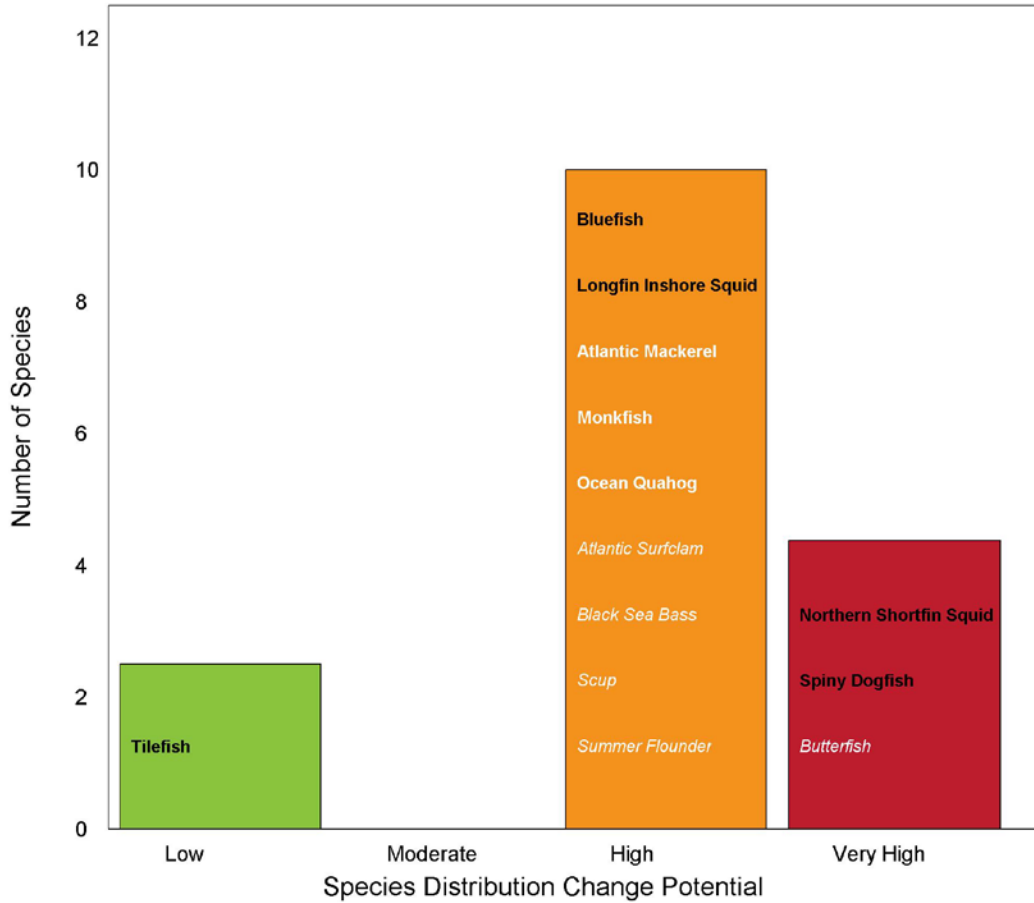


Figure 11. Potential for a change in species distribution. Potential was calculated using a subset of sensitivity attributes. Colors represent low (green), moderate (yellow), high (orange) and very high (red) potential for a change in distribution. Certainty in score is denoted by text font and text color: very high certainty (>95%, black, bold font), high certainty (90-95%, black, italic font), moderate certainty (66-90%, white or gray, bold font), low certainty (<66%, white or gray, italic font).

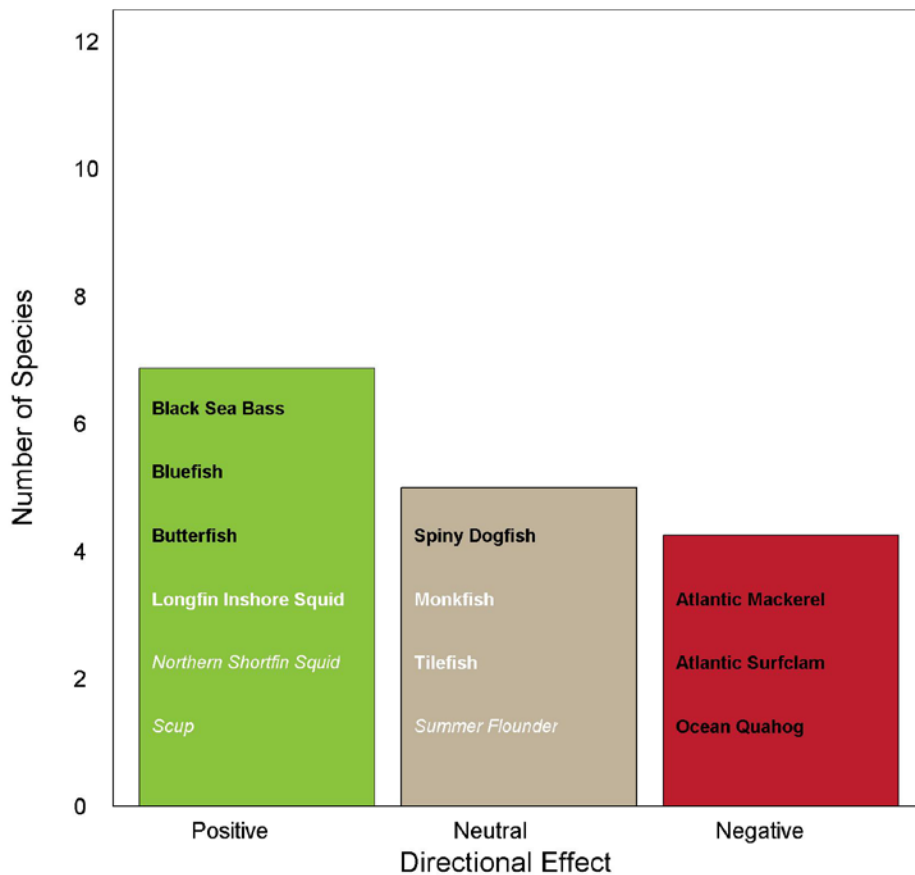


Figure 12. Directional effect of climate change. Colors represent expected negative (red), neutral (tan), and positive (green) effects. Certainty in score is denoted by text font and text color: very high certainty (>95%, black, bold font), high certainty (90-95%, black, italic font), moderate certainty (66-90%, white or gray, bold font), low certainty (<66%, white or gray, italic font).

This preliminary risk assessment, like any analysis, is not intended to answer all climate related questions for the Council, but it can be extremely helpful for making certain decisions. For example, it does not address magnitude of climate effects, it does not consider exposure or sensitivity as thresholds (cumulative), it does not evaluate harvest control rules or determine appropriate catch levels or replace mechanistic models, and it does not apply outside of the study area. Importantly, the NEVA does inform stakeholders as to the relative vulnerability of species. It identifies important climate exposure factors and sensitivity attributes. It informs data gaps and can contribute to setting research priorities. It identifies species where mechanistic models and/or MSE's that include climate change might be useful, and it does help identify species and issues that need more research attention. In short, this analysis could help the Council identify which species need integrated research on climate, habitat, species, and fleet interactions first.

Further information to guide the Council's future policy with respect to climate interactions will be forthcoming from the newly funded project by M. Pinsky and R. Seagraves, "Climate velocity over the 21st century and its implications for fisheries management in the Northeast U.S." The purpose of the proposed research is to inform the Council about the rate, magnitude, and uncertainty surrounding future distributional changes for managed and other important species likely to occur as a result of climate change over the next several decades and for the remainder of this century. This work will build upon the NEVA's initial work on likely range shifts to rank species by the rate and magnitude of range shift as well as the uncertainty in those values while also diagnosing the dominant source of uncertainty. In collaboration with the Council, this work will identify potential priority species for adaptation of fisheries management to climate. This would further clarify risks to the Council's management objectives and likely future issues arising from climate-driven distributional shifts.

Minimizing risks to economic returns in multispecies fisheries

The portfolio analysis developed in Jin *et al.* (2016), and following Sanchirico *et al.* (2008), provides an overview of the risk exposure associated with the mix of species managed by the Mid-Atlantic. Consideration of risk is weaved throughout the National Standards of the Magnuson-Stevens Fishery Conservation and Management Act. Portfolio theory allows the economic risk-reward trade-offs of multispecies fishery management to be assessed. Given elliptically-distributed returns, risk aversion entails choosing a mix of landings from species that minimizes the variance (risk) around an expected return (reward) from the system, subject to the biological constraints within the fishery. Put plainly, the portfolio approach identifies the mix of species that maximizes the probability of achieving the targeted returns to a system in any given year.

Portfolio analysis can be used to assess historical performance of the fisheries under MAFMC management by comparing the realized level of risk to the minimum risk that could have produced the same level of returns. Figure 13 is drawn from Jin *et al.* (2016), and presents an example of this historical analysis for Maine, Massachusetts, and Rhode Island, with the risk represented as the difference between the realized and optimal standard deviations divided by the realized returns. This analysis identifies the time periods in which the largest divergence from the risk-minimizing landings portfolio occurred. Further, because this analysis can be run at multiple spatial resolutions (from the full Northeast LME, to the Mid-Atlantic Ecological Production Unit, to individual ports), it can identify disproportional risk exposure across different geographic resolutions, and identify whether the risk propagates through or is balanced within the system as a whole.

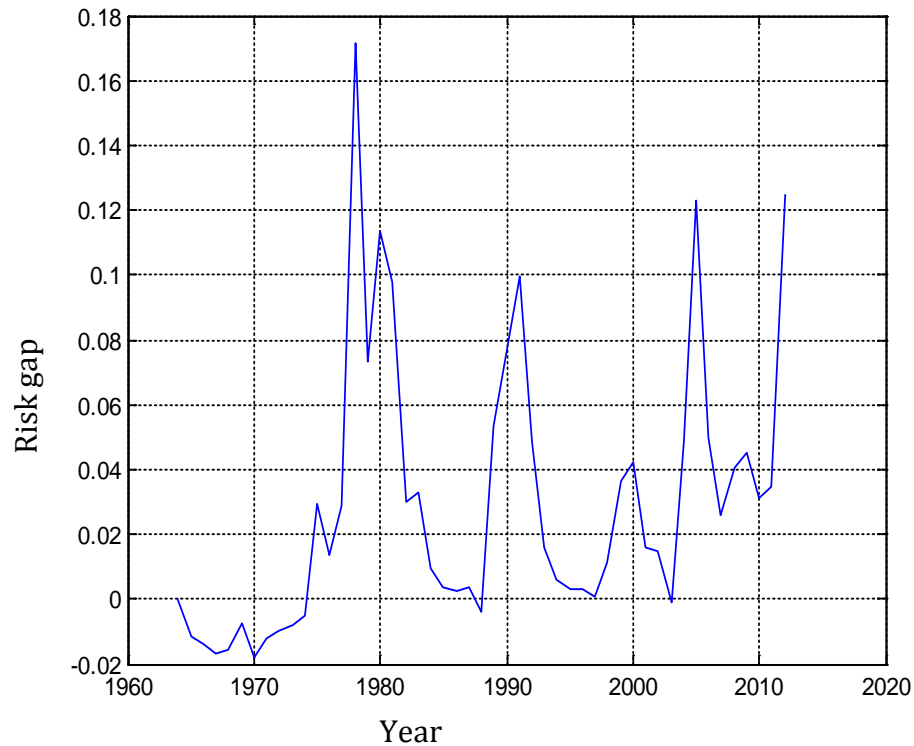


Figure 13. Risk inefficiency in ME, MA, and RI 1964 – 2012.

The portfolio model can also be coupled to the multispecies models currently under development at the NEFSC, and provide an explicit understanding of risk-reward trade-offs of future scenarios. Given that returns are not the only objective of management, the portfolio analysis would allow an understanding of the cost, in terms of additional economic risk, of achieving the suite of management objectives.

Management Strategy Evaluation

Management decisions are always made with substantial uncertainty. For example, there is uncertainty in the estimate of the status of the resource, the population dynamics of the resource, and the effects of the management decision on the resource and on the system as a whole. There is also uncertainty and risk associated with management choices.

Management Strategy Evaluation (MSE) is an approach to determine if a method for making decisions is likely to achieve specified objectives (e.g., Butterworth, 2007; Punt *et al.*, 2014; Smith, 1994; Smith *et al.*, 2007). The MSE approach requires objectives be specified, performance metrics be identified, and management strategies, scenarios, and uncertainties to be specified clearly, and then uses a simulation model to test each management strategy's ability to meet the specified objectives (Fig 14).

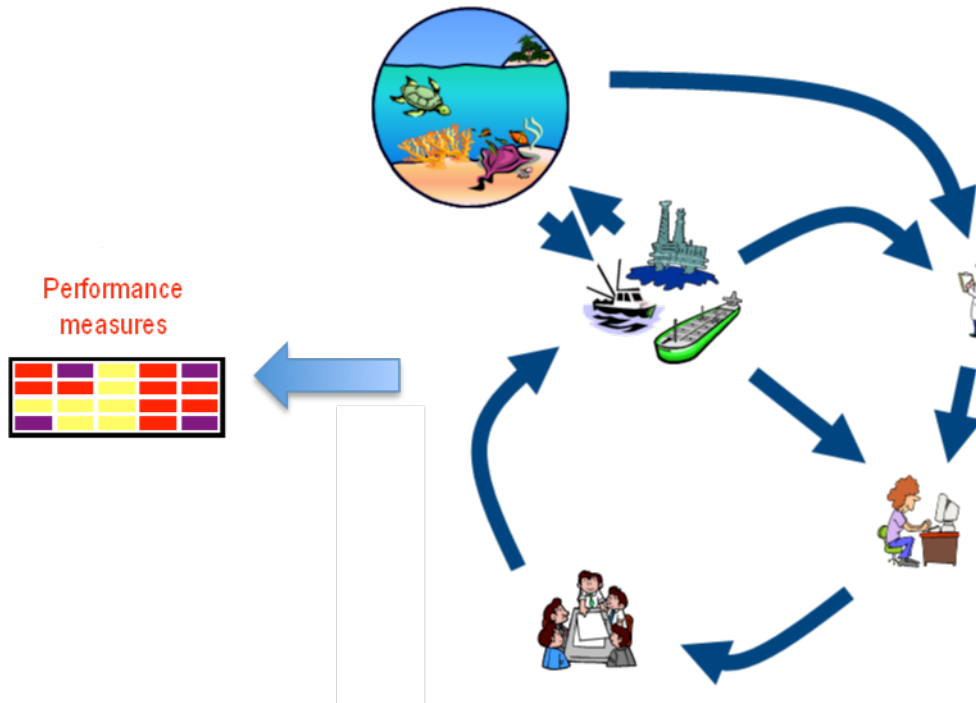


Figure 14. MSE simulation, courtesy Beth Fulton, CSIRO. Processes simulated within the “natural system” can include ecological, climate, habitat, fleet, economic, and social interactions. Data collection, assessment and management processes, as well as regulation of human activities with feedbacks into the natural system can also be simulated—this “closed loop” is a critical characteristic of MSE. Different management strategies are evaluated for performance against pre-determined performance measures.

The Council has already used MSE to inform decision-making. For example, the performance of alternative ABC control rules have been tested, as well as the performance of methods for implementing control rules. Similarly, MSEs have tested the performance of other characteristics of the management system (e.g., assessment frequency and management lag; data poor ABC estimation methods). Typically, the uncertainty in population dynamics (recruitment, fishery and survey size selectivity, and natural mortality) are included within the MSE, as well as uncertainty in fishery dependent and independent sampling and in stock assessment. However, many other uncertainties could be included in an MSE, depending on Council and stakeholder objectives. Examples of performance metrics used in MSEs can include average catch (short and long term), average biomass (short and long term), probability of overfishing, ability for populations to rebuild, and average annual variability of the catch. Again, many other performance metrics can be included in an MSE to measure performance against Council and stakeholder objectives related to fleet, species, habitat, and climate interactions.

An important aspect of MSE is that defining the objectives, performance metrics, and key uncertainties should be done within an inclusive stakeholder process. MSE is a simulation analysis, but to be helpful with management decisions, framing the analysis and the control rules or other management procedures to test must include managers, policy makers, fishermen, scientists, and other stakeholders. Overall, MSE allows the Council an

opportunity to test management measures before implementation. MSEs can be particularly good for identifying strategies that will not work. MSE should be considered an investment rather than a quick fix, because the time requirement can be long and MSE is inherently an iterative process. Further, not all important uncertainties and objectives can be explicitly included, and MSE results can be highly dependent on the assumed dynamics. Therefore, investment in multiple simulation models with adequate alternative structures to evaluate the interactions of interest (species, habitat, climate and fleet) is a pre-requisite for effective MSE.

3. A potential framework for addressing interactions

To incorporate species, fleet, habitat, and climate interactions into management, the Council might consider a structured framework to first prioritize interactions, second specify key questions regarding high priority interactions, and third tailor appropriate analyses to address them. The primary tools for the initial steps in the framework are risk assessment and MSE. Finally, implemented management would be evaluated to ensure that objectives are being met, or to adjust measures as conditions change (Fig. 15).

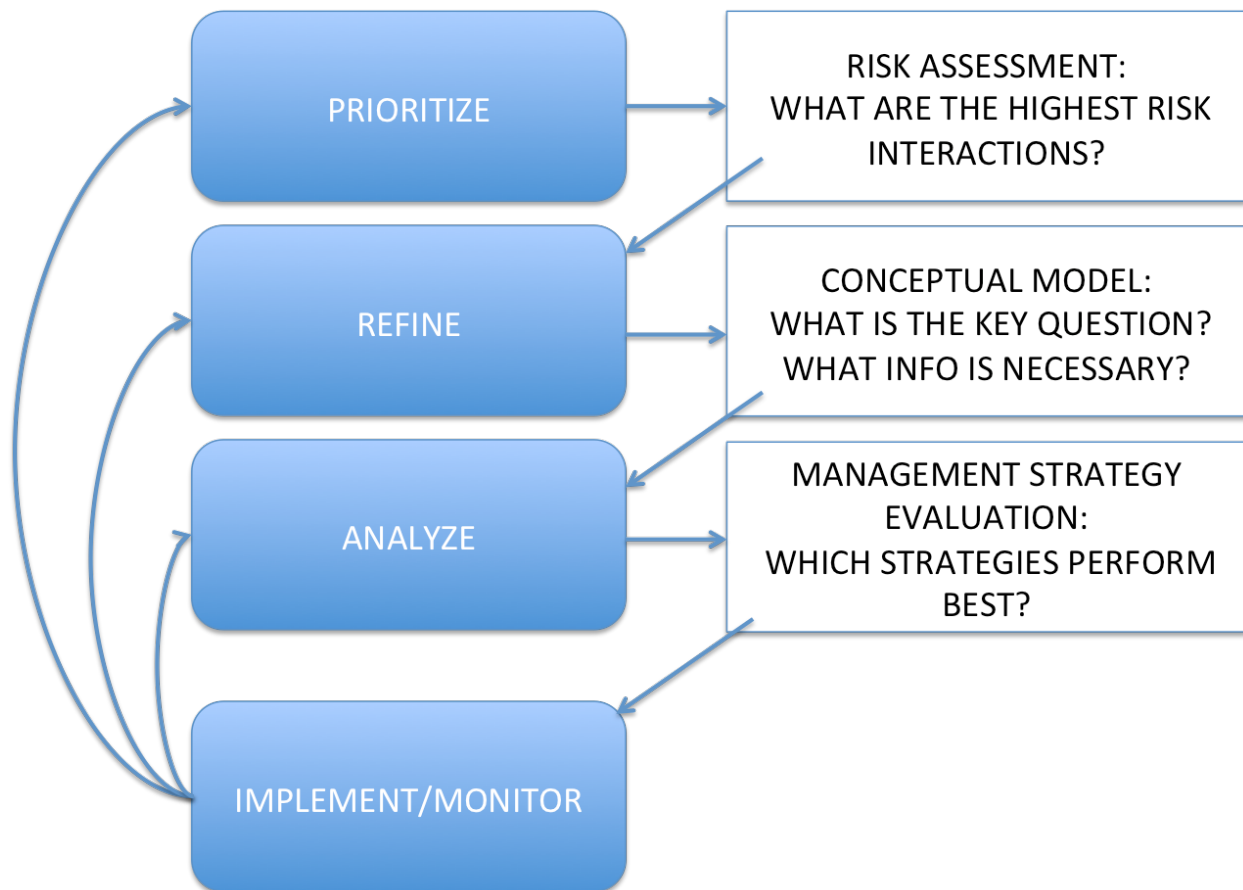


Figure 15. A potential framework for integrating interactions into management

Step 1: Prioritize with risk assessment tools

There are so many possible interactions in a fishery ecosystem that one analysis or tool cannot effectively address them all, so **risk assessment** is proposed as the initial step to identify a subset of high priority interactions for the Council to address first. The Council's goals and objectives would shape the assessment by first identifying risks and impacts of concern. Risk assessment is a critical nexus of science and management because this is where scientific information feeds directly into management decision making, in particular in developing risk criteria and consequences. Risk assessment helps managers to decide where to focus limited resources by clarifying priorities. These methods could be used much more often for screening out interactions of lesser importance that may currently have equal or more resources devoted to them than higher risk interactions.

For example, the NEVA described above has already identified which species are most likely to be vulnerable to climate/habitat change, so the Council could elect to evaluate whether species interactions pose further risks to meeting management objectives for the most climate-vulnerable species. Alternatively, climate-vulnerable coastal communities (e.g. Colburn et al., *in review*) and or fishing fleets could serve as a starting point, evaluating additional risks due to management, ecological, and other interactions.

Step 2: Refine key management questions for highest risk interactions

What are the Council's primary questions regarding a given high priority interaction? What are the Council's objectives for integrating the interaction into management? As the Council refines the question with stakeholders, scientists can evaluate data availability and gaps, and identify analytical tools to address the question. While much data and many tools exist for the Mid-Atlantic region, adequate time for data acquisition and quality control and tool refinement should be allocated to ensure a tailor-made, appropriate analysis.

Basic conceptual models can be developed for the particular question during this process to ensure that key ecological, climate, habitat, fleet, social, and economic interactions are addressed. Conceptual models help organize analyses and information, and clarify interactions for all stakeholders to work from a common understanding. For example, a question centered on climate impacts to a particular species might start with a conceptual model of known climate and habitat interactions for that species, but build in any critical interactions with other species, fishing fleets, fishing communities, regional and global economic markets, etc., as necessary to address the questions and management objectives.

This step is critically important in the framework, because it adds a point in the process where interactions are systematically considered. In particular, management interactions and inter-jurisdictional issues can be formally considered here (e.g. Council managed species discard in other regions; species moving into or out of the region due to climate and habitat change; land use practices altering nursery habitat for managed species). It may be necessary to consult with other management entities and involve them in further steps.

Step 3: Analyze management procedures with comprehensive MSE

The Council's questions and objectives identified in Step 2, along with available data, tools, and management strategies feed into comprehensive Management Strategy Evaluation employing performance measures across biological, ecological, management, social, and

economic outcomes. This iterative and stakeholder-driven process can evaluate the impacts of uncertainties in data collection systems, assessment methods, management decision processes, implementation of management measures, and other human activities as well as in the underlying climate, habitat, and ecology.

Some simulation models with capabilities to address species, habitat, climate, fleet, social, and economic interactions are available in the Mid-Atlantic region, although further development would be necessary for any particular MSE. Addressing questions with multiple simulation models and linking existing economic, single species, and ecosystem models expands analytical possibilities.

Step 4: Implement, monitor, adapt, and iterate as needed

Management measures designed to address interaction between species, habitats, fleets, and climate forcing may require additional or different monitoring to determine if objectives are being met. Careful consideration of performance measures and monitoring systems to be used in real time (as well as in MSE) needs to be part of this process. There is considerable potential to make better use of existing real time observing systems, in particular for climate and habitat interactions, as well as fishermen-based observation systems to evaluate management success.

4. Example questions to be addressed using the framework

What questions could the Council ask? These would each lead to a different analysis using different tools. These are only examples and not recommendations:

Question 1: "What management structure (i.e. licensing, allocations, etc.) provides the flexibility necessary to absorb the impacts of climate change, including shifting species distributions, and more broadly any large perturbation to the system."

Tools that could be used to answer question 1:

- Experimental economics can be used to understand the magnitude of both the intended and unintended consequences of management decisions. A good example of this would be the experiments investigating the point system that was proposed as part of scoping for Amendment 16 of the New England Fishery Management Council's Northeast Multispecies FMP (Anderson, 2010).
- Participatory modeling and management strategy evaluation with the Council and stakeholders could be used to inform potential outcomes of alternatives during the design of alternatives, for which historical data might not provide much insight (i.e., reallocation of stocks).

Question 2: "Under the current management system, what are the likely effects of inaction in the face of shifting species distributions and how quickly do they accrue?"

To address Question 2, exposure of species, fishermen, and communities to climate can be drawn together relatively quickly, given the current knowledge and models available.

However, specific models would need to be developed to assess the changes in welfare associated with future shifts.

- Economic models could be developed to assess which fishermen are likely to continue fishing, and what species would be caught.
- There are not currently off-the-shelf models to answer either question, and it would take time to generate the models/build up capacity. Therefore, having the Council identify priority questions is vital.

Similarly, for ecological interactions, priority questions could include:

- Are there strong interactions between managed species (high energy flow and/or mortality) that should be considered in setting ACLs or other fishery management measures??
- Are there strong interactions between managed and protected species which should be considered in setting ACLs or other fishery management measures?
- What is the status of key forage species supporting many managed and protected species, and should that be considered in setting managed species ACLs or other fishery management measures?? (raised in the Forage white paper)
- Are there key habitats for multiple species that require protection by the Council? How will the condition or extent of these key habitats be altered by projected climate change, and how should the Council consider this in setting ACLs or other fishery management measures?

Each of these requires a different supporting analysis and set of modeling tools, as noted above.

Conclusions

An ecosystem approach to fisheries management emphasizes a more integrated approach to habitat, sustainability, multi-species interactions, connectivity, and dynamic change. To address these ecosystem factors in terrestrial systems, there is high quality, easily collected data with a well mapped landscape, standard classification systems for habitat types and guilds of species (i.e., Southern Oak Pine Forest; Northern Peatland & Fens), and timely data collection systems. In the marine and aquatic environment there are none of these terrestrial advantages. The data is patchy in both space and time, and oceanographic data and biological data are incomplete. It is also very difficult to collect information in the very deep waters of the continental shelf.

So what do we do? Acknowledge we are in a transitional state and the incomplete nature of the data and science with which we have to work, and move forward both strategically and systematically. We first need to recognize that most of the Council's managed resources have strong nearshore and coastal linkages to habitat, and in many cases the nearshore and offshore environment for these managed resources is one continuum.

We need to start expanding how we describe Mid-Atlantic species habitat by focusing on the biological, physical-hydrographic, and ecological criteria. This should include taking tips from the landscape ecology approaches on land, which use the synecological/biotope

approaches to describing habitat and associated species assemblages. As a first step this should include improving how EFH is designated.

Temperature can serve as a basic biological point to start mapping and modeling habitat. While salinity may set the biological boundaries between the freshwater, estuarine, and marine environment, temperature is a driving factors in a variety of biological processes. It plays a role in offshore and vertical migration(s), shore light regimes, dissolved oxygen concentrations and fluctuations, and drives primary production, reproduction, survival, growth, and is a factor in ocean acidification.

To improve how we describe habitat, we need to prioritize the collection of data. This should include sampling both habitat types and use by species. The current fishery-independent trawl surveys and seine surveys actually sample trawl-able habitat and beaches often during migratory/transitional behaviors – we should be sampling across all habitat types seasonally to describe habitat characteristics and use by species. Under the current sampling, food habitat data and information may be biased for some species. We need to prioritize resources for habitat science to address these information gaps. Using technology and more efficient ways to collect and validate the information we need will be necessary given current sampling resources are limited.

To address habitat in the larger context, we must first:

1. Consider multi-stock assemblages and habitat use,
2. Define habitat by uniform and relevant biological, physical-hydrographic, and ecological criteria, and,
3. Address spatial and temporal scales in uniform way.

To address climate driven changes in productivity for some species

- Consider evaluating for changes in reference points
- Consider adjusting risk polices
 - Declining productivity ~ less risk
 - Increasing productivity ~ more risk

To address climate driven changes in distribution for many species

- Re-evaluate stock boundaries and data collection systems
- Re-evaluate spatial allocations (4 species)
- Re-evaluate time and space closures
- Food-web will change; evaluate impacts on consumption / natural mortality
- New species will come into area (e.g., BluelineTilefish, Chub Mackerel, others??)

To address Climate driven changes in productivity and distribution of forage species and protected species

- Consider effect of increase interaction with protected species
- Consider mechanisms to decrease interactions with protected species
- Consider effect of changes in forage fish

To address Climate driven change in fish and invertebrate populations will force changes in the socio-economics of fishing

- Community vulnerability to climate factors
- Changes in interactions with protected species or choke species
- Changes in markets
- Long-term economic decisions (individual and community)
- Consider other co-stressors (e.g., contaminants, habitat, invasive species)

To integrate trophic interactions into management, consider prioritizing:

- Strong interactions between managed species (high energy flow and/or mortality)
- Strong interactions between managed and protected species
- Key forage species supporting many managed and protected species (see Forage white paper)

To manage strongly interacting species, (in addition to forage recommendations)

- Consider conditional reference points for strongly interacting species (e.g. Species X Bmsy is dependent on Species Y F or B and or prevailing habitat volume/climate conditions)?
 - How would these be put through the management and regulatory process?
 - How often would they need updating?

To manage fleet and any interactions,

- How would fishermen react to different management alternatives?
- What other options do they have from both a regulatory and ecological perspective?

Profit and production functions can provide much more detailed evaluation of fishery interactions at the level of the fishing business, and help answer questions surrounding fleet dynamics across numerous margins. For example, expected shifts in species distribution have the potential to affect fleet composition, species targeting and bycatch, fishing locations, and landing ports, among others. Each of these margins, in turn, provide understanding that help answer a different question, and although they all rely on a single underlying theoretical model, require a different specification of the empirical model to be estimated for tractability. Thus, the models are developed to answer specific questions which need to be defined as a first step, with specific guidance from the MAFMC.

References

- AIFEP Team. 2007. Aleutian Islands Fishery Ecosystem Plan. North Pacific Fishery Management Council, 605 W. 4th Avenue, Suite 306, Anchorage, AK.
http://www.fakr.noaa.gov/npfmc/PDFdocuments/conservation_issues/AIFEP/AIFEP12_07.pdf.
- Anderson, C. M. 2010. An Experimental Analysis of a Points-Based System for Managing Multispecies Fisheries. *Agricultural and Resource Economics Review*, 39: 227–244.

- Butterworth, D. S. 2007. Why a management procedure approach? Some positives and negatives. *ICES Journal of Marine Science: Journal du Conseil*, 64: 613–617.
- Collie, J. S., Botsford, L. W., Hastings, A., Kaplan, I. C., Largier, J. L., Livingston, P. A., Plagányi, É., *et al.* 2014. Ecosystem models for fisheries management: finding the sweet spot. *Fish and Fisheries*: n/a–n/a.
- Cormier, R., Kannen, A., Elliott, M., Hall, P., and Davies, I. M. (Eds). 2013. Marine and coastal ecosystem-based risk management handbook. ICES Cooperative Research Report No. 317. ICES Cooperative Research Report. International Council for the Exploration of the Sea, Copenhagen. 60 pp.
- Curti, K. L., Collie, J. S., Legault, C. M., Link, J. S., and Hilborn, R. 2013. Evaluating the performance of a multispecies statistical catch-at-age model. *Canadian Journal of Fisheries and Aquatic Sciences*, 70: 470–484.
- Fletcher, W. 2005. The application of qualitative risk assessment methodology to prioritize issues for fisheries management. *Ices Journal of Marine Science*, 62: 1576–1587.
- Gaichas, S. K., Link, J. S., and Hare, J. A. 2014. A risk-based approach to evaluating northeast US fish community vulnerability to climate change. *ICES Journal of Marine Science*, 71: 2323–2342.
- Hare, J., Morrison, W., Nelson, M., Stachura, M., Teeters, E., Griffis, R., Alexander, M., *et al.* 2016. A vulnerability assessment of fish and invertebrates to climate forcing on the Northeast U.S. Continental Shelf. *PLOS ONE*.
- Heemskerk, M., Wilson, K., and Pavao-Zuckerman, M. 2003. Conceptual models as tools for communication across disciplines. *Conservation Ecology*, 7: 8.
- Hobday, A. J., Smith, A. D. M., Stobutzki, I. C., Bulman, C., Daley, R., Dambacher, J. M., Deng, R. A., *et al.* 2011. Ecological risk assessment for the effects of fishing. *Fisheries Research*, 108: 372–384.
- Hollowed, A. B., Planque, B., and Loeng, H. 2013. Potential movement of fish and shellfish stocks from the sub-Arctic to the Arctic Ocean. *Fisheries Oceanography*, 22: 355–370.
- ISO. 2009a. Risk Management - Risk Assessment Techniques. International Standards Organization. IEC/ISO 31010. International Standards Organization.
- ISO. 2009b. Risk Management Vocabulary. International Standards Organization. ISO GUIDE 73:2009(E/F). International Standards Organization.
- ISO. 2009c. Risk Management Principles and Guidelines. International Standards Organization. ISO 31000:2009(E). International Standards Organization.
- Jin, D., DePiper, G., and Hoagland, P. 2016. An Empirical Analysis of Portfolio Management as a Tool for Implementing Ecosystem-Based Fishery Management. *North American Journal of Fisheries Management*.
- Levin, P. S., Fogarty, M. J., Murawski, S. A., and Fluharty, D. 2009. Integrated Ecosystem Assessments: Developing the Scientific Basis for Ecosystem-Based Management of the Ocean. *PLoS Biol*, 7: e1000014.
- Link, J., Col, L., Guida, V., Dow, D., O'Reilly, J., Green, J., Overholtz, W., *et al.* 2009. Response of balanced network models to large-scale perturbation: Implications for evaluating the role of small pelagics in the Gulf of Maine. *Ecological Modelling*, 220: 351–369.
- Link, J., Overholtz, W., O'Reilly, J., Green, J., Dow, D., Palka, D., Legault, C., *et al.* 2008. The Northeast U.S. continental shelf Energy Modeling and Analysis exercise (EMAX):

- Ecological network model development and basic ecosystem metrics. *Journal of Marine Systems*, 74: 453–474.
- Martin-Smith, K. 2009. A risk-management framework for avoiding significant adverse impacts of bottom fishing gear on vulnerable marine ecosystems. *CCAMLR Science*, 16: 177–193.
- Orians, G., Dethier, M., Hirschman, C., Kohn, A., Patten, D., and Young, T. (Eds). 2012. *Sound Indicators: A Review for the Puget Sound Partnership An assessment of the Puget Sound Partnership’s progress in developing the scientific basis for monitoring and assessing progress toward achieving a vibrant Puget Sound*. Washington State Academy of Sciences.
http://www.washacad.org/about/files/WSAS_Sound_Indicators_wv1.pdf (Accessed 13 January 2016).
- Patrick, W. S., Spencer, P., Link, J., Cope, J., Field, J., Kobayashi, D., Lawson, P., *et al.* 2010. Using productivity and susceptibility indices to assess the vulnerability of United States fish stocks to overfishing. *Fishery Bulletin*, 108: 305–322.
- Plagányi, É. E., Punt, A. E., Hillary, R., Morello, E. B., Thébaud, O., Hutton, T., Pillans, R. D., *et al.* 2014. Multispecies fisheries management and conservation: tactical applications using models of intermediate complexity. *Fish and Fisheries*, 15: 1–22.
- Punt, A. E., A’mar, T., Bond, N. A., Butterworth, D. S., Moor, C. L. de, Oliveira, J. A. A. D., Haltuch, M. A., *et al.* 2014. Fisheries management under climate and environmental uncertainty: control rules and performance simulation. *ICES Journal of Marine Science: Journal du Conseil*, 71: 2208–2220.
- Sanchirico, J. N., Smith, M. D., and Lipton, D. W. 2008. An empirical approach to ecosystem-based fishery management. *Ecological Economics*, 64: 586–596.
- Smith, A. D. M. 1994. Management strategy evaluation – the light on the hill. *In Population dynamics for fisheries management*, pp. 249–253. Ed. by D. A. Hancock. Australian Society for Fish Biology, Perth.
- Smith, A. D. M., Fulton, E. J., Hobday, A. J., Smith, D. C., and Shoulder, P. 2007. Scientific tools to support the practical implementation of ecosystem-based fisheries management. *ICES J. Mar. Sci.*, 64: 633–639.
- Somerton, D., Ianelli, J., Walsh, S., Smith, S., Godø, O. R., and Ramm, D. 1999. Incorporating experimentally derived estimates of survey trawl efficiency into the stock assessment process: a discussion. *ICES Journal of Marine Science: Journal du Conseil*, 56: 299–302.
- Standards Australia. 2012. *Handbook: Managing Environmental Risk*, HB 203:2012.
<http://infostore.saiglobal.com/store/details.aspx?ProductID=1516912>.
- US EPA. 1998. *Guidelines for Ecological Risk Assessment*. EPA/630/R-95/002F. U.S. Environmental Protection Agency, Washington DC. Published on May 14, 1998, *Federal Register* 63(93):26846-26924.
<http://www.epa.gov/raf/publications/pdfs/ECOTXTBX.PDF>.
- Van Kirk, K. F., Quinn, T. J., Collie, J. S., and A’mar, Z. T. 2015. Assessing Uncertainty in a Multispecies Age-Structured Assessment Framework: The Effects of Data Limitations and Model Assumptions. *Natural Resource Modeling*, 28: 184–205.



NOAA FISHERIES

1st Quarter Fiscal Year 2016 Northeast Enforcement Division

October 1, 2015 – December 31, 2015



Council Report

To report fisheries violations,
call our national hotline:
1-800-853-1964

Table of Contents

1 st Quarter Enforcement and Compliance.....	3
Incident and Case Information	6
1 st Quarter, Fiscal Year 2016 Highlights.....	8
Northeast VMS Program.....	9
Observer Program Highlights.....	10
Cases sent to NOAA General Counsel Enforcement Section (GCES).....	10

1st Quarter Enforcement and Compliance

Summary

So far in the fourth quarter, there were 98 documented patrols, allowing critical face-to-face interaction between our field staff and the industry; 47 documented instances of outreach (not an exhaustive list; includes phone calls with industry, dock visits, trade shows, presentations, etc.); and 27 meetings. This list does not include the extensive outreach that the VMS team provides on a daily basis, nor can it fully capture the interaction our agents, officers, and support staff regularly have with industry.

ACIs Reported 1st Quarter Fiscal Year 2016

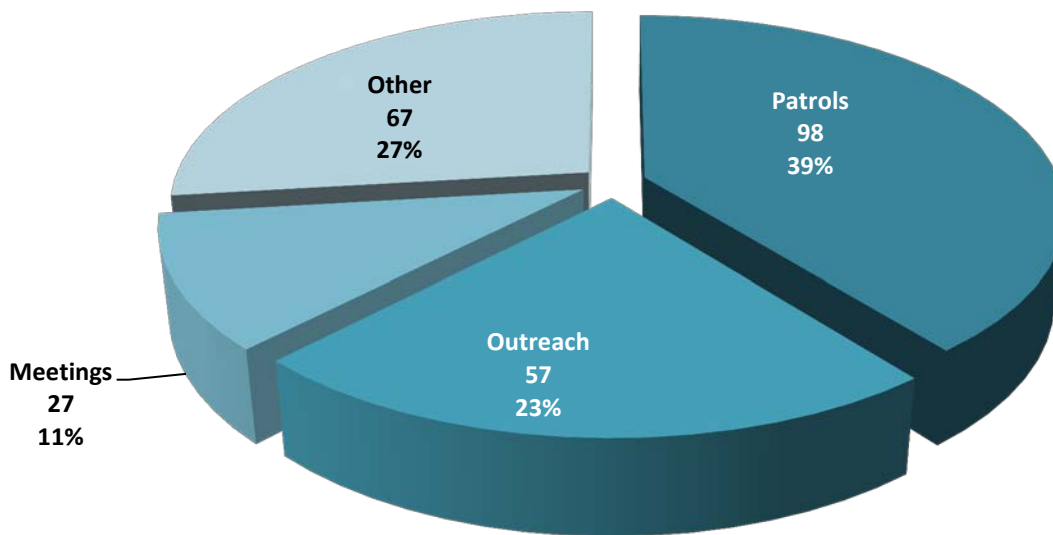


Figure 1: 249 ACIs reported from October 1, 2015 through December 31, 2015. The chart is broken down by patrols, outreach, other (collateral duties, homeland security, and info gathering) and meetings

Table 1: Summary of 1st Quarter Incidents By Types

Law/Regulation/Program	FY 16 1 st Quarter Incident Totals	FY 15 1 st Quarter Incident Totals
ACFCMA	32	62
Atlantic Tuna	27	10
CCAMLR	0	0
Endangered Species Act	14	2
High Seas Fisheries Compliance Act	1	0
Lacey Act (Federal)	0	5
Lacey Act (Foreign)	5	7
Lacey Act (State)	4	2
Marine Mammal Protection Act	16	19
MSFCMA	104	123
Other	0	1
State Regulations (fisheries)	1	1
State Regulations (non-fisheries)	0	0
Total	204	232

Incidents by Type 1st Quarter Fiscal Year 2016

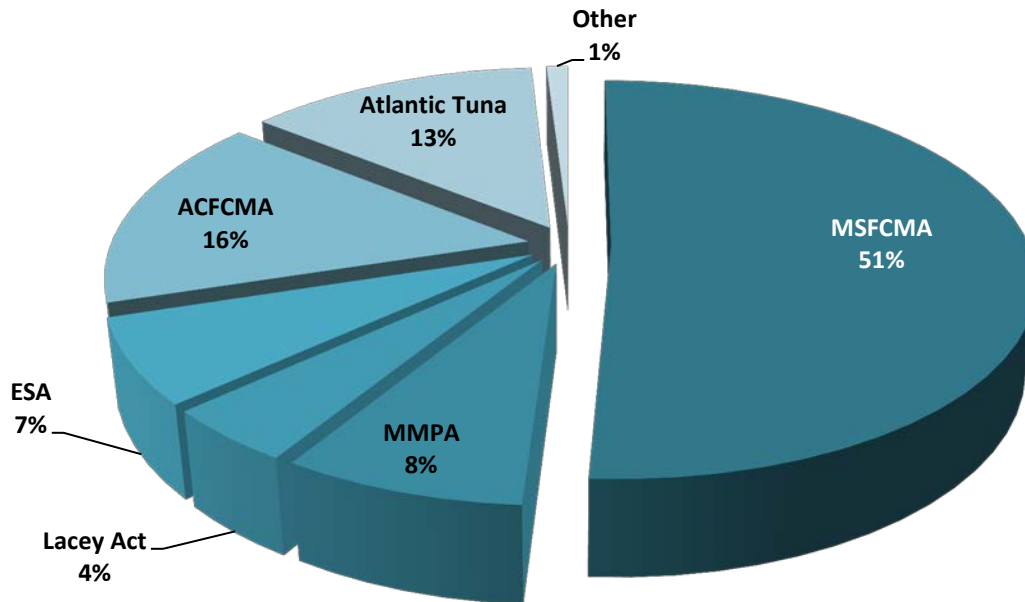


Figure 2: Incidents opened from October 1, 2015 through December 31, 2015. 204 incidents were opened.

Table 2: Summary of 1st Quarter Complaints By Types

Law/Regulation/Program	FY 16 1 st Quarter Complaint Totals	FY 15 1 st Quarter Complaint Totals
Atlantic Tuna	3	1
ACFCMA	2	0
Endangered Species Act	0	0
Lacey Act (Foreign)	0	1
Lacey Act (State)	1	1
Marine Mammal Protection Act	5	4
MSFCMA	8	18
Other	1	0
Total	20	25

Complaints by Type 1st Quarter Fiscal Year 2016

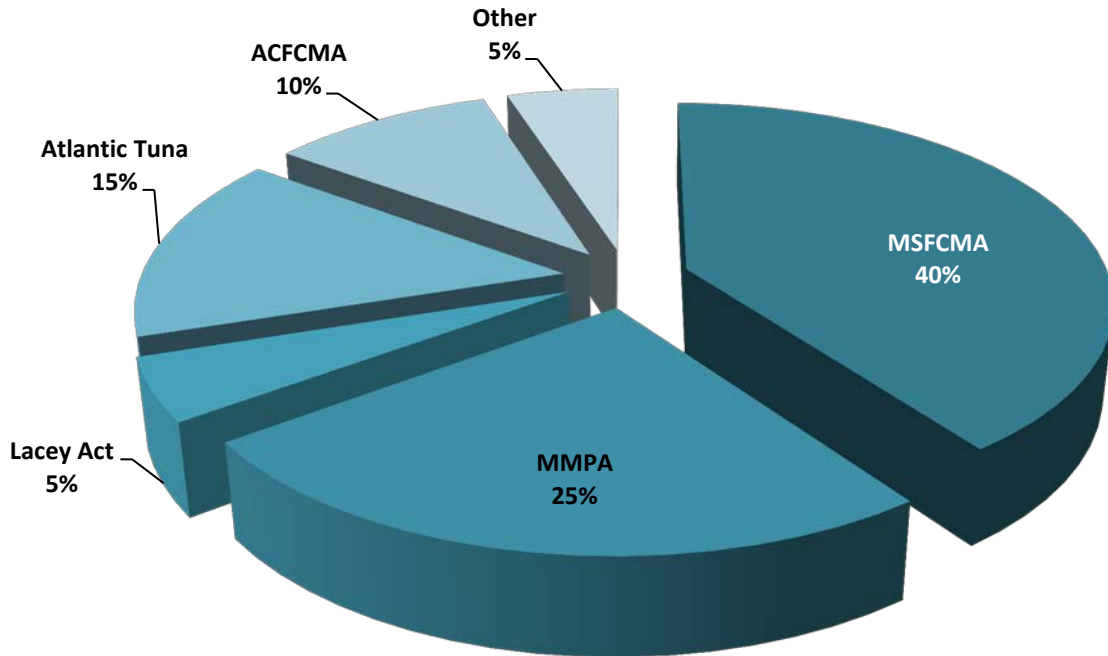


Figure 3: Complaints opened from October 1, 2015 through December 31, 2015. 20 complaints were opened

Incident and Case Information

INCIDENTS INITIATED 1st Quarter 2015 & 2016

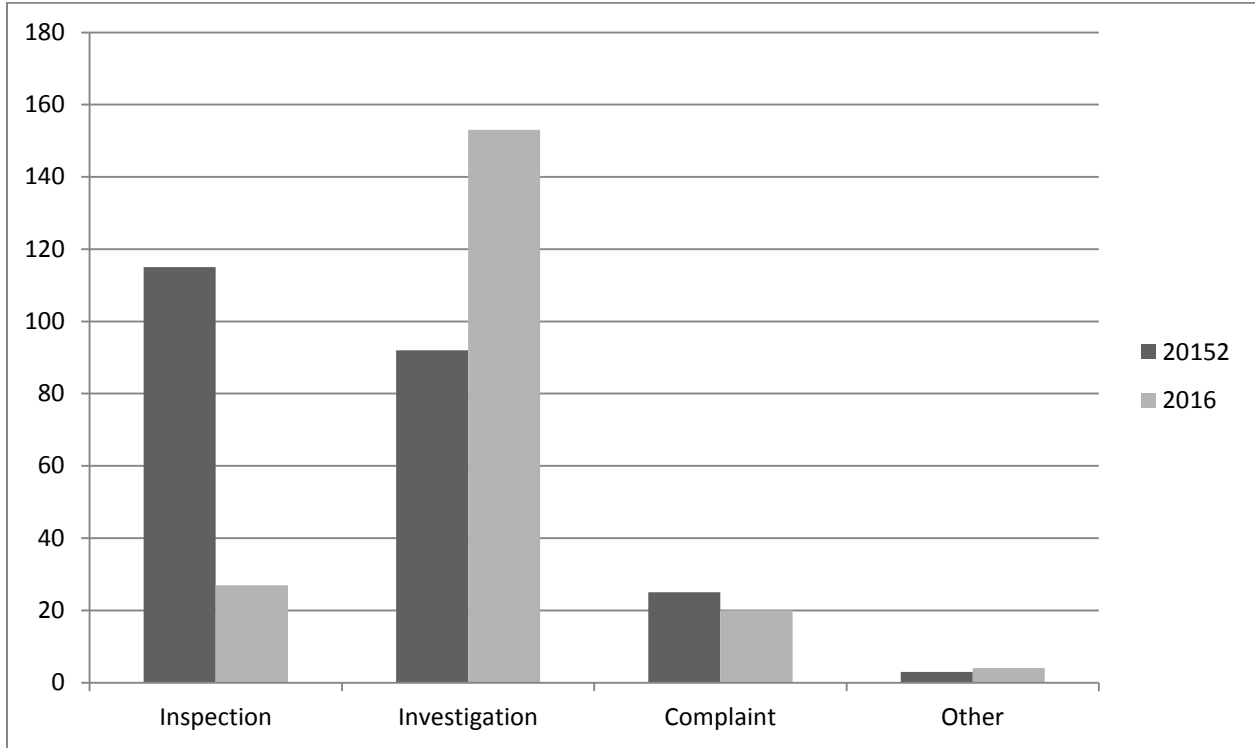


Figure 4. FY2016 1st quarter: 27 inspections, 153 investigations, 22 complaints, 4 other. **204 total**
FY2015 1st quarter: 115 inspections, 92 investigations, 25 complaints, 2 other. **234 total**

INCIDENTS DISPOSITIONS 1st Quarter 2015 & 2016

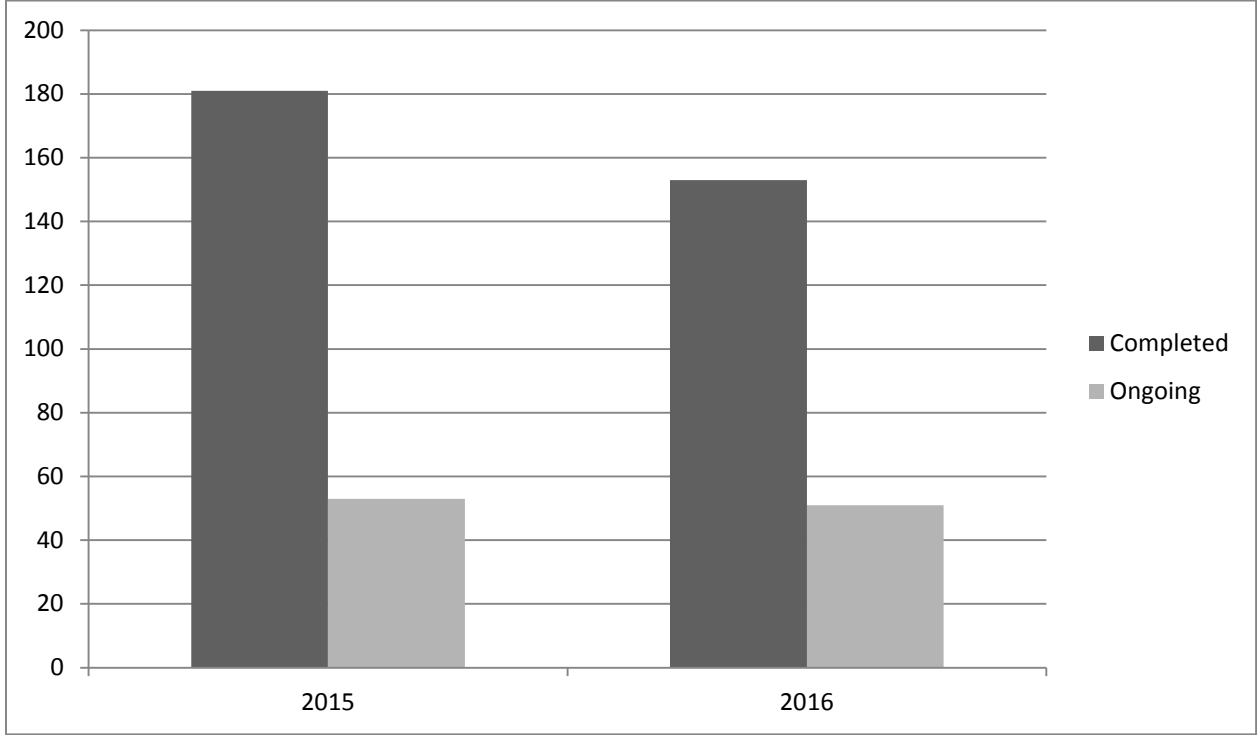


Figure 5. Status of incidents in the 1st quarter of FY2015 (181 completed, 53 ongoing) and 1st quarter FY2016 (153 completed, 51 ongoing).

1st Quarter, Fiscal Year 2016 Highlights

Magnuson-Stevens Fishery Conservation and Management Act

The NOAA Administrator denied the respondent's petition for review and upheld the Administrative Law Judge's (ALJ) decision in finding that Anthony & Enzo, Inc. (FV Princess Laura), and Robert Roberge (the operator) violated the Magnuson-Stevens Fishery Conservation and Management Act. The FV Princess Laura was found to be fishing in January 2013 with an obstructed net or mesh sizes that were too small. For this violation the Administrative Law Judge assessed a penalty of \$20,000 imposed jointly and severally against the vessel owner and operator.

The NOAA Administrator denied the respondent's petition for review and upheld the Administrative Law Judge's decision in finding F/V Princess Elena, Inc. (FV Capt Joe), and Jesse Drinkwater (the operator) violated the Magnuson-Stevens Fishery Conservation and Management Act. The FV Capt. Joe was found to be fishing in August 2012 with an obstructed net or mesh sizes that were too small. For this violation the Administrative Law Judge assessed a penalty of \$40,000 imposed jointly and severally against the vessel owner and operator.

Table 3. Summary of Summary Settlements Issued/Paid

Program/Law	Violation	SS Amount	Amount Paid
MMPA	Possession of Marine Mammal parts	\$250	\$250
MSFCMA	Possession of Black sea bass in Federal waters with a Federal permit	\$500	\$500
MSFCMA	Possession of Black Sea Bass and Summer Flounder without a permit	\$1,000	-
MSFCMA	Possession of Black Sea Bass and Scup without a permit	\$1,000	-
MMPA	ALWTRP violation		-
MSFCMA	Failure to maintain a VTR logbook	\$250	\$250
MSFCMA	Possession of GOM cod	\$500	\$500
MSFCMA	Possession of undersized White marlin	\$500	\$500
ACFCMA	Buying Lobster without a permit and Possession of v-notched Lobster	\$1,000	\$1,000
MSFCMA	Scallop overage	\$742	-
ACFCMA	Possession of undersized, egg bearing, and v-notched Lobster	\$550	\$550
MSFCMA	Possession of undersized Black sea bass	\$200	\$200
ACFCMA	Transport of 1 undersized Lobster	\$50	
Atlantic Tuna	Failure to comply with restrictions on sale of Tuna	\$750	\$750
MMPA	Possession of Marine Mammal parts (seal skin key chain)	\$250	-
MMPA	Possession of Marine Mammal parts (harp seal oil pills)	\$250	-

Northeast VMS Program

Northeast Active VMS Vessel Population: 997

Population Breakdown by (VMS) Permits held¹:

- 647 Surfclam/Ocean Quahog (Permit Category 1,6,7)
- 572 Scallop General Category (Cat. A,B,C)
- 426 Multispecies (Cat. A,D,F)
- 344 Scallop Limited Access (Cat. 2,3,5,6,7,8)
- 306 Longfin Squid/Limited Access Mackerel (Cat. 1,T1,3,T3)
- 132 Herring (Cat. A,B,C,E)
- 47 Combination (Multispecies Cat. E)
- 17 Monkfish (Cat. F)

Note: There are 455 groundfish sector vessels and 124 common pool vessels registered to the NE VMS Program. There are 34 sector and 10 common pool vessels on a NMFS – authorized power down Letter of Exemption.

New VMS Unit Approved. The Network Innovations' *Sailor Platinum* model was type approved for use in the Greater Atlantic Region on December 3, 2015. The unit replaces the older *Sailor Gold* model which will no longer be approved for use as of March 1, 2016. The *Sailor Platinum* unit has the capacity to run the newest VMS software version distributed in June 2015. The cost of the *Sailor Platinum* is \$2,500.

Notice To Vessel Owners With Network Innovations-equipped Vessels. A letter was sent by NED OLE on December 8, 2015 to 12 vessel owners notifying them that their *Sailor Gold* VMS must be replaced with an approved unit not later than March 1, 2016. The owners were also advised that they may be eligible for reimbursement funding to cover the purchase cost of the new unit up to \$3,100.

VMS Industry Contact Log Report:

The NE VMS Team addressed 657 industry issues this quarter and closed 618 issues. The most-frequently reported issues were: General Instruction, Declaration and Forms assistance, and Non-reporting. A total of 72 issues were referred, primarily to: OLE Help Desk, GARFO APS Division, and VMS Vendors.

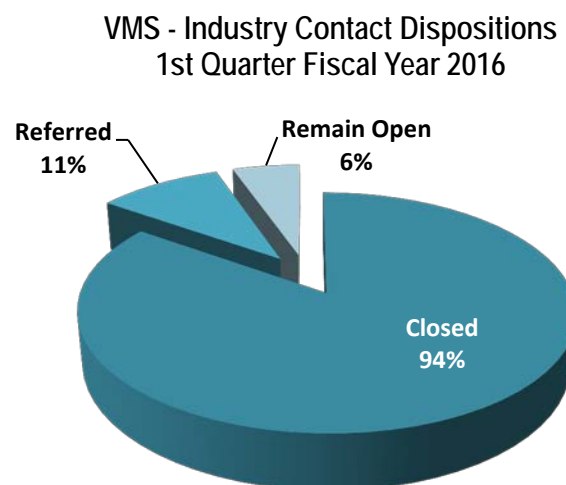


Figure 6: Status of contacts in the 1st quarter of FY2016 (618 closed, 72 referred, 39 remain open).

¹ The total count below exceeds the VMS population count since most vessels hold multiple permits

Observer Program Highlights

During this quarter the observer program deployed on 1,011 trips for 2,422 sea days. Approximately 98.5% of all selected or observed trips were completed without a reported enforcement incident. There was a total of 15 reported violation reports received and acted upon this quarter. The summary below details the status of observer related complaints during the 1st Quarter of 2016.

Table 4: Summary of Observer Program complaints and status

Type of complaint	Number of complaints and status
Refusal	8 observer refusal complaints: 8 ongoing
Assault	None
Harassment/Intimidation	1 observer harassment complaint: 1 closed with verbal warning
Interference	5 observer interference complaints: 3 closed with verbal warning 2 ongoing
Vessel Safety	None
Observer Safety	1 observer safety complaint: 1 ongoing
Failure to provide reasonable assistance	None
Observer gear/sample tampering	None
Observer program notification	None
Miscellaneous	A Special agent and Supervisory Enforcement Officer participated in an observer panel for a class of new observers. One observer enforcement training class was conducted. A NOVA of \$30,000 was assessed for an observer harassment violation.

Cases sent to NOAA General Counsel Enforcement Section (GCES)

- 40 cases opened
- 16 summary settlements issued (\$7,792)
 - \$6,348.50 collected
- 1 cases forwarded to GCES

Table 5. Cases sent to GCES

Program/Law	Violation
MSFCMA	Observer Harassment



Mid-Atlantic Fishery Management Council
800 North State Street, Suite 201, Dover, DE 19901-3910
Phone: 302-674-2331 | FAX: 302-674-5399 | www.mafmc.org
Richard B. Robins, Jr., Chairman | Lee G. Anderson, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: January 28, 2016
To: Council
From: Julia Beaty
Subject: Scup Gear Restricted Areas Framework

Contents

This document summarizes the management alternatives approved by the Council for inclusion in the Scup Gear Restricted Areas (GRA) Framework, as well as additional alternatives recently proposed by advisors.

Two additional documents are included with this tab:

- Summary of the January 2016 meeting of the Summer Flounder, Scup, and Black Sea Bass Advisory Panel (AP) and the Mackerel, Squid, and Butterfish AP
- A white paper on commercial fishery scup discards in the GRAs (Terceiro and Miller 2014)

Background

In 2000 the Council implemented two Gear Restricted Areas (GRAs) with the intent of reducing scup discards in small mesh fisheries. The Council modified the boundaries of the GRAs in late 2000, in 2001, and in 2005. The current boundaries are shown in Figure 1. Under the current regulations, trawl vessels in the Southern GRA from January 1 through March 15 that fish for or possess longfin squid, black sea bass, or silver hake/whiting (listed in the regulations as “non-exempt species”) must fish with nets that have a minimum mesh size of 5.0-inch diamond mesh, applied throughout the codend for at least 75 continuous meshes forward of the terminus of the net.¹ The same applies for trawl vessels in the Northern GRA from November 1 through December 31 (50 CFR 648.124).

In December 2015 the Council approved a range of management alternatives for a framework action to modify the scup GRAs. The Summer Flounder, Scup, and Black Sea Bass Advisory Panel (AP) and the Mackerel, Squid, and Butterfish AP met in January 2016 to provide feedback to the Council on the GRA framework. The Council planned to review an analysis of impacts of the approved alternatives and select a preferred alternative at their February 2016 meeting; however, the biological and economic impacts of each alternative have not yet been analyzed in detail. In addition, the APs proposed new alternatives for consideration as part of this framework.

¹ For trawl nets with codends (including an extension) of fewer than 75 meshes, the entire trawl net must have a minimum mesh size of 5.0 inches throughout the net.

Council staff therefore recommend that the Council postpone final action of the GRA Framework until April 2016, by which time Council staff can prepare a more thorough analysis of impacts of the alternatives.

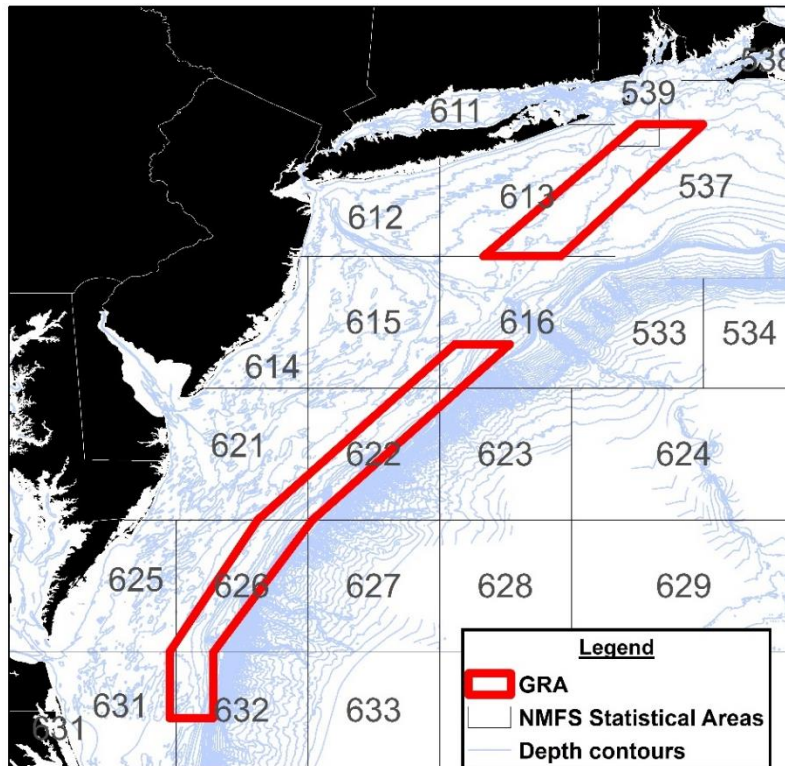


Figure 1: Boundaries of current scup Gear Restricted Areas (GRAs).

Alternatives

The Council approved a range of alternatives for the GRA framework during their December 2015 meeting. These alternative are described below.

Alternative 1: No action/*status quo*

Alternative 1a: *Status quo* Northern GRA

Alternative 1a is the *status quo*/no action alternative for the Northern GRA. Under this alternative, the regulations for the Northern GRA would remain unchanged.

Alternative 1b: *Status quo* Southern GRA

Alternative 1b is the *status quo*/no action alternative for the Southern GRA. Under this alternative, the regulations for the Southern GRA would remain unchanged.

Advisory Panel Input on Alternative 1

Of the sixteen advisors present at the January 2016 AP meeting, only one expressed support for alternative 1 (*status quo*/no action). This advisor said he supported either no changes to

the GRAs or slight modifications to the GRA boundaries to increase access to squid without decreasing the conservation benefits for scup.

Alternative 2: Expand the Northern GRA to include more of statistical area 613

The Council approved a single alternative which would modify the boundaries of the Northern GRA. This alternative would expand the Northern GRA into statistical area 613 and is based on a Northeast Fisheries Science Center (NEFSC) analysis of the scup GRAs (Terceiro and Miller 2014) and 2014 discard information (Mark Terceiro, personal communication). These data show that during 2010-2014, on average, about half of the scup discards in squid and small-mesh² fisheries during the fourth quarter of the year³ in the statistical areas which include the Northern GRA occurred in area 613. During 2009 about 77% of scup discards in small and squid mesh fisheries in Northern GRA statistical areas during the last quarter of the year came from area 613 (Figure 2). However, scup discards in small and squid mesh fisheries in these areas and months were relatively low overall in recent years (e.g. 2010-2014), especially when compared to 1989-1995 (Figure 2).

Figure 3 shows an example of modified Northern GRA boundaries under this alternative. If implemented as shown in Figure 3, this alternative would represent a 63% increase in the size of the Northern GRA, compared to the *status quo* Northern GRA (Table 1).

Advisory Panel Input on Alternative 2

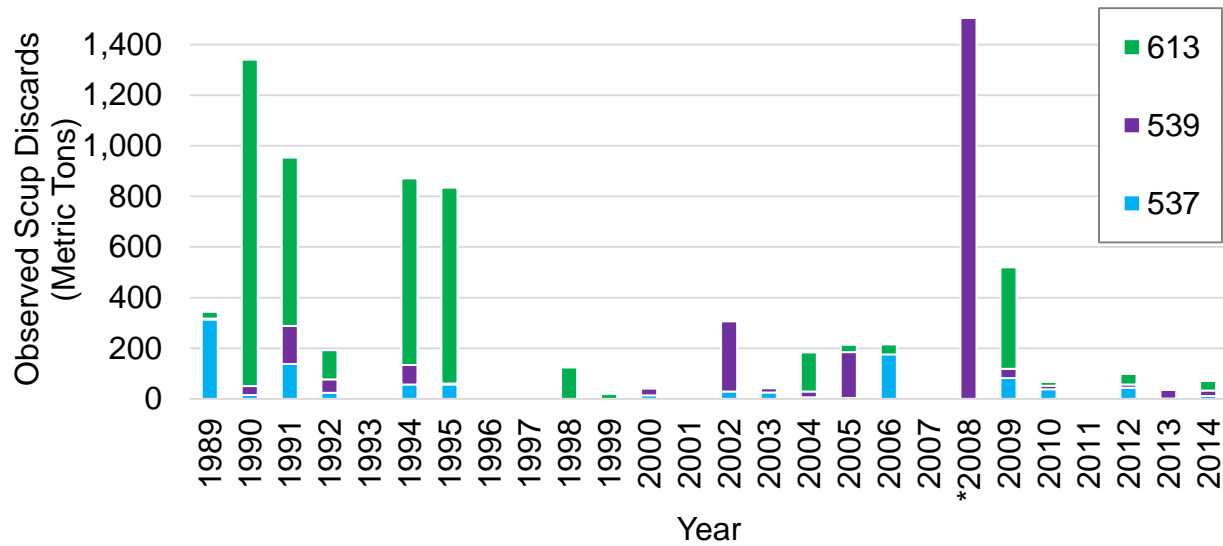
No advisors supported any alternatives which would expand the boundaries of the GRAs, including alternative 2. Advisors agreed that because scup spawning stock biomass is estimated to be at about 210% of the target level (NEFSC 2015), expansion of the GRAs is not necessary and would cause negative economic impacts for fishermen targeting non-exempt species (longfin squid, black sea bass, and silver hake/whiting). Advisors did not propose any new alternatives for the Northern GRA.

Table 1: Approximate size of Northern GRA alternatives.

Alternative	Area (square kilometers)	Area (square nautical miles)	Difference from <i>status quo</i> Northern GRA
1a: <i>Status quo</i> Northern GRA	5,108	1,489	0%
2: Expand Northern GRA into statistical area 613	8,350	2,434	+63%

² The NEFSC analysis of scup discards defines “small mesh” as mesh that is smaller than the minimum mesh required in the directed scup fishery (4.5 inches from 1996 until 2005, and 5.0 inches after 2005) but larger than the mesh that is typically used in the longfin squid fishery. “Squid mesh” is defined as mesh that is smaller than 2.125 inches (Terceiro and Miller 2014).

³ Discard estimates referenced in this document are based on the discard estimation methodology used in the NEFSC white paper on scup discards (Terceiro and Miller 2014) and in the 2015 scup benchmark stock assessment (NEFSC 2015). These discard estimates are aggregated by NMFS statistical area, by mesh size category (squid, small, and large), and by calendar quarter.



*Discards in 2008 totaled 7,417 mt

Figure 2: Observed scup discards in small and squid mesh trips in the Northern GRA statistical areas (statistical areas 537, 539, and 613) during the fourth quarter of the year from 1989 through 2014.

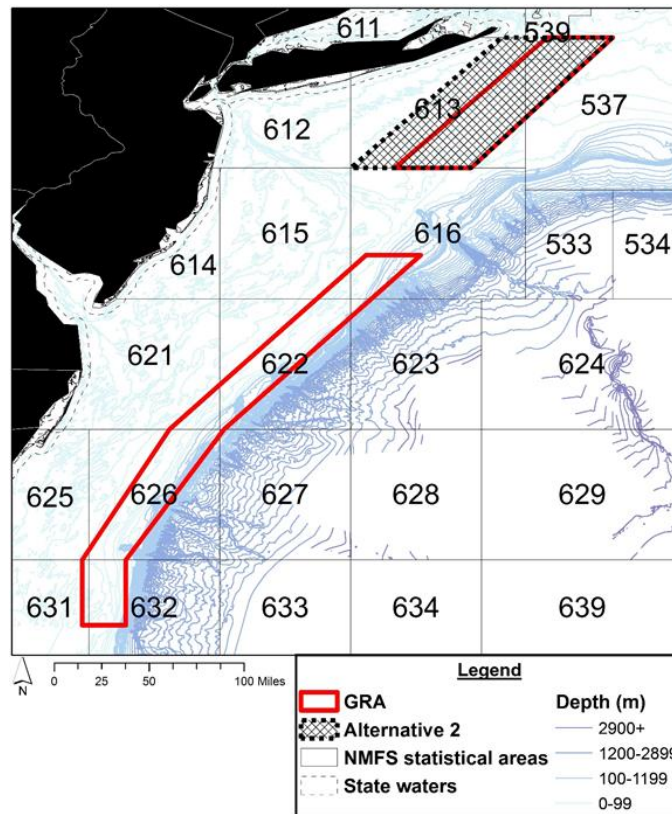


Figure 3: An example of a modification to the boundaries of the Northern GRA to encompass more of statistical area 613 (alternative 2), shown with the current GRA boundaries.

Alternative 3: Modify the area of the Southern GRA

Alternative 3 includes four sub-alternatives approved by the Council to modify the area of the Southern GRA. AP members proposed two additional alternatives to modify the boundaries of the Southern GRA. The Council has not yet approved these two new alternatives for inclusion in the framework, but will consider them during their February 2016 meeting. Under these alternatives, the area of the Southern GRA could decrease by as much as 50% (under an AP proposal) or increase by as much as 28% (under alternative 3d; Table 2). The Council could choose more than one of these alternatives. For example, the Council could select both alternative 3a and alternative 3c, which together would decrease the size of the Southern GRA by 22%.

Table 2: Approximate size of Southern GRA alternatives. The two AP proposals have not yet been approved by the Council for inclusion in the framework.

Alternative	Area (square kilometers)	Area (square nautical miles)	Difference from <i>status quo</i> Southern GRA
1b: <i>Status quo</i> Southern GRA	10,690	3,117	0%
3a: Southern GRA modification proposed by Hank Lackner	9,901	2,887	-7%
3b: Alternative 3a with modification for coral zones	9,837	2,868	-8%
3c: Statistical area 632 removed from Southern GRA	9,039	2,635	-15%
3d: Southern GRA expanded into statistical area 616	13,707	3,996	+28%
AP proposal 1: Statistical areas 632 and 626 removed from the Southern GRA	5,375	1,567	-50%
AP proposal 2: Southern GRA boundary modification drawn at January 2016 AP meeting	6,891	2,009	-36%

Alternative 3a: Modify Southern GRA eastern boundary to align with that proposed by Hank Lackner

Alternative 3a would modify the eastern boundary of the Southern GRA based on a proposal by Hank Lackner, a commercial scup and longfin squid fisherman and a member of both the Council’s Mackerel, Squid, and Butterfish AP and the Council’s Summer Flounder, Scup, and Black Sea Bass AP. This modification is intended to restore access to certain canyon areas for longfin squid fishing and represents about a 7% decrease in the size of the Southern GRA (Table 2, Figure 4).

Advisory Panel Input on Alternative 3a

Most of the advisors present at the January 2016 AP meeting supported alternative 3a in combination with alternative 3c; however, several of these advisors preferred a new alternative which they proposed at the meeting (shown on page 11).

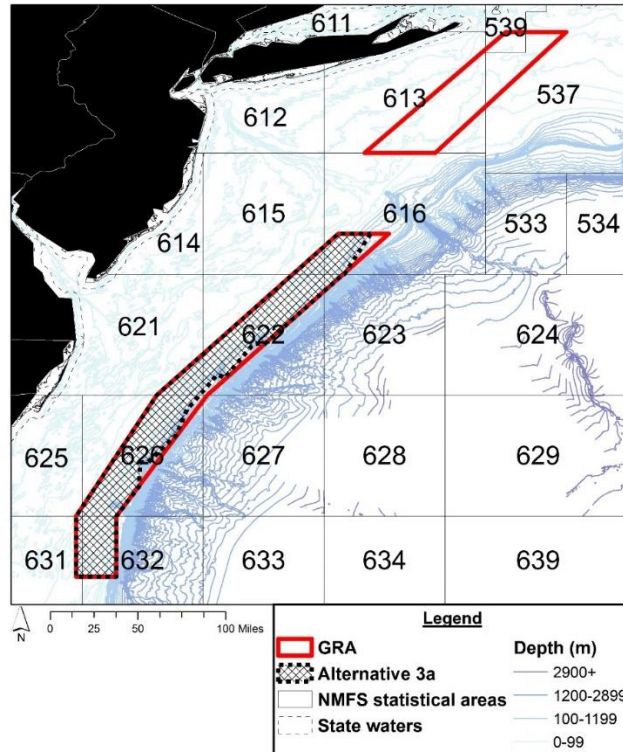


Figure 4: Southern GRA boundary modification proposed by Hank Lackner (alternative 3a), shown with the current scup GRA boundaries.

Alternative 3b: Modify Southern GRA eastern boundary to align with that proposed by Hank Lackner and with modifications for coral zones

Alternative 3b would modify the eastern boundary of the Southern GRA as proposed by Hank Lackner (described in previous section) and would also remove areas of overlap with the deep sea coral discrete and broad zones. All bottom tending gear, including the trawl gear subject to the scup GRA regulations, is prohibited in the coral zones year-round. This modification represents about an 8% decrease in the size of the Southern GRA (Table 2, Figure 5).

Advisory Panel Input on Alternative 3b

Most of the advisors present at the January 2016 AP meeting supported alternative 3b in combination with alternative 3c; however, several advisors preferred a new alternative which they proposed at the meeting (shown on page 11).

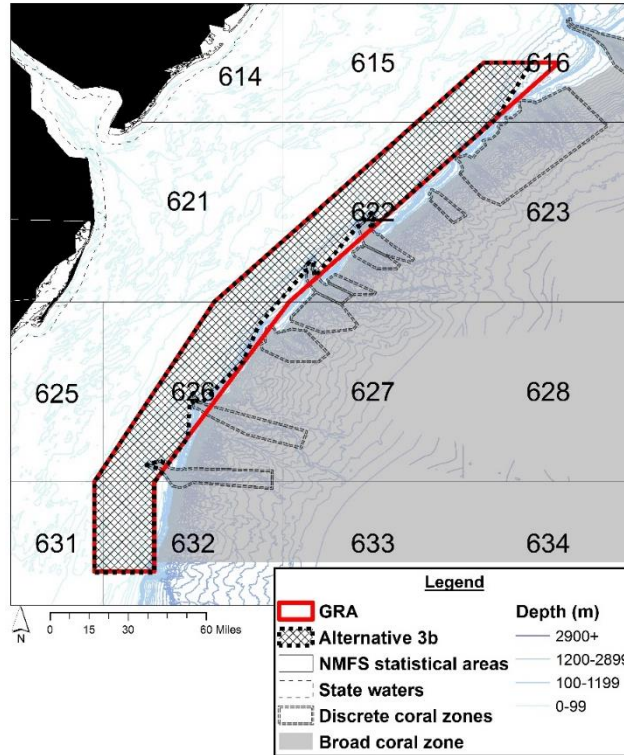


Figure 5: Southern GRA boundary proposed by Hank Lackner with modifications for deep sea coral boundaries (alternative 3b), shown with the current Southern GRA boundaries.

Alternative 3c: Remove statistical area 632 from the Southern GRA

Alternative 3c would remove statistical area 632 from the Southern GRA. Between 1989 and 2013, very small amounts of scup discards have been observed in statistical area 632. Specifically, only 90 pounds of scup discards were observed in statistical area 632 between 1989 and 2013, compared to 406,238 pounds in statistical area 616. Of all the statistical areas included in the scup GRAs, only statistical area 627 had fewer observed discards (40 pounds) than statistical area 632 during 1989-2013 (Terceiro and Miller 2014). It is expected that statistical area 632 could be removed from the Southern GRA with minimal impacts to the scup stock. This alternative would result in a 15% decrease in the size of the Southern GRA (Table 2, Figure 6).

Advisory Panel Input on Alternative 3c

With the exception of one advisor who preferred alternative 4 (eliminate the GRAs), all advisors present at the January 2016 AP meeting supported alternative 3c, especially in combination with alternative 3b.

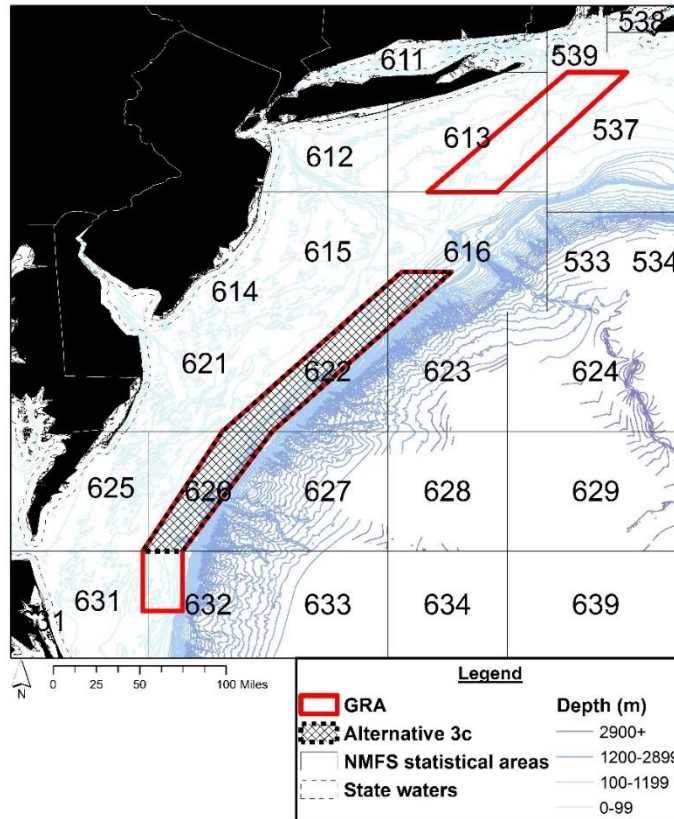


Figure 6: The boundaries of the Southern GRA with statistical area 632 removed (alternative 3c), shown with the current GRA boundaries.

Alternative 3d: Expand the Southern GRA to include more of statistical area 616

Under alternative 3d, the boundaries of the Southern GRA would be modified to include more of statistical area 616. Statistical area 616 accounted for the majority of scup discards within the GRAs from 1989 through 2013. Area 616 continued to have relatively high amounts of scup discards after implementation of the GRAs (Figure 7; Terceiro and Miller 2014).

When the GRAs were first implemented in May 2000, both GRAs were much larger than their current configuration and the Southern GRA included about half of statistical area 616. Several fishing industry members expressed concern that the GRAs would cause severe economic hardships due to their large size. The GRA boundaries were modified shortly after their initial implementation to address this concern. Under this first modification, effective December 2000, both GRAs were greatly reduced in size and a second Northern GRA was added, which mostly fell within statistical area 616. This modification did not sufficiently address the concerns of several fishing industry members. Statistical area 616 includes Hudson Canyon, a productive fishing area for many species. When the GRAs were modified a second time, effective March 2001, much of statistical area 616 was removed from the GRAs to allow small mesh fisheries to access Hudson Canyon (66 *Federal Register* 12902, March 1, 2001).

Figure 8 shows an example of how the Southern GRA could be expanded into statistical area 616 under this alternative. The boundaries shown in Figure 8 are based on the boundaries of the second Northern GRA as implemented in December 2000. The Southern GRA boundaries shown in Figure 8 represent a 28% increase in the size of the Southern GRA.

Advisory Panel Input on Alternative 3d

No advisors have expressed support for increasing the size of the GRAs. A few advisors said that alternative 3d would have especially severe negative economic impacts because it would close Hudson Canyon, a productive fishing area, to small mesh fisheries for over three months each year.

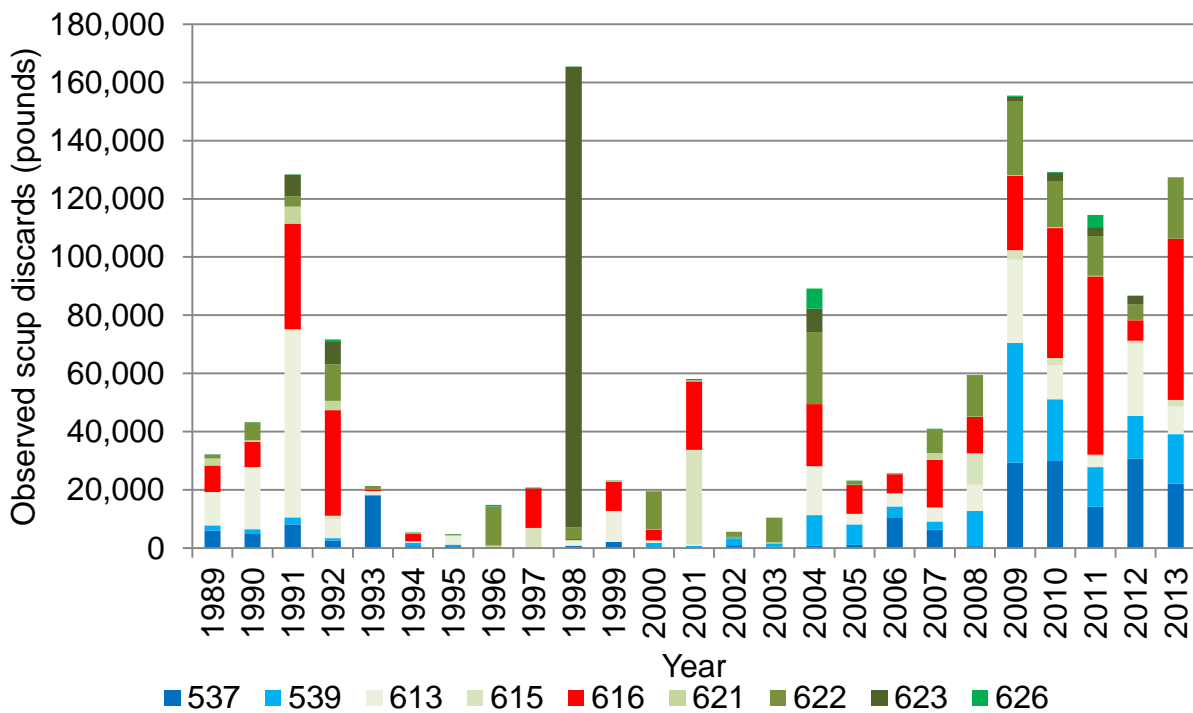


Figure 7: Observed scup discards in statistical areas within the GRAs with time series totals greater than 10,000 pounds (from Terceiro and Miller 2014). Northern GRA statistical areas are shown in shades of blue. Southern GRA statistical areas are shown in shades of green, with the exception of statistical area 616, which is shown in red to highlight that area’s relatively high contribution to scup discards in the GRA areas in recent years. Over 90% of scup discards in 1998 came from a single tow in area 623 which discarded an estimated 150,000 pounds of scup.

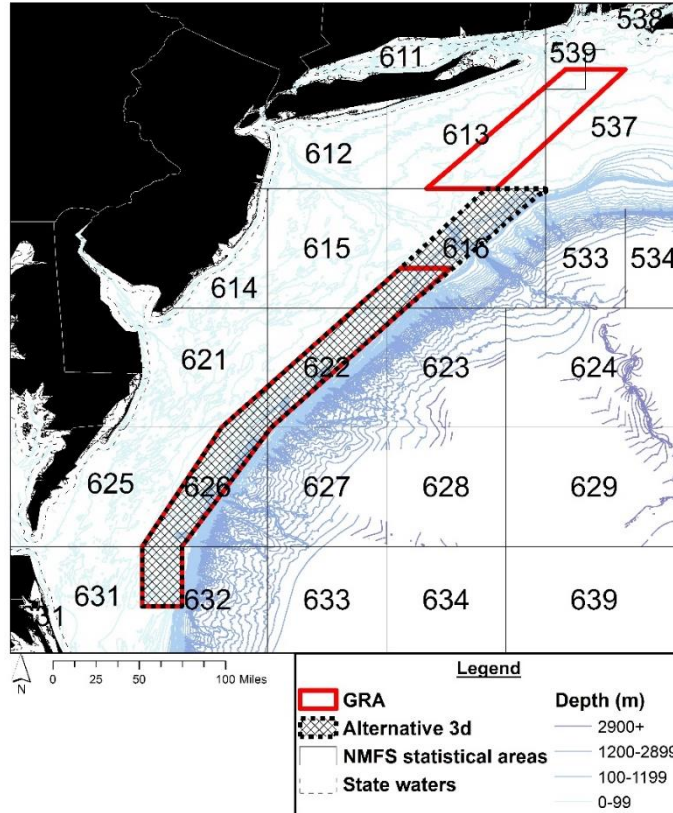


Figure 8: The boundaries of the Southern GRA expanded into statistical area 616 (alternative 3d) shown with the current GRA boundaries.

Additional Southern GRA Alternatives Proposed by Advisors

Several advisors present at the January 2016 AP meeting developed a new proposal for a Southern GRA boundary, shown in Figure 9. Like alternatives 3a and 3b, this proposal is intended to restore access to important fishing areas for longfin squid. This proposal excludes statistical area 632 from the Southern GRA; however, the advisors who drew the new boundary said they would ideally also like statistical area 626 to be removed (Figure 10). The AP proposal as shown in Figure 9 represents a 36% decrease in the size of the Southern GRA. If statistical area 626 were also removed, this alternative would represent a 61% decrease in the size of the Southern GRA.

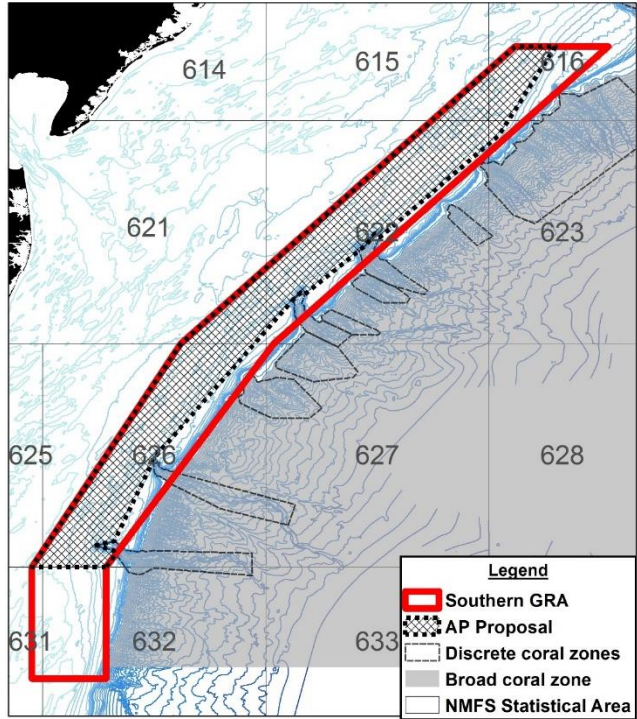


Figure 9: Proposal for modified Southern GRA boundaries developed by advisors at the January 2016 AP meeting.

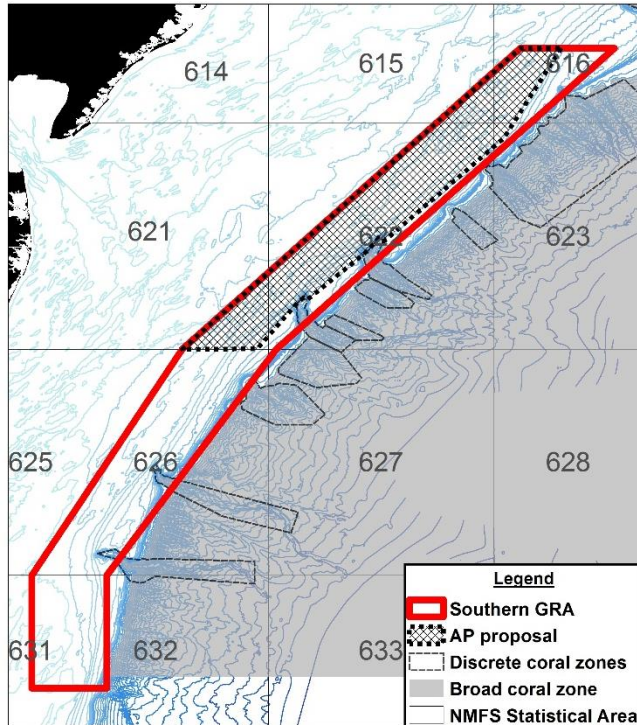


Figure 10: Proposal for modified Southern GRA boundaries developed by advisors at the January 2016 AP meeting. These advisors preferred that statistical area 626 be removed from the Southern GRA, as shown in this figure; however, if the Council did not favor this alternative, the advisors supported the proposal shown in Figure 9.

Alternative 4: Eliminate the Scup GRAs

Alternative 4a: Eliminate the Northern GRA

Under alternative 4a, the Northern GRA would be eliminated from the regulations.

As shown in Figure 2, scup discards in small and squid mesh tows in the Northern GRA statistical areas have generally decreased since implementation of the GRAs in 2000 (with a few exceptions, such as 2008). The NEFSC GRA analysis concludes that “the GRAs have likely reduced the discard mortality of small scup, and are responsible for the improved post-recruitment survival of these small scup” (Terceiro and Miller 2014). If the GRAs were eliminated, discard mortality of small scup could increase and scup spawning stock biomass could be negatively impacted.

Alternative 4b: Eliminate the Southern GRA

Under alternative 4b, the Southern GRA would be eliminated from the regulations. As described above, the NEFSC analysis suggests the GRAs have had important conservation benefits for scup and likely played a role in rebuilding the scup stock (Terceiro and Miller 2014). Negative impacts to the scup population could result from elimination of the GRAs; however, positive economic impacts for small-mesh fisheries could also occur. Several advisors stressed that the Southern GRA in particular has had severe negative economic impacts for longfin squid fishermen.

Advisory Panel Input on Alternatives 4a and 4b

A few advisors recommended that the scup GRAs be eliminated, or at least temporarily suspended. Four advisors supported a recommendation to suspend the GRAs for one or two years, which they argued would not only provide economic benefits to fishermen targeting non-exempt species such as longfin squid, but would also allow for the collection of data on scup discards. Small mesh fisheries for non-exempt species have been prohibited from fishing in the GRA areas during the effective times of the year since 2000, which poses challenges for predicting changes in scup discards if those areas were to be partially or completely opened to small mesh fisheries. If the GRAs were temporarily suspended, some advisors argue, the Council could better predict the impacts to the scup stock if the GRAs were eliminated or reduced in size.

Alternatives to Modify the Timing of the GRAs

At their December 2015 meeting the Council decided not to include alternatives to modify the effective dates of the GRAs as part of this framework. Council staff presented an analysis which suggested that changes to the GRA dates would likely not substantially improve the effectiveness of the GRAs. Additionally, at that time the Council had not received any comments from advisors suggesting that the GRA dates should be modified. However, at the January 2016 AP meeting, a few advisors recommended that the Council consider an alternative which would change the effective dates of the Southern GRA from January 1 - March 15 to February 1 - March 15. These advisors said the distribution of scup has changed over time and scup are no longer prevalent in the Southern GRA in January.

Exempted Fishing Permits

Council staff recommend that the Council consider the use of Exempted Fishing Permits (EFPs) to allow fishermen using small mesh to fish within the GRAs. EFPs could be used to collect data which could be used to assess the impacts of eliminating the GRAs or reducing their size. The Council could allow EFPs in conjunction with alternatives 1, 2, or 3. Because there is an existing process for obtaining EFPs, the Council does not need to add a management alternative for EFPs to this framework. The APs did not discuss EFPs at their January 2016 meeting.

NMFS implemented a scup GRA exemption program in 2003 (68 *Federal Register* 60, January 2, 2003) but discontinued the program in 2005 because no vessels participated (70 *Federal Register* 303, January 4, 2005). To participate in this exemption program, vessels were required to carry an exemption program authorization, to pay for and carry a NMFS-certified observer on board if any portion of the trip occurred in a GRA, and to fish in the GRA only with a net modified to include an escapement extension with at least 45 meshes of 5.5-inch square mesh positioned behind the body of the net and in front of the codend.

References

NEFSC (Northeast Fisheries Science Center). 2015. 60th Northeast Regional Stock Assessment Workshop (60th SAW) Assessment Report. *Northeast Fisheries Science Center Reference Document* 15-08; 870 p. Available at: <http://www.nefsc.noaa.gov/saw/reports.html>

Tercerio, M. and A. Miller. 2014. Commercial fishery scup discarding and the Gear Restricted Areas (GRAs). Unpublished working paper from the NEFSC Population Dynamics Branch. Available in briefing materials at: <http://www.mafmc.org/briefing/december-2015>



**Summer Flounder, Scup, Black Sea Bass
and Mackerel, Squid, Butter Fish
Advisory Panel Meeting
January 20, 2016
Meeting Summary**

Meeting Summary

The Council's Summer Flounder, Scup, and Black Sea Bass (SFSBSB) and Mackerel, Squid, and Butterfish (MSB) Advisory Panels (APs) met to discuss the Council's framework action to modify the scup Gear Restricted Areas (GRAs) on Wednesday January 20, 2016 in Long Branch, New Jersey, with some members participating via webinar. Council staff presented an analysis of GRAs performed by the Northeast Fisheries Science Center (NEFSC). The APs considered and discussed the range of management alternatives approved by the Council for the GRA framework. The APs developed recommendations to the Council on these alternatives, including recommendations for three new alternatives. AP recommendations and comments are summarized below.

AP members in attendance: Katie Almeida (MSB), Lars Axelsson (MSB), Jim Beirnes (SFSBSB), Bonnie Brady (SFSBSB), James Fletcher (SFSBSB), Jeff Gutman (SFSBSB), Emerson Hasbrouck (MSB), Greg Hueth (SFSBSB), Peter Kaizer (MSB), Hank Lackner (SFSBSB, MSB), Jim Lovgren (MSB), Brady Lybarger (SFSBSB), Peter Moore (MSB), Mike Plaia (SFSBSB), Chris Roebuck (MSB), Robert Ruhle (SFSBSB, MSB)

Others in attendance: Julia Beaty (Council staff), Kiley Dancy (Council staff), Howard King (Council member, MSB Committee chair), Jeff Kaelin (Council member), Stephen Axelsson, Carly Bari, Gregory DiDomenico, Peter Hughes, Meghan Lapp, Michael Loper, Liz Scheimer

Summary of AP Comments:

GRA Analysis

Some advisors thought the analyses presented at the meeting had limited utility for informing the management alternatives because, for the most part, scup discards from small mesh tows were not separated from tows using the minimum mesh size for the directed scup fishery. All advisors present in-person recommended that the NEFSC update their GRA analysis with 2014 and 2015 data, with small mesh scup discards separated from large mesh discards, and with consideration of the reported reason for the discards. Some advisors thought the analysis should consider the impacts of other regulatory changes over the past twenty years which may have also contributed to changes in scup discards.

Expansion of the GRAs

None of the advisors present supported an expansion of either GRA. Specifically, no advisors supported alternative 2 (expand the Northern GRA into statistical area 613) or alternative 3d (expand the Southern

GRA into statistical area 616). Several advisors stated that alternative 3d would have severe negative economic impacts for the squid fishery.

One advisor said that scup discards are unavoidable and fishermen should not be penalized for discarding scup, especially considering that the scup stock is rebuilt to more than double the target biomass. One advisor commented that, with a rebuilt stock like scup, there is no reason to consider any alternatives which would have negative economic impacts (e.g. alternatives to expand the boundaries of the GRAs).

Elimination of the GRAs

One advisor said the GRAs should not be expanded or eliminated. He did not want more scup to be exposed to commercial capture, but supported options to slightly modify the GRA boundaries to provide more fishing opportunities to squid fishermen.

Two advisors wished to see the Southern GRA eliminated. One advisor recommended that the Council suspend enforcement of both GRAs for one or two years. The Council could then assess the resultant changes in scup discards and then consider re-instating the GRAs if necessary. This advisor suggested that the Council decide whether or not to “turn on” the GRAs in any given year during the specifications process. He suggested that the decision be based on the biomass of scup, such that if spawning stock biomass falls below a predetermined level, recommended by the SSC or an FMAT, then the Council would “turn on” the GRAs. He said the GRAs are a rebuilding tool, and now that scup has been successfully rebuilt the tool should be put aside until needed again. Three other advisors supported this recommendation.

Two advisors commented that the Southern GRA has caused millions of dollars of lost revenue for squid vessels. One advisor said scup discards were problematic in the past but have been adequately addressed by other regulations, such as minimum mesh requirements and the minimum fish size in the directed scup fishery.

Reduction of size of GRAs

One advisor said that because there are many conservative buffers built into the quota-setting process, exposing more scup to capture in the squid fishery would probably not threaten the scup population.

All advisors present at the meeting supported alternative 3c, which would remove statistical area 632 from the Southern GRA. According to the NEFSC analysis, very few scup discards have come from this area over the past two decades. Some advisors said the distribution of scup has shifted and scup are no longer as prevalent in the southern-most areas of the Southern GRA, compared to when the GRAs were first implemented in 2000.

Two advisors wished to add an alternative which would remove both statistical area 632 and 626 from the Southern GRA. Another advisor said he supported this alternative, but only if adding it to the framework would not prevent any changes from being implemented by January 1, 2017.

With the exception of one individual, all advisors at the meeting supported a combination of alternative 3b (the initial proposal put forward by Hank Lackner with modifications for the deep sea coral protection zones) and alternative 3c (removal of statistical area 632 from the Southern GRA). The one advisor who disagreed said he preferred to temporarily suspend enforcement of the GRAs.

Several advisors proposed a new alternative for the Southern GRA boundaries, which they drew on a nautical chart at the meeting. The proposal is shown in Figure 1. The advisors who participated via webinar were not able to see this drawing during the meeting. All advisors present in-person supported the addition of this alternative and expressed a desire that it be combined with alternative 3c (remove statistical area 632 from the Southern GRA), and with a new alternative to remove statistical area 626. A few advisors re-iterated that their support of removing statistical area 626 was conditional on the addition of this alternative not preventing implementation of the framework by January 1, 2017.

Timing of GRAs

One advisor suggested that the Council add an alternative to consider changing the effective dates of the Southern GRA from January 1 – March 15 to February 1 – March 15. He said the distribution of scup has changed over time and scup are no longer prevalent in the Southern GRA in January. One advisor said he would support this alternative only if the addition did not prevent the framework from being implemented by January 17, 2017. No other advisors voiced opposition to this suggestion.

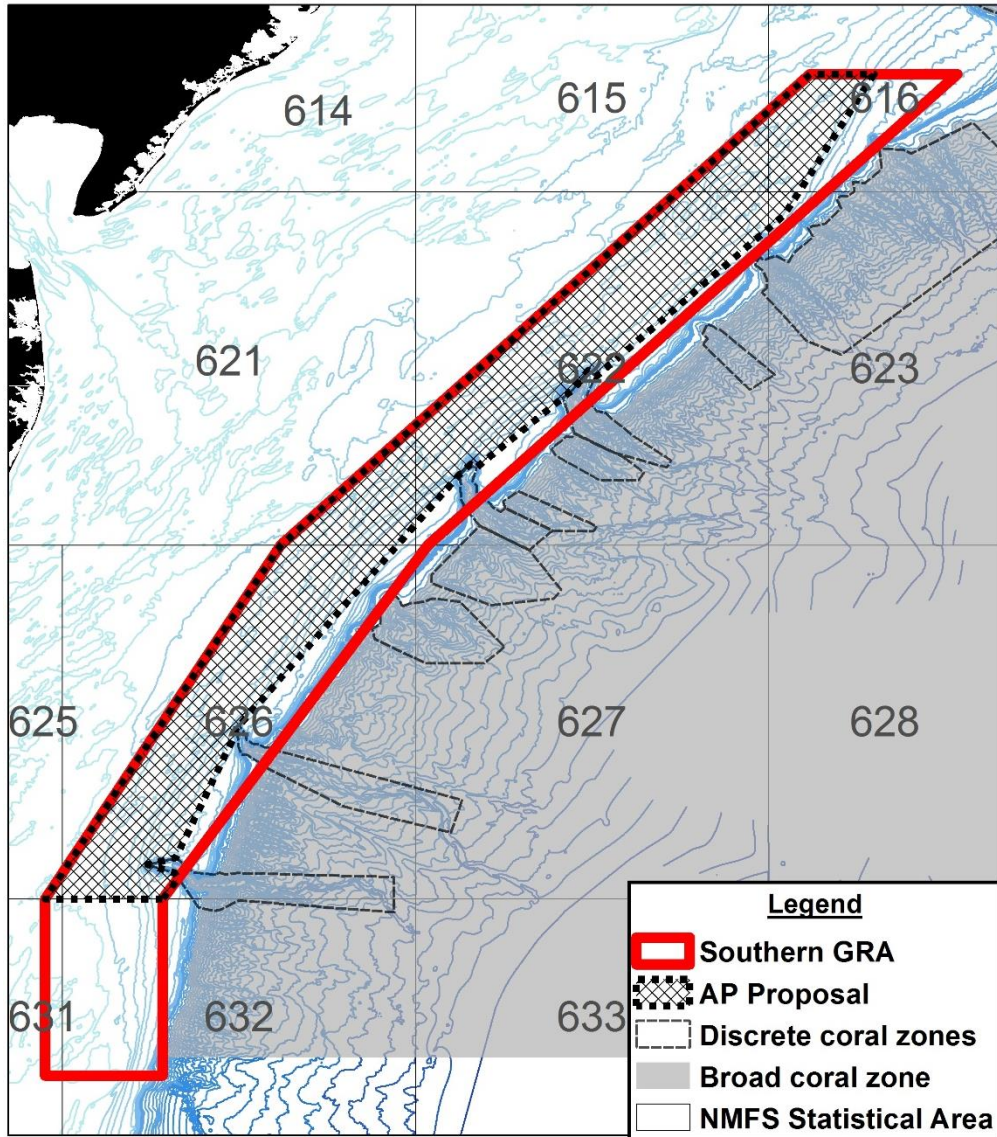


Figure 1: Proposal for modified Southern GRA boundaries developed by advisors at the January 2016 AP meeting. Advisors present noted that they would ideally like statistical area 626 to also be removed from the Southern GRA.

**Commercial fishery scup discarding and
the Gear Restricted Areas (GRAs)
by
Mark Terceiro and Alicia Miller
NEFSC Population Dynamics Branch**

Executive Summary: The NEFSC Observer data show that since 1989 most of the observed commercial fishery scup discards occurred in small mesh tows in the Statistical Areas that include the GRAs. SBRM estimates of scup discards have been reduced in the GRA areas and months since 2001. Relatively high scup discards have occurred recently (2009-2010) outside the GRA areas and months. The NEFSC Fishery Observer, Dealer, Vessel and Trawl Survey data, and the stock size and mortality estimates that result once this information is integrated within the stock assessment, indicate that the GRAs have likely reduce the discard mortality of small scup, and are responsible for the improved post-recruitment survival of these small scup.

Introduction

Broad scale Gear Restricted Areas (GRAs) for scup were implemented in November 2000 under the framework provisions of the FMP to reduce discards of scup in the small mesh fisheries for *Loligo* squid and silver hake. Initially two Northern Areas off Long Island were implemented for November through January, while a Southern Area off the mid-Atlantic coast was implemented for January through April. The size, boundaries, and other measures of the GRAs were modified in late 2000 and again in 2001 and 2005 in response to commercial fishing industry recommendations. Currently the single Northern GRA restricts the use of codend mesh less than 5.0 inches (127 mm) during November and December, while a Southern GRA is in effect from January 1 through March 15.

Observer Data

The Northern and Southern GRAs lie mainly in NEFSC statistical reporting areas (statistical areas) 537, 539, and 613 (Northern GRA) and 615, 616, 621, 622, 623, 626, and 632 (Southern GRA; Figure 1). Over the 1989-2013 (preliminary) time series, very little scup discard was observed in statistical area 632. Statistical areas 611 and 538, which are not included in the GRAs, also were the source of 'significant' discards (cumulative total observed scup discards > 10,000 lbs; Figure 2). The other nine statistical areas that include the GRAs accounted for 1.474 million (84%) of the 1.767 million lbs of cumulative total observed scup discards from January 1989 through December 2013 (Figure 3). It should be noted that about 80% of the cumulative total observed scup discards in area 623 occurred in a single tow (~150,000 lbs) in 1998 (Figure 3).

Both the observed discards (as a function of both increased fishing activity for scup and increased sampled trip number) and estimated fishery discards (as a function of increased fishery quotas and therefore increased fishing activity for scup) have generally increased as the fishery quotas have increased since 2005 (Figure 4), although the observed discard percentage of total catch has decreased (Figures 5-6). Scup commercial fishery estimated discards remain an important component of the commercial fishery removals and averaged about 25% of the

estimated commercial catch during 2010-2012 (100% commercial fishery discard mortality is assumed).

Within the nine important GRA statistical areas that account for 84% of observed scup discards over the 1989-2013 time series, 24% was observed in 'large' mesh tows (codend or liner < 4.5 [114 mm] or 5.0 in [127 mm]), 35% in 'small' mesh tows (larger than 2.125 in [54 mm] and smaller than 4.5 or 5.0 inch), and 41% in 'squid' mesh tows (equal to or less than 2.125 inch; Figure 7). The distribution of observed discards varies by statistical area, season, and mesh size. In the northern GRA statistical areas (537, 539, 613) 'large' mesh discards were observed mainly in November and December, although large mesh discards also occur in January and May in area 613 (Figure 8). Northern GRA area 'small' mesh discards were observed mainly in November and December in area 613 (Figure 9). Northern GRA area 'squid' mesh discards were observed mainly in May and June in areas 537 and 539 and in November and December in area 613 (Figure 10). In the important southern GRA statistical areas (615, 616, 621, 622, 623, 626), 'large', 'small' and 'squid' mesh discards were observed mainly in January through April (Figures 11-13).

The NEFSC Observer data show that since 1989 most of the observed scup discards occurred in small mesh tows in the Statistical Areas that include the GRAs. In the winter-spring (February-April in NEFSC survey data; January-March in Observer data) during the pre-GRA years of 1998-2000, most scup were distributed within the eventual Southern GRA (Figure 14). Observer data indicated scup discards both within the eventual Southern GRA and northward into the eventual Northern GRA. During 2010-2012, scup continued to be distributed within the Southern GRA. Observer data continued to indicate scup discards both within and along the northeastern boundaries of the Southern GRA and northward along the 50 fathom depth contour into the Northern GRA (Figure 15).

In the fall (September-October in NEFSC survey data; November-December in Observer data) during the pre-GRA years of 1998-2000, survey data indicated that nearly all scup were distributed well inshore of the eventual Northern GRA (Figure 16). Observer data from 1-2 months later in the year, however, indicated scup discards both within the eventual Southern GRA and northward along the border of the eventual Northern GRA. During 2010-2012, scup continued to be distributed inshore of the GRAs at the time of the fall survey. Observer data continued to indicate scup discards within the Southern GRA and northward along the 50 fathom depth contour into and around the Northern GRA (Figure 17).

Observed discard length frequencies for both the pre-GRA years of 1998-2000 and the most recent years of 2010-2012 within the important Northern and Southern GRA Areas indicate the observed discards at length consist of sublegal fish (less than 9 inches total length <= 8 inches fork length <= 20 cm fork length; Figures 18-19). NEFSC survey length data indicated that during 1998-2000 most of the fish sampled from offshore Long Island and to the south in the winter, spring and fall were fish <= 20 cm fork length (ages 1 and 2 in the spring, ages 0 and 1 in the fall; Figures 20-22). During 2010-2012, increased numbers of fish > 20 cm fork length were evident in waters north of Hudson Canyon (Figures 23-24). In the winter and spring surveys, scup were distributed mostly within the Southern GRA. Fish sampled in the fall survey during September-October were nearly all still outside the Northern GRA, but as noted earlier, the Observer data indicate that by November significant amounts of scup were discarded within the Northern GRA.

Current Assessment Discard Estimates

The NEFSC Fishery Observer Program has collected information on landings and discards in the commercial fishery since 1989. The method currently used in the scup stock assessment uses geometric mean scup discards to scup landings (GMDL) ratios for trips catching scup to estimate discards. The ratios of discards to landings are stratified by landings level (for trip landings < 300 kg (661 lbs), the ‘bycatch fishery’; or => 300 kg, the ‘directed fishery’) and half-year, and then multiplied by corresponding observed scup landings from the NEFSC Dealer Report database to provide estimates of scup discards. Geometric mean rates (re-transformed, uncorrected, mean ln-transformed Discards to Landings per trip) are used because the distributions of landings, discards and the ratio of discards to landings on a per-trip basis in the scup fishery are highly variable and positively skewed. Observed trips with both scup landings and discard were used to calculate per trip discard to landings ratios. Only trips with both non-zero scup landings could be used for this approach to avoid division by zero, which limits the amount of data that can be used in the estimation.

Of particular note is an extremely large 1998 ‘directed fishery’ ratio and subsequent very high annual discard estimate (111,973 mt) based on the previously noted single trawl gear trip, with 93% of the discard from that trip attributable to a single tow in which an estimated 68 mt (~150,000 lbs.) of scup were captured. This tow was not lifted from the water and the captain of the vessel estimated the weight of the catch. There has been debate concerning the validity of the catch weight estimate and whether or not it was representative of other vessels or trips in the fishery. However, the observation was reported by a trained NEFSC observer and was therefore included in the initial calculation of the estimate of scup discards. Peer reviews of the scup assessment have since concluded that the 1998 estimate (173,690 mt) is infeasible, and it has been replaced by the mean of the 1997 and 1999 estimates (3,331 mt; Figure 4). Despite the uncertainty of the discard data, recent peer review panels (e.g, NEFSC 2008) have concluded that commercial discarding of scup has been high during most of the last twenty years, generally approaching or exceeding the commercial landings. Since the full implementation of the GRAs in 2001, estimated discards have averaged 35%-40% of the total commercial catch.

Estimated discards using the Standardized Bycatch Reporting Method (SBRM)

For this work, alternative estimates of scup discards using the SBRM were developed to ensure adequate sample size and better precision in developing fine temporal and spatial scale estimates of scup discards with which to evaluate to effect of the GRAs on the magnitude and pattern of discarding. SBRM estimates of scup discards (the ratio of trip scup discards to trip all species landings, raised by all species landings) were made by calendar quarter (4), stat area (20), and three mesh categories (large, small, squid). This provided 240 annual estimation strata, compared to the 4 strata used in the current assessment discard method (2 half years, directed trips, non-directed trips). Data were not sufficient to develop SBRM monthly estimates (i.e., too many of the 720 annual strata with no data).

This SBRM approach indicates that scup discards decreased from about 3,300 mt in 1991 to about 500 mt in 2000, with most discards (59%) occurring in areas that would eventually be in the GRAs (615, 616, 621, 622, 625, 626 in quarter 1; 537, 539, 613 in quarter 4). Discards have ranged between 500 and 1,500 mt since 2001, with the exception of 2009 and 2010 (3,200 and 2,600 mt, respectively). Since 2001, 53% of the discards have occurred outside the GRAs. The large discards in 2009-2010 were due mostly to squid mesh discards outside the GRAs: in squid mesh trips in the Northern GRA areas but in quarter 2.

The total scup discards and percent of discards in the GRAs is shown in Figure 25. Discard components in the Northern and Southern GRAs compared to discards in all other stat areas and quarters are shown in Figure 26, presented in a 100% stacked histogram. The SBRM indicates that estimated scup discards have been reduced in the GRA areas and months since 2001. Relatively high scup discards have occurred recently (2009-2010) outside the GRA areas and months.

Summary

The NEFSC Fishery Observer, Dealer, Vessel and Trawl Survey data, and the stock size and mortality estimates that result once this information is integrated within the stock assessment, indicate that the GRAs have likely reduce the discard mortality of small scup, and are responsible for the improved post-recruitment survival of these small scup.

Figure 1. NEFSC Statistical Reporting Areas and Scup Gear Restricted Areas (GRAs).

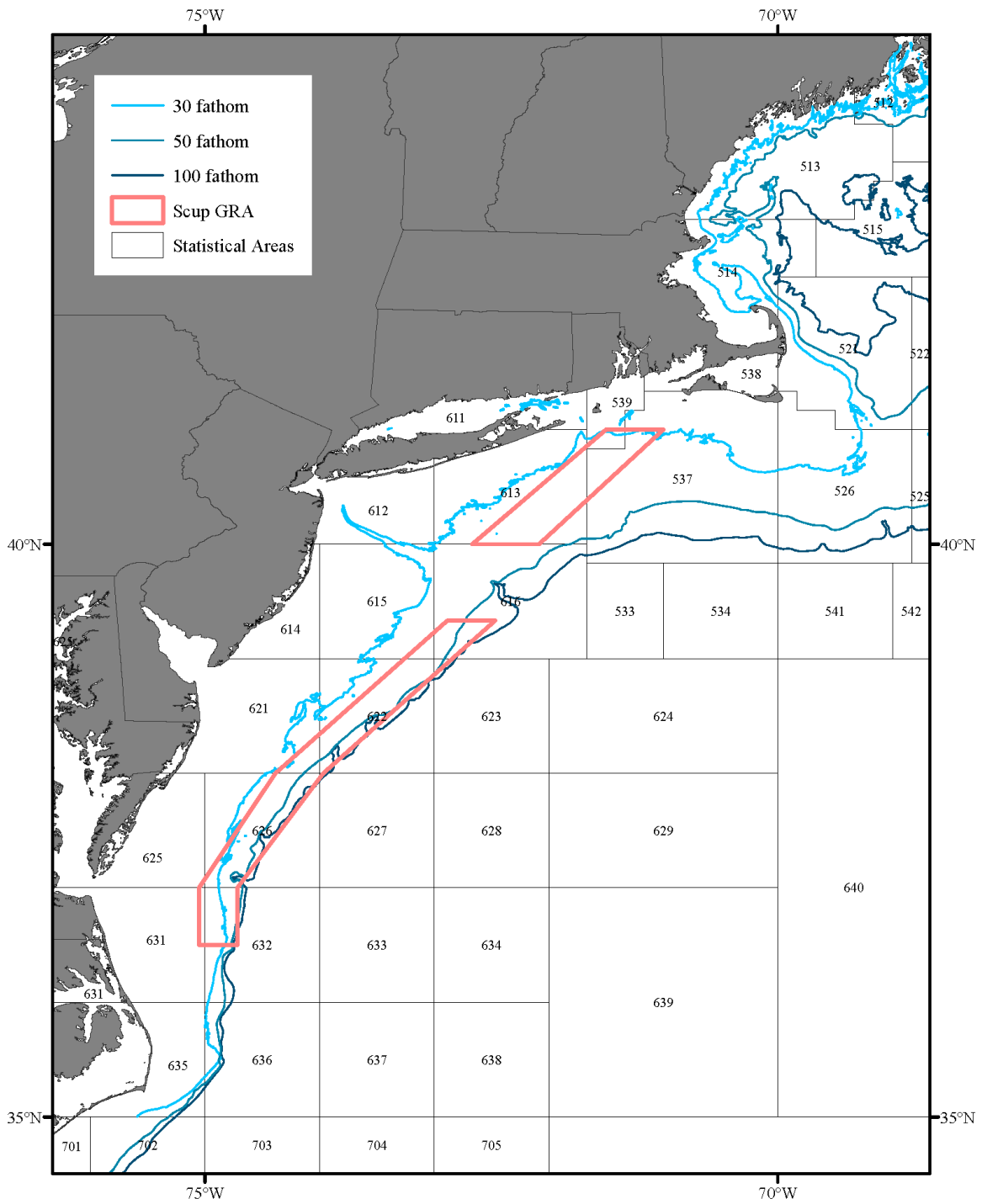


Figure 2. Observed scup discards (lbs) by NEFSC Statistical Area.

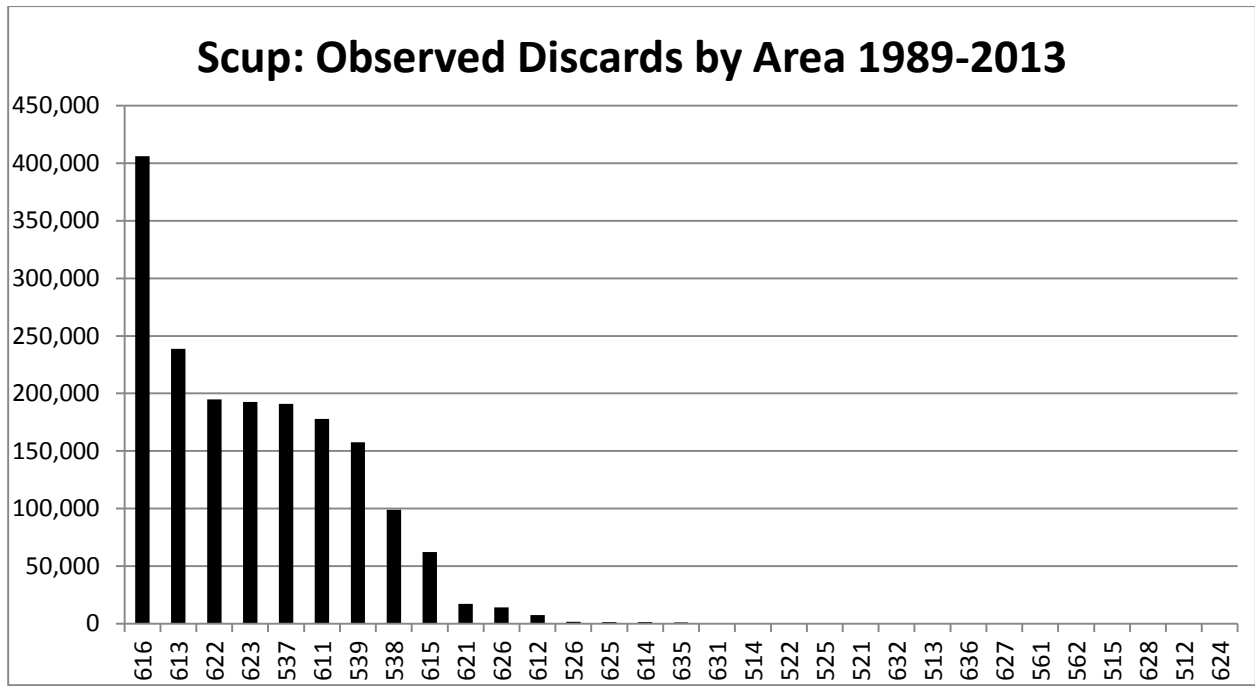


Figure 3. Observed scup discards (lbs) for statistical areas within the GRAs with time series total greater than 10,000 lbs.

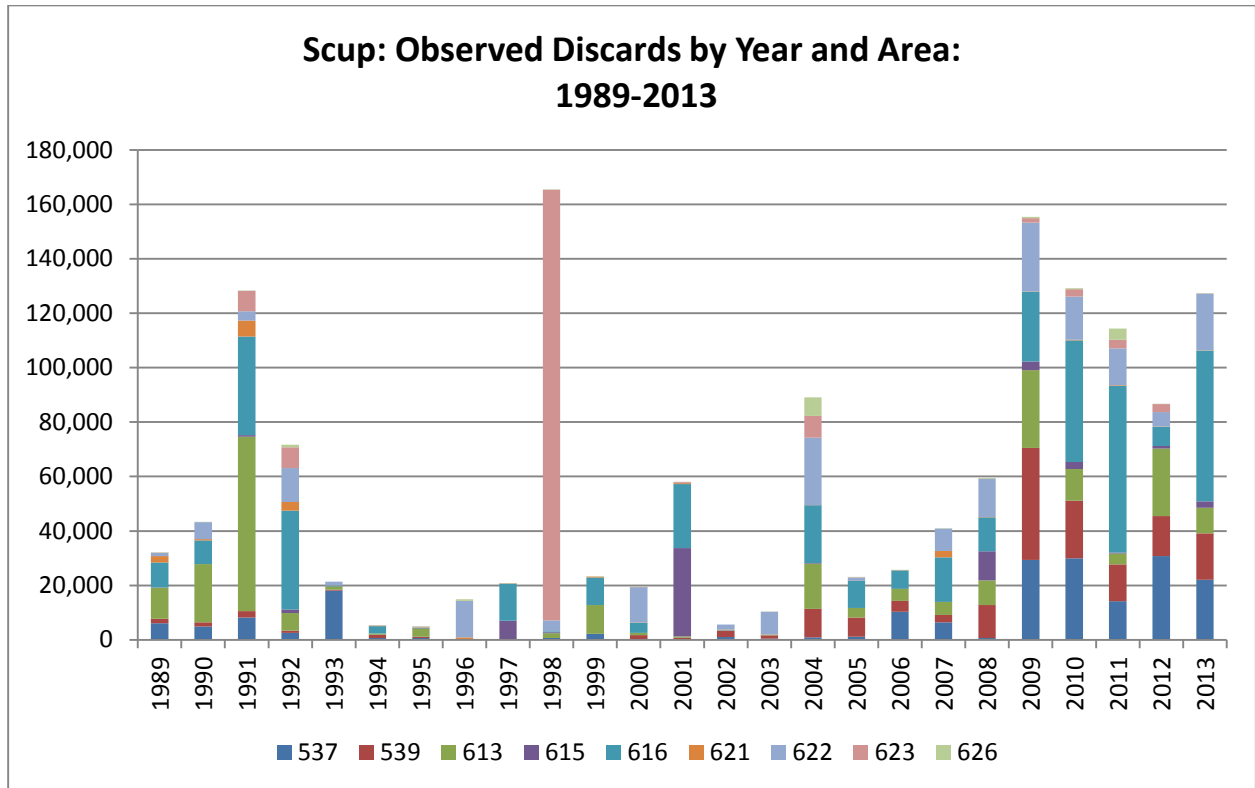


Figure 4. Estimated (metric tons) and Observed (lbs) scup discard trends.

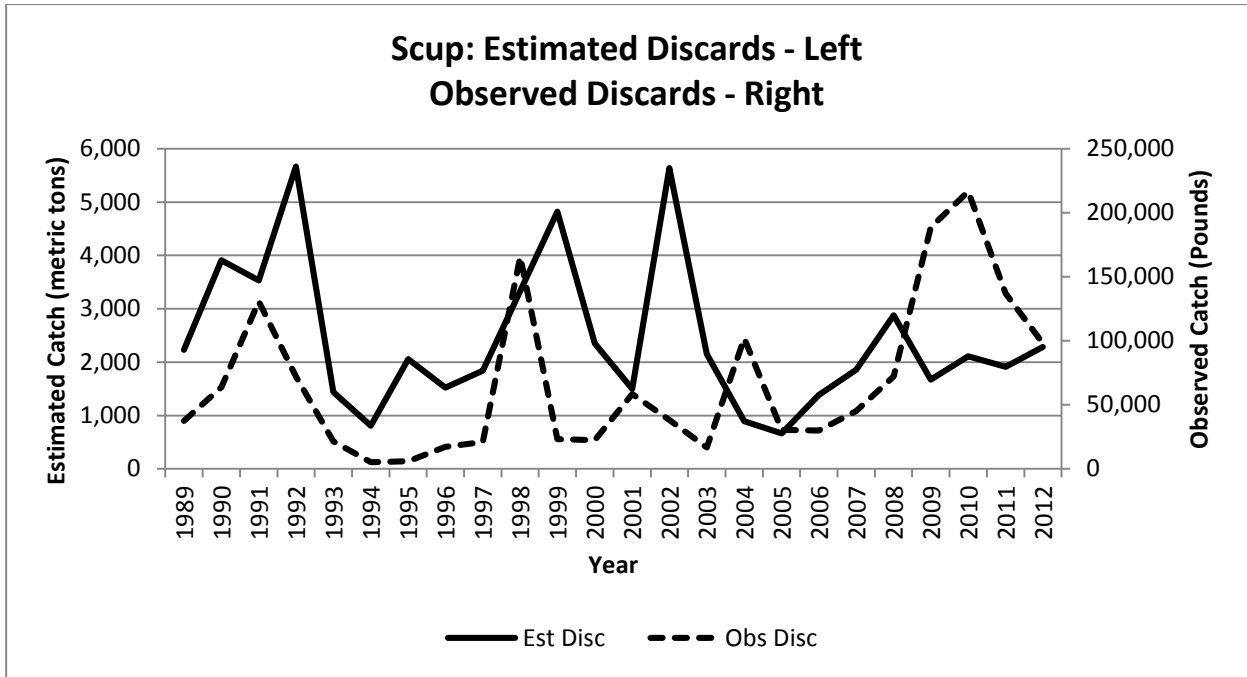


Figure 5. Observed Kept (blue; KLB; Landings) and Discard (red; DLB).

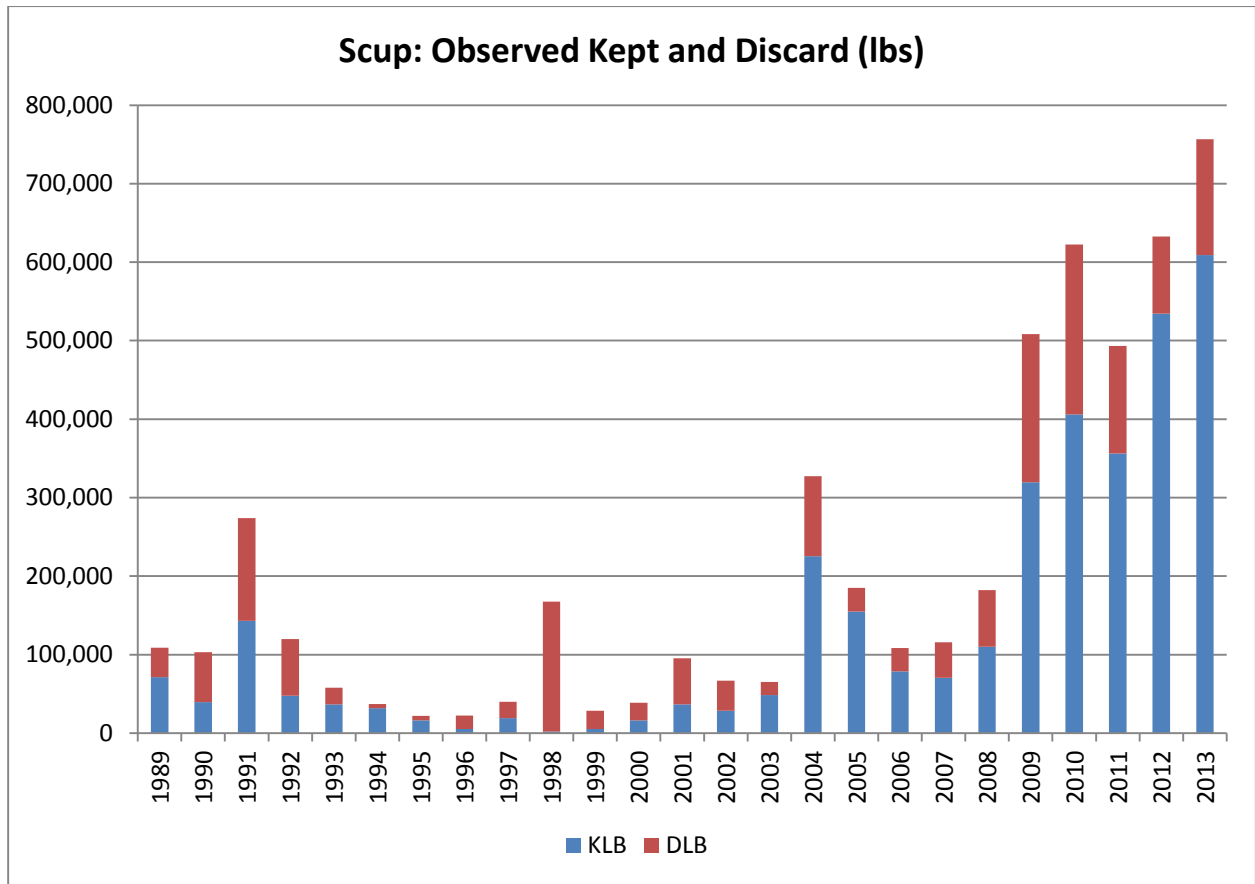


Figure 6. Observed Discard Percentage of Total Scup Catch.

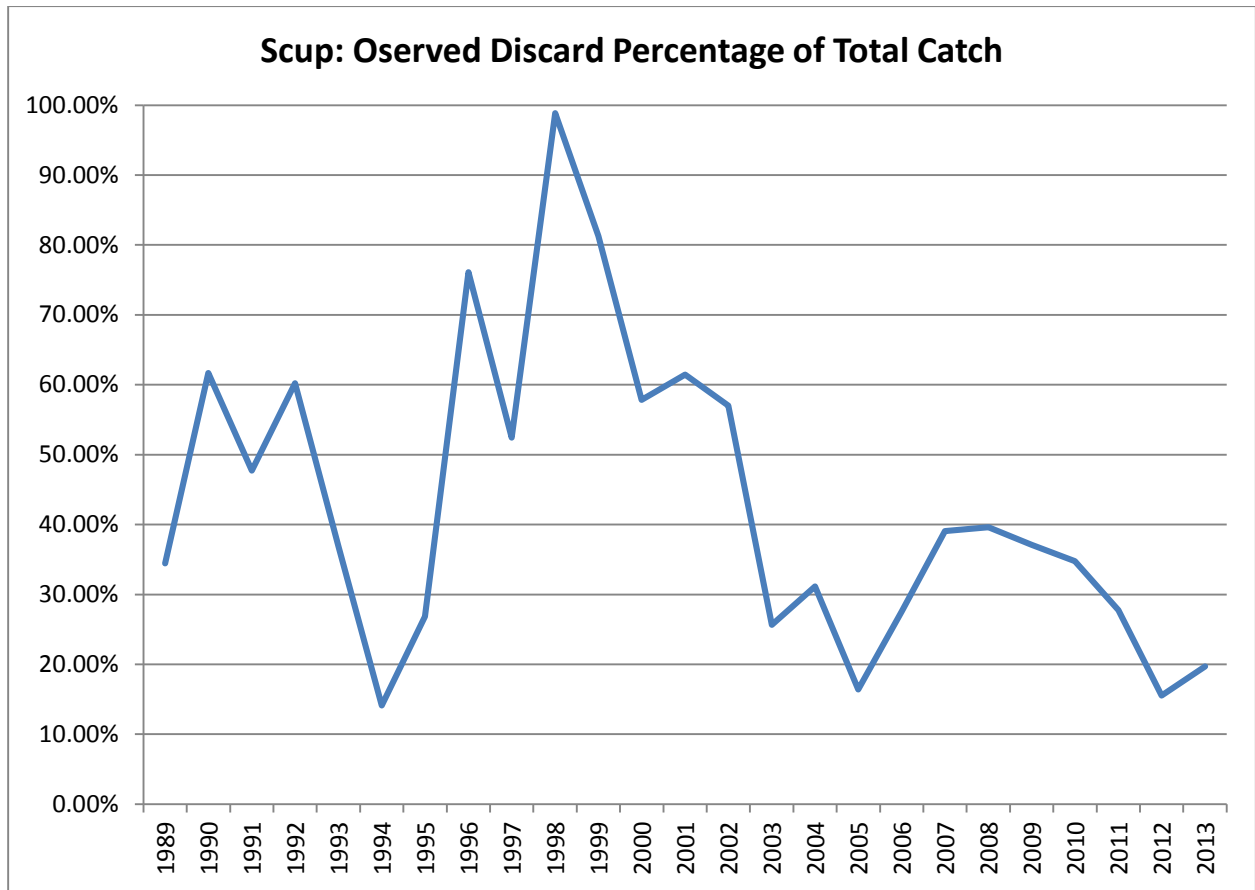


Figure 7. Observed scup discards by statistical area and codend/liner mesh categories. ‘Large’ is equal to or larger than 4.5 or 5.0 inch, depending on year; ‘small’ is between 2.125 and 4.5 or 5.0 inch; ‘squid’ is equal or smaller than 2.125 inch.

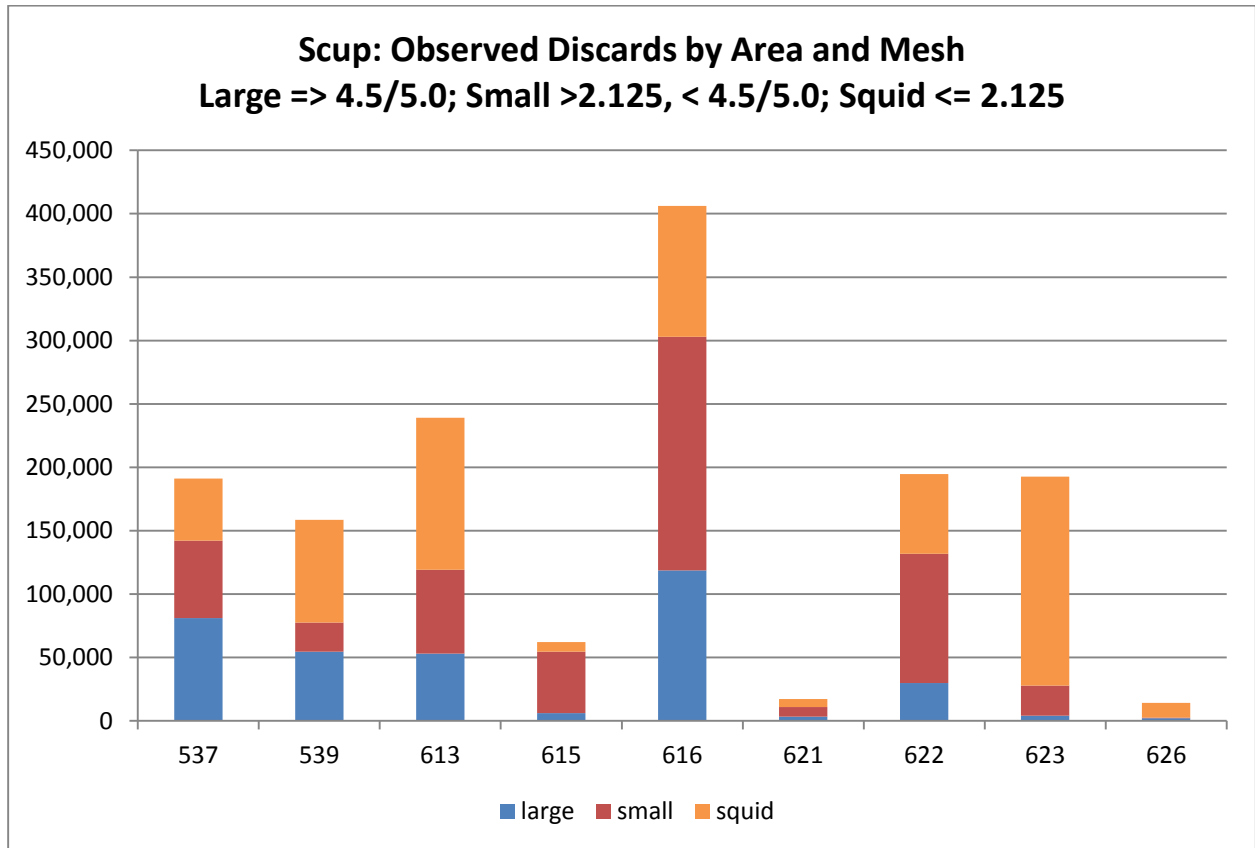


Figure 8. Northern GRA statistical areas 'large' mesh (equal to or larger than 4.5 or 5.0 inch, depending on year) Observed discards by month (Jan = 1, Dec = 12).

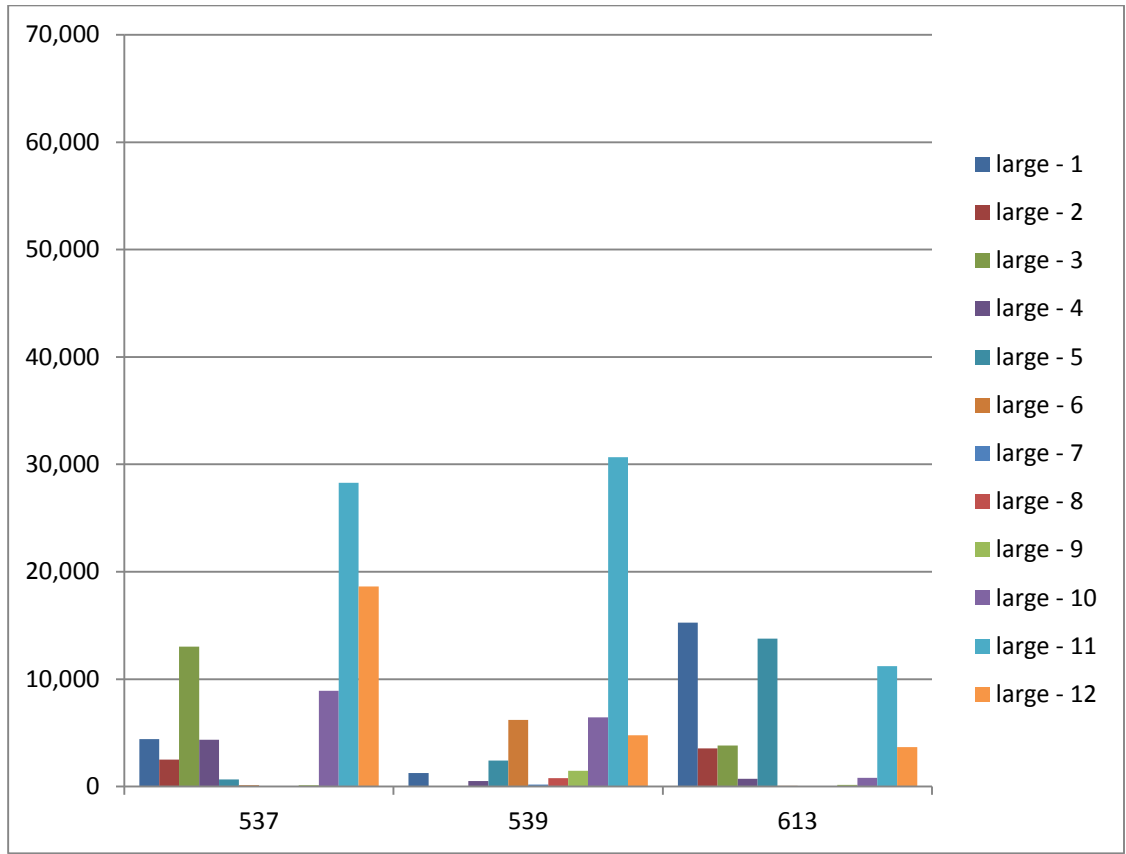


Figure 9. Northern GRA statistical area 'small' mesh (between 2.125 and 4.5 or 5.0 inch)
 Observed discards by month (Jan = 1, Dec = 12).

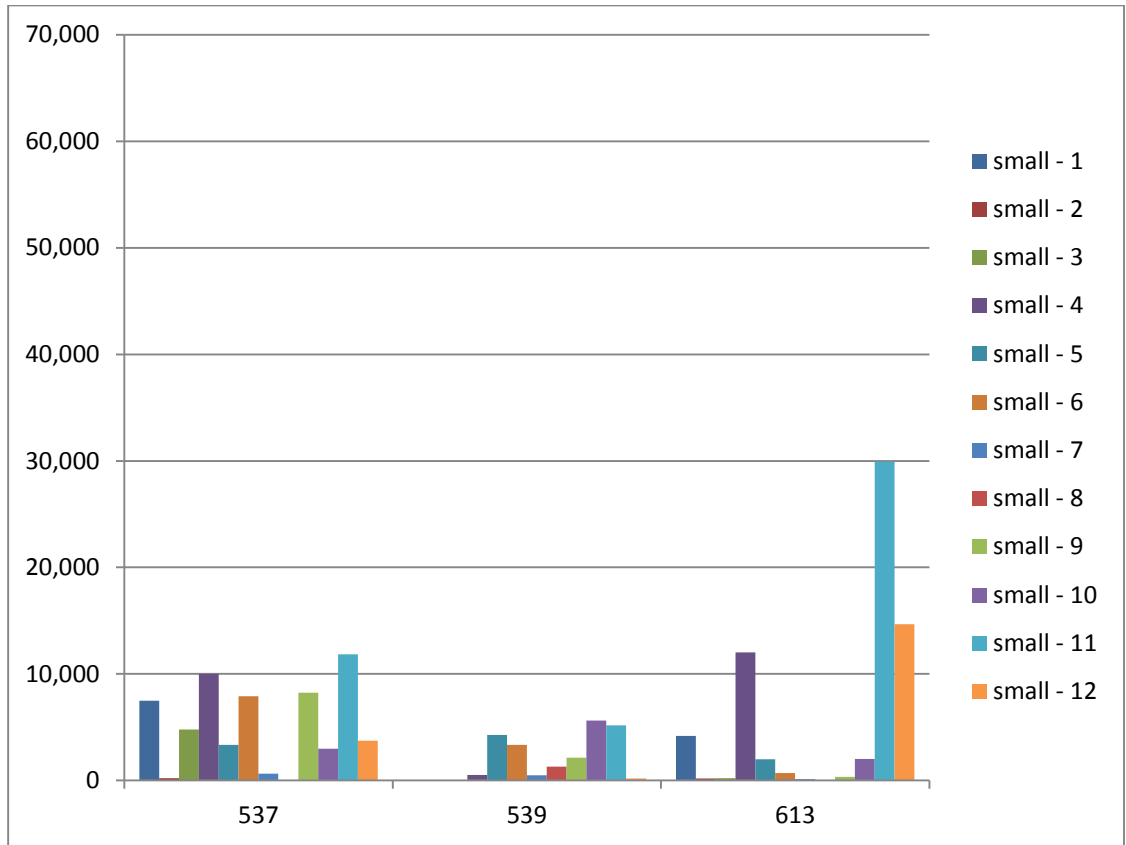


Figure 10. Northern GRA statistical area ‘squid’ mesh (equal to or smaller than 2.125 inch)
 Observed discards by month (Jan = 1, Dec = 12).

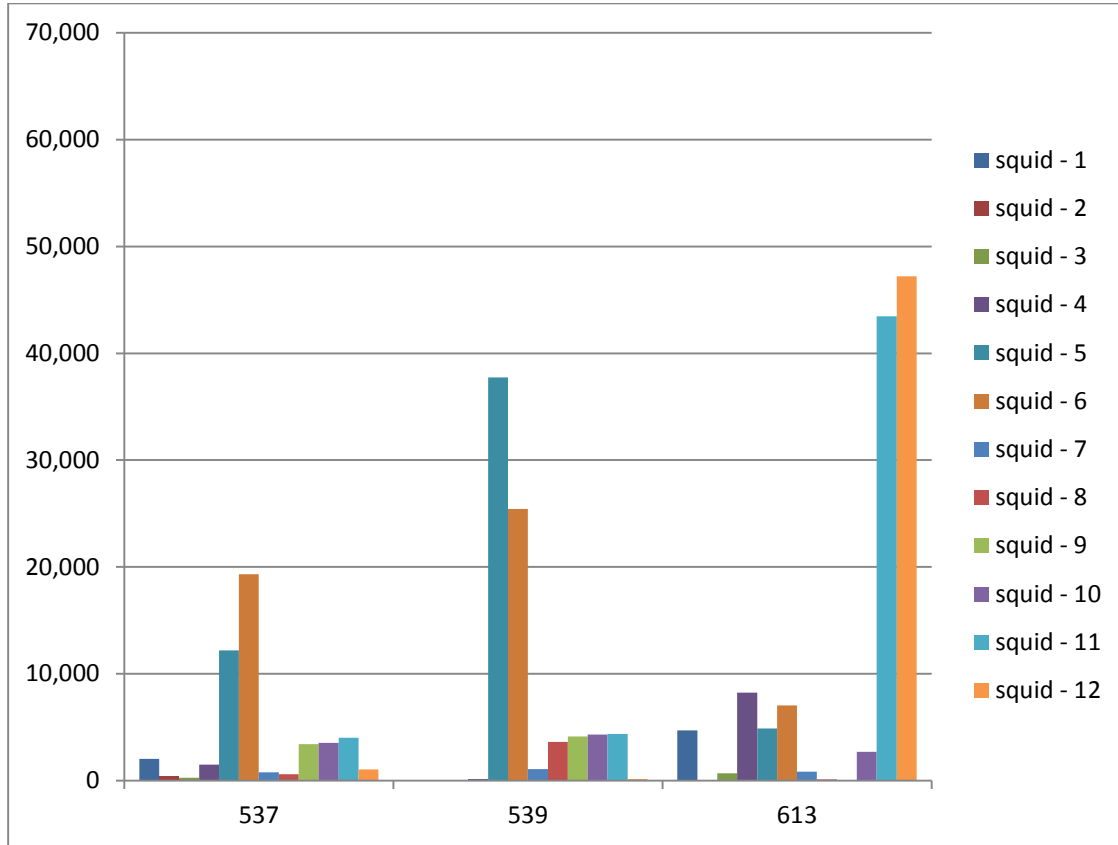


Figure 11. Southern GRA statistical areas 'large' mesh (equal to or larger than 4.5 or 5.0 inch, depending on year) Observed discards by month (Jan = 1, Dec = 12).

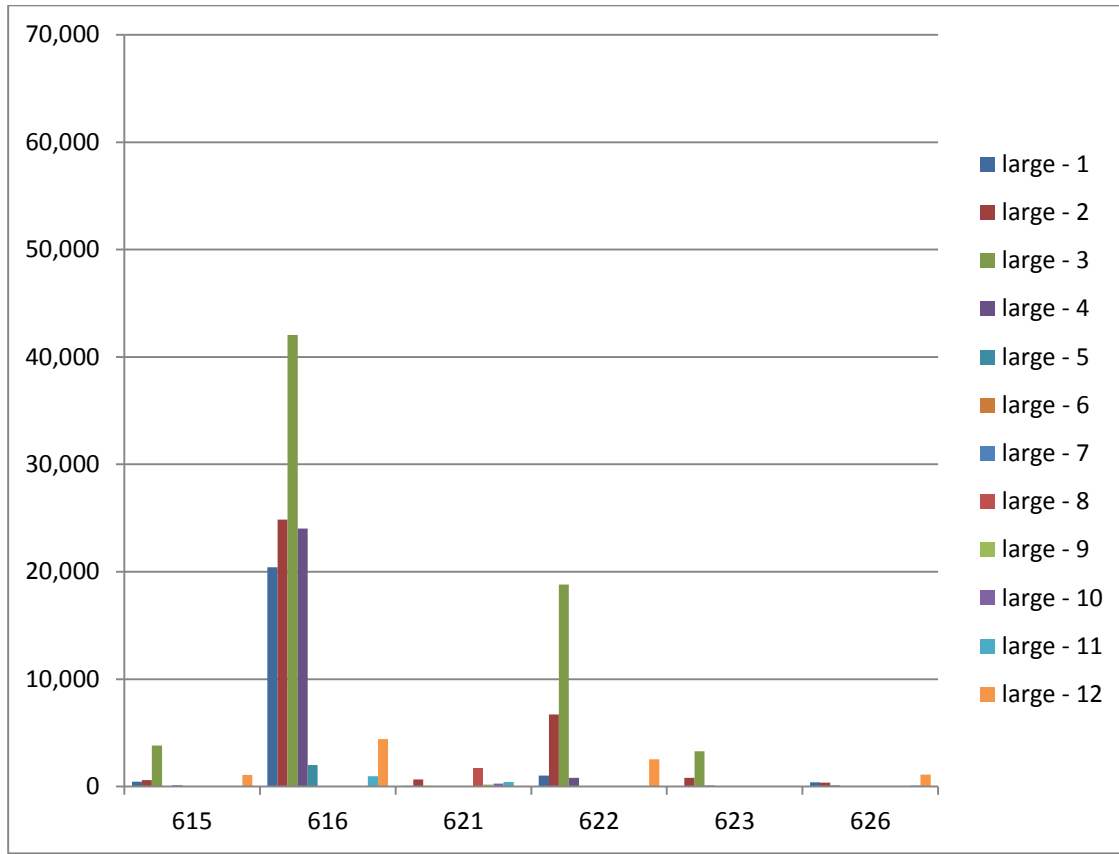


Figure 12. Southern GRA statistical area 'small' mesh (between 2.125 and 4.5 or 5.0 inch)
 Observed discards by month (Jan = 1, Dec = 12).

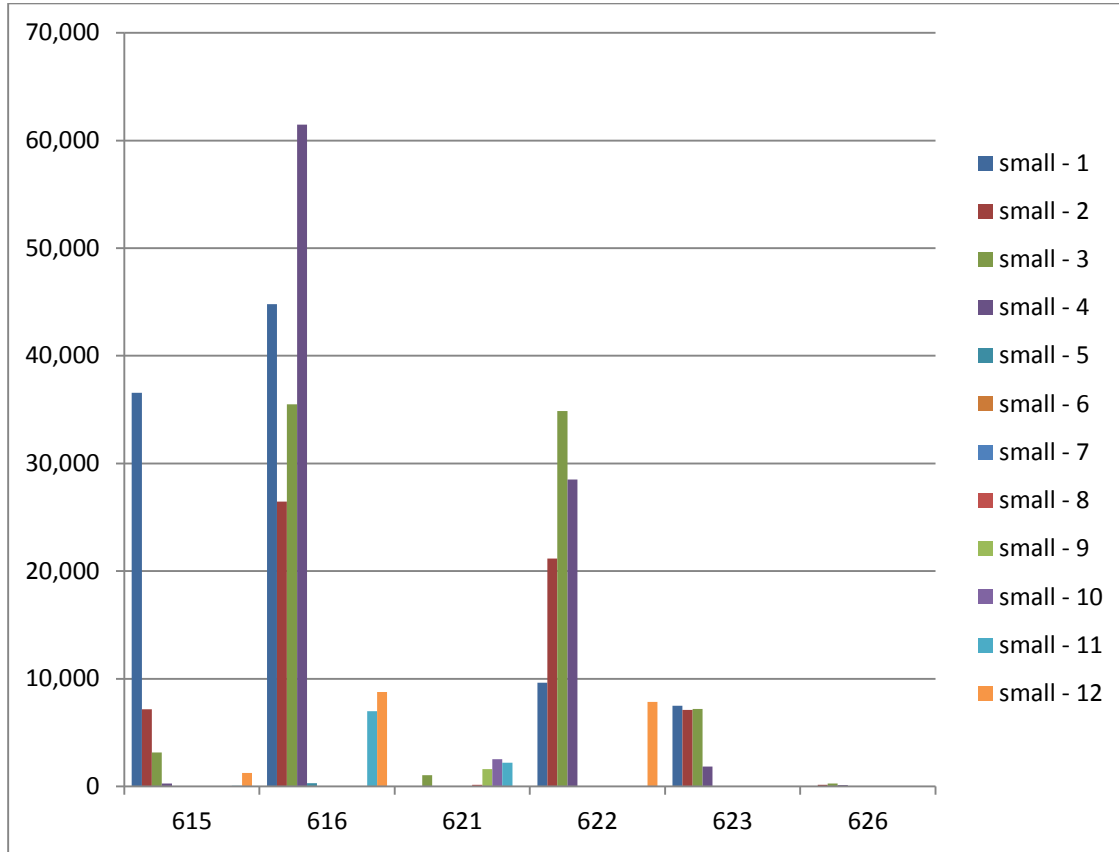


Figure 13. Southern GRA statistical area ‘squid’ mesh (equal to or smaller than 2.125 inch)
 Observed discards by month (Jan = 1, Dec = 12). The large bar in area 623 in March is a single
 tow discard event in 1998 that was observed to be an estimated 150,000 lbs.

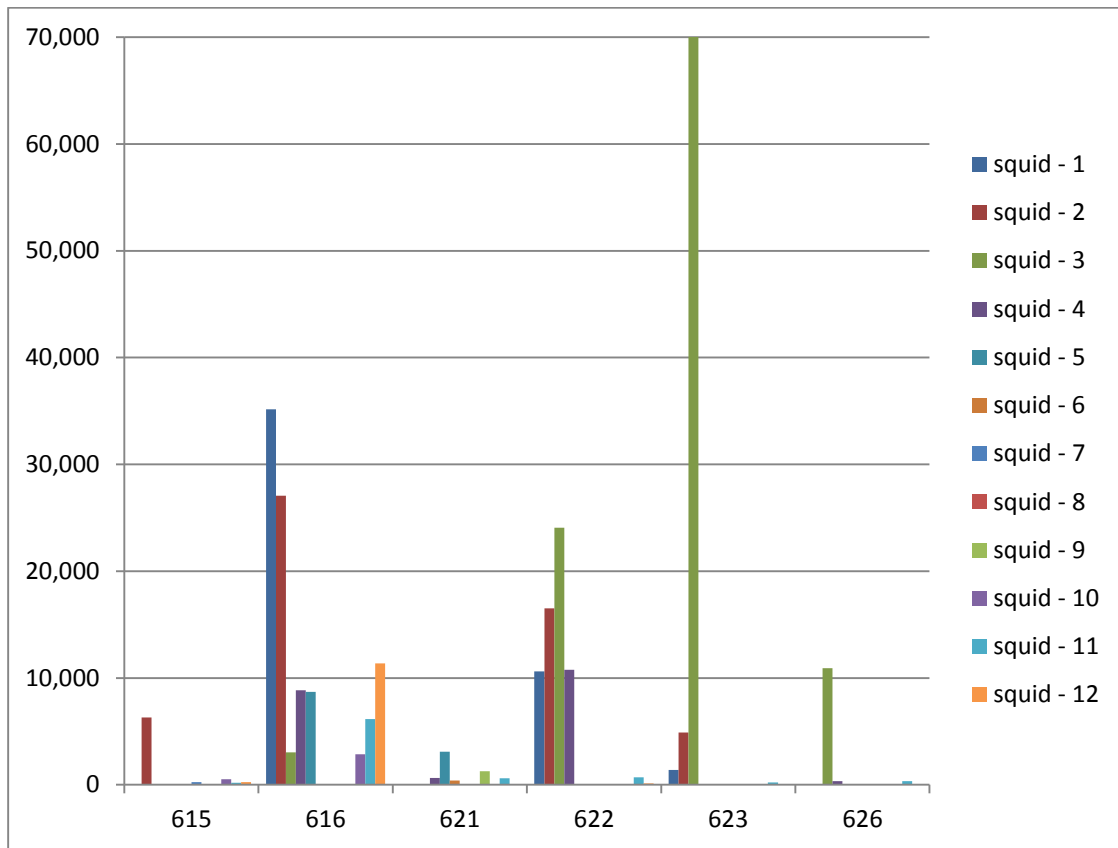


Figure 14. NEFSC winter and spring trawl survey catches of scup (kg/tow; February-March) and Observed scup aggregate discard (metric tons; January-March) during 1998-2000. Gear Restricted Areas (GRAs) outlined in red; depth contours in gray are 50 and 100 fathoms.

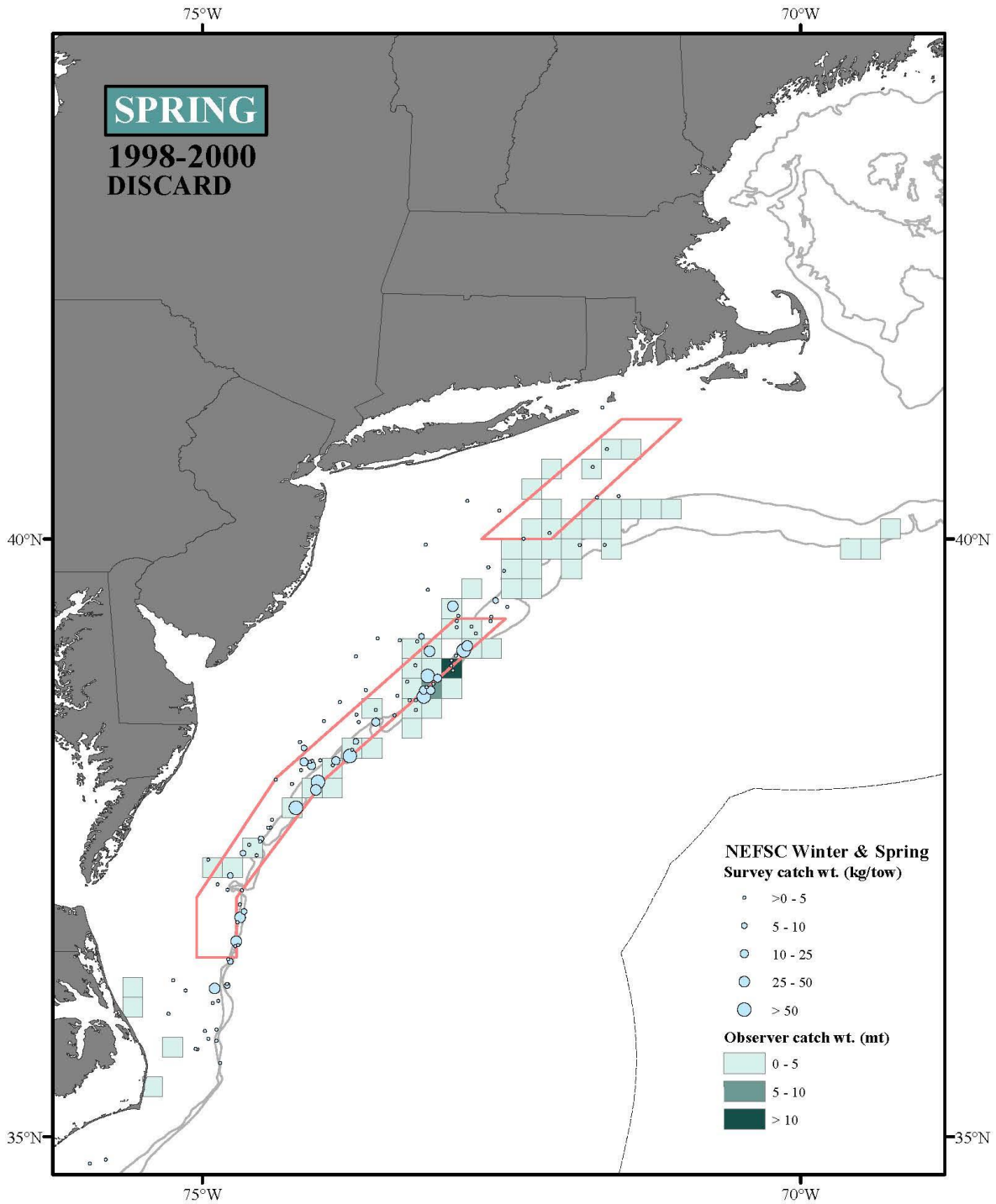


Figure 15. NEFSC winter and spring trawl survey catches of scup (kg/tow; February-March) and Observed scup aggregate discard (metric tons; January-March) during 2010-2012. Gear Restricted Areas (GRAs) outlined in red; depth contours in gray are 50 and 100 fathoms.

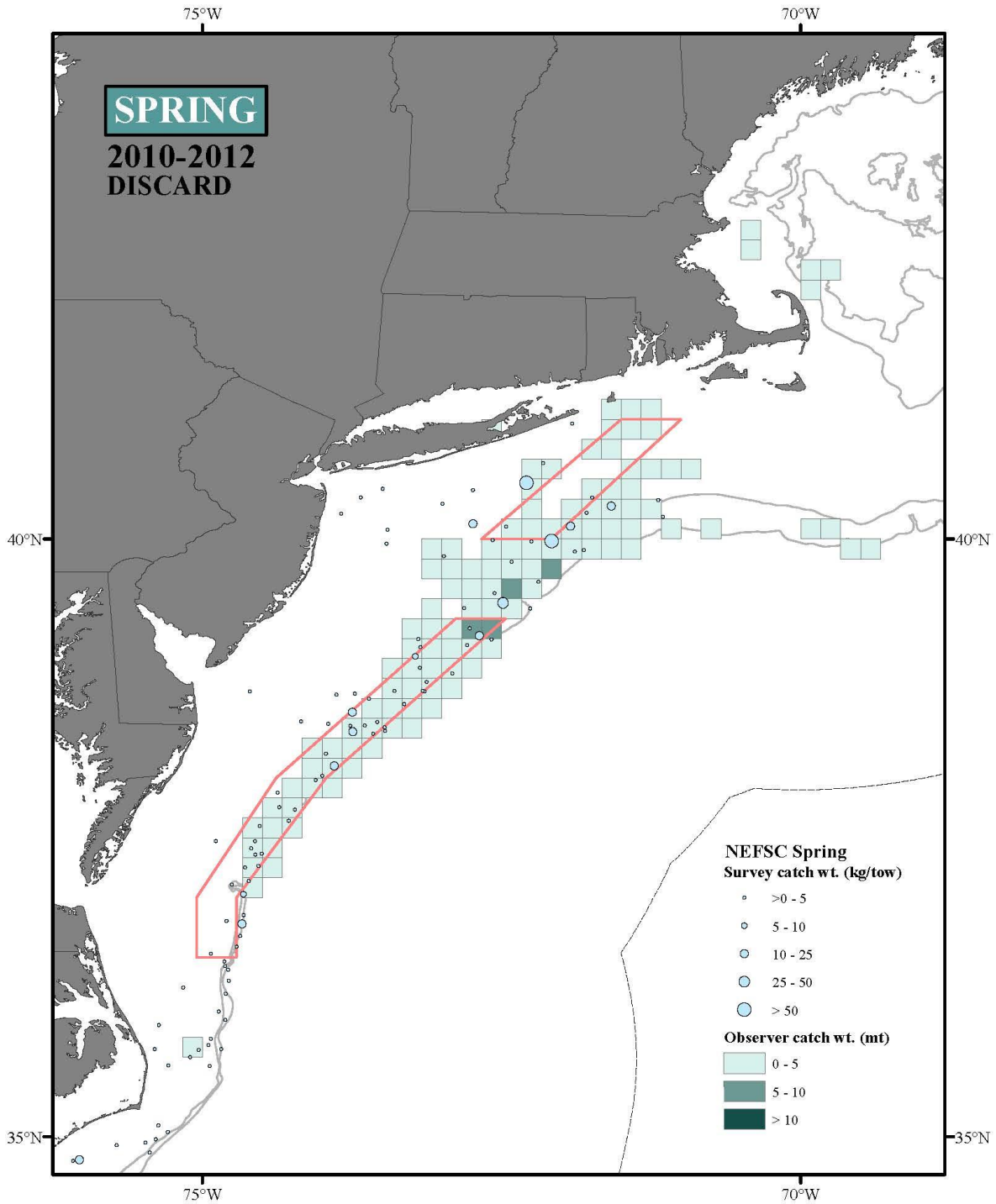


Figure 16. NEFSC fall trawl survey catches of scup (kg/tow; September-October) and Observed scup aggregate discard (metric tons; November-December) during 1998-2000. Gear Restricted Areas (GRAs) outlined in red; depth contours in gray are 50 and 100 fathoms.

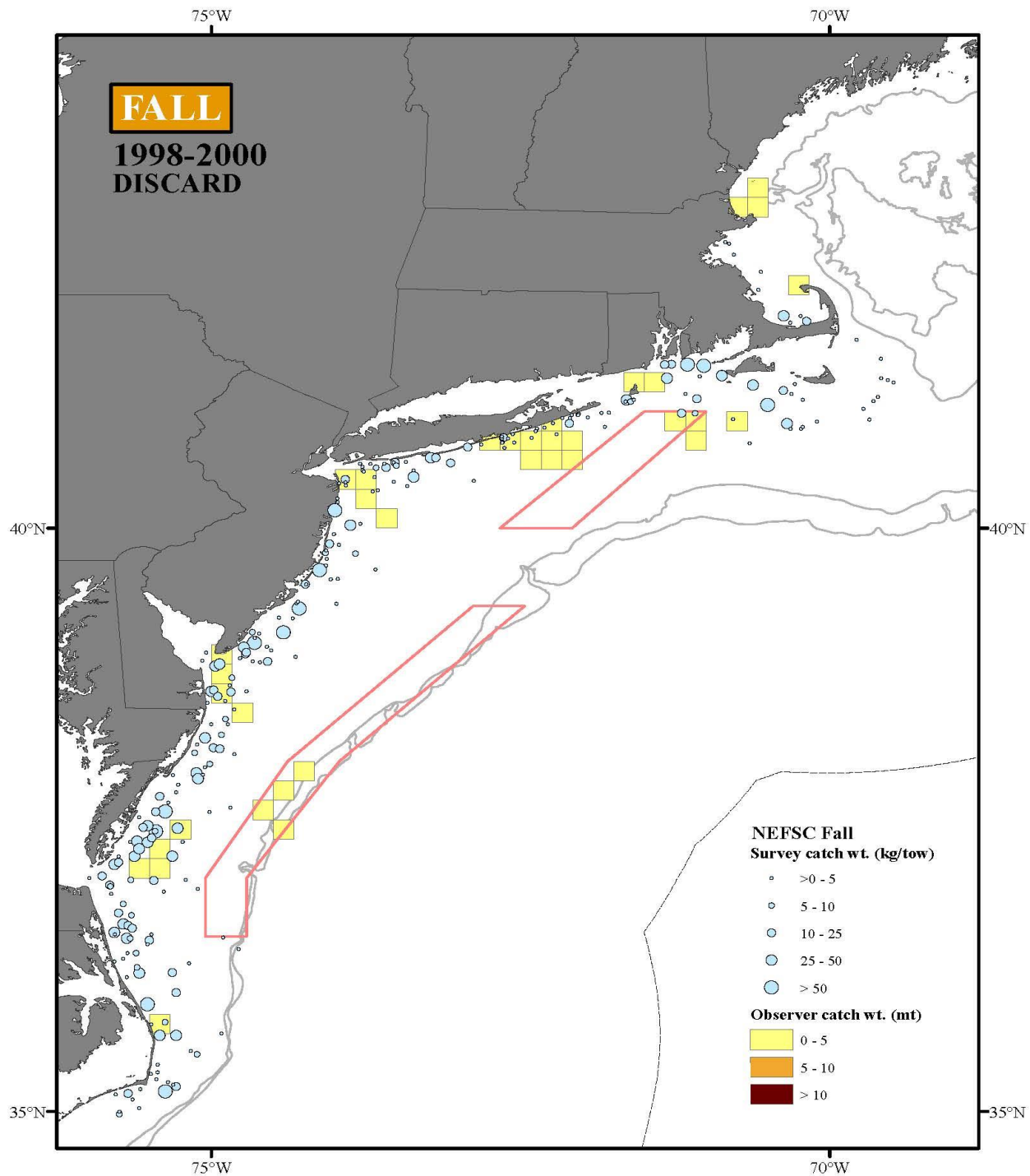


Figure 17. NEFSC fall trawl survey catches of scup (kg/tow; September-October) and Observed scup aggregate discard (metric tons; November-December) during 2010-2012. Gear Restricted Areas (GRAs) outlined in red; depth contours in gray are 50 and 100 fathoms.

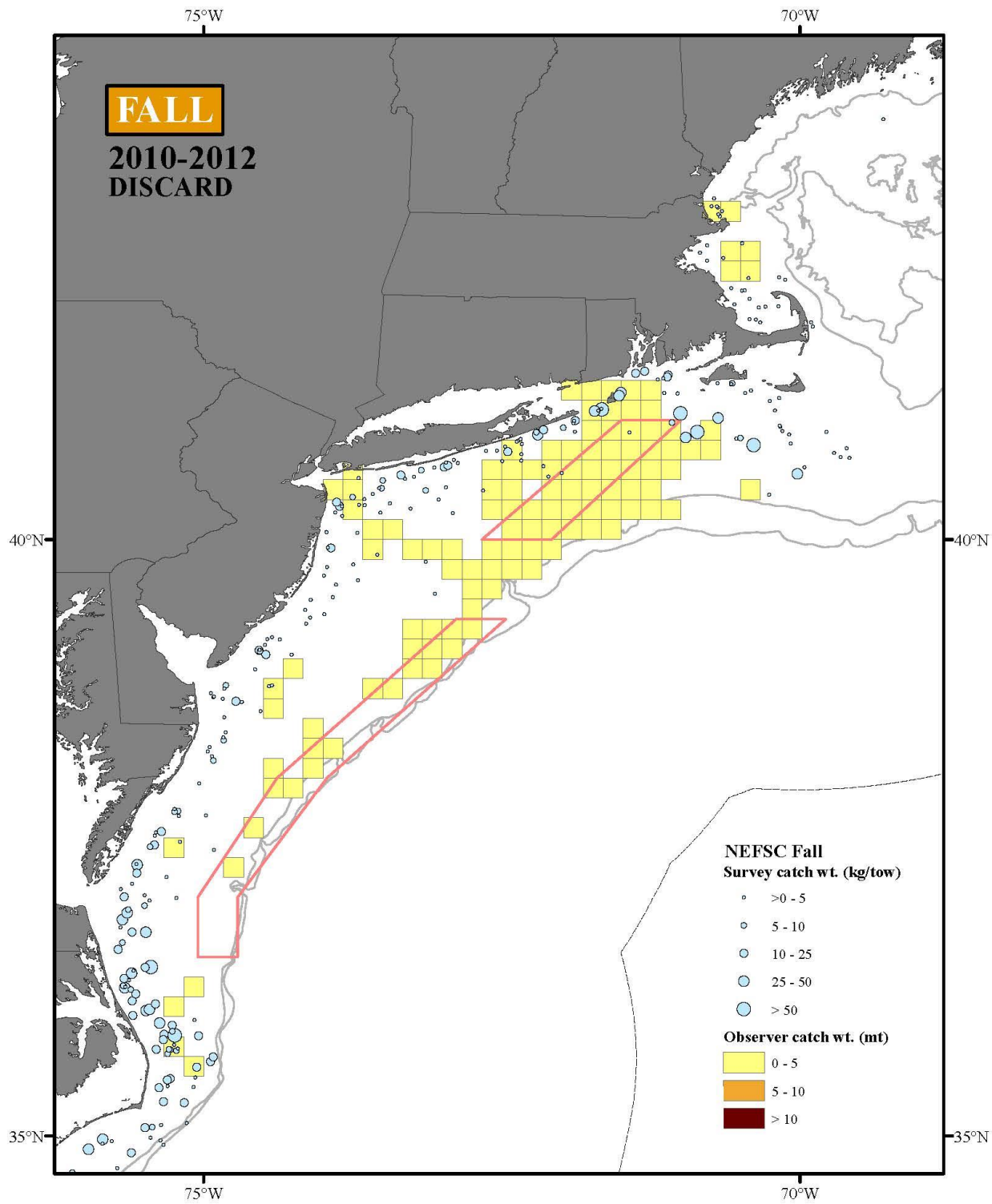


Figure 18. Observed scup discard lengths (cm fork length) in Northern GRA statistical areas during November-December: top 1998-2000, bottom 2010-2012.

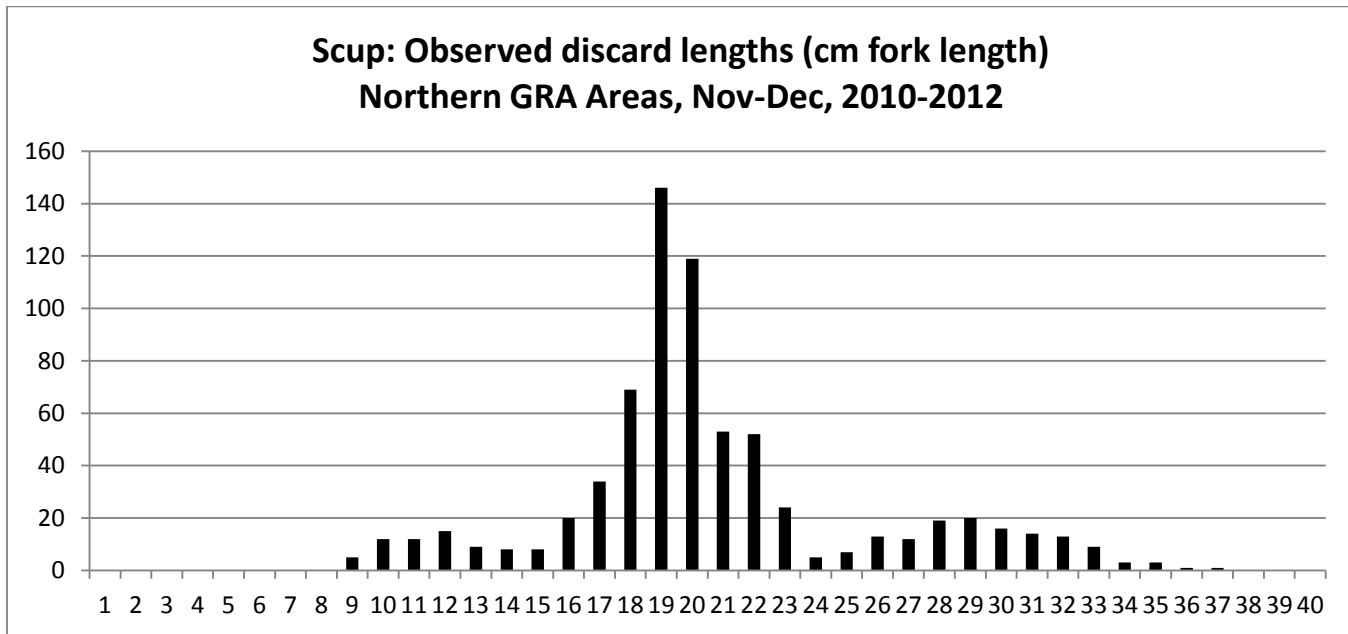
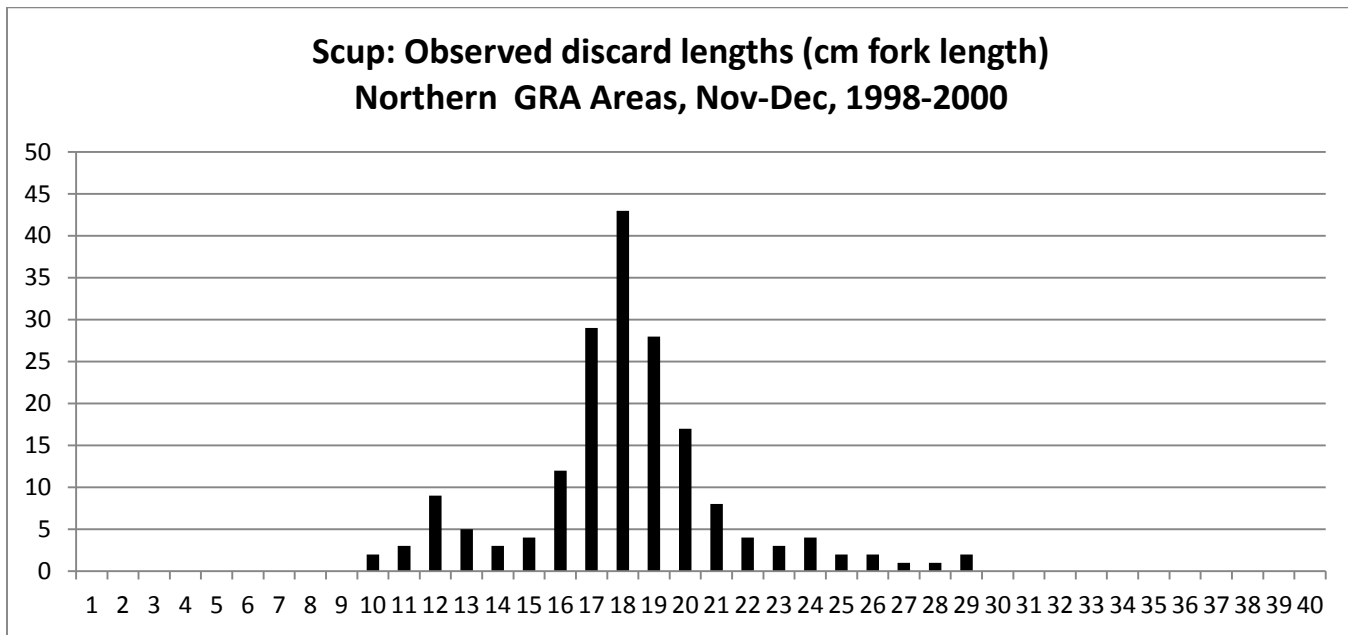


Figure 19. Observed scup discard lengths (cm fork length) in Southern GRA statistical areas during January-March: top 1998-2000, bottom 2010-2012.

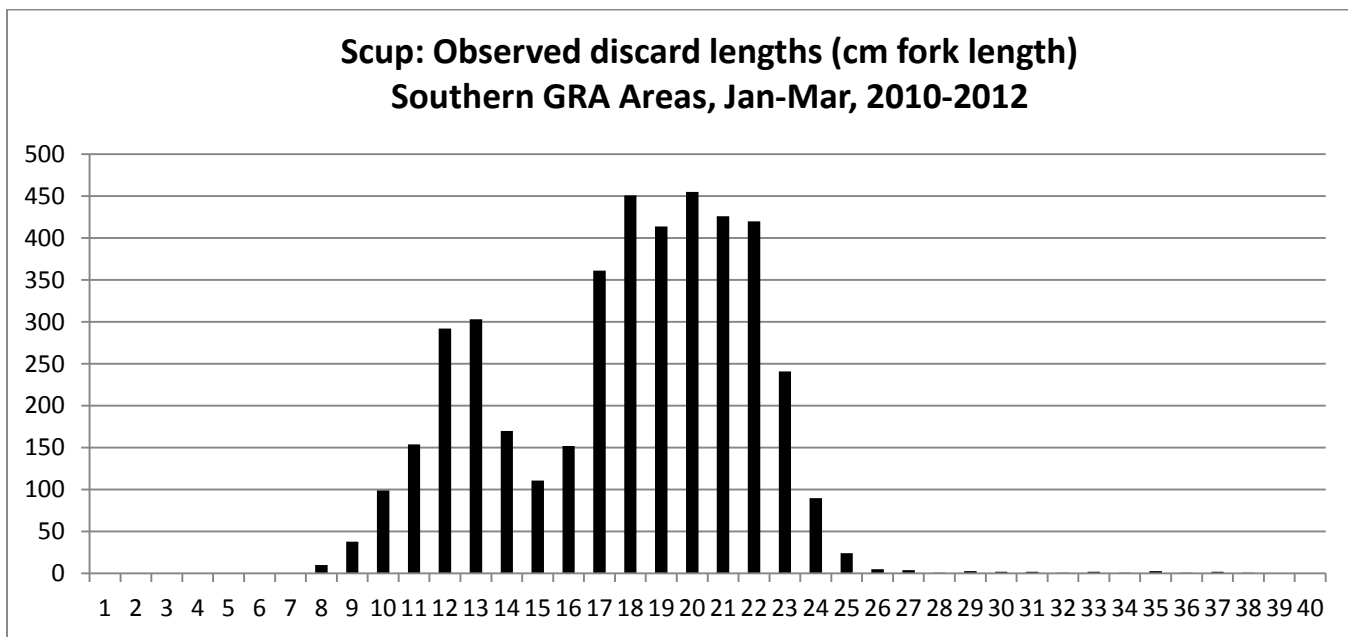
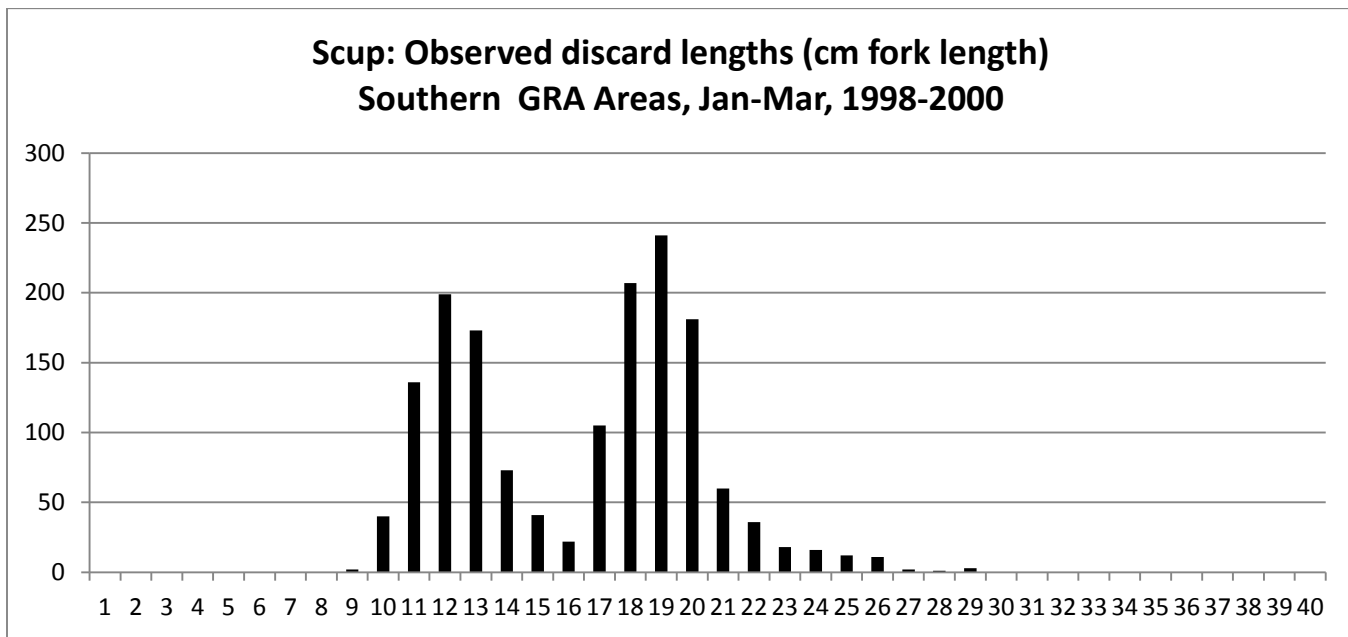


Figure 20. Size distributions of scup in NEFSC winter surveys 1998-2000. Yellow parts of the circles are fish ≤ 20 cm fork length and ages 0 and 1 fish; green slices are fish > 20 cm fork length and ages 2 and older. Size of the circle is proportional to stock size in numbers.

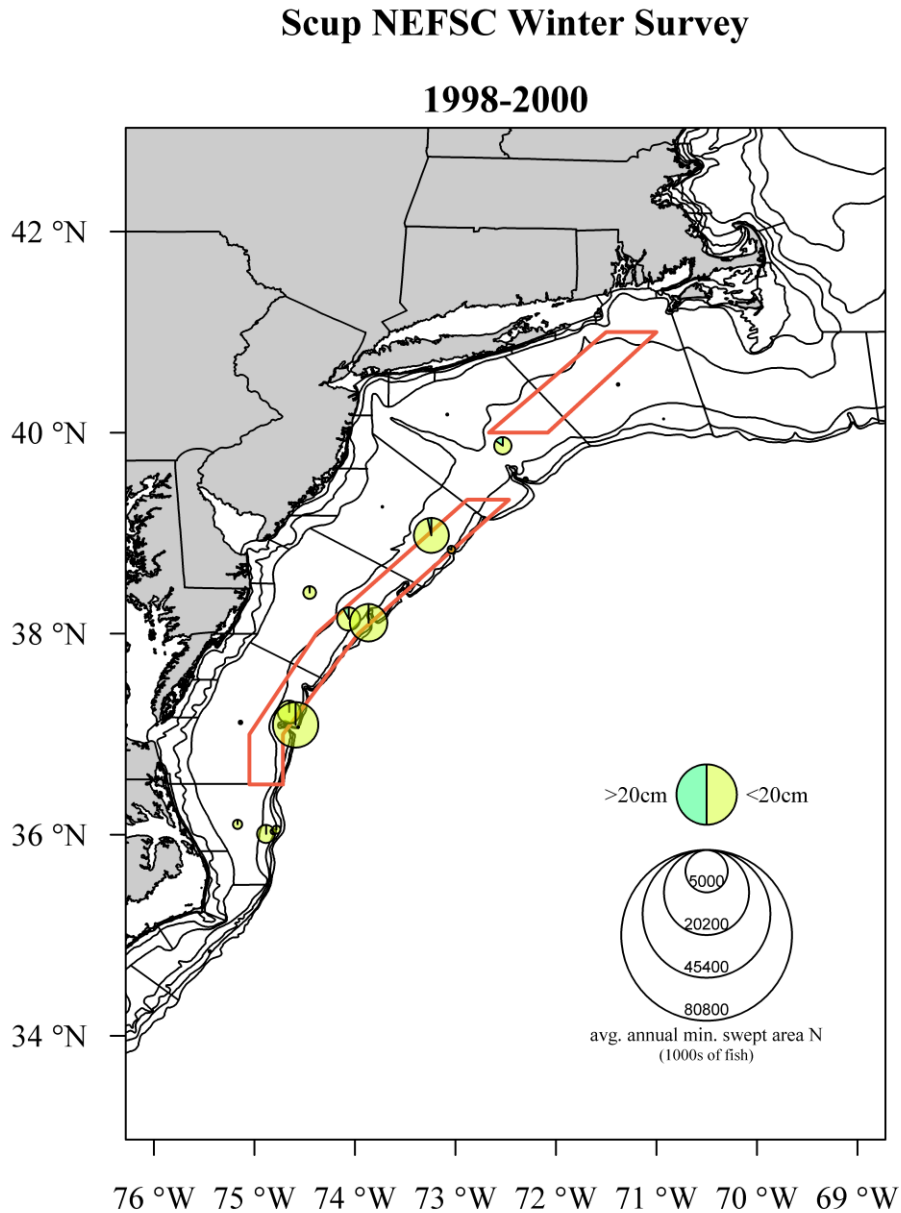


Figure 21. Size distributions of scup in NEFSC spring surveys 1998-2000. Yellow parts of the circles are fish ≤ 20 cm fork length and ages 0 and 1 fish; green slices are fish > 20 cm fork length and ages 2 and older. Size of the circle is proportional to stock size in numbers.

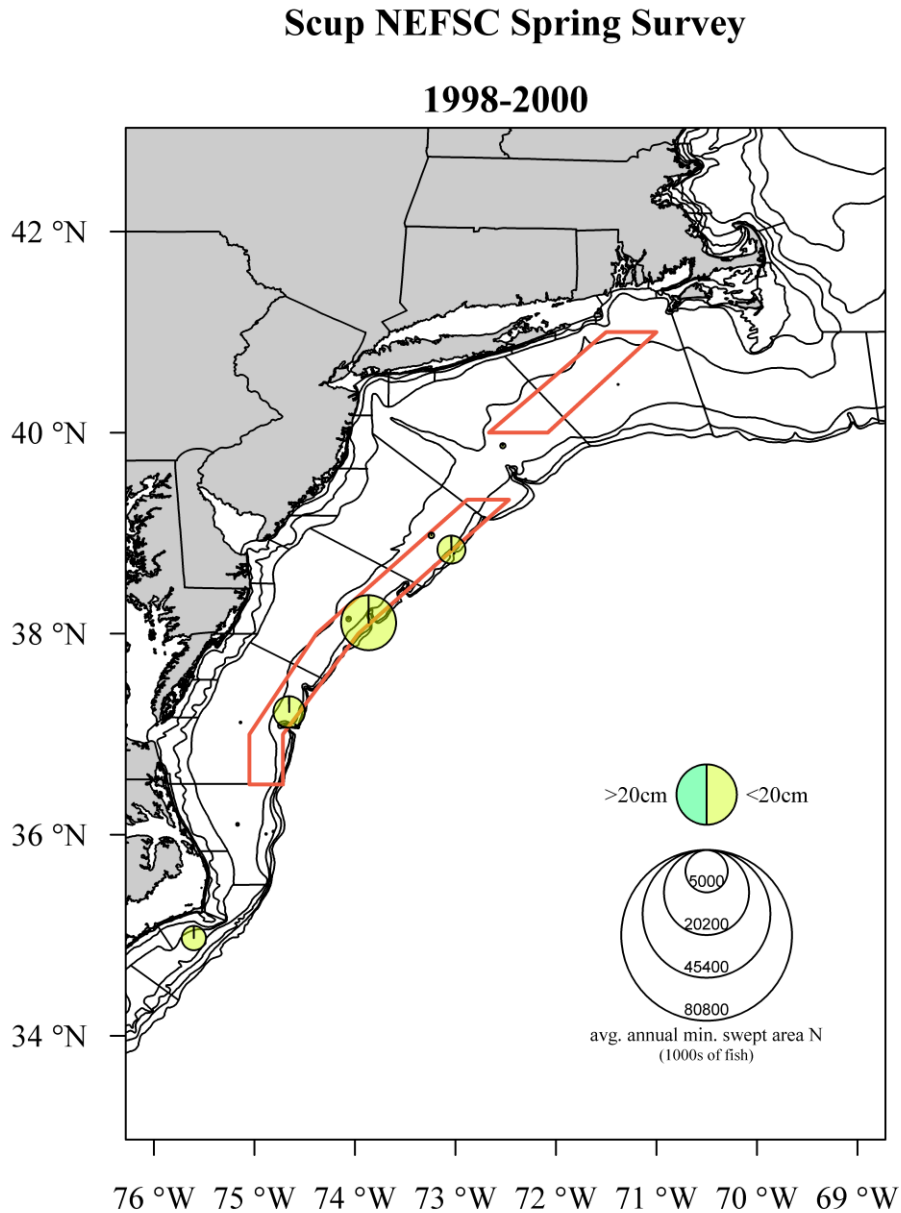


Figure 22. Size distributions of scup in NEFSC fall surveys 1998-2000. Yellow parts of the circles are fish ≤ 20 cm fork length and ages 0 and 1 fish; green slices are fish > 20 cm fork length and ages 2 and older. Size of the circle is proportional to stock size in numbers.

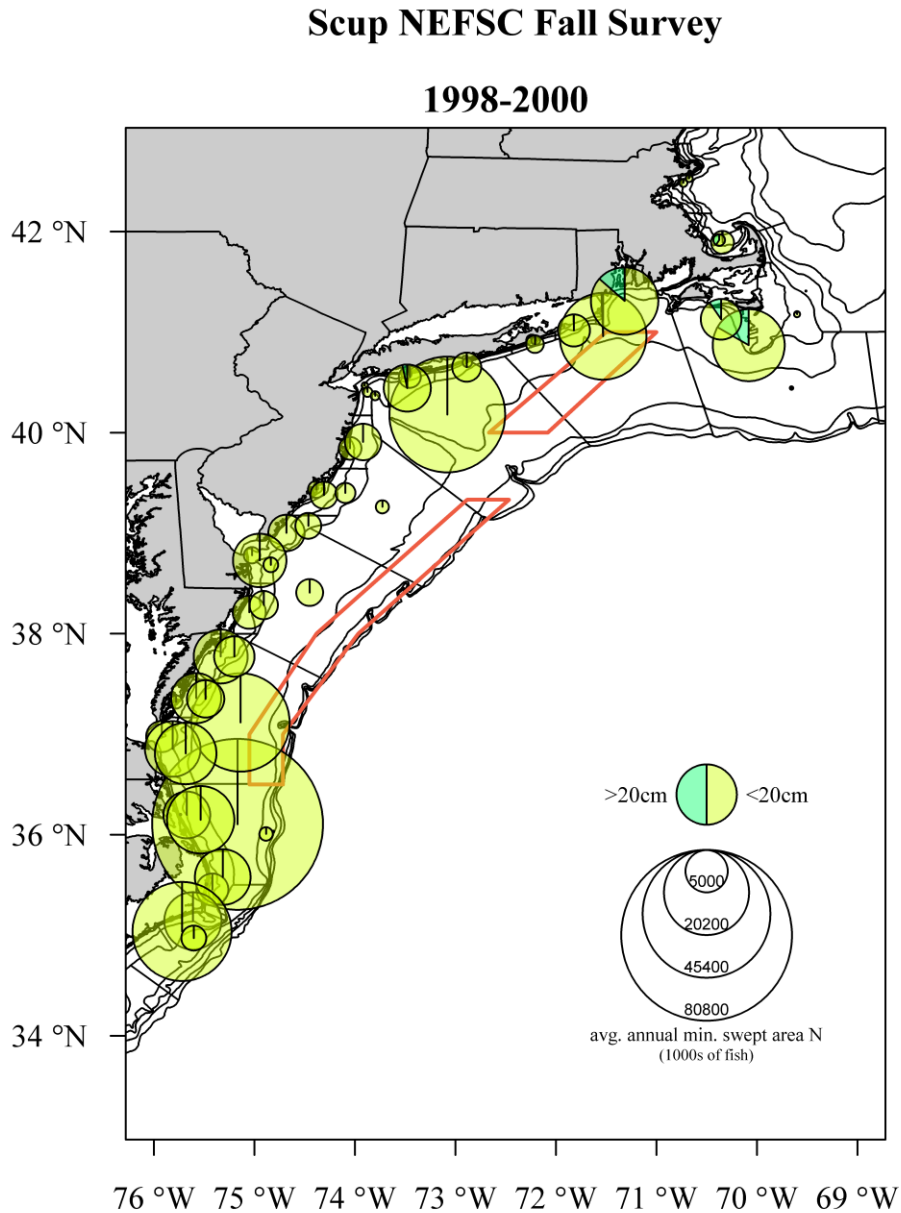


Figure 23. Size distributions of scup in NEFSC spring surveys 2010-2012. Yellow parts of the circles are fish ≤ 20 cm fork length and ages 0 and 1 fish; green slices are fish > 20 cm fork length and ages 2 and older. Size of the circle is proportional to stock size in numbers.

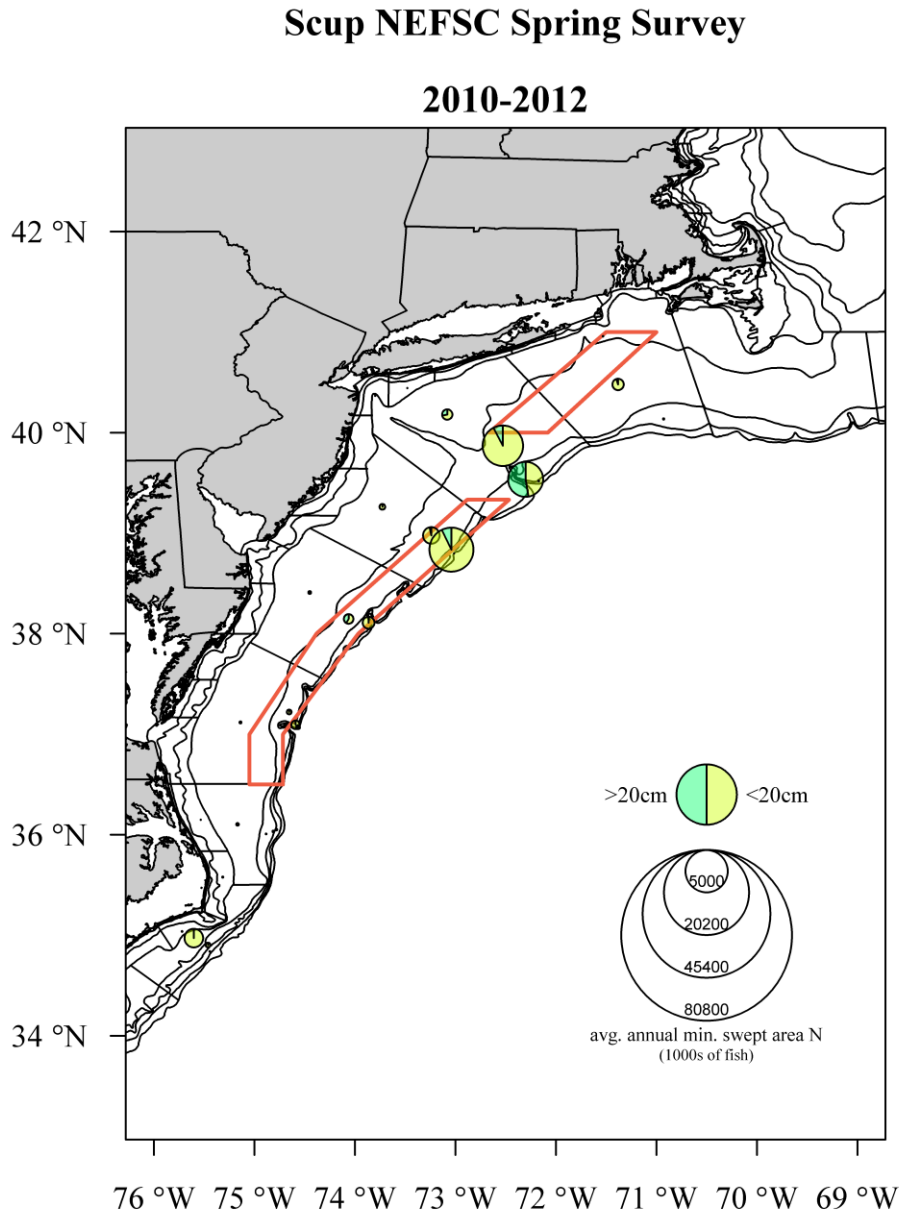


Figure 24. Size distributions of scup in NEFSC fall surveys 2010-2012. Yellow parts of the circles are fish ≤ 20 cm fork length and ages 0 and 1 fish; green slices are fish > 20 cm fork length and ages 2 and older. Size of the circle is proportional to stock size in numbers.

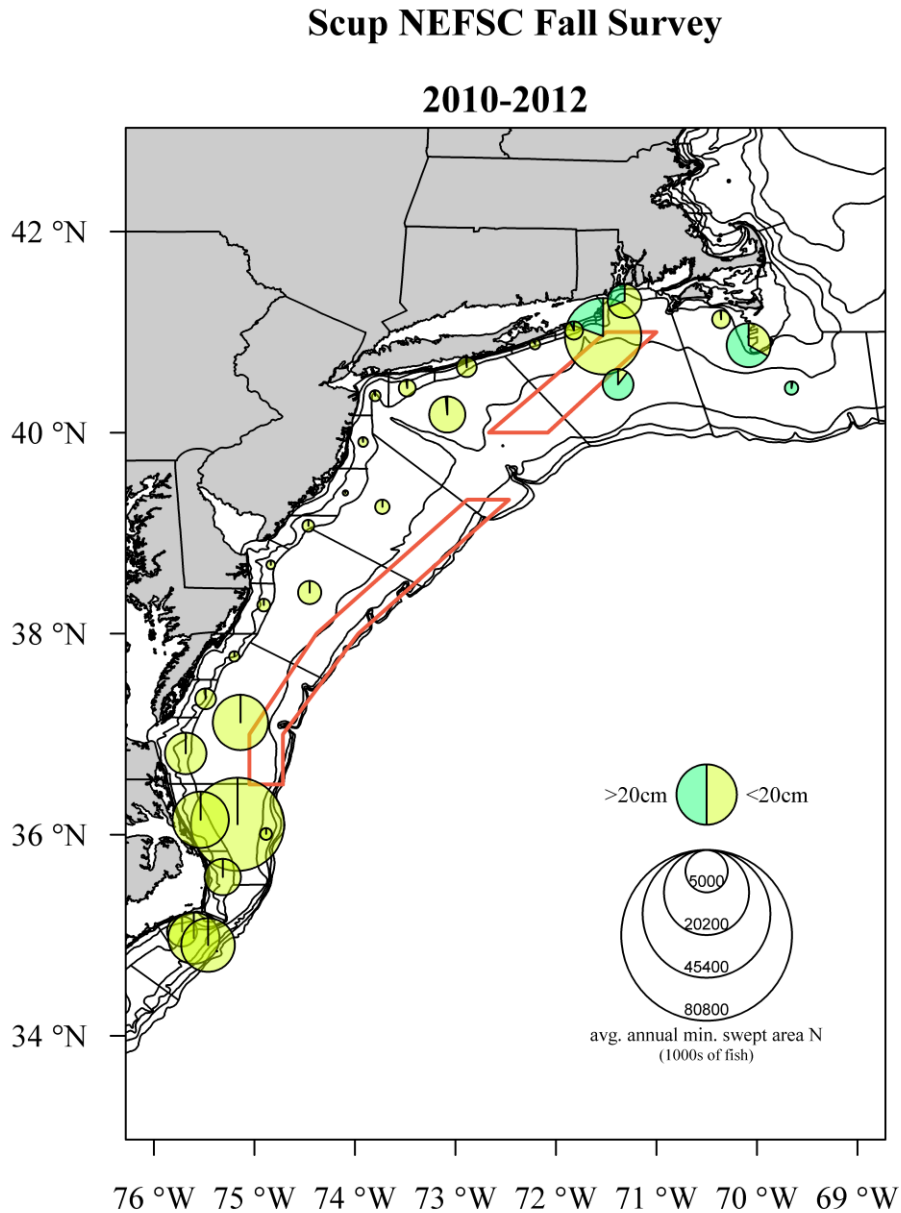


Figure 25. The total scup discards and percent of discards in the GRAs.

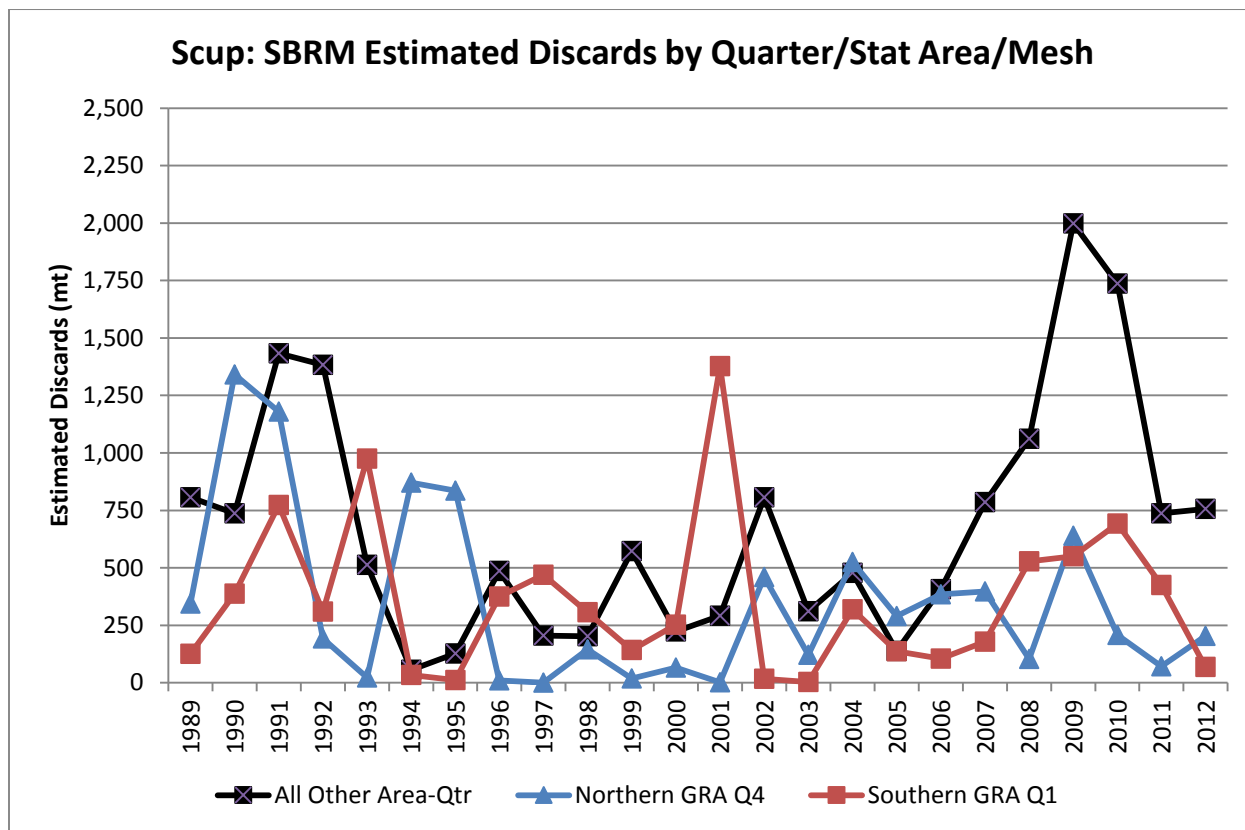
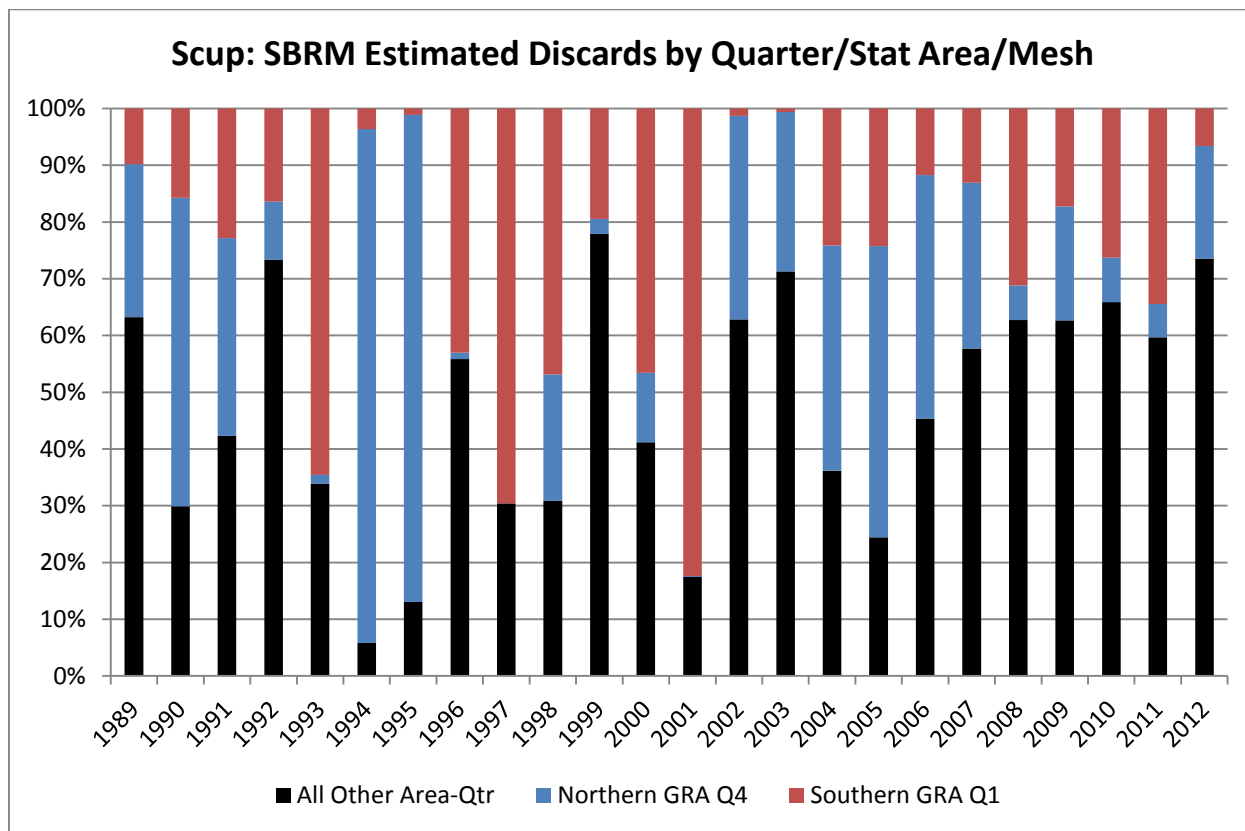


Figure 26. Discard components in the Northern and Southern GRAs compared to discards in all other statistical areas and quarters: 100% stacked histogram.





Mid-Atlantic Fishery Management Council
800 North State Street, Suite 201, Dover, DE 19901-3910
Phone: 302-674-2331 | Toll Free: 877-446-2362 | FAX: 302-674-5399 | www.mafmc.org
Richard B. Robins, Jr., Chairman | Lee G. Anderson, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

DATE: January 27, 2016

TO: Council

FROM: Jason Didden *JD*

SUBJECT: Industry Funded Monitoring (IFM) Joint Omnibus Amendment

Development of the IFM Amendment is being led by NMFS. The Discussion Document follows this memo and NMFS staff will provide an overview presentation at the Council meeting. Several supporting documents are also on the meeting materials website, <http://www.mafmc.org/council-events/feb16-council-meeting> including:

- Discussion Document Appendices 1-3 (Background Q&A, Cost Estimates, Provider Requirements)
- Recent technical meeting summaries (results have been incorporated into the Discussion Document)
- December 17, 2015 NEFMC Observer Committee Summary
- Draft (September 2015) Environmental Assessment
- Action Plan – Has current timeline including selecting preferred Omnibus elements in February, selecting preferred mackerel elements in April, public hearings/comment in May, and final Council action in June (with implementation by the end of the year).

The Omnibus elements of the action, which are the focus for the February meeting, are largely administrative in nature, so the impacts are all low/negligible. The alternatives for specific coverages for the mackerel fishery (and associated impacts) will be the focus of the April meeting.

The following are the decision points for the February meeting. The New England Fishery Management Council (NEFMC) met in January and has adopted motions related to these questions. The motions they passed (draft format) are included at the end of each question/decision point.

1. Does the Council want to implement an Omnibus Amendment to specify default cost responsibilities and standards for NEW FMP-specific IFM programs? (SBRM and existing scallop/groundfish programs would not be affected.) This is Omnibus Alternative 2, and not selecting this alternative would effectively end this action (all of the other alternatives relate to this big picture question). Council staff recommends identifying Alternative 2 as preferred.

NEFMC motion (draft): ...that the Council select Alternative 2 (standardized structure for IFM programs) as the preliminary preferred alternative for the IFM Amendment.

2. Does the Council want to adopt the “Guiding Principles” for IFM programs recommended by NEFMC’s Observer Policy Committee and adopted by the NEMFC? If so, these principles would be integrated into the IFM Amendment’s Environmental Assessment.

NEFMC motion (draft): ...that the Council adopts the following guiding principles for industry funded monitoring programs implemented by GARFO. Data collection programs for the estimation of fishery catch should:

- Be fit for purpose- the reason, or clear need, for data collection should be identified to ensure objective design criteria.
 - Be affordable- the cost of data collection programs should not diminish net benefits to the nation, nor threaten the continued existence of our fisheries. However, essential data collection is needed to assure conservation and sustainability, and is reason to seek less data intensive ways to assess and manage fisheries on the economic margins.
 - Should apply modern technology- data collection should prioritize the utilization of modern technology to the extent possible to meet our data collections needs, while recognizing an affordable robust program is likely to need a mix of data collection by people and technology.
 - Incentivize reliable self-reporting.
3. Does the Council want to remove, as a standard for potential new IFM programs (like mackerel), a service provider requirement to not deploy the same observer on the same vessel for more than 2 consecutive multi-day trips or for more than twice in a given month? This would allow potential cost savings, though there is some concern about losing some randomness of vessel/observer pairing if this requirements is removed. Each IFM program can modify some service provider requirements (such as this one) on an FMP-specific basis – this only identifies the standard/default requirement.

NEFMC motion (draft): ...that the Council recommends the removal of the IFM service provider requirement to not deploy the same observer on the same vessel for more than 2 consecutive multi-day trips or for more than twice in a given month.

4. Does the Council want to identify as preferred that future frameworks could implement a monitoring set-aside that could help fund IFM programs? Council staff recommends this as preferred – while it may not be useful in all fisheries, it does add a “tool in the toolbox.”

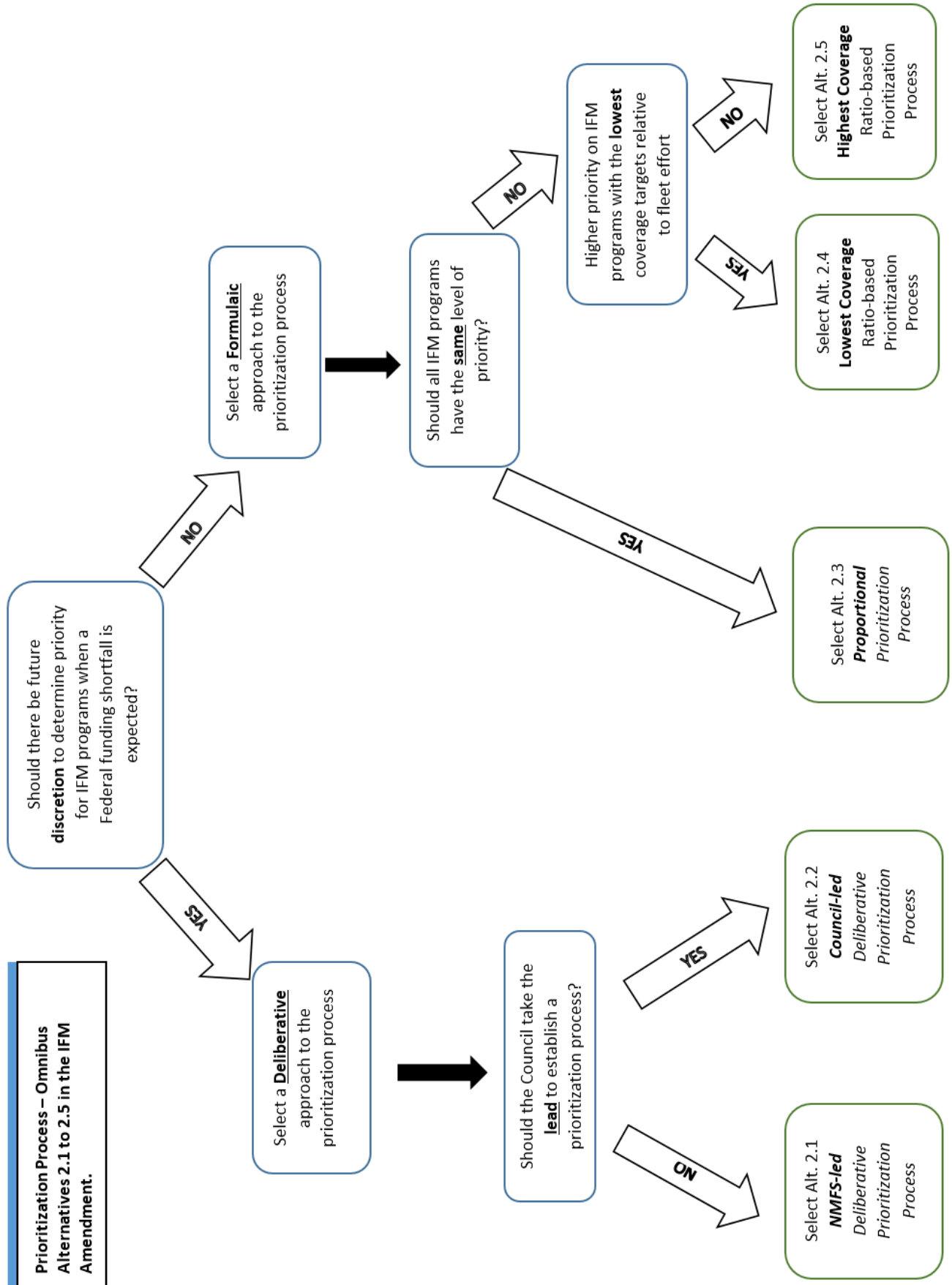
NEFMC motion (draft): ... that the Council select Alternative 2.6 (monitoring set aside) as the preliminary preferred alternative for the IFM amendment.

5. Does the Council want to identify a preferred prioritization alternative (2.1-2.5)? New IFM programs will only run if NMFS has extra money to fund NMFS’ costs (beyond SBRM). If there is no money, then no new IFM programs would operate. In April the Council will consider whether to allow a waiver or to sideline a fleet if NMFS cannot fund a fleet’s IFM program. If NMFS has some money but there is a shortfall, 2.1-2.5 would specify how IFM programs get funded relative to each other.
 - 2.1 – NMFS decides (with Council consultation), using a priority weighting system.
 - 2.2 – Councils lead a process to recommend priority programs to NMFS.
 - 2.3 – Shortfalls automatically affect all programs proportionate to the shortfall.
 - 2.4-2.5 – Shortfalls automatically affect programs depending on the ratio (high or low) of extra needed days relative to fishing activity (days fished). Because prioritization would vary based on both parts of the ratio, the result may not reflect Council management priorities.

NEFMC motion (draft): ... that the Council select Alternative 2.2 (Council-led) as a preferred Alternative for the IFM Amendment.

NEFMC added that the prioritization process implemented via the IFM Amendment could be modified via a Framework Adjustment – MAFMC Council staff recommends adding this to whatever motion the Council uses to select a preferred prioritization process (if any). Council staff also recommends Alternative 2.2 as preferred, since the Council could then adopt any of the other processes from the other alternatives.

The flow chart on the following page (created by NEFMC staff), provides another way of working through the prioritization process alternatives.



**Industry-Funded
Monitoring
Omnibus Amendment
Discussion Document**

Omnibus Alternatives

**Mid-Atlantic Fishery Management Council
New Bern, North Carolina
February 2016**

Prepared by NOAA's National Marine Fisheries Service

1.0 Table of Contents

1.1	PURPOSE AND NEED.....	3
1.2	OVERVIEW OF OMNIBUS ALTERNATIVES.....	3
1.3	MANAGEMENT ALTERNATIVES.....	5
1.4	DESCRIPTION OF OMNIBUS ALTERNATIVES	5
1.4.1	Omnibus Alternative 1: No Industry-Funded Monitoring Programs.....	5
1.4.2	Omnibus Alternative 2: Industry-Funded Monitoring Programs.....	7
1.4.3	Considered But Rejected Omnibus Alternatives	46
1.5	IMPACTS OF OMNIBUS ALTERNATIVES	47
1.5.1	OMNIBUS ALTERNATIVE IMPACTS TO BIOLOGICAL RESOURCES.....	51
1.5.2	OMNIBUS ALTERNATIVE IMPACTS TO PHYSICAL ENVIRONMENT	53
1.5.3	OMNIBUS ALTERNATIVE IMPACTS TO HUMAN COMMUNITIES	54

1.1 PURPOSE AND NEED

The purpose of this action is to consider measures that would allow the Councils to implement new industry-funded monitoring coverage in New England and Mid-Atlantic Fishery Management Plans (FMPs) in an organized fashion. This amendment would allow industry funding to be used in conjunction with available Federal funding to pay for additional monitoring to meet FMP-specific coverage targets. This amendment also considers (1) standard cost responsibilities associated with industry-funded monitoring for NMFS and the fishing industry, (2) a process for FMP-specific industry-funded monitoring to be implemented via a future framework adjustment action, (3) standard administrative requirements for industry-funded monitoring service providers, (4) a process to prioritize available Federal funding for industry-funded monitoring across FMPs, and (5) a process for monitoring set-aside programs to be implemented via a future framework adjustment action. This action is needed to allow Councils to implement industry-funded monitoring programs for the Greater Atlantic Region, and prioritize the allocation of Federal funding across those programs when available funding falls short of the total need. This omnibus amendment would ensure consistency for industry-funded monitoring programs across New England and Mid-Atlantic FMPs.

Additionally, this amendment has a second purpose, to consider specific industry-funded monitoring options for the Atlantic Herring FMP and the Atlantic Mackerel, Squid, Butterfish (MSB) FMP. Additional monitoring is necessary to generally improve the accuracy of catch estimated (landings and discards) and to better estimate the catch of incidental species for which catch caps apply (i.e., the river herring/shad and haddock catch caps). The effectiveness and affordability of the industry-funded monitoring program are of primary importance when considering monitoring coverage targets for these fisheries. This action is needed to allow the Councils to monitor catch in these fisheries at their desired levels.

Detailed background information for this amendment is described in Appendix 1 - Background Information.

1.2 OVERVIEW OF OMNIBUS ALTERNATIVES

Omnibus Alternative 1 – No standardized structure for industry-funded monitoring programs (No Action)

- No standard definition of cost responsibilities between industry and NMFS;
- No standardized framework adjustment process to implement future industry-funded monitoring programs in other FMPs;
- No standardized observer service provider requirements;
- No process for prioritizing available Federal funding across industry-funded monitoring programs; and
- No standardized framework adjustment process to implement future monitoring set-aside programs.

Omnibus Alternative 2 – Standardized structure for industry-funded monitoring programs and option for monitoring set-aside provision.

- Standard definition for cost responsibilities between industry and NMFS;
- Standard framework adjustment process to implement future industry-funded monitoring programs in other FMPs;
- Standard observer service provider requirements;
- Process for prioritizing available Federal funding across industry-funded monitoring programs; and
- Option for standard monitoring set-aside provision.

Omnibus Alternatives 2.1 – 2.5 are variations on the prioritization process in Omnibus Alternative 2, and consider specific options for what to do when Federal funding is not sufficient to cover NMFS's costs to support the Council's desired coverage level for a given FMP.

1. Omnibus Alternative 2.1– NMFS-led prioritization process. NMFS prepare analysis and prioritization in consultation with the Councils.
2. Omnibus Alternative 2.2 – Council-led prioritization process. Council prepares analysis and recommended priorities to NMFS.
3. Omnibus Alternative 2.3 – Proportional prioritization process. Shortfalls in Federal funding to support industry-funded monitoring would be distributed proportionally among all industry-funded monitoring programs.
4. Omnibus Alternatives 2.4 – Coverage ratio-based prioritization process. The amount of funding would be allocated to each FMP related to the extra coverage needed and total fleet activity. Alternative 2.4 would favor coverage for the FMPs that don't need much additional coverage to meet targets and the most active FMPs with IFM programs.
5. Omnibus Alternatives 2.5 – Coverage ratio-based prioritization process. The amount of funding would be allocated to each FMP related to the extra coverage needed and total fleet activity. Alternative 2.5 would favor coverage for the FMPs that need more coverage to meet targets and the least active FMPs with IFM programs.

Omnibus Alternative 2.6 – Monitoring Set-Aside

This alternative would provide a structure to develop future monitoring set-aside programs which would generally consist of reserving a portion of the annual catch limit for a fishery to assist in funding vessel/non-governmental costs for additional monitoring coverage beyond the Standardized Bycatch Reporting Methodology (SBRM) requirements. No monitoring set-aside programs would be directly established by this action.

1.3 MANAGEMENT ALTERNATIVES

The current alternatives include the following:

- Standard cost responsibilities associated with industry-funded monitoring for NMFS and the fishing industry; (Omnibus)
- A process by which industry-funded monitoring programs (e.g., at-sea monitoring, dockside monitoring, electronic monitoring) can be implemented via framework adjustment in each FMP; (Omnibus)
- Standards for industry-funded monitoring service providers (e.g., for dockside monitoring, at-sea monitoring, and electronic monitoring); (Omnibus)
- A process by which NMFS and/or the Councils would prioritize available Federal funding for industry-funded monitoring across FMPs, when Federal funding is not sufficient to meet all coverage targets; (Omnibus)
- A process by which monitoring set-aside programs can be implemented via framework adjustment in each FMP for those FMPs with industry-funded monitoring programs; (Omnibus) and
- Monitoring coverage targets or requirements for certain permit categories and/or gear types for the herring and mackerel fisheries. (Herring and Mackerel specific)

1.4 DESCRIPTION OF OMNIBUS ALTERNATIVES

The following omnibus alternatives consider provisions that would apply to all New England and Mid-Atlantic FMPs, including (1) standard cost responsibilities associated with industry-funded monitoring for NMFS and the fishing industry, (2) a process for FMP-specific industry-funded monitoring to be implemented via a future framework adjustment action, (3) standard administrative requirements for industry-funded monitoring service providers, (4) a process to prioritize available Federal funding for industry-funded monitoring across FMPs, and (5) a process to develop monitoring set-aside programs via a future framework adjustment action.

1.4.1 Omnibus Alternative 1: No Industry-Funded Monitoring Programs

Under Omnibus Alternative 1 (No Action), there would be no standardized structure developed for Greater Atlantic Region industry-funded monitoring programs. There would be no standard definition of costs and cost responsibility for industry-funded monitoring in the New England and Mid-Atlantic fisheries. Cost definitions and the determination of who pays for them would be considered individually by each FMP as industry-funded monitoring programs are developed. Under Omnibus Alternative 1, there would be no process to prioritize available Federal funding to meet Council desired monitoring coverage target above and beyond SBRM coverage and no standard administrative requirements for industry-funded monitoring service providers. The allocation of available Federal funding to increase monitoring to meet Council

desired coverage levels and observer service provider requirements for industry-funded monitoring would be evaluated on an case-by-case, FMP-by-FMP basis. Additionally, under Omnibus Alternative 1, there would be no framework adjustment process to implement FMP-specific industry-funded monitoring or therefore, no framework adjustment process to implement FMP-specific monitoring set-aside program. Rather, industry-funded monitoring programs and monitoring set-aside programs would be developed and established in FMP-specific amendments.

Timing for the Omnibus Alternative 1 (No Action)

The following table outlines the existing timeline for sea day allocation related to SBRM, Sector At-Sea monitoring, and the scallop fishery (compensation rate determination). The SBRM year runs from April to March, the NE Multispecies fishing year runs from May to April, and the scallop fishing year runs from March to February. The schedule below would remain unchanged under the status quo alternative.

TABLE 1. STATUS QUO TIMING OF GREATER ATLANTIC REGION SBRM, SECTOR AND SCALLOP MONITORING ALLOCATION AND ANALYSIS

Year	Month	SBRM schedule	Sector ASM Schedule	Scallop Compensation Rate Determination Schedule
Year 1	January to April			
	April/May			
	May to October			
	October	<ul style="list-style-type: none"> Observer data July Year 0 – June Year 1 available Begin analysis for SBRM 	Work on analysis for sector ASM using most recent complete fishing year (May Year 0 – April Year 1)	
	November	Work on discard estimation analysis for SBRM from November through early February		
	December			
Year 2	January	Receive Year 2 budget	Sector ASM coverage rates published in proposed rule	Determine compensation rate
	February		Collect public comment	
	March	If funding shortfall,	Sector ASM coverage	Begin Year 2

		run SBRM prioritization process	rates published in final rule	
	April	Determine and begin Year 2 sea day schedule	Determine sea day schedule	Determine and begin sea day schedule
	May		Begin Sector ASM Year 2	

1.4.2 Omnibus Alternative 2: Industry-Funded Monitoring Programs

Under Omnibus Alternative 2, there would be an established, standardized structure for new industry-funded monitoring programs that would apply to all New England and Mid-Atlantic FMPs that choose to use industry funding to increase monitoring via new programs (the existing scallop and groundfish programs would not be affected by this action). This industry-funded monitoring program structure would include the following components: (1) standard cost responsibilities associated with industry-funded monitoring for NMFS and the fishing industry, (2) a process for FMP-specific industry-funded monitoring to be implemented via a future framework adjustment action, (3) standard administrative requirements for industry-funded monitoring service providers, and (4) a process for FMP-specific monitoring set-aside program to be implemented via a future framework adjustment action. Additionally, Omnibus Alternative 2 would include a range of options for the process to prioritize available Federal funding for industry-funded monitoring across FMPs. **No individual FMP would be subject to an industry-funded monitoring program as a result of implementation of the Omnibus alternatives proposed in this action.** Rather, any FMP that wishes to develop an industry-funded monitoring program, and optionally, a monitoring set-aside program, would need to develop the program that meets the specifications of this action in a separate framework. Other parts of this action discussed later do consider specific programs for the Atlantic herring and Atlantic mackerel fisheries.

Current Monitoring Types in the Greater Atlantic Region

The existing types of monitoring programs include:

1. At-sea monitoring, which focuses on data collection at sea, recording the type and quantity of retained and/or discarded catch.
2. Dockside monitoring, which focuses on data collection at the dock, accounting for landings of target species and incidental catch. If all fish caught are retained and landed, dockside monitoring can also record type and quantity of total catch.
3. Electronic monitoring (EM), which uses video cameras and other sensors to monitor discards at sea or to monitor compliance with full retention requirements or other at-sea requirements.

The following section provides further detail on these monitoring types, and their current uses in the Greater Atlantic Region.

At-Sea Monitoring

At-sea monitoring (ASM) is used to refer to the collection of data at sea aboard fishing vessels by human observers. The Northeast Fisheries Science Center (NEFSC) Fisheries Sampling Branch currently manages the collection and processing of data and biological samples obtained during commercial fishing trips through the Northeast Fisheries Observer Program (NEFOP) and groundfish ASM programs.

The Fisheries Sampling Branch oversees observer training, translates data requirements from the NEFSC research programs into a detailed schedule of fisheries to be sampled and at what frequency, manages data collected by observers, and provides qualified researchers with audited data files and summaries. Observers collect operational fishing data, biological data, and economic data while on board fishing vessels. Additionally, in support of the Marine Mammal Protection Act (MMPA) and Endangered Species Act (ESA), observers monitor interactions with protected and endangered species. Summaries of fishery observer data are provided to scientists and analysts of the Greater Atlantic Regional Fisheries Office (GARFO), NEFSC, and the Regional Fishery Management Councils to support quantitative and qualitative evaluations of various management actions.

This document uses the terms “observer” and “at-sea monitor” interchangeably. However, the reader should note the following:

- The term “NEFOP-level observer” is used to refer to observers that collect an advanced and diverse set of information on fishing trips; and
- This document refers to FMP-specific at-sea monitoring programs by prefacing the terms “at-sea monitor” or “ASM” with a fishery name (e.g., the groundfish ASM program, groundfish at-sea monitors, the herring/mackerel ASM program, etc.). Fishery-specific at-sea monitors collect a more limited set of information on fishing trips than NEFOP-level observers, in direct support of FMP-specific goals.

NEFOP-level observers collect a wide array of information on a subset of the trips in all Greater Atlantic Region fisheries. The information they collect includes:

- Fishing gear information (i.e., size of nets and dredges, mesh sizes, and gear configurations);
- Tow-specific information (i.e., depth, water temperature, wave height, and location and time when fishing begins and ends);
- All kept and discarded catch (fish, sharks, crustaceans, invertebrates, and debris) on observed hauls (species, weight, and disposition);
- Kept catch on unobserved hauls (species, weight, and disposition);
- Actual catch weights whenever possible, or alternatively, weight estimates derived by sub-sampling methodologies;
- Whole specimens, photos, and biological samples (i.e., scales, ear bones, and/or vertebrae from fish, invertebrates, and incidental takes);

- Information on interactions with protected species, such as sea turtles, porpoise, dolphins, whales, and birds; and
- Vessel trip costs (i.e., operational costs for trip including food, fuel, oil, and ice).

In recent years, NEFOP-level observer coverage has largely been allocated as part of the SBRM. The SBRM is the combination of sampling design, data collection procedures, and analyses used to estimate bycatch in multiple fisheries. The SBRM provides a structured approach for evaluating the effectiveness of the allocation of fisheries observer effort across multiple fisheries to monitor a large number of species. Although management measures are typically developed and implemented on an FMP-by-FMP basis, from the perspective of developing a bycatch reporting system, there is overlap among the FMPs and the fisheries that occur in New England and the Mid-Atlantic that could result in redundant and wasteful requirements if each FMP is addressed independently.

For example, New England vessels using extra-large mesh gillnets catch monkfish, skates, and Northeast multispecies, often on the same fishing trip, and, therefore, most participants in this fishery must operate according to the regulations implemented under three different FMPs. To distinguish between the management units identified in individual FMPs and the fisheries that operate under one or more FMPs, the SBRM is designed around “fishing modes” defined by the type of fishing gear used and the area from which the vessels depart.

There are 56 fishing modes defined in the SBRM, some of which further subdivide a fishery by the mesh size of the gear used (for gillnets and otter trawls), or by the type of permit and access area program (for sea scallop dredges). Although there are differences among the modes, the participants in these fishing modes fish throughout the Gulf of Maine, Georges Bank, and the Mid-Atlantic Bight, and land their catch across a large number of fishing ports from the Outer Banks of North Carolina to Downeast Maine. The SBRM is limited to those fisheries that are prosecuted in the Federal waters of the Greater Atlantic Region and managed through an FMP developed by either the Mid-Atlantic or New England Council.

The Atlantic Sea Scallop observer program, described in further detail in Appendix 1, is the only existing industry-funded monitoring program in the region that uses NEFOP-level observer coverage.

While NEFOP-level observers are used to cover all fisheries, including sector trips, groundfish at-sea monitors are deployed on vessels participating in the groundfish sector program. Groundfish at-sea monitors follow a rigorous sampling protocol to collect weights of fish catch (kept and discarded), to measure the lengths of groundfish species, and document interactions with protected species. Groundfish at-sea monitors also collect information on trip costs, gear type, and tow locations. In contrast to NEFOP-level observers, groundfish at-sea monitors collect a reduced set of data, thereby reducing training time, gear requirements, and internal support resources necessary to administer this program.

Dockside (Portside) Monitoring

Dockside monitoring programs deploy trained monitors to vessel landing locations to monitor the weights and species composition of landed catch. Landings sampling protocols for dockside monitoring differ between programs depending on the program goals. Monitors typically monitor offloads directly to dealers, but roving monitoring programs can be established in cases where landings are offloaded to a truck for later delivery to a dealer. The reader should note that the terms “dockside monitor” and “portside sampler” are used interchangeably in this document.

There are not any Federal dockside monitoring programs currently administered in the Greater Atlantic Region. However, there was previously an industry-funded dockside monitoring requirement for groundfish sectors. Sectors were required to implement a dockside monitoring program to validate dealer-reported landings, with 50-percent coverage of sector trips in the 2010 groundfish fishing year, and 20-percent coverage each year thereafter. In 2010, NMFS reimbursed sectors for the costs of dockside monitoring. Shortly after the implementation of Amendment 16 to the NE Multispecies FMP, the Council became concerned that the industry would not be able to support full responsibility for the costs of monitoring programs, beginning with dockside monitoring in 2011 and at-sea monitoring in 2012. Through Framework 45 to the Northeast Multispecies FMP, the Council suspended the dockside monitoring requirements until FY 2013 and required dockside monitoring only to the extent that NMFS could fund it. In 2011, NMFS made the determination that dockside intercepts by enforcement personnel were sufficient to monitor sector landings and reprioritized financial support for dockside monitoring to alleviate general sector operating costs. The dockside monitoring program was ultimately eliminated in Framework 48 to the Northeast Multispecies FMP in advance of the 2013 groundfish fishing year.

A number of states in this region administer dockside monitoring programs related to state-managed species; a number of Federal permit holders are sampled through the state dockside monitoring programs. The Massachusetts Department of Marine Fisheries and Maine Department of Marine Resources portside monitoring programs for Atlantic herring are described under the herring coverage target alternatives.

Electronic Monitoring

The use of electronic monitoring systems on fishing vessels, namely electronic systems that incorporate video cameras, sensors, and electronic reporting systems into a vessel’s fishing operations, has been a relatively recent development in fisheries around the world. Electronic monitoring can be used to augment or replace onboard human observers in some data collection tasks.

The technology supporting electronic monitoring has advanced significantly in a short time span and issues of image quality that were once prevalent are virtually nonexistent when the cameras are properly placed. There have been regional and national workshops to explore the

technology and capabilities of EM, examine how EM can meet scientific and management needs, and understand the legal requirements, data integration, and costs of implementing EM. The majority of applications using electronic monitoring have been developed to monitor gear interactions with protected species and birds, to detect presence or absence of specific fish species occurring as bycatch, or to validate vessel landing and logbook information. There are two primary approaches for electronic monitoring: 1) the audit approach, and 2) the optimized or full retention approach.

- Under the audit approach, EM technology is used to account for catch, and catch estimation is substantiated through a data validation source, such as vessel trip reports. This model is associated with increased captain responsibility and places a greater emphasis on industry-reported data. Electronic monitoring applications have been deployed successfully in fixed gear fisheries (i.e., longline, pot/trap, mechanical jig) and in trawl fisheries with relatively homogeneous catch composition.
- Under optimized or full retention approach, electronic monitoring is used to monitor for discards. In this case, electronic monitoring must be paired with dockside monitoring to gather information about landed species composition.

In the Greater Atlantic Region, the at-sea observer programs are very complex in their sampling schemes and in regards to the data collected. Electronic monitoring technology is currently not capable of performing most of the detailed data collection tasks performed by human observers. However, depending on the monitoring needs for a given fishery, electronic monitoring could provide a cost-effective alternative to human observers. Electronic monitoring is being developed for the groundfish fishery, as described below. In addition, this amendment contains alternatives that would implement electronic monitoring for the Greater Atlantic Region midwater trawl fleet, which includes vessels permitted in the herring and mackerel fisheries.

The need to balance the financial viability of sectors with the expectation to have the fishing industry fund groundfish ASM precipitated several efforts to explore electronic monitoring as an alternative to ASM. EM may be a suitable replacement to ASM, provided EM has the ability to identify species, and verify weights and counts of discards in the groundfish fishery. Balancing management data needs with the costs of a comprehensive EM system that satisfies monitoring requirements remains an ongoing endeavor.

From 2004-2006, the Cape Cod Commercial Fishermen's Alliance (CCCFA) and Archipelago Marine Research Ltd. (AMR) tested EM systems on longline and gillnet vessels targeting groundfish and compared EM and observer data. Beginning in 2010, NMFS and Archipelago conducted a more comprehensive study in three phases. Phase one identified baseline metrics for detecting fishing events, counting fish, and identifying species. Phase two addressed issues such as weight estimation and expanded species identification methods through catch handling. The third phase tested catch handling methods to simulate an operational EM program. Currently, the Gulf of Maine Research Institute (GMRI), the Maine Coast Community Sector (MCCS), The Nature Conservancy (TNC), and Ecotrust Canada (EC), have collaborated to

operationalize an EM program using open-source software. Funding for this pilot project has come from grants through foundations. Their model uses EM to validate captain-reported data on vessel trip reports and has introduced a new EM provider to the fishery. The first year (2013) was designed to be a training period for captains. For 2014 and 2015, the project's goal is to complete the necessary data collection and analysis to demonstrate the ability that EM can replace ASM for sectors in the New England groundfish fishery.

In concert with the release of the Plan, GARFO and NEFSC partnered with GMRI, MCCS, TNC, and EC as they continue their project to address these final issues and fully develop an EM model for groundfish sectors. This pre-implementation group has worked from an agreed set of questions and tasks, which has facilitated a fully transparent and coordinated process. The group holds monthly face-to-face meetings to discuss data collection, retrieval, review, and storage, the roles and responsibilities in a functional program, and the process for approving and implementing EM for 2016. These partnerships have provided GARFO and NEFSC with an understanding of how reasonable certain program requirements may be for a fisherman or an EM provider, and have also provided insight to non-NMFS partners on the existing gaps between the pilot projects and fully implementing EM. The intention is that this group will continue to meet moving forward, adding additional partners such as CCCFA and AMR, to develop the final data and provider standards, EM monitoring plans, and regulatory framework for implementing EM for a portion of the groundfish fishery. If adopted by the Councils, NMFS intends to use elements of this pre-implementation approach when developing implementation details for the EM program for the herring and mackerel midwater trawl fleet.

Since these pilot projects, EM proponents have supported implementation of EM in the groundfish fishery. However, given legal, analytical, and logistical obstacles that remain, EM has not yet been approved for implementation as an alternative to ASM.

In January 2015, NMFS' Greater Atlantic Regional Fisheries Office and the NEFSC released a Regional Electronic Technologies Implementation Plan that articulated the remaining aspects of a comprehensive EM program that need to be addressed. Some outstanding questions include:

- What are the detailed roles and responsibilities of the various parties involved?
- Who will have responsibility to store the data and for how long?
- Who will have access to the data and for what purpose?
- How much will it cost the government and the industry?

Currently, GARFO and NEFSC are building the database infrastructure and processing tools for data collected from EM video footage, conducting comparative analysis to the existing catch monitoring systems in the groundfish fishery, and addressing the final legal and logistical hurdles. Because EM would replace ASM for some vessels and/or sectors, GARFO is evaluating how best to implement EM in each sector's operations plan and ensure that the plans are enforceable and adequate for reporting and monitoring sector catch. Pending the results of the pre-implementation work, GARFO intends to propose approval of EM standards and monitoring plans prior to next groundfish fishing year, set to begin May 1, 2016. GARFO expects that grant

funding, through the partner organizations noted above, will be used to fund industry costs for the groundfish sector participants that use EM in 2016.

Standard Cost Responsibilities

Omnibus Alternative 2 would include standard cost responsibilities between NMFS and the industry for supporting monitoring programs targeting coverage above and beyond SBRM. As described in the Introduction, legal requirements dictate that certain cost responsibilities must be borne by NMFS. Because legal requirements dictate the cost responsibilities for NMFS, the cost responsibilities described below cannot be modified through this action (for more information see Appendix 1). These cost responsibilities would be codified into regulation for industry-funded monitoring in New England and Mid-Atlantic FMPs. If Omnibus Alternative 2 was not selected by the Councils, cost responsibilities for industry-funded monitoring would be codified on an FMP-by-FMP basis.

The cost responsibilities described below would be considered by the Councils when developing any industry-funded monitoring program for New England and Mid-Atlantic FMPs in future actions. The cost responsibilities described below are already in operation in the Atlantic Sea Scallop and NE Multispecies FMPs, although the cost responsibilities are not explicitly defined in those FMPs. Selection of the Omnibus Alternative 2 would codify NMFS cost responsibilities for industry-funded monitoring into regulation for all New England and Mid-Atlantic FMPs, but it would not change NMFS cost responsibilities for the industry-funded monitoring programs currently established in the scallop or multispecies fisheries.

NMFS Cost Responsibilities

NMFS would be responsible for funding the costs to set standards for, monitor performance of, and support industry-funded monitoring programs. These program elements would include:

- The labor and facilities costs associated training and debriefing of monitors
- NMFS-issued gear (e.g., electronic reporting aids used by human monitors to record trip information)
- Certification of monitoring providers and individual monitors; performance monitoring to maintain certificates
- Developing and executing vessel selection
- Data processing (including electronic monitoring video audit, but excluding electronic video review)
- Costs associated with liaison activities between service providers, and NMFS, Coast Guard, Councils, sector managers and other partners

NMFS cost responsibilities for all types of existing monitoring, including NEFOP-level observer coverage, fishery-specific at-sea monitoring programs, dockside monitoring, and electronic monitoring, including details on how NMFS cost responsibilities were derived, are included in the text below.

Industry Cost Responsibilities

The industry would be responsible for funding all other costs of the monitoring program. These program elements and activities would include, but are not limited to:

- Costs to the provider for deployments and sampling (e.g., travel and salary for observer deployments and debriefing)
- Equipment, as specified by NMFS, to the extent not provided by NMFS (e.g., electronic monitoring system)
- Costs to the provider for observer time and travel to a scheduled deployment that doesn't sail and was not canceled by the vessel prior to the sail time
- Costs to the provider for installation and maintenance of electronic monitoring systems
- Provider overhead and project management costs (e.g., provider office space, administrative and management staff, recruitment costs, salary and per diem for trainees)
- Other costs of the provider to meet performance standards laid out by a fishery management plan

NMFS costs to support industry-funded monitoring would be fully funded with Federal funds. For more information on cost sharing, including external funding, see Appendix 1. The industry would be responsible for its cost responsibilities; unless it was determined that appropriately-designated Federal funds were also available to offset industry cost responsibilities. If NMFS has funds to cover its administrative cost responsibilities with additional funds remaining, then NMFS may be able to help cover some of the industry's cost responsibilities. The administrative mechanism by which industry cost responsibilities could be offset using available Federal funding is being developed by NMFS separately and can be used in conjunction with Omnibus Alternative 2.

Factors that Affect Industry Costs for Monitoring

The following section discusses the factors that affect industry costs for at-sea, dockside, and electronic monitoring programs. There are several factors that can significantly affect sea day costs in any industry-funded monitoring program. Industry costs would be largely determined by the contracts with the service providers. For example, the \$640/day paid to providers may cover such things as: Labor and overtime, data editing, project management and administration, benefits (vacation and sick leave), health insurance, and workers compensation. Additionally, service providers may have individual requirements for training and debriefing, such as annual observer training or semi-annual safety training.

Cost for industry-funded monitoring programs is a very important consideration. The requirement to pay for an observer increases operating costs for fishing vessels, which in turn reduces net revenues (as described later in Section 1.5.3: Impacts to Human Communities). While the total cost for each sea day can vary between service providers, various individual components (i.e., costs for deployment and sampling, costs for equipment) are necessary to successfully execute a monitoring program. Because each of these

components is essential, in most cases, it is not appropriate to reduce industry's cost responsibilities by removing or adjusting components of the sea day cost. Since vessels would be contracting directly with observer providers they may be able to negotiate prices, but due to the requirements for observers and observer providers, the ability to negotiate lower prices may be limited. Also, since vessels are contracting with the providers for much smaller amounts of monitoring coverage than NMFS does, project management costs for service providers may increase, which could actually increase the costs that providers charge for contracts directly with vessels.

There are two, more viable ways to limit the costs of an industry-funded monitoring program for industry. Both of these approaches limit the total cost of the observer program rather than adjusting the industry cost responsibilities. The first way to limit costs to industry is to set coverage levels at the lowest level necessary to gather information to meet program goals. For example, it may be possible to sufficiently increase precision around discard estimates for a certain species by setting a coverage target of 50 percent, rather than a coverage target of 100 percent. The second way to limit costs to industry is to select the appropriate type of coverage to meet program goals. For example, it may be more cost effective to use electronic monitoring rather than at-sea observers to confirm compliance with slippage prohibitions on herring and mackerel vessels.

Factors that Affect Industry Costs for At-Sea and Portside Monitoring

Representatives from the NEFOP, service provider companies in the northeast U.S., and representatives from U.S. west coast service provider companies identified the following factors that most commonly increase sea day costs. The cost drivers for at-sea and portside monitoring programs are similar, so are discussed together here.

- *Requirements for New Data Collection/New Equipment.* New or different sampling protocols require modifications to observer training, which could increase training costs for both the government and service providers. If new or different sampling equipment is required to meet the monitoring program needs, the expense of the additional equipment will be incurred by the service provider. In addition, re-designing existing observer databases to incorporate new data introduces a significant administrative expense.
- *SCA and FLSA Requirements.* Requirements associated with the Service Contract Act (SCA) and Fair Labor Standards Act (FLSA) apply to any contracts in which the Federal government is involved. There may be some reduction in sea day cost associated with eliminating any legal requirements that apply specifically to contracts involving the Federal government. However, service provider companies would still be subject to FLSA requirements and other applicable labor laws.
- *Ability to Predict the Fishery.* Sea day costs will likely be higher if service providers cannot predict how the fishery will operate (numbers of vessels/trips, length of trips, seasonality and spatial distribution of trips) in order to accurately estimate costs (administrative, overhead, communications, logistics) associated with deploying

observers to meet the needs of the monitoring program. Predictability increases efficiency and therefore reduces costs. With limited information to predict the fishery, service providers are more likely to over-estimate costs associated with travel and observer deployment to ensure that they cover their costs.

- *Complicated Logistics (Vessel Selection and Observer Deployment)*. The more infrastructure necessary to efficiently deploy observers to meet the needs of the monitoring program (field offices, coordinators, communications networks), then the higher the sea day costs will be. If pre-trip notification systems need to be expanded to determine observer/monitor deployment, this would likely increase costs.

Cost Estimates for Monitoring

Developing cost estimates for new monitoring programs is challenging. The cost of monitoring is affected by many factors, such as the type of monitoring program, scale of monitoring program, and availability of service providers, and can vary from year to year. Monitoring cost estimates developed for this amendment were generated using many different sources and used information from many different programs. The details of how cost estimates were developed are described in Appendix 2 – Cost Estimates.

The table below shows the monitoring cost estimates used in the economic analysis of the herring and mackerel coverage target alternatives. Cost estimates from the NEFOP-level observers and at-sea monitors were generated from existing programs in the Greater Atlantic Region. Cost estimates for electronic monitoring and portside sampling were generated from programs in other regions of the country as well as programs in the Greater Atlantic Region.

The cost estimates shown below are only estimates. The actual costs to NMFS and the industry of an industry-funded monitoring program may be higher or lower than the cost estimates analyzed in this amendment.

TABLE 2. MONITORING COST ESTIMATES

Types of Monitoring	NMFS Cost	Industry Cost
NEFOP-Level Observer	\$479 per sea day	\$818 per sea day
At-Sea Monitor	\$530 per sea day	\$710 per sea day
Electronic Monitoring	Year 1: \$36,000 startup plus \$97 per sea day Year 2: \$97 per sea day	Year 1: \$15,000 startup plus \$325 ¹ or \$187 ² per sea day Year 2: \$325 ¹ or \$187 ² per sea day
Portside Sampling	\$479-\$530 per sea day	\$5.12 ¹ or \$3.84 ² per mt
1 – Initial cost assumptions based on video collected for the duration of a trip, 100% video review, 100% of trips sampled portside, and including portside administration costs. 2 – Revised cost assumptions based on video collected only around haulback, 50% video review, 50% of trips sampled portside, and not including portside administration costs.		

Framework Adjustment Process

Omnibus Alternative 2 would include the ability for Councils to implement industry-funded monitoring programs, including at-sea monitoring, dockside monitoring, or electronic monitoring, through framework adjustments to the relevant FMP. Omnibus Alternative 2 would provide the option to implement new industry-funded monitoring programs via a framework adjustment, but it would not require any particular new industry-funded monitoring programs. Under Omnibus Alternative 2, Councils would retain the ability to implement new industry-funded monitoring program via the amendment process. If Omnibus Alternative 2 was not selected by the Councils, a full FMP amendment would be required to implement industry-funded monitoring programs for any New England and Mid-Atlantic fisheries, excluding existing industry funded monitoring programs in the Scallop and Multispecies FMP, and any program developed in this action for the Herring or MSB FMPs.

Under Omnibus Alternative 2, the details of any industry-funded monitoring program, including at-sea, dockside, or electronic monitoring, would be specified and/or modified in a subsequent framework adjustment to the relevant FMP. These details may include, but are not limited to: (1) Level and type of coverage target, (2) rationale for level and type of coverage, (3) minimum level of coverage necessary to meet coverage goals, (4) consideration of coverage waivers if coverage target cannot be met, (5) process for vessel notification and selection, (6) fee collection and administration, (7) standards for monitoring service providers, and (8) any other measures necessary to implement the industry-funded monitoring program. Additional National Environmental Policy Act (NEPA) analysis would be required for any action implementing and/or modifying industry-funded monitoring programs regardless if a framework adjustment or full amendment was used to consider modifications of new programs.

Omnibus Alternative 2 contains a framework adjustment component for the known types of monitoring that are available for Greater Atlantic Region fisheries. The existing types of monitoring include at-sea monitoring (data collection at sea); dockside monitoring (data collection at the dock); and electronic monitoring (using video cameras and other sensors to monitor fishing activity at sea). Depending on the information needs for a given fishery, a dockside and/or electronic monitoring program could be used in addition to at-sea monitoring to provide more complete catch monitoring, or to reduce the overall monitoring costs for a given fishery (if dockside or electronic monitoring can be administered at a lower cost). If an additional industry-funded monitoring program is established through a future framework adjustment, it would become subject to prioritization for funding under one of the alternatives for the prioritization process described later in this document.

Cost for industry-funded monitoring programs is a very important consideration. The requirement to pay for an observer substantially increases operating costs for fishing vessels, which in turn reduces revenues. The best ways to limit the financial burden of an industry-funded monitoring program is to carefully design the program to minimize total program

costs. As described in the cost responsibility discussion above, this can be accomplished by setting coverage levels at the lowest level necessary to gather information to meet program goals (i.e., not setting the coverage target at 100 percent if only 50 percent is necessary), or by selecting the appropriate type of coverage to meet program goals (i.e., choosing a less expensive type of monitoring, like dockside or electronic monitoring).

Monitoring Service Providers

Omnibus Alternative 2 would include standard administrative requirements for industry-funded monitoring service providers, including at-sea monitoring, dockside monitoring and electronic monitoring. These service provider requirements would serve as the default service provider requirements for any future industry-funded monitoring programs developed through future framework actions (see Appendix 3: Service Provider Requirements). If Omnibus Alternative 2 is not selected by the Councils, service provider requirements for industry-funded monitoring programs would be developed and implemented in individual FMPs.

Monitoring Service Provider Regulations for At-Sea and Dockside Monitoring Programs

The SBRM Omnibus Amendment modified the scallop industry-funded observer service provider requirements (at 50 CFR 648.11(h) and (i)) to apply to all New England and Mid-Atlantic FMPs. Specifically, the SBRM Amendment authorized observer service provider approval and certification for all applicable fisheries, should a Council develop and implement a requirement or option for an industry-funded observer program to support SBRM in other fisheries beside scallops. However, the SBRM Amendment did not address service provider requirements for other types of industry-funded monitoring programs.

Omnibus Alternative 2 would modify the SBRM observer service provider approval and certification process to be a monitoring service provider approval and certification process that would apply to observer and dockside service providers for all New England and Mid-Atlantic FMPs. The selection of Omnibus Alternative 2 would not implement any new at-sea observer or dockside monitoring programs, but would only implement a process and standards to approve and certify monitoring service providers. In the future, if the Councils implement any industry-funded at-sea or dockside monitoring programs through a future action, the process to develop those monitoring programs would be streamlined.

The Appendix 3 – Service Provider Requirements describes the monitoring service provider regulations based on SBRM Amendment regulations. Omnibus Alternative 2 would revise these regulations so that they would apply to both at-sea and dockside observers. Additionally, regulations may be revised as part of this amendment to better address requirements associated with Omnibus Alternative 2.

The requirements for groundfish sector at-sea monitor service providers are very similar to the service provider requirements described above, with a few exceptions such as education requirements. The service provider requirements for groundfish sector at-sea monitor and electronic monitoring service providers are in Appendix 3 – Service Provider Requirements.

Monitoring Service Provider Regulations for Electronic Monitoring Programs

Monitoring service provider regulations for electronic monitoring programs will be based on regulations for existing regional and national electronic monitoring programs. Electronic monitoring service provider regulations are currently in place for the NE multispecies fishery. These requirements are included in Appendix 3 – Service Provider Requirements. In addition, the NMFS West Coast Region is currently working to develop regulations for the industry-funded electronic monitoring program for the At-Sea and Shoreside Hake West Coast Whiting fishery. The Greater Atlantic and West Coast Regions will be working together to develop consistent electronic monitoring service provider regulations.

Special Considerations for Service Provider Requirements

During development of this section of the Amendment, the Councils explored options to reduce the cost of industry-funded monitoring programs by adjusting the service provider requirements or modifying the monitor certification requirements. After analyzing the possible adjustments to the service provider regulations, the PDT/FMAT concluded that the best ways to limit the financial burden of an industry-funded monitoring program is to carefully design the program to minimize total program costs. This can be accomplished by setting coverage levels at the lowest level necessary to gather information to meet program goals (i.e., not setting the coverage target at 100 percent if only 50 percent is necessary), or by selecting the appropriate type of coverage to meet program goals (i.e., choosing a less expensive type of monitoring, like dockside or electronic monitoring).

Given this, the overarching service provider requirements for all industry-funded programs, including at-sea, dockside, and electronic monitoring programs, are proposed to be the same for all FMPs. This means that the overarching industry-funded monitoring service provider regulations will be standardized for all FMPs, whether industry funding is necessary to support statutory monitoring requirements (Magnuson-Stevens Act, MMPA, ESA), or monitoring coverage above statutory requirements. However, the Amendment would allow individual FMPs to deviate from the overarching monitoring service provider requirements on an FMP-by-FMP basis. For example, the groundfish at-sea monitor service provider requirements only require a monitor to have a high school diploma, while the overarching industry-funded monitoring service provider regulations require a college degree. The herring and mackerel at-sea monitoring programs also have deviations from the overarching monitoring service provider regulations, these include training requirements for NEFOP-level observers, education requirement for at-sea monitors, and lifting restrictions on re-deploying NEFOP-level observers and/or at-sea monitors on the same vessel more than two consecutive multi-day trips or for more than twice in a given month.

The following is a description of some of the provisions in the overarching industry-funded monitoring service provider regulations that the Councils discussed adjusting during the development of this amendment.

Education Requirements for Observers

The National Minimum Eligibility Standards for Marine Fisheries Observers were published in 2007 (04-109-01). The development of the national standards grew out of concern from the Office of Inspector General, NOAA Science Board, National Observer Program Advisory Team, observer provider companies, professional observer associations, and the fishing industry that observers were not appropriately trained to observe fishing trips, that high levels of attrition were resource inefficient, and that the lack of standards was confusing and deterring interested and qualified observer candidates nationally. All observer programs in the United States (Greater Atlantic Region, Southeast, Alaska, Northwest, Southwest, and Pacific Islands) currently follow the National Minimum Eligibility Standards. The standards are also adopted and supported as best practices by the International Fisheries Observer and Monitoring Conference.

The most controversial standard is the requirement that observer candidates must have a bachelor's degree with a major in the natural sciences. However, Regional Administrators and Science Directors may waive the education and experience requirements if a candidate has acquired the required skills to be considered eligible for observer training through a NMFS-approved alternative training program that includes activities such as:

- a) Participating in or/and observing ocean fishing activities consistent with those that would be required during observer work performance;
- b) Participating in fisheries research cruises;
- c) Recording data on marine mammal sightings and fishing activities;
- d) Tallying incidental take of marine mammals, sea turtles, and sea birds from fishing platforms;
- e) Collecting biological samples and specimens from postmortem animals;
- f) Entering data into a database using computers; and
- g) Completion of a biological training program, equivalent to that received as part of a bachelor's degree, conducted by or approved by NMFS with the specific objective of preparing potential candidates for observer training.

The Council expressed interest in removing the bachelor's degree requirement from the overarching industry-funded monitoring service provider regulations for observers in order to save costs, with the rationale that monitors with bachelor's degrees may command a higher hourly wage than those without bachelor's degrees. While it is consistent with regional policy to require a lower education requirement for fishery specific at-sea monitoring programs, for the overarching industry-funded monitoring service provider requirement for observers a bachelor's degree is obligatory to comply with national standards and for the reasons detailed below. Through future development of FMP-specific industry-funded monitoring programs, the minimum education requirement for an observer can be reconsidered.

Contrary to the intent of negating the national education standard for becoming a fisheries observer, requiring only a high school diploma will likely not lower the cost of observer coverage. Nationally, there was no increase in sea day costs with the adoption of the educational standard national policy in 2007. Instead, national observer programs found that

the education standard resulted in recruitment of higher quality observer candidates and better observer retention. There is not currently a shortage of interested and qualified applicants with bachelor's degrees, and many candidates have fishing and sea-going experience in addition to their bachelor's degrees. Observers often hold multiple certifications in a variety of observing programs, which helps with observer availability to meet coverage targets and improves retention of certified observers.

The information observers collect is necessary for assessing the nation's managed biological resources, and for evaluating the social and economic impacts of catch allocations, entitlements and fishing regulations on fishermen and their communities. Thus reducing education standards has a direct impact on the information used to support critical NMFS goals. Studies comparing observer candidates without a college degree to those with college degrees show that candidates without degrees had:

- Higher drop-out and failure occurrences during observer training, despite additional resources invested to support the candidates;
- Lower compliance in following detailed program requirements and meeting data loading deadlines;
- Lower accuracy with species identification and catch estimation;
- Lower data quality scores and overall performance; and
- Lower retention rates.

In addition, there was concern that codifying the requirement in the overarching service provider regulations would prevent fisherman from participating as observers. However, we reiterate that the current education standard policy includes a waiver if the observer candidate has fishing experience. There are a number of current observers who were fishermen, though the policy does outline potential conflicts of interest that may prohibit some fishermen who are still financially vested in the industry from participating as observers. In order to encourage and support employment of former fishermen, NEFOP developed an optional alternative training program for fishermen with interest in becoming observers.

The Fair Labor Standards Act and Service Contract Act Requirements

The Services Contract Act (SCA) applies to every contract entered into by the United States (government) or the District of Columbia. Contractors and subcontractors performing on these Federal contracts must observe minimum wage standards (based on the prevailing wage for a locality, as determined by the Department of Labor) as well as safety and health standards, and they must maintain certain records. The SCA requires that every employee working under the contract must be paid not less than the monetary wages, and must be furnished fringe benefits, which are determined based on locality. Fringe benefits include paid holiday leave, vacation time, and minimum requirements for health and welfare (80/20 compensation for health insurance). Because contracts for industry-funded monitoring program will be between service providers and participants in the fishing industry, it will not be necessary for these contracts to meet the requirements of the SCA.

However, even without the SCA requirements, service provider companies will still be required to pay employees not less than the federal minimum wage provided in the Fair Labor Standards Act (FLSA). The FLSA establishes minimum wage, overtime pay, recordkeeping, and youth employment standards affecting employees *in the private sector as well as in Federal, State, and local governments*. Covered non-exempt workers are entitled to a minimum wage of not less than \$7.25 per hour effective July 24, 2009. Overtime pay at a rate not less than one and one-half times the regular rate of pay is required after 40 hours of work in a workweek.

According to a report published by MRAG Americas (June 2012), Northern Economics (2011) estimated that the SCA and FLSA requirements are likely to add \$50-\$100 to the sea day cost for an industry-funded monitoring program. However, eliminating SCA requirements by privatizing contracts in this region is not likely to decrease sea day costs by as much as \$100 for two reasons: (1) FLSA requirements for minimum wage and overtime would still apply to vessel/provider contracts; and (2) employees working for companies currently providing observer coverage and at-sea monitoring services in this region have been working (some for many years) under government contracts, which are consistent with SCA requirements for wages and fringe benefits. It may be very difficult for service providers in this region to change the wage and benefit structure they offer to their employees, many of whom have been working in observer and ASM programs in this region for several years. Therefore, the reduction in sea day cost that can be expected from the privatization of contracts cannot be estimated with certainty but is likely to be on the lower end of the range predicted in the MRAG Report.

Streamlining the Application Process for Observer Service Providers

The Councils discussed a number of options to simplify the application process for service providers, including “grandfathering in” states as service providers, allowing the service provider approval from one NMFS region to extend to other regions, or developing a standardized national application for service providers. The rationale for these provisions is that limiting the application process for service providers could translate into reductions in program administration costs, which could ultimately reduce sea day costs for industry. While there are potential cost savings with these approaches, many have national implications and will need to be investigated outside of this amendment. Ultimately, because the information collected through our monitoring programs support our mission to conserve and manage fisheries and other marine resources, we are obligated to assure the quality of data collected through these programs. This means that any process used to evaluate service providers ensures that the providers are able to comply with regional requirements. NMFS is investigating these ideas at a national level, and any results from this effort will not be available for informing this amendment.

Prioritization Process

Omnibus Alternative 2 includes a prioritization process to allocate available Federal funding across FMPs to cover NMFS cost responsibilities for coverage targets above and beyond SBRM

and independent from ESA and MMPA requirements. Again, due to legal and budgetary constraints described in Appendix 1, NMFS cannot approve and implement monitoring requirements for which it does not have the Federal funding to cover NMFS cost responsibilities. NMFS can, however, approve coverage targets associated with industry-funded monitoring programs for FMPs with the understanding that annual funding available to cover NMFS cost responsibilities will dictate realized coverage levels.

When industry-funded monitoring programs and coverage levels exist for multiple FMPs (e.g., the herring and mackerel FMPs), and when Federal funding is not sufficient to cover all associated NMFS cost responsibilities, the Councils and/or NMFS must decide how to allocate available Federal funding across the relevant FMPs. Available Federal funding refers to any funds in excess of those allocated to meet SBRM or other existing monitoring requirements. The prioritization processes outlined in Omnibus Alternative 2 would guide the allocation of available Federal funding to cover NMFS cost responsibilities, and would determine which industry-funded monitoring programs would operate for a given year and which would not. At this time, the prioritization process would not apply to the existing scallop and groundfish industry-funded monitoring programs. The prioritization process alternatives in the IFM Omnibus Amendment could apply to groundfish sectors and/or the scallop fishery if, in a future action, the Council desires coverage above the levels currently set by these FMPs and/or if the Council wants Federal funding prioritized for NMFS administrative costs associated with these programs.

When there is no Federal funding available to cover NMFS' cost responsibilities above and beyond SBRM coverage, then no industry-funded monitoring program could operate. In the event that no Federal funding is available, and the IFM program does not allow for vessels to be issued waivers to exempt them from industry-funded monitoring requirements, then fishing effort will be reduced to match available monitoring. In the event that no Federal funding is available, and the IFM program does allow for vessels to be issued waivers to exempt them from industry-funded monitoring requirements, then there would be no additional monitoring.

Alternatives 2.1 and 2.2 provide the Councils and NMFS with more discretion to make trade-offs between FMPs, but also require more recurring analysis and resources. The primary difference between these two alternatives is who (NMFS or Councils) would lead the prioritization process and analysis. Alternatives 2.3, 2.4, and 2.5 use formulaic approaches, eliminating much of the discretion and analytical burden of Alternatives 2.1 and 2.2. However, the formulaic approaches in Alternatives 2.3, 2.4 and 2.5 may reduce the effectiveness of the resulting outcome relative to Council priorities. Under all of the options described below, the industry would be responsible for covering its cost responsibilities, unless it was determined that Federal funds were also available to be used to offset industry cost responsibilities. If Omnibus Alternative 2 was not selected by the Councils, available Federal funding would be allocated toward industry-funded monitoring on an FMP-by-FMP basis.

The following tables summarize the discretionary and formulaic prioritization alternatives to facilitate comparisons.

TABLE 3. SUMMARY OF PRIORITIZATION ALTERNATIVES

	Alternative	Summary
Discretionary	2.1 NMFS-led	NMFS staff would use a weighting approach (described below pages 26-33), in consultation with the Councils, to determine how NMFS funding is allocated among IFM programs.
	2.2 Council-led	Both Councils would work together using a weighting approach to determine how NMFS funding is allocated among IFM programs.
Formulaic	2.3 Proportional	Each IFM program would be reduced by the same percentage as the funding shortfall (i.e. if NMFS funding is short by 20%, each IFM program would receive only 80% of the Federal funded need for that program).
	2.4 Lowest Coverage Ratio-based	The amount of funding would be allocated to each FMP by prioritizing coverage in fisheries that have the lowest coverage needs relative to fleet activity. This alternative would favor coverage for the FMPs that don't need much additional coverage to meet targets and the most active FMPs with IFM programs.
	2.5 Highest Coverage Ratio-based	The amount of funding would be allocated to each FMP by prioritizing coverage in fisheries that have the highest coverage needs relative to fleet activity. This alternative would favor coverage for the FMPs that need more coverage to meet targets and the least active FMPs with IFM programs.

TABLE 4. PROS AND CONS OF DISCRETIONARY VERSUS FORMULAIC PRIORITIZATION ALTERNATIVES

	Pros	Cons
Discretionary Alternatives: Alternative 2.1 and 2.2	More discretion over funding priorities	Complex, and requires additional workload to prioritize
	Takes objectives and context into account	Timeline > 1 year
	Could result in funding of most important programs first	May require rulemaking
Formulaic Alternatives: Alternatives 2.3, 2.4, and 2.5	Shorter timeline	No discretion
	Adaptive to budget changes and timing	Blunt instrument

Only one of the prioritization process alternatives will be selected. It is important to consider the advantages and disadvantages that each alternative will provide to the management of future IFM programs. For example, the discretionary alternatives 2.1 and 2.2 would allow NMFS and/or the Councils the opportunity to determine priority among FMPs/IFM programs,

but would be more complex, take longer, and involve more staff resources. Comparing the discretionary alternatives to each other, the only difference is which entity, either NMFS or the Councils, will be conducting the prioritization. The formulaic alternatives 2.3, 2.4, and 2.5 have the advantage of taking less time and staff resources to develop, but do not allow discretion of priority among FMPs/IFM programs. When comparing the formulaic alternatives the proportional alternative 2.3 would equally consider FMPs/IFM programs needs such that Federal budgetary shortfalls in any particular year would equally impact IFM programs. While the coverage ratio-based alternatives 2.4 and 2.5 would be formulaically-biased between FMPs/IFM programs based on the needed coverage to meet targets and the total activity in the relevant fleets.

1.4.2.1 Omnibus Alternative 2.1: NMFS-led Prioritization Process for Industry-Funded Monitoring Programs

Under Omnibus Alternative 2.1, the Regional Administrator and Science and Research Director would use the weighting approach below to determine, in consultation with the Councils, how to allocate NMFS available resources to support NMFS cost responsibilities required to achieve coverage targets for industry-funded monitoring coverage. After those costs are funded, NMFS would also determine, in consultation with the Councils, the allocation of any remaining funding available to offset industry costs established in this amendment for the Herring and MSB FMPs and other FMP actions. The costs would be defined as described by Omnibus Alternative 2. Funding for SBRM, ESA, and MMPA observer coverage would not be changed by this measure. Any funding for industry-funded monitoring programs would be allocated separately from any funding for SBRM or other statutory requirements and any coverage would be above and beyond coverage for SBRM or other statutory requirements.

The prioritization process would have the following steps:

1. NMFS would apply the weighting approach (described below) to develop a proposed allocation of Federal resources across FMPs with industry-funded monitoring programs. If available funding in a given year is sufficient, this distribution would be based on the allocation necessary to fully implement the industry-funded monitoring coverage targets specified in each FMP. If available funding is not sufficient to fully fund all industry-funded monitoring programs, then NMFS would recommend an allocation of resources across FMPs that would include:
 - The total amount of funding and sea days necessary to meet the coverage targets specified by each FMP if each FMP were fully funded, including each FMP's share of the total;
 - The coverage level for each FMP if each FMP maintains its percentage share of the total funding (e.g., a fishery with a bigger proportion of the total funding would absorb a bigger proportion of the shortfall);
 - The coverage levels that incorporate the weighting approach; and
 - The rationale for the recommended prioritization.

2. At a joint New England/Mid-Atlantic committee meeting, NMFS and the Councils would review NMFS's proposed allocation of funding and recommend any modifications to the prioritization.
3. NMFS would provide the Councils, at the earliest practicable opportunity: (1) The estimated industry-funded monitoring coverage levels that incorporate the recommended prioritization, based on available funding; and (2) the rationale for the recommended prioritization, including the reason for any deviation from the joint committee or joint Council's recommendations. The Councils may recommend revisions and additional considerations to be made by the Regional Administrator and Science and Research Director.

Step 3 allows the Councils and NMFS to discuss any final revisions to the distribution, which might be necessary if the final budget is not known at the time of initial prioritization and is less than expected.

Timing for this process is described in Table 7.

1.4.2.2 Omnibus Alternative 2.2: Council-led Prioritization Process for Industry-Funded Monitoring Programs

Under Omnibus Alternative 2.2, the Regional Administrator and Science and Research Director would inform the Councils of NMFS's available funding to achieve coverage targets for industry-funded monitoring coverage, including supporting NMFS's infrastructure costs and/or any offset of industry costs established in this amendment for the Herring and MSB FMPs and other FMP actions. If available funding in a given year was sufficient, this distribution would be based on the allocation necessary to fully implement the industry-funded monitoring coverage targets specified in each FMP. If available funding was not sufficient, the Councils would apply a weighting approach (example weighting approach detailed below) to determine the best allocation of available funding across FMPs with industry-funded monitoring programs to meet regional priorities and make recommendations to NMFS. NMFS and industry's costs would be defined as described by Omnibus Alternative 2. Funding for SBRM, ESA, and MMPA observer coverage would not be changed by this measure.

The prioritization process would have the following steps:

1. If available funding is not sufficient to fully fund all industry-funded monitoring programs, the Councils could work together to develop criteria to evaluate industry-funded monitoring programs (example weighting approach detailed below) in order to allocate NMFS resources across FMPs with industry-funded monitoring programs that would include:

- The total amount of funding and sea days necessary to meet the coverage targets specified by each FMP if each FMP were fully funded, including each FMP's share of the total;
 - The coverage level for each FMP if each FMP maintains its percentage share of the total funding (e.g., a fishery with a bigger proportion of the total funding would absorb a bigger proportion of the shortfall);
 - The coverage levels that incorporate the weighting approach; and
 - The rationale for the recommended prioritization.
2. At a joint New England/Mid-Atlantic committee meeting, NMFS and the Councils would review the results of the Councils' proposed allocation of funding for NMFS's infrastructure costs and offsets for industry costs. The joint committee or Councils would make any modifications and recommend a prioritization to NMFS. This would be the opportunity to resolve any differences in prioritization between the two Councils.
 3. NMFS would provide the Councils, at the earliest practicable opportunity: (1) The estimated industry-funded monitoring coverage levels that incorporate the recommended prioritization, based on available funding; and (2) the rationale for the recommended prioritization, including the reason for any deviation from the Councils' recommendations. The Councils may recommend revisions and additional considerations to be made by the Regional Administrator and Science and Research Director.

Timing for this process is discussed in Table 7.

Weighting Approach

The weighting approach is generally based on the draft processes developed by the Mid-Atlantic Fishery Management Council Scientific and Statistical Committee to prioritize research proposals. The weighting approach could give NMFS or the Council a transparent, deliberative framework to decide how to allocate NMFS's available resources to support NMFS cost responsibilities required to achieve coverage targets for industry-funded monitoring.

If Alternative 2.1 (NMFS-led Prioritization) is selected, NMFS will use the approach outlined below to prioritize NMFS funding for industry-funded programs. If Alternative 2.2 (Council-led Prioritization) is selected, the Councils have the option to use this approach, or develop their own joint process for prioritization, provided that criteria used to evaluate industry-funded monitoring programs, as well as the rationale for the recommended prioritization approach, are made available to the public in advance.

The proposed weighting approach has 2 steps outlined in more detail in the following pages:

Step 1

- Compare industry-funded monitoring criteria to each other to create a criteria weighting

Step 2

- Evaluate how each industry-funded monitoring program meets each criterion

Step 1: Compare Industry-Funded Monitoring Criteria to Each Other to Create a Criteria Weighting

The weighting approach first requires NMFS or the Councils to determine the relative importance of criteria that will be used to evaluate the industry-funded monitoring programs. The list of eight criteria proposed below would be used by NMFS, and could be used by the Councils, for the first prioritization cycle, and every cycle thereafter, unless the Councils change the criteria in a framework adjustment.

1. The industry-funded monitoring program relates to stocks that are overfished or subject to overfishing.

Overfished stocks have biomass levels depleted to a degree that the stock's capacity to produce maximum sustainable yield (MSY) is jeopardized. Stocks subject to overfishing have a mortality rate that is higher than the rate that produces MSY. Under this criterion, preference would be given to stocks that are in poor condition because those stocks may benefit from additional monitoring support.

2. The species has high commercial or recreational value.

This criterion prioritizes industry-funded monitoring programs related to species with high dollar value in the case of a commercial fishery, or a high number of annual landings or gross weight in the case of a recreational fishery.

3. The industry's daily revenue is high relative to the cost of industry costs for monitoring.

This criterion evaluates industry's ability to fund its cost responsibilities related to industry-funded monitoring programs requirements established by the Councils. Preference will be given to industry-funded monitoring programs with high daily revenue relative to the daily costs of the industry funded monitoring.

4. The species has special importance to the ecosystem.

An industry-funded monitoring program may be important because of the biological relationship of the target species to the ecosystem. For example, the species could be a choke species, a forage fish, or have positive or negative impacts on other species. This criterion evaluates the need to prioritize industry-funded monitoring programs species with special ecosystem importance.

5. Industry-funded monitoring program has clear objectives, and a strong statistical basis for the FMP coverage target, including evaluation of the basis for the coverage target.

Monitoring should have clear objectives and a statistical design for sampling that achieves those objectives. Monitoring programs should also have a clear link to current or future FMP needs. The basis for coverage rates, and/or target coefficient of variation (CV) or variance should be justified. As an example, an industry funded monitoring program with a 100 percent coverage target should have statistical analysis supporting this need (e.g., identification/quantification of significant bias).

6. Fleets monitored under the program are compatible with existing SBRM fleet definitions.

There are a number of reasons why it is beneficial to design monitoring programs to be compatible with SBRM fleet definitions.

First, NMFS must be able to identify trips *a priori* in order to deploy coverage effectively. The SBRM fleet definitions (gear, mesh size, area) are robust to this requirement. Some other definitions (e.g., by target species or permit category) have proven difficult to implement coverage for, leading to inefficient use of resources. One example is the design of the coverage requirements for the longfin squid fishery related to the butterfish cap. Vessels intending to land over 2,500 lb longfin squid must notify the observer program 48 hours prior to departure in order to facilitate observer placement. Many vessels fishing with small mesh gear wished to have the option to land large quantities of longfin squid, should they encounter it. However, in that case, requiring vessels to notify the observer program about intent to target squid could lead to coverage on trips that do not ultimately target squid.

Second, vessel trip reports typically include information on gear and statistical area associated with a trip, but do not include other identifiers to link the landed catch (e.g., several sector exempted fisheries). If a vessel trip report does not include details on a specific type of gear (e.g., Ruhle Trawl) or indicate that the trip is part of an exempted fishery or in an access area, then one cannot properly use the information to obtain expanded discard totals for the fleet.

Finally, increasing coverage for a specific target species or certain permit types can bias discard estimates for a given SBRM fleet.

Overall, industry-funded monitoring programs designed to allocate observer coverage according to SBRM fleets should have priority over those that allocate observers using other criteria because monitors can be deployed effectively, and can provide information to be included in SBRM discard analyses, which makes them more cost-efficient.

7. Uncertainty surrounding catch estimates

This criterion prioritizes industry-funded monitoring programs related to target and non-target species with high uncertainty regarding catch estimates. This means that species with higher CVs related to discards or landings would be rated higher and receive higher priority for funding.

8. Risk to management based on fishery performance

A stock for which the quota is consistently under-harvested is unlikely to face the same management risk as one with a constraining quota. Industry-funded monitoring programs related to fisheries for stocks with constraining quotas should have priority over those for under-harvested stocks.

Some of the information above would be defined or analyzed in the original FMP action that created the industry-funded monitoring program. NMFS or the Council would first look to the original FMP action for information and update or supplement this information as necessary.

The eight criteria may not have equal importance, so NMFS or the Councils can assign weights to the relative importance of these criteria. The end result of this process is just a simple percentage weight for each criterion. For example, one criterion might count for 15% of the decision. The proposed method described below (Table 5) allows an explicit evaluation of each criterion against all the other criteria so that the final weights are consistent with the values decision makers actually place on the criteria. While it seems intricate, it is a systematic way to arrive at weights for the criteria based on what decision makers really think is important.

- The comparison table is built by entering each criterion to be prioritized into a table, with criteria repeated along both the horizontal and vertical axis.
- The NMFS or the Councils would then compare the criterion to each other to determine importance. For example, first “stock status” is compared to “ecosystem importance”, then “stock status” is compared to “SBRM compatibility,” and so on, until all of the criteria have been compared to each other. Place an “x” in the boxes where the same two criteria are being compared.
- Each time a weight is recorded in a row cell, its reciprocal value must be recorded in the corresponding column.
- Comparison values:
 - 1 = criteria are equally important
 - 5 = criterion is more important

- 10 = criterion is much more important
- 0.2 = criterion is less important
- 0.1 = criterion is much less important
- After completing the comparisons, total each horizontal row.
- The row totals should then be added to create a grand total.
- Then each row should be divided by the grand total to get a relative weighting value. This value is termed the “IFM Criterion Weighting.”

TABLE 5. EXAMPLE IFM CRITERIA COMPARISON TABLE

IFM Evaluation Criteria	Stock status	Com/Rec Value	Ability to pay	Ecosystem importance	Strong statistical basis	SBRM compatibility	Catch estimate uncertainty	Risk to management	Row total	IFM Criterion Weighting	Percent
Stock status	x	10	0.1	5	1	10	1	0.2	27.3	0.15	15%
Com/Rec Value	0.1	x	5	1	10	0.1	0.2	10	26.4	0.14	14%
Ability to pay	10	0.2	x	1	5	0.2	10	5	31.4	0.17	17%
Ecosystem importance	0.2	1	1	x	0.2	1	10	1	14.4	0.08	8%
Strong statistical basis	1	0.1	0.2	5	x	0.2	0.1	0.1	6.7	0.04	4%
SBRM compatibility	0.1	10	5	1	5	x	10	0.2	31.3	0.17	17%
Catch estimate uncertainty	1	5	0.1	0.1	10	0.1	x	10	26.3	0.14	14%
Risk to management	5	0.1	0.2	1	10	5	0.1	X	21.4	0.12	12%
								Grand total	185.2		

In the above example, industry's ability to pay and SBRM compatibility are the most important criteria, and will each contribute 17% to the weight of the score of the industry-funded monitoring programs. The statistical basis for the program is the least important criterion, and will only contribute 4% to the weight of the score.

In practice, a very simple survey of Council members can be used to implement this exercise, and the New England Council's Observer Policy Committee has already successfully participated in a trial of such a survey.

Once the relative importance of each evaluation criteria is determined, the next step is to compare how the industry-funded monitoring programs measure up against the criteria.

Step 2: Evaluate How Each Industry-Funded Monitoring Program Rates Relative to Each Criterion

Rate each industry funded monitoring program:

- For criteria, reading across the vertical axis, assign a number based on how much each industry funded monitoring program meets the criterion. These are the ratings in the table below:
 - 0 = doesn't meet criterion at all
 - 1 = slightly meets criterion
 - 2 = somewhat meets criterion
 - 3 = mostly meets criterion
 - 4 = fully meets criterion
- After completing the comparisons, multiply the rating assigned to each criterion by the IFM Criterion Weighting in Step 1.
- Total the columns. Now the industry-funded monitoring programs can be ranked.

TABLE 6. EXAMPLE FMP RANKING USING IFM EVALUATION CRITERIA

IFM Evaluation Criteria	IFM Criteria Weighting	FMP 1 Ranking	IFM Criteria Weighting x FMP 1 Ranking	FMP 2 Ranking	IFM Criteria Weighting x FMP 2 Ranking	FMP 3 Ranking	IFM Criteria Weighting x FMP 3 Ranking
Stock status	0.15	4	0.59	0	0.00	2	0.00
Com/Rec Value	0.14	1	0.14	3	0.43	1	0.43
Ability to Pay	0.17	2	0.34	1	0.34	0	0.00
Ecosystem importance	0.08	0	0.00	2	0.00	4	0.00
Strong objective	0.04	3	0.11	3	0.33	1	0.33
SBRM compatibility	0.17	1	0.17	3	0.51	4	2.03
Catch estimate uncertainty	0.14	0	0.00	4	0.00	4	0.00
Risk to management	0.12	1	0.12	1	0.12	4	0.46
IFM Program Overall Ranking			1.46		1.71		3.24

In the example, FMP 3 ranks the highest, followed by FMP 2, then FMP 1.

After the process is complete, NMFS and the Councils may now use the rankings to prioritize the allocation of available funding to the FMPs to cover NMFS's costs. One possible way to do this would be to fully fund the highest ranked program, and then work through the ranking list sequentially until funding to cover NMFS's cost was completely allocated. Funding would not be allocated to a program if the available allocation would fund less than ¼ of the necessary funding.

Timing of Discretionary Alternatives (Alternatives 2.1 and 2.2)

The discretionary prioritization alternatives (Alternatives 2.1 and 2.2) require a more time-intensive evaluation and ranking of industry funded monitoring programs, and would require rulemaking to solicit public comment on NMFS or the Council's recommended allocation of available funding. The status quo timing outlined under the status quo alternative would still apply, and this new process would apply alongside the existing timeline.

There are two options for this process so that it could be matched with annual funding levels and the SBRM cycle:

1. The Council could choose to have the entire process occur on an as-needed basis (i.e., whenever new IFM programs are approved, or whenever existing IFM programs are adjusted or terminated), with the adjusted prioritization implemented in time for the next SBRM cycle. This path would mean that, once the prioritization was developed it could be in place indefinitely, until the next industry-funded monitoring program was finalized. Readjusting the weighting approach on an as-needed basis would mean that, after going through the entire timeline, the process outlined in Year 2 below would repeat each year until new programs were added/old programs were adjusted or terminated, at which point the timeline would start over as outlined for Year 1.
2. Alternatively, the Councils could elect to do the process every 3 years unless new IFM programs are approved, or whenever existing IFM programs are adjusted or terminated.

TABLE 7. TIMING OF DISCRETIONARY ALTERNATIVES (ALTERNATIVES 2.1 AND 2.2)

Year	Month	SBRM/ASM/Scallop Schedule (status quo)	Alternatives 2.1 and 2.2
Year 1	January to April	SBRM analyses are completed late January/early February	<ul style="list-style-type: none"> NMFS (2.1) prepares and analyze weighting approach for Year 2 –OR Joint Committee or Council meeting to conduct weighting approach (2.2)
	April to May		Council and NFMS meet to review/finalize ranking of existing IFM programs (2.1 and 2.2)
	May to October		NMFS conducts proposed and final rulemaking to finalize rankings for IFM programs for Years 2-4 (or for indefinite period).
	October to December	<ul style="list-style-type: none"> Observer data July Year 0 – June Year 1 available Begin analysis for SBRM Work on discard estimation analysis for SBRM from November through early February Work on analysis for sector ASM using most recent complete fishing year (May Year 0 – April Year 1) 	Begin analysis to determine necessary IFM sea days
Year 2	January to February	<ul style="list-style-type: none"> Receive Year 2 budget Sector ASM coverage rates published in proposed rule/collect public comment Determine scallop compensation rate 	
	March	<ul style="list-style-type: none"> If funding shortfall, run SBRM prioritization process Start of scallop Year 2 	If funding shortfall, issue funding based on finalized weighting approach
	April	<ul style="list-style-type: none"> Begin Year 2 sea day schedule Sector ASM coverage rates published in final rule 	Implement Year 2 IFM coverage levels
	May	Begin Sector ASM Year 2	
	June		NMFS briefs Councils on final year 2 IFM sea day allocation

1.4.2.3 Omnibus Alternative 2.3: Proportional Prioritization Process for Industry-Funded Monitoring Programs

Under Omnibus Alternative 2.3, the amount of Federal funding available to support industry-funded monitoring in each FMP would be reduced by the same percentage as the funding shortfall. If the available Federal funding falls short, the amount of the shortfall would be deducted from the total amount of funding to be allocated to each FMP, proportional to that FMP's share of the total funding need. For example, an FMP that represents 20% of the total funding need would absorb 20% of the total funding shortfall.

There could be a scenario where the available Federal funding for a given FMP would produce a coverage level below the coverage target defined by the FMP as providing sufficient information to meet an FMP's objectives for monitoring. For example, an additional 10 observed trips may provide additional data, but not sufficient data to provide a robust estimate of bycatch of the species of interest. In this case, that FMP would not receive additional coverage and the funding for that FMP would be re-allocated proportionally to other FMPs.

NMFS would determine and provide the Councils with: (1) The estimated industry-funded monitoring coverage levels that incorporates the proportional adjustments, based on available funding; and (2) the rationale for the recommended prioritization, including how it deviates from the fully funded coverage levels across all FMPs. This could be done on an annual basis or the allocation of resources could remain as specified unless revised.

Example FMP 1 needs \$3 million, FMP 2 needs \$5 million, and FMP 3 needs \$2 million to fully implement their coverage targets. The total funding need is \$10 million. If there is only \$8 million in Federal funds for the coming year, then there is a \$2 million shortfall, or a 20% shortfall. Using the proportional prioritization process, NMFS would allocate the \$8 million such that each FMP has a 20% shortfall, i.e., they would all be funded at 80%. FMP 1 would get 80% of \$3 million, or \$2.4 million, FMP 2 would get 80% of \$5 million, or \$4 million, and FMP 3 would get 80% of \$2 million, or \$1.6 million. These would be the total funds available to the FMPs to fund NMFS's costs for coverage days above SBRM.

1.4.2.4 Omnibus Alternative 2.4: Lowest Coverage Ratio-based Prioritization Process for Industry-Funded Monitoring Programs

Under Omnibus Alternative 2.4, the amount of funding would be allocated to each FMP by prioritizing coverage in fisheries that have the lowest coverage needs (based on projections for the coming year) relative to effort (based on vessel trip reports from the previous year). In practice, this would mean that fisheries with the highest ratio of coverage to effort would be sequentially eliminated until the available Federal funding is sufficient to meet the coverage

targets of the remaining FMPs. This alternative would favor fleets with low additional needed coverage days and/or high overall activity.

NMFS would determine and provide the Councils with: (1) the estimated industry-funded monitoring coverage levels that incorporate the prioritization, based on available funding; and (2) the rationale for the recommended prioritization, including how it deviates from the fully funded coverage levels across all FMPs. This could be done on an annual basis or the allocation of resources could remain as specified unless revised.

Example FMP 1 needs \$3 million, FMP 2 needs \$5 million, and FMP 3 needs \$2 million to fully implement their coverage targets. The total funding needed is \$10 million, but there is only \$8 million in Federal funds for the coming year, so there is a \$2 million shortfall. Under the coverage ratio-based prioritization approach, NMFS would calculate the following ratio for each FMP:

$$\text{Coverage Ratio} = \frac{\text{Projected coverage days needed in the coming year}}{\text{Level of effort in the previous year}}$$

If FMP 1 had a ratio of 0.1, FMP 2 a ratio of 0.08, and FMP 3 a ratio of 0.2, FMP 3 would be eliminated from coverage first. Because the total funding need of the remaining programs, \$8 million, can be met by the available Federal funding, \$8 million, coverage for FMP 1 and FMP 2 would be fully funded. FMP 3 would receive no additional coverage in the coming year. The key here is that fewer needed coverage days and/or higher levels of effort in the previous year will both lead to a higher prioritization, and it is the interplay of these two factors that would determine the prioritization.

This alternative is based on an approach selected by the Councils in the SBRM amendment. SBRM sets “minimum pilot coverage” levels for each fishing mode to ensure that a fleet is not allocated too few observer sea days to generate meaningful discard estimations. If the total of agency funded sea days is greater than the total minimum pilot coverage, then the Penultimate Cell approach would be applied. If the funded days exactly equals the total minimum pilot coverage sea days then the sea days would be assigned to fishing modes according to the minimum pilot coverage. However, it is theoretically possible that the available funding for SBRM observers in a given year could be so restricted that the minimum pilot coverage for each fleet could not be achieved. In such a case, it would be necessary to determine which fleets would get enough observer coverage to reach the minimum pilot coverage and which would not. The Councils’ preferred alternative for adjusting coverage levels below minimum pilot coverage would eliminate the funding shortfall by sequentially removing coverage in fleets that had the highest ratio of minimum pilot coverage to days absent from port based on VTR reports in the previous year. Because the number of days absent from port is typically much larger than the minimum pilot coverage for a fishing mode, this alternative would maintain at-sea observer coverage on the most active fishing modes.

1.4.2.5 Omnibus Alternative 2.5: Highest Coverage Ratio-based Prioritization Process for Industry-Funded Monitoring Programs

Under Omnibus Alternative 2.5, the amount of funding would be allocated to each FMP by prioritizing coverage in fisheries that have the highest coverage needs (based on projections for the coming year) **relative** to effort (based on vessel trip reports from the previous year). In practice, this would mean that fisheries with the lowest ratio of coverage to effort would be sequentially eliminated until the available Federal funding is sufficient to meet the coverage targets of the remaining FMPs. This alternative would favor fleets with high additional needed coverage days and/or low overall activity.

NMFS would determine and provide the Councils with: (1) the estimated industry-funded monitoring coverage levels that incorporate the prioritization, based on available funding; and (2) the rationale for the recommended prioritization, including how it deviates from the fully funded coverage levels across all FMPs. This could be done on an annual basis or the allocation of resources could remain as specified unless revised.

Example FMP 1 needs \$3 million, FMP 2 needs \$5 million, and FMP 3 needs \$2 million to fully implement their coverage targets. The total funding needed is \$10 million, but there is only \$8 million in Federal funds for the coming year, so there is a \$2 million shortfall. Under the coverage ratio-based prioritization approach, NMFS would calculate the following ratio for each FMP:

$$\text{Coverage Ratio} = \frac{\text{Projected coverage days needed in the coming year}}{\text{Level of effort in the previous year}}$$

If FMP 1 had a ratio of 0.1, FMP 2 a ratio of 0.08, and FMP 3 a ratio of 0.2, FMP 2 would be eliminated from coverage first. Because the total funding need of the remaining programs, \$5 million, can be met by the available Federal funding, \$8 million, coverage for FMPs 1 and 3. FMP 2 would receive no additional coverage in the coming year. The key here is that greater needed coverage days and/or lower levels of effort in the previous year will both lead to a higher prioritization, and it is the interplay of these two factors that would determine the prioritization.

Timing for Formulaic Alternatives (Alternatives 2.3, 2.4 and 2.5)

The formulaic alternatives (Alternatives 2.3, 2.4, and 2.5) could be implemented annually in concert with the existing SBRM cycle. Rulemaking would not be required, and the process outlined in Year 2 below would occur on an annual basis for all subsequent years.

TABLE 8. TIMING FOR DISCRETIONARY ALTERNATIVES (ALTERNATIVES 2.3, 2.4, AND 2.5)

Year	Month	SBRM/ASM/Scallop Schedule (status quo)	Alternatives 2.3 and 2.4
Year 1	January to April		
	April/May		
	May to October		
	October	<ul style="list-style-type: none"> Observer data July Year 0 – June Year 1 available Begin analysis for SBRM Work on discard estimation analysis for SBRM from November through early February Work on analysis for sector ASM using most recent complete fishing year (May Year 0 – April Year 1) 	Begin analysis for required IFM coverage rates
	November		
	December		
Year 2	January	<ul style="list-style-type: none"> Receive Year 2 budget Sector ASM coverage rates published in proposed rule/collect public comment Determine compensation rate 	
	February		
	March	<ul style="list-style-type: none"> If funding shortfall, run SBRM prioritization process Start of scallop Year 2 	If funding shortfall exists, run IFM prioritization
	April	<ul style="list-style-type: none"> Begin Year 2 sea day schedule Sector ASM coverage rates published in final rule 	Implement Year 2 IFM coverage levels
	May	Begin Sector ASM Year 2	
	June		NMFS briefs Councils on final year 2 IFM sea day allocation

1.4.2.6 Omnibus Alternative 2.6: Monitoring Set-Aside

Omnibus Alternative 2.6 would include general language in the regulations of each FMP that would allow monitoring set-aside provisions to be implemented via a framework adjustment. A monitoring set-aside program would devote a portion of the annual catch limit (ACL) from a fishery to offset the industry cost responsibilities for at-sea, electronic, or dockside monitoring.

However, there are many possible ways to structure a monitoring set-aside program, and the details of each program would need to be developed on an FMP-by-FMP basis. All potential monitoring set-aside programs should be considered as an alternative to off-set monitoring cost, and should not be expected to fully cover monitoring costs. Most fisheries will not have enough value, capacity, or abundance/availability (i.e., stock size, distribution, etc.) to fully cover the costs of intense monitoring goals.

One monitoring set-aside model for a fishery that uses possession limits could consist of reserving some percentage of the ACL (e.g., up to 3 percent) to be allocated to certain vessels to help off-set the additional monitoring costs. In this example, if a vessel in that fishery is selected to carry an at-sea observer, that vessel would be granted a certain amount of pounds from the monitoring set-aside allocation to land above the possession limit. The revenue obtained from the sale of the additional landings would help offset the vessel's costs of carrying an at-sea observer. This example is very similar to the monitoring set-aside program that currently operates in the scallop fishery. Preliminary analysis suggests that set-asides for monitoring will work best in profitable fisheries and when only a modest increase in monitoring is desired (like scallops).

Absent this measure, a full FMP amendment would be required for all fisheries to implement a monitoring set-aside to defray industry costs for monitoring programs. **Adopting this measure would not implement a monitoring set-aside for any individual FMP.** Rather, it would expedite the development of monitoring set-aside provisions for FMPs in future framework adjustments.

Under Omnibus Alternative 2.6, the details and impacts analysis of any monitoring set-aside program would be specified and/or modified in a subsequent framework adjustment to the relevant FMP. These details may include, but are not limited to: (1) the basis for the monitoring set-aside; (2) the amount of the set-aside (e.g., quota, DAS, etc.); (3) how the set-aside is allocated to vessels required to pay for monitoring (e.g., an increased trip limit, differential DAS counting, additional trips, an allocation of the quota, etc.); (4) the process for vessel notification; (5) how funds are collected and administered from the industry to cover the costs of monitoring coverage; and (6) any other measures necessary to develop and implement a monitoring set-aside. Additional NEPA analysis would be required for any action implementing and/or modifying monitoring set-aside provisions, regardless if it required a framework adjustment or full amendment.

Considerations for Monitoring Set-Asides

The text below outlines some of the concepts for the Councils and NMFS to consider when determining whether developing a future monitoring set-aside program for a given fishery could be successful.

Value of the Resource

It is important to determine if the value of a monitoring set-aside program would be significantly beneficial for the goals of off-setting additional monitoring costs.

For example, in 2010, the stock wide Atlantic herring ACL was 201 million lb and the herring ex-vessel price was approximately \$0.13/lb. Landings that year were approximately 145 million lb (approximately 72% of the ACL). If 3 percent of the ACL was set-aside for monitoring (6.03 million lb), that would equate to approximately \$784,140 to cover monitoring costs in the Atlantic herring fishery. However, the fishery may only catch a portion of the monitoring set-aside. For example, if only approximately 72 percent of the monitoring set-aside was harvested, then only approximately \$564,581 (72% of \$784,140) would be available to cover monitoring costs for the entire fishery (all gear types and permit categories). There are also costs associated with fishing, and only the extra profits, not the full ex-vessel value, are a benefit to the fishermen.

Depending on the monitoring program in place, a set-aside would only partially cover monitoring costs. The high ex-vessel value of scallops and modest level of additional sampling currently allows for the scallop monitoring set-aside program to fully off-set the monitoring costs in the scallop fishery, but if ex-vessel value of scallops falls to a low enough level, it may not allow full funding in the future.

Management Measures and Fishery Operations

When developing a monitoring set-aside program managers need to consider the operation of the fishery as well as the comprehensive management measures within a fishery to create a successful monitoring set-aside program. It is also important to consider fishery management partners when developing exemptions or measures for a monitoring set-aside program. Finally, and perhaps most importantly, there needs to be incentive and benefit to the vessels associated with the ability to harvest additional pounds to off-set additional monitoring costs.

In the scallop monitoring set-aside program, vessels can harvest additional scallops above the possession limit, or fish at a reduced days-at-sea accrual rate, when they carry an observer. This provides vessels additional revenue from that trip to off-set the costs of the observer. However, in a fishery like Atlantic herring, some limited access vessels do not have a regulated possession limit and often fish to the maximum capacity of the vessel. Since some vessels in this fishery do not have a possession limit, harvesting additional fish on a trip may not be an effective option. However, there could be other management measure incentives such as allowing fishing during a closed season, in a closed area, or following a seasonal closure. However, benefits from such exemptions would only occur in some fisheries and may not offer an immediate return of funds to offset observer costs.

In the summer flounder, scup, and black sea bass fisheries, in addition to Federal possession limits, states often implement possession limits for these species. If vessels participating in these fisheries were provided exemptions to the Federal possession limits for a monitoring set-aside program, they would also need to be exempt from a state possession limit in order to land over the possession limit in that state. This type of monitoring set-aside program would require coordination with the states and the Atlantic States Marine Fisheries Commission, and may create additional administrative burden for states.

ACL Allocation Within a Fishery

FMPs use a wide range of structures to apportion ACLs to different fishery participants (e.g., commercial and recreational allocations). Monitoring set-aside program managers must consider how the ACL is distributed within the fishery when deciding how to structure the set-aside program. For example, in the Bluefish FMP, there is only one ACL from which a commercial and a recreational ACT are derived. If 3 percent of the ACL is allocated for a monitoring set-aside program, both the commercial and recreational ACTs would be reduced proportionally. However, it is most likely that only the commercial sector would have additional monitoring requirements, therefore the commercial fishery would benefit from the additional monitoring set-aside pounds to cover monitoring costs, but the recreational fishery would simply have a reduced quota.

On the other hand, Amendment 16 to the Northeast Multispecies FMP allows the Council to set sub-ACLs for groundfish stocks through framework adjustments. This vehicle could be used to create a monitoring set-aside program by designating sub-ACLs for some, or all, of the groundfish stocks. The landings allocated to those sub-ACLs could then be used to cover additional monitoring costs in that fishery. It is important to consider how quotas are allocated within the fishery and how to most appropriately distribute the monitoring set-aside pounds. As an aside, it is worth exploring whether the sub-ACL approach may be an alternative approach for establishing monitoring set-asides for the groundfish fishery.

Shared Burden and Benefit

It is important to consider whether the reallocation of quota for a monitoring set-aside program will be equally beneficial and/or burdensome to all fishery participants, and how monitoring set-aside programs could affect different permit categories or different gear types within a fishery. For example, in the Atlantic herring fishery, hypothetically a monitoring set-aside program would allocate 3 percent of the ACL to off-set monitoring costs. However, the monitoring alternatives under consideration for the herring fishery apply coverage to a subset of the herring fishery participants. For example, in some alternatives, the mid-water trawl vessels may be the only gear type that has industry-funded monitoring requirements. If a monitoring set-aside were established to offset the costs of this program, the mid-water trawl vessels would receive the benefits of additional pounds for monitoring costs, but the purse seine vessels would have a smaller annual quota to harvest, and may therefore endure increased hardship despite not having additional monitoring requirements.

In contrast, in the groundfish fishery, the burden of monitoring costs may be more evenly dispersed with the establishment of a monitoring set-aside program. Currently, not all vessels participating in sectors are active in the fishery. Those inactive vessels lease their allocation to the active vessels, but the active vessels would be responsible for additional monitoring costs. If the monitoring set-aside program reserved 3 percent of the overall ACL, then the allocation to each vessel would be equally reduced, therefore sharing the burden more evenly among all participants in the fishery as opposed to just the active vessels.

Availability and Prevalence of the Resource

The health and availability of a fishery will dictate whether the fishery can sustain a monitoring set-aside program. For example, the Atlantic mackerel fishery has continually been underperforming and annual landings have been declining for approximately the past 10 years. At this time it is unclear if the mackerel stock is declining or if the fish are behaving differently in terms of migration or schooling. Providing mackerel vessels with additional pounds of fish to land to off-set additional monitoring cost would not be beneficial because the fish are predominately unavailable or unattainable and the quota has not been limiting.

Additionally, it is important to consider whether the monitoring set-aside program would affect fishing pressure on a sub-component of a stock. For example, if monitoring is only required for vessels fishing in certain areas, those vessels would be provided the additional monitoring set-aside pounds, and therefore could increase fishing effort in those areas. In this example, there may be disproportionate fishing pressure on a sub-component of the stock that exists in the area where additional monitoring is required. Managers need to consider the current health of the stock, the recent performance of the fishery, whether the current management measures appropriately address the potential for the effects of catch on different components of the stock, and how to create a dynamic monitoring set-aside program for changes in stock status and performance to develop a successful program.

Enforcement Issues

Fishery managers should also consider methods to enforce a monitoring set-aside program to prevent abuse to the system. The Mid-Atlantic Research Set-Aside (RSA) program was recently suspended, in part due to issues revolving around enforcement and abuse of the program that resulted in overexploitation of some fisheries. Some monitoring set-aside models could be structured similarly to the Mid-Atlantic RSA program where vessels receive exemptions from certain regulations (i.e., possession limits or closed seasons/areas) to harvest monitoring set-aside pounds. Similar enforcement, monitoring, and reporting issues would need to be addressed when developing a monitoring set-aside program to prevent abuse and over-exploitation of a fishery resource.

Estimated Potential Revenue for Certain FMPs

An estimate of the amount of revenue that could be generated from a set aside is shown in the table below. This table is generated using the lowest and highest average ex-vessel price of herring and mackerel from the 2010-2014 fishing years. Inability to locate either the herring or mackerel resources, reductions in ABCs, or lower prices would reduce expected revenues from a monitoring set-aside. In addition, changes to the management program (i.e., changes to the current unlimited possession limits for Category A herring and Tier 1 mackerel permits) may be necessary, depending on the structure of the set aside. For the herring fishery, using 1 to 5 percent of the 2015 annual catch limit could fund 357 to 2,020 NEFOP-level monitoring days at \$818 per sea day, and 411 to 2,327 at-sea monitoring days at \$710 per sea day. For the mackerel fishery, using 1 to 5 percent of the 2015 annual catch limit could fund 110 to 1,131

NEFOP-level monitoring days at \$818 per sea day, and 127 to 1,303 at-sea monitoring days at \$710 per sea day.

TABLE 9. POTENTIAL FUNDING TO OFFSET MONITORING COSTS FROM MONITORING SET-ASIDES FOR THE ATLANTIC HERRING AND MACKEREL FISHERIES

Stock	2015 Total ACL	Available set-aside			Price per mt*		Potential funding available to offset monitoring costs					
		5%	3%	1%	Lo w	Hig h	5% of the ACL		3% of the ACL		1% of the ACL	
							Low	High	Low	High	Low	High
Atlantic herring	104,566	5,228	3,137	1,046	279	316	\$ 1,458,696	\$1,652,143	\$875,217	\$991,286	\$291,739	\$330,429
			Sea days at \$818/sea day				1,783	2,020	1,070	1,212	357	404
			Sea days at \$710/sea day				2,055	2,327	1,233	1,396	411	465
Atlantic mackerel	25,039	1,252	751	250	360	739	\$450,702	\$ 925,191	\$270,421	\$555,115	\$ 90,140	\$185,038
			Sea days at \$818/sea day				551	1,131	331	679	110	226
			Sea days at \$710/sea day				635	1303	381	782	127	261

* Per metric ton prices are the average high and low prices during 2010-2014.

1.4.3 Considered But Rejected Omnibus Alternatives

The January 2014 version of the Discussion Document contained a Vessel Cancellation Charge Option. That option included discussion of a fee to be paid by the vessel to the at-sea observer service provider when vessels are a “no show” or when they cancel trips less than 12 hours before the scheduled departure time. That option also discussed that payment of fees would be a vessel permit requirement and that outstanding fees would result in non-renewal of vessel permits.

As the PDT/FMAT further developed this option, the Department of Commerce Office of General Counsel advised that the government may not dictate the terms of a private transaction such as this fee. As a result, the Vessel Cancellation Charge Option is likely not legal because it involves the terms of a private business contract between a vessel and an observer service provider. While an observer service provider or a vessel could specify a cancellation fee as part of a contract, thereby eliminating the necessity of increasing the base rate that all vessels pay, it is unlikely that NMFS could legally require or specify the amount of such a fee.

The August 2014 version of the Discussion Document contained a Cost-based Prioritization Process for Industry-Funded Monitoring Programs Option. Under that option, the Federal funding would be assigned to each FMP by sequentially eliminating coverage in FMPs that have the highest funding need until the available funding is sufficient to meet the funding needs of the FMPs remaining. That process would have prioritized fisheries with the least expensive programs first. NMFS would have determined and provided the Councils with: (1) The estimated industry-funded monitoring coverage levels that incorporates the prioritization, based on available funding; and (2) the rationale for the recommended prioritization, including how it deviates from the fully-funded coverage target across all FMPs. This option could be done on an annual basis or the allocation of resources could remain as specified unless revised.

At its August 19, 2014, meeting the New England’s Observer Policy Committee recommended that this option be considered but rejected because cost-based prioritization option lacked rationale and eliminating FMPs with the highest funding needs would not likely meet the goals/objectives of the industry-funded monitoring programs established by the New England Council.

1.5 IMPACTS OF OMNIBUS ALTERNATIVES

General Discussion of Omnibus Alternative Impacts

The omnibus alternatives (Omnibus Alternatives 1, 2, and 2.1-2.6) in this amendment are procedural in nature—focused on the definition of cost responsibilities between NMFS and industry, the process that will be used to prioritize the allocation funding for NMFS cost responsibilities related to industry-funded monitoring programs established for Greater Atlantic Region fisheries, industry-funded monitoring program service provider standards, and the establishment of future industry-funded monitoring programs. Subsequently, there are no expected direct physical or biological impacts associated with the alternatives under consideration for the omnibus portions of the action. Due to the nature of the omnibus alternatives evaluated in this amendment, there very few functional differences (as far as environmental effects are concerned) between the status quo alternatives and the other alternatives under consideration.

The expected direct effects are generally well-defined for most fishery management actions, but indirect effects are often less so. During the development of this amendment, there have been occasions when discussions began to diverge from how bycatch data may best be collected into discussions about the likely management implications of an “improved” data collection program. These discussions generally focused on the potential for improvements in stock assessments and on the types of management measures that may be necessary to address bycatch concerns where they may exist.

There are three reasons why these types of potential downstream effects (e.g., subsequent management measures to address bycatch issues) of this action are considered too remote and speculative to be appropriate for consideration in this amendment. First, while this amendment is focused on potentially expanding observer coverage above the level required under SBRM, implementation of this amendment does not, by itself, automatically allow for higher observer coverage in Greater Atlantic Region fisheries or coverage above status quo. While increases in target observer coverage levels for some fisheries may be expected to improve data quality, realization of an improvement in data quality is contingent upon sufficient funding to expand coverage beyond SBRM.

The second reason these types of potential effects are too remote and speculative to be appropriate for consideration in this amendment is that there is no way to predict the effect that an improvement in data quality would have for managing the affected fisheries. Improvements in data quality would give assessment scientists and fishery managers more confidence in the data. However, there is no way to predict the type of new information that would arise from future catch estimations (e.g., higher or lower discard estimates). Because any change in direction of catch estimation cannot be predicted at this time, there is no way to predict whether changes in management would be required to address any potential issues that may arise.

The third reason is that the management measures that might be implemented, should action be determined to be necessary to address a bycatch concern, also cannot be predicted. Depending on the specific fishery, resource species, time, area, and manner of interaction leading to the concern, different types of management measures would be appropriate. Some types of concerns may best be addressed with a bycatch quota, others may best be addressed with an area or seasonal closure, and yet others may best be addressed through changes to the fishing gear used. As the actual environmental impacts of these potential management changes would vary with and depend upon the type of measure proposed, the management system to be changed, and the time, area, and species fished, there is no way to speculate as to what the most likely environmental impacts may be.

Therefore, because these types of potential management actions, which may eventually stem from implementation of the industry-funded monitoring amendment, are too remote and speculative to be adequately or meaningfully addressed in this amendment, this analysis focuses solely on the potential direct, indirect, and cumulative effects expected to be immediately associated with the proposed action and primary alternatives. Any future management actions that may result from the information collected through industry-funded monitoring programs would be subject to all the requirements of NEPA at the appropriate time.

The discussion of environmental effects that follows is organized to present the relevant biological, physical, and socio-economic considerations for each of the omnibus alternatives. Thus, the effects on biological resources of the each of the omnibus alternatives are discussed, followed by the effects on the physical environment (habitat) of each of the omnibus alternatives, and finally followed by the socio-economic effects of each of the omnibus alternatives. In this way, the effects of each of the alternatives on each portion of the affected environment can be appropriately compared.

Due to the administrative nature of much of this action (i.e., the action is focused on establishing a process) in many cases there are no environmental impacts associated with the omnibus alternative under consideration. In these cases, an explanation for this conclusion is presented, but no separate discussion of the alternatives is provided. Separate discussion of the likely impacts of alternatives is only provided where there are measurable differences in impacts between the alternatives.

This section considers the potential impacts of omnibus alternatives considered by the NEFMC and MAFMC to establish a common structure for industry-funded monitoring programs that would apply to all Greater Atlantic Region FMPs.

Alternatives under consideration include the following:

- Alternative 1: Case-by-case Industry-Funded Monitoring Programs (No Action); and
- Alternative 2: Standardized Industry-Funded Monitoring Programs.

The standardized industry-funded monitoring program under consideration includes (1) standard cost responsibilities associated with industry-funded monitoring for NMFS and the fishing industry, (2) a process for FMP-specific industry-funded monitoring to be implemented

via a future framework adjustment action, (3) standard administrative requirements for industry-funded monitoring service providers, and (4) a process to prioritize available Federal funding for industry-funded monitoring across FMPs, and (5) a process for monitoring set-aside programs to be implemented via a future framework adjustment action.

There are five alternative processes for prioritizing available Federal funding for industry-funded monitoring programs across FMP, including:

- Alternative 2.1: NMFS-led prioritization process;
- Alternative 2.2: Council-led prioritization process;
- Alternative 2.3: Proportional prioritization process;
- Alternative 2.4: Lowest coverage ratio prioritization process; and
- Alternative 2.5: Highest coverage ratio prioritization process.

TABLE 10. SUMMARY OF THE INDIRECT IMPACTS OF OMNIBUS ALTERNATIVES COMPARED TO EACH OTHER

Alternatives	Target Species Non-Target Species Protected Species	Human Communities
Alternative 1: No Industry-Funded Monitoring Programs (No Action)	Potential low negative impact related to allocating funding to industry-funded monitoring programs on a first come, first served basis (rather than aligning to Council priorities)	Potential low negative impact related to continued uncertainty about true discard rates (could lead to overly cautious management)
Alternative 2: Industry-Funded Monitoring Programs (Action Alternative)	Negligible impact related to standardized cost responsibilities and process for future industry-funded programs implemented via framework Potential low positive impact related to standardized service provider requirements and process to prioritize additional monitoring	Negligible impact related to standardized cost responsibilities and process for future industry-funded programs implemented via framework Potential low positive impact related to establishing service provider requirements, and process to prioritize additional monitoring
Alternative 2.1: NMFS-Led Prioritization Process	Potential low positive impact because all industry-funded programs are considered; compared to other prioritization processes allows an evaluation of program need/design when assigning priority	Potential low positive impact because all industry-funded programs are considered; compared to other prioritization processes allows an evaluation of program need/design when assigning priority
Alternative 2.2: Council-Led Prioritization Process		
Alternative 2.3: Proportional Prioritization Process	Potential low positive impact related to information collection because process considers all industry-funded programs	Potential low positive impact related to information collection because process considers all industry-funded programs
Alternative 2.4 and 2.5: Coverage Ratio-Based Prioritization Process	Does not allow for prioritization based on program need/design	Does not allow for prioritization based on program need/design
Alternative 2.6 Monitoring Set-Aside	Negligible impact related to standardized process for monitoring set-asides implemented via framework	Negligible impact related to standardized process for monitoring set-asides implemented via framework
Impacts to physical environment were not discussed in this table because they are negligible. These alternatives will not alter fishing behavior, or directly impact fishing regulations (gears used or areas fished).		

1.5.1 OMNIBUS ALTERNATIVE IMPACTS TO BIOLOGICAL RESOURCES

Under Omnibus Alternative 1 (No Action), there would be no standardized structure developed for Greater Atlantic Region industry-funded monitoring programs, meaning that there would be no standard definition of cost responsibilities for industry-funded monitoring in the New England and Mid-Atlantic fisheries, no standard administrative requirements for industry-funded monitoring service providers, no framework adjustment process to implement FMP-specific industry-funded monitoring, and no process to prioritize available Federal funding to meet Council desired monitoring coverage target above and beyond SBRM coverage. If there was Federal funding available after SBRM coverage requirements were met, additional monitoring for Greater Atlantic Region FMPs would be evaluated on a case-by-case basis. If no Federal funding were available after SBRM coverage requirements were met, then none of the established industry-funded monitoring programs would operate and there would be no additional observer coverage above SBRM levels.

In contrast, Omnibus Alternative 2 would establish a standardized structure for industry-funded monitoring programs that would apply to all New England and Mid-Atlantic FMPs that choose to use industry funding to increase monitoring. This industry-funded monitoring program structure would include the following components: (1) standard cost responsibilities associated with industry-funded monitoring for NMFS and the fishing industry, (2) process for FMP-specific industry-funded monitoring to be implemented via a future framework adjustment action, and (3) standard administrative requirements for industry-funded monitoring service providers. Under Omnibus Alternative 2, if enough Federal funding available after SBRM coverage requirements were met to cover NMFS costs for all of the established industry-funded monitoring programs, they would all operate at the target coverage levels established through each individual FMP. If there is some Federal funding available after SBRM coverage requirements are met, but not enough to cover all of the industry-funded monitoring programs, one of five possible prioritization processes would be used to decide how to allocate available Federal funding to the various industry-funded monitoring program. If no Federal funding were available after SBRM coverage requirements were met, then, similar to the No Action alternative, none of the established industry-funded monitoring programs would operate and there would be no additional observer coverage above SBRM levels.

In general, there are no direct impacts on biological resources (target, non-target, and protected species) related to either Omnibus Alternative 1 (No Action), or the various permutations of Omnibus Alternative 2. Again, these alternatives are entirely focused on the process of developing industry-funded monitoring programs, and thus do not directly affect the level of fishing activity, fishing operations, the species targeted, or areas fished in the Greater Atlantic Region. The indirect impacts of the various aspects of the Omnibus Alternatives on biological resources is discussed below.

Compared to the No Action alternative, the establishment of standardized cost responsibilities and the framework adjustment process to allow for the future establishment of industry-funded monitoring programs in individual FMPs under Omnibus Alternative 2 has a negligible

impact on biological resources when compared with the No Action alternative. These aspects of Omnibus Alternative 2 are entirely focused on the process of developing industry-funded monitoring programs, and thus do not directly affect the level of fishing activity, fishing operations, the species targeted, or areas fished in the Greater Atlantic Region. As there are no biological impacts associated with the cost responsibility and framework adjustment aspects of the Omnibus Alternative 2 and the No Action alternative, there are no differences among them.

There is a low positive indirect impact on biological resources related to establishment of standardized industry-funded monitoring service provider requirements. Standardized service provider requirements may lead to greater consistency in the information collected about target, non-target, and protected species through industry-funded monitoring programs, provided that individual FMPs do not drastically alter the service provider requirements when establishing monitoring programs. Improved catch information that results from greater consistency in information collection may lead to better management of biological resources. In contrast, under the No Action alternative, industry-funded monitoring service provider requirements would need to be established separately for each FMP.

The magnitude of the potential indirect impacts of the prioritization process on biological resources varies depending on the selected prioritization process. The impacts discussed in this paragraph apply at times when there is some Federal funding available after SBRM coverage requirements are met, but not enough to cover all of the established industry-funded monitoring programs. Under the Omnibus Alternative 1 (No Action), the absence of a process to prioritize between established industry-funded monitoring programs means that Federal funding available after SBRM coverage requirements are met is allocated to industry-funded monitoring programs on a first-come, first-served basis. There is a potential low negative impact to biological resources under the No Action alternative if industry-funded monitoring programs necessary to gather important catch information go unfunded because they are developed after other programs. In general, the establishment of a prioritization process under Omnibus Alternative 2 provides a low positive impact on biological resources compared to the No Action alternative because all established industry-funded monitoring programs will be considered when deciding how to allocate available Federal funding, and funding will either be allocated proportionally to all industry-funded monitoring programs (under Alternative 2.3), or will be distributed among industry-funded programs based on a method selected by the Councils (under Alternatives 2.1, 2.2, 2.4, and 2.5).

The discretionary prioritization processes (Alternatives 2.1 and 2.2) have the greatest potential for positive impacts to biological resources compared to the No Action and formulaic alternatives (Alternatives 2.3-2.5) because they allow for the evaluation of program need and design when assigning priority. This means that, in years where there is Federal funding available to prioritize, the discretionary prioritization alternatives allow the potential to direct funding towards monitoring programs that improve information about specific target, non-target, and protected species.

The formulaic prioritization alternatives (Alternative 2.3-2.5) all provide a low positive impact

on biological resources compared to No Action because they consider all established Greater Atlantic Region industry-funded monitoring programs when deciding how to allocate available Federal funds, rather than considering funding allocation on a case-by-case basis under the No Action alternative. In the case of the proportional prioritization process (Alternative 2.3), available Federal funding would be allocated proportionally to all established industry funded monitoring programs, rather than on a first-come, first-served basis under the No Action alternative. This means that, in years where there is Federal funding available to prioritize, all industry-funded monitoring programs would result in some additional monitoring, which may have low positive impacts on biological resources in terms of information collection. The lowest coverage ratio based alternative (Alternative 2.4) would favor coverage for the FMPs that don't need much additional coverage to meet targets and the most active fisheries. The highest coverage ratio based alternative (Alternative 2.5) would favor coverage for the FMPs that need more coverage to meet targets and the least active fisheries. While both of these alternatives could result in certain industry-funded monitoring programs receiving no funding, there is still some benefit to biological resources that results from evaluating the allocation of available Federal funding across all Greater Atlantic Regional industry-funded monitoring programs in a structured way, rather than on a case-by-case basis.

Due to the nature of Alternative 2.6 (Monitoring Set-Aside), which is limited to a decision regarding creating the mechanism needed to develop and implement monitoring set-aside programs, rather than actually implementing such programs, there are no direct or indirect effects on any biological resources (fishery resources, protected resources, or other non-fishery resources) anticipated for this alternative. Any impacts that may be associated with actually implementing a monitoring set-aside program through a framework adjustment to an FMP would be fully analyzed in the documents supporting the action.

1.5.2 OMNIBUS ALTERNATIVE IMPACTS TO PHYSICAL ENVIRONMENT

Because neither the status quo omnibus alternative nor the other omnibus alternatives (2.1-2.5) would directly impose or likely result in any changes in fishing effort or behavior, fishing gears used, or areas fished, there are no potential impacts to the physical environment (including Essential Fish Habitat (EFH)) associated with the omnibus alternatives under consideration for this item. There are also no differences among the various omnibus alternatives.

Due to the nature of this Alternative 2.6 (Monitoring Set-Aside), which is limited to decisions regarding creating the mechanisms needed to develop and implement monitoring set-aside programs, there are no direct or indirect effects on any physical environment (including EFH) anticipated for this alternative. Any impacts that may be associated with actually implementing a monitoring set-aside program through a framework adjustment to an FMP would be fully analyzed in the documents supporting the action.

1.5.3 OMNIBUS ALTERNATIVE IMPACTS TO HUMAN COMMUNITIES

Under Omnibus Alternative 1 (No Action), there would be no standardized structure developed for Greater Atlantic Region industry-funded monitoring programs, meaning that there would be no standard definition of cost responsibilities for industry-funded monitoring in the New England and Mid-Atlantic fisheries, no standard administrative requirements for industry-funded monitoring service providers, no framework adjustment process to implement FMP-specific industry-funded monitoring, and no process to prioritize available Federal funding to meet Council desired monitoring coverage target above and beyond SBRM coverage. If there was Federal funding available after SBRM coverage requirements were met, additional monitoring for Greater Atlantic Region FMPs would be evaluated on a case-by-case basis. If no Federal funding were available after SBRM coverage requirements were met, then none of the established industry-funded monitoring programs would operate and there would be no additional observer coverage above SBRM levels.

In contrast, Omnibus Alternative 2 would establish a standardized structure for industry-funded monitoring programs that would apply to all New England and Mid-Atlantic FMPs that choose to use industry funding to increase monitoring. This industry-funded monitoring program structure would include the following components: (1) standard cost responsibilities associated with industry-funded monitoring for NMFS and the fishing industry, (2) process for FMP-specific industry-funded monitoring to be implemented via a future framework adjustment action, and (3) standard administrative requirements for industry-funded monitoring service providers. Under Omnibus Alternative 2, if enough Federal funding available after SBRM coverage requirements were met to cover NMFS costs for all of the established industry-funded monitoring programs, they would all operate at the target coverage levels established through each individual FMP. If there is some Federal funding available after SBRM coverage requirements are met, but not enough to cover all of the industry-funded monitoring programs, one of five possible prioritization processes would be used to decide how to allocate available Federal funding to the various industry-funded monitoring program. If no Federal funding were available after SBRM coverage requirements were met, then, similar to the No Action alternative, none of the established industry-funded monitoring programs would operate and there would be no additional observer coverage above SBRM levels. No individual FMP would be subject to an industry-funded monitoring program as a result of implementation of this action. Rather, any FMP that wishes to develop an industry-funded monitoring program would need to develop the program that meets the specifications of this action in a separate framework or amendment.

Overall, there will be negative economic impacts to fishing vessels as a result of selecting Omnibus Alternative 2 if both of the following occur: 1) There is an established industry-funded monitoring program for the FMP; and 2) There is Federal funding available to cover all, or a portion, of the costs of industry-funded monitoring programs after SBRM coverage requirements are met. The estimated vessel contribution is between \$106 and \$818 per sea day. If no Federal funding were available after SBRM coverage requirements were met, then,

similar to the No Action alternative, none of the established industry-funded monitoring programs would operate and there would be no additional observer coverage above SBRM levels. It is important to reiterate that the economic impacts associated with coverage targets for industry-funded monitoring programs must be evaluated on an FMP-by-FMP basis at the time each program is established (e.g., the economic analysis of coverage target impacts is provided for the Atlantic herring and Atlantic mackerel fisheries in Sections 4.2 and 4.3 of the IFM Amendment Environmental Assessment document). The indirect impacts of the various aspects of the Omnibus Alternatives on human communities are discussed below, but should be interpreted within the context of the economic impacts being overall negative.

Compared to the No Action alternative, the establishment of the framework adjustment process to allow for the future establishment of industry-funded monitoring programs in individual FMPs under Omnibus Alternative 2 has a negligible impact on human communities when compared with the No Action alternative. This aspect of Omnibus Alternative 2 is entirely focused on the process of developing industry-funded monitoring programs, and thus does not directly affect fishing vessels, fleets, or ports. As there is no direct impact to human communities associated with the framework adjustment aspects of the Omnibus Alternative 2 and the No Action alternative, there are no differences between the alternatives.

There is a potential low positive indirect impact on human communities associated with the establishment of standardized industry-funded monitoring service provider requirements. The service provider requirements match the existing service provider requirements codified for other industry-funded monitoring programs in the Greater Atlantic Region. Standardized service provider requirements may allow for efficiencies in the administration of industry-funded monitoring programs (e.g., initial applications to be approved as service providers, training for monitors, etc.) compared to the No Action alternative, which could ultimately reduce industry's contribution to monitoring costs. In addition, standardized service provider requirements could lead to greater consistency in the information collected about through industry-funded monitoring programs, provided that individual FMPs do not drastically alter the service provider requirements when establishing monitoring programs. Improved catch information that results from greater consistency in information collection may lead to better management of biological resources, which could eventually lead to greater fisheries yields. In contrast, under the No Action alternative, industry-funded monitoring service provider requirements would need to be established separately for each FMP.

The establishment of standardized cost responsibility definitions could have low positive impacts compared to No Action. While industry cost responsibilities are not codified in this action, the categorization and characterization of cost responsibilities in this action could provide industry members information necessary to negotiate contracts with industry-funded monitoring service providers, which may ultimately reduce industry cost responsibilities.

The magnitude of the potential indirect impacts of the prioritization process on human communities varies depending on the selected prioritization process. The impacts discussed in this paragraph apply at times when there is some Federal funding available after SBRM

coverage requirements are met, but not enough to cover all of the established industry-funded monitoring programs. Under the Omnibus Alternative 1 (No Action), the absence of a process to prioritize between established industry-funded monitoring programs means that Federal funding available after SBRM coverage requirements are met is allocated to industry-funded monitoring programs on a first-come, first-served basis. There is a potential low negative impact to human communities under the No Action alternative if industry-funded monitoring programs necessary to gather important information catch information go unfunded because they are developed after other programs. In general, the establishment of a prioritization process under Omnibus Alternative 2 provides a low positive impact on human communities compared to the No Action alternative because all established industry-funded monitoring programs will be considered when deciding how to allocate available Federal funding, and funding will either be allocated proportionally to all industry-funded monitoring programs (under Alternative 2.3), or will be distributed among industry-funded programs based on a method selected by the Councils (under Alternatives 2.1, 2.2, 2.4, and 2.5).

The discretionary prioritization processes (Alternatives 2.1 and 2.2) both provide a low positive impact on human communities compared to No Action because they consider all established Greater Atlantic Region industry-funded monitoring programs when deciding how to allocate available Federal funds, rather than considering funding allocation on a case-by-case basis under the No Action alternative. These alternatives have the greatest potential for positive impacts to human communities compared to the No Action and formulaic alternatives (Alternatives 2.3-2.5) because they allow for the evaluation of program need and design when assigning priority. This means that, in years where there is Federal funding available to prioritize, the discretionary prioritization alternatives allow the potential to direct funding towards monitoring programs with specific characteristics. These alternatives could allow the Council or NMFS to preferentially support industry-funded monitoring programs for species with economic value, programs where industry is most able to bear the cost of additional monitoring, or programs that gather information about species with special ecosystem importance (e.g., choke species or forage species). Improved catch information that results from the opportunity to focus funding on the most important industry-funded monitoring programs may lead to better management of biological resources, which could eventually lead to greater fisheries yields.

The formulaic prioritization alternatives (Alternative 2.3-2.5) all provide a low positive impact on human communities compared to No Action because they consider all established Greater Atlantic Region industry-funded monitoring programs when deciding how to allocate available Federal funds, rather than considering funding allocation on a case-by-case basis under the No Action alternative. In the case of the proportional prioritization process (Alternative 2.3), available Federal funding would be allocated proportionally to all established industry funded monitoring programs, rather than on a first-come, first-served basis under the No Action alternative. This means that, in years where there is Federal funding available to prioritize, all industry-funded monitoring programs would result in some additional monitoring, which may have low positive impacts on human communities in terms of information collection. The lowest coverage ratio based alternative (Alternative 2.4) would prioritize industry-funded

monitoring programs associated with the most active fisheries. The highest coverage ratio based alternative (Alternative 2.5) would prioritize industry-funded monitoring programs associated with the least active fisheries. While both of these alternatives could result in certain industry-funded monitoring programs receiving no funding, there is still some benefit to human communities that results from evaluating the allocation of available Federal funding across all Greater Atlantic Regional industry-funded monitoring programs in a structured way, rather than on a case-by-case basis.

The monitoring set-aside (Alternative 2.6) concept has the potential cost of removing harvest from a fishery, but the potential benefit of allowing parts of the fishery to defray costs for additional monitoring, essentially spreading the cost among more fishery participants. However, due to the nature of this alternative, which is limited to decisions regarding creating the mechanisms needed to develop and implement monitoring set-aside programs, there are no direct or indirect socio-economic effects on fishing vessels, fleets, or ports anticipated for this alternative. Any impacts that may be associated with actually implementing a monitoring set-aside program through a framework adjustment to an FMP would be fully analyzed in the documents supporting the action.



Mid-Atlantic Fishery Management Council
800 North State Street, Suite 201, Dover, DE 19901-3910
Phone: 302-674-2331 | Toll Free: 877-446-2362 | FAX: 302-674-5399 | www.mafmc.org
Richard B. Robins, Jr., Chairman | Lee G. Anderson, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

DATE: January 27, 2016

TO: Council

FROM: Jason Didden *JDD*

SUBJECT: Marine Recreational Information Program Update - MRIP

Recently a question was posted on a fishing bulletin board asking about the differences between MRFSS and MRIP (<http://www.stripersonline.com/surftalk/topic/636830-mrfss-versus-mrip/>). I posted a response, which led to this agenda item for a brief update on MRIP. Below find a summary of my response as background. NMFS highlights differences (see Catch, Effort, Estimation, Calibration tabs) at <http://www.st.nmfs.noaa.gov/recreational-fisheries/MRIP/Differences-Between-MRIP-and-MRFSS>. At the Council meeting I will review these briefly and field questions – it would also be very helpful to get input on what the Council would like in terms of additional MRIP information/outreach.

Part 1 – MRIP is more about an aggressive and ongoing research program to identify and make improvements than any one change. Since 2008, there have been 100+ projects nationally, many completed and others ongoing (https://www.st.nmfs.noaa.gov/pims/#view=public_projects). Some changes have already been made to how recreational catch is sampled/estimated, some changes are pending, and current/future research is likely to suggest that additional changes are appropriate in the future.

Part 2 – One early change occurred when it was determined that the unequal probabilities of assigning different sites for dockside/catch interviews were not correctly accounted for. The data is now properly weighted based on the selection probabilities for the different sites - some species saw catch estimate differences between MRIP and MRFSS, others did not; there was not a consistent trend across species.

Part 3 – The dockside catch survey was re-designed for 2013: The list of fishing access sites was updated (<http://www.st.nmfs.noaa.gov/recreational-fisheries/data-and-documentation/site-register>); all parts of a 24-hour day are now sampled (so differences between trips that end during the day vs. night are accounted for); and survey staff must go only to their assigned sites so that the probabilities of sampling sites/anglers can be properly accounted for. Effective in 2016 all the east coast states will be conducting the dockside catch survey rather than NMFS contractors and state subcontractors, which should further improve consistency in samplers/sampling.

Part 4 – While the dockside catch survey tracks catch per trip, the phone survey tracks trips/effort. MRIP is transitioning to a mail-based effort survey. The mail survey has a much higher response rate, covers all anglers (including those without landline telephones), and uses state license data to sample

more efficiently. The effort numbers coming out of the mail surveys are much higher than with the phone surveys. The two are being run side-by-side for 2015-2017 so that the data can be calibrated, used to create new historical time series, and incorporated into assessments before being used in catch accounting in 2017/2018. It is likely that the revised recreational historical time series will not be “locked-in” until the middle of 2018 (this may impact management action timelines). See <http://www.st.nmfs.noaa.gov/Assets/recreational/pdf/MRIP%20FES%20Transition%20Plan%20FINAL.pdf>.

Part 5 – There are a variety of projects involving self-reporting. Things seem headed toward using electronic logbooks for a census of for-hire catch (everyone reports) but completeness, compliance, and validation are key issues. To get to where MRIP can certify a method for using for-hire electronic logbooks, there’s follow-up work going on related to the pilot studies done in the Gulf (http://www.st.nmfs.noaa.gov/Assets/New-MRIP/newscasts/2013-5-9%20Newscast_Electronic%20Logbook%20Pilot%20Study.pdf). In terms of private anglers, using opt-in data from them (via phones for example) is prone to bias because people who participate tend to be the most avid anglers – their data will mis-estimate (probably overestimate) total catches. The Council conducted a workshop on this issue (<http://www.mafmc.org/workshop/volunteerself-reported-angler-data-workshop>).

Part 6 – What does management need? Once we move to an all-mail effort survey, most (but not all) statistical issues should be addressed (an upcoming NRC review will re-evaluate MRIP). There is still the question of how much should be spent on sampling to get a given level of precision? Or on the other hand, what kind of management approaches should be used if we’re only going to get a particular level of precision? For commonly-caught species (e.g. summer flounder) the numbers should be pretty good at current sampling levels if you want a coast-wide annual number. However, if you want state-level information at smaller time increments or for less encountered species, the only way to have a tight estimate from a survey is to increase sampling (\$). Increasing coverage (Wave 1, tidal rivers, rare event species) and shortening data turn around (1-month waves) are other management need issues that would require additional resources. The Council will be involved with ACCSP as it develops an MRIP Regional Implementation Plan to identify regional needs and priorities for data collection.

There will never be enough funding to have every wave/mode/area sub-estimate be precise – you will always be able to find some sub-estimate that looks odd. But the nature of statistics says that some sub-estimates will be high and some will be low, and the big picture can still be precise. For example, nationwide polls mirror presidential election results quite well (http://www.realclearpolitics.com/epolls/2012/president/us/general_election_romney_vs_obama-1171.html, http://www.realclearpolitics.com/epolls/2004/president/us/general_election_bush_vs_kerry-939.html), but estimating how Delaware votes from the 5-6 Delawareans in one of those nationwide polls will be highly imprecise. The same is true with MRIP – you can get precise overall information but if you try and narrow things down too far, estimates can become highly imprecise, for example May-June 2015 Delaware summer flounder catch from shore along the ocean (which happens to have a confidence interval from 0 to over double the estimate). A survey won’t do what it’s not designed to do, and it probably doesn’t matter that we can’t meaningfully estimate catch at such a fine scale. Total 2015 Delaware summer flounder catch should be good to $\pm 29\%$, and total 2015 Greater Atlantic region summer flounder catch should be good to about $\pm 12\%$. The bigger the unit, the more precise the estimate because there are more samples and the high/low sub-estimates cancel each other out.



NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

UNITED STATES DEPARTMENT OF COMMERCE

Statement from Acting NOAA Administrator Dr. Kathryn Sullivan on the death of Sen. Frank Lautenberg

June 3, 2013

I am deeply saddened to hear of the passing of Sen. Frank Lautenberg. He was a true statesman, advocate for his constituents, and champion of our nation's oceans, habitats, and coastal communities.

Our oceans are critical to the economic prosperity of millions around the world. Early on, Sen. Lautenberg recognized that the changes and stresses our oceans are experiencing needed to be better understood. He was a pioneer in the efforts to protect critical ocean habitat, such as deep sea corals.

In 2009, Congress passed legislation authored by Sen. Lautenberg to focus research efforts on rising ocean acidity. NOAA has taken this mandate seriously and continues to work to understand how ocean acidification could potentially devastate all ocean life from the smallest organism to the largest whale.

My thoughts are with Sen. Lautenberg's family, staff, and constituents. He will be sorely missed, but all of us who share his commitment to the health of our oceans will work every day to ensure that his legacy will live on.

Dr. Kathryn Sullivan
Acting Under Secretary of Commerce for Oceans and Atmosphere
and NOAA Administrator

[Got feedback?](#)

Long-serving Senator Frank Lautenberg (D-NJ, 1982-2001 and 2003-2013) passed away at age 89 and was the last World War II veteran serving in the Senate. He was responsible for several important pieces of legislation to protect our oceans. In addition to developing the discretionary language to protect deep-sea corals and sponges passed as part of the 2007 MSA reauthorization (S. 2012), he was responsible for:

- The Bottom Trawl and Deep Sea Coral Habitat Act (S. 1635, 2005)
 - Lautenberg commented: “We have only recently learned that corals and sponges form reefs in the cold, dark waters of the deep sea. Let’s protect them before we lose them entirely; before we learn the extent of their importance to us and to the ecology of the deep sea.”
- The Federal Ocean Acidification Research and Monitoring Act (S. 173, 2009)
 - Requires a committee of agencies led by NOAA to coordinate research and monitoring of acidification of our oceans, and to develop a national plan to assess the environmental and economic impacts, and recommend solutions. The measure also established an ocean acidification program in NOAA.

The 2007 MSA reauthorization was approved by the Senate on December 7, 2006 and by the House in the final hours of the 109th Congress, and Sen. Lautenberg championed provisions to protect deep-sea corals. The Reauthorization required NOAA to initiate a deep-sea corals research program to identify and map deep-sea coral ecosystems, and gave Councils authority to protect areas of the seafloor from any type of fishing gear that damages deep-sea coral habitat, which was used in the MAFMC’s amendment. In the years prior to the adoption of this section of the MSA, Sen. Lautenberg had offered bill language to protect deep-sea corals, [commenting on the Senate floor in 2005](#), on the importance of “...balanc[ing] the needs of fishermen with the needs of some of our most precious and vulnerable ocean resources: deep sea corals and sponges.”

Sen. Lautenberg later added that, “Fishing and fishing communities

are an important part of our culture, our history, and our economy. Deep sea corals and sponges are an important suite of species with wide economic potential [and] extreme [value] ecologically. It is imperative that we protect the needs of both. ... Deep sea corals and sponges are also important to humans. They provide habitat that commercially and recreationally important fish can use, and many are under study as sources of new biomedical compounds to fight various diseases. Scientists around the world believe that these newly discovered deep sea corals and sponges are as important as, if not more important than, their tropical cousins.”

Bonnie Englehardt, Sen. Lautenberg’s surviving widow, and her staff, have indicated that a formal designation of the Council’s deep-sea coral protected area using the name of her late husband would be a fitting and appropriate tribute to his years of effort to protect deep-sea corals and sponges.

Here’s the relevant language in MSA 2007:

109-479

- (b) DISCRETIONARY PROVISIONS.—Any fishery management plan which is prepared by any Council, or by the Secretary, with respect to any fishery, may—
 - (B) designate such zones in areas where deep sea corals are identified under section 408, to protect deep sea corals from physical damage from fishing gear or to prevent loss or damage to such fishing gear from interactions with deep sea corals, after considering long-term sustainable uses of fishery resources in such areas;

109-479

DEEP SEA CORAL RESEARCH AND TECHNOLOGY PROGRAM.

- (a) IN GENERAL.—The Secretary, in consultation with appropriate regional fishery management councils and in coordination with other federal agencies and educational institutions, shall,

subject to the availability of appropriations, establish a program—

- (1) to identify existing research on, and known locations of, deep sea corals and submit such information to the appropriate Councils;
- (2) to locate and map locations of deep sea corals and submit such information to the Councils;
- (3) to monitor activity in locations where deep sea corals are known or likely to occur, based on best scientific information available, including through underwater or remote sensing technologies and submit such information to the appropriate Councils;
- (4) to conduct research, including cooperative research with fishing industry participants, on deep sea corals and related species, and on survey methods;
- (5) to develop technologies or methods designed to assist fishing industry participants in reducing interactions between fishing gear and deep sea corals; and
- (6) to prioritize program activities in areas where deep sea corals are known to occur, and in areas where scientific modeling or other methods predict deep sea corals are likely to be present.

(b) REPORTING.—Beginning 1 year after the date of enactment of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006, the Secretary, in consultation with the Councils, shall submit biennial reports to Congress and the public on steps taken by the Secretary to identify, monitor, and protect deep sea coral areas, including summaries of the results of mapping, research, and data collection performed under the program.



Atlantic Marine Fisheries Commission

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

Douglas E. Grout (NH), Chair

James J. Gilmore, Jr., (NY), Vice-Chair

Robert E. Beal, Executive

Vision: Sustainably Managing Atlantic Coastal Fisheries

MEMORANDUM

January 21, 2016

TO: Commissioners; Proxies; American Eel Management Board; American Lobster Management Board; Atlantic Coastal Cooperative Statistics Program (ACCSP) Coordinating Council; ACCSP Executive Committee; Atlantic Herring Section; Atlantic Menhaden Management Board; Atlantic Striped Bass Management Board; Atlantic Sturgeon Management Board; Coastal Sharks Management Board; Executive Committee; Horseshoe Crab Management Board; ISFMP Policy Board; South Atlantic State/Federal Fisheries Management Board; Spiny Dogfish Management Board; Summer Flounder, Scup, and Black Sea Bass Management Board; Tautog Management Board; Winter Flounder Management Board

FROM: Robert E. Beal *REB*
Executive Director

RE: Winter Meeting: February 2-4, 2016 (TA # 16-006)

The Atlantic States Marine Fisheries Commission's Winter Meeting will be February 2-4, 2016 at **The Westin Alexandria** (Telephone: 703.253.8600) located at 400 Courthouse Square, Alexandria, VA. Meeting materials are available on the Commission website at <http://www.asmf.org/home/2016-winter-meeting>. Supplemental materials will be posted to the website on Wednesday, January 27, 2016. CDs containing all meeting materials will also be available at the meeting in limited quantities. The following pages contain the Winter Meeting Agenda.

Board/Section meeting proceedings will be broadcast daily via webinar beginning at 9:00 a.m. on February 2nd and continuing daily until the conclusion of the meeting (expected to be 3:45 p.m.) on February 4th. The webinar will allow registrants to listen to board/section deliberations and view presentations and motions as they occur. No comments or questions will be accepted via the webinar. Should technical difficulties arise while streaming the broadcast, the boards/sections will continue their deliberations without interruption. We will attempt to resume the broadcast as soon as possible. To register for the webinar, please go to <https://attendee.gotowebinar.com/register/86228471613051649>.

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

Attachments: Final Agenda, The Westin Alexandria Directions, TA#16-006, and Travel Reimbursement Guidelines



Atlantic States Marine Fisheries Commission

Winter Meeting

February 2-4, 2016

The Westin Alexandria

Alexandria, Virginia

Public Comment Guidelines

With the intent of developing policies in the Commission's procedures for public participation that result in a fair opportunity for public input, the ISFMP Policy Board has approved the following guidelines for use at management board meetings:

For issues that are not on the agenda, management boards will continue to provide opportunity to the public to bring matters of concern to the board's attention at the start of each board meeting. Board chairs will use a speaker sign-up list in deciding how to allocate the available time on the agenda (typically 10 minutes) to the number of people who want to speak.

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

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

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

1. Comments received 3 weeks prior to the start of a meeting week will be included in the briefing materials.
2. Comments received by 5:00 PM on the Tuesday immediately preceding the scheduled ASMFC Meeting (in this case, the Tuesday deadline will be **January 26, 2016**) will be distributed electronically to Commissioners/Board members prior to the meeting and a limited number of copies will be provided at the meeting.
3. Following the Tuesday, **January 26, 2016 5:00 PM deadline**, the commenter will be responsible for distributing the information to the management board prior to the board meeting or providing enough copies for the management board consideration at the meeting (a minimum of 50 copies).

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

Final Agenda

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

Tuesday, February 2, 2016

9:00 a.m. – Noon

American Lobster Management Board

Member States: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia

Other Members: NMFS, NEFMFC

Chair: Borden

Other Participants: Cornish, Glenn

Staff: Ware

1. Welcome/Call to Order (*D. Borden*)
2. Board Consent
 - Approval of Agenda
 - Approval of Proceedings from November 2015
3. Public Comment
4. Discuss Future Management of Southern New England Lobster Stock **Possible Action**
 - Technical Committee Report (*B. Glenn*)
5. Review and Discuss Catch and Landings Records for Jonah Crab-only Trap Fishermen (*M. Ware*)
6. Consider Draft Addendum I to the Jonah Crab Fishery Management Plan for Public Comment (*M. Ware*) **Action**
7. Review Catch Records from Jonah Crab Claw Fishermen and Discuss Action to Create a Standard for Claw Landings (*M. Ware*) **Possible Action**
8. Approve Implementation Plans for the Jonah Crab Fishery Management Plan (*M. Ware*) **Action**
9. Update on New England Fishery Management Council Deep Sea Coral Habitat Amendment (*D. Grout*)
10. Update on State/Federal American Lobster Observer Programs (*M. Ware*)
11. Elect Vice-Chair **Action**
12. Other Business/Adjourn

1:00 – 2:30 p.m.

Atlantic Herring Section

Member States: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey

Chair: White

Other Participants: Eastman, Kaelin, Zobel

Staff: Harp

1. Welcome/Call to Order (*R. White*)
2. Board Consent
 - Approval of Agenda
 - Approval of Proceedings from November 2015
3. Public Comment
4. Draft Amendment 3 to the Atlantic Herring Fishery Management Plan (*A. Harp*) **Final Action**
 - Review Options (*A. Harp*)
 - Public Comment Summary (*A. Harp*)
 - Advisory Panel Report (*J. Kaelin*)
 - Consider Final Approval of Amendment 3 (*R. White*)
5. Overview on the Research Set-Aside Program
6. Other Business/Adjourn

2:45 – 4:15 p.m.

Summer Flounder, Scup, and Black Sea Bass Management Board

Member States: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, North Carolina

Other Members: NMFS, PRFC, USFWS

Chair: Pierce

Other Participants: Maniscalco, Snellbaker, Robson

Staff: Rootes-Murdy

1. Welcome/Call to Order (*M. Luisi*)
2. Board Consent
 - Approval of Agenda
 - Approval of Proceedings from November 2015
3. Public Comment
4. Review 2016 Black Sea Bass Commercial Quotas (*K. Rootes-Murdy*)
5. Draft Addendum XXVII for Final Approval **Final Action**
 - Review Options (*K. Rootes-Murdy*)
 - Public Comment Summary (*K. Rootes-Murdy*)
 - Advisory Panel Report (*K. Rootes-Murdy*)
 - Law Enforcement Committee Report (*M. Robson*)
 - Consider Final Approval of Addendum XXVII
6. Set Scup 2016 Recreational Fishery Specifications (*K. Rootes-Murdy*) **Final Action**
7. Update on Black Sea Bass and Summer Flounder Amendment Process (*K. Rootes-Murdy*)
8. Elect Vice-Chair **Action**
9. Other Business/Adjourn

2:45 – 4:15 p.m.

Atlantic Coastal Cooperative Statistics Program (ACCSP) Executive Committee

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

Members: Beal, Boyles, Carmichael, Colvin, Cyr, Detlor, Fegley, Laney, Patterson

Chair: Boyles, Jr.

Staff: Cahall

1. Welcome/Introductions (*Coordinating Council Chair R. Boyles, Jr.*)
2. Public Comment* (*R. Boyles, Jr.*)
3. Committee Consent (*R. Boyles, Jr.*) **Action**
 - Approval of Agenda
 - Approval of Proceedings from November 2015
4. Program Status Updates (*M. Cahall*)
 - Program Status
 - APAIS
 - Seafood Traceability
5. Governance Update (*C. Patterson*)
6. Consider Approval of Executive Committee Standard Operating Procedures (SOP) **Action**
7. 2016 Calendar
 - Discuss Executive Committee Meeting Frequency **Action**
8. Review Action Items from Previous Meeting
 - Executive Committee SOP Edits Submitted to C. Patterson in January **In Progress**
9. Closed Executive Session
10. Other Business/Adjourn

*See Public Comment Guidelines: http://www.accsp.org/documents/ACCSP_PublicCommentPolicyOct2013.pdf

4:30 – 6:00 p.m.

ACCSP Coordinating Council

Members: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, District of Columbia, PRFC, Virginia, North Carolina, South Carolina, Georgia, Florida, ASMFC, NOAA Fisheries, NEFSC, GARFO, SEFSC, SERO, USFWS, NEFMC, MAFMC, SAFMC

Chair: R. Boyles, Jr.

Staff: Cahall

1. Welcome/Introductions (*R. Boyles, Jr.*)
2. Public Comment* (*R. Boyles, Jr.*)
3. Council Consent (*R. Boyles, Jr.*) **Action**
 - Approval of Agenda
 - Approval of Proceedings from November 2015
4. ACCSP Status Report
 - Program Update (*M. Cahall*)
 - APAIS Update (*M. Cahall*)
 - Committee Updates (*P. Campfield*)
 - Independent Program Review Update (*M. Cahall*)

5. Other Business
6. Adjourn (*R. Boyles, Jr.*)

*See Public Comment Guidelines: http://www.accsp.org/documents/ACCSP_PublicCommentPolicyOct2013.pdf

Wednesday, February 3, 2016

8:00 – 10:00 a.m.
Breakfast to be served

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

Members: Abbott, Blazer, Boyles, Bull, Chanda, Daniel, Estes, Gilmore, Grout, Keliher, McNamee, Pierce, Rhodes, Saveikis, Simpson, Woodward, Young

Chair: Grout

Staff: Leach

1. Welcome/Call to Order (*D. Grout*)
2. Committee Consent
 - Approval of Agenda
 - Approval of Meeting Summary from November 2015
3. Public Comment
4. Overview of Commission Guidance Documents and Consider Recommendations to the ISFMP Policy Board for Changes
5. Discuss ACCSP Governance (*R. Boyles, Jr.*)
6. Future Annual Meetings Update (*L. Leach*)
 - 2016-Bar Harbor, Maine
 - 2017-Virginia
 - 2018-New York
 - 2019-New Hampshire
7. Other Business/Adjourn

10:15 – 11:00 a.m.

Atlantic Menhaden Management Board

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

Other Members: NMFS, PRFC, USFWS

Chair: Boyles, Jr.

Other Participants: Kaelin, Kersey, McNamee, Robson

Staff: Waine

1. Welcome/Call to Order (*R. Boyles, Jr.*)
2. Board Consent
 - Approval of Agenda
 - Approval of Proceedings from November 2015
3. Public Comment
4. Consider Conservation Equivalent Management Proposals from Maryland and the Potomac River Fisheries Commission (*L. Fegley/M. Gary*) **ACTION**
 - Technical Committee Report (*J. McNamee*)
 - Law Enforcement Committee Report (*M. Robson*)

5. Review Draft Amendment 3 Development Timeline (*M. Waine*)
 - Ecosystem Reference Points
 - Revisiting Fishery Allocation and Socioeconomic Analysis
6. Discuss Timeline for Setting 2017 Fishery Specifications (*R. Boyles, Jr.*)
7. Other Business/Adjourn

11:15 – 11:45 a.m.

Atlantic Sturgeon Management Board

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

Other Members: DC, PRFC, USFWS, NMFS

Chair: J. Clark

Other Participants: Post, Huss. Damon-Randall

Staff: Appelman

1. Welcome/Call to Order (*J. Clark*)
2. Board Consent
 - Approval of Agenda
 - Approval of Proceedings from February 2014
3. Public Comment
4. Update on 2017 Benchmark Stock Assessment (*K. Drew*)
5. Review and Populate Stock Assessment Subcommittee Membership (*M. Appelman*) **Action**
6. Overview of NOAA Fisheries Critical Habitat Designation Process for Atlantic Sturgeon (*K. Damon-Randall*)
7. Elect Vice-Chair (*J. Clark*) **Action**
8. Other Business/Adjourn

Noon – 12:30 p.m.

Spiny Dogfish Management Board

Member States: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, North Carolina

Other Members: NMFS, USFWS

Chair: Borden

Other Participants: Moran, Newlin, Didden

Staff: Harp

1. Welcome/Call to Order (*D. Borden*)
2. Board Consent
 - Approval of Agenda
 - Approval of Proceedings from November 2015
3. Public Comment
4. Review and Set 2016-2018 Fishery Specifications **Final Action**
 - Review Mid-Atlantic Fishery Management Council 2016-2018 Specifications (*J. Didden*)
 - Review New England Fishery Management Council 2016-2018 Specifications (*A. Harp*)
5. Elect Vice-Chair **Action**
6. Other Business/Adjourn

1:30 – 2:15 p.m.

Coastal Sharks Management Board

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

Other Members: NMFS, USFWS

Chair: Nowalsky

Other Participants: Belcher, Frampton, Gillingham

Staff: Harp

1. Welcome/Call to Order (*A. Nowalsky*)
2. Board Consent
 - Approval of Agenda
 - Approval of Proceedings from November 2015
3. Public Comment
4. Discuss Differences in State and Federal Smoothhound Catch Composition Regulations for Processing at Sea (*A. Harp*)
5. Review and Set the 2016 Smoothhound Quota (*A. Harp*) **Final Action**
6. Other Business/Adjourn

2:30 – 3:30 p.m.

Horseshoe Crab Management Board

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

Other Members: PRFC, NMFS, USFWS

Chair: Gilmore

Other Participants: Doctor, Cooper, Messeck

Staff: Rootes-Murdy

1. Welcome/Call to Order (*J. Gilmore*)
2. Board Consent
 - Approval of Agenda
 - Approval of Proceedings from November 2015
3. Public Comment
4. Review Scope of Work to Consider Changes to the Adaptive Resource Management Framework (*K. Rootes-Murdy*)
5. Review Alternative Bait Trial Results (*K. Rootes-Murdy*)
6. Review and Populate Advisory Panel Membership (*K. Rootes-Murdy*) **Action**
7. Other Business/Adjourn

3:45 – 4:30 p.m.

South Atlantic State/Federal Fisheries Management Board

Member States: New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida

Other Members: PRFC, DC, NMFS, USFWS, SAFMC

Other Participants: Lynn, McDonough, Powers, Rickabaugh

Chair: Estes

Staff: Ware

1. Welcome/Call to Order (*J. Estes*)
2. Board Consent
 - Approval of Agenda
 - Approval of Proceedings from November 2015
3. Public Comment
4. Progress Update on Red Drum Benchmark Stock Assessment and Desk Review (*J. Kipp*)
5. Progress Update on the Spot and Atlantic Croaker Stock Assessments (*J. Kipp*)
6. Discuss Recommendation to the ISFMP Policy Board Regarding Spotted Seatrout Management (*L. Daniel*) **Possible Action**
7. Consider 2015 FMP Review and State Compliance for Spot (*M. Ware*) **Action**
8. Elect Vice-Chair **Action**
9. Other Business/Adjourn

4:45 – 5:45 p.m.

Tautog Management Board

Member States: Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia

Other Members: NMFS, USFWS

Chair: Nowalsky

Other Participants: McNamee, Snellbaker, Robson

Staff: Harp

1. Welcome/Call to Order (*A. Nowalsky*)
2. Board Consent
 - Approval of Agenda
 - Approval of Proceedings from November 2015
3. Public Comment
4. Progress Update on Draft Amendment 1 Development (*A. Harp*)
5. Progress Update on University of Connecticut Long Island Sound and New York/New Jersey Stock Assessments (*A. Harp*)
6. Review the Law Enforcement Subcommittee Commercial Harvest Tagging Program Objectives (*M. Robson*)
7. Other Business/Adjourn

Thursday, February 4, 2016

8:00 – 9:00 a.m.

Atlantic Striped Bass Management Board

Member States: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, Pennsylvania, New Jersey, Delaware, Maryland, Virginia, North Carolina

Other Members: NMFS, DC, PRFC, USFWS

Chair: Gilmore

Other Participants: Blanchard, Lengyel, Place, Robson

Staff: Appelman

1. Welcome/Call to Order (*J. Gilmore*)
2. Board Consent
 - Approval of Agenda
 - Approval of Proceedings from November 2015
3. Public Comment
4. Consider Tabled Motions from November 2015 (*J. Gilmore*) **Action**
 - *Move to initiate an Addendum to reconsider management options in the Chesapeake Bay from Addendum IV for 2016 based on the stock assessment update in 2015 and retrospective projections. Motion made by Mr. Luisi and second by Mr. O'Reilly. Motion tabled until February 2016.*
 - *Move to amend to remove the words "in the Chesapeake Bay." Motion made by Mr. Clark and seconded by Mr. Augustine. Motion tabled until February 2016.*
5. Consider Conservation Equivalent Management Proposals from Maryland and Potomac River Fisheries Commission (*M. Luisi/M. Gary*) **Action**
 - Technical Committee Report (*M. Appelman*)
 - Law Enforcement Committee Report (*M. Robson*)
6. Update on 2016 Cooperative Winter Tagging Program (*W. Laney*)
7. Elect Vice-Chair **Action**
8. Other Business/Adjourn

9:15 – 10:15 a.m.

Winter Flounder Management Board

Member States: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware

Other Members: NMFS, USFWS

Chair: Gibson

Other Participants: Brown, Blanchard, Nitschke, Cournane

Staff: Harp

1. Welcome/Call to Order (*M. Gibson*)
2. Board Consent
 - Approval of Agenda
 - Approval of Proceedings from November 2015
3. Public Comment
4. Technical Committee Report on the Southern New England/Mid-Atlantic Winter Flounder Fishery and Management Program Under Zero Possession Limits (*P. Nitschke*)
5. Overview of Federal Management Measures (*J. Cournane*)

6. Discuss Future Management of Winter Flounder (*M. Gibson*)
7. Review and Set 2016-2018 Specifications (*A. Harp*) **Final Action**
8. Other Business/Adjourn

10:30 a.m. – Noon

American Eel Management Board

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

Other Members: NMFS, DC, PRFC, USFWS

Chair: Clark

Other Participants: DeLucia, Cornish, Eyler, Robson

Staff: Waive

1. Welcome/Call to Order (*J. Clark*)
2. Board Consent
 - Approval of Agenda
 - Approval of Proceedings from November 2015
3. Public Comment
4. Review and Consider North Carolina's Aquaculture Plan **Action**
 - Technical Committee Report (*S. Eyler*)
 - Advisory Panel Report (*M-B. Delucia*)
 - Law Enforcement Committee Report (*M. Robson*)
5. Consider South Carolina's Survey Sampling Proposal **Action**
 - Technical Committee Report (*S. Eyler*)
6. Consider Maine's Conservation Equivalent Management Proposal **Action**
 - Technical Committee Report (*S. Eyler*)
7. Initiate Discussion to Consider Changes to Addendum IV Yellow Eel Allocations (*J. Gilmore*)
Possible Action
8. Other Business/Adjourn

12:15 – 3:15 p.m.

Interstate Fisheries Management Program Policy Board

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

Other Members: DC, NMFS, PRFC, USFWS

Chair: Grout

Staff: Kerns

1. Welcome/Call to Order (*D. Grout*)
2. Board Consent
 - Approval of Agenda
 - Approval of Proceedings from November 2015
3. Public Comment
4. Executive Committee Report (*D. Grout*)
5. Review and Discuss 2015 Commissioner Survey Results (*T. Kerns*)

6. Review and Consider Revisions to the ASMFC Guidance Documents (*T. Kerns*) **Final Action**
7. Discuss Direction of Management when Stocks are not Responding to Management Due to Climate Impacts or Other Reasons (*D. Grout*)
8. Atlantic Coastal Fish Habitat Partnership Report (*L. Havel*)
9. South Atlantic Board Report (*J. Estes*) **Possible Action**
10. Update on the Weakfish Stock Assessment (*K. Drew*)
11. Other Business/Adjourn

3:15 – 3:45 p.m.

Business Session

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

Chair: Grout

Staff: Beal

1. Welcome/Introductions (*D. Grout*)
2. Board Consent
 - Approval of Agenda
 - Approval of Proceedings from November 2015
3. Public Comment
4. Consider Final Approval of Amendment 3 to the Atlantic Herring FMP (*R. White*) **Final Action**
5. Consider Amending the Commission's Rules and Regulations (*R. Beal*) **Action**
6. Review Non-compliance Findings (if necessary)
7. Other Business/Adjourn

NEW ENGLAND
FISHERY
MANAGEMENT
COUNCIL



Council Report

December 2015

The Council Report summarizes major actions approved at NEFMC meetings and highlights items of interest.

At its Dec 1-3 meeting in Portland, ME, the Council approved a number of important actions for the upcoming fishing years, pending NOAA Fisheries approval. They included:

- ◆ The 2016 - 2017 scallop specifications (Framework 27) and Amendment 19 to the Scallop Plan
- ◆ Framework 3 to the Northeast Skate Complex Plan
- ◆ Spiny Dogfish specifications for 2016-2018
- ◆ Framework 55 to the Groundfish Plan

www.nefmc.org
Sign Up!

If you would like to receive committee meeting notices and other types of Council information via email, please click on *Subscribe* at the top of our homepage.

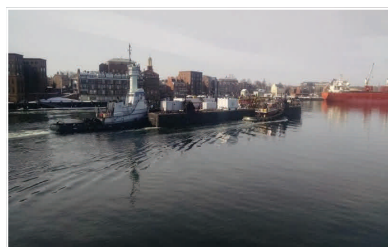
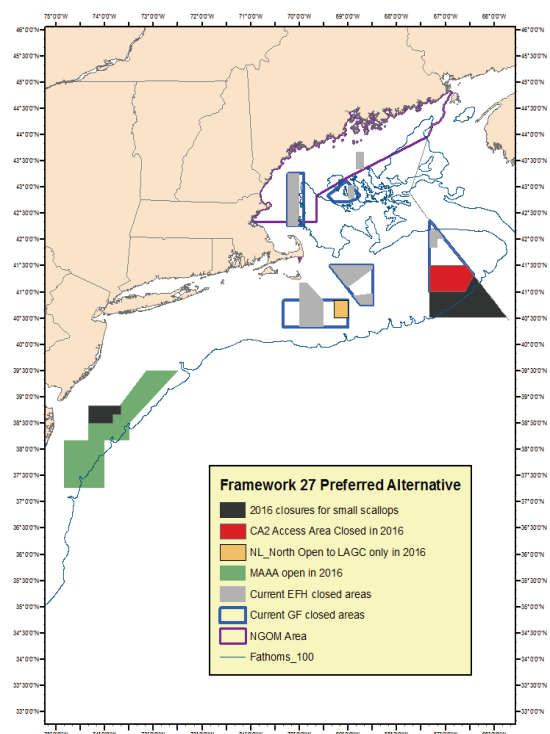
Sea Scallops Specs Set for 2016 - 2017

Framework Adjustment 27 At its early December meeting, the New England Council finalized its recommendations for Framework 27 to the Atlantic Sea Scallop FMP. The action contains catch specifications for the 2016 and 2017 (default) fishing years.

Fishermen will receive allocations that are projected to result in landings of about 47 million pounds of scallops in 2016. Forty million pounds are allocated to the scallop limited access fleet. Of the remainder, about 4.5 million pounds are allocated to the limited access general category (LAGC) fishery which numbers about 100 active vessels, and about 800,000 pounds are reserved for the observer set-aside program.

Several other specifications are the same as fishing year 2015 — 1.25 million pounds for the research set-aside program, 70,000 pounds for vessels with Northern Gulf of Maine LAGC permits, and 50,000 pounds for vessels with incidental LAGC permits.

Compared to 2015, the approximately 340 active limited access vessels will be allocated slightly more days-at-sea (DAS) in open areas this year and the same level of effort in the Mid-Atlantic Access Area (Delmarva, Hudson Canyon and Elephant Trunk Areas are combined in this action). *Scallop Framework 27 continued, page 2.*



**Next Council
Meeting
January 26-28, 2016
Portsmouth, NH**

Default Measures -

Are provided each year so that specs will be in place at the start of the fishing year without delay, and until they are replaced by the 2017 specs.

The overall limited access general category fleet IFQ will roll-over from 2016 to 2017, and the limited access fishery will be allocated a reduced allocation until final measures are adopted through a subsequent action.



Photos courtesy NOAA Fisheries and NOAA Ocean Explorer

Scallop Framework 27 — continued

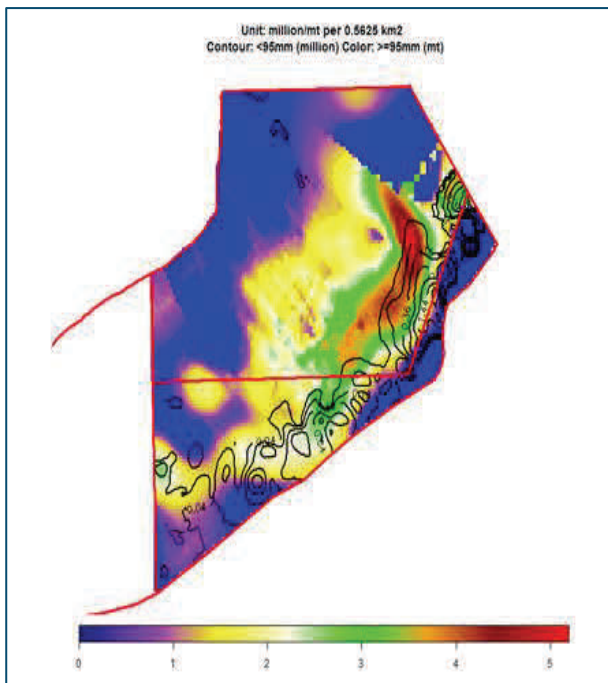
The proposed allocations for limited access vessels, as approved by the Council, will be 34.55 open area days-at-sea (as opposed to 31 DAS in 2015) for full-time vessels and 51,000 pounds in the Mid-Atlantic Access Area. Part-time vessels will receive 13.82 days-at-sea and 20,400 pounds in the Mid-Atlantic Access Area.

After much discussion, the New England Council also would allow a portion of the total LAGC allocation to be taken from the northern part of the Nantucket Lightship Access Area. The maximum removal from this relatively small area is proposed at 300,000 pounds, or about 7% of the LAGC total allocation. The proposed action also prohibits any scallop vessel from undertaking research set-aside compensation trips in the Lightship Area. The LAGC fleet's total allocation from the Mid-Atlantic Access Area is

1.2 million pounds. Both areas would be closed to these vessels once the fleet-wide LAGC quota is reached.

The action was taken in order to allow the relatively small LAGC vessels from northern ports to also have some opportunity to harvest scallops from areas with higher catch rates. Open areas currently have lower catch rates and it is not practical for all LAGC vessels to fish in the Mid-Atlantic Access Area.

With the exception of the limited area in the northern part of Nantucket Lightship, all the access areas on Georges Bank will remain closed to the scallop fishery in 2016 — the Nantucket Lightship Area and Closed Areas I and II. While total biomass is up, most of the increase comes from juvenile scallops found on Georges



Estimate of biomass from 2015 Habcam survey near CAII (color represents biomass larger than 95mm and contours indicate concentrations of smaller scallops, less than 95mm).

Bank and in the Mid-Atlantic. Therefore, the Council's proposed action will include a new closure south of Closed Area II and will also maintain two closures east of Nantucket Lightship and within Elephant Trunk to protect the small animals that have been observed in those areas for the last two years.

Scallop Amendment 19 The Council also took final action on Amendment 19 to the Scallop FMP, approving a specification setting process that would enable the Council to develop fishery allocations outside of the framework process. Its members further recommended changing the start of the fishing year from March 1 to April 1.

Both Framework 27 and Amendment 19 will be submitted to NOAA Fisheries who will publish a proposed and final rule for each action.

Skate Framework 3 Approved

The NEFMC took final action on Framework Adjustment 3 to the Northeast Skate Complex FMP. The action set specifications for fishing years 2016 and 2017, maintained current bait and wing possession limits, and established new seasonal total allowable landings (TALs) for the wing fishery, consistent with the current seasonal structure used for the wing possession limits.

The Council adopted, by a unanimous vote, the SSC's recommended acceptable biological catch, or ABC, of 31,081 MT for 2016 and 2017, and revised specifications for the skate complex based on the control rule established in Amendment 3 to the FMP:

- An annual catch target (ACT) of 23,311 MT
- A TAL 12,872 MT in federal waters
- A wing TAL of 8,560 MT, and
- A bait TAL of 4,312 MT with status quo possession limits and seasonal TAL structure

New Wing Fishery Measures For the first season, from May 1 through August 31, the fishery would be allocated a percentage of the annual wing TAL based on the three-year moving average for landings over the most recent three fishing years, representing 57% or 4,872 MT in 2016 and 2017.

The seasonal skate wing possession limit for May 1 to August 31 would remain at 2,600 lbs. Once 85% of the allocated TAL is reached between May 1 and August 17, the 500 pound incidental possession limit would be implemented.

Between August 18 and August 31, the Regional Administrator would use discretion as to whether or not the 500 pound incidental possession limit should be implemented. Any unused portion of the TAL would be rolled over into the latter part of the fishing year.

The second season would be allocated the remainder of the annual TAL (representing 43% or 3,681 MT in 2016 and 2017) for September 1 to April 30. The seasonal skate wing possession limit for this period would remain at 4,100 lbs. Once 85% of the allocated TAL is reached, the Regional Administrator would have the discretion to implement the incidental possession limit if the fishery is projected to exceed the TAL.

Once prepared for submission, NOAA Fisheries will review Skate Framework 3 and provide final approval of the above measures, if that is their determination.

Thorny Skate As reviewed by NOAA Fisheries staff at the Council's Portland meeting, thorny skate is a NOAA Fisheries Species of Concern. It is also the topic of a petition to be listed as a threatened or endangered species under the ESA. The agency has determined the petition is warranted and has now, or soon will, undertake a status review. If approved for listing, the Council could be compelled to consider management measures beyond the continuing prohibition on the possession of the species.

Spiny Dogfish Specifications Set

The New England Council approved the 2016-2018 spiny dogfish specifications at its early December meeting, followed by matching action at the Mid-Atlantic Council's meeting last week. Given the decrease in dogfish biomass, the specifications have been similarly affected. In 2015 the annual catch limit (ACL) was 62.270 million pounds. This recent round of specifications calls for at least a 10 million pound drop in the ACL.

Specifications	Basis	2016 (pounds)	2016 (MT)	2017 (pounds)	2017 (MT)	2018 (pounds)	2018 (MT)
New ABCs	Council Risk Policy	52,066,572	23,617	50,805,528	23,045	49,901,633	22,635
ACL	= Domestic ABC	51,923,272	23,552	50,662,228	22,980	49,758,333	22,570
ACT	= ACL - Mg Uncertainty	51,923,272	23,552	50,662,228	22,980	49,758,333	22,570
TAL	ACT - Discards	40,429,105	18,338	39,168,060	17,766	38,264,165	17,356
U.S. Rec Landings	= 2014 Estimate	68,343	31	68,343	31	68,343	31
Comm. Quota	TAL - Rec Landings	40,360,761	18,307	39,099,717	17,735	38,195,822	17,325

Groundfish Framework 55 Approved

Framework 55 to the Northeast Multispecies FMP was approved and will be submitted to NOAA Fisheries for agency review and approval prior to the May 1 start of the 2016 fishing year.

The largest, and yet least complicated portion of the framework was the approval of the Scientific and Statistical Committee's recommendations for overfishing levels and associated acceptable biological catches (ABCs) for 19 of the 20 groundfish stocks managed through the Council's Groundfish FMP.

Approval of the witch flounder ABC proved much more problematic for the majority of Council members who voted to recommend a preliminary ABC of 394 metric tons (MT) and requested that the SSC develop an additional alternative for the 2016 ABC without being constrained by 75% Fmsy.

The rationale for this request was driven by the fact witch flounder is caught throughout the EEZ from Maine to the Mid-Atlantic. The stock is caught not only by federal groundfish vessels but also by vessels fishing in state waters and in other fisheries. Exceeding the low witch flounder ACL could trigger an accountability measure that could close the groundfish fishery in all areas.

The Council stated it would accept the temporary risk level associated with an ABC up to the OFL for fishing year 2016. For purposes of expediting Framework 55, the action will include a range for the witch flounder ABC of 394 to 513 MT. Should the SSC develop an additional alternative, the Council will consider it at its January 2016 meeting.

Annual catch limits (ACLs) are based on the ABCs and are allocated to the various fishery components. Of the commercial groundfish ACLs, nine of the stocks had higher ACL's than in the previous year, some with substantial gains, including both Georges Bank and Gulf of Maine haddock, Gulf of Maine winter flounder and pollock. Eleven stocks had a decrease, notably the Georges Bank cod and a number of flounder stocks. *Framework 55 continued on p. 5.*

Stock	2014 Commercial Groundfish Catch (MT)	Commercial Groundfish Sub-ACLs (MT)		
		Fishing Year 2015	Fishing Year 2016	% Change
GB Cod	1386	1787	608	-66%
GOM Cod	663	207	280	36%
GB Haddock	5449	21759	51667	137%
GOM Haddock	325	958	2416	152%
GB Yellowtail Flounder	62	195	211	9%
SNE/MA Yellowtail	400	557	189	-66%
CC/GOM Yellowtail	250	458	341	-26%
American Plaice	1301	1408	1183	-16%
Witch Flounder	515	610	277	-55%
GB Winter Flounder	1149	1891	590	-69%
GOM Winter Flounder	124	392	639	63%
SNE/MA Winter Flounder	546	1306	585	-55%
Redfish	4687	11034	9526	-14%
White Hake	1749	4343	3459	-20%
Pollock	4016	13720	17817	30%
N. Windowpane	158	98	66	-33%
S. Windowpane	96	102	104	2%
Ocean Pout	33	195	137	-30%
Atlantic Halibut	48	64	91	43%
Atlantic Wolffish	14	62	72	17%

The New England Fishery Management Council is one of eight regional organizations created by the Magnuson-Stevens Fishery Conservation and Management Act, initially enacted in 1976.

The Council develops rules for both commercial and recreational fisheries that operate between three and 200 miles off the region's coastline. NEFMC management authority extends to fishing grounds in the Gulf of Maine, Georges Bank and southern New England and overlaps with the Mid-Atlantic Council for some species.

Merry Christmas and Happy New Year to All!

Groundfish Framework 55 — continued

The Council also recommended recreational management measures for the 2016 fishing year. If approved by NOAA Fisheries, the Gulf of Maine haddock measures would include a bag limit of 15 fish, with all seasons open (except in Wave 2, March and April, in which only April 15-30 would be open), and a 17-inch minimize size. The Gulf of Maine cod measures would allow anglers to retain one cod of at least 24 inches from August 1 through September 30.

Stock	FY 2015	FY 2016	% Change
GOM cod	121 MT	157 MT	+30%
GOM haddock	372 MT	926 MT	+149%

As part of Framework 55, the Council approved several measures that are intended to streamline the At-Sea Monitoring (ASM) program for groundfish sectors. Currently, NOAA Fisheries calculates the total observer coverage rate needed for the next fishing year, based on the most recent fishing year with complete information. For example, 2014 information is used to set the rate for fishing year 2016.

The Council also clarified how it would like NOAA to determine the total coverage rate by approving several motions on this topic. The NEFMC's recommended approach would use more data --- multiple years of information on discards and past fishery performance --- to determine a total coverage rate rather than data from a single fishing year. The Council also recommended that ASM coverage requirements be removed for certain sector trips with low groundfish catches.

Finally, the Council recommended inclusion of an additional groundfish sector, provisions to allow sectors to move Georges Bank cod quota from the eastern management area to the western management area, and modified the definition of a haddock separator trawl so the separator panel is easily identifiable to enforcement personnel.

NEW ENGLAND FISHERY MANAGEMENT COUNCIL

50 Water Street,
Mill 2
Newburyport,
MA 01950

Phone:
978.465.0492
Fax:
978.465.3116
www.nefmc.org

For more
information about
this publication,
please contact
Patricia Fiorelli

pfiorelli@nefmc.org
or 978 465 0492
ext. 106



SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

4055 FABER PLACE DRIVE, SUITE 201
NORTH CHARLESTON, SOUTH CAROLINA 29405

TEL 843/571-4366

FAX 843/769-4520

Toll Free 1-866-SAFMC-10

Email: safmc@safmc.net web page: www.safmc.net

Dr. Michelle Duval, Chair
Charlie Phillips, Vice Chair

Robert K. Mahood, Executive Director
Gregg T. Waugh, Deputy Executive Director

AGENDA

Doubletree by Hilton

2717 W. Fort Macon Road, Atlantic Beach, North Carolina 28512

Phone: 1-800-222-8733 or 252-240-1155 and Fax: 252-222-4065

December 7-11, 2015

(Revised 12/4/15)

{Except for advertised (scheduled) public hearings and public comment sessions, the times indicated on the agenda may be adjusted as necessary to accommodate the completion of agenda items. Interested parties should be aware that meetings may start earlier or later than indicated.}

Monday, December 7

WORKSHOP/COMMITTEE MEETINGS

8:00 A.M. to 10:15 A.M.

Council Member Visioning Workshop/Dr. Michelle Duval (TAB 1)

1. Recap of October 2015 Council member Visioning Workshop
2. Final review and approval Vision Blueprint - **ACTION**
3. Review of the Evaluation Plan for the Vision Blueprint - **ACTION**
4. Review/develop approaches for applying the Blueprint - **ACTION**

10:15 A.M. to 11:45 A.M.

Personnel Committee/Jessica McCawley (TAB 2) (Closed Session)

1. Executive Director Interviews and hiring decision - **ACTION**
(All Council members will participate in this committee meeting)

11:45 A.M. to 1:15 P.M.

Lunch

1:15 P.M. to 6:00 P.M.

Personnel Committee cont./Jessica McCawley (TAB 2) (Closed Session)

1. Executive Director Interviews and hiring decision - **ACTION**
(All Council members will participate in this committee meeting)

Tuesday, December 8

COMMITTEE MEETINGS

8:00 A.M. to 9:30 A.M.

SEDAR Committee/Dr. Michelle Duval (TAB 3)

1. SEDAR activities update
2. Review SEDAR Steering Committee report and provide guidance for SAFMC representatives - **ACTION**
3. Presentation on NOAA Fisheries Assessment Prioritization/Dr. Rick Methot, NMFS Headquarters
4. Discuss and provide guidance for application to SAFMC stocks and SEDAR - **ACTION**

Tuesday, December 8

COMMITTEE MEETINGS

9:30 A.M. to 12:00 Noon

Habitat Protection and Ecosystem-Based Management Committee/Dr. Wilson Laney and Doug Haymans (TAB 4)

1. Habitat Advisory Panel meeting report - **ACTION**
2. Overview of the redrafted EFH Policy on Energy Exploration, Development and Transportation
 - Committee discussion and action as appropriate - **ACTION**
3. Overview of FEP II Development, EFH Updates and Regional Ecosystem Coordination
 - Lenfest Fisheries Ecosystem Task Force Activities/Dr. Phil Levin, NMFS SWFSC
 - Committee Discussion and action at appropriate - **ACTION**

12:00 Noon to 1:30 P.M.

Lunch

1:30 P.M. to 5:30 P.M.

Snapper Grouper Committee/Dr. Michelle Duval (TAB 5)

1. Status of commercial and recreational catches versus quotas for species under ACLs/NMFS SERO - **ACTION**
2. Status of actions under formal review/NMFS SERO
 - Amendment 33 (fillets)
 - Amendment 34 (comprehensive accountability measures)
 - Amendment 35 (species removal and golden tilefish endorsements)
3. SSC Report/Dr. Luiz Barbieri
4. Snapper Grouper Advisory Panel Report/Jim Atack
5. Overview of Regulatory Amendment 16 (removal of black sea bass pot closure)
 - Discuss and modify document as appropriate and approve for formal Secretarial review - **ACTION**

Wednesday, December 9

COMMITTEE MEETINGS

8:30 A.M. to 12:00 Noon

Snapper Grouper Committee cont./Dr. Michelle Duval (TAB 5)

6. Overview of Snapper Grouper Amendment 37 (hogfish)
 - Discuss and modify document as appropriate, select preferred alternatives, and approve for public hearings - **ACTION**
7. Blueline Tilefish Stock ID: Initial Results/Dr. Tanya Darden
 - Discuss and provide direction to staff - **ACTION**
8. Overview of Snapper Grouper Regulatory Amendment 25 (blueline tilefish, yellowtail snapper and black sea bass)
 - Discuss, modify document as appropriate, select preferred alternatives and approve for formal Secretarial review - **ACTION**
9. Overview of Snapper Grouper Amendment 41 (mutton snapper)
 - Discuss, modify document as appropriate and approve for scoping - **ACTION**

Wednesday, December 9

COMMITTEE MEETINGS

12:00 Noon to 1:30 P.M.

Lunch

1:30 P.M. to 5:30 P.M.

Snapper Grouper Committee cont./Dr. Michelle Duval (TAB 5)

10. Overview of Snapper Grouper Amendment 36 (spawning SMZs)
 - Overview of spawning SMZ SMP
 - Review Amendment 36, modify if necessary, select remaining preferred alternatives, and approve all actions - **ACTION**
11. Overview of System Management Plan for Amendment 14 MPAs
 - Review document, modify as appropriate and approve - **ACTION**
12. Overview, approach and timing for addressing red snapper
 - Discuss and provide direction to staff - **ACTION**
13. Follow-up on approaches to monitor recreational harvest of deepwater species
 - Discuss and provide direction to staff - **ACTION**

5:30 P.M.

Public comment will first be accepted on items before the Council for final action: *Snapper Grouper Regulatory Amendment 16 (removal of the black sea bass pot closure), Snapper Grouper Regulatory Amendment 25 (blueline tilefish, yellowtail snapper and black sea bass), the System Management Plan for MPAs and Dolphin Regulatory Amendment 1.* Public comment will then be accepted regarding any of the other items on the Council agenda. The Chair, based on the number of individuals wishing to comment, will determine the amount of time provided to each commenter.

Thursday, December 10

COMMITTEE MEETINGS

8:00 A.M. to 8:30 A.M.

**SSC Selection Committee/Charlie Phillips (TAB 6)
(Partially closed Session)**

1. Review applications for the vacant North Carolina seat and appoint an individual to the seat - **ACTION**
2. Consider designating Social and Economic Scientist specific seats on the SSC - **ACTION**

8:30 A.M. to 9:00 A.M.

Information and Education Committee/Mark Brown (TAB 7)

1. Information and Education Advisory Panel report - **ACTION**

9:00 A.M. to 10:30 A.M.

Mackerel Committee/Ben Hartig (TAB 8)

1. Status of recreational and commercial catches vs. ACLs/NMFS SERO
2. Overview of CMP Amendment 26 decision document
 - Modify document as appropriate, select preferred alternatives and approve Amendment 26 for public hearings - **ACTION**

Thursday, December 10

COMMITTEE MEETINGS

10:30 A.M. to 12:00 Noon

Data Collection Committee/Mel Bell (TAB 9)

1. Update on Commercial Logbook Pilot Study
 - SEFSC Presentation on the status of the commercial electronic logbook pilot project/SEFSC
 - Discuss and take action as appropriate - **ACTION**
2. Overview of Implementation Plan for commercial logbook electronic reporting
 - Discuss and provide guidance to staff on timing - **ACTION**
3. Overview of the South Atlantic For-Hire Reporting Amendment Decision Document
 - Discuss and modify document as appropriate, select preferred alternatives for all actions, and approve for public hearings - **ACTION**
4. Update on the Citizen Science Workshop agenda
 - Discuss and take action as appropriate - **ACTION**

12:00 Noon to 1:30 P.M.

Lunch

1:30 P.M. to 3:00 P.M.

Dolphin Wahoo Committee/Anna Beckwith (TAB10)

1. Status of Commercial and Recreational Catches versus ACLs for Dolphin and Wahoo/NMFS SERO
2. Status of Amendments Under Review/NMFS SERO
 - DW Amendment 7/SG Amendment 33 (fillet issue)
 - Generic AM/Dolphin Allocation Amendment
3. Overview of Dolphin Wahoo Regulatory Amendment 1
 - Discuss and take action as appropriate - **ACTION**
4. Development of Dolphin Wahoo Amendment 10
 - Review White paper of possible actions
 - Discuss and take action as appropriate - **ACTION**

3:00 P.M. to 4:00 P.M.

Spiny Lobster Committee/Jessica McCawley (TAB 11)

1. Status of spiny lobster catch vs. 2015/16 ACL/NMFS SERO
2. Review spiny lobster Landings for 2014/15
 - Notification from NMFS on Spiny Lobster Landings
 - Spiny Lobster Landings 1991/92 through 2014/15
 - Upcoming Joint Spiny Lobster Advisory Panel Meeting
 - Discuss and take action as necessary and provide direction to staff - **ACTION**

4:00 P.M. to 5:00 P.M.

Protected Resources Committee/Dr. Wilson Laney (TAB 12)

1. South Atlantic Protected Resource-related updates/SERO PRD
2. Review of the compliance policy for turtle excluder devices in the Southeast shrimp fishery/NMFS SERO - **ACTION**
3. Status of the ESA/MSA Integration Agreement - **ACTION**
4. Update on USFWS protected resources issues

Thursday, December 10

COMMITTEE MEETINGS

5:00 P.M. to 6:00 P.M.

Executive Finance Committee/Dr. Michelle Duval (TAB 13)

1. Status of CY 2015 budget expenditures
2. Council Activities and Accomplishments During 2015
3. Council Follow-up and priorities - **ACTION**
4. Discuss standards and procedures for participating in Council webinar meetings - **ACTION**
5. Briefing on participating with the other 7 RFMCs in supporting a representative to keep the Councils informed - **ACTION**
6. Address other issues as appropriate - **ACTION**

Friday, December 11

8:00 A.M. to 3:30 P.M.

COUNCIL SESSION (TAB 14)

8:00 - 8:15

Call to Order, Adoption of Agenda and Approval of September 2015 Minutes/Dr. Michelle Duval

Announce the new Executive Director of the SAFMC

8:15 - 9:15

Snapper Grouper Committee Report/Dr. Michelle Duval (TAB 5)

- Approve/Disapprove Regulatory Amendment 16 for formal Secretarial review - **ACTION**
- Approve/Disapprove Regulatory Amendment 25 for formal Secretarial review - **ACTION**
- Approve/Disapprove System Management Plan for MPAs - **ACTION**
- Approve/Disapprove all actions in Amendment 36 - **ACTION**
- Approve/Disapprove Amendment 37 for public hearing
- Approve/Disapprove Amendment 41 for public scoping - **ACTION**
- Consider other Committee recommendations and take action as appropriate - **ACTION**

9:15 - 9:30

Mackerel Committee Report/Ben Hartig (TAB 8)

- Approve/Disapprove Amendment 26 for public hearings - **ACTION**
- Consider other Committee recommendations and take action as appropriate - **ACTION**

9:30 - 9:45

Council Member Visioning Workshop Report/Dr. Michelle Duval (TAB 1)

- Approve/Disapprove Vision Blueprint - **ACTION**
- Approve/Disapprove Evaluation Plan Vision Blueprint - **ACTION**
- Consider other Committee recommendations and take action as appropriate - **ACTION**

Friday, December 11

9:45 A.M. to 3:30 P.M.

COUNCIL SESSION (TAB 14)

9:45 - 10:00

Habitat Protection and Ecosystem-Based Management Committee Report/Dr. Wilson Laney and Doug Haymans (TAB 4)

- Consider Committee recommendations and take action as appropriate - **ACTION**

10:00 -10:15

Protected Resources Committee Report/Dr. Wilson Laney (TAB 12)

- Consider Committee recommendations and take action as appropriate - **ACTION**

10:15 - 10:45

SEDAR Committee Report/Dr. Michelle Duval (TAB 3)

- Consider Committee recommendations and take action as appropriate - **ACTION**

10:45 - 11:00

Executive Finance Committee Report/Dr. Michelle Duval (TAB 13)

- Approve Council Follow-Up and Priorities - **ACTION**
- Consider other Committee recommendations and take action as appropriate - **ACTION**

11:00 - 11:15

Dolphin Wahoo Committee Report/Anna Beckwith (TAB 10)

- Approve/Disapprove Regulatory Amendment 1 for formal Secretarial Review - **ACTION**
- Approve/Disapprove Amendment 10 for public scoping - **ACTION**
- Consider Committee recommendations and take action as appropriate - **ACTION**

11:15 - 11:30

Data Collection Committee Report/Mel Bell (TAB 9)

- Approve/Disapprove South Atlantic For-Hire Reporting Amendment for public hearing - **ACTION**
- Consider other Committee recommendations and take action as appropriate - **ACTION**

11:30 - 11:45

Spiny Lobster Committee Report/Jessica McCawley (TAB 11)

- Consider Committee recommendations and take action as appropriate - **ACTION**

11:45 - 12:00

SSC Selection Committee Report/Charlie Phillips (TAB 6)

- Consider Committee recommendations and take action as appropriate - **ACTION**

12:00 - 1:30

Lunch

1:30 - 1:45

Information and Education Committee Report/Mark Brown (TAB 7)

- Consider Committee recommendations and take action as

appropriate - **ACTION**

Friday, December 11

1:45 P.M. to 3:30 P.M.

COUNCIL SESSION (TAB 14)

1:45 - 2:00

SERO Report/Dr. Roy Crabtree (Attachment 1)

2:00 - 2:15

Review Experimental Fishing Permit requests as appropriate (Attachment 2) - **ACTION**

2:15 - 2:45

SEFSC Report/Dr. Bonnie Ponwith (Attachment 3)

2:45 - 3:30

Agency and Liaison Reports and additional information (Attachment 4)

3:30

Other Business and Upcoming Meetings (Attachment 5)

ADJOURN

Proposed addition to Council SOPP:

4.4.7 Severance pay

(a) When the Executive Director in his or her discretion finds it is in the Council's interest that an employee (other than an employee subject to disciplinary action described in section 4.3, and other than an employee entitled to disability pay described in section 4.6.4) not continue as an employee, the Council may provide severance pay as described below.

(b) The Executive Director, in consultation with the Council Chair, may specify such severance pay if: (i) the periodic-payment amount is no more than the regular compensation the former employee would have been entitled to had he or she continued in employment; (ii) the duration of the payments is no more than 24 months after the former employee's severance from employment; and (iii) the sum of all payments is no more than two years' worth of the regular compensation the former employee would have been entitled to had he or she continued in employment. Further, the Executive Director's discretion in deciding the amount and duration of the severance pay may be guided by a reasonable relation to the employee's years of service to the Council.

(c) Unless the Executive Director finds that doing so would be contrary to the Council's interests, the Executive Director should condition the Council's offer of severance pay on the employee's permanent severance from employment and the employee's written release of claims under 4.1.2 and other Federal anti-discrimination laws and regulations.



Summer Flounder Amendment Draft Action Plan (updated as of 1/19/16)

Comprehensive Summer Flounder Amendment to the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan
<http://www.mafmc.org/actions/summer-flounder-amendment>

Council: Mid-Atlantic (with Atlantic States Marine Fisheries Commission)

Title of Action: Comprehensive Summer Flounder Amendment to the Summer Flounder, Scup, and Black Sea Bass FMP

Applicable Fisheries: Summer Flounder (commercial and recreational)

Purpose and Need: The purpose of this amendment is to complete a comprehensive review of all aspects of the Summer Flounder, Scup, and Black Sea Bass FMP related to summer flounder. This will include revisiting and updating the goals and objectives of the plan for summer flounder, as well as re-examining and modifying as necessary any and all fishery management strategies necessary to achieve those goals and objectives.

Type of NEPA Analysis Expected: Environmental Impact Statement (EIS)

Additional Expertise Sought: The Fisheries Management Action Team (FMAT) for this action will be composed of Council staff and management partners from the Greater Atlantic Regional Fisheries Office, the Atlantic States Marine Fisheries Commission, the Northeast Fisheries Science Center, with input from other organizations as appropriate. The FMAT will serve as the primary team for amendment development and analysis, but will work with several working groups to address specific issues.

Agency	Fishery Management Action Team (FMAT) Role	Person(s)
MAFMC	Council Staff (Plan Coordinator)	Kiley Dancy
ASMFC	Commission Staff (Plan Coordinator)	Kirby Rootes-Murdy
ASMFC	Commission Staff (ISFMP Director)	Toni Kerns
NMFS GARFO	Sustainable Fisheries (Plan Coordinator)	Moira Kelly
NMFS GARFO	NEPA	Katherine Richardson
NMFS GARFO	Habitat	David Stevenson
NMFS NEFSC	Stock Assessment/Technical	Mark Terceiro
NMFS NEFSC	Socioeconomics	Scott Steinback
NMFS GARFO	General Counsel (consulted as needed)	Kevin Collins

Working Groups: The FMAT will work with one or more topic-specific working groups that will be formed to complete technical work and analyses related to specific aspects of summer flounder management. These working groups are envisioned as a means to more efficiently address many important and complicated issues within a large and complex amendment. Two issue-specific working groups will be formed: one for commercial issues and one for recreational issues.

The working groups will be populated with individuals with technical expertise relevant to the issue, who are available and willing to actively participate in document development and technical analysis. For each working group, this will likely include a subset of the FMAT, several Technical/Monitoring Committee members, and potentially additional experts (state or federal agency, academic, or other) with relevant expertise (subject to the availability of funding, if necessary).

Types of Measures Expected to be Considered: In December 2014, the Council and Board identified several general categories of issues to be addressed by this amendment. The FMAT will develop a wide range of management options for the Council to consider. These could include alternatives to address issues including, but not limited to:

- FMP goals and objectives for summer flounder
- Commercial summer flounder management measures and strategies:
 - Commercial fishing gear requirements and restrictions, including, but not limited to: mesh requirements, net dimensions, bycatch reduction devices, head and footrope lengths
 - Minimum fish size requirements
 - Possession limit and trigger requirements
 - Time/area closures and exemption programs
 - Licensing
 - Commercial quota allocation strategies
 - Landings flexibility (regional, coastwide, other)
- Recreational summer flounder management measures and strategies:
 - Recreational bag limits, size limits, and seasonal limits
 - Recreational fishing gear requirements and restrictions
 - Inter-jurisdictional management processes and strategies (including use of state-by-state or regional Conservation Equivalency vs. Coastwide measures)
 - Management strategies specific to the party/charter (for-hire) recreational fleet
 - Management strategies specific to private recreational anglers
 - Recreational quota allocation strategies (by state, fishing sector, other)
- Quota allocation between the commercial and recreational fisheries

Under the umbrella of the above categories, the Council and Board have indicated that they may also explore alternatives related to the following:

- Summer flounder discards in the commercial and recreational fisheries
- Ecosystem, habitat, bycatch, and protected species issues
- Data collection requirements and protocols
- Other issues not listed above

Applicable laws/issues:

Magnuson-Stevens Act	Yes
Administrative Procedures Act	Yes
Regulatory Flexibility Act	Yes
Paperwork Reduction Act	Possibly; depends on data collection needs
Coastal Zone Management Act	Possibly; depends on effects of the action on the resources of the coastal states in the management unit
Endangered Species Act	Possibly; level of consultation, if necessary, depends on the actions taken
E.O. 12866 (Regulatory Planning and Review)	Yes

E.O. 12630 (Takings)	Possibly; legal review will confirm
E.O. 13123 (Federalism)	Possibly; legal review will confirm
Essential Fish Habitat	Possibly
Information Quality Act	Yes

Current Amendment Timeline (as of 1/19/16; subject to change):

<i>December 2013</i>	<i>Council initiates amendment</i>
<i>April-June 2014</i>	<i>Draft action plan developed; Fishery Management Action Team (FMAT) formed</i>
<i>June 2014</i>	<i>Council's Demersal Committee meets to discuss scoping process</i>
<i>August 2014</i>	<i>Joint Council and Commission draft scoping document developed; Council and Commission review and approve draft document for public comment</i>
<i>September/ October 2014</i>	<i>Scoping hearings and public comment period</i>
<i>December 2014</i>	<i>Council and Commission identify priority issues for inclusion in the amendment</i>
<i>April 2015</i>	<i>FMAT meeting (webinar)</i>
<i>August 2015</i>	<i>Status update at August joint Council/Board meeting; intro to Fisheries Forum goals & objectives project</i>
<i>Fall 2015</i>	<i>Fisheries Forum project to synthesize Council/Board input on FMP goals and objectives; FMAT meeting for goals and objectives recommendations</i>
<i>December 2015</i>	<i>Council and Commission workshop on FMP goals and objectives (with Fisheries Forum); amendment status update</i>
<i>Winter 2016</i>	<i>Issue-specific working groups established; FMAT and working group meetings</i>
<i>Winter/Spring 2016</i>	<i>FMAT begins development of range of alternatives, with input from working groups, Council/Commission, and Advisory Panel</i>
<i>Summer/Fall 2016</i>	<i>FMAT and working groups continue development of alternatives; Council and Commission review FMAT and working group recommendations; Draft Environmental Impact Statement (DEIS) development begins</i>
<i>Late 2016/Early 2017</i>	<i>Range of options refined and approved; analysis of alternatives; DEIS development continues</i>
<i>Winter/Spring 2017</i>	<i>Council and Commission select preferred options; public hearings</i>
<i>Summer/Fall 2017</i>	<i>Council and Commission consider public comments; final action; Final Environmental Impact Statement developed; rulemaking and comment periods (5-7 months)</i>
<i>Spring 2018</i>	<i>Final rule effective</i>

**Italics* = complete

December 22, 2015

RE: Blueline Tilefish Recreational Catch Estimates in the Mid-Atlantic

Chris Moore, Executive Director
Mid-Atlantic Fishery Management Council

Dear Chris:

This letter serves as our proposal for developing recommendations for recreational catch estimates of blueline tilefish in the mid-Atlantic using a modified Delphi process.

BACKGROUND/ASSUMPTIONS:

Blueline tilefish are a non-migratory species susceptible to overfishing due to long lifespan and relatively sedentary nature. The Mid-Atlantic Fishery Management Council has begun developing management measures for blueline tilefish for the Mid-Atlantic region. This follows the implementation in June 2015 of federal (NOAA) emergency management measures for the blueline tilefish fishery in the Greater Atlantic Region. Since the announcement by NOAA, the Council has undertaken the following steps toward development of a long-term management plan:

- June 1-18, 2015: Scoping hearings were held throughout the Mid-Atlantic region to gather public input on blueline tilefish management.
- August 2015: The Council reviewed scoping comments and voted to proceed with an Amendment to the Golden Tilefish Fishery Management Plan to temporarily address blueline tilefish management issues.
- October 2015: The Council reviewed a preliminary set of alternatives for blueline tilefish management and endorsed development of a range of alternatives in a full Environmental Assessment to be reviewed at a future Council meeting.

The emergency measures that are in place will end in June of 2016, at which time the Council will implement the management amendment. Currently, little is known about the recreational catch, harvest, or effort statistics needed for developing the recreational component of this amendment. To aid the Council in the development of its long-term management plan for blueline tilefish, Southwick Associates proposes to administer a modified Delphi process involving selected experts in the fishery to establish consensus on recreational catch estimates, likely to include recreational effort.

PROJECT SCOPE/DELIVERABLES:

The Delphi technique is a scientifically accepted method for gathering data from a group with expert knowledge when the issue in question, such as recreational catch, has limited empirical

data on which to draw. The Delphi technique was originally developed by the RAND Corporation in the 1950s to assess the potential effects of military strategies when historic data on possible reactions by other countries were not available. Since then, the process has been refined and applied to assess the potential effects of many different types of government and private sector activities, decisions and policies. For this project, fisheries experts with an understanding of fishery management strategies in the mid-Atlantic region and specific knowledge of blueline tilefish will be used to develop best estimates of recreational catch. A preliminary list of these experts has already been assembled by the Council.

The classic Delphi process aims to achieve consensus across a range of people and opinions through the use of anonymous questionnaires delivered over multiple rounds of surveys. In a Delphi study, the answers to specific questions - such as best estimates of recreational catch - are processed, summarized and sent back to the panelists in a new questionnaire. The panelists can reinforce, change or modify their previous responses based on the response and input from the rest of the group. The questionnaires are administered anonymously and panelists are not aware of the identity of the other participants, to prevent bias.

For this project, we propose a modified Delphi process that incorporates an anonymous, online survey of selected experts, followed by an in-person workshop to facilitate review and discussion of the survey responses. During the workshop, a second survey will be conducted, with respondents answering questions privately and their responses not identified back to any individual. Throughout the process, the goal will be to work toward consensus on specific catch estimates including acceptable lower and upper bounds. A third and final round of surveys will be conducted during the workshop, if needed.

The specific project tasks include:

- The Council, with the assistance of Loftus Consulting, will identify and recruit a panel of experts (including party/charter operators and private recreational anglers) who understand fisheries management strategies, in general, and have specific knowledge of the blueline tilefish recreational catch rates, directed efforts and harvests.
- Southwick Associates will develop the online survey questionnaire with input and feedback from the Council and Loftus Consulting. At a minimum, the survey will solicit specific input on recreational catch estimates (likely including effort) along with a statement of justification to explain the basis for the recommendations.
- Seven to ten days prior to the workshop, Southwick Associates will field the online survey, including reminders to non-responders. We also will compile and summarize the responses in a briefing document for dissemination at the workshop.
- At the workshop, the Council will present a summary of the most recent available information regarding the blueline tilefish fishery and the current status of management plan development. Southwick Associates will present the results of the online survey. Discussions regarding potential catch estimates can then be facilitated by Loftus Consulting.

- Towards the end of the workshop, panelists will be asked to take a second survey to gauge progress toward consensus. (Survey questions will be pre-written but subject to change on-the-spot depending on the workshop’s discussions). Southwick Associates will administer the survey using an online tool to facilitate last minute changes to the questions and rapid analysis, compile the results and present a summary to the panel. Participants will be asked to take the survey using their own electronic devices (including mobile) or utilize a limited number of devices (e.g., laptops) provided by Southwick Associates and the Council. The workshop will end at that point if acceptable consensus is reached. If needed, an additional round of discussion and another survey will be conducted. Time will be built into the agenda in advance to allow a final round of discussion, if needed. Otherwise, the workshop would end early.
- After the workshop, Southwick Associates along with Loftus Consulting will produce a final report summarizing the overall process and results.
- All data produced by the surveys will be delivered to the Council in an electronic format.
- The Mid-Atlantic Fishery Management Council will assume all responsibilities for providing a meeting site and facilities for the proposed workshop, along with recruiting and facilitating attendance by experts as well as providing for travel expenses.

COST: \$19,985 including all materials and Southwick Associates’ travel. Travel for Loftus Consulting to be reimbursed directly by MAFMC under MAFMC guidelines.

TERMS:

An invoice will be delivered with the final report, payable within 30 days. Payment can be made by check or credit card. Please call us ahead if you wish to pay by credit card. All invoices are delivered via e-mail, unless otherwise requested.

TIMING:

	January				February			
	Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8
Kickoff meeting								
Survey development								
Field the survey; compile results								
In-person workshop								
Final report								

ABOUT SOUTHWICK ASSOCIATES:

Southwick Associates is an economics consulting firm that has been involved in fishing and fisheries research for more than 25 years. Southwick Associates has worked with nearly all state fish and wildlife agencies and participated in many research projects supported by the Association of Fish and Wildlife Agencies, the U.S. Fish and Wildlife Service, international and regional fishery management organizations and the American Sportfishing Association (ASA).

Southwick Associate's has experience conducting Delphi studies to help establish economic effects of changing water levels, most recently on the Colorado River to estimate economic impacts to fishing- and tourism-related business owners and impacts on the real estate market associated with alternative water management practices on Lake Martin in Alabama. References and details regarding those Delphi studies will be provided upon request.

ABOUT LOFTUS CONSULTING:

Andrew Loftus began his career working as a fisheries biologist on the inland waters of Michigan and the Great Lakes, moving to the coastal waters of the Atlantic Ocean and Chesapeake Bay. After six years, he took a transformational leap to the Sport Fishing Institute, a conservation-based organization representing the businesses of the sport fishing industry (now a component of the American Sportfishing Association). As a government affairs specialist and concurrently director of an affiliated non-profit grant foundation, Loftus developed and employed a complete new set of skills in communication, necessary to shape and convey technical information to a diversity of audiences, including elected officials, manufacturers and retailers, government officials, and the general public. This unique blend of communication skills enable him to transition comfortably between the scientific and business communities while engaging diverse constituencies in the sport fishing and commercial fishing communities. Today, those skills honed during the seven years with sport fishing industry form the basis for the independent consultancy which he has managed for the past nineteen years. This consultancy focuses on three broad categories of services to government and private-sector clientele with a natural resources orientation: communications, information exchange, and policy. Among these clients, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, Mid Atlantic Fishery Management Council, and Atlantic States Marine Fisheries Commission have each retained Loftus for a variety of services designed to improve communications. These range from providing facilitation services for internal agency meetings and external consensus-based workshops with constituent groups to enhancing communication pathways to constituent groups. Details of select engagements oriented toward workshop development with an emphasis on subsequent action/strategic plan development can be found at www.andrewloftus.com .



State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION
NATURAL AND HISTORIC RESOURCES

Office of the Assistant Commissioner

MAIL CODE 501-03A

PO Box 420

Trenton, New Jersey 08625

609-292-3541/Fax: 609-984-0836

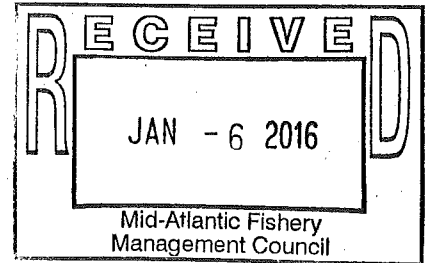
CHRIS CHRISTIE
GOVERNOR

BOB MARTIN
COMMISSIONER

KIM GUADAGNO
Lt. Governor

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

December 29, 2015



Dear Dr. Moore:

I am writing this letter as a follow up to our November 6, 2015 letter to initiate the process for Special Management Zone (SMZ) designation for New Jersey's 13 artificial reef sites in federal waters. I want to thank the MAFMC for taking up this issue and including it in the 2016 Implementation Plan.

For your review, I have attached reef grids which depict the locations of these 13 reefs as well as other pertinent information. These reef grids are set up in the DD. MM.MMM format and include the following reef sites:

- | | |
|-----------------------|---------------------|
| 1) Sea Girt | 8) Great Egg |
| 2) Shark River | 9) Ocean City |
| 3) Barnegat Light | 10) Townsends Inlet |
| 4) Garden State North | 11) Deepwater |
| 5) Garden State South | 12) Wildwood |
| 6) Little Egg | 13) Cape May |
| 7) Atlantic City | |

The attached grids include information on the types of reef materials deployed, depth contour, total reef area, distance offshore, compass bearings from nearby inlets and established vertical clearance. All 13 of these reefs are also currently depicted on NOAA nautical charts.

My staff and I look forward to interacting with the MAFMC on this issue in the near future. Thank you for consideration of the important request. If you need additional information, please contact Brandon Muffley, Marine Fisheries Administrator, at (609) 748-2020.

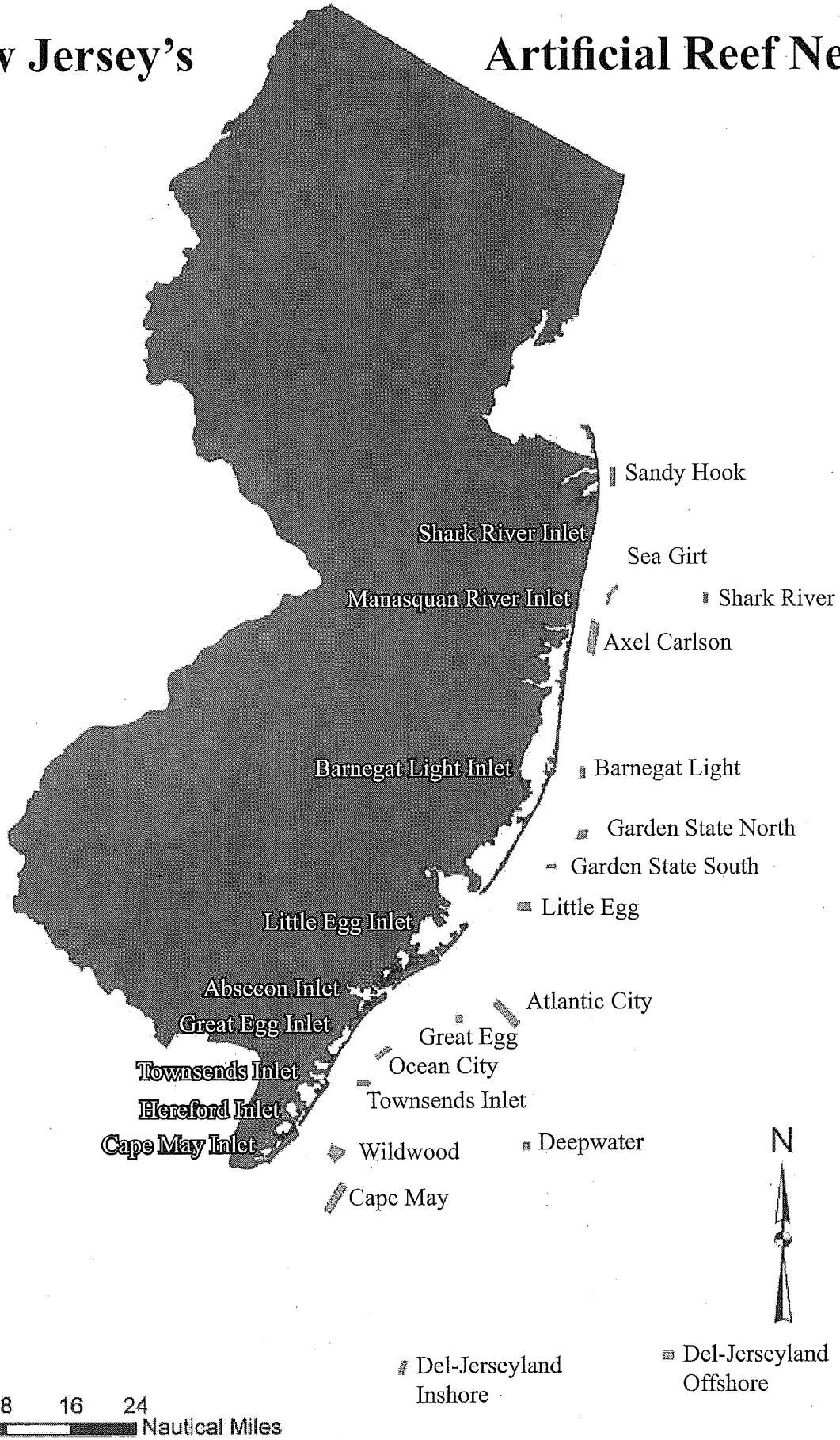
Sincerely,

Richard Boornazian
Assistant Commissioner

encl: 13 reefs located in federal waters

New Jersey's

Artificial Reef Network

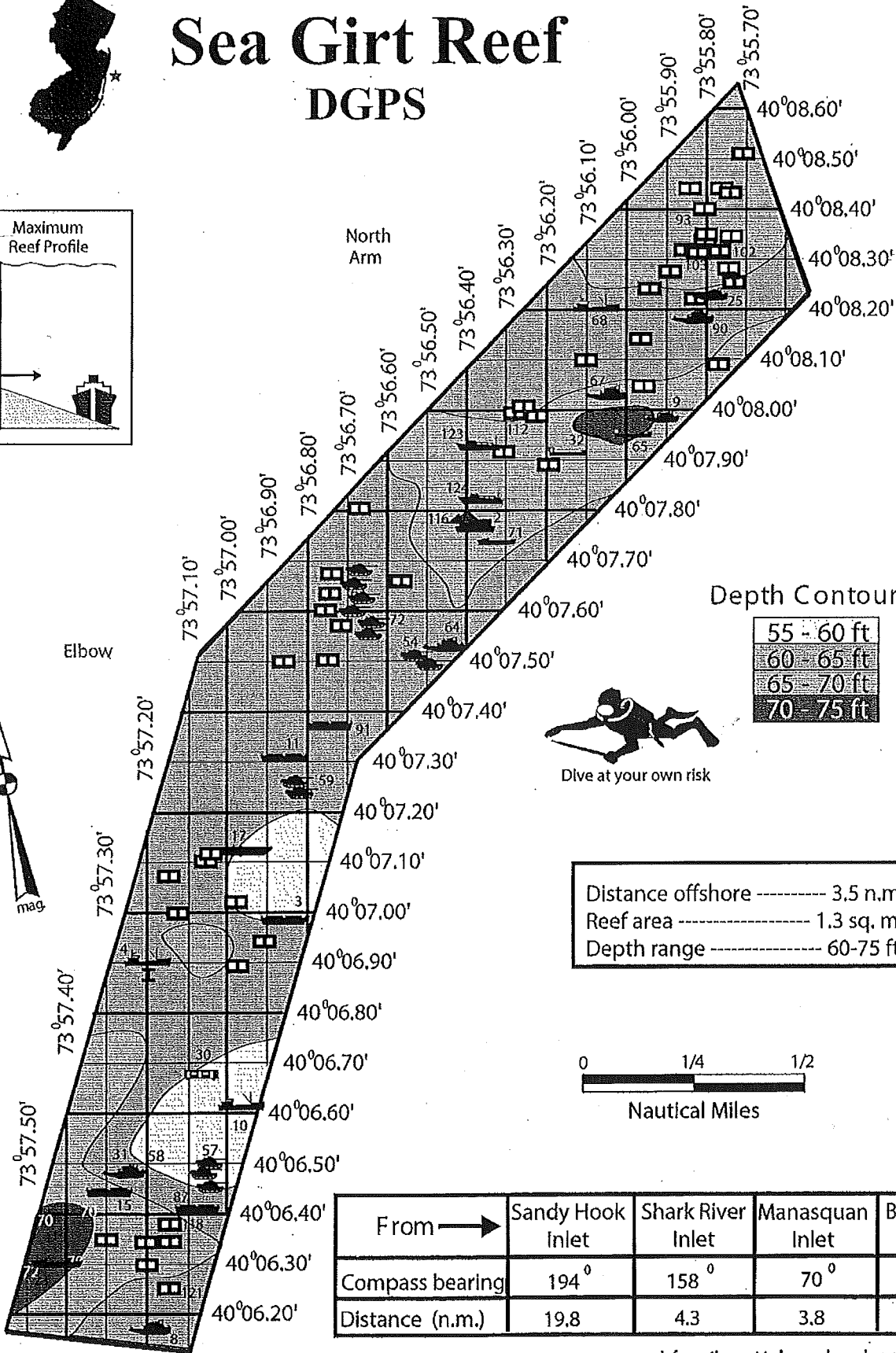
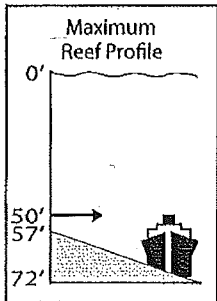


Del-Jerseyland Inshore Del-Jerseyland Offshore





Sea Girt Reef DGPS



Distance offshore ----- 3.5 n.m.
 Reef area ----- 1.3 sq. mi.
 Depth range ----- 60-75 ft.



From →	Sandy Hook Inlet	Shark River Inlet	Manasquan Inlet	Barnegat Inlet
Compass bearing	194°	158°	70°	26°
Distance (n.m.)	19.8	4.3	3.8	23.7

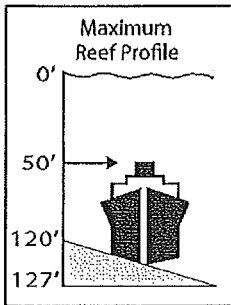
Information not to be used as sole source navigation



Shark River Reef DGPS

From →	Sandy Hook Inlet	Shark River Inlet	Manasquan Inlet
Compass bearing	166°	119°	100°
Distance (n.m.)	22.3	14.8	15.6

West Ridge
East Ridge



Distance offshore ----- 14.8 n.m.
Reef area ----- 0.72 sq. mi.
Depth range ----- 119-134 ft.

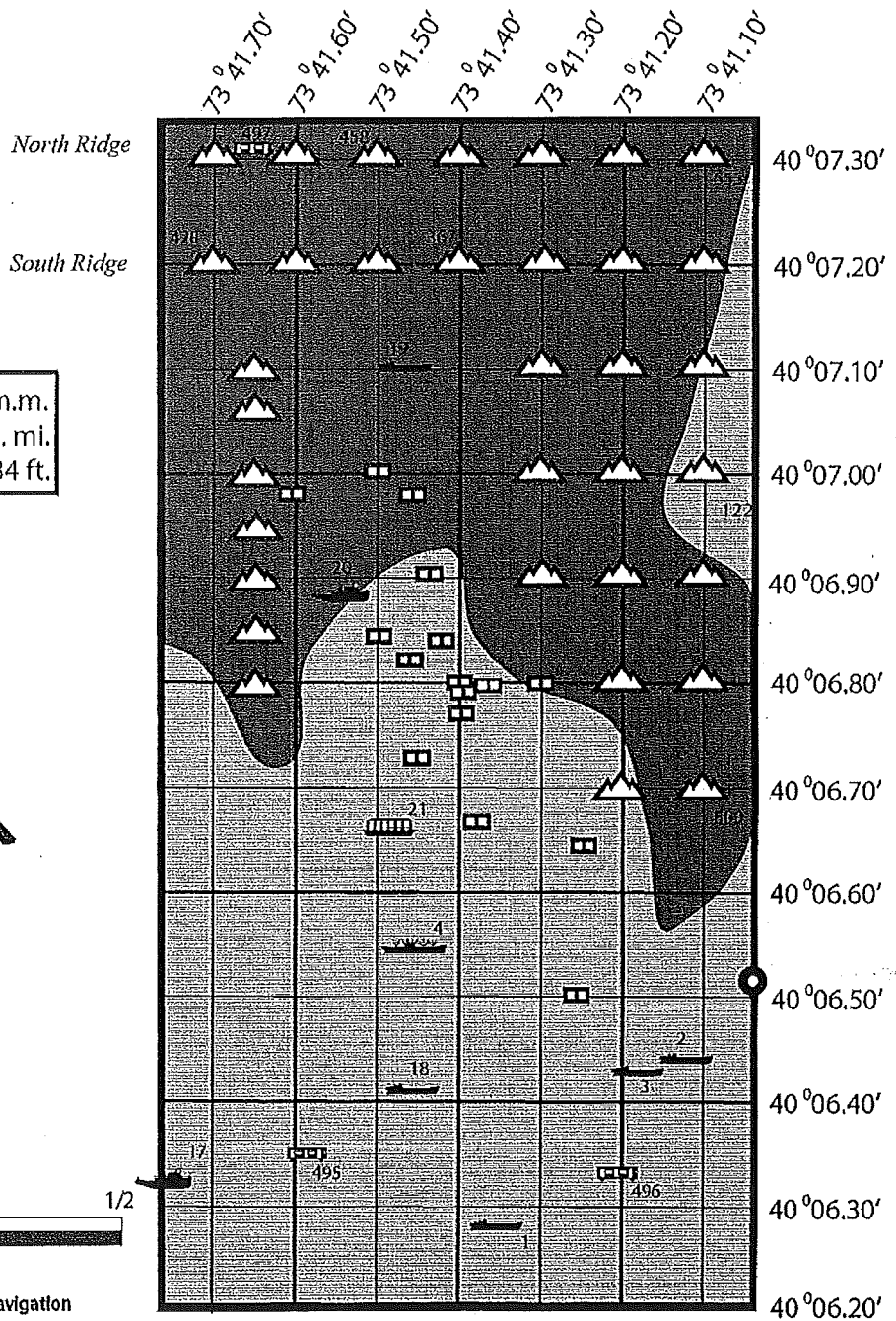
Depth Contours

120-125ft
125-130ft



Nautical Miles

Information not to be used as sole source navigation





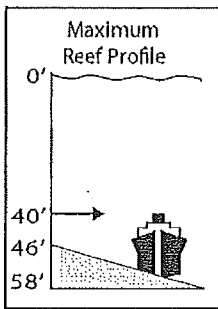
Barnegat Light Reef

DGPS

From →	Manasquan Inlet	Barnegat Inlet	Little Egg Inlet
Compass bearing	194°	103°	46°
Distance (n.m.)	20.5	3.1	21.0

Drift Fishing Reef

Distance offshore ----- 3.0 n.m.
 Reef area ----- 0.85 sq. mi.
 Depth range ----- 46-58 ft.

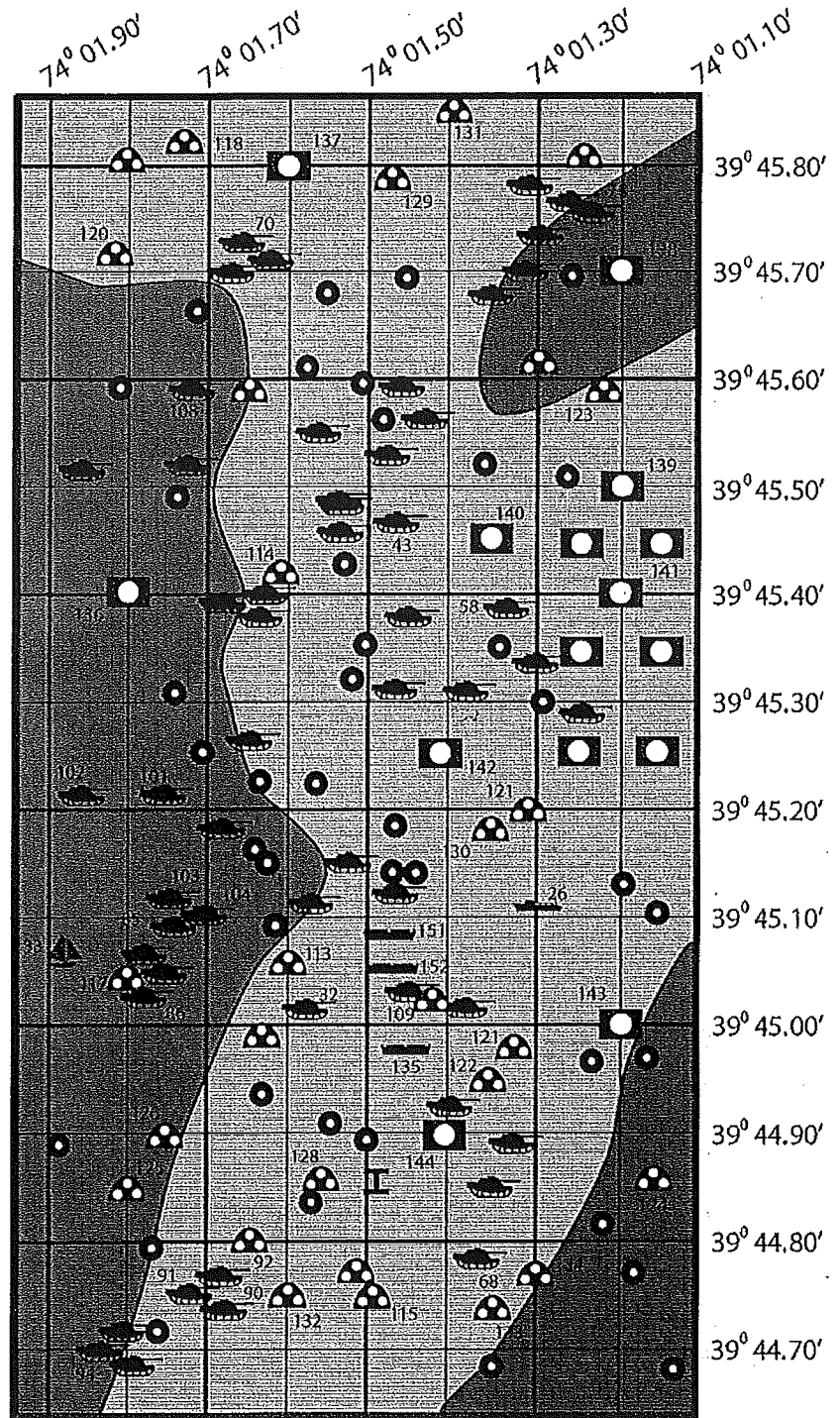


Dive at your own risk

Depth Contours



Nautical Miles



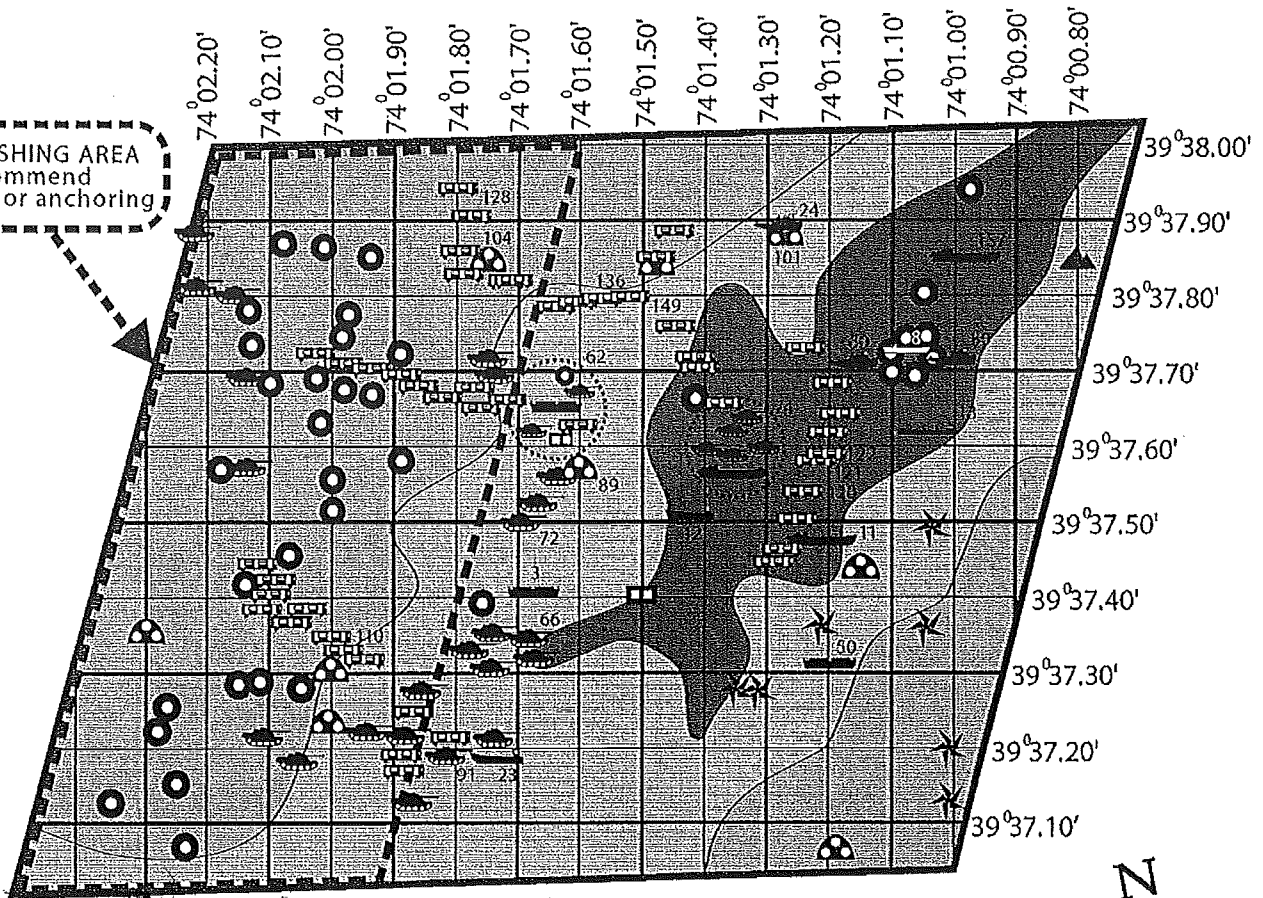


Garden State North Reef DGPS

Distance offshore ----- 6.5 n.m.
 Reef area ----- 1.1 sq. mi.
 Depth range ----- 66-83 ft.

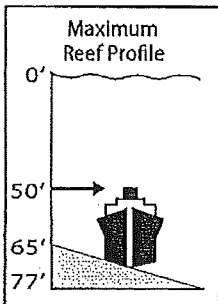
From →	Barnegat Inlet	Little Egg Inlet
Compass bearing	172°	60°
Distance (n.m.)	7.7	14.4

DRIFT FISHING AREA
 Recommend
 no diving or anchoring



Shallow

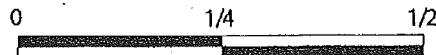
Deep



Dive at your own risk

Depth Contours

65 - 70 ft
70 - 75 ft
75 - 80 ft



Nautical Miles



Information not to be used as sole source navigation

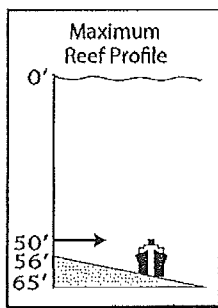


Garden State South Reef

DGPS

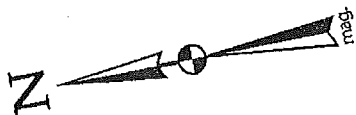
Distance offshore ----- 5.1 n.m.
 Reef area ----- 0.6 sq. mi.
 Depth range ----- 57-63 ft.

From →	Barnegat Inlet	Little Egg Inlet	Absecon Inlet
Compass bearing	198°	64°	58°
Distance (n.m.)	11.1	9.1	18.4

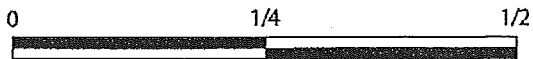


Dive at your own risk

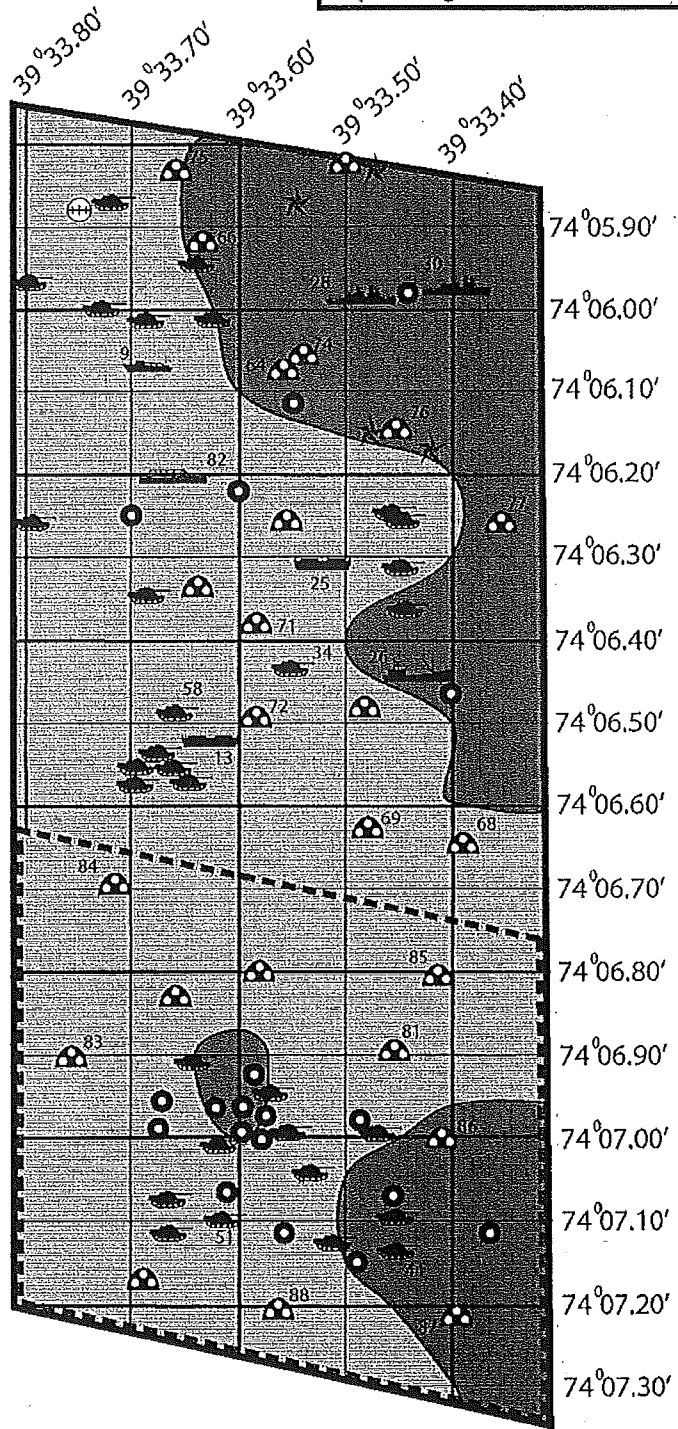
DRIFT FISHING AREA
 Recommend
 no diving or anchoring



Depth Contours



Nautical Miles



Information not to be used as sole source navigation



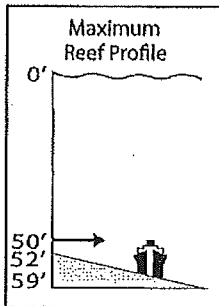
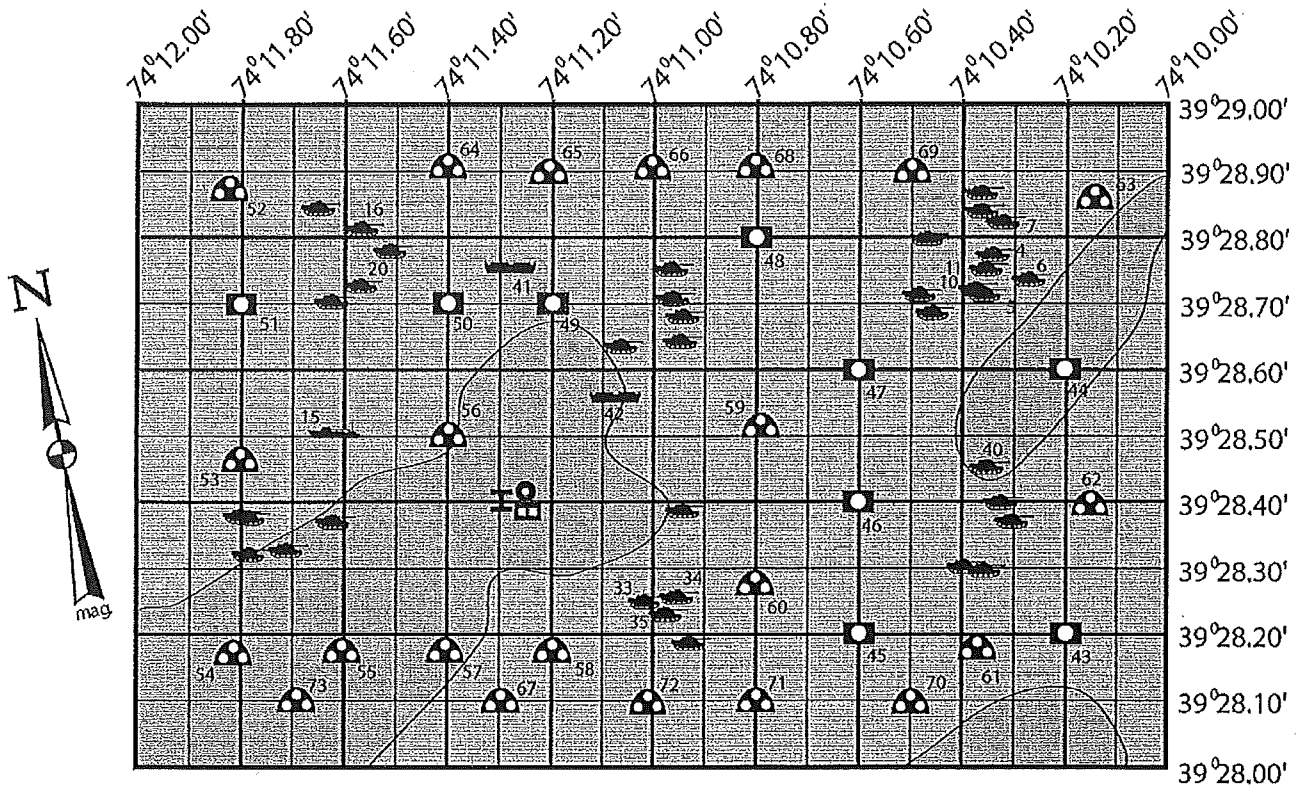
Little Egg Reef

DGPS

Little Egg Inlet	← From →	Absecon Inlet
93°	Compass bearing	53°
5.05	Distance (n.m.)	12.37

Distance offshore --- 3.8 n.m.
 Reef area ----- 1.5 sq. mi.
 Depth range ----- 48-60 ft.

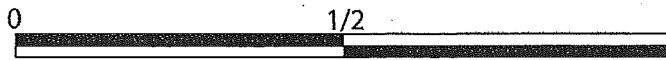
Drift Fishing Reef



Dive at your own risk

Depth Contours

50 - 55 ft
 55 - 60 ft



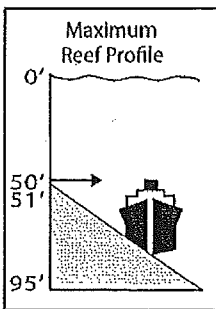
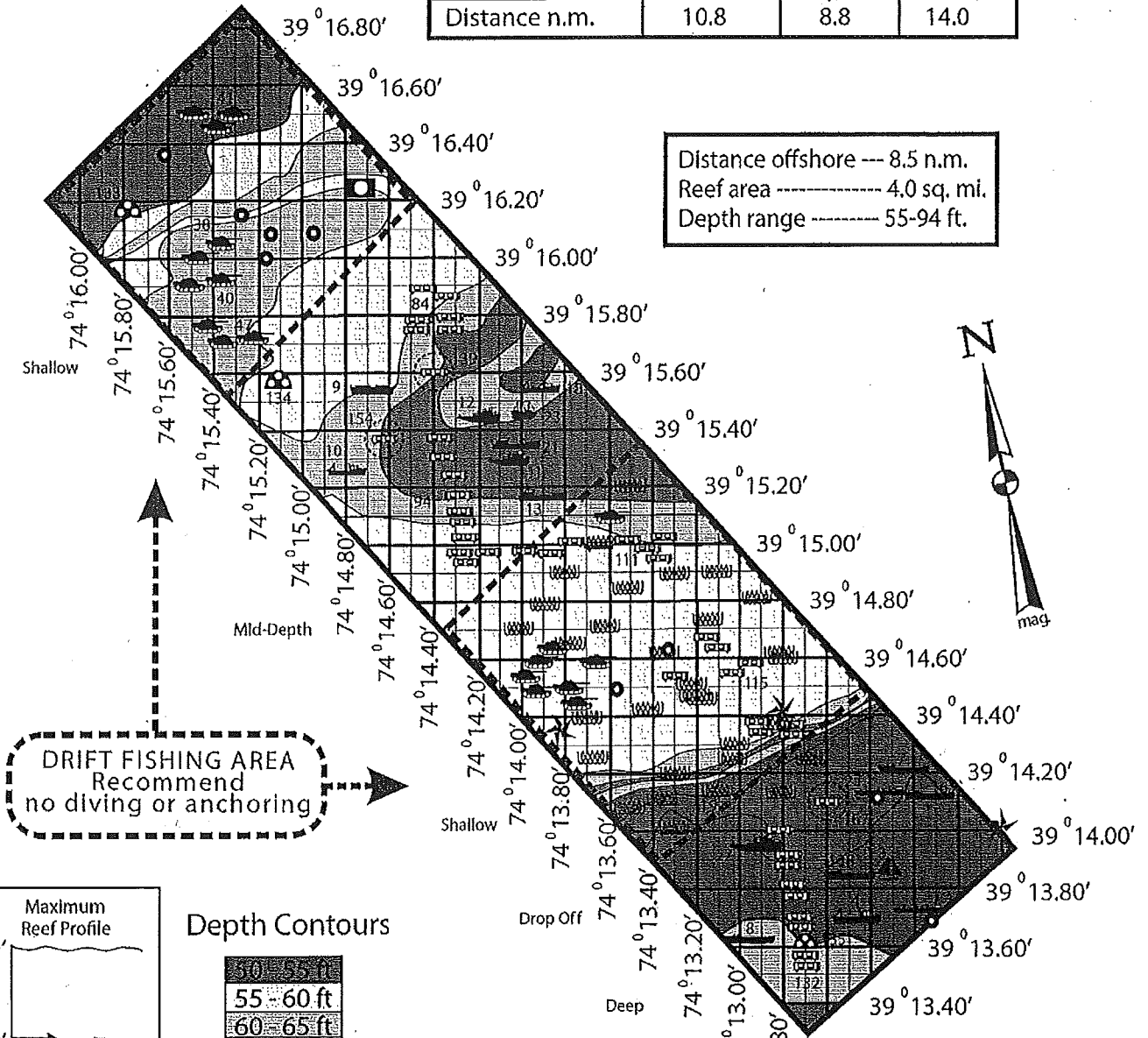
Nautical Miles

Information not to be used as sole source navigation



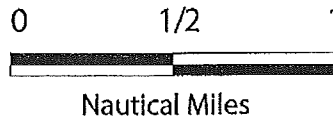
Atlantic City Reef DGPS

From →	Little Egg Inlet	Absecon Inlet	Great Egg Inlet
Compass bearing	189°	142°	106°
Distance n.m.	10.8	8.8	14.0



Depth Contours

50 - 55 ft
55 - 60 ft
60 - 65 ft
65 - 70 ft
70 - 75 ft
75 - 80 ft
80 - 85 ft
85 - 90 ft
90 - 95 ft



Dive at your own risk

Information not to be used as sole source navigation



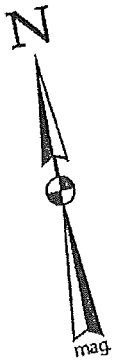
Great Egg Reef

DGPS

Distance offshore -----7.0 n.m.
 Reef area ----- 1.0 sq. mi.
 Depth range ----- 47-70 ft.

From →	Great Egg Inlet	Absecon Inlet	Corson's Inlet
Compass bearing	110°	165°	82°
Distance (n.m.)	9.2	8.0	13.4

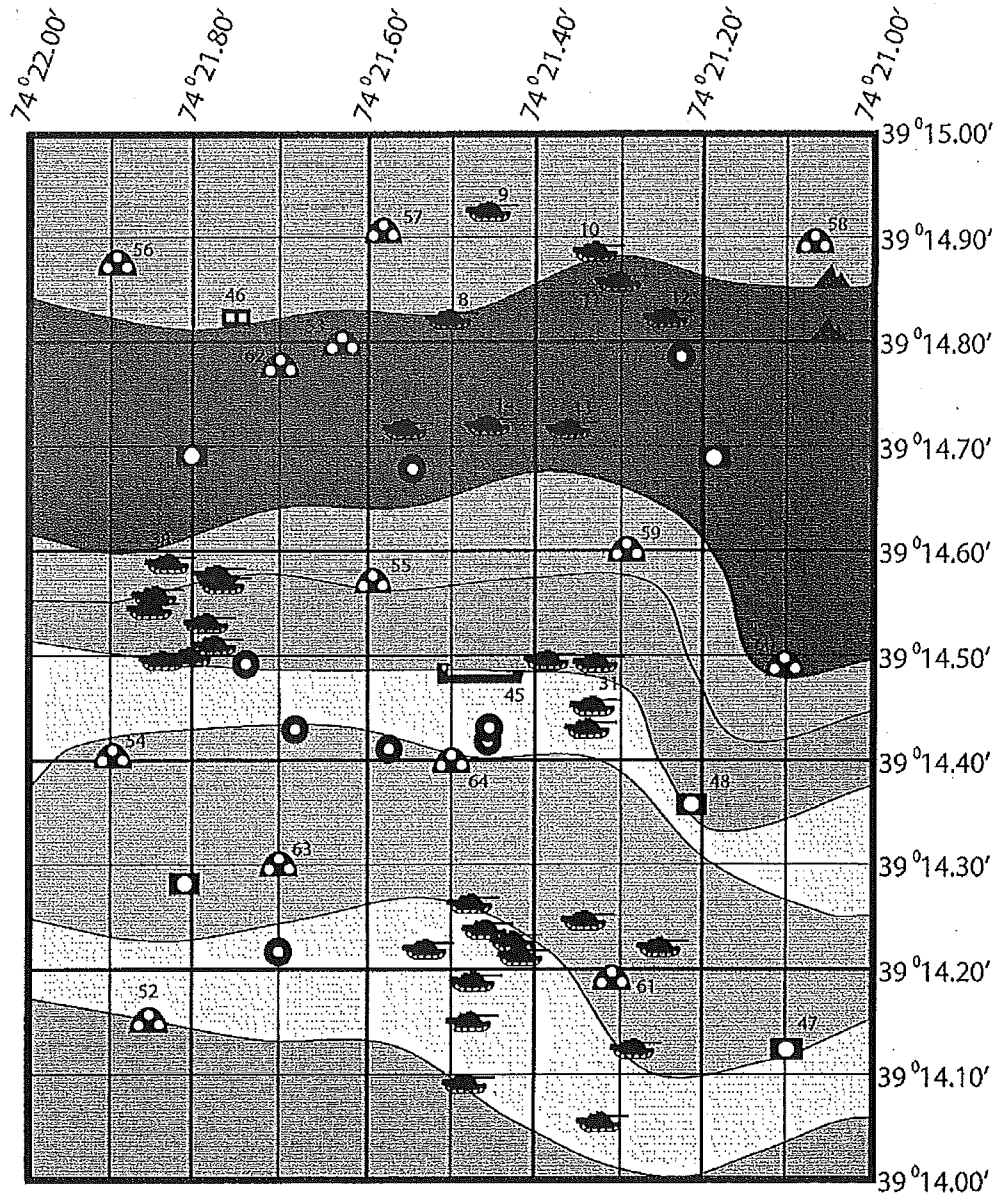
Drift Fishing Reef



Dive at your own risk

Depth Contours

45 - 50 ft
50 - 55 ft
55 - 60 ft
60 - 65 ft
65 - 70 ft



Nautical Miles

Information not to be used as sole source navigation



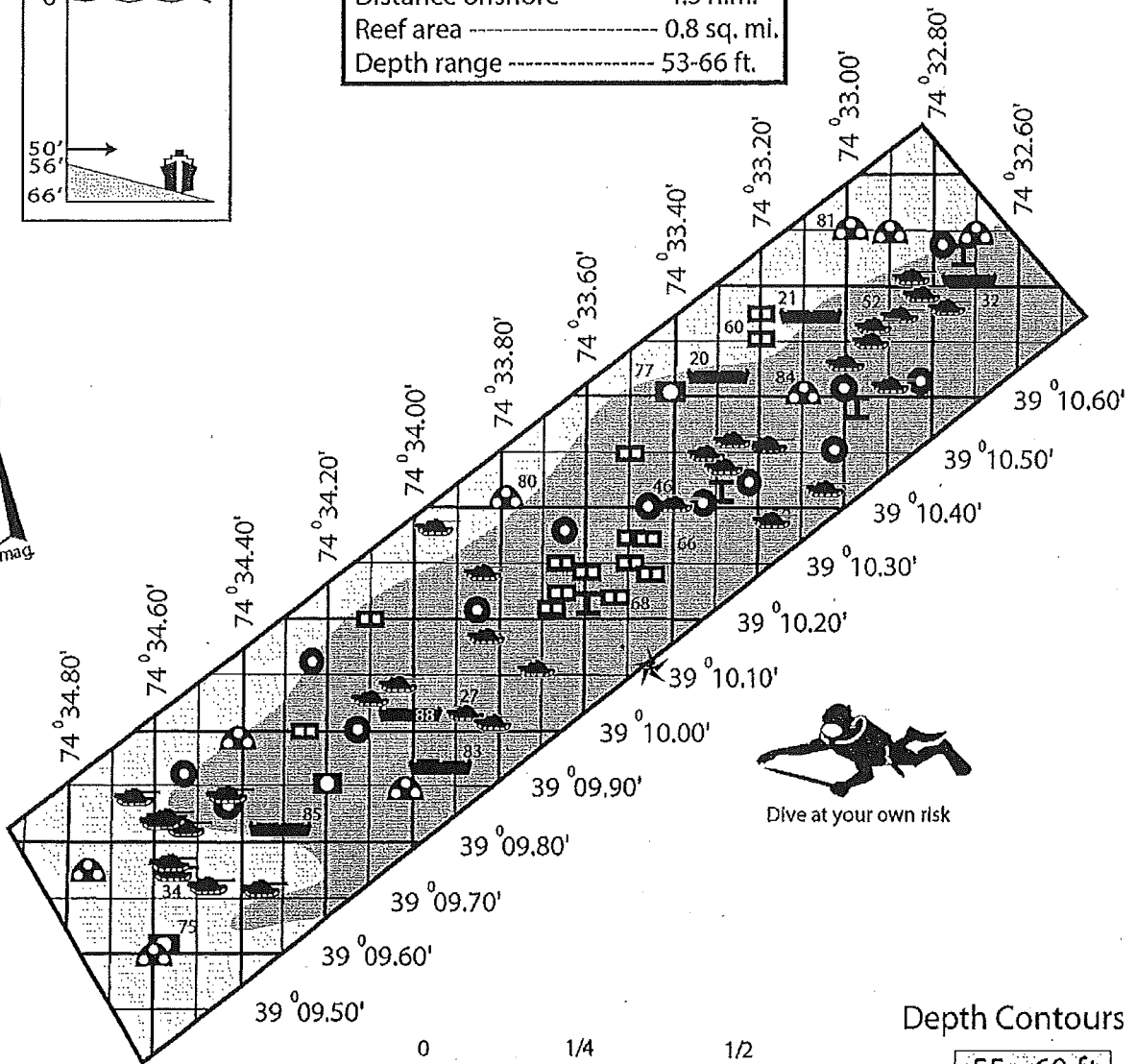
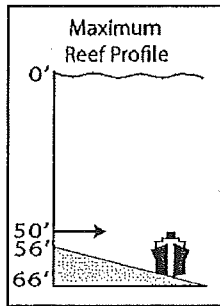
Ocean City Reef

DGPS

From →	Great Egg Inlet	Corson's Inlet	Townsend's Inlet
Compass bearing	215°	131°	64°
Distance (n.m.)	7.4	4.3	7.4

Drift Fishing Reef

Distance offshore ----- 4.5 n.m.
 Reef area ----- 0.8 sq. mi.
 Depth range ----- 53-66 ft.



Dive at your own risk



Nautical Miles

Depth Contours

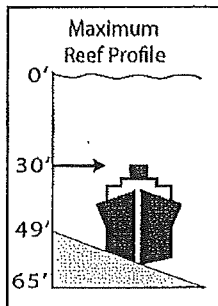
55 - 60 ft
60 - 65 ft
65 - 70 ft



Townsends Inlet Reef GPS

From →	Corson's Inlet	Townsends Inlet	Hereford Inlet
Compass bearing	182°	110°	66°
Distance (n.m.)	5.73	3.8	9.31

Distance offshore ----- 3.8 n.m.
 Reef area ----- 0.52 sq. mi.
 Depth range ----- 45-70 ft.

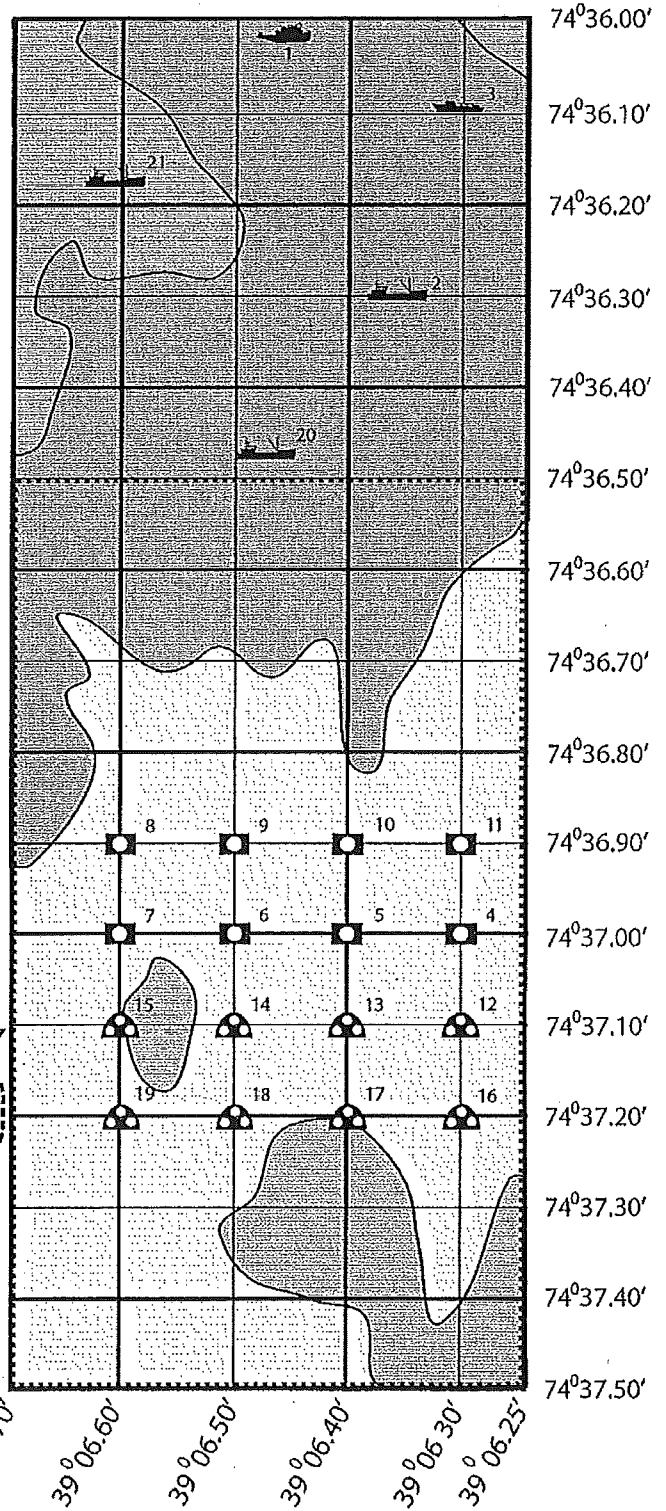
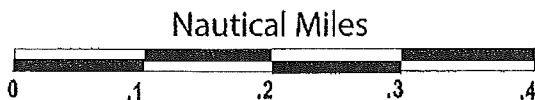
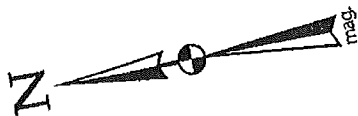


Depth Contours

45 - 50 ft
50 - 55 ft
55 - 60 ft
60 - 65 ft



Dive at your own risk

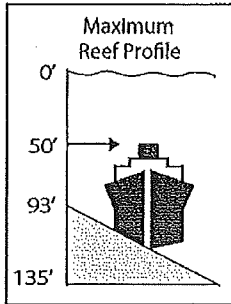


DRIFT FISHING AREA
 Recommend
 no diving or anchoring

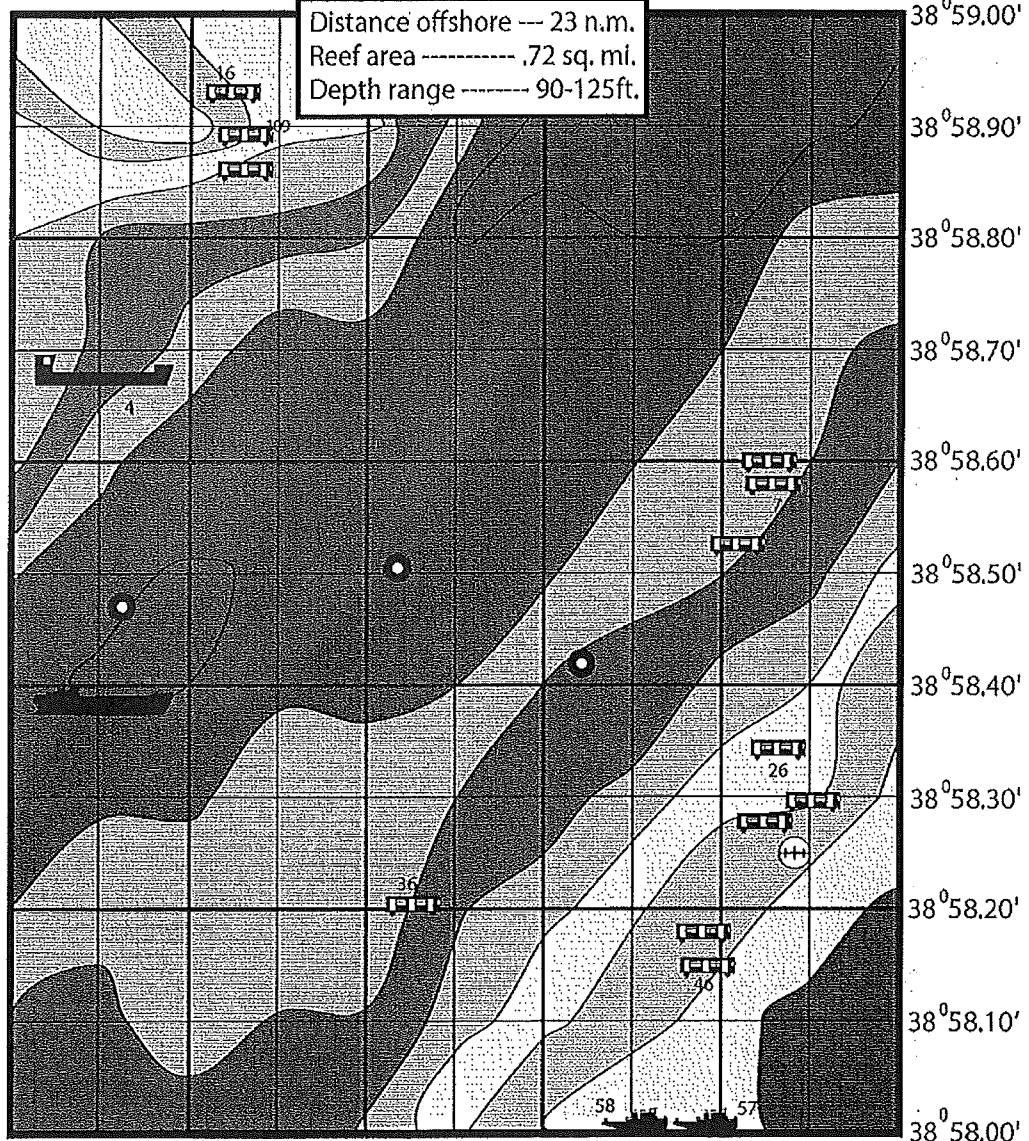
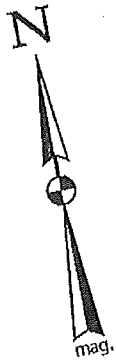


Deepwater Reef DGPS

From →	Little Egg	Absecon Inlet	Great Egg	Townsend's Inlet	Hereford Inlet	Cape May Inlet
Compass bearing	183°	168°	153°	122°	103°	99°
Distance (n.m.)	28.3	25.0	23.6	24.4	27.4	31.5

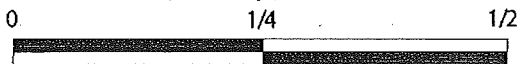


Distance offshore --- 23 n.m.
Reef area ----- .72 sq. mi.
Depth range ----- 90-125ft.



Depth Contours

90 - 95 ft	105 - 110 ft	120 - 125 ft
95 - 100 ft	110 - 115 ft	
100 - 105 ft	115 - 120 ft	



Information not to be used as sole source navigation

Nautical Miles



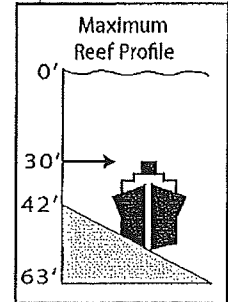
Wildwood Reef

DGPS

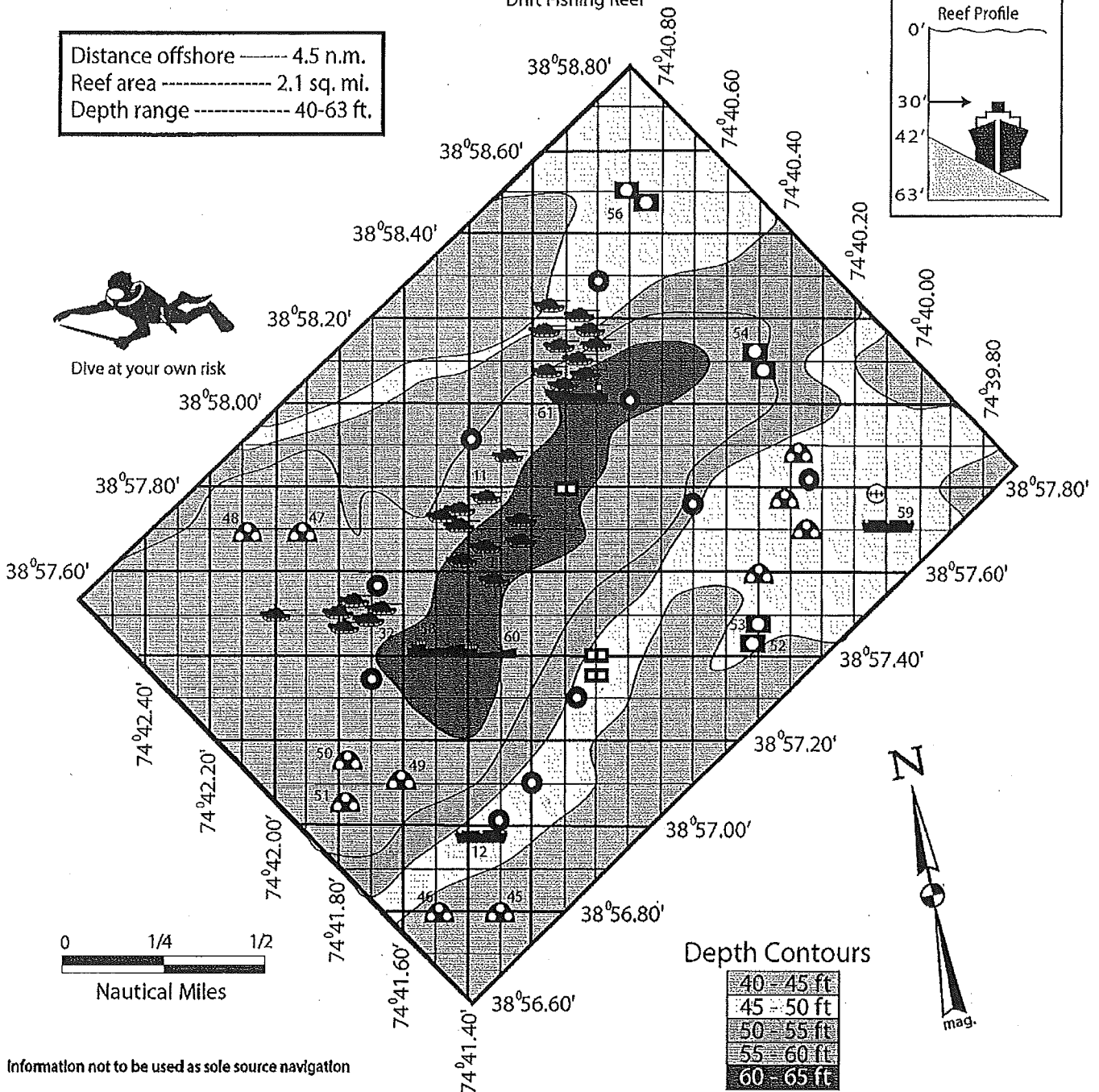
From →	Townsend's Inlet	Hereford Inlet	Cape May Inlet
Compass bearing	190°	135°	88°
Distance (n.m.)	9.2	4.5	8.3

Drift Fishing Reef

Distance offshore ——— 4.5 n.m.
 Reef area ————— 2.1 sq. mi.
 Depth range ————— 40-63 ft.



Dive at your own risk



Information not to be used as sole source navigation

Cape May Reef DGPS



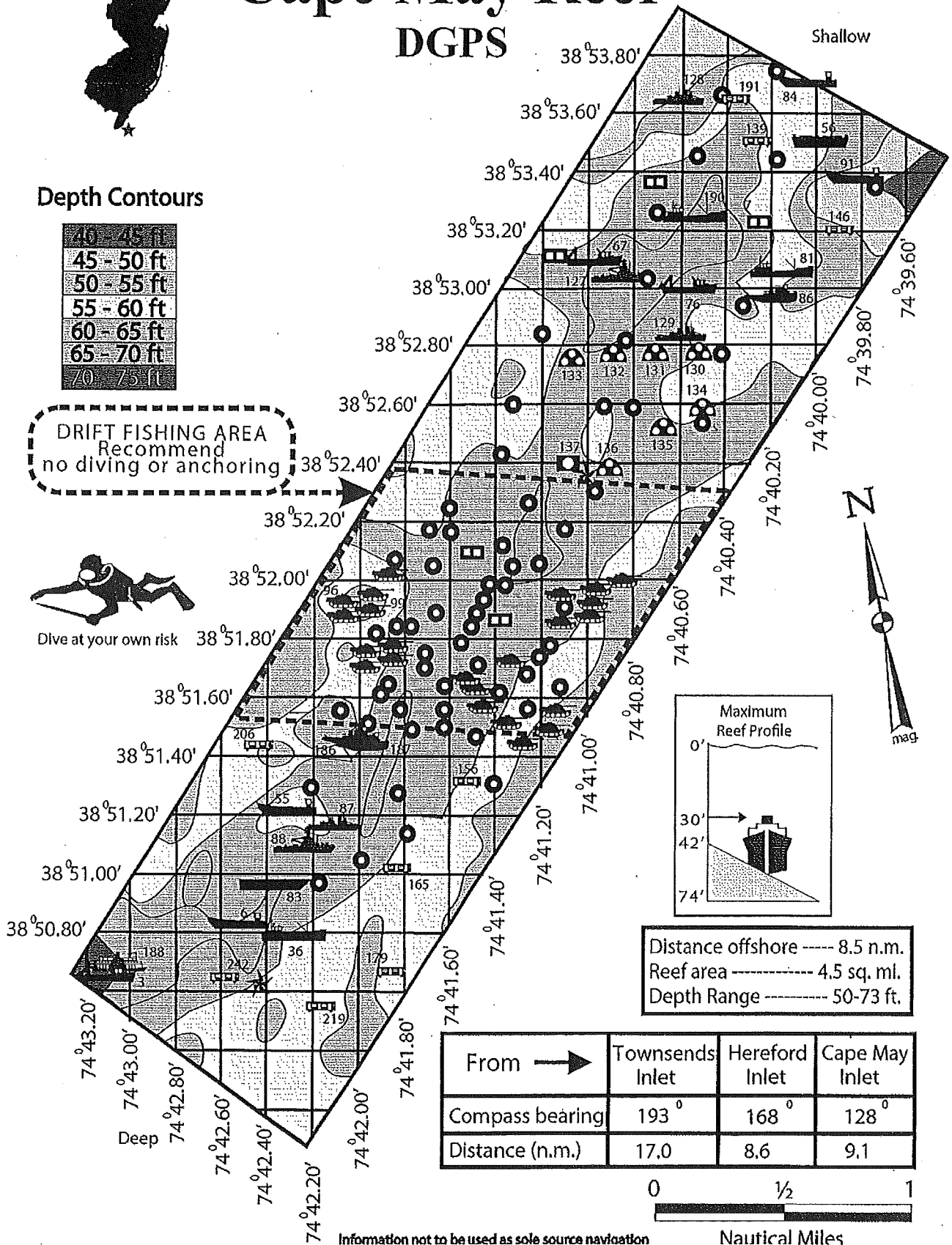
Depth Contours

40 - 45 ft
45 - 50 ft
50 - 55 ft
55 - 60 ft
60 - 65 ft
65 - 70 ft
70 - 75 ft

DRIFT FISHING AREA
Recommend
no diving or anchoring

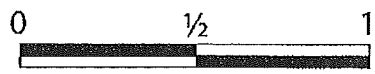


Dive at your own risk



Distance offshore ----- 8.5 n.m.
Reef area ----- 4.5 sq. ml.
Depth Range ----- 50-73 ft.

From →	Townsend's Inlet	Hereford Inlet	Cape May Inlet
Compass bearing	193°	168°	128°
Distance (n.m.)	17.0	8.6	9.1



Information not to be used as sole source navigation

Nautical Miles

Moore, Christopher

From: Verena Ohms <v.ohms@pelagic-ac.org>
Sent: Monday, January 04, 2016 9:21 AM
To: Moore, Christopher
Cc: mballesteros@cetmar.org; 'Rosa Chapela'
Subject: Twinning opportunity

Dear Dr. Moore,

I am writing to you on behalf of the Pelagic Advisory Council and the EU research project "MareFrame" (<http://mareframe-fp7.org/>).

The Pelagic Advisory Council is an EU stakeholder-led organization which provides advice on the management of pelagic fisheries to the EU Commission, relevant Member States and the EU Parliament. One of our main focusses is the development of multiannual management plans for the pelagic stocks in our remit, including stocks such as Northeast Atlantic mackerel, North Sea herring and blue whiting in the Northeast Atlantic. All our management plans are developed in close cooperation with fisheries scientists, but so far have been based on single-species considerations only.

However, we are aiming to move towards a multispecies and eventually an ecosystem approach to fisheries management (EAFM). We have therefore joined the EU research project MareFrame which seeks to remove barriers preventing a more widespread use of the EAFM. Within the MareFrame project we seek twinning opportunities with third party organizations that could be valuable in achieving a broader uptake of the EAFM in the EU. We are aware that the Mid Atlantic Fisheries Management Council (MAFMC) is working on similar issues and has initiated the development of an EAFM guidance document in 2011. Given the long-standing experience of the MAFMC with developing and implementing fisheries management plans as well as its work on the EAFM we would like to inquire whether there is an on-going project that we could twin, in order to learn from your experiences and share lessons learned in the US vs EU context.

Please note that our approach to the twinning does not imply any financial contribution or resource commitment by the MAFMC. We would be glad to jointly agree with you on the definition and specifics to make the most of this experience.

I am looking forward to hearing from you and answering all your questions as well as providing further information.

Sincerely,

Dr. Verena Ohms
Executive Secretary
Pelagic AC
Louis Braillelaan 80
2719 EK Zoetermeer
The Netherlands

Mobile: +31 (0)62 820 7317
Email: v.ohms@pelagic-ac.org

www.pelagic-ac.org



The information in this message (including any information contained in attachments hereto) is intended only for use of the addressee. This message contains confidential or privileged information. If you receive this message unintentionally, please notify the sender immediately and then delete this message. The sender is in no way liable for any errors or omissions in the content of this e-mail message.



VACANCY ANNOUNCEMENT

The Mid-Atlantic Fishery Management Council (Council) is seeking candidates for the position of Fishery Scientist. The Council manages fishery resources in the U.S. Exclusive Economic Zone off the coast of the Mid-Atlantic region (New York through North Carolina). Additional information about the Council is available at www.mafmc.org.

Position:	Fishery Scientist
Opening Date:	January 20, 2016
Closing Date:	February 26, 2016
Location:	Dover, Delaware
Position Overview:	The Fishery Scientist is responsible for providing scientific expertise to support the management of marine fisheries in the Mid-Atlantic region. Working closely with the Executive Director and other members of the Council staff, the Fishery Scientist's duties include summarizing and analyzing data and relevant information pertaining to Mid-Atlantic fisheries, assisting in the analysis of proposed fishery management measures, and developing solutions to complex marine resource challenges such as climate change and ecosystem issues. This position also involves coordinating and participating in a wide range of programs and projects in support of the Council's science and management goals.
Duties:	<p>Specific responsibilities of this position include, but are not limited to:</p> <ul style="list-style-type: none"> • Conducting stock assessments and management strategy evaluations; • Assisting in the development of documents that comply with the provisions of applicable federal statutes; • Serving as the Council's liaison to the Northeast Fisheries Science Center; • Supporting the Council's Scientific and Statistical Committee and NEFSC Trawl Advisory Panel; • Serving as the staff lead for the Council's Collaborative Research Program; • Leading working groups composed of staff from the National Marine Fishery Service (NMFS), Atlantic States Marine Fisheries Commission, and state agencies to develop management alternatives and analyses; • Acting as a spokesperson for the staff in discussions with the Council or the Council's committees on matters relating to proposed fishery management regulations; • Attending public hearings, committee meetings, and other meetings as required; and • Other duties as assigned.
Salary and Benefits:	The starting salary range for this position is \$62,500 - \$81,000, depending on prior experience. Benefits include health insurance, life insurance, annual (vacation) and sick leave, and a 401K retirement program.

Vacancy Announcement – Fishery Scientist

<p>Qualifications:</p>	<ul style="list-style-type: none"> ▪ Master’s degree or equivalent in fishery science, marine biology, natural resource economics, or closely related discipline. ▪ Demonstrated ability in conducting stock assessments and fisheries management analyses, including management strategy evaluations ▪ Proficiency in the use of relevant software packages and models. ▪ Ability to effectively communicate technical information to non-technical audiences, including a strong ability to write clearly and succinctly. ▪ Knowledge of U.S. fishery management institutions and relevant laws, including MSA, NEPA, Endangered Species Act, and others. ▪ Experience in preparation of NEPA analyses and documents.
<p>To Apply:</p>	<p>Qualified applicants should submit the following items:</p> <ol style="list-style-type: none"> 1. A resume detailing your education, relevant experience, training, skills, and other information to support your qualification for the position. 2. A written narrative assessment that provides clear, concise descriptions of your qualifications relative to the following areas: <ul style="list-style-type: none"> ▪ data analysis and model building to analyze impacts of proposed management measures on marine fisheries and assess status of fish stocks; ▪ working on a team to address and help coordinate activities and programs related to the conservation and management of natural resources; and ▪ communicating technical data and information to non-technical audiences, both verbally and in writing. <p><i>References and education transcripts are not needed at this time but may be requested prior to hiring.</i></p> <p>Please submit these materials to Dr. Christopher Moore, Executive Director, by email (cmoore@mafmc.org) or U.S. Mail: Mid-Atlantic Fishery Management Council, Attn: Chris Moore, 800 N. State Street, Suite 201, Dover, DE 19901. Applications must be received or postmarked by Friday, February 26, 2016.</p>
<p>Terms of Employment:</p>	<p>Upon hiring, the selected applicant will enter an initial probationary period of one year during which his or her performance will be evaluated by the Executive Director. Unsatisfactory performance, and/or failure to demonstrate the skills required for this position, may result in termination of employment at the end of the probationary period.</p>
<p>Contact:</p>	<p>Questions about the position should be directed to Dr. Christopher Moore at (302) 526-5255.</p>

Draft

COUNCIL COORDINATION COMMITTEE MEETING
Holiday Inn Capitol – Washington, D.C. 20024
February 24-25, 2016

Agenda
Wednesday, February 24, 2016

<u>Time</u>	<u>Discussion Item</u>	<u>Presenter(s)</u>
8:30 – 9:00	Welcome/Introductions	Carlos Farchette Eileen Sobeck
9:00 – 9:20	NMFS Update	Eileen Sobeck
9:20 – 10:20	Management and Budget update ● FY2016/2017: Update	Paul Doremus
10:20 – 10:35	Break	
10:35 – 11:20	Overview of S/K FY15-16 Grant Process	Paul Doremus
11:20 – 11:50	Legislative Outlook	CCC – Dave Whaley NOAA OLIA
11:50 – 1:20	Lunch on your own	
1:20 – 2:05	Electronic Monitoring Update	George LaPointe
2:05 – 3:05	Observer Program and Electronic Monitoring Funding Update	Jane DiCosimo
3:05 – 3:20	Break	
3:20 – 4:20	Bycatch Strategy Update	Samuel Rauch
4:20 – 5:00	NMFS and NOAA General Counsel Review of Council Conflict of Interest Regulations	Adam Issenberg
5:00	Adjourn for the day	

Draft

Agenda
Thursday, February 25, 2016

<u>Time</u>	<u>Discussion Item</u>	<u>Presenter(s)</u>
9:00 – 10:15	Catch Share Program Review Guidance	Alan Risenhoover
10:15 – 10:30	Break	
10:30 – 11:30	NMFS Science Update <ul style="list-style-type: none">• Climate Science Strategy• EBFM• Stock Assessment Prioritization	Richard Merrick
11:30 – 12:00	AFS Presentation <ul style="list-style-type: none">• Fisheries Policy Recommendations	Tom Bigford
12:00 – 1:15	Lunch	
1:15 – 1:45	SAFMC Citizen Science Workshop	Gregg Waugh
1:45 – 2:15	Current status of CCC workgroups and subcommittees	Carlos Farchette
2:15 – 3:15	Other business, wrap up and next meeting	Carlos Farchette
3:15	Adjourn meeting	

Northeast Trawl Advisory Panel meeting summary 12/16/2015 9 am – 5 pm

Radisson Hotel Providence Airport, Warwick, RI

Members attending:

Rick Robins (Co-chair)

Terry Stockwell (Co-chair)

Sally Sherman

Jim Gartland

Robert Ruhle

Pingguo He

Mike Pol

Michael Martin

Jon Knight

Chris Roebuck

David Goethel

Frank Mirarchi

Steve Eayrs

Terry Alexander

Jeff Kaelin

Members absent:

Jeff Eustler

Hank Lackner

Tim Miller

Introductions

- Rick Robins introduction: Very clear gulf between perceptions of fishing community and the management of fisheries. Very clear we have to attack this head on. Surveys are an important part of this distrust and this is an opportunity to move forward. Grateful that we have support of Dr. Karp and great panel representing fishing community, scientists, gear manufacturers and academic community. Hope that we can get better understanding of inputs to the assessments.
- Terry Stockwell introduction: Many thanks for presentations at last meeting. Sustainable fisheries in Silver Spring is very supportive.

Review of agenda

Review of revisions to charter

- Added explicit improvement to survey to mission statement.
- Added more accurate descriptions of other surveys.
- Ensure survey estimates are robust to changes in environmental conditions including climate change.
- Usage of Study Fleet data will have separate review by NEFSC – may be later engagement for NTAP on this issue. Opinion expressed that Study Fleet data can help groundtruth survey efforts and help explain differences between survey results and fisherman observations.
- Questions/Comments
 - What does “robust to changes in spatial and temporal changes in environmental conditions” mean. As environmental conditions change, the desire is for the survey to be able to accurately estimate populations and track changes in populations size.
 - Quorum requirements relaxed but still requires representation from both councils and the NEFSC and ensure that panel work could continue to be get done.

NEAMAP Mid-Atlantic Southern New England survey – Jim Gartland

- History of Survey
 - NEAMAP program not just three surveys, but an overall program.
 - NEAMAP late 1990’s ASMFC organized to coordinate among existing surveys, identified areas where additional coverage needed, try to accumulate data in single user-accessible format/place to improve usage of data.
 - Quickly identified need for increased effort for nearshore Mid-Atlantic Bite and Southern New England waters.
 - No money available at first when Albatross was still being used.
 - When Bigelow came on line, need for increased sampling became essential due to inability of Bigelow to sample in shallow water.
 - 2006 pilot survey
 - 2007-present full survey (8 ½ year time series)
 - 2008 full peer-review
- Survey design
 - Cape Hatteras – Martha’s Vineyard
 - Montauk-Cape Hatteras - inside 60 ft contour (abuts NEFSC survey area)
 - Rhode Island/Block Island Sound depths extend to 120 ft., overlap with NEFSC surveys
 - Spring survey – south to north (3rd week of April to end of May)
 - Fall survey - north to south (3rd week of September until end of October)
 - 150 sites/trip (300/year) = 1 tow/30 nm²
 - Stratified random survey design
 - 17 regions (subdivided by depth) = good coverage
 - 1.5x1.5 nm grid box
 - 20 minute tows at 3 knots with optimal gear configuration
 - Basically same net as NEFSC surveys
 - Differences include:

- 3" cookie
 - Thyboron doors
 - Didn't add 3rd top and bottom bellies
 - Different Floats
 - Acceptable tows
 - Wing Spread 12.3-14.7
 - Headline Height 4.7-5.8
 - Collaboration with Darana R and Jimmy and Bobby Ruhle over entire survey has been integral to success
 - GPS, vessel speed, net mensuration (door spread, wing spread, headline height), current speed, wire out (measured before trip and after hang), bottom contact used on 34 tows/trip (no indication of any problems), water depth, air temperature, wind speed direction, barometric pressure, sea state, PAR (light levels), (Hydrolab unit - depth, water temperature, dissolved oxygen, salinity)
 - Everything sorted to species and size class
 - Aggregate weight, individual lengths
 - Subsample individual lengths, weight, sex, maturity, hard parts for ageing, stomach samples (81,000 to date)
 - Additional data also collected for commercially important invertebrates (longfin squid, horseshoe crab, American lobster, and blue crab)
- Outreach
 - Dock side and at sea demonstrations (New Bedford, Point Judith, Montauk, Cape May, Hampton). Between 250-300 guests so far.
- Use of data in assessments
 - Refer to tables in presentation for full details.
 - In general, the farther north, less data are used in assessments.
 - Data also used extensively by states.
- Trawl video presentation
 - Not usual conditions – video presented is to highlight potential issues in gear performance.
 - Technology changes have recently allowed video such as this to be collected – weren't available when survey started.
 - Sweep immediately below fishing line – substantial gap between sweep and footrope – allows fish to escape.
 - Sweep has tendency to bounce or fly for brief period when transitioning from soft to hard bottom.
 - "Any survey that doesn't have problems isn't looking for them."
 - Changes could be made to address these problems as experimental evidence outside of survey has shown. Relatively small changes in sweep (4 links) appeared to make big difference in efficiency.
 - Some side-by-side work shows substantial difference between industry boat and survey trawl for horseshoe crab.
 - Another issue is escapement through the mesh of smaller fish – can't be addressed with gear modification.

- Appear to be density-dependent and length-dependent catchability differences – much harder calibration problem if changes are made to gear.
- Questions/Comments
 - Question about 20 minute tow length – is this sufficient time to catch strong-swimming and larger fish? May be a problem for bluefish, but concerns about increase in volume for other species and effects on scientific data collection. Primary reason for this length was to be the same as the NEFSC survey. More research on optimal tow length would be useful. Cod and pollock in Gulf of Maine could definitely be problematic as well. SMAST study on tow duration showed differences in catch rates for some species. Maybe considered different survey techniques where longer tow times are indicated.
 - Fixed gear question – species of interest populations are doing worse, so less fixed gear than earlier. Also captains have personal relationships with fishermen and can ask that gear be moved or find ways to work around fixed gear.
 - Cameras may be better for illuminating problem than for situations where data are required. Turning video into data is time-consuming and expensive. Light is required for deeper depths
 - There is a tradeoff between value of time series and changes to survey gear that increase efficiency of survey gear. This will be a central question for this panel going forward.

State of Massachusetts Bottom Trawl Survey – Mike Pol

- History of Survey
 - Gloria Michelle – NMFS owned vessel, staffed by NOAA Corps officers (first 4 years Francis Elizabeth – commercial vessel).
 - Mission of survey priority is designed to assess finfish and invertebrates within state territorial water – ancillary use for stock assessments.
 - Survey conducted the same way with very few changes since 1978.
- Survey Design
 - See survey map in presentation for survey area.
 - Some areas with hard bottom are not available to survey.
 - Stratified random survey design
 - 23 strata defined by depth (20 - 210 nm²)
 - 2-11 stations per stratum (total 103 stations)
 - 1 station/19 nm²
 - “Fall” survey in September
 - Some overlap with NEFSC survey.
 - 5 geographic zones, 6 depths (0-30, 31-60, 61-90, 91-120, 121-180, 181+)
 - Tows during daytime only.
 - Fixed gear issues are important.
 - 20 minutes tow duration target
 - Tow speed 2.5 knots
 - To be acceptable, tow must be at least 13 minutes. Catch expanded to 20 minute standard

- No net mensuration equipment (fiscal issues plus don't want to inadvertently introduce changes to survey)
 - Follow NEFSC biological sampling protocols.
 - Uses FSCS 1.6
 - Nylon net, wooden doors (get details from presentation)
 - Trends for several species were discussed – see presentation.
 - Data stored in NEFSC database – analysts can access data directly.
- Other State of Massachusetts surveys
 - YOY winter flounder Seine Survey since 1975
 - Ventless Trap Survey since 2005 (lobster recruitment, tautog, black sea bass in future)
 - Eel trap and river herring count
 - Cod IBS survey coming back on line next year
- Ways to improve trawl survey
 - Increasing sample size
 - Fixed gear problems (outreach limited effectiveness so far)
 - Sidescan sonar gear performance research planned – would allow gear performance to be assessed.
 - Plan to use Gloria Michelle as long as possible.
 - If a change to the survey proves absolutely necessary, is it worth it to calibrate? This should be considered in a regional context – don't want to break two contiguous surveys simultaneously.
- Question/Comments
 - Has fraction of stations affected by fixed gear changed over time? No.
 - Concern expressed that fast swimming and large fish are not being represented. Could this be due to tow speed and duration?
 - There was some discussion over the proposed replacement of the deck gear aboard the Gloria Michelle (specifically the winches) and the status of these proposed improvements. Vessel also used for annual shrimp survey. There may be cheaper private options that may provide bigger bang for the buck.
 - Has any consideration been given to adding gear mensuration or video? If survey were to be broken, then yes this would be considered. The survey has been very conservative in making changes and the weight and drag of a net mensuration system is a serious concern. There is also some question if fish perceive the frequencies involved and if this affects their behavior. This is a cost-benefit analysis that is done with very little information available as to the “cost”. There was concern expressed that by not utilizing net mensuration technology there are many potential gear issues that are not known and these could be serious problems. The tradeoff between the value of the time series and the best available information came into focus again.
 - Should surveys have a defined lifespan that would allow for systematic and well-planned technological changes over time?

- History of Survey
 - Developed jointly by states of ME and NH and TR Fish
 - Fill information gap for survey indices
 - Long-term indices
 - Establish cooperative research with fishing industry
 - Started with help from Cooperative Research Program
 - Robert Michael out of Portland currently used exclusively (Tera Lynn (another almost identical vessel) used early on as well)

- Survey Design
 - 5 geographic regions/4 depth strata = 20 strata
 - Outer survey boundary roughly based on 12 m limit
 - Survey began in 2000
 - Depth strata 3-20 fm, 21-35 fm, 36-55 fm, 55+ fm (some quite deep)
 - Originally both fixed and random stratified. Fixed stations recently dropped in favor of additional random stations
 - 1 nm² grid = stations
 - 2x/year – five weeks (spring - 1st week of May – 1st week of June; end of September – end of October).
 - 20 minutes at 2.5 knots
 - Tows in straight line aligned with current when possible.
 - 4-6 tows/day
 - Tows performed during daylight only.
 - See presentation for gear details.
 - Survey “somewhat technologically challenged” – mix of digital and pencil/paper.
 - Net mensuration (door spread, wing spread, headline height) – addition not used to change setting/hauling protocols per peer review.
 - Use bottom contact sensor
 - 29 m door spread, 10.5 m net spread, 3.5 vertical opening
 - Seabird CTD cast after each tow.
 - Catch handling similar to other surveys with intense focus on processing lobsters first.
 - Structures collected for ageing – different species sets in spring/fall.

- Fixed Gear/Lobster Issues
 - Lots of fixed gear and untrawlable bottom. Untrawlable area and big depth change areas are not included in effort allocation.
 - Lobster fishermen asked to move gear from proposed tow by by ¼ nm. Request sent by mail.
 - Lots of outreach to move gear, but also use Maine Marine patrol to move gear when necessary.
 - Moved a lot of gear at beginning of survey – lots of concern by fishermen as to legality.
 - Current policy allows up to 25 pieces of gear to be moved maximum. This is a time issue. If > 25 pieces, nearby alternates are chosen.

- Flume tank used in design stages for optimal configuration effect of catching lobster traps – one or two no effect.
- Video work demonstrated that few lobsters are injured by doors.
- Considering sub-sampling lobsters in future due to increased numbers in recent years.
- Use in Stock Assessments
 - Winter flounder, yellowtail, lobster data used in models.
 - Other species data used for sensitivity runs etc.
- Questions/Comments
 - Outreach efforts are extensive. Captain of vessel has personal relationships with many others in fishery – helps considerably in industry cooperation.
 - Always tow with the current to maintain consistent geometry and bottom contact.
 - Fixed gear problems worse in fall – right in middle of lobster season. More cooperation in spring. Has always been a problem, but doesn't seem to have gotten worse over time and data over time are thought to be comparable.

Overview of other state surveys not previously discussed – Jim Gartland

- 6 surveys
- Rhode Island Coastal Trawl Survey
 - Vessel John H. Chaffee – 50 ft Wesmac
 - Rhode Island/Block Island Sound seasonally (spring, fall) – began in 1979 – 44 sites
 - Narragansett Bay monthly – current time series began 1990 -13 sites most months, 26 during Sound surveys
 - Inside 3 miles
 - 2 bridle 2 seam trawl
 - 20 minutes tow duration
- Connecticut - Long Island Sound Trawl Survey
 - R/V John Dempsey used for entire time series.
 - Started 1984 – both New York and Connecticut portions.
 - Spring and fall 40 sites 5 times per year (April, May, June, September, October).
 - Survey stratified according to region and bottom type.
 - 30 minute tow duration
- New Jersey – Ocean Trawl Survey
 - Survey done on contracted commercial vessels at beginning.
 - For many years survey done on R/V Seawolf - 80 stern trawler owned by SUNY
 - Year-round survey inside 28 meter contour 5x per year (1x in winter and spring, 2x in summer and fall) – 40 sites per cruise.
 - 2 seam/2 bridles trawl
 - Stratified random survey design – strata based on region and depth
 - 20 minute tow duration
- Delaware
 - Two separate surveys for adults and juveniles
 - Adult survey

- Seasonal – Delaware portion of Delaware Bay monthly March – December
 - 9 fixed sites – fixed sites chosen due to obstacles – randomly chosen would result in a lot of lost gear due to obstacles
 - Juvenile survey – began in 1980 – 40 samples per cruise
 - Samples further up rivers
 - Monthly April - October
- Virginia
 - Two surveys administered by VIMS
 - Juvenile Fish and Blue Crab survey
 - 43 ft. Millenium just transitioned from 29 ft. boat – full year of calibration just completed.
 - Chesapeake Bay and 3 major rivers started in 1955
 - Every month – 100 sites
 - Stratified random in bay, combination of random and fixed sites in rivers.
 - ¼ size of NEAMAP MA/SNE trawl
 - 5 minute tows
 - CHESMMAP survey
 - 65 ft aluminum boat
 - Currently main stem of Chesapeake Bay only
 - Began in 2002
 - March, May, July, September, November
 - Later juvenile/adult
 - 80 sites per cruise
 - Stratified random survey design, strata based on latitude, depth.
 - 4 seam/2 bridle – essentially modified southern-style shrimp net.
 - Intend to transition to ½ size NEAMAP MA/SNE trawl.
 - 20 minutes tow duration
 - Questions/Comments
 - Every state survey voiced that they do not know how data are being used. The consequence of no feedback is that data may be excluded from assessments for reasons that could be improved for future surveys. There needs to be better communication between surveys and stock assessment authors.
 - Suggestion to use NEAMAP structure as clearinghouse for feedback to surveys from stock assessment authors to improve communication.
 - Strong recommendation to NEAMAP board to send state representatives to all data workshops so they can see where data are being used and understand why data aren't being used. Sometimes even this level of interaction is insufficient – need to advocate for data use at every step.
 - Suggestion that a centralized data storage location might be a good solution to increase data sharing.
 - Some concern that data can be used inappropriately by naïve users
 - Is net mensuration used on these surveys? Net mensuration consistently used only on CHESMMAP survey, New Jersey and Rhode Island surveys.

- Towing speeds not included in presentation – Jim will check with survey leads will include this information. Some surveys use RPM instead of speed.
- Comment that data can only be included at benchmark and not at updates – this is a problem for species with infrequent benchmarks because lots of good data are excluded.

Study Fleet Data – John Hoey

- Goal is fine scale spatial data from commercial industry partners.
- Previous reporting requirements resulted in inaccurate location information.
- GPS polling every 30 seconds.
- Star-Oddy sensor - temperature/depths every 30 seconds.
- These data are combined to better define duration and effort.
- Currently 37 participating vessels in Study Fleet.
- New wireless TD probe – lithium batteries and frequent calibration pose logistical problems.
- Now fishermen can see their own temperature data.
- Working more closely with Oceanography and Habitat portions of NEFSC.
- Working on more rapid movement of data after collection.
- 33 or 34 of vessels are trawlers.
- Working with other partners, more than 40 additional boats have been added.
- 2014 – covered ~65 percent of trawl effort, now in the high 80's.
- Very good correspondence between captain's estimates of catch and observer estimates.
 - ~85% of estimates are less than 10-12 lbs different
- Seasonal differences in catch patterns can be used to study the effects of regulations
- 37,000 trawl tows.
- Data binned in 1 min lat/long and 1 hour and can be fed into oceanographic models in real time. Look at thermal patterns and species preferences and how this relates to survey catches. Has already had impact on butterflyfish assessments.
- Data can be used to avoid bycatch as well and estimated discards based on finer spatial scale.
- Biological sampling has been used to fill in the gaps between fall and spring surveys and used in benchmark assessments.
- Use Bigelow survey data to estimate preferred thermal habitat.
- Use commercial vessel to sample in real-time habitat to verify models.
- Efficiency of sampling in thermal habitat can be used to adjust assessments.
- Seasonal and regional biases in sampling can be detected.
- Temp/depth statistics for every tow is given to each vessel along with quality measures.
- 96% of all EVTR records currently provided through Study Fleet program.
- Discussion currently around refining estimates of discards and estimates of abundance through use of these data.
- Concentration is on better ways to move large data set off boat automatically and quick data turn around for participants and working out bugs in current software. Sending data via Boatracs not feasible due to expense.
- Working with NEFSC leadership, GARFO, and Observer program on ways to improve data and figure out best way to utilize data in future.

- Questions
 - Dynamic data allow other data to be collected: state requirements, different units etc.
 - Can river herring bycatch problem be addressed using these data without overwhelming Boatracs? 18 characters/hour can be sent via Boatracs to provide sufficient info to update oceanographic model. Rest of data downloaded at end of trip. This can provide something like 5 day forecasts for separation between river and Atlantic herring. Currently testing this model by sampling the predictive gradients.
 - Interactive exploratory model development sessions using collaboration between modelers and fishermen.
 - What is the cost of the program? 1.3 – 1.4 million, about an order of magnitude less than NEFOP
 - Center is working on ways to improve on traditional single-species assessments and these data can help provide a basis for thinking about ways to do this. The data in fact complement observer coverage well.

Discussion on increasing coordination between state/federal surveys and assessments

- Need to close the feedback loop of data that goes into assessments as discussed before.
- Increased use of Study Fleet data to help inform assessments. This would enhance the buy-in of the fishing community.
- Need to recommend a policy to deal with fixed gear consistent across all surveys.
- Ideal length of survey tows – is a consistent time necessary – dome-shaped selectivity issues. (Stokesbury footage of cod swimming in and out of trawl - maybe we can get for future meeting?)
- Probably can't standardize trawls across surveys, but need to ensure consistency within surveys over time. Panel should explore this issue in more detail.
- Need ability to estimate catchability for individual surveys.
- How do we deal with surveys and changes in technology over time?
- Surveys typically start on calendar dates, but fish probably perceive a thermal date. How can we adjust surveys to account for this?
- Light level is also an important variable for many species. In multi-species surveys, trying to optimize for a variety of species is extraordinarily difficult.
- NEAMAP Operations Committee can't force any surveys to change, but can make forceful recommendations. This could help address consistency issues over time.
- Survey leads seem generally more open to change than perhaps in the past.
- Have stock assessment authors looked at Study Fleet when considering the data for their assessments? Yes, there have been some examples of this. Data needs and gaps can also help Study Fleet to plan what vessels to equip etc.
- CPUE indices from commercial vessels should be encouraged for use in stock assessments.
- Example of cod moving deeper in GOM. Study Fleet data were used to show cod moving deeper. How do surveys respond? Can restratification deal with fish moving deeper in response to water temperature?
- Need to involve stock assessment earlier in both survey and cooperative research efforts. Part of the Strategic Planning process at the NEFSC is designed to address this.

- Data integration and standardization is another area where we could improve. Centralized data efforts should be considered.
- Need more survey effort during winter because a lot is going on for a number of species when they move to deeper water. It was a mistake to drop winter survey.
- Surveys are a small part of the assessment process. Goal for survey is to be as consistent as possible. Catchability changes considerably with depth, particularly for flatfish. As fish move deeper, these changes in catchability with depth affect the way that changes in population are perceived.
- Fishery dependent survey could provide better changes in seasonal distribution and complement or supplement fishery-independent survey information.
- Stock assessment documents often include a discussion of the data sources used and what surveys were included, but often not.

Fish Tank Workshop Wrapup – Alexa Dayton

- Fish Tank Port Series
- Purpose was to listen to industry concerns and drive the dialog forward to productive outcomes and enable action.
- NEFSC was a partner and was very open to this process.
- Desire to increase dialog around stock assessment and allow fishermen's observations and concerns to be heard in a neutral forum.
- Hopefully will lead to cooperative research efforts.
- Started over a year ago, seven port meetings (five focused on commercial fishing, 2 on recreational).
- Good level and variety of participation.
- One resounding area of concern – the Bigelow. Disconnect between what industry is seeing and what the science is saying.
- Other topics of concern included fishery-dependent data, environmental factors, stock structure, and real-time data management.
- Trawl survey – improve capacity and accuracy. How can we complement or supplement without corrupting time series.
- New technologies should be used when possible.
- Need to examine finer scale trends both spatially and temporally.
- Environmental conditions should be used to determine survey start dates rather than calendar dates.
- Need more info on new species that are showing up – e.g. black sea bass.
- Trust is broken.
- Consider year round 20 minute tows on industry vessels as in Norway.
- RSA programs for inshore observations.
- Can we supplement survey with industry collected data?
- Can we do a better job linking datasets?
- Regular meetings between industry and scientists.
- Are management units aligned with biological stock structure.
- Desire for real-time electronic data collection, more frequent assessment updates.

- Better and more timely data dissemination.
- Better accounting for recreational removals and better quality information.
- Collaborative research projects – mostly recreational fishing related.
- Fishery dependent data and CPUE
- Project definition – pre-proposals
 - Trawl-related
 - Fishermen aboard the Bigelow – increases trust.
 - Underwater camera to observe gear performance.
 - Improve confidence in the survey.
 - Minimal cost.
 - Video or Trawl
 - Increase spatial/temporal coverage.
 - Vessel(s) calibrated to Bigelow.
 - Improve accuracy and precision.
 - Scoping process – might be costly.
- Moving forward - \$30,000 currently available.
- Goal is to fund all 6 projects.
- Questions/Comments
 - Age-length keys effect on assessments.
 - First thing that's needed is to fix the Bigelow net or survey which many believe to be broken.
 - If fishermen can't make recommendations or changes, then this is a waste of time
 - If stock assessments magically increased by a factor of 10, we wouldn't all be sitting here. This is driven by a sense of crises. Stock numbers are so low that we can't separate the signal from the noise. What is the inherent noise in a stock assessment?
 - Did the group discuss putting a team of fishermen aboard the vessel simultaneously? No opposition to this, but logistically might be difficult
 - Fishing and surveying are different activities and these differences might drive fishermen aboard the Bigelow crazy.
 - A big problem is scaling Bigelow to Albatross units during assessment. NEAMAP is not combined with Bigelow survey, but is considered a different survey. Inshore sector is not being adequately surveyed. What is the true value of a time series or an individual survey? Are we better off starting fresh or calibrating to old survey?
 - In terms of camera work – how do we do effective camera work when external lighting required. This is a big problem because lighting changes behavior. Also need to cover all depths for both species availability and changes in catchability with depth. Currently no good solutions.
 - Video is good for identifying problems, but turning video into data is a difficult and time-consuming process.
 - We probably will always be dealing with relative abundance, so is it worthwhile to put a lot of effort into trying to get to absolute abundance?
 - We need to at least put bounds on catchability.

- No net can effectively catch all species, this is why fishermen use different gear to catch different species. Problems arise when abundances are really low, a small difference in catch results in a large percentage difference in catch.
- Video is most valuable in understanding variability in catchability and trying to minimize it.
- Value of fishermen aboard the boat may be the transparency involved with this activity. This can help increase trust.
- Transparency is useful, but doesn't fully address the problem. If recommendations are made and not implemented, this will not work out well and we would find ourselves in a situation that increases distrust. Controlling expectations is very important.
- There have been comparisons between Coonamesset Farms dredge samples and nearby Bigelow tows and for the most part the catches appear to be representative, although there appears to be a problem with Bigelow windowpane flounder catches. There would be great value in having a commercial vessel tow alongside the Bigelow to understand if there are species for which the Bigelow does not capture a representative sample. Bigelow may not overlap with gray sole in time and space.
- The Bigelow trawl is a catch-all net that doesn't catch anything particularly well, but does catch a representative sample for most species. We have measured nets and everything is perfect and built to spec. Trying to make changes to the gear, the boat or putting fishermen on the boat is a waste of time. The problem is in how the samples are interpreted through the assessment. The kind of experimental work that is being done on catch efficiency is useful to figure out what species may not be adequately sampled by the current survey and this coupled with supplemental efforts are more likely to be a better solution than trying to change the current gear or survey.
- How do distributional changes of fish affect survey results?
- There was a lot of good information presented at the last meeting and many of us learned that several of the issues raised are being addressed. A lot of fisherman aren't aware of much of this work and information and we should make it readily available to the public.
- The NEFSC is considering ways to enhance outreach to the public and commercial fishermen in particular, perhaps through regularly scheduled meetings.

Comparison between Alaska Fisheries Science Center and Northeast Fisheries Science Center trawl surveys – Michael Martin

- At the AFSC, all trawl surveys are done aboard chartered commercial fishing vessels and NOAA ships are used primarily for acoustic and ichthyoplankton surveys.
- Five surveys at the AFSC – Bering Sea shelf, Gulf of Alaska, Aleutian Islands, Bering Sea slope, northern Bering Sea
- Advantages of performing surveys on a commercial platform:
 - Generally knowledgeable and experienced captain and crew
 - More flexibility
 - Less expensive
 - More interaction with fishing industry
- Disadvantages:

- Standardization issues (multiple vessels that change over time)
- Setup and breakdown time, effort and expense (everything must be shipped)
- Less data available
- Government contracting
- Potential for conflict of interest
- Long-term charters allowed captain and crew to better understand how surveys work and the differences between fishing and surveying. This also forces those involved in the survey to constantly think about how things are done on the survey and ways of perhaps doing things better.
- See tables for details on survey differences
- Questions/Comments
 - With no bottom contact sensor, how does the Bigelow detect when the net leaves bottom? With the trawley we can detect when the net leaves the bottom more than 5 cm in theory. This is probably about the same resolution as the bottom contact sensors used in Alaska. We can detect when the net truly leaves the bottom, but fishing light on the bottom is very difficult to detect with any method aside from video.
 - Were the vessels calibrated when they changed to another vessel? Early on, a fishing power correction was calculated, but this was not reliable. Surveys recognize the value of calibration, but the number of vessels and rate of change made cost prohibitive. The strategy to mitigate non-calibration is to have longer-term contracts and measure as many variables as possible. Winches are probably the biggest difference between vessels.
 - Have there been efforts to understand the efficiencies of the gears used? Yes, for both primary nets had extensive gear efficiency studies.
 - Aren't acoustic data being routinely collected from fishing vessels? Yes, there is a program to collect calibrated single beam acoustics from many vessels.
 - It appears you have 11 people doing the work of 38 on the Bigelow, correct? Not really because the Bigelow operates 24 hours per day and is able to do more tows per day and collect more data.
 - Can we suggest that the Bigelow do oceanographic work only and have the survey done on industry platforms? In the short term probably not, but we could perhaps think about this transition for the long term. The money from the Bigelow cannot currently be reallocated to the NEFSC to do industry-based surveys.

Fixed gear interaction discussion

- See table for interaction by year and area
- Take home message is the NEFSC trawl surveys encounter fixed gear frequently, particularly in the Gulf of Maine, but they generally don't affect what is caught and very few tows are considered non-representative due to interaction with fixed gear.
- The biggest issue is that it prevents us from sampling in many areas and the Bigelow spends a lot of time looking for places to tow, especially in the Gulf of Maine. The survey has not historically collected data on when stations are moved due to the presence of fixed gear, but this will change beginning in the spring survey

- Assume that most of the fixed gear encountered is in shallower strata. There is concern that not only does the Bigelow not cover the shallowest strata any more, but is also unable to adequately sample shallower strata due to fixed gear interaction. The effect is really to change where in the strata samples are taken from, all strata are sampled as planned. There is a relationship between presence of gear and habitat, so this is worrisome.
- On Albatross in some areas, there were so few places to tow in some strata, that we always went back to the same tow year after year.

Priority items for next meeting

- Just completed work aboard Karen Elizabeth comparing chain and rockhopper sweeps in a twin trawl configuration. We didn't have any input from stock assessment as to relative species importance. Assumed windowpane and yellowtail were the most pressing issues and targeted these species.
- There are 15 days available for research as the discretion of this AP. It would be helpful if we could decide as soon as possible how to use these days so that this can be scheduled and the permitting process begun. We will need input from stock assessment so that we can ensure that we can focus on research that will definitely influence the stock assessment and we can use the time most efficiently.
- Perhaps an interim meeting in February would allow us to gather information from stock assessment that would allow necessary information.
- RFP to be released in a couple of weeks that is related to the topics here that could augment the money available.
- Identify complementary or supplementary surveys that could best help stock assessment.
- Major priority of this panel should be the establishment of a separate industry-based survey and this should be started as soon as possible.
- The Massachusetts DMF cod industry-based survey is being reinstated. Analytically the idea is to compare results from 2004-2006 to samples to be collected now and see if the results match the survey results. Discussion is currently centered around how best to do this statistically. Maybe we can take a similar approach for yellowtail using the earlier IBS yellowtail survey results.
- If focus is Georges Bank yellowtail, we have to include the Canadian side as well.
- Stratification will be a large area of discussion. Can we make some progress on alternative stratification before the next meeting? Discussed this issue with Paul Rago and he suggested that the first cut at this should be to combine strata. What is the range of alternatives that this panel would like to consider? This will help drive the analysis of alternative stratification. It is a much simpler problem to estimate the effects of combining strata than completely redrawing strata. Need to make sure that whatever stratification we come up with will be robust to changes in fish distribution over time. Perhaps first cut is to start with combining strata and see where that gets us. Then we can evaluate if we want to consider other options.