DECEMBER 2016 MEETING AGENDA

December 12-15, 2016
Royal Sonesta Harbor Court
550 Light St., Baltimore, MD 21202
Telephone 410-234-0550

Monday, December 12th

9:00 a.m. – 10:00 a.m.	**Executive Committee Meeting (CLOSED) (Tab 1)** – Council awards and process – Discussion of MAFMC/NEFMC joint management issue
10:00 a.m.	**Mackerel, Squid, Butterfish Meeting as a Committee of the Whole**
10:00 a.m. – 11:30 p.m.	**Squid Amendment (Tab 2)** – Review Committee and Advisory Panel input – Adopt alternatives for public hearing document
11:30 a.m.	**Council Convenes**
11:30 a.m. – 12:00 p.m.	**Lenfest Ecosystem Task Force Report (Tab 3)** *Lee Anderson*
12:00 p.m. – 1:00 p.m.	**Lunch**
1:00 p.m. – 3:00 p.m.	**Industry-Funded Monitoring Amendment – Final Action (Tab 4)** – Review public comments and select final preferred alternatives
3:00 p.m. – 3:30 p.m.	**Law Enforcement Report (Tab 5)**
3:30 p.m. – 5:00 p.m.	**Consideration of NJ Request for SMZ Status (Tab 6)** – Final action
5:00 p.m. – 5:30 p.m.	**BOEM New York Energy Area Presentation** *Brian Hooker - BOEM*

Tuesday, December 13th

9:00 a.m.	**Council Convenes**
9:00 a.m. – 9:15 a.m.	**Council Photo**
9:15 a.m. – 10:00 a.m.	**Monkfish Specifications (Tab 7)** – Review Committee recommendations and select final preferred alternatives
10:00 a.m. – 11:00 a.m.	**HMS Amendment (Tab 8)** *Guy DuBeck, NMFS* – Receive presentation on Dusky Shark Management Measures and consider developing Council comments

11:00 a.m. - 11:30 a.m.	**Observer Safety Program Review (Tab 9)** *Jane Dicosimo, NMFS*
11:30 a.m. – 12:00 p.m.	**National Standard 1 Guidelines (Tab 10)** *Deb Lambert, NMFS*
12:00 p.m. – 1:00 p.m.	**Lunch**
1:00 p.m.	**Meeting with the Atlantic States Marine Fisheries Commission's Summer Flounder, Scup, and Black Sea Bass Boards**
1:00 p.m. – 3:00 p.m.	**Scup Commercial Quota Framework / Addendum (Tab 11)** – Review initial analysis and Monitoring Committee and Advisory Panel comments
3:00 p.m. – 5:00 p.m.	**Summer Flounder Allocation Review Study (Tab 12)** *Rob Hicks* – Review and discuss commercial/recreational allocation model results and peer review summary
5:00 p.m. – 5:30 p.m.	**Sex-Specific Summer Flounder Assessment Model Update (Tab 13)** *Pat Sullivan- Cornell University*

Wednesday, December 14th

9:00 a.m.	**Meeting with the Atlantic States Marine Fisheries Commission's Summer Flounder, Scup, and Black Sea Bass Boards**
9:00 a.m. – 11:30 a.m.	**Summer Flounder Amendment (Tab 14)** – Update progress – Discuss amendment timeline and action plan
11:30 a.m. – 12:00 p.m.	**Effects of Ocean Acidification on Summer Flounder Reproduction and Productivity (Tab 15)** *Chris Chambers - NMFS*
12:00 p.m. – 1:00 p.m.	**Lunch**
1:00 p.m. – 3:00 p.m.	**Summer Flounder Recreational Specifications (Tab 16)** – Review Monitoring Committee and Advisory Panel recommendations – Adopt recommendations for 2017 management measures – ASMFC Addendum for summer flounder (Board action)
3:00 p.m. – 5:00 p.m.	**Scup Recreational Specifications (Tab 17)** – Review Monitoring Committee and Advisory Panel recommendations – Adopt recommendations for 2017 management measures
5:00 p.m. – 6:00 p.m.	**Black Sea Bass Recreational Specifications (Tab 18)** – Review Monitoring Committee and Advisory Panel recommendations – Discuss state-by-state recreational performance relative to regional targets – Adopt recommendations for 2017 management measures

Thursday, December 15th

9:00 a.m.	**Council Convenes**
9:00 a.m. – 10:00 a.m.	**2017 Implementation Plan (Tab 19)** – Review and adopt 2017 Implementation Plan

10:00 a.m. - 1:00 p.m. **Business Session**

Organization Reports (Tab 20)

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

Liaison Reports (Tab 21)

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

Executive Director's Report (Tab 22)

Chris Moore

Science Report

Rich Seagraves

Committee Reports

Continuing and New Business

October 2016 Council Motions

Blueline Tilefish FW
Move to have staff continue to work on the Framework for blueline tilefish recreational measures.
Nowalsky/deFur (18/1/1)
Motion carries

River Herring/Shad
Motion on Behalf of Committee:
Move to recommend that the Council not act to add RH/S as stocks in the MSB FMP and that it shall be the policy of the MAFMC to aggressively protect river herring and shad stocks by proactively using the tools provided in the recently approved EAFM Guidance Document and continuing to use the catch caps to provide strong incentives to harvesters such that they will change the "when where and how" they fish so as to reduce river herring and shad bycatch. (13/6/1)
Motion carries with the RA abstaining

Move to substitute:
Move that the Council initiate an amendment to add American Shad, Hickory Shad, Alewife and Blueback Herring as stocks in the mackerel, squid and butterfish fishery management plan.
Shiels/Michels (6/13/1)
Roll Call Vote
Motion fails

Move that the Council task the RH/S Committee, working with Council and NMFS staff to develop measurable criteria by which the Council will be better able to decide on management action once the ASMFC has completed the stock assessment update.
deFur/Bullard

Move to table
Elliott/King (10/1/0)
Motion carries

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 NOVEMBER 28, 2016)

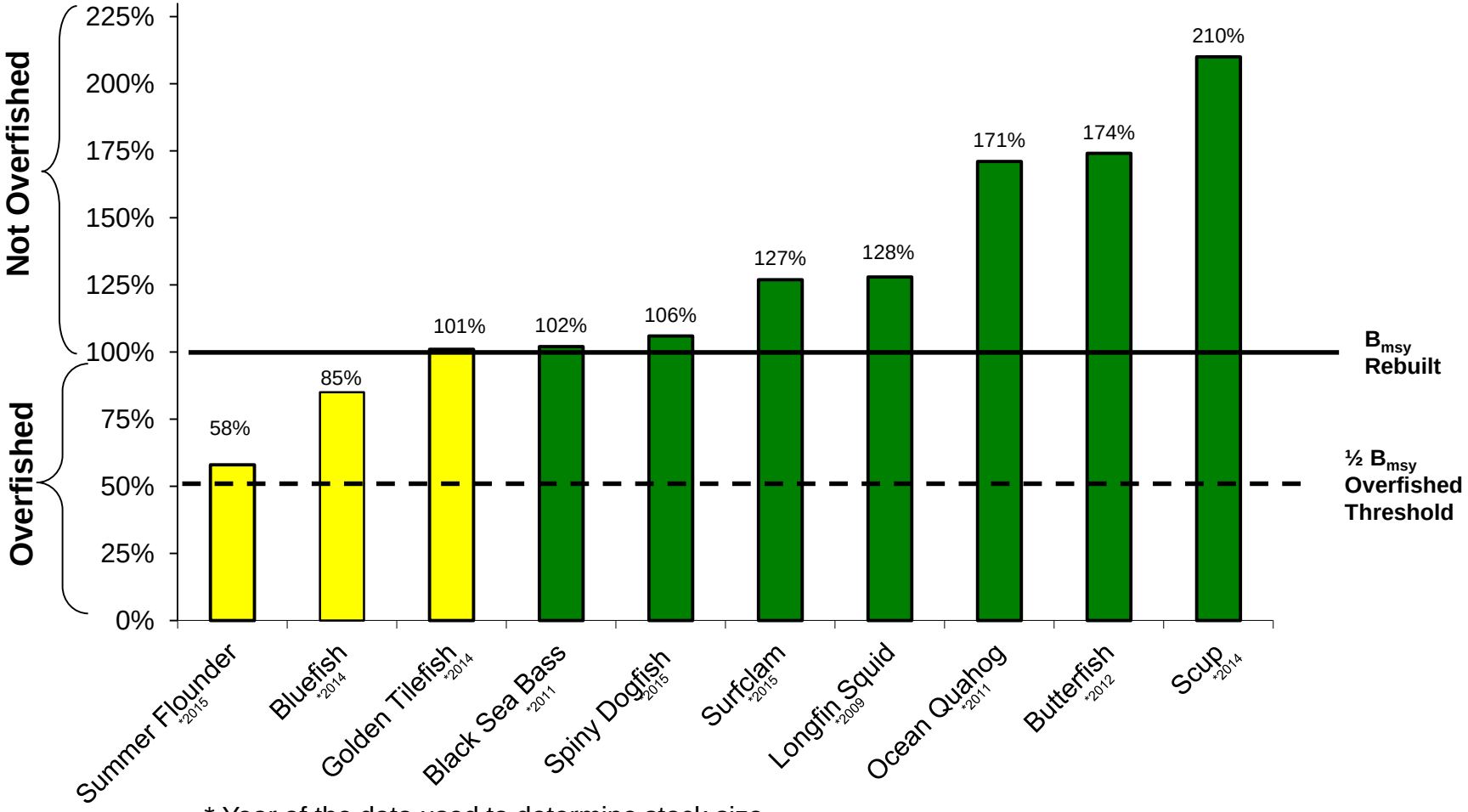
SPECIES		STATUS DETERMINATION CRITERIA		OVERFISHING	OVERFISHED	REBUILDING PROGRAM / STOCK STATUS
		Overfishing $F_{threshold}$	**Overfished ½ B_{MSY}**			
Summer Flounder		$F35\%_{MSP}$=0.31	69 million lbs	Yes	No	Most recent benchmark assessment was 2013. Most recent assessment update was 2016.
Scup		$F40\%_{MSP}$=0.22	96.23 million lbs	No	No	Most recent benchmark assessment was 2015.
Black Sea Bass		$F40\%_{MSP}$=0.44	12 million lbs	No	No	Most recent assessment update was 2012. Most recent complete benchmark assessment was 2011. 2016 benchmark assessment is currently under review.
Bluefish		$F_{35\%SPR}$=0.19	111.7 million lbs	No	No	Most recent benchmark assessment was 2015.
***Illex* Squid (short finned)**		Unknown	Unknown	Unknown	Unknown	Most recent benchmark assessment was 2006; not able to determine current exploitation rates or stock biomass.
Longfin Squid		Unknown	46.7 million lbs	Unknown	No	Most recent 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_{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 $F_{threshold}$	**Overfished ½ B_{MSY}**			
Surfclam		4.136 times 1982-2015 mean F*	$SSB_0/4$*	No	No	Most recent benchmark assessment was 2016.
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.
Golden 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_{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_{MAX}=0.2	NFMA - 1.25 kg/tow SFMA - 0.93 kg/tow (autumn trawl survey)	Unknown (based on 2016 operational assessment)	Unknown (based on 2016 operational assessment)	Operational assessment in 2016. Most recent benchmark assessment was 2010.

*Based on July 2016 SAW/SARC summary.
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 November 28, 2016)

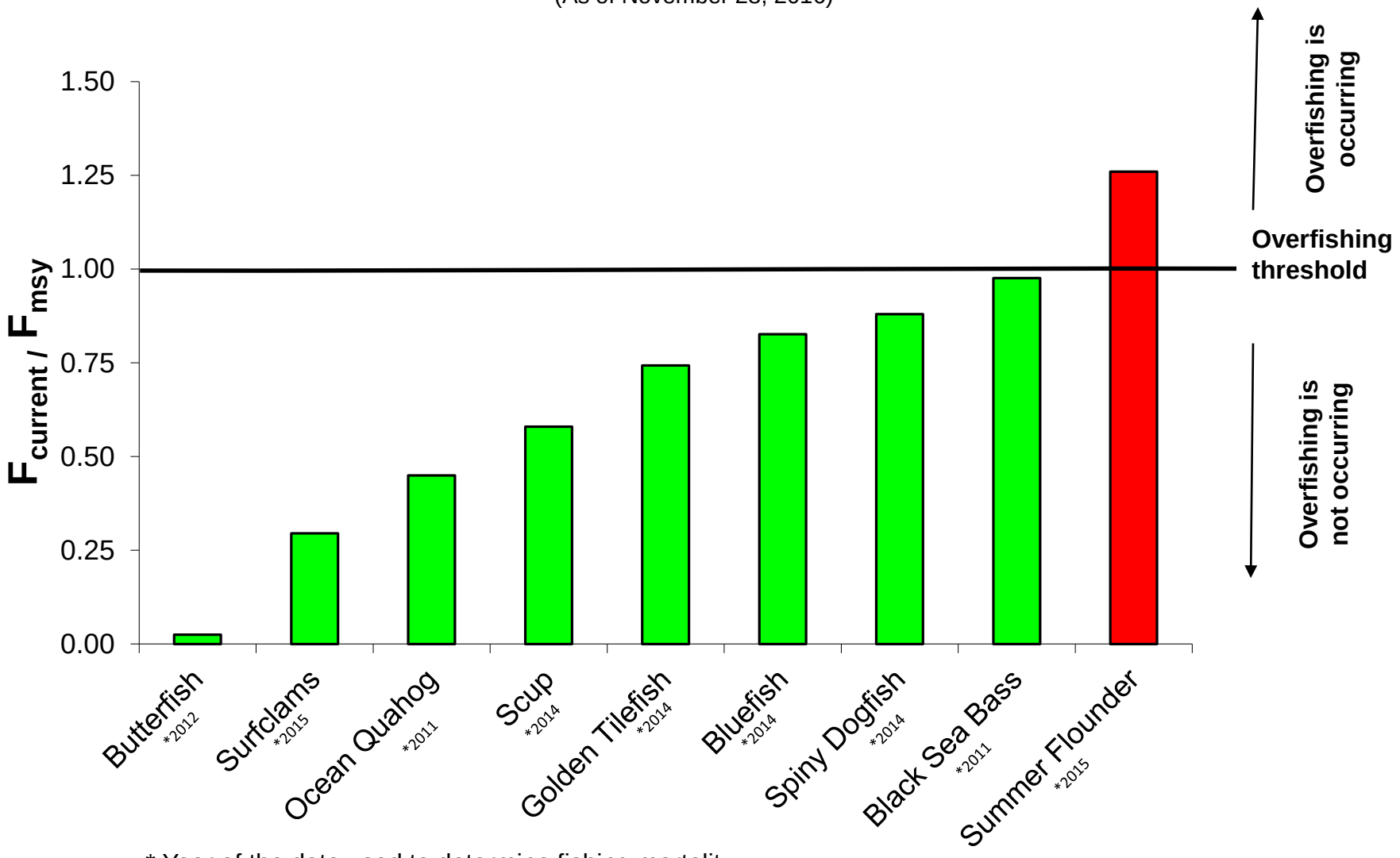


* Year of the data used to determine stock size.

NOTE: Unknown B_{msy} - *Illex* squid, Atlantic mackerel, and monkfish (NFMA & SFMA).
NOTE: Of the 14 stocks managed by the Council, 8 are above B_{msy}, 2 are under B_{msy}, and 4 are unknown.
NOTE: Surfclam value based on July 2016 SAW/SARC summary.

Fishing Mortality Ratios for MAFMC Managed Species

(As of November 28, 2016)



* Year of the data used to determine fishing mortality.

NOTE: Unknown - *Illex* squid, Longfin squid, Atlantic mackerel, and monkfish (NFMA and SFMA).
NOTE: Surfclam value based on July 2016 SAW/SARC summary.

Guidelines for the Ricks E Savage Award

Eligibility:

A person who has added value to the MAFMC process and management goals through significant scientific, legislative, enforcement or management activities is eligible.

Award

The award will be presented during the February meeting.

Selection Process

1. Written nominations will be solicited and received by the end of November each year by the Executive Committee.

2. Initially, nominations may only be made by Mid-Atlantic Council members.

3. The Executive Committee will select the recipient by consensus.

4. The recipient's identity will remain confidential if possible, until announced during the award presentation.

Other Award Rules

1. Candidates must be nominated each year: no nominations will carry over.

2. Recipients can be reimbursed for travel expenses to receive the award.

3. The recipient will receive a plaque. A permanent plaque will be placed in the Headquarters office in Dover with a list of all the recipients.

Past Recipients

2006 - Jim Ruhle
2007 - Jim Gilford
2008 - Phil Ruhle
2009 - Laurie Nolan
2010 - Dennis Spitsbergen
2011- John Boreman
2012 - Jack Travelstead
2013 – Red Munden
2014 – George Darcy
2015 – Pres Pate

Guidelines for Award of Excellence - DRAFT

The Mid-Atlantic Fishery Management Council Award of Excellence recognizes an individual's outstanding contribution to fisheries management, legislation, science, or law enforcement in the mid-Atlantic region.

Award

The award will be made on a periodic basis subject to the identification and selection of outstanding individuals.

Selection process:

Council members will send written nominations to the Executive Director at any time during the year.

The Executive Director will present nominations to the Executive Committee as they become available.

The Executive Committee will meet to discuss the nominee's achievements and select the recipient by consensus.

The award presentation will occur at an award ceremony in association with a Mid-Atlantic Council meeting.

The recipient will receive an award trophy at the ceremony and a permanent plaque will be placed in the Council office in Dover, DE with a list of all the recipients.

Past Recipients:

August, 2016 - Richard B. Robins, Jr.

New England Fishery Management Council
50 WATER STREET | NEWBURYPORT, MASSACHUSETTS 01950 | PHONE 978 465 0492 | FAX 978 465 3116
E.F. "Terry" Stockwell III, *Chairman* | Thomas A. Nies, *Executive Director*

July 5, 2016

Mr. John Bullard
GARFO Regional Administrator
NMFS/NOAA Fisheries
55 Great Republic Drive
Gloucester, MA 01930

Dear John,

We have been discussing the impacts of climate change on fishery management in the Greater Atlantic Region for several years. In 2014, the Mid-Atlantic Fishery Management Council (MAFMC) hosted the "East Coast Climate Change and Fisheries Governance Workshop." More recently, scientists from the Northeast Fisheries Science Center evaluated vulnerability of species in the region to climate changes, and the Northeast Region Coordinating Council (NRCC) agreed to organize a working group to review the issue and recommend approaches to address the management issues identified.

In recognition that we need to respond now to the effects of climate change, the Council requests joint management authority with the MAFMC for summer flounder, scup, and black sea bass. This request stems from a Council motion passed at our June, 2016 Council meeting:

> *that the Council (1) request joint management authority with the MAFMC for summer flounder, scup, and black sea bass; (2) request NOAA Fisheries take necessary steps for joint management authority to be established; and (3) inform the MAFMC that rationale for this request includes: (a) shifted distribution of these species in response to climate warming and (b) the conclusion of the NEFSC 2016 Fish and Shellfish Climate Vulnerability Assessment about these shifts in distribution with climate change appearing to have enhanced these species' productivity and increased their population sizes in New England waters.*

Summer flounder, scup, and black sea bass are managed by the MAFMC. Their historic importance to New England fishermen is reflected by the commercial allocations to New England states – about 25 percent for summer flounder and black sea bass, and 81 percent for the scup summer period. While commercial quotas constrain state catches, recreational catches are more reflective of recent availability. New England states have increased their share of the recreational catch in recent years. This is particularly noticeable in the case of black sea bass: barely measureable when the FMP was adopted, New England now accounts for over 28 percent of recreational catch. In the case of black sea bass and scup, the northern shifts are attributed to

climate change, while the shift in summer flounder may be due to reductions in fishing mortality, though climate change cannot be ruled out. In any case, the shifts are real and are already influencing the fishery and fishermen. Management needs to respond.

New England states are not represented on the MAFMC, and while members of our Council do serve on the management committee, they do not participate in the final decisions by the MAFMC. Joint management is necessary to ensure that New England interests are represented and considered in the management of summer flounder, scup, and black sea bass. The Council requests that you use the authority established in 50 CFR 600.110 to require joint management of this FMP. This request is particularly timely given amendments that are being prepared for these species; we cannot wait until the NRCC working group makes its recommendations.

Please let me know if you have any questions about this request or the Council's motion. We look forward to working with the MAFMC to manage these species.

Sincerely,

Thomas A. Nies

Thomas A. Nies
Executive Director

cc: Dr. Chris Moore, MAFMC

MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

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

August 19, 2016

Mr. Tom Nies
New England Fishery Management Council
50 Water Street, Mill 2
Newburyport, MA 01950

Dear Tom:

In response to the request from the New England Council to the NMFS requesting joint management of Summer Flounder, Scup, and Black Sea Bass, the Council passed the following motion last week:

Move that in response to the NEFMC letter concerning the demersal committee that the MAFMC add 2 additional seats for a NEFMC member and request that when the NEFMC meets to consider final action for frameworks, specifications, and amendments for sea scallops, that it meet as a committee of the whole of the scallop committee.

The Council considered your request for joint management and rejected the idea noting the complexity associated with joint management and the fact that the New England states are already represented on the ASMFC Board which meets jointly twice a year with the Council to set specifications for summer flounder, scup, and black sea bass. In addition, the New England Council has one seat on our Demersal committee which now meets as a committee of the whole to allow for full participation by that member. However, the Council indicated that they would be willing to increase the number of New England seats on the Demersal Committee if the New England Council was willing to allow for a similar arrangement with your Scallop Committee.

Please call if you have any questions.

Sincerely,

Christopher M. Moore, Ph.D.
Executive Director

cc: Elliott, Luisi

Mid-Atlantic Fishery Management Council
800 North State Street, Suite 201, Dover, DE 19901
Phone: 302-674-2331 | FAX: 302-674-5399 | www.mafmc.org
Michael P. Luisi, Chairman | G. Warren Elliott, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: 11/30/16

To: Chris Moore

From: Jason Didden

Subject: Squid Amendment

Following this cover page, please find a summary of the Sept 13, 2016 Advisory Panel (AP) meeting and an updated preliminary re-qualification analysis (numbers of likely qualifiers).

There is a joint MSB Committee/Advisory Panel meeting on Dec 1, 2016, and a summary of that meeting will be forwarded to the Council and posted to the December 2016 Council meeting page (http://www.mafmc.org/briefing/december-2016) as soon as possible. Additional background materials, and several public comments have also been posted there.

The goals of this agenda item are to review the Committee and Advisory Panel input and adopt alternatives for additional analysis in the public hearing document.

Mid-Atlantic Fishery Management Council
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Phone: 302-674-2331 | FAX: 302-674-5399 | www.mafmc.org
Michael P. Luisi, Chairman | G. Warren Elliott, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: 11/18/16

To: MSB Committee

From: Jason Didden

Subject: 9/13/16 MSB Advisory Panel (AP) Meeting Summary

The Advisory Panel met in Warwick, RI on 9/13/16 to provide input on the ongoing squid Amendment.

Advisors in attendance included: Jim Lovgren; Vito Calamo; Katie Almeida; Joseph Gordon; Greg DiDomenico; Chris Roebuck, Hank Lackner; Robert Rhule; Pete Kaizer; Jeff Reichle; Mead Amory, and Stephen Weiner (12 of 16).

Others in attendance included: Jason Didden (MAFMC), Lisa Hendrickson (NEFSC), Raymond DeCosta, Brian Borgeson, Bob DeCosta, Capt. Buddy Vanderhoop, Lisa Vanderhoop, Tobia Glidden, Jeff Kaelin, Dan McKiernan, Eric Lundvall, Howard King, Chris Parkins, Teresa Tanzi, George Egan, David White, Ryan Clark, Patrick Knapp, Doug Christel, John Haran, Dick Grachek, Don Fox, Bob Ballou, Glenn Goodwin, Tim Barrett, Meghan Lapp, Nadia Simmons, Tom Williams, Albert Antonio, Tom Williams, Andrew Williams, Pat Glade, Aaron Williams, Eric Reid, and Jason Mleczko.

The following notes capture the points raised by advisors, but may not represent the views of all advisors unless specifically noted. The input from the advisors is designed to inform the December 1 Joint AP/Committee meeting in Baltimore, MD (http://www.mafmc.org/council-events/dec-1-msb-committee-ap-meeting). The background documents for the AP meeting have been added to this website and should be consulted for details on issues in this summary memo.

Squid Requalification

The first topic discussed was the squid requalification, and J Didden first provided an overview of recent squid fishery performance. Advisors asked when and what the original squid qualification criteria were as well as the mackerel qualification criteria. For mackerel, the qualifications were 1997-2005 at 400,000 pounds for Tier 1, 3/1/1994-2005 at 100,000 pounds for Tier 2, and 3/1/1994-2005 at 1,000 pounds for Tier 3. All poundage thresholds are any one/best year. Also, all vessels had to be in possession of a mackerel permit on March 21, 2007. For longfin squid, the qualification was 20,000 pounds of longfin or butterfish (including joint venture) in any consecutive 30-day period

between Aug 13, 1981 and August 13, 1993. For *Illex* squid, the qualification was five landings of at least 5,000 pounds (including joint venture) of *Illex* squid between Aug 13, 1981 and August 13, 1993.

The advisors requested that the following time periods be included for analysis: 1997-2015 (max), 2006-2015 (10 years up to 2015), 2011-2015 (5 years up to 2015), 1997-2013 (1997 to control date), 2004-2013 (10 years up to control date), and 2009-2013 (5 years up to control date). Ending in 2015 would consider the most recent data, but 2013 would utilize the republished squid control dates (May 16, 2013 for longfin squid and August 2, 2013 for *Illex* squid). The advisors thought these date ranges would allow consideration of historic and recent activity, and that consideration of historic activity was important given the variability of the squid fishery. An advisor also requested that a 500,000 pound threshold be included for *Illex* given the higher volumes involved in the *Illex* fishery. Updated tables with the numbers of vessels that would and would not qualify under these scenarios will be distributed closer to the December 1, 2016 Committee meeting.

There was substantial concern voiced about judging alternatives based on the sum of all vessels' best years in terms of predicting what a group of qualifying vessels might catch, especially for *Illex* given the short fishing season. Some viewed it as likely to mislead decision makers that a group of vessels would ever catch that much in any one year – staff noted that the intent had been to show that the vessels had the potential to land at least that much based on historical performance. Staff also noted that in 2016, the highest weekly longfin landings to date were in late June with approximately 3.5 million pounds landed in one week. While the fishing was exceptional and close to shore, at 3.5 million pounds per week, the entire annual longfin quota could potentially be caught by the currently active vessels in about 14 weeks, highlighting the potential harvesting capacity of just the currently active longfin squid fleet.

The advisors requested analysis of how many current permits had zero landings and information on the performance of vessels with only incidental permits. Staff clarified that staff understood that only existing moratorium permits would be able to retain moratorium permits. Approximately 10% of catch in recent years has come from state-only or incidentally-permitted vessels. Incidental permits are allowed up to 2,500 pounds longfin and up to 10,000 pounds of *Illex* squid (incidental *Illex* landings are a trivial portion of total landings).

Public comment on requalification: Sector 13 vessels have been increasing their squid catch (and having more vessels participate) due to squid availability and restrictions in other fisheries.

An advisor recommended making the incidental longfin permit a limited access permit that could not be re-obtained if dropped. This would solve the issue of incidental permits being dropped during closures to allow fishing in state waters. Such a qualifier could start in 1997 and run through 2016 and use a 5,000 or 10,000 pound threshold (any best year). There could still be a 500 pound open access permit for incidental catch. The advisors requested that a chart of state squid rules be created. Staff believes that Massachusetts mirrors federal closures but other states may not, but staff will create a chart before public hearings.

Another issue was what to do with vessels that currently have limited access/ moratorium permits but do not requalify for limited access (applies to both species). The simplest option would be to roll back to an incidental permit. Alternatively, they could be placed into a new permit tier with a trip limit that is higher than the incidental level (e.g. 5,000 or 10,000 pounds) or they could have access until 50% of any annual or Trimester quota is caught, at which point only the re-qualified vessels could continue directed fishing. Advisors thought that the need for such accommodations may vary depending on how inclusive or restrictive the requalification criteria are. The advisors also would like to see the distribution of landings by non-qualifiers (staff is currently analyzing this information and will have it for the December 1 meeting).

An advisor asked how squid permits that are associated with permits suites within state permit banks should be treated and whether they could be reactivated and/or regrouped to create an additional squid vessel. Staff will follow up with MA staff to clarify, but the current understanding is that a suite of permits within a permit bank cannot be split and the squid permits would be "locked up" unless a permit bank sold a package of permits in its entirety.

Maine Permit Issue

The issue of Maine vessels getting new directed longfin squid permits was discussed. This issue arose out of higher abundance of longfin squid in northern areas in 2012. NMFS has indicated that allowing just vessels in one state to obtain new limited access permits would violate the Magnuson Act. It might be possible to set up general area-based allocations, but that would not address the issue of vessels not having permits. Advisors noted that individuals in Maine can currently obtain incidental permits, or buy existing squid permits if they want to enter the fishery. An advisor also stated that shifting distributions should not be used to dilute the value of historical permits and that existing vessels can move when squid move. It was also mentioned that the State of Maine could create a state-waters fishery if they want, and that giving out new permits to some when many might lose permits in the same action does not seem fair/equitable.

Trimester and Nantucket/Martha's Vineyard Issues

L. Hendrickson presented analyses that examined the relationship between squid fishing effort in April-September ("Inshore") versus landings per unit effort in the following October-March season ("Offshore"). The opposite was also examined: the relationship between squid fishing effort in October-March season ("Offshore") versus landings per unit effort in the following April-September season ("Inshore"). Trips with greater than 40% longfin squid landings were used in the analysis of fishing effort because that definition accounted for about 90% of landings. Some advisors were concerned about how the trip definition could impact the analyses. Correlation coefficients indicate highly significant negative correlations between inshore fishery effort (days fished) and offshore fishery LPUE (mt per day fished), and vice versa, during 1983-2015 (http://www.mafmc.org/s/LHendricksonDocs.pdf). The correlation was even stronger if only 1983-1999 was examined (before in-season quotas and trip

limits affected the timing/amount of effort). While correlation does not prove causation, there is a biological backstory that supports that there would be a linkage. Longfin squid live 6-8 months with likely near-continuous spawning peaking inshore in the summer/fall and elsewhere in the winter, with the summer/fall-spawned squid supplying the offshore fishery and the winter-spawned squid supplying the inshore fishery. "Direct age sampling of the inshore and offshore fisheries for [longfin squid] showed that these seasonal fisheries likely interact and that each harvests squid spawned in the previous season" (Macy and Brodziak 2001 - http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.529.5011&rep=rep1&type=pdf).

Some advisors thought that there were likely other unmeasured variables driving the observed trends (temperature, dogfish, forage, etc.). Other advisors thought that since the inshore fishing was taking place on concentrated spawning squid and squid mops (egg clusters) there was a very strong reason to think that inshore fishing could negatively impact productivity/recruitment.

Staff also reviewed catch distribution maps that illustrated the high proportion of Trimester 2 and/or April-September squid coming out of the areas just south of Nantucket/Martha's Vineyard (especially), Rhode Island, and Long Island in recent years (2007-2015). Effort followed a similar pattern.

Staff also reviewed bycatch ratios in the squid fishery 2007-2015. Overall discard ratios in the squid fishery were relatively similar among the Trimesters (about 1/3 of catch is discarded). Overall discard ratios appear to have declined from 2007-2015. Most discards consist of butterfish, dogfish, *Illex*, hake, scup, and skates. The species mixes do change among the Trimesters – in Trimester 2, some higher-profile species have relatively higher bycatch ratios (compared to other Trimesters) such as scup, striped bass, summer flounder, winter flounder, and black sea bass. An advisor requested if relative size could differ amongst species and trimesters and if information on protected species is available. Staff will check on the size information. Protected resource interaction information is available in the specifications Environmental Assessments. An advisor requested if discards could be broken down by the Areas 1 and 2 (see map below). This could be done for public hearings.

As a strawman example for discussion, staff illustrated several areas that could have some limiting regulations around Nantucket/Martha's Vineyard (see map below). Area 1 effort and landings have increased substantially from 2007-2015 (http://www.mafmc.org/s/LHendricksonDocs.pdf).

Some advisors (and members of the public) thought that no changes should occur to the trimester allocations and/or roll-overs and that the current system has led to a robust fishery in the most recent years. There was some discussion of what could happen if the fishery returned to quarters, but it is difficult to construct "what if" scenarios given the variability of the longfin squid fishery. One advisor recommended an alternative that instead of capping the roll over increase at 50% for Trimester 2 (8 million pounds increasing to potentially 12 million pounds depending on the performance of Trimester 1), there should be an option for capping the increase at 75% for Trimester 2 (8 million pounds increasing to potentially 14 million pounds).

Other advisors (and members of the public) thought that changes were appropriate to limit Trimester 2 effort, especially around Nantucket/Martha's Vineyard. For those advisors (and public attendees) who were concerned about the relatively high levels of catch and effort around Nantucket/Martha's Vineyard in recent years, they generally concurred that one or more of the following alternatives could potentially address their concerns:

--Keep the Trimester percentages the same but return to where any Trimester 1 underages roll into Trimester 3 and none into Trimester 2.

--Eliminate/reduce Trimester 2 directed fishing once the Trimester 2 quota is reached (whatever it happens to be) to reduce pressure on spawning squid/mops.

> -Possible closure options could be 250 pounds, 500 pounds, and 1,500 pounds versus the current 2,500 pound post-closure limit that allows substantial directed fishing. (In 2016 there were approximately 7 million pounds of longfin squid landed *after* the 12 million pound Trimester 2 quota was reached).
>
> -Alternatively, a 5.5 inch post-closure mesh limit could be required to retain more than 250 pounds of longfin squid to ensure that post-closure landings are truly incidental.

--Create a 50 nm buffer zone south of Nantucket/Martha's Vineyard, for purposes of addressing possible concerns about localized depletion, bycatch, spawning concerns, and gear conflicts. A 50 nm buffer would approximately extend the Areas 1 and 2 south to the edge of the map below.

--Maintain rollover from Trimester 1 to Trimester 2, but any roll over would have to be caught outside of Area 1 or outside of Areas 1 and 2 (or a portion of Area 2 corresponding to a 12-mile limit).

--Maintain rollover from Trimester 1 to Trimester 2, but once the total quota (including roll over) was reached, then squid catch would be prohibited inside Area 1 or inside Areas 1 and 2 (or a portion of Area 2 corresponding to a 12-mile limit).

--Close Area 1 for all of Trimester 2.

--Close Areas 1 and 2 for all of Trimester 2.

Some advisors felt that they needed to digest the information that was presented before they could recommend alternatives. An advisor asked if a catch per unit effort map could be created. Council staff will consult with science center staff on the feasibility of such an analysis to be included in a public hearing document.

Public Comments

Public comments focused on the Nantucket/Martha's Vineyard Trimester 2 issue. Most public comments (including 9 individuals who traveled from the islands) wanted some (but not necessarily total) reduction/limitation of effort in the Areas 1 and 2 during Trimester 2 (see map below), especially because effort has increased in those areas recently. They stated that the supply of bait/forage in their area is important for the tourist industries and that bait/forage has been negatively impacted by excessive squid fishing. Some public comments did not think there was a problem with bycatch or forage depletion and that no-action was most appropriate. Comments noted that there is insufficient science to indicate whether there is, or is not, a problem from the squid fishing around Nantucket/Martha's Vineyard.

One public comment and an advisor suggested that strengtheners should be eliminated to reduce bycatch, at least in New England waters. Another public comment suggested an April-September total closure of Areas 1 and 2. Another public comment urged that ecosystem impacts be considered in terms of local squid catch and that a closed area following the 40m contour be considered.

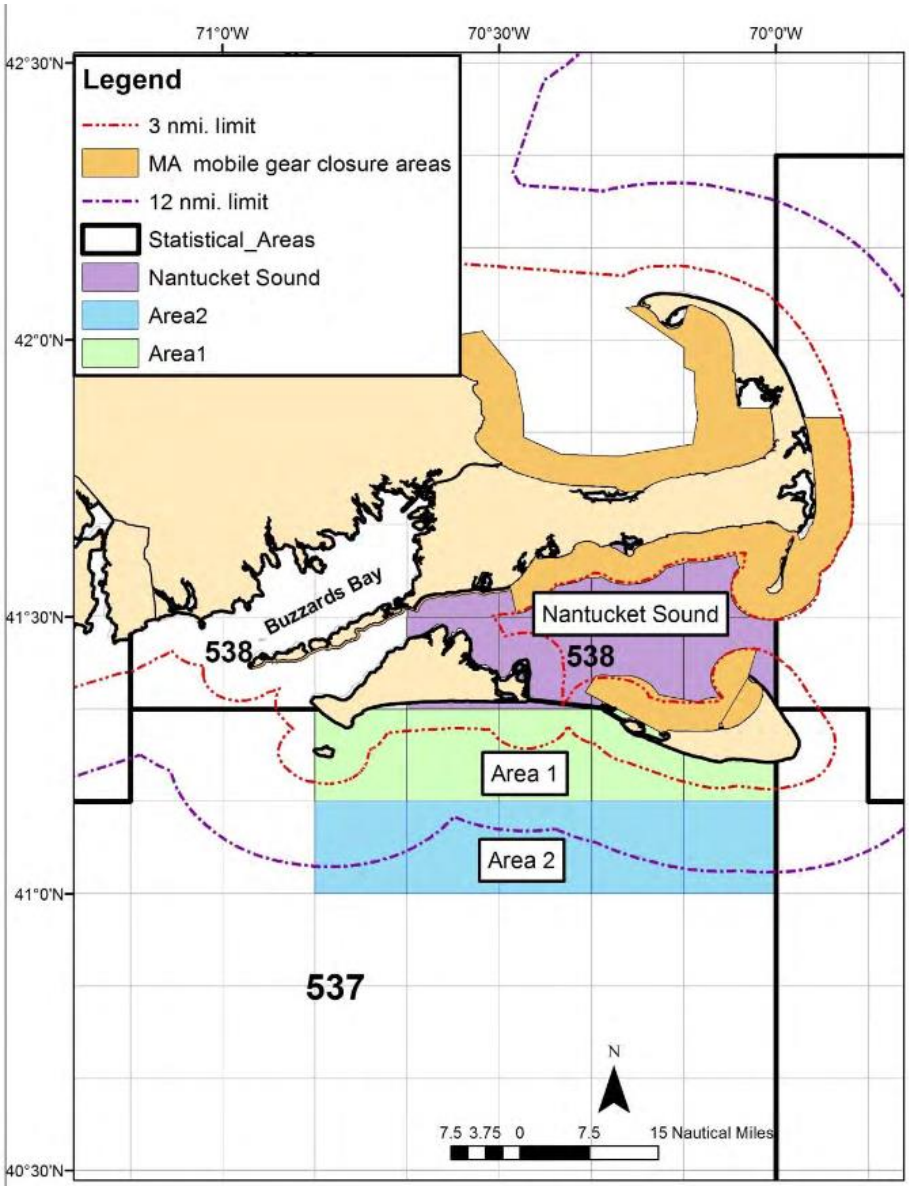
Staff from the State of Massachusetts indicated that a holistic evaluation of squid spawning habitat should occur, and that the effects of previous/existing regulations should be considered. The State of Massachusetts will likely submit comments to the Council.

An advisor requested that abundance indices be examined for cyclical trends in longfin squid abundance. Another advisor asked if real-time management was possible, either within this amendment or generally, and if creating a spawning closure could allow the overall quota to rise (if recruitment is improved). Staff explained that some preliminary exploration of real-time management has occurred but there is not sufficient science to implement real-time management now. Another advisor recommended beginning a pilot study to begin moving toward real-time assessment/management.

An advisor recommended increasing the Trimester 2 minimum mesh to 2 1/8 inches (which is the Trimester 1 and 3 minimum mesh size).

An advisor recommended a study on the survival of trawled squid eggs/mops in terms of understanding whether trawling on mops causes additional mortality.

There was one written comment submitted, which is included on the last page of this memo (after the map).



Map of possible area restrictions.

From: **Cam Gammill** cam@fishernantucket.com
Subject: please print and bring with you for Tuesday...
Date: September 11, 2016 at 9:33 PM
To: Jason Mleczko mleczko@me.com, Thomas Mleczko capttom@me.com

My name is Capt Cam Gammill. I own Bill Fisher Tackle on Nantucket and run a charter boat for Bill Fisher Outfitters. I am submitting this statement based on the economic impact of squid fishing in our local waters.

When I bought Bill Fisher Tackle eleven years ago, there were four tackle shops servicing our summer community of 60,000 people. Now, we only have two shops and we have seen our bass fishery dwindle locally. In the past 5 years, we have seen all tackle directly related to Bass fishing decrease by 40%. This includes jigs, trolling gear and specific bass plugs. Specific to the Squid fishing, we have seen our sale of Squid Jigs drop dramatically. In 2011, we sold in excess of 1200 jigs. So far this season, we have sold less than 200. This is amazing! The numbers have dropped consistently every year as we have lost bait in shore.

Quite simply, fish chase bait and as our biggest bait fishery slows down due to overfishing, we are losing our Striped Bass fishery. The impact of the lack of fish has had a dramatic effect on our local economy. We have lost two tackle shops in a big community. Our sales numbers for Striped Bass related products is down. Charters in historic prime bass weeks, June and October have fallen. The biggest change is that there were several key clients who used to come to the Island in the bass weeks, they would rent houses, stay in hotels, eat at our restaurants and populate our Island beaches while hunting for Striped Bass. Realistically, each of these individuals would add between $1,000-$1,500 daily into our Island community. I can name at least 4 groups, comprised of at least 20 individuals who no longer make this pilgrimage.

In short, beyond the environmental impact, we can see a clear economic impact on our Island Economy. My best guess is that the difference in a good Striped Bass year vs a bad Striped Bass year is $200,000. Considering the amount of squid in our fishery directly impacts the quality of our striped bass fishing, I would be very comfortable in saying that the squid fishery in our local waters is having a considerable economic impact.

Thank you,
Capt Cam Gammill
508.332.9149
billfishers@gmail.com

Cam Gammill
Principal Broker
Fisher Real Estate
21 Main Street, Nantucket MA
508.332.9149 c - 508.228.4407 o
www.fishernantucket.com

Approximate Longfin Squid Re-qualifiers. 60 Options – 4 for more detailed analysis would be optimal.

For range purposes, the 10,000 pound 1997-2015 best year option should be one alternative (most re-qualifiers)

Longfin Squid

2015 Terminal Year

~422 Vessels Had a Moratorium Permit 2011-2015											
1997-2015 (best year qual)				2006-2015 (best year qual)				2011-2015 (best year qual)			
Qualifying Threshold (best year)	Qual	Not Qual	Sum of each vessel's best year over qual period	Qualifying Threshold (best year)	Qual	Not Qual	Sum of each vessel's best year over qual period	Qualifying Threshold (best year)	Qual	Not Qual	Sum of each vessel's best year over qual period
10,000	247	175	66,717,680	10,000	204	218	47,074,062	10,000	173	249	39,037,772
25,000	231	191	66,435,522	25,000	181	241	46,654,278	25,000	154	268	38,711,283
50,000	197	225	65,157,854	50,000	151	271	45,544,245	50,000	133	289	37,972,420
100,000	167	255	62,985,262	100,000	126	296	43,651,302	100,000	105	317	35,916,180
200,000	109	313	54,688,542	200,000	79	343	37,311,672	200,000	65	357	30,515,897
1997-2015 (Average for qual)				2006-2015 (Average for qual)				2011-2015 (Average for qual)			
Qualifying Threshold (average)	Qual	Not Qual	Sum of each vessel's best year over qual period	Qualifying Threshold (average)	Qual	Not Qual	Sum of each vessel's best year over qual period	Qualifying Threshold (average)	Qual	Not Qual	Sum of each vessel's best year over qual period
10,000	187	235	64,149,056	10,000	158	264	45,732,054	10,000	143	279	38,319,916
25,000	142	280	59,206,591	25,000	125	297	43,297,765	25,000	120	302	37,094,731
50,000	104	318	53,021,508	50,000	88	334	38,298,177	50,000	100	322	35,091,669
100,000	68	354	41,993,220	100,000	66	356	33,714,235	100,000	68	354	30,607,657
200,000	35	387	28,248,184	200,000	36	386	24,642,456	200,000	40	382	23,399,108

Longfin Squid

2013 Terminal Year (New Control Date Year)

~422 Vessels Had a Moratorium Permit 2011-2015												
1997-2013 (best year qual)				2004-2013 (best year qual)				2009-2013 (best year qual)			
Qualifying Threshold (best year)	Qual	Not Qual	Sum of each vessel's best year over qual period	Qualifying Threshold (best year)	Qual	Not Qual	Sum of each vessel's best year over qual period	Qualifying Threshold (best year)	Qual	Not Qual	Sum of each vessel's best year over qual period
10,000	237	185	64,248,527	10,000	198	224	49,313,120	10,000	168	254	35,294,667
25,000	222	200	63,981,542	25,000	177	245	48,931,300	25,000	149	273	34,938,238
50,000	191	231	62,808,985	50,000	151	271	47,931,057	50,000	125	297	34,029,611
100,000	162	260	60,735,763	100,000	124	298	45,944,666	100,000	99	323	32,104,624
200,000	108	314	52,985,944	200,000	83	339	40,381,671	200,000	66	356	27,675,260
1997-2013 (Average for qual)				2004-2013 (Average for qual)				2009-2013 (Average for qual)			
Qualifying Threshold (average)	Qual	Not Qual	Sum of each vessel's best year over qual period	Qualifying Threshold (average)	Qual	Not Qual	Sum of each vessel's best year over qual period	Qualifying Threshold (average)	Qual	Not Qual	Sum of each vessel's best year over qual period
10,000	186	236	62,222,370	10,000	154	268	47,962,127	10,000	137	285	34,473,843
25,000	140	282	57,442,450	25,000	122	300	45,504,960	25,000	114	308	33,266,591
50,000	101	321	50,691,795	50,000	88	334	41,014,856	50,000	91	331	30,863,188
100,000	68	354	40,907,124	100,000	65	357	35,218,614	100,000	66	356	27,435,308
200,000	34	388	26,452,466	200,000	35	387	24,970,365	200,000	31	391	17,814,818

Approximate Illex Squid Re-qualifiers. 72 Options – 4 for more detailed analysis would be optimal.

For range purposes, the 10,000 pound 1997-2015 best year option should be one alternative (most re-qualifiers)

Illex Squid

2015 Terminal Year

~90 Vessels Had a Moratorium Permit 2011-2015											
1997-2015 (best year qual)				2006-2015 (best year qual)				2011-2015 (best year qual)			
Qualifying Threshold (best year)	Qual	Not Qual	Sum of each vessel's best year over qual period	Qualifying Threshold (best year)	Qual	Not Qual	Sum of each vessel's best year over qual period	Qualifying Threshold (best year)	Qual	Not Qual	Sum of each vessel's best year over qual period
10,000	40	50	78,616,933	10,000	34	56	57,766,809	10,000	29	61	42,198,062
25,000	37	53	78,577,255	25,000	31	59	57,727,131	25,000	27	63	42,170,144
50,000	37	53	78,577,255	50,000	31	59	57,727,131	50,000	27	63	42,170,144
100,000	35	55	78,434,460	100,000	30	60	57,635,201	100,000	23	67	41,880,510
200,000	34	56	78,323,481	200,000	27	63	57,211,957	200,000	20	70	41,484,906
500,000	31	59	77,266,972	500,000	22	68	55,252,090	500,000	17	73	40,218,751
1997-2015 (Average for qual)				2006-2015 (Average for qual)				2011-2015 (Average for qual)			
Qualifying Threshold (average)	Qual	Not Qual	Sum of each vessel's best year over qual period	Qualifying Threshold (average)	Qual	Not Qual	Sum of each vessel's best year over qual period	Qualifying Threshold (average)	Qual	Not Qual	Sum of each vessel's best year over qual period
10,000	34	56	78,323,481	10,000	30	60	57,635,201	10,000	27	63	42,170,144
25,000	33	57	78,052,977	25,000	29	61	57,524,222	25,000	23	67	41,842,253
50,000	30	60	76,055,684	50,000	26	64	56,941,453	50,000	20	70	41,484,906
100,000	23	67	70,214,566	100,000	19	71	53,180,117	100,000	18	72	40,695,828
200,000	19	71	63,310,721	200,000	14	76	49,044,822	200,000	11	79	36,506,147
500,000	7	83	41,917,548	500,000	7	83	40,251,791	500,000	6	84	30,202,852

Illex Squid

2013 Terminal Year (New Control Date Year)

~90 Vessels Had a Moratorium Permit 2011-2015											
1997-2013 (best year qual)				2004-2013 (best year qual)				2009-2013 (best year qual)			
Qualifying Threshold (best year)	Qual	Not Qual	Sum of each vessel's best year over qual period	Qualifying Threshold (best year)	Qual	Not Qual	Sum of each vessel's best year over qual period	Qualifying Threshold (best year)	Qual	Not Qual	Sum of each vessel's best year over qual period
10,000	39	51	78,249,257	10,000	35	55	70,293,025	10,000	30	60	50,453,756
25,000	36	54	78,209,579	25,000	32	58	70,253,347	25,000	27	63	50,412,171
50,000	36	54	78,209,579	50,000	32	58	70,253,347	50,000	27	63	50,412,171
100,000	35	55	78,158,714	100,000	31	59	70,202,482	100,000	26	64	50,341,503
200,000	34	56	78,047,735	200,000	30	60	70,091,503	200,000	23	67	49,918,259
500,000	31	59	77,266,972	500,000	27	63	69,310,740	500,000	19	71	48,504,642
1997-2013 (Average for qual)				2004-2013 (Average for qual)				2009-2013 (Average for qual)			
Qualifying Threshold (average)	Qual	Not Qual	Sum of each vessel's best year over qual period	Qualifying Threshold (average)	Qual	Not Qual	Sum of each vessel's best year over qual period	Qualifying Threshold (average)	Qual	Not Qual	Sum of each vessel's best year over qual period
10,000	34	56	78,047,735	10,000	31	59	70,202,482	10,000	27	63	50,412,171
25,000	32	58	77,575,900	25,000	29	61	69,890,172	25,000	26	64	50,341,503
50,000	31	59	76,857,706	50,000	28	62	69,619,668	50,000	24	66	50,029,193
100,000	23	67	70,214,566	100,000	23	67	66,704,591	100,000	20	70	48,984,792
200,000	19	71	63,310,721	200,000	21	69	64,957,473	200,000	15	75	45,854,542
500,000	7	83	41,917,548	500,000	11	79	50,054,496	500,000	10	80	41,218,316

LENFEST OCEAN PROGRAM

Executive Summary
November 2016

SUPPORTING SCIENCE AND COMMUNICATING RESULTS.

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BUILDING EFFECTIVE FISHERY ECOSYSTEM PLANS

A REPORT FROM THE LENFEST FISHERY ECOSYSTEM TASK FORCE

INTRODUCTION

Connections matter. That is the unifying principle of ecosystem-based fisheries management (EBFM). Ecological connections matter because fishing affects target species, predators, prey, competitors, bycatch species, and habitat. Economic connections matter because management affects fishermen, wholesalers, retailers, and recreational fishing guides. And social connections matter because fishing supports families and communities.

U.S. fisheries management has made tremendous strides under the current management framework, which centers on single stocks or stock complexes rather than ecosystems. In addition, fishermen, managers, and many others have cooperated to reduce bycatch, conserve habitats, and improve the equity and safety of fisheries.

However, conventional management has certain limitations. It generally focuses on one fishing sector at a time, which may unexpectedly lead to worse outcomes in another sector. It often considers a narrow range of issues, potentially overlooking other factors that shape fishery systems, such as loss of habitat and the behavior of people and markets. And fundamentally, the current system is atomized into individual fishery management plans (FMPs), often leaving little opportunity to consider overarching management goals or the trade-offs across fisheries that attend almost every decision.

EBFM provides mechanisms to address these issues and many others. Yet despite this, and despite many other reports and studies that have made the case for EBFM, it has not been widely adopted. The Task Force believes a major reason is that there is no clear way to put its principles into practice.

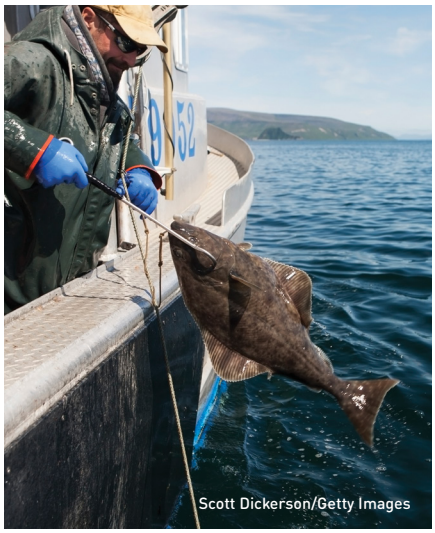
A BLUEPRINT FOR NEXT-GENERATION FEPS

This document summarizes a new report from the Lenfest Fishery Ecosystem Task Force, *Building Effective Fishery Ecosystem Plans*. The purpose of this report is to offer a blueprint for Fishery Ecosystem Plans (FEPs) as a means to translate EBFM into action. FEPs have been proposed for this purpose before, and most U.S. Regional Fishery Management Councils have since either started or completed an FEP. But these plans often focus on system description rather than management action.

The Task Force envisions FEPs as a structured planning process that uses adaptive management to operationalize EBFM. This "FEP Loop" process starts by identifying the key factors that shape a fishery system and considering them simultaneously, as a coherent whole. It then helps managers and stakeholders delineate their overarching goals for the system and refine them into specific, realistic projects. And it charts a course forward with a set of management actions that work in concert to achieve the highest-priority objectives.

This report contains no new science or policy innovations. This is because the Task Force found—through deliberation, document review, and conversations with managers and stakeholders—that EBFM is feasible today using existing science tools, policy instruments, and management structures. Not only that, nearly all of the steps in the proposed "FEP Loop" process are already being carried out by U.S. fishery managers.


Jonathan Nafzger/Shutterstock


Scott Dickerson/Getty Images

U.S. fisheries have taken steps to minimize bycatch, respond to climate change, and protect vulnerable habitats and species. Left: Commercial fishing boats in Dutch Harbor, Alaska. Right: Gaffing halibut in southwest Alaska.

THE FEP LOOP PROCESS

This section describes the FEP Loop and illustrates its steps. The process is a general guide rather than a detailed recipe, and what is most critical is that it begin with a big-picture understanding of the system to be managed and of stakeholders' goals, followed by the development of concrete, practical actions to address the highest-priority goals.

Figure 1

THE STRUCTURE AND PROCESS OF FISHERY ECOSYSTEM PLANS

Step 1: "Where are we now?"

Managers, scientists, and stakeholders should begin by looking broadly at the entire fishery system. The FEP Loop calls for creating a conceptual model of the fishery system, a set of "vital sign" indicators, and a list of threats.

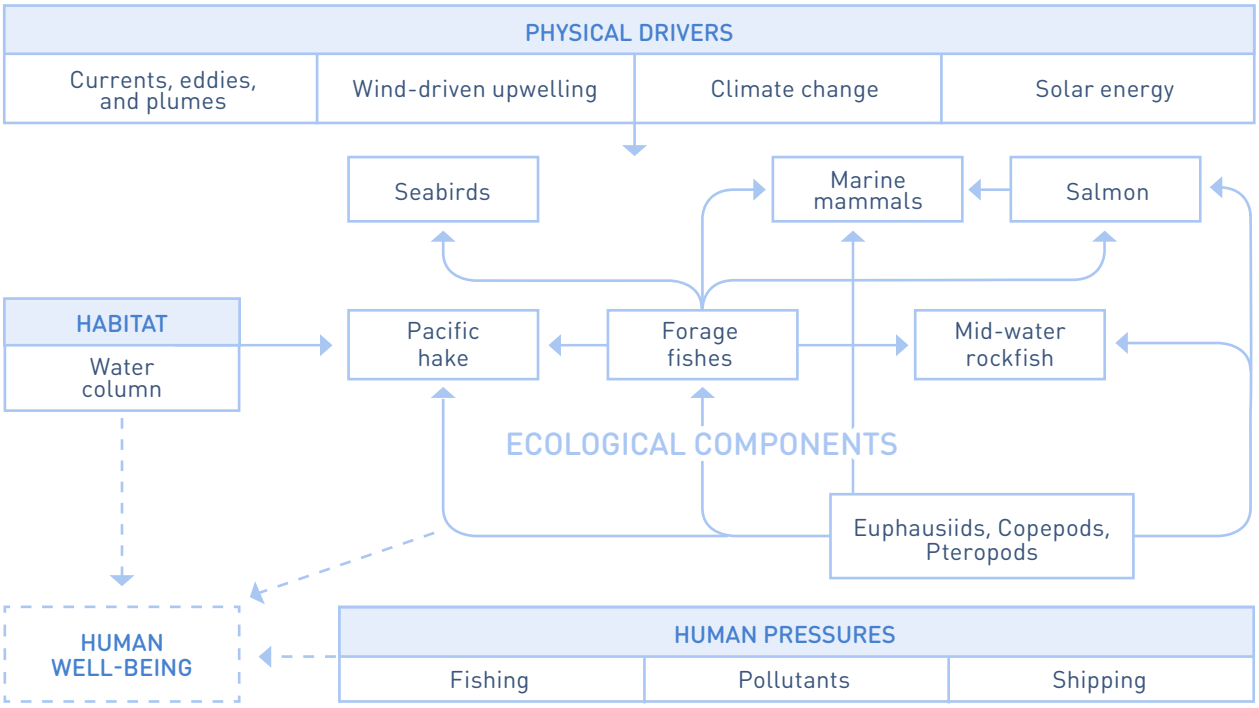
Conceptual models provide an inventory of system components and interactions and are already in use in several U.S. regions. The models should include the linkages between human and natural systems (Figure 2).

Another part of this step is the development of "vital sign" indicators, which provide a snapshot of health and are familiar tools in fisheries. For the California Current, one conceptual model proposed using indicators that draw on existing data. For example, forage fish biomass is an indicator of prey availability, rockfish population status reflects management effectiveness, and the Pacific Decadal Oscillation captures a suite of climate-driven environmental processes. The model also proposes two overall indicators based on existing data: diversity and mean trophic level.

This step should also include a list of threats to and pressures on the fishery system—for example, aquaculture, invasive species, or coastal development—to help prioritize objectives.

Figure 2

A CONCEPTUAL MODEL OF THE COASTAL PELAGIC SYSTEM IN THE NORTHERN CALIFORNIA CURRENT



Source: Andrews et al. (2013)

Step 2: "Where are we going?"

Next, managers, scientists, and stakeholders collaborate to develop and prioritize explicit, transparent goals for the fishery system. This kind of exercise is common in fisheries, and it is critical for EBFM because it helps pare down the potentially large scope of activities. Fundamentally, this involves moving from a shared broad vision for the fishery system to a clear set of specific, measurable, and actionable objectives.

Several management bodies already have overall vision statements. For example, the vision of the U.S. Mid-Atlantic Fishery Management Council is, "Healthy and productive marine ecosystems supporting thriving, sustainable marine fisheries that provide the greatest overall benefit to stakeholders."

Managers should next translate vision statements into action by setting and prioritizing high-level or "strategic" objectives. For instance, management might set objectives regarding habitat protection, preserving fishing-dependent communities, maintaining resilience, and preparing for climate change.

To complete this step, it is important to break the high-level objectives down into tangible desired outcomes, or operational objectives. These should include clear statements of what is to be achieved and how success will be measured. For example, the Puget Sound Partnership set the following objective: "Increase the overall abundance of spawning herring to 19,380 tons by 2020."

Step 3: "How will we get there?"

Managers and stakeholders must then create specific performance measures and use them to evaluate several alternative management strategies. This step allows for simultaneous consideration of multiple factors, their interactions, and their cumulative effects, which is a key benefit of EBFM.

The FEP Loop begins this step by developing performance measures that address the "triple bottom line" of ecological, socio-cultural, and economic objectives. A fishery in southeast Australia provides a useful set of examples. (See Performance Measures box.)

Managers and stakeholders then develop a range of alternative management strategies for reaching the operational objectives from step 2. The strategies should include management triggers in which reaching a predetermined value leads to a predetermined action, as well as a means of incorporating changes into FMPs. They should be adaptive, with plans built in for monitoring the system and responding to change.

The strategies should then be evaluated. A range of tools exists for evaluation, including management strategy evaluation (MSE), cost-benefit analysis, and expert judgment. The evaluation may uncover win-win strategies or expose unavoidable trade-offs inherent in a decision.

PERFORMANCE MEASURES

In Australia, an extensive management strategy evaluation involving 33 performance measures was undertaken for the southern and eastern scalefish and shark fishery. The following gives examples of those measures, along with the corresponding fishery objectives. (Management did not set target values for these measures, but in general higher values were considered desirable.)

Example 1

Objective: Maximize socio-economic impact

Performance measures:

- Level of port activity (as an indicator of social benefits of fishing).
- Total profits.
- Profit per ton landed.

Example 2

Objective: Ecologically sustainable development

Performance measures:

- Biomass of higher trophic level species.
- Proportional habitat cover.
- Demersal:pelagic biomass ratio.
- Piscivore:planktivore biomass ratio.

Source: Fulton et al. (2014)

Step 4: "Implement the plan"

Here, the managers initiate the alternative selected in step 3. This can be done entirely using existing processes for assessing scientific information and for amending regulatory documents such as FMPs. The Task Force recommends creating work plans that describe resources needed, timelines, and expected outputs for each of the actions identified in step 3.

Step 5: "Did we make it?"

Completing the cycle of adaptive management, policies are formulated not only to move the system to a more desirable state, but also to learn more about how the system works. For example, closing an area of critical habitat to fishing can promote species recovery and reveal the capacity of that species to rebound from depletion. The management alternatives formulated in step 3 should include a plan for monitoring that tracks progress toward objectives and produces data that can answer key questions about the system.

CASE STUDIES

The Task Force conducted 10 case studies of management bodies that have undertaken EBFM to identify tasks that such bodies are already undertaking that fit within the FEP Loop process. It found that managers are carrying out nearly every step of the process using existing management and regulatory processes, although no case included all five steps. (See Table 1.) In light of the case study data, the Task Force concluded that the FEP Loop is a realistic, practical way to implement EBFM.

It is important to note that much of the work represented in Table 1 was conducted for a subset of each system, such as a single species or the habitat for one group of species, rather than for the full system. Moreover, none of this work was carried out within the systematic framework of an FEP. The Task Force recommends that managers use a structured planning process such as the one described in the report to ensure that they consider all of the key drivers of the system and the highest priorities of stakeholders.

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Salmon fishing in Alaska (top). Male sea lions in Newport, Oregon, at the Historic Newport Docks (bottom left). Driftnet fishing for sockeye salmon along the Nushagak River, Alaska (bottom right).

Table 1

EXISTING CASE STUDIES OF THE FEP LOOP

This table shows 10 case studies of management bodies that have undertaken EBFM (see report for full details). A checkmark indicates that parts of the FEP Loop have been developed for one or more species. This illustrates that the process is feasible using existing tools. However, most of these actions did not take place within the systematic framework of an FEP and therefore did not realize the main advantages of EBFM.

STEPS	NEW ENGLAND GROUNDFISH	MID-ATLANTIC BUTTERFISH	ATLANTIC MENHADEN	GULF OF MEXICO GAG GROUPER	PACIFIC SARDINES	PACIFIC WHALES AND SALMON	ALASKA GROUNDFISH	SCOTIAN SHELF FISH AND INVERTEBRATES	BALTIC COD, HERRING, AND SPRAT	AUSTRALIAN SMALL PELAGICS
1. WHERE ARE WE NOW?										
System inventory and conceptual model	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Select indicators		✓		✓	✓	✓	✓	✓	✓	
Inventory threats							✓			
2. WHERE ARE WE GOING?										
Vision statement		✓	✓				✓	✓	✓	
Strategic objectives	✓	✓	✓		✓	✓	✓	✓	✓	
Assess risk to objectives						✓	✓			✓
Prioritize objectives										
Operational objectives	✓						✓			✓
3. HOW WILL WE GET THERE?										
Performance measures	✓				✓		✓			✓
Management strategies	✓				✓	✓	✓			✓
Evaluate strategies	✓				✓	✓	✓			✓
Select strategy	*	✓	✓	✓	✓	✓	✓		✓	✓
4. IMPLEMENTATION		✓	✓	✓	✓		✓		✓	✓
5. DID WE MAKE IT?					✓					

* Management alternatives have been voted on by the council but not adopted.

CONCLUSION

The Task Force report recommends that managers develop and use FEPs to initiate a structured process for establishing goals and translating them into action. It concludes that such a process is critical for overcoming many of the barriers to EBFM—arguably more so than the creation of scientific knowledge, management capacity, or legal authority. Finally, it finds that managers have the tools to create FEPs in light of evidence that they are already carrying out nearly all the necessary steps.

The full report and a companion Implementation Volume providing extensive guidance on developing FEPs are available at www.LenfestOcean.org/EBFM.

A school of mackerel.

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Andrews, K.S., C.J. Harvey, and P.S. Levin. 2013. Conceptual models and indicator selection process for Washington state's marine spatial planning process. Final report to the Washington Coastal Marine Advisory Council. Available from http://www.msp.wa.gov/wp-content/uploads/2013/07/NOAA_NWFSC_ConceptualModel_FinalReport.pdf.

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About the Lenfest Fishery Ecosystem Task Force

The Task Force is a 14-member panel of natural and social scientists convened by the University of Washington with support from the Lenfest Ocean Program. Its mission was to provide guidance to mangers on implementing EBFM. It held workshops with managers and stakeholders in four U.S. locations (Seattle; New Orleans; Portland, Maine; and Baltimore) from September 2014 to February 2016, deliberated on the benefits, challenges, principles, and best ways to implement EBFM, conducted numerous case studies, and reviewed the literature on EBFM. An advisory panel consisting of past and present fishery management council members, scientists from the National Oceanic and Atmospheric Administration (NOAA), and other management experts provided guidance throughout the process and reviewed the draft report.

TASK FORCE

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The Lenfest Ocean Program is a grantmaking program that funds scientific research on policy-relevant topics concerning the world's oceans and communicates the results. Supported research projects are motivated by policy questions for which additional scientific information could help inform decision makers of relevant marine science. The Program was established in 2004 by the Lenfest Foundation and is managed by The Pew Charitable Trusts (www.lenfestocean.org, Twitter handle: @LenfestOcean).

Founded in 1919, the **School of Aquatic and Fishery Sciences** (SAFS) is dedicated to sustaining healthy marine and freshwater environments. Our faculty conduct innovative research from the organism to the ecosystem scale and are recognized leaders in aquatic biology, sustainable fisheries management, aquatic resource conservation, and resource management. We study natural systems and species and present solutions to foster the sustainable use of aquatic resources.

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Lenfest Ocean Program was established in 2004 by the Lenfest Foundation and is managed by The Pew Charitable Trusts

SUPPORTING SCIENCE AND COMMUNICATING RESULTS.

Mid-Atlantic Fishery Management Council
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Michael P. Luisi, Chairman | G. Warren Elliott, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: 11/30/16

To: Chris Moore

From: Jason Didden

Subject: Industry-Funded Monitoring (IFM) Amendment

Following this cover page, please find a decision document and public comment summary for the Industry-Funded Monitoring (IFM) Amendment. NMFS staff has the lead on this action and organized the creation of the IFM documents (i.e. they did most of the work). They were supported by the IFM Joint Plan Development Team/Fishery Management Action Team (PDT/FMAT), which consists of technical staff from NMFS and both the New England and Mid-Atlantic Fishery Management Councils.

On the December 2016 Council meeting page (http://www.mafmc.org/briefing/december-2016), please also find attached:

-Public Hearing Document
-Full Draft Environmental Assessment
-Excel comment summary
-All written comments received by NOAA
-Public comments submitted to the Council
-Public Hearing Comments

DECISION DOCUMENT

for

Industry-Funded Monitoring Omnibus Amendment

An Omnibus Amendment to the
Fishery Management Plans of the
Mid-Atlantic and
New England Fishery Management Councils

Mid-Atlantic Fishery Management Council
Baltimore, Maryland
December 12-15, 2016

The following decision tables in this document appear in the same order as the sections in the Draft Industry-Funded Monitoring Omnibus Amendment.

ONMIBUS ALTERNATIVES	
Objective: The omnibus alternatives would standardize the process to allow industry funding to be used in conjunction with available Federal funding to pay for additional monitoring (in addition to SBRM coverage) to meet FMP-specific coverage targets.	
Council selects one alternative (Omnibus Alternative 1 or Omnibus Alternative 2). If Council selects Alternative 2, then it should also select one of the Omnibus Alternatives 2.1 through 2.5 (prioritization process) and it may also select Omnibus Alternative 2.6 (monitoring set-aside).	
Alternatives/Options Under Consideration	**Description**
Omnibus Alternative 1	No Action
Omnibus Alternative 2	Standardized process to allow industry funding to be used, in conjunction with Federal funding, to pay for fishery monitoring (in addition to SBRM coverage) to meet FMP-specific coverage targets. Omnibus Alternative 2 includes the following components: • Standard cost responsibilities for industry and NMFS; • Process for additional FMP-specific IFM programs to be implemented via a future framework adjustment action; and • Standard administrative requirements for IFM service providers.
Omnibus Alternatives 2.1 - 2.5 ***(Alternative 2.2 is a Council Preferred Alternative)***	**Prioritization Process Alternatives (choose one):** These options would establish a prioritization process to allocate Federal funding across new IFM programs, when Federal funding is not sufficient to meet all coverage targets. If there is no available Federal funding, there would be no additional monitoring to meet FMP-specific coverage targets. **Alternative 2.1 - NMFS-led Deliberative Prioritization Process.** NMFS prepares analysis and prioritization in consultation with the Councils. May require future rulemaking to establish a specific prioritization approach that would apply to all FMPs. **Alternative 2.2 - Council-led Deliberative Prioritization Process.** Council prepares analysis and recommends priorities to NMFS. May require future rulemaking to establish a specific prioritization approach that would apply to all FMPs **Alternative 2.3 - Proportional prioritization process.** Shortfalls in Federal funding would be distributed proportionally among all new IFM programs. Does not require future rulemaking, because this approach is formulaic. **Alternative 2.4 - Coverage ratio-based prioritization process.** 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 do not need much additional monitoring to meet coverage targets and have the most active fleets. **Alternative 2.5 - Coverage ratio-based prioritization process.** 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 additional monitoring to meet coverage targets and have the least active fleets.
Omnibus Alternative 2.6 ***(Council Preliminary Preferred Alternative)***	**Monitoring Set-Aside Option -** This option would allow the development of a monitoring set-aside program via a future framework to each FMP. No monitoring set-asides would be created through this action.

Omnibus Alternative Prioritization Tradeoffs		
	Pros	**Cons**
Discretionary Alternatives: Omnibus 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	Requires rulemaking
Formulaic Alternatives: Omnibus Alternatives 2.3-2.5	Shorter timeline	No discretion
	Adaptive to budget changes and timing	Blunt instrument - 2.4. and 2.5 may not align with management priorities.

MAFMC Motions on Omnibus Alternatives (February 2016):

I move that the Council select Alternative 2 (Standardized Structure for IFM Programs) as the preliminary preferred alternative for the IFM Amendment. **Motion carried 17/0/0.**

I move that the Council adopt the following guiding principles for IFM programs implemented by GARFO. Data collection programs for the estimation of fishery catch should be:

- 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 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.
- **Motion carried 17/0/0.**

I move that the Council recommend 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. **Motion carried 17/0/0.**

I move that the Council select Alternative 2.6 (Monitoring Set-Aside) as the preliminary preferred alternative for the IFM Amendment. **Motion carried 17/0/0.**

I move that the Council select Alternative 2.2 (Council-led Prioritization) as a preferred alternative for the IFM Amendment, and clarify that the overall prioritization process could be modified by a framework. **Motion carried 17/0/0.**

MAFMC Motions on Omnibus Alternatives (June 2016):

Move for new IFM programs to use an equal weighing scheme for funding prioritization. **Motion carried 19/0/0.**

Omnibus Alternatives	Indirect Impacts on Biological Resources	Indirect Impacts on Fishery-Related Businesses and 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 case-by-case 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	Potential low positive 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 (*Preferred Alternative*)		
Alternative 2.3: Proportional Prioritization Process	Potential low positive impact related to information collection because process considers all industry-funded programs Does not allow for prioritization based on program need/design	Potential low positive impact related to information collection because process considers all industry-funded programs Does not allow for prioritization based on program need/design
Alternative 2.4 and 2.5: Coverage Ratio-Based Prioritization Processes		
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).		

MACKEREL ALTERNATIVES	
Objective: The mackerel coverage target alternatives would address: (1) accurate estimates of catch, including retained and discarded catch; (2) accurate estimates of incidental catch for which catch caps apply (i.e., river herring, and shad); and (3) effective and affordable monitoring for the mackerel fishery.	
Council selects one alternative (Mackerel Alternative 1 or Mackerel Alternative 2). If Council selects Alternative 2, then it should also select one of the Mackerel Alternatives 2.1 through 2.5 (coverage targets). Additionally, there are 5 non-compulsory sub-options for consideration as well, which may be selected for any of the coverage target alternatives.	
Alternatives/Options Under Consideration	**Description**
Mackerel Alternative 1	No Action
Mackerel Alternative 2	Coverage target for IFM programs
Mackerel Alternatives 2.1 - 2.5	**Mackerel Coverage Target Alternatives (choose one):** **Mackerel Alternative 2.1 –** Would apply 100 % NEFOP-level observer coverage on MWT and Tier 1 SMBT vessels, 50% NEFOP-level observer coverage on Tier 2 SMBT vessels, and 25% NEFOP-level observer coverage on Tier 3 SMBT vessels. **Mackerel Alternative 2.2 –** Would apply at-sea monitoring coverage (ASM) on MWT and Tier 1 SMBT vessels. Choose an ASM coverage target (25%, 50%, 75%, or 100%). **Mackerel Alternative 2.3 –** Would apply a combination of monitoring coverage based on gear type and permit category: • Would apply electronic monitoring (EM) and portside sampling coverage on MWT vessels. Choose an EM and portside sampling coverage target (50% or 100%). • Would apply ASM coverage on Tier 1 SMBT vessels. Choose an ASM coverage target (25%, 50%, 75%, or 100%). **Mackerel Alternative 2.4 –** Would apply EM and portside sampling coverage on MWT vessels. Choose an EM and portside sampling coverage target (50% or 100%). **Mackerel Alternative 2.5 –** Would allow MWT vessels to select monitoring type. • Initially, would apply ASM coverage on MWT vessels. Choose an ASM coverage target (25%, 50%, 75%, or 100%). • When the Council determines EM and portside sampling are an acceptable alternative for ASM, then MWT vessels would be able to choose ASM or EM and portside sampling coverage. Choose an EM and portside sampling coverage target (25%, 50%, 75%, or 100%).
Mackerel Sub-Options 1 - 5	**Sub-Options are all optional (may choose one or more sub-options):** **Sub-Option 1 –** Would allow vessels to be issued waivers to exempt them from IFM requirements, for either a trip or the fishing year, if coverage was unavailable due to funding or logistics. If not selected, fishing effort would be reduced to match the available level of monitoring. **Sub-Option 2 –** Would exempt a wing vessel pair trawling with another MWT from IFM requirements, provided the vessel does not carry fish. **Sub-Option 3 –** Would require IFM requirements to expire 2 years after implementation. **Sub-Option 4 –** Would require Council to reevaluate IFM requirements 2 years after implementation. **Sub-Option 5 –** Would exempt vessels that land less than 25 metric tons of mackerel from IFM requirements.

MAFMC Motions on Mackerel Alternatives (June 2016):

Move under item #2 create a subset of alternatives that would allow additional biological information to be collected (kept and discarded catch). **Motion carried 19/0/0.**

Move that slippage consequences would apply for ASM but not for EM, to be further reviewed after completion of the EM pilot project and clarify that slippage consequences are frameworkable. **Motion carried 18/1/0.**

Move to approve the draft EA for public hearings as modified today. **Motion carried 17/0/0.**

Regarding the following: DRAFT Herring Committee Motion (Pierce/Kaelin): That the Council add an alternative to Section 2.0: Would apply a combination of monitoring coverage based on permit category or gear type:

- Would apply ASM coverage on Category A and B vessels using midwater trawl, purse seine and small mesh bottom trawl gear. Choose an ASM coverage target of 25%, 50%, 75%, or 100%.
- After the goals of the sea herring/mackerel electronic monitoring pilot program are reached, midwater trawl and purse seines can choose to continue with ASM or use EM/portside sampling. The EM/portside sampling would be at a rate of 50% or 100%.

Move that if NE adopts adding the above or a similar motion, then the Mid-Atlantic Council would approve adding similar flexibility for mid-water trawl mackerel fishing related to Alternative 2.2. **Motion carried 15/1/2.**

NEFMC Motion on Herring Alternatives (June 2016):

That the Council add an alternative to Section 2.0 [Herring Coverage Target Alternatives]: Would apply a combination of monitoring coverage based on permit category or gear type:

- Would apply ASM coverage on Category A and B vessels using midwater trawl, purse seine and small mesh bottom trawl gear. Choose by gear type an ASM coverage target of 25%, 50%, 75%, or 100%.
- After satisfactory completion of the EM Pilot Project such that the Council decides that EM/Portside Monitoring is an acceptable alternative to ASM for specific fishing methods, vessels using those methods can choose to continue with ASM or use EM/portside monitoring.
- Vessels be limited to choosing one monitoring type per fishing year;
- Vessels declare their preferred monitoring type six months in advance of the fishing year; and
- After consulting with NMFS, the Councils establish a minimum participation threshold for each of their choice.
- **Motion carried 16/0/1.**

MAFMC Considerations:

In its July memo, the PDT/FMAT identified issues with calculating combined coverage targets (i.e., SBRM coverage + IFM coverage = combined coverage target) for NEFOP-level observer and ASM coverage. PDT/FMAT would be evaluating how to calculate combined coverage targets as part of implementation. In summary, combined coverage targets would be calculated by NMFS, in consultation with Council staff.

MAFMC may want to recommend a motion similar to the June 2016 NEFMC motion on herring alternatives for mackerel midwater trawl vessels and specify that it would send its determination on whether EM/Portside monitoring is an acceptable alternative to ASM for mackerel midwater trawl vessels to NMFS in a letter.

Mackerel Alternatives	Impacts on Biological Resources	Impacts on Fishery-Related Businesses and Communities
Alternative 1: No Coverage Target Specified For IFM Programs (No Action)	Low positive impact associated with observer coverage allocated by SBRM	Low positive impact associated with observer coverage allocated by SBRM
Alternative 2: Coverage Target Specified For IFM Programs	Low positive impact associated with additional monitoring to reduce uncertainty around catch estimates Positive impact if fishing effort is limited and reproductive potential is increased	Negative impact associated with potential reduction in return to owner (RTO) Negative impact if fishing effort is limited by monitoring availability and mackerel harvest is limited
Alternative 2.1: NEFOP-Level Coverage on Midwater Trawl Vessels and Tier 1-3 SMBT Vessels		Negative impact associated with potential 11.9%-4.3% reduction in RTO
Alternative 2.2: ASM Coverage on Midwater Trawl Vessels and Tier 1 SMBT Vessels		Negative impact associated with potential 10.3%-1.4% reduction in RTO
Alternative 2.3: Combination Coverage on Midwater Trawl Vessels and Tier 1 SMBT Vessels		Negative impact associated with potential 10.3%-1.4% reduction in RTO
Alternative 2.4: EM and Portside Sampling Midwater Trawl Vessels		Negative impact associated with potential 8.3%-1.6% reduction in RTO
Alternative 2.5: ASM Coverage on MWT Vessels, then Vessels may choose either ASM or EM/Portside Coverage		Negative impact associated with potential 8.2%-0.6% reduction in RTO
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).		

2016-2018 Draft Timeline for the Industry-Funded Monitoring Omnibus Amendment	
2016	
JAN 11	NEFMC briefing book deadline
JAN 26-28	**NEFMC – Selects preferred Omnibus Alternatives**
JAN 25	MAFMC briefing book deadline
FEB 9-11	**MAFMC – Selects preferred Omnibus Alternatives**
FEB 26-MAR 4	PDT/FMAT review of Herring Coverage Target Alternative Discussion Document
MAR 9-23	PDT/FMAT review of Mackerel Coverage Target Alternative Discussion Document and Draft EA
MAR 30	MAFMC briefing book deadline
APR 11-14	**MAFMC – Reviews Mackerel Coverage Target Alternatives**
APR 4	NEFMC briefing book deadline
APR 19-21	**NEFMC – Reviews Herring Coverage Target Alternatives**
MAY 6-20	PDT/FMAT review of Draft EA
MAY 30	MAFMC briefing book deadline
JUN 6	NEFMC briefing book deadline
JUN 14-16	**MAFMC – Approves Draft EA for public comment**
JUN 21-23	**NEFMC – Approves Draft EA for public comment**
JUL 20	PDT/FMAT meeting to discuss revising the Draft EA
AUG	NMFS begins EM pilot project
AUG-SEP	PDT/FMAT revise the Draft EA (*incorporating new alternatives and analysis*)
SEP 8-15	PDT/FMAT review revised Draft EA
SEP 16-22	Finalize Draft EA
SEP 23-NOV 7	45-day public comment period
OCT-NOV	Public hearings
NOV	PDT/FMAT summarizes public comments and responses
NOV 30	MAFMC briefing book deadline
DEC 13-15	**MAFMC – Takes final action on IFM Amendment**
2017	
JAN 10	NEFMC briefing book deadline
JAN 24-26	**NEFMC – Takes final action on IFM Amendment**
FEB-MAR	Draft EA finalized and Proposed Rule drafted
APR	Proposed Rule publishes with 45-day comment period
MAY-JUN	Comment period ends
JUL	EA finalized and Final Rule drafted
AUG	Final rule publishes
SEP	Approved omnibus measures effective
NOV	NMFS completes EM pilot project
2018	
JAN	Approved coverage target alternatives effective (*delayed to allow time for industry compliance*)

Summary of Public Comments Received on the Industry-Funded Monitoring Omnibus Amendment

Public comments for the Industry-Funded Monitoring (IFM) Omnibus Amendment were collected during the period from September 23 through November 7, 2016. Comments were collected through submittal online, by mail, and during the five public hearings (including one webinar) that were held in locations potentially affected by the actions of the amendment. Below is a summary of the public comments gathered through both public hearings and online/mail submission:

Comments Regarding the **IFM Amendment in General**:

- 63 commenters were against the amendment as a whole

Comments regarding the **Omnibus Alternatives** in the IFM Amendment:

- Comments on Alternative 1-"No Action"
  - 70 Commenters supported "No Action":
- Comments on Alternative 2:
  - Alt. 2.1 (NMFS-Led Process): 0 in favor, 1 against
  - Alt. 2.2 (Council-Led Process): 6 in favor, 2 against
  - Alt. 2.6 (Monitoring Set-Aside): 5 in favor, 0 against

Comments regarding the **Atlantic Mackerel Alternatives** in the IFM Amendment:

- Comments on Alternative 1- "No Action"
  - 40 Commenters supported "No Action"
- Comments on Alternative 2:
  - Alt. 2.1 (NEFOP-Level Observer): 2 in favor, 2 against
  - Alt. 2.2 (ASM): 0 in favor, 1 against
  - Alt. 2.5 (Choice of ASM or EM/Portside): 3 in favor, 2 against
- Comments on Sub-Options:
  - Sub-Option 1 (Waivers): 4 in favor, 3 against
  - Sub-Option 2 (Wing Vessel Exemption): 5 in favor, 1 against
  - Sub-Option 3 (2 Year Sunset): 0 in favor, 4 against
  - Sub-Option 4 (2 Year Re-evaluation): 5 in favor, 1 against
  - Sub-Option 5 (Coverage only on trips >25 mt): 3 in favor, 2 against

Additional popular and/or important comments are listed in the table below:

Comments about Amendment in General	**Number of Comments**
Inadequate notice/locations for public hearings/comment.	14
Weren't aware that amendment involved FMPs other than herring and mackerel (hidden in omnibus, etc.).	11
NOAA should fund any additional coverage.	25
Observer collected data is repetitive/isn't used, so why collect it?	12
Concerns that this amendment doesn't address (or violates) legal provisions of the MSA.	8
Cost of increased coverage will result in unsafe conditions due to lack of funds for maintenance, increased tension with observers etc.	5
IFM should account for affordability to industry in the future- no safeguard that this won't bankrupt them.	6
Comments Regarding Mackerel Section	
Complete the EM pilot project before moving ahead.	3
Can't afford any additional coverage on SMBT/smaller boats.	15

All submitted comments and public comments collected during the public hearings can be found on the Mid-Atlantic Fisheries Management Council website at this link: http://www.mafmc.org/briefing/december-2016.

At this link, a summary of public hearing comments and submitted comments can be found in the "Public Comment Summary" MS Excel spreadsheet. The spreadsheet has four tabs at the bottom. The first tab ("MAFMC FMPs Summarized") summarizes the public comments received on the IFM Amendment in general, the Omnibus alternatives, and the Atlantic mackerel alternatives. The second and third tabs ("All Public Hearings Comments" and "All Submitted Comments") summarize each comment made on the amendment in general (grey section of rows), omnibus alternatives (purple section), Atlantic herring alternatives (green section), and Atlantic mackerel alternatives (blue section). The fourth tab ("NEFMC FMPs summarized") is similar to the first but summarizes Atlantic herring alternatives, rather than Atlantic mackerel.

FIFTH COAST GUARD DISTRICT
ENFORCEMENT REPORT

01 October 2016 – 30 November 2016

Presented to the Mid-Atlantic Fisheries Management Council
Prepared By:
Enforcement Branch
Fifth Coast Guard District

Table of Contents Page

List of Abbreviations

CFVS – Commercial Fishing Vessel Safety
HC-130 – USCG Fixed-Wing Aircraft
WPB – 110ft or 87ft Patrol Boat
STA – USCG Small Boat Station
EPIRB – Emergency Position Indicating Radio Beacon
WMEC – 210’ or 270’ Medium Endurance Cutter
M/V – Motor Vessel
SAR – Search and Rescue
WLB – 225ft Buoy Tender
P/C – Pleasure Craft
F/V – Fishing Vessel
A/S – Air Station
SEC - Sector
M/T – Motor Tanker

I. Mid-Atlantic Fisheries Enforcement and Marine Protected Species Operations

Operations Summary

During this period, major cutters, patrol boats and stations conducted fisheries patrols in the Mid-Atlantic in an effort to curtail illegal fishing throughout D5's AOR. Units conducted 77 boardings, issuing 1 notice of violation. In mid-November, D5 units commenced Atlantic Striped Bass enforcement efforts.

Boarding Statistics (Note: "This Period" data should be considered preliminary and is subject to change)

01 October – November 2016 Activities		Comparison to FY16
Fisheries Boardings	77	67
Fisheries Boardings w/Fishery Violations	1	4
Violation Rate	1.3%	5.9%

Activities Fiscal Year 2017		Comparison to FY16
Fisheries Boardings	77	67
Fisheries Boardings w/Fishery Violations	1	4
Violation Rate	1.3%	5.9%

Violation Summary

28NOV16: CGC LEGARE issued a violation to a fishing vessel for an expired operator's permit.

Marine Protected Species Support Summary

01NOV16: D5 commenced Operation Right Speed in support of the Right Whale Ship Strike Reduction Rule. Sectors will remind pilots and shipping agents in their respective areas of responsibility about the rule at various meetings and public forums.

14NOV16: SEC Delaware Bay received a report from a recreational vessel of an entangled humpback whale approximately 3 NM south of Avalon, NJ. Although STA Cape May was able to locate the whale upon receiving the report, the unit could not remain on scene until the arrival of a disentanglement team. CGC MAKO and a CG helicopter were unable to relocate the whale on 15NOV16.

II. Commercial Fishing Vessel Safety Efforts

(October 1, 2016 – November 30, 2016)

Fishing Vessel Dockside Safety Examinations	This Period	Fiscal Year to Date
Dockside Exams	48	48
Decals Issued	41	41
Commercial Fishing Vessel Safety Terminations	00	00

III. Search and Rescue Highlights

From October 1, 2016 – November 30, 2016, there were 9 marine casualties reported involving commercial fishing vessels:

- Allision – 0
- Capsize – 0
- Collision – 0
- Damage to Environment (Pollution/Hazmat) – 1
  - MISS JANE (O.N. MD2277Z) – 04 OCT 2016
- Death – 0
- Disabled (Equipment Failure) – 1
  - JAEGER (O.N. 628009) – 14 NOV 2016
- Fire – 0
- Flooding – 1
  - MARINER (O.N. NC3690DS) – 24 NOV 2016
- Fouling – 0
- Grounding – 2
  - KOKOPIA (O.N. UNKNOWN) – 09 OCT 2016
  - SHEILA RENEE (O.N. 606114) – 23 NOV 2016
- MEDEVAC – 4
  - JANE CAROLYN (O.N. 1041448) – 12 OCT 2016; crewman found unresponsive in bunk.
  - SALVATION (O.N. UNKNOWN) – 20 OCT 2016; crewmember experienced vomiting, back pain, and shortness of breath.
  - CAPT ALEX (O.N. 604116) – 23 OCT 2016; master experienced massive chest pains and burning in his right arm.
  - MD4067BF (O.N. MD4067BF – 26 OCT 2016; crewmember experienced kidney stones.
- Injury – 1
  - NORDIC PRIDE (O.N. 911804) – 27 OCT 2016
- Fall(s) Overboard – 1
  - LADY KIMBERLY (O.N. CG1401143) – 14 NOV 2016
- Sinking – 1
  - VIRGINIA HOPE (O.N. 517549) – 14 NOV 2016
- Terminations – 0

IV. Outreach Information

No significant outreach information at this time.

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

MEMORANDUM

Date: December 2, 2016

To: Council

From: Rich Seagraves

Subject: NJ SMZ Request

Below please find the summary of public comment received on the NJ DEP request to designate all 13 of its permitted reef sites in the EEZ as Special Management Zones(SMZs). In addition, the Monitoring Team Report distributed at the October Council meeting has been revised to correct Table 2. As noted below, all written public comments received by the Council are available on the Council website.

Public Hearing Summary

Public hearings were held on the NJ request to designate 13 of its permitted reef sites in the EEZ in Brooklyn, NY, Toms River, NJ, and Cape May, NJ. A total of 26 individuals testified with 13 in favor of establishing all 13 NJ reef sites as SMZs and 13 opposed to SMZ designation (see individual hearing summaries below).

All of the individuals in favor of SMZ designation represented the recreational fishing and diving communities and the party/charter boat fleet. The primary reason for their support of the SMZ designation was the proliferation of gear conflicts with pot/trap gear being fished directly on the reef sites. They cited the loss of terminal fishing tackle (hooks, bottom rigs, lures and sinker, etc.) that get snagged on commercial traps, buoy and ground lines (costs them money); fouling of anchors on commercial gear; difficulty in fishing the areas due to trap congestion on some sites; the proliferation of lost traps (ghost gear) which continue to foul recreational fishing gear; lost bottom time for divers; commercial gear on the reefs is a hazard to navigation and poses safety risks; and failure to designate the reefs as SMZs will result in the loss of SFR Program funding which is necessary to build new reefs and to maintain the existing reef system off the coast of New Jersey.

All of the individuals in opposition to the designation of all 13 reef sites as SMZs were from the commercial sector and included commercial and subsistence pot/trap fishermen, representatives of commercial fishing organizations, owners of seafood markets or restaurants, and one seafood consumer. The reasons for their opposition included: in their opinion no gear conflicts exist or they are over-stated; prohibition of commercial gear is fundamentally unfair - they want access to the reef sites (especially for small scale inshore fishermen); lack of access to inshore reefs will increase their costs and reduce supply of seafood to local markets (especially to supply the summer tourist

market); they are seeking a compromise that will allow some access to the reefs by the commercial sector; and SMZs which prohibit commercial gear on the reefs are in violation of the National Fisheries Enhancement Act.

Written Comments

The Council received 642 written comments relative to the request by the State of New Jersey to designate all 13 of its permitted reef sites in the EEZ as SMZs. Written comments were received in the form of emails, post cards and letters (all comments are available for inspection on the Council website). The vast majority (628 or 98 %) of the written comments were in favor of designating all 13 sites located off the coast of New Jersey in federal waters as SMZs. The Council received 13 written comments in opposition to the designation of all 13 reefs as SMZs; those in opposition included primarily commercial fishermen who utilize the reefs. As was the case of the oral public testimony described above, those in favor represented the recreational fishing and diving communities. The reasons for supporting the SMZ designation were the same as was described above based on public hearing testimony. In general, those in support of the SMZ designations want all 13 sites designated as SMZs with gear restrictions imposed year round allowing only hook and line and spear fishing (including the taking by hand). Those in opposition are seeking a compromise which will allow some access to the reef sites by commercial trap gear (in particular, see letter from W. Chew which outlines options he proposed).

New Jersey SMZ Request
Public Hearing
Brooklyn, NY
November 16, 2016

The hearing was opened by hearing officer Mr. Anthony DiLernia (MAFMC member) at 7:15 PM. Mr. Seagraves gave a presentation of the report of the Monitoring Team which was developed as a result of the New Jersey request for designation of its artificial reefs in the EEZ as SMZ's.

Doug Stickler supported the designation of all 13 artificial reef sites permitted to the state of New Jersey in the EEZ as SMZs as recommended in the Monitoring Team's report.

Steven Cannizzo, fishing united.com, read the following statement: "I am submitting the following personal public comment regarding the proposed rule on the New Jersey Special Management Zones ("SMZs") measures for artificial reefs. This has been a contentious fair use and access issue for more than a decade between a small number of commercial fishermen deploying fixed gear, such as pots and traps, to target lobster, conch, and bottom fish along with those using gill nets around artificial reefs along the New Jersey coastal shoreline.

New Jersey has been one of the preeminent states on the East Coast in deploying various reef material over the past three decades and it has led to the creation of 15 artificial reefs; two within state territorial waters and 13 which are deployed at various depths and nearby distances in federal waters and now with a near future proposed A.R. footprint possibly being deployed north of Barnegat Inlet.

The creation of artificial reefs or as we are now starting to recognize as "ecosystem-enhancement" projects is based upon the premise to increase fishing thus seafood harvesting, along with

providing increased diving opportunities for all user groups. But a growing conflict has arisen from a segment within the recreational fishing and dive community that has now led to an attitude of a zero-sum situation with the possible prohibiting of the extremely limited pot trap and gill net activities that are ongoing at this time on New Jersey artificial reefs.

The divisive rhetoric we have seen in newspapers, websites and in social media from a number of recreational anger groups range from shortsighted to over-exaggerate the conflict as fishermen especially within the for hire sector have for years dealt with and worked around the fixed gear that has been deployed on and around artificial reefs.

This is not an issue about fish conservation but in fact a use, access and gear conflict divide which should be debated over and worked out amongst your user groups in order to reach some consensus of compromising on the reasonable full access use of a small portion of New Jersey artificial reefs.

Time and again as the New Jersey “pots on the reef” issue has been raised, anglers complain about lost hook and line gear, yet fail to neglect to mention that in the targeting of any regional top and more so bottom species during the recreational fishing season, will also result in the loss of hook and line terminal fishing tackle. It is to be expected when fishing next to or within any wreckage, rocks, or man-made debris created structure.

I am not trying to sanitize or minimize the issue with commercial fixed gear causing the loss of fishing tackle or that the gear itself when deployed during certain periods of the fishing season will take a higher proportion of legal size fish in contrast to hook a line gear. This though is an area where fishermen should be willing to sit down and work out a solution that would provide access on, and I'm using as an example, on a rotational basis - three the current 13 artificial reefs that are in federal waters to limit such conflicts in the future.

Numerous compromises exist and have been presented over the years and we as fishermen should be open to discuss both a reasonable and flexible commercial fishing “full use alternative” during the season upon and within proximity to a limited number of these artificial reefs from the Shark River area and southward to Cape May providing access to fixed gear.

I would ask that those in both the New York and New Jersey for-hire sector to consider supporting an effort for all user groups to come up with a compromise in order that a small group of commercial fishermen are not disenfranchised by the call of “no pots on the reef".

As we have seen with the New Jersey artificial reef program, it does provide the commercial, for hire, recreational angler and sport diver, not only with nearshore access to enjoy their activities, but as much as they can generate a significant economic benefits for all user groups.

The hearing was closed at 7:40 PM.

New Jersey SMZ Request
Public Hearing
Toms River, New Jersey
November 16, 2016

The hearing was opened by hearing officer Mr. Thomas Baum of the New Jersey Department of Environmental Protection at 7:05 PM. Mr. Seagraves gave a presentation of the report of the Monitoring Team which was developed as a result of the New Jersey request for designation of its artificial reefs in the EEZ as SMZ's.

An unidentified fishermen commented that he has fished the reefs for 25 years and there is no gear conflict. He also stated the revenue numbers are completely wrong – he himself caught more than $25,000 worth of fish on the reefs.

Ron Nachman, representing South Jersey Salt Water Anglers and Fortescue Anglers stated that to say there is no gear conflict is not true. He gave an example where he was fishing on a reef and had a commercial fishermen try to give him a ball of tackle, hooks and sinkers he had gotten off of his pots that day. This illustrates the severity of the problem. They are also vigilant when fishing the reefs, constantly being on the look-out for pot gear which they might tangle their gear in. There is a gear conflict and that is why they support the SMZ designation.

Dave Spendiff, representing Village Harbor Fishing Clubs, stated that his club helped to build three of the reef sites and has been involved in the development of the reef program since the early days of the program. The members of his club fish the reef for species like summer flounder and are constantly complaining about tangling their gear on commercial gear on those reef sites. There is certainly a conflict and the loss of the fishing tackle costs them money – they would like to see the situation resolved through the designation of the 13 reef sites in the EEZ as SMZs.

Bill Figley, representing Beach Haven Marlin Fishing Club which consists of 300 fishing members stated that his club has donated enough money to the reef program to build 8 reefs. There are definitely problems with tangling gear on commercial traps which are basically like four foot sections of chain link fence. They fish the reefs in two ways – drifting for fluke and anchoring on structure for species like tog and black seabass. They get their gear snagged in traps and also get anchors fouled in the ground lines of the trap gear. It is very discouraging when you get to a reef that you paid for and it is covered with high fliers. You know there is a lot of gear down there but you are not sure exactly where. When you put hundreds of traps down with thousands of feet of line you create a quagmire of obstacles that make it difficult to fish and they end up losing a lot of gear. Ghost gear is also a problem – lost traps continue to snag recreational hook gear for years after they are lost which adds to the problem. This gear conflict has led to the loss of $300,000 worth of funding for the NJ reef program. The loss of fishing tackle is not something that would get reported to the Coast Guard but the conflict is real. Over the past couple of years the problem has gotten worse and for this reason his club supports the monitoring teams recommendation to designate all of the 13 NJ reef sites as SMZs which should restrict the gear types to hook and line, spear and taking by hand. Mr.Figley presented the Council with a petition developed by Reef

Rescue with 4556 signatures supporting the ban on pots on public reefs (see Council website to inspect this petition).

Eric Engard, Commodore of the Forked River Tuna Club, agreed that there are gear conflicts on the reefs. All of our members have experienced gear conflicts on the reefs. Their club has purchased concrete, reef balls and tanks to deploy on the reef sites. They are adamantly in support of the designation of all 13 reef sites as SMZs.

Scott Mackey, representing Garden State Seafood Association, noted that he will also be submitting written comments. It is worth noting that there is a historic nature to the reef program when it was being developed – both user groups have contributed funds to the reef program. While it is true that the recreational component is larger he questioned the Corporate donation category – the only value the commercial sector gets credit for is the donation of vessels and there was also in-kind contributions from the commercial sector (dock space for deployment) that is not captured in the analysis. He also questioned the state contribution in terms of staff time and other in-kind matching – both sectors should get credit of those state contributions because both sectors contribute to the NJ tax base. It should be noted that the large whale take reduction plan requires sinking ground lines on all trap gear so this should reduce the snagging of lines on ground gear. He also thought the gear conflict problem has been overstated. In addition, he would like the Council to consider other alternatives that might include some sort of sharing agreement between the two groups like was done for the NJ reef in state waters.

Greg DiDomenico, GSSA Executive Director, stated that we have been here before – all they want is to come to some resolution of this issue. He does not doubt there are some conflicts on the reefs – when you use different gear types you get conflicts, it happens all the time. They want a solution that reduces gear conflicts but is not a complete prohibition. They also want the NJ funds for reef building restored – they would support a resolution to the problem that is similar to the one hammered out for the state water reef. Let's do it again and work together to find a solution to this problem.

Glenn Arthur, Chairman of the NJ Association of Dive Clubs, and noted that his group has been a long-time supporter of the reef program and they donated a reef ball in their name which is in the commercial portion of the state NJ reef site. They agree with the monitoring team's findings of complete SMZ status for all 13 NJ reef sites. We also thank the monitoring team for the recommendation to allow taking of fish (lobster) by hand as we take lobster by hand – and they do fight back. Also, with regard to funding as was mentioned earlier, he noted that a commercial industry member testified in Trenton at a state senate hearing that they do not write checks to the artificial reef program. He also contended that the original $400,000 that was used to start the reef program came from a fine against the Oyster Creek Power Plant and the DEP had no say in how that money was spent, so neither side can claim credit for it. They agree with the monitoring team recommendation to make all 13 reef sites as SMZs which would restrict the use of gears to hook and line, spear, and taking by hand.

Kevin Fahy, commercial lobsterman, said he appreciates the artificial reef being built. He stated that any charter boat captain who can't anchor up around trap gear needs to take a lesson in anchoring a vessel. The gear is clearly marked. He doesn't understand why the rec guys can't fish around their gear. He doesn't fish the reefs at all (maybe 2% of his effort), but he feels the commercial catch on the reefs does not impact the stock. He has lost zero traps on the Seagirt and

Axel Carlsson reef. There is no ghost gear – none. He has fished for 11 years but the last ten years he has fished for fun and food -he does not sell his catch. He felt that adequate notice of this meeting was not given to the lobster fleet. This is god's ocean and no one owns it. There are lobster guys that fished the same areas long before the reefs were developed. Plus, there is a lot of structure out there – don't tell me it's flat ocean, there is plenty of structure in the area off New Jersey. This issue is one sided. He is a recreational lobsterman and he is no different that ne party charter sector. He won't lose any money but it is the principle of the issue – this is a pathetic, demoralizing one sided exercise.

Ken Warshaw, I represent the JCAA which is an association of 74 fishing clubs representing thousands of recreational anglers. I also represent the Manasquan Tuna fishing Club which has 235 members. The Manasquan Tuna fishing Club has been involved in 11 deployments on NJ artificial reefs and they are very interested in this situation. They fully support the designation of all 13 NJ reef sites as SMZs. We urge the Council to accept the monitoring team's recommendation to remove the pots from the reefs so funding can be restored. There are numerous pots and lines on the reefs that are a hindrance to recreational fishermen. The pots and lines prevent them from fishing the very reefs that they paid for. He knows from personal experience that the pots are poorly marked on the Shark river, Sea Girt and Axel Carlssson reefs. In many cases there are no high fliers – the pots are marked with boat fenders or plastic bottles which are hard to see and get pulled under when the tide runs hard. They support the move to remove the pots from the reefs and urge the Council to designate all 13 reef sites as SMZs.

John Toth, representing the NJ Outdoor Alliance and the Saltwater Anglers of Bergen County, fully supports the monitoring team's recommendation to designate all 13 NJ reef sites as SMZs.

Stephen Celeste, commercial fisherman, has fished the reefs for 25 years. When the reef program started in 1993 there was no discussion or plan to restrict the use of gear types on the reefs. Now you are talking about prohibiting pot gear on them. It so happens he was already fishing these areas before they were reefs sites. He noted that if the pot gear is removed from the reefs, fishermen are still going to get entangled in the reefs – it's the nature of the area -there is a lot of debris to hang rigs and anchors up on. The $25,000 figure of lost income if pots are banned is totally wrong – it's way too low. Plus, just because you dump stuff on the bottom of the ocean doesn't mean you own the area – this SMZ proposal is just not right.

Peter Grimibilas representing the New Jersey Outdoor Alliance noted that the monitoring committee report is spot on. We need the reefs to be designated as SMZs. The gear conflict is bad and is getting worse each year. We see more and more traps on the reefs every year. In some cases, recreational fishermen move off the reefs because they are saturated with commercial gear making them impossible to fish. The rec fishermen complained to the USFWS and they cut off New Jersey's SFR funding for reef building. At that point reef building stopped. We need to designate these reefs as SMZs to restore the funding and resume reef building off the Jersey coast. We have over 3000 signatures to present to the Council supporting SMZ designation of the 13 NJ reef sites. The monitoring team report is spot on – they are in complete support of designating all 13 reef sites as SMZs with no gear allowed except hook and line, spear and taking by hand.

Paul Huertel representing the Berkley Striper Club, which has over 200 members, stated that they support the SMZ designation for the 13 reef sites. He personally lost a large fluke he had on during a tournament. He lost the fish when the it got wrapped up in commercial trap gear – away went

the prize money. Other members get their props fouled in the trap lines which is a major hazard to navigation – the reefs are so congested you can't fish them.

Jack Fullmer, representing the New Jersey Council of Diving Clubs stated that sport divers don't lose gear due to commercial gear - they lose bottom time. When we go diving we grapple into the wreck but sometimes when we grapple into the wreck there is so much gear we may not have hooked the wreck – causing us to go down, un hook and re-grapple. This costs us valuable bottom time which is limited at these depths. Also, the statement was made that there is no ghost gear out there – divers see ghost gear all the time. They support the monitoring teams recommendations to designate all 13 reef sites as SMZs.

Hearing adjourned at 9:15 p.m.

New Jersey SMZ Request
Public Hearing
Cape May, New Jersey
November 17, 2106

The hearing was opened by hearing officer Mr. Thomas Baum of the New Jersey Department of Environmental Protection at 7:10 PM. Mr. Seagraves gave a presentation of the report of the Monitoring Team which was developed as a result of the New Jersey request for designation of its artificial reefs in the EEZ as SMZ's.

Harvey Yekinson favored the designation of all 13 New Jersey reef sites in the EZ as SMZ's - not one or two. He continually loses up to 30 rigs per day when fishing the reef sites - the conflict between hook and line and trap gear is real. This is not a conflict between recreational and commercial fishermen, it is a real gear conflict. The future of the reef program is dependent upon future funding which will be eliminated if the reefs are not designated as SMZs - the reefs will just continue to deteriorate unless they are maintained.

Jason Hansen asked what evidence is there that a gear conflict on the reefs truly exists? If hook and line fishermen are losing 10 to 15 rigs per trip, how do you know your gear is fouling on fixed trap gear and not the debris and rubble on the artificial reefs itself? His family business includes the operation of two restaurants and a seafood market. They use the reef sites to catch a variety of species including sea bass lobster conch etc. to supply these businesses with fresh fish. The Council is not taking into account the fact that many people come to the Jersey shore to eat seafood – his company provides access to seafood, not everyone has a boat and is able to fish the reefs. The data in the October document which shows the landings at less 1% of the total is seriously flawed and grossly underestimates the economic activity related to commercial fishing on the reef sites. The statement that there is no economic impact and that it can be made up elsewhere is false – the data used is flawed since conch and lobster which is what Mr. Seagraves said the October council meeting. The document only talks about sea bass – the recreational fishery had quota overages of 54-112% - the reefs concentrate the fish which contributes to the recreational overages making the problem worse.

Donna Hansen, F/V Nordic Sun, stated that the monitoring team's recommendation to designate the NJ reefs as SMZs is not based on sound science. Under the applicable laws section, the document fails to mention the National Fisheries Enhancement Act which requires all reefs to

benefit both commercial and recreational fisheries. The SMZ designation would be to the benefit of only the recreational fishermen. The SMZ report only looks at the money spent by recreational fishermen but does not take into account the public value. The Army donated the tanks which are a public resource but this is counted in as recreational but the American public paid for the tanks. NJ took credit for all of the public value because they want the recreational fishermen to look good. She was adamantly opposed to the designation of any of the NJ reefs as SMZs.

Noel Angelucci, Fortescue Anglers, supported the designation of all 13 reef sites as SMZs.

David Kielmeier, Carmen's Lobster Pool, stated that he fishes some of the reef areas for lobster. The data presented in the Monitoring Team report are way low on lobster – the report grossly underestimates the commercial value of lobster. They are just now keeping track of conch this year – so the conch value is under represented also. The monitoring team report does not capture the high dollar value species and there are a lot more people deriving commercial revenue from the reefs than the report indicates – the whole SMZ issue should be put on hold.

Thomas Vivian stated that he represents the taxpayer and consumer. There is no way for him to utilize the reef resources except by buying fish from a seafood market. If the Council designates the New Jersey reef sites as SMZs because of a conflict between recreational fishermen and commercial traps there will be a reduction in the supply of lobster and black sea bass in the commercial markets. This will result in an increase in the cost of fish to him - the consumer. The SMZ designation will not eliminate the gear conflict, how can you claim that? The document indicates that an SMZ designation would result in a loss of revenue annually equal to $25,000, this number is incorrect. If the commercial trap fishermen are kicked off the reefs, their costs of producing seafood will increase and this increase will be passed on to him, the consumer. The reefs are supposed to be shared equally, so why aren't they?

Bill Figley, representing Reef Rescue presented the Council with a petition signed by x number of fishermen and divers favoring the designation of the 13 NJ reef sites as SMZs. The state of New Jersey began its reef program in 1984 but that program is not unique. All the states from New Jersey South and including the Gulf of Mexico have artificial reef programs. The reason for these programs is to benefit hook and line fishermen - which is not unique to New Jersey. Like public parks you need rules so that everyone is free to use this public resource. The refs were funded by federal aid and this is totally a clear conflict issue- certain types of fishing gear on the reefs make it a burden for intended users to utilize the reefs. All the states in the Gulf have designated their reefs as SMZs to address the problem with the proliferation of fixed commercial fishing gear on artificial reefs. When the reefs were improved there was an increase in trap gear and the same thing happened along the Atlantic coast. The South Atlantic got SMZ authority in the snapper grouper FMP. The Mid-Atlantic Council saw the potential need to address this problem so a provision was placed in the black sea bass summer flounder and scup FMP 15 years ago. We are currently faced with a major gear conflict between hook and line and pot trap gear on New Jersey reef sites. He recommended that the Council follow the monitoring teams recommendation to grant SMZ status for all 13 New Jersey reef sites which would restrict gear types to hook and line, spear, and taking by hand.

James Parker, representing himself, noted that when the artificial reef program in New Jersey was being developed in the 1980s the stated purpose was to benefit sport and commercial fishermen

alike. The current sentiment is to eliminate the use of commercial gear on artificial reefs and New Jersey, so obviously there is a latent sentiment which differs from the original intent of New Jersey in developing its reef program. Now the Council wants to restrict the use of the reefs to the benefit of hook and line fishermen only under an SMZ designation. The Council is supposed to represent all interest groups, but now we are moving the goal posts. The SMZ idea can be put forward with the stroke of a pen - and that SMZ designation runs counter to the original intent of the reef permit holder which was to benefit both recreational and commercial fishermen alike.

Marty Buzas, F/V Frank, noted that the SMZ situation is analogous to a public bench donated by the Kiwanis club at the publicly owned Cape May Ferry terminal. The Kiwanis club donated the bench but they don't own it because it is located on publicly owned property. He has been fishing for over 20 years on the Capt. Frank. Only six fishermen qualified for black sea bass hook and line permits - two were scallopers, two were party boats and two are sitting in this audience. It was stated on the public record that there could be a viable commercial hook and line fishery with this many participants. Any intelligent man would say this is not true. Mr. Chew cited the National Fisheries Enhancement Act which outlines the need to manage benefits from artificial reefs. With only two fishermen trying to make a living using hook and line, there are limited or no benefits to the commercial sector. The SMZ proposal would allow only hook and line gear on the 13 reef sites - how will a commercial guy catch and make a living on lobster and conch using hook and line gear only? He wants to make NMFS do the right thing. Managing the reef sites is not about qualifying for grant money - it's about fair utilization from both sectors. The solution is simple - cut the reefs in half as Mr. Chew has proposed.

Walt Chew stated that he was retired. Let me start by telling you about a property I have in Stumpy Point, North Carolina. I'm going to build something down there and the County says it's okay and they'll issue a permit to do it. So I got a general contractor and he's lined up a few subcontractors to do the work. And I got some financing lined up. But let me ask you this - which of those - the general contractor the subcontractors or the financer gets to say what the purpose of that project is? That's right - none of them! I own the property and I am the only one who gets to say what the purpose of that project is.

Now you know about the projects right here off our coast. The federal government owns property out there and Congress decided that it wants to have some projects - artificial reefs built on. So Congress authorized the Army Corps to give permits to general contractors to oversee the work. The New Jersey DEP got a permit to be the general contractor for the 13 sites off our coast. Then the DEP found volunteers and subcontractors to actually do the work. The DEP liked the idea of building reefs so much that it kicked in some state financing and lined up grant money to build two reefs on state property and 13 reefs on federal property. We know who sets the intent of the state reefs, it's the state because it owns the property but tell me who gets to say what the purpose of those 13 reefs sites on federal property is? Nobody but Congress can change it and no amount of guys saying our money paid for it or groups saying our grant money was meant to help only recreational fishermen can change what Congress said.so here's my first suggestion to NMFS - sit your butt down and read what Congress said.

Now because the MAFMC hasn't read the law, it's about to create a legal problem for NMFS here. The MAFMC rep from Virginia - Dr. Mann, asked this question at the October meeting. He said are we going to establish a policy of you pay for you get to keep it or we going to make it that if you pay for it it's better for everybody and we get to share. That was an excellent question and the

answer is found in federal law 33 USC 2101 and 2102. Nobody gets to keep it and if the Council would just read the law that you Mr. Seagraves left out of your presentation and you the monitoring committee hid from them - they would see that Congress says that recreational and commercial fishermen are to share it.

I'm going to get a little deep into the legal stuff here so follow closely. This SMZ that's being proposed is not, I repeat not, part of a fisheries management plan. Why not? Because it doesn't have to do with any fish – that means it doesn't fall under the discretionary provisions of the Magnuson Act found in federal law 16 USC 1853Bb2a….. NMFS is proposing this action as an SMZ under the authority of 50 CFR 648.146. But that CFR doesn't let NMFS prohibit any gear it wants to do…. the CFR says that NMFS can only prohibit gear that is, and I quote, "incompatible with the intent of the reefs". And the problem that NMFS is creating for itself is that it is using a reef intent statement that doesn't apply to these reefs. You see when the DEP assistant commissioner wrote his letter to the mid-Atlantic Council asking for the SMZ he said that the intended use of the reefs was angling but he was wrong, wrong, wrong - to put it mildly its BS. Why do I say that? It's because he got that angling idea from something that the DEP wrote about state water reefs, not from what Congress wrote about federal reefs. Nowhere did Congress say that the intended use of federal reefs was angling. And unless NMFS can show that everything except hook and line is incompatible with the intent that Congress wrote for federal reefs. Doing it is not legal under the law NMFS says it is using. Have their legal advisor read the law to them slowly and explain what it means. Sounds like a repeat doesn't it? All I can say is since the Council started out by not reading the law and knowing what it is supposed to do, it ended up here proposing to do something illegal.

Now, the let me explain a second legal problem that NMFS is creating for itself here. Even though New Jersey is a permit holder and had the authority to request that NMFS make SMZ's - NMFS is the manager of these reefs and as such NMFS must be aware that the standards listed in federal law 33 USC 2102 apply to any action it takes. Those standards say that reefs shall be, not should be, but shall be "managed in a manner that will facilitate access and utilization by recreational and commercial fishermen". When a law says shall it means that NMFS has no other option than to do what it says. When NMFS put the SMZ's like the one in place for the reefs off Delaware's coast, it left only one fisherman in the whole state of Delaware who could possibly utilize the reefs. I submitted a public comment saying that it was a violation to put an SMZ in place that didn't let commercial fishermen have utilization of the reefs. NMFS's answer was this " NMFS doesn't have to have it benefit recreational and commercial fishermen simultaneously". While as president Reagan would say, I's true - benefit to both sectors doesn't have to be simultaneous. But that SMZ made it so that the reefs never benefited commercial guys. The $64,000 question is when is NMFS going to see the word "and" in that law and do the other half of what the law says it's got to do. Let me point out that by making it so that the commercial guys never get utilization, NMFS violated federal law. And it's about the do it again here. So ask the Council this - is NMFS above the law that it can do whatever it wants to do?

In New Jersey everything is a pay to play system, what happened with New Jersey's two state artifical reefs was no different. But I got sad news for all you guys that say "it's our money that built the reefs". These reefs aren't in New Jersey and pay to play doesn't work on federal property.

So let's step back and summarize this legal stuff by giving you an overview of how law says artificial reefs are supposed to work. Any reef program in federal waters should be designated to

achieve the things that Congress listed as its intent for federal reefs in federal law 33 USC 2101a5. It says nothing about donors having a say in what happens. There are legal options for program matters managers to request designation of sections or entire reefs preferred for certain fishing sectors; or for the exclusion of certain gear types. However, but no reef program can violate the standard listed in 33 USC 2102 (2) by making the end result one-sided.

As Mr. Nowalski pointed out, trying to divide up the reefs by determining which section of all 13 reefs sites should be designated for which sector or which gear type can be an almost impossible task. And because of the locations of the reefs, equitably allocating entire reefs and future development of those sites to different sectors is not only impossible but also runs contrary to the reason that the reefs were located near each inlet to start with.

So here's the problem in a nutshell - because federal reefs are not a pay to play program, where the money came from to build the reef should have absolutely nothing to do with how they are managed. Congress says both recreational and commercial fishermen must have utilization of the reefs. The Congress also says minimize conflicts among uses. The problem is that two sectors utilize gear types that are each compatible with the intent of the reefs but are not compatible with each other.

So how do we minimize the conflict while still allowing each sector utilization? The answer is the answer to Dr. Mann's original question about policy and it's something that we all learned in kindergarten - sharing. At the last meeting of the mid-Atlantic Council, Mr. Bullard, the NMFS Regional Director asked that you come out here in public hearings and get from the public (that's me) the suggestions of ways to share the reefs. Here's a written copy of it (**see Attachment 1**). It's simple and it's fair to everybody and it's legal because it does what the law says must be done by minimizing the conflict both recreational and commercial fishermen have with each other on the reefs while helping both sectors to utilize federal reefs. I'll summarize it this way - cut the reefs in half, make one half recreational the other commercial and swap sides each year. It's an equitable distribution of reef resources to both sectors and it will solve the conflict problem forever no matter what form of fishing either commercial or recreational guys come up with next.

That's it, hope you took good notes and got these points that I just made:
1. Reef intent is not found in statements made by DEP or US FWS SFRP - it's listed in federal law, read it.
2. This proposed SMZ is not legal because under the CFR being used, prohibiting gear for any reason other than incompatibility with reef intent is not legal
3. NMFS is required to manage these reefs in a manner that will let both recreational commercial fishermen have utilization. This proposal isn't doing that.
4. Sharing is the answer to solve the problem - cut the reefs in half.

Rachael Hansen stated that the commercial revenue loss on New Jersey reef sites likely to result from an SMZ designation as presented in the Monitoring Team report is a totally inaccurate number. She requests that the Council ask that the state provide accurate and real numbers to describe the negative economic impact on the commercial sector which would result from an SMZ designation. Her family runs a seafood market and we sell what we catch. Her dad and brother fish every day and provide local fresh seafood for the many tourists which come to the beach to eat seafood. In many cases patrons call ahead to place their order and we target those species to meet their needs. If the reefs are designated as SMZs, her business will suffer. We provide consumers

with access to fresh seafood because not everyone has a boat and access to the reef sites. How can we increase access to US fishery products with such a one-sided policy? There has been no attempt to compromise or consider the real impact on tourism and local fishing communities.

Greg DiDomenico, Garden State Seafood Association, is 100% in support of the idea of crafting a compromise that will allow access to the reef sites from both sectors. The Mid-Atlantic Council has tackled much larger and controversial issues than this. He asks that the Council find a way to craft a solution to this problem that is fair to both sides. All he asks is for equal treatment in this situation. The Council should consider Mr. Chew's proposal at the upcoming December Council meeting. The Council should commit to meeting with industry advisors, including both parties, so we can work this out. The GSSA is committed to working with all parties concerned, including the DEP, to work out a solution to this problem.

The public hearing adjourned at 8:55 PM.

Cape May Hearing Attachment 1

30 Oct 2016

Dr. Christopher M. Moore
Executive Director, MAFMC

Dr Moore: RE: NJ Artificial reef SMZ request

There are two laws concerning artificial reefs in the EEZ under which NMFS can and should act.

The first is 50 CFR 648.148. It allows NMFS to restrain or prohibit "*gear*" that is "*incompatible with the intent of the reef"* (see Attachment 1). However, in order to prohibit any gear type when acting under this CFR, the Council must be careful not to use statements of intent that come from source other than the owner of the reefs[1]. Since the U.S. Government owns the reefs in federal waters, NMFS must show that the gear type being prohibited is incompatible with the intent that Congress established for artificial reefs in Federal waters as listed in 33 USC 2101 (a5).

The second law is 33 USC 2102. It **mandates** that management measures on artificial reefs in the EEZ are to be managed in a manner that is consistent with standards included in the law (see Attachment 1). These standards reference fishing ***sectors*** *(commercial and recreational)*, and "***uses***" rather than gear.

Since, in New Jersey's request, the reason for the SMZ request is that pots are causing recreational users to lose *access* to reef areas (rather than pots being incompatible with the intent[1] of Federal reefs), **it is justifiable, under the mandate of 33 USC 2102, to create an SMZ plan that ameliorates present and future conflict by addressing sector usage**.

Near the close of the Council's discussion on SMZs, Mr. Bullard asked that the public make suggestions for a "sharing" plan that may be an alternative to the "possibly imperfect" plan suggested by the Garden State Seafood Association (GSSA), Therefore I propose the attached plan (see attached *Plan A*) that:

- Meets the sector mandates of 33 USC 2102 and the gear requirement of 50 CFR 648.148;

[1] *Sport Fish Restoration Program (SFRP)* ***intent*** applies only as criteria for granting SFRP funds; and *New Jersey reef program* ***intent*** applies only to State waters reefs.

- Allows the reef near each inlet to be accessed and utilized by both sectors simultaneously as opposed to the GSSA plan that makes the fishermen from one of the sectors travel a great distance to get on a reef of proper designation;
- Allows each sector to have an equitable distribution of reef resources in the EEZ as opposed to the possibility of an inequitable distribution or inequitable future reef development.

(Both of the latter are shortcomings of the GSSA plan.)

Please have the Council consider the attached *Plans* as fair and balanced solutions (SMZ) for ameliorating conflicts occurring on all Federal waters reefs.

The Old Fisherman
Walter Chew (wdchew@comcast.net)

Definitions: (used in both plans)

Unattended gear: Equipment (including buoys) that is more than 300 feet from, **or** is detached from the vessel.

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Plan A

I. Reef permit holder responsibilities:
   A. Establish a permanent line approximately bisecting the reef into two sections.
   B. Between Apr 1 and Dec 31 each year, designate one section of the reef as *recreational zone* and the other as *commercial zone*.
      1. Section designations shall alternate on Apr 1 each year.

II. Gear requirements:
   A. Because *unattended* gear causes conflict among recreational users, no *unattended* gear may be deployed or used in the *recreational zone* [required by 33 USC 2102(3)]
   B. Because dredges and nets cause permanent damage to reef structure, use of all forms of dredges and nets (except hand held landing nets) are prohibited in both zones. (justified under 50 CFR 648.148)
   C. In order that each fishing sector may have access and utilization of reef areas [required by 33 USC 2102(2)] and experience minimal conflict while doing so: [required by 33 USC 2102(3)]
      i. Recreational fishing is prohibited in the *commercial zone.*
      ii. Commercial fishing is prohibited in the *recreational zone.*

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Plan B **(similar to New Jersey's state waters plan)**

I. Reef permit holder responsibilities:
   A. Establish a permanent line approximately bisecting the reef into two sections.

B. Between Apr 1 and Dec 31 each year, designate one section of the reef as *all gear zone* and the other as *angling zone* .
   i. Section designations shall alternate on Apr 1 each year.

II. Gear requirements:
A. Because *unattended* gear restricts access by anglers, no *unattended* gear may be deployed or used in the *angling zone*. [as required by 33 USC 2102(3)]
B. Because they cause permanent damage to reef structure, use of all forms of dredges and nets (except hand held landing nets) are prohibited in both zones.
(justified under 50 CFR 648.148)

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Notes:
-- In Plan A, fishermen of each sector are free of conflict with fishermen of the other sector no matter what gear they are using. The annual alternating of section designations creates an equitable initial distribution of reef resources to both fishing sectors and maintains an equitable distribution independent of future reef development.
-- In Plan B, recreational anglers experience conflict in the *all gear zone*, but are free from conflict with *unattended gear* in the *angling zone*.
-- Both plans have the characteristic of: When a fishing season is closed, that half of the reef becomes a fish sanctuary.

ATTACHMENT I (Regulations and Laws)

50 CFR 648.148 - Special management zones.

*"..... The MAFMC may prohibit or restrain the use of specific types of fishing **gear** that are not compatible with the **intent of the artificial reef** or fish attraction device or other habitat modification within the SMZ. ...."*

(intent of a Federal Artificial reef is listed in 33 USC 2101 a5)

33 USC 2101 - Congressional statement of findings and purpose

(a) The Congress finds that—

(5) properly designed, constructed, and located artificial reefs in waters covered under this chapter can

enhance the habitat and diversity of fishery resources;
enhance United States **recreational and commercial fishing opportunities**;
increase the **production of fishery products** in the United States;
increase the energy efficiency of **recreational and commercial fisheries**; and
contribute to the United States and coastal economies.

(b) The purpose of this chapter is to promote and facilitate responsible and effective efforts to establish artificial reefs in waters covered under this chapter.

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33 USC 2102 - Establishment of standards

"..... artificial reefs in waters covered under this chapter shall be sited and constructed, and subsequently monitored and managed in a manner which will—

(2) facilitate access and utilization by United States **recreational and commercial fishermen**;
(3) minimize conflicts among **competing uses** of waters covered under this chapter and the resources in such waters;
(4)....."

A Report to the Mid-Atlantic Fishery Management Council

on the New Jersey Department of Environmental Protection's request for

Special Management Zone (SMZ) Designation for 13 Artificial Reef Sites in the EEZ

FIRST DRAFT
(modified 10/5/2016)

October 2016

SMZ Monitoring Team

Travis Ford
Karen Greene
Richard Seagraves
Scott Steinback

Executive Summary

The New Jersey Department of Environmental Protection (DEP) petitioned the Mid-Atlantic Council to designate 13 artificial reef sites as Special Management Zones (SMZs) in the EEZ under provisions of Amendment 9 to the Summer Flounder, Scup and Black Sea Bass FMP. The justification for this request was based on the need to ameliorate gear conflicts between hook and line fishermen and fixed pot/trap gear at those sites. The DEP had funds for its artificial reef program in the EEZ under the US Fish and Wildlife Service Sport Fish Restoration (SFR) Program terminated (which is effectively the DEPs sole source of funding for its reef program) as a result of the gear conflict issue in 2011, though this funding was at least partially restored in 2016.

A Monitoring Team was formed to evaluate the NJDEP request relative to the following factors: (1) fairness and equity; (2) promotion of conservation; (3) avoidance of excessive shares; (4) consistency with the objectives of Amendment 9 to the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan, the Magnuson-Stevens Act, and other applicable law; (5) the natural bottom in and surrounding potential SMZs; and (6) impacts on historical uses. This report contains an analysis of these factors and recommendations relative to the DEP request.

Findings:

1. The designation of the NJDEP 13 reef sites appears to be compatible with the Magnuson-Stevens Act and other applicable federal law.

2. Comparing the mapped commercial pot/trap effort by reef site to estimates of recreational fishing effort at each reef site points to potential gear conflicts at the Cape May and Sea Girt reef sites, particularly between commercial pot/trap vessels and party/charter vessels. Given that approximately half of the party/charter reef effort in 2015 was estimated to occur at the Cape May and Sea Girt reef sites, gear interactions may be occurring at these reef sites. The probability of gear conflicts at the other 11 reef sites is low.

3. Ex-vessel revenue from pot/trap landings at all 13 reef sites combined approached only $25 thousand in 2015. This represents less than one percent of total ex-vessel revenue (i.e., reef revenue and non-reef revenue combined) obtained by vessels with pot/trap reef landings in 2015. Over the past 5 years, ex-vessel reef revenue from pot/trap landings has remained below 1% of total ex-vessel revenue for vessels with pot/trap reef landings. When all pot/trap activity occurring in New Jersey is considered (i.e., ex-vessel revenue from vessels with and without reef landings), reef site ex-vessel revenue represented between 0.19% and 0.31% of total ex-vessel revenue from New Jersey pot/trap landings.

4. These findings indicate that commercial fishing vessels deploying pot/trap gear off the coast of New Jersey would likely face minimal to no losses in ex-vessel revenue if the artificial reefs are designated as SMZs.

Recommendations

1. Based on evaluation of all relevant factors and issues as outlined in Amendment 9 to the Summer Flounder, Scup and Black Sea Bass FMP, the SMZ Monitoring Team recommends that the Council designate all 13 New Jersey's artificial reefs located in the EEZ as SMZs. The SMZ designation should stipulate that no fishing vessel or person on a fishing vessel may fish in the 13 New Jersey Special Management Zones with any gear except hook and line and spear fishing (including the taking of fish by hand).

2. The Council would reserve the right to change or revise these SMZs, including any gear restrictions imposed as a result of such designations, if future analyses cause the Council to alter its policy with respect to SMZs during a broader consideration of this issue.

3. The Council should review the 2007 National Artificial Reef Plan and modify (if necessary) the artificial reef policy it adopted in 1995 and consider incorporating its artificial reef policy into ongoing efforts to establish habitat policy within the context of an Ecosystem Approach to Fisheries Management.

1.0 Introduction

The Mid-Atlantic Fishery Management Council received a letter dated 6 November 2015 from the State of New Jersey's Department of Environmental Protection (DEP) requesting Special Management Zone (SMZ) designation for 13 permitted artificial reefs located in the Exclusive Economic Zone (EEZ). Amendment 9 to the Summer Flounder, Scup and Black Sea Bass FMP (approved by NOAA on 17 October 1996; see 61 FR 58467, Nov. 15, 1996) incorporated a provision into the FMP (Section 9.1.2.7) that allows for the designation of artificial reefs in the EEZ as SMZs, if so petitioned by the permit holder.

The current regulatory language (as of July 19, 2012) pertaining to the SMZ provision of the FMP can be found at 50 CFR Part 648: Subpart I - Management of the Black Sea Bass Fishery as follows:

§ 648.148 Special management zones.

The recipient of a U.S. Army Corps of Engineers permit for an artificial reef, fish attraction device, or other modification of habitat for purposes of fishing may request that an area surrounding and including the site be designated by the MAFMC as a special management zone (SMZ). The MAFMC may prohibit or restrain the use of specific types of fishing gear that are not compatible with the intent of the artificial reef or fish attraction device or other habitat modification within the SMZ. The establishment of an SMZ will be effected by a regulatory amendment, pursuant to the following procedure:

(a) A SMZ monitoring team comprised of members of staff from the MAFMC, NMFS Greater Atlantic Region, and NMFS Northeast Fisheries Science Center will evaluate the request in the form of a written report, considering the following criteria:

(1) Fairness and equity;
(2) Promotion of conservation;
(3) Avoidance of excessive shares;
(4) Consistency with the objectives of Amendment 9 to the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan, the Magnuson-Stevens Act, and other applicable law;
(5) The natural bottom in and surrounding potential SMZs; and
(6) Impacts on historical uses.

(b) The MAFMC Chairman may schedule meetings of MAFMC's industry advisors and/or the SSC to review the report and associated documents and to advise the MAFMC. The MAFMC Chairman may also schedule public hearings.

(c) The MAFMC, following review of the SMZ monitoring team's report, supporting data, public comments, and other relevant information, may recommend to the Regional Administrator that a SMZ be approved. Such a recommendation will be accompanied by all relevant background information.

(d) The Regional Administrator will review the MAFMC's recommendation. If the Regional Administrator concurs in the recommendation, he or she will publish a proposed rule in the Federal Register in accordance with the recommendations. If the Regional Administrator rejects the MAFMC's recommendation, he or she shall advise the MAFMC in writing of the basis for the rejection.

(e) The proposed rule to establish a SMZ shall afford a reasonable period for public comment. Following a review of public comments and any information or data not previously available, the Regional Administrator will publish a final rule if he or she determines that the establishment of the SMZ is supported by the substantial weight of evidence in the record and consistent with the Magnuson-Stevens Act and other applicable law.

1.1. Formation of SMZ Monitoring Team

Based on requirements described above, an SMZ Monitoring Team (MT) was formed consisting of members of MAFMC Staff, the Northeast Fisheries Science Center (NEFSC), and the Northeast Regional Office (NERO) to evaluate the SMZ request submitted to the MAFMC by NJ DEP (see appendix 1). The role of the Monitoring Team is to evaluate New Jersey's SMZ request for 13 reef sites in the EEZ based on the criteria developed in Amendment 9 in the form of a written report.

1.2 Basis for New Jersey's SMZ Request

In a letter to Dr. Chris Moore dated November 6, 2015 (appendix 1), the NJ DEP formally requested that the Council designate its 13 artificial sites currently permitted in federal waters (as defined by the Army Corps of Engineer [COE] permit number CENAP-OP-R-200401135-1) under the SMZ provisions of Amendment 9 to the Summer flounder, Scup and Black Sea bass FMP described above. In the SMZ request letter it was noted that "Since the inception of New Jersey's Reef Program in 1984, and increasingly as reef development intensified and habitat increased, we have received complaints from individuals, head boat and charter boat captains, grassroots organizations and state legislators on behalf of their constituents that there is too much commercial gear on our reefs. The deployment of this gear severely limits recreational access to these reefs and makes unviable the intended hook-and-line use of these sites."

In its SMZ request letter, the NJDEP also noted that "New Jersey's Reef Program was funded primarily through the U. S. Fish and Wildlife Service's (USFWS) Sport Fish Restoration Program (SFR), which is a "user pays, user benefits" program. Following several requests by the USFWS to resolve these user conflict and access issues, on April 12, 2011 SFR funding for the Reef Program and all reef construction and monitoring activities was discontinued for failure to address the issue. USFWS officials stated that funding to the Reef Program would be restored once these issues are resolved. The USFWS stated position is that that when gear conflicts occur, pot fishing on reef sites is not consistent with the objectives of their Sportfish Restoration Program. State reef programs must be able to limit gear conflicts by regulations in state waters or by way of SMZ's for sites in the EEZ in order to comply with the goals of the Sportfish Restoration Program. This theme was also articulated during a presentation to the Council by the USFWS entitled *Dingell – Johnson Sport Fish Restoration Program(SFRP) -*

Recreational and Commercial Fishing Conflicts on Artificial Reefs - Implications for Federal Funding. That presentation described the artificial reef grant objectives of USFWS to be "to increase diversity, abundance and availability of reef-dependent species sought by recreational fishermen through creation of artificial reefs and to provide increased fishing opportunities for recreational anglers ….". The major issues from the USFWS perspective include 1) proliferation of commercial fishing traps/pots on artificial reefs constructed with Dingell-Johnson Sport Fish Restoration (SFR) funds, 2) commercial/recreational gear conflict interferes with accomplishment of artificial reef grant objectives and 3) absence of mechanisms to manage commercial fishing on reefs located in State -controlled waters and the Exclusive Economic Zone**.** The USFWS noted the following implications for SFR funding in cases where commercial/recreational gear conflicts are not remedied: 1) replacement of expended funds 2) suspension or termination of project for noncompliance and 3) declare the State ineligible to participate in SFR program.

Thus, the following evaluation by the SMZ Monitoring Team of New Jersey's request for SMZ status for its 13 reef sites in the EEZ focuses on the proliferation of gear conflicts between recreational fishermen and fixed pot/trap gear described by NJDEP in its 6 November 2015 letter and the contention that gear conflicts are contravening the goals of its artificial reef program. As noted above, this contention is consistent with policy guidance relative to acceptable uses of artificial reefs funded with SFR funds as articulated by the USFWS.

2.0 History of Development of New Jersey Reef Sites

Since 1984, the NJ Bureau of Marine Fisheries has been involved in an intensive program of artificial reef construction and biological monitoring along the New Jersey coastline. The stated purpose of the NJ Reef Program is to create a network of artificial reefs in the ocean waters along the New Jersey coast to provide a hard substrate for fish, shellfish and crustaceans, fishing grounds for anglers, and underwater structures for scuba divers (http://www.state.nj.us/dep/fgw/artreef).

Artificial reefs are constructed by intentionally placing dense materials, such as old ships and barges, concrete and steel demolition debris and dredge rock on the sea floor within designated reef sites. At present, the division holds permits for 15 artificial reef sites encompassing a total of 25 square miles of sea floor. The reefs are strategically located along the coast so that one site is within easy boat range of 12 New Jersey ocean inlets. The subjects of this SMZ request are the 13 reef sites located in the EEZ.

Within each reef site, which range in size from one-half to over four square miles, numerous "patch reefs" have been constructed. A patch reef is a one-half to 5-acre area where one barge load of material has been deployed. In total, over 1200 patch reefs have been constructed on the state's 15 reef sites since the program began. Reefs are now being used extensively by anglers and divers who catch sea bass, blackfish, porgy and lobster.

Figure 1. Location of artificial reefs in the Atlantic Ocean permitted to the State of New Jersey (includes reef sites located in NJ state waters and the EEZ). Note: the two Del-Jerseyland sites are not included in this SMZ request.

2.1 New Jersey Reef Sites Description

2.1.1 Materials Allowed on the Reefs:

Under the US Army Corps of Engineers permit for the New Jersey reef program, artificial reef materials permitted for use on the sites are in two separate categories. The first are specifically designed reef materials. These design materials are constructed to maximize surface area for attracting organisms to provide specific habitat requirements for targeted reef fish and other marine species. The second category of reef materials allowed is identified as materials of opportunity. Materials of opportunity that could be used for construction of artificial reef structures include, but are not limited to, concrete, rock, surplus ships, barges, tanks, armored personnel carriers, and obsolete subway cars. In accordance with the National Artificial Reef Plan, and the US Army Corps of Engineers, all materials of opportunity must be properly cleaned, dismantle where necessary, and inspected prior to deployment to assure that they are clean and free of contaminants.

2.1.2 Description of Reef Sites for which the NJ DEP seeks SMZ designation

1. Sea Girt Reef site (area=1.3 nm^2) is located approximately 3.4 miles east of Sea Girt, in Monmouth County New Jersey. The Sea Girt site requires a minimum vertical clearance of fifty (50) feet below mean low water.

2. Shark River Reef site (area=0.72 nm^2) is located approximately 15.6 Nautical miles and at a direction of 100 degrees from the Manasquan Inlet, in Monmouth/Ocean County, New Jersey. The Shark River site requires a minimum vertical clearance of fifty (50) feet below mean low water.

3. Barnegat Light Reef site (area=0.85 nm^2) is located approximately 3.1 Nautical miles east of Barnegat Light in Ocean County, New Jersey. This site is approximately 3.1 miles from Barnegat Inlet at a direction of 103 degrees. The Barnegat Light site requires a minimum vertical clearance of fifty (50) feet below mean low water.

4. Garden State North Reef site (area=1.1 nm^2) is located approximately 6.5 nautical miles east of Harvey Cedars in Ocean County, New Jersey. This site is approximately 7.7 nautical miles at a direction of 172 degrees from Barnegat Inlet. The Garden State North site requires a minimum vertical clearance of fifty-two (52) feet below mean low water.

5. Garden State South Reef site (area=0.6 nm^2) is located approximately 5.1 nautical miles east of Spray Beach in Ocean County, New Jersey. This site is located approximately 9.1 nautical miles at a direction of 64 degrees from Little Egg Inlet. The Garden State South site requires a minimum vertical clearance of fifty-two (52) feet below mean low water.

6. Little Egg Reef site (area=1.5 nm^2) is located approximately 3.8 nautical miles east of Holgate in Ocean County, New Jersey. This site is located approximately 5.05 nautical miles at a direction of 93 degrees from Little Egg Inlet. The Little Egg site requires a minimum vertical clearance of fifty (50) feet below mean low water.

7. Atlantic City Reef site (area=4.0 nm^2) is located approximately 12. 2 nautical miles east of Atlantic City in Atlantic County, New Jersey. This site is located approximately 8.5 nautical miles at a direction of 142 degrees from Absecon Inlet. The Atlantic City site requires a minimum ve1iical clearance of fifty (50) feet below mean low water.

8. Great Egg Reef site (area=1.0 nm^2) is located approximately 7 nautical miles southeast of Atlantic City in Atlantic County, New Jersey. This site is located approximately 9.2 miles at a direction of 110 degrees from Great Egg Harbor Inlet. The Great Egg site requires a minimum .ve1tical clearance of fifty (50) feet below mean low water.

9. Ocean City Reef site (area=0.8 nm^2) is located approximately 4.5 nautical miles southeast of Ocean City in Cape May County, New Jersey. This is located 4.3 nautical miles at a direction of 131 degrees from Carson's Inlet. The Ocean City site requires a minimum vertical clearance of fifty (50) feet below mean low water.

10. Townsends Inlet Reef site (area=0.52 nm^2) is located approximately 3.8 nautical miles southeast of Townsends Inlet in Cape May County, New Jersey. The Townsends Inlet Reef site requires a minimum ve1tical clearance of thirty (30) feet below mean low water.

11. Wildwood Reef site (area=2.1 mi^2) is located approximately 4.4 nautical miles southeast of Wildwood in Cape May County, New Jersey. This site is located 4.5 nautical miles at a direction of 135 degrees from Hereford Inlet. The Wildwood site requires a minimum ve1ical clearance of thirty (30) feet below mean low water

12. Cape May Reef site (area=4.5 nm^2) is located approximately 8.5 nautical miles southeast of Wildwood in Cape May County, New Jersey. It is located 9.1 nautical miles at a direction of 128 degrees from Cape May Inlet. The. Cape May site requires a minimum ve1tical clearance of thirty (30) feet below mean low water.

13. Deepwater Reef site (area=0.72 nm^2) is located approximately 25.1 nautical miles southeast of Avalon in Cape May County, New Jersey. This site is located 31.5 nautical miles at a direction of 99 degrees from Cape May Inlet. The Deepwater site requires a minimum vertical clearance of fifty (50) feet below mean low water.

3.0 SMZ Monitoring Team Evaluation Based of the Criteria Established in Amendment 9

3.1 Evaluation relative of SMZ request relative to National Standard 4

There are six criteria for SMZ designation in Amendment 9 as described above in section 1.0. The first three criteria for SMZ evaluation: (1) fairness and equity; 2) promotion of conservation; and (3) avoidance of excessive shares are related to the National Standard 4 of the MSA which sets forth criteria Councils must follow when allocation of fishery resources or restrictions on access to those resources are contemplated.

Discrimination among residents of different states

First and foremost, National Standard 4 requires that management measures or programs promulgated under MSA shall not discriminate between residents of different states. An FMP may not differentiate among U.S. citizens, nationals, resident aliens, or corporations on the basis of their state of residence. An FMP may not incorporate or rely on a state statute or regulation that discriminates against residents of another state. Conservation and management measures that have different effects on persons in various geographic locations are permissible if they satisfy the other guidelines under Standard 4.

Examples of these precepts are:
(1) An FMP that restricted fishing in the EEZ to those holding a permit from state X would violate Standard 4 if state X issued permits only to its own citizens.
(2) An FMP that closed a spawning ground might disadvantage fishermen living in the state closest to it, because they would have to travel farther to an open area, but the closure could be justified under Standard 4 as a conservation measure with no discriminatory intent.

In the case of SMZ designation for New Jersey reefs in the EEZ, the Monitoring Committee sees no evidence of discrimination of residents of any particular state regardless of the Council's decision relative to SMZ status. Rather, the decision to designate an artificial reef as an SMZ represents an allocation of access to areas of the ocean within the geographic boundaries of the reef site in question (and any additional areas surrounding the SMZ deemed necessary to address practical law enforcement concerns is so included in accompanying regulations for the proposed action) to those using the gear type allowed in the SMZs. Access to the SMZs is not restricted to fishermen from any particular state. All fishermen using the gear type allowed in the SMZs can access this area to fish regardless of the state from which they departed. While there may be a disadvantage to those fishermen from states which are not adjacent to the SMZs, this is not considered to be discriminatory within the context of National Standard 4 as can be seen in Example 2 above.

Allocation of fishing privileges

An FMP may contain management measures that allocate fishing privileges if such measures are necessary or helpful in furthering legitimate objectives or in achieving the OY, and if the measures conform with paragraphs (3)(i) through (3)(iii) described below.

(1) Definition. An ``allocation" or ``assignment" of fishing privileges is a direct and deliberate distribution of the opportunity to participate in a fishery among identifiable, discrete user groups or individuals. Any management measure (or lack of management) has incidental allocative effects, but only those measures that result in direct distributions of fishing privileges will be judged against the allocation requirements of Standard 4. Adoption of an FMP that merely perpetuates existing fishing practices may result in an allocation, if those practices directly distribute the opportunity to participate in the fishery. Allocations of fishing privileges include, for example, per-vessel catch limits, quotas by vessel class and gear type, different quotas or fishing seasons for recreational and commercial fishermen, *assignment of ocean areas to different gear users,* and limitation of permits to a certain number of vessels or fishermen. Given the very limited amount of ocean area occupied by the SMZs of the available fishing area on the continental shelf off New Jersey, this allocation might well be considered *de minimis* in nature.

(2) Analysis of allocations. Each FMP should contain a description and analysis of the allocations existing in the fishery and of those made in the FMP. The effects of eliminating an existing allocation system should be examined. Allocation schemes considered, but rejected by the Council, should be included in the discussion. The analysis should relate the recommended allocations to the FMP's objectives and OY specification, and discuss the factors listed below in paragraph (3) of this section.

(3) Factors in making allocations. An allocation of fishing privileges must be fair and equitable, must be reasonably calculated to promote conservation, and must avoid excessive shares. These tests are explained in paragraphs (c)(3)(i) through (c)(3)(iii) of this section:

(i) Fairness and equity.

(A) An allocation of fishing privileges should be rationally connected to the achievement of OY or with the furtherance of a legitimate FMP objective. Inherent in an allocation is the advantaging of one group to the detriment of another. The motive for making a particular allocation should be justified in terms of the objectives of the FMP; otherwise, the disadvantaged user groups or individuals would suffer without cause. For example, an FMP objective to preserve the economic status quo cannot be achieved by excluding a group of long-time participants in the fishery. On the other hand, if there is a rational connection between an objective of harvesting a species at its maximum size, closing a nursery area to fishing would be allowable.

(B) An allocation of fishing privileges may impose a hardship on one group if it is outweighed by the total benefits received by another group or groups. An allocation need not preserve the status quo in the fishery to qualify as ``fair and equitable," if a restructuring of fishing privileges would maximize overall benefits. The Council should make an initial estimate of the relative

benefits and hardships imposed by the allocation, and compare its consequences with those of alternative allocation schemes, including the status quo.

Part A above notes that allocation of fishing privileges should be considered in relation to achievement of OY or to achieve an objective of the FMP. In this case, the Council is being asked to the restrict access to New Jersey artificial reef sites in the EEZ to those recreational and commercial fishermen using rod and reel and hand line gear only in order to ameliorate gear conflicts between this gear type and fixed pot/trap gear. While this action would further the stated objectives of the New Jersey Artificial Reef Program, it does not specifically address any of the stated FMP objectives nor serve to achieve OY. Neither conclusion is surprising given the extremely small area of the ocean area occupied by the artificial reefs for which SMZ designation is sought.

The designation of these artificial reefs as SMZs will serve one of the MSA's purposes, that is the promotion of recreational fishing. It is important to continue funding for the establishment and maintenance of the artificial reef program because these areas serve to enhance recreational fishing for certain species of fish such as black sea bass in the areas of the reefs. These areas provide forage and shelter for these species with benefits accruing for both recreational and commercial fishermen using compatible gear types. While fixed pot/trap fishermen would be disadvantaged because they would no longer have access to these areas, the area affected comprises an insignificant percentage of the overall area where fishing with these gear types is not constrained. Fostering the orderly conduct of a fishery within these areas for compatible gear types is a legitimate objective particularly where the impact on those using non-compatible gear is certainly not significant.

Part B requires the Council to evaluate the tradeoffs between benefits and costs to the two user groups relative to SMZ designation on New Jersey EEZ reef sites. If the Council ultimately decides to designate New Jersey reefs as SMZs (which includes gear restrictions), some positive benefits would be expected to accrue to fishermen using rod and reel and handline gear through reduced gear conflicts. However, prohibition of fixed pot/trap gear as part of an SMZ designation would have a negative impact on that sector of the fishery since they would be denied access to these areas. However, given the small size of the areas affected and the few fixed pot/trap fishermen operating in these areas, the amount of these losses is speculative. Certainly, there will be adverse economic consequences for the few fixed pot/trap gear fishermen who concentrate their efforts in these areas. However, it may be stated generally that there will not be a significant impact on a substantial number of small entities. Further, **t**he economic losses suffered by fixed pot/trap gear fishermen who are displaced from these areas could be mitigated to some degree by redirection of fishing effort to other fishing areas. The Monitoring Team lacks sufficient data to evaluate these tradeoffs quantitatively.

(ii) Promotion of conservation. Numerous methods of allocating fishing privileges are considered ``conservation and management'' measures under section 303 of the Magnuson-Stevens Act. An allocation scheme may promote conservation by encouraging a rational, more easily managed use of the resource. Or, it may promote conservation (in the sense of wise use) by optimizing the yield in terms of size, value, market mix, price, or economic or social benefit

of the product. To the extent that rebuilding plans or other conservation and management measures that reduce the overall harvest in a fishery are necessary, any harvest restrictions or recovery benefits must be allocated fairly and equitably among the commercial, recreational, and charter fishing sectors of the fishery.

As noted above, the SMZ designation request received by the NJDEP is based on the stated need to reduce gear conflicts between hook and line fishermen and fixed pot/trap gear on New Jersey reef sites in the EEZ**.** Certainly, the significant reduction or elimination of gear conflicts falls within the ambit of "wise use" of the resource in the artificial reef sites through the promotion of at least social benefits. More trips may be made to these areas if fishermen realize that they may no longer lose gear to fixed pot/trap gear. This could result in increased economic benefits for those commercial and recreational fishermen who choose to fish in these areas. Further, the elimination of fixed pot/trap gear should reduce or eliminate the presence of ghost fishing gear in the SMZ area. Certainly, given the small size of these artificial reef areas in comparison to the totality of available fishing grounds, these conservation benefits are expected to be less than significant. This conclusion does not have any measureable impact on the overall management scheme since fishing mortality for the sea bass stock is controlled by annual quotas which are allocated to the recreational and commercial sectors of the fishery based on historical performance of each sector. Thus limiting access to the artificial reef areas under an SMZ designation would not be expected to affect achievement of the FMPs conservation objectives one way or another.

(iii) Avoidance of excessive shares. An allocation scheme must be designed to deter any person or other entity from acquiring an excessive share of fishing privileges, and to avoid creating conditions fostering inordinate control, by buyers or sellers, that would not otherwise exist**.**

In the instant proposal, there is no direct allocation of quantifiable fishing privileges to individuals or entities in the form of individual fishing quotas. If the 13 reef sites in question are designated as SMZs, any fishermen, whether recreational or commercial, using appropriate gear could fish in the area without limitation (though subject to other restrictions imposed under the black sea bass FMP). The most that can be said is that the proposal represents an allocation to a particular gear type, that is rod and reel and handline (or other gears types if final action on this request results in prohibition of fixed pot/trap gear only). However, within the allowable gear sectors, no one individual or entity has an excessive share of the fishing privileges since anyone can participate at any level of fishing effort. Nor does the allocation to these particular gear sectors represent an excessive allocation of fishing privileges vis a vis other gear sectors. The areas under consideration for SMZ allocation represent less than 20 square nautical miles of the total available fishing area over the continental shelf off New Jersey. The fishing privileges in these areas yield but a small fraction of the total fishery-wide catch of species that are found in the artificial reef areas.

3.2 Consistency with the objectives of Amendment 9 to the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan, the Magnuson-Stevens Act, and other applicable law;

Consistency with Objectives of the FMP

The objectives of the Summer Flounder, Scup and Black Sea Bass FMP are to:

1) reduce fishing mortality in the summer flounder, scup, and black sea bass fisheries to ensure that overfishing does not occur;
2**)** reduce fishing mortality on immature summer flounder, scup, and black sea bass to increase spawning stock biomass;
3) improve the yield from the fishery;
4) promote compatible management regulations between state and Federal jurisdictions;
5) promote uniform and effective enforcement of regulations; and
6**)** minimize regulations to achieve the management objectives stated above.

The designation of New Jersey's 13 artificial reefs as SMZs appears to be unrelated to the first three management objectives which are designed to insure compliance with National Standard 1 (prevent overfishing), promote conservation of the resources managed under the FMP by reducing mortality on juvenile fish and improving yield from the fishery. For example, if fixed pot/trap gear were prohibited from NJ reef sites in the EEZ, it is likely that fishing effort by that gear type would shift to open areas. Even if all of the forgone catch of this sector from NJ reef sites was not recouped in open areas, the amount of catch in question (see below) is small relative to the overall quota for the fishery. Thus, any conservation benefits and/or effects on fishing mortality, reduction in mortality of juvenile fish and improvements in yield are expected to be minimal. Since fishing mortality in the black sea bass fishery is controlled by quotas, the issue of designation of SMZs to address gear conflicts would not be expected to affect the conservation of the black sea bass resource.

In terms of objective number 4, the designation of NJ reefs as SMZs would promote compatibility between state and federal regulations in as much as New Jersey has already enacted legislation restricting the use of fixed pot/trap gear on its permitted reef sites located in state waters. Therefore, an SMZ designation for NJ reef sites in the EEZ that restricts the same gear types would be compatible with state of New Jersey regulations in this regard.

Objective 5 of the FMP specifies that the Council promote uniform and effective enforcement of regulations. The request for SMZ status for New Jersey reefs is unrelated to this objective.

Objective 6 seeks to minimize the regulatory burden on the public to achieve the first five objectives of the FMP. The case has been made that the designation of New Jersey permitted reefs in the EEZ as SMZs has little to do with the achievement of the first five FMP objectives. Therefore, one could reasonably conclude that SMZ designation in this case is not necessary to achieve those objectives. Rather, the sole purpose of the designation of NJ reef sites as SMZs is to ameliorate gear conflicts (which is not contemplated in the any of the FMP objectives).

Consistency with the Magnuson Stevens Act and Other Applicable Law

For purposes of this report, the regulations intend that a consideration of consistency with the Magnuson-Stevens Act and other applicable law be a facial examination to identify any aspects of a proposed designation that may be inconsistent with the law. If the Council ultimately decides to forward a recommendation for designation to NMFS to implement SMZs through regulation, then a much more in-depth analysis of the consistency of the ultimate recommendation will be conducted.

When the SMZ provision was first recommended to NMFS by the Council in Amendment 9, an assessment of its consistency with the MSA was conducted by the Office of General Counsel during the review process leading to its approval. There is a provision at section 303(b)(2)(A), which deals with the discretionary provisions of an FMP or amendment, that contemplates measures such as an SMZ. It reads:

> [Any fishery management plan may….] designate zones where, and periods when, fishing shall be limited, or shall not be permitted, or shall be permitted only by specified types of fishing vessels or with specified types and quantities of fishing gear

The designation of the 13, or fewer, artificial reef sites in Federal waters off New Jersey's coast does not raise any issues with respect to the national standards other than national standard 4, which is discussed above, or other provisions of the Magnuson Stevens Act.

There are a number of additional statutes and Executive Orders that must be considered when implementing any action recommended herein. These include the Administrative Procedure Act (APA), the Coastal Zone Management Act (CZMA), the National Environmental Policy Act (NEPA), the Regulatory Flexibility Act (RFA), the Marine Mammal Protection Act (MMPA), the Endangered Species Act (ESA), the Paperwork Reduction Act, the Information Quality Act, the Fisheries Enhancement Act, Executive Order 12866, and Executive Order 13132. At this seminal stage, most of these statutes and Executive Orders are inapplicable since we have no final recommendation by the Council or action taken by NMFS. Without these, for example there is no Federal activity or action for purposes of the CZMA and NEPA. However, since the State of New Jersey is proposing these areas, which are located in Federal waters off its coast, for designation one can infer that the proposal is consistent with its approved Coastal Zone Management Plan. Similarly, since the scope of the final areas to be designated as SMZ is unsettled, it is difficult to predict actual impacts on listed species and marine mammals. One should expect that since designation would eliminate fishing with fixed pot/trap gear in the areas, the impact on any listed species or marine mammals in the SMZs due to vertical lines in the water column would be significantly diminished. Given the limited expanse of water and bottom encompassed by the SMZs and the relative small number of fishermen that would be displaced by an SMZ designation, the economic impacts to be considered under the RFA and Executive Order 12866 would not be significant fleet wide. Further, it is reasonable to anticipate that the action will not have a significant impact on the human environment under the NEPA analysis associated with implementing SMZs. Since an SMZ designation, as currently conceived, does not have an information generating or reporting component, the Paperwork Reduction Act and the Information Quality Act are not implicated. In addition, since a designation would have to be

implemented through the normal rulemaking process, the requirements of the APA will be satisfied.

The South Atlantic Fishery Management Council (SAFMC) has designated 51 artificial reefs in the EEZ off South Carolina, Georgia and Florida as SMZs under provisions contained in the Snapper Grouper FMP. The SMZ designations apply to each artificial reef and a 500 m buffer zone surrounding the boundaries of each reef and include a prohibition on the use of fish pots, fish traps , trawls and electric reels on permitted reef sites. In some of the SMZs, the use of powerheads (bang-sticks) to harvest fish is also prohibited and individuals harvesting fish using spearguns are limited to the recreational bag/size limits established within the snapper grouper management plan.

It is important for the Council to note that the basis for the SMZ designation by the SAFMC was fundamentally different from the rational stated by the NJ DEP. The DEP request is based on the need to ameliorate gear conflicts between the hook/line and fixed pot/trap gear. The rationale for designating artificial reefs contained in the Snapper Grouper FMP was as follows: "The intent of a SMZ is to create incentive to create artificial reefs and fish attraction devices that will increase biological production and/or create fishing opportunities that would not otherwise exist. The drawback to investing in artificial reefs or fish attraction devices is that they are costly and have limited advantages that can be rapidly dissipated by certain types of fishing gear (e.g., traps harvesting black sea bass from artificial reefs). Fishing gear that offers 'exceptional advantages' over other gear to the point of eliminating the incentive for artificial reefs and fish attraction devices for users with other types of fishing gear prevent improved fishing opportunities that would not otherwise exist". While a reduction in gear conflicts was discussed as a collateral benefit of SMZ designation by the SAFMC, the primary factor they considered relative to SMZ designation was related to the achievement of perceived conservation benefits on reef sites through prohibition of “efficient” gear types such as pot/trap gear, long lines and bang sticks.

3.3 The natural bottom in and surrounding potential SMZs

The Middle Atlantic Bight (the area of the U.S. east coast and continental shelf between Cape Cod, Mass., and Cape Hatteras, N.C.) is characterized as being a homogeneous habitat of relatively flat topography, composed of soft sediments, mostly sands, but grading to silt-clay in deeper areas except for relic sand and gravel ridges, exposed Holocene to Pleistocene clay or sandstone in some areas, and glacially exposed rock along the southern New England coast (Steimle and Zetlin 2000). The natural bottom in and surrounding potential SMZs (in this case the 13 reef sites permitted to the DFW) is described above.

Essential fish habitat (EFH) has been designated by the New England Fisheries Management Council, MAFMC and NMFS for a number of federally managed species including highly migratory species within the artificial reef sites. Habitat Areas of Particular Concern (HAPC) have been designated for sandbar shark at the mouth of Great Bay in the vicinity of the Little Egg Reef and within Delaware Bay inshore of the Cape May Reef. Through the COE permitting process, the COE and NMFS have evaluated the potential effects of the artificial reefs on EFH. It has been concluded that artificial reefs may have some adverse effects on EFH for species that are demersal and prefer open sandy bottoms, but the reefs would have a positive effect on EFH

and species that preferred structural habitat. Because hard surface, reef habitat is rare in the off New Jersey, consisting of primarily of shipwrecks and a few rock outcroppings, artificial reefs benefit EFH by provide lacking structure and habitat diversity, increased habitat for prey species and feeding opportunities. In addition, because certain fishing gear types such as dredges, trawls and gill nets are generally not used in and around artificial reefs, EFH and federally managed species benefit from reduced fishing pressure from these gear types.

A review of energy development site proposals for the Mid-Atlantic Area shows that several reef sites including the Atlantic City Reef are in or near the BOEM Wind Energy Area (WEA) for New Jersey where the OCS could be leased. However, BOEM has worked closely with the State of New Jersey and others (including NMFS) on the Task Force in developing the boundaries of the WEA. As a result, the reef site will not be part of any lease. Though the NEPA process of the leasing and site assessments, any potential impacts to reef from wind facilities proposed nearby will be evaluated.

3.4 Impacts on historical uses

3.4.1 Recreational Fishery

Three sources of marine recreational fishing data were considered for describing recreational fishing activity at the 13 NJ artificial reefs in question. The strengths and weaknesses of all three are discussed below.

Marine recreational fishing data collected through NMFS' Marine Recreational Information Program (MRIP), provides estimates of recreational catch, effort, and participation across states, fishing modes, and two-month waves. The MRIP data is also post-stratified spatially to provide estimates of catch and effort according to area fished. The MRIP spatial estimates, however, are limited to inland waters, state waters, and the federal exclusive economic zone. Thus, the spatial estimates provided by MRIP are not sufficient for describing private boat and for-hire recreational fishing activity occurring at an artificial reef. Please see http://www.st.nmfs.noaa.gov/st1/recreational/index.html for further information on the MRIP program.

Vessel trip reports (VTRs) submitted by for-hire recreational fishing vessels include the latitude/longitude of where most of the effort on a trip occurred, but the vast majority of the for-hire reports include only the nearest latitude/longitude degrees and not the latitude/longitude minutes and seconds necessary for pinpointing actual fishing locations. In addition, the VTR instructions state that fishermen must "enter a single set of latitude [longitude] bearings where most of your effort occurred." Thus, the entirety of a trip's effort is represented by a single set of points within each NMFS statistical area, regardless of how many different locations were fished during the trip. Given that the area of each artificial reef under SMZ consideration is generally less than one square mile, the precision of the self-reported VTR points was deemed inadequate for identification of for-hire activity occurring near or at a reef site.

The final data source was obtained from a reef creel survey conducted by the New Jersey Department of Environmental Protection (NJDEP) in 2000 (Figley 2001). This survey focused

on determining the level of participation, effort, and catch in New Jersey's recreational boat wreck/reef fisheries. The 2000 survey was a follow-up to two previous reef creel surveys conducted by the NJDEP in 1991 and 1995. Unfortunately, the 2000 survey was the last one conducted by the NJDEP. While the data collected from the 2000 survey are over 15 years old, in combination with more recent NMFS data on fishing effort and angler expenditures in New Jersey, estimates of angler trips and expenditures at the 13 artificial reef sites under SMZ consideration can be derived.

The 2000 NJDEP survey was conducted to assess the effectiveness of the State's artificial reef construction program and to collect information necessary for management of reef fisheries. A combination of telephone and onboard surveys was used. A full description of the methods can be found in Figley (2001). Results of the survey indicated that 105,160 private boat angler fishing trips and 97,013 party/charter angler fishing trips occurred at the artificial reef sites during 2000. This represents 2.8% of total New Jersey private boat angler fishing trips in 2000 (3,727,384), according to MRIP data, and 18.7% of total New Jersey party/charter boat angler fishing trips in 2000 (517,954). Since 2000, private boat angler effort in New Jersey has generally declined and reached its lowest level in 2015 (Figure 1). Party/charter angler effort in New Jersey has remained relatively stable over the past 15 years.

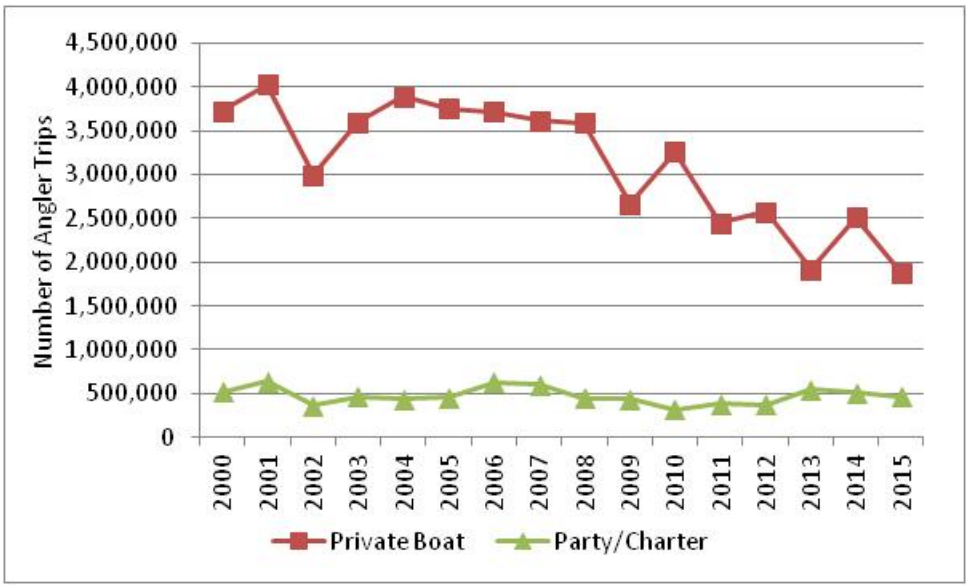

Figure 1. Estimated Number of Angler Trips in New Jersey by Mode

If it is assumed that the same proportions of angler fishing trips that occurred at the reef sites in 2000 has remained constant, then 52,930 private boat angler trips and 87,234 party/charter angler trips took place at the reef sites in 2015 (Table 1).

Table 1. 2015 Angler Trips in New Jersey and the Percentage that Occurred at Artificial Reefs

	Total Angler Trips	Angler Trips at Artifical Reefs	% of Total
Private Boat	1,876,955	52,930	2.8%
Charter/Party	465,745	87,234	18.7%

In light of the fact that decisions may be made that involve differential treatment of the 13 reefs, Table 2 shows the estimated number of angler trips at each of the reef sites by mode in 2015. These estimates should be viewed with caution since they were calculated by extrapolating from results found in Figley (2001). The importance of the reef sites to anglers, in terms of number of angler trips to a particular reef, may have changed during the past 15 years. Nonetheless, the estimates in Table 2 provide the best available approximation of the current distribution of angler effort at the reef sites.

The highest percentage of private boat angler effort at the artificial reefs is estimated to occur at the Barnegat Light site, followed closely by Little Egg, and then Sea Girt, Garden State South, Cape May, and Garden State North. These sites account for over 85% of angler private boat effort at the artificial reefs. The majority of charter and party boat angler trips occur at three reef sites: Cape May, Sea Girt, and Garden State North. These three sites account for over 63% of charter/party angler trips. In total, the reef sites that attract the most angler effort aboard private boats and charter/party boats are Barnegat Light, Little Egg, Sea Girt, Cape May, and Garden State North and South.

Table 2. Estimated Number of Angler Trips by Reef Site in 2015

	Private		Charter/Party		Total	
	Trips	%	Trips	%	Trips	%
Atlantic City Reef Site	2,334	4.4%	7,122	8.2%	9,456	6.7%
Barnegat Light Reef Site	9,906	18.7%	3,786	4.3%	13,691	9.8%
Cape May Reef Site	6,372	12.0%	30,190	34.6%	36,562	26.1%
Deepwater Reef Site	*	*	*	*	*	*
Garden State North reef Site	6,309	11.9%	12,160	13.9%	18,468	13.2%
Garden State South Reef Site	6,687	12.6%	3,786	4.3%	10,473	7.5%
Great Egg Reef Site	1,641	3.1%	6,481	7.4%	8,122	5.8%
Little Egg Reef Site	8,516	16.1%	3,786	4.3%	12,302	8.8%
Ocean City Reef Site	1,703	3.2%	1,893	2.2%	3,596	2.6%
Sea Girt Reef Site	7,382	13.9%	12,801	14.7%	20,183	14.4%
Shark River Reef Site	252	0.5%	-	0.0%	252	0.2%
Townsends Inlet Reef Site	*	*	*	*	*	*
Wildwood Reef Site	1,829	3.5%	5,230	6.0%	7,059	5.0%
	52,930	100.0%	87,234	100.0%	140,164	100.0%

* Too few trips at Deepwater to estimate angler effort and the Townsend Inlet reef site was constructed after the Figley (2001) report so angler effort at the Townsend site could not be estimated.

Black sea bass comprised the majority of anglers' catches at the New Jersey artificial reefs in 2000, followed by scup, summer flounder, and tautog (Figley 2000). When contrasted with MRIP data, about 13% of the total number of fish caught in New Jersey in 2000 were caught at artificial reefs. Additionally, the reefs accounted for approximately 53% of the total catch of the species encountered at artificial reefs (black sea bass, scup, summer flounder, tautog, cunner, and red hake). Thus, in relative terms, the reef sites contributed to the recreational catch of several species, particularly black sea bass and scup, at a much higher rate than the non-reef ocean environment in 2000. While recreational fishing activity at the artificial reefs may have changed somewhat since the Figley (2001) report, the importance of the artificial reefs to many recreational fishermen has likely remained strong.

Social and Economic Assessment

The total value recreational anglers place on the opportunity to fish at each of the 13 reef sites can be separated into (1) actual expenditures and (2) non-monetary benefits associated with satisfaction. In other words, anglers incur expenses to fish (purchases of gear, bait, boats, fuel, etc.), but do not pay for the fish they catch or retain nor for the enjoyment of many other attributes of the fishing experience (socializing with friends, being out on the water, etc.). Despite the obvious value of these fish and other attributes of the experience to anglers, no direct expenditures are made for them, hence the term "non-monetary" benefits. In order to determine the magnitude of non-monetary benefits associated with fishing at the 13 reef sites, demand curves for recreational fishing must be constructed. Unfortunately, data limitations preclude the ability to construct these demand curves for recreational fishing at the reef sites. Therefore, the angler assessment provided here is limited to describing only actual expenditures by anglers fishing at the reef sites.

Anglers' expenditures generate and sustain employment and personal income in the production and marketing of fishing-related goods and services. In 2014, an economic study of marine recreational fishermen (National Marine Fisheries Service 2016) estimated that average trip expenditures in New Jersey in 2014 were $66.34 for anglers fishing from a private/rental boat and $111.45 for anglers that fished from a party/charter boat. Trip-related goods and services included expenditures on private transportation, public transportation, food, lodging, boat fuel, private boat rental fees, party/charter fees, access/boat launching fees, equipment rental, bait, and ice.

Apart from trip-related expenditures, anglers also purchase fishing equipment and other durable items that are used for many trips (i.e., rods, reels, clothing, boats, etc.). Although some of these items may have been purchased specifically to fish at one of the artificial reef sites, the fact that these items can be used for multiple trips creates difficulty when attempting to associate durable expenditures with the artificial reefs. Therefore, only trip-related expenditures are used in this assessment.

Assuming that the average trip expenditures estimated in National Marine Fisheries Service (2016) are equivalent to the expenditures of anglers fishing at the artificial reef sites, total angler expenditures at the reef sites can be estimated by multiplying the average expenditure estimates by the estimated number of angler trips fished at the reef sites by mode. Based on the Figley (2001) report and MRIP data it is estimated that 2.8% of angler private boat fishing trips and

18.7% of angler party/charter boat fishing trips in New Jersey occur at the artificial reefs. Thus, according to the most recent year of available MRIP data (2015), 52,930 private boat and 87,234 charter/party boat angler trips occurred at the reef sites in 2015.

Table 3 shows the estimated total trip expenditures incurred by anglers to fish at the artificial reef sites in 2015. Across all reef sites, charter/party boat angler expenditures were almost three times higher than private boat angler expenditures. Private boat anglers spent an estimated $3.5 million on trip expenditures while charter/party boat anglers spent over $9.7 million to fish at the reef sites. In total, anglers are estimated to have spent over **$13.2 million** on trip expenditures to fish at the 13 artificial reefs in 2015.

Table 3. 2015 Angler Trip Expenditures ($'s) in New Jersey and the Percentage Associated with Trips that Occurred at Artificial Reefs

	Total Angler Trip Expenditures		Artifical Reef Expenditures	% of Total
Private Boat	124,517,195		3,511,376	2.8%
Charter/Party	51,907,280		9,722,229	18.7%
Total	176,424,475		13,233,605	7.5%

If designation of the artificial reefs as SMZs reduces gear conflicts, some level of positive social and economic benefits would accrue to recreational fishermen. Lost recreational fishing gear due to interactions with commercial gear in the water would be eliminated, saving anglers' and party/charter businesses money and lost time, and could actually result in higher catches per angler. Anglers may even take more trips to these areas raising angler expenditures and party/charter revenues. Although sufficient data to evaluate these potential changes in social and economic benefits to anglers is unavailable, designation of the artificial reefs as SMZs would likely result in positive benefits to both anglers and party/charter businesses fishing at the reef sites relative to taking no action.

3.4.2 Commercial Fishery

Impacts to commercial fishing were analyzed by mapping and quantifying recent fishing effort relative to the 13 artificial reefs. A Technical Memorandum outlining the mapping methodology was published by the NEFSC in 2014 (DePiper 2014) and a summary is provided here.

Federally permitted commercial and party/charter vessels are required to submit a VTR for each trip, the requirements of which include indicating a general fishing location as a set of geographic coordinates. These self-reported coordinates do not precisely indicate the location of fishing effort, given that only one point is provided regardless of trip length or distance covered during the trip. As indicated above, this means that the self-reported VTR points are generally inadequate for identification of party/charter or commercial fishing activity occurring near or at a reef site. The mapping approach used here assesses the spatial precision of the commercial fishing VTR points and derives probability distributions for actual fishing locations. This allows for more robust analysis of the commercial fishing VTR data by taking into account some of the uncertainties around each reported point. The mapping approach is applied only to commercial

fishing VTR data and not party/charter VTR data, because it requires use of Northeast Observer Program data that are not available for party/charter fishing trips.

Using observer data, for which precise fishing locations are available, a model was developed to derive probability distributions for actual fishing locations around a provided VTR point. Other variables likely to impact the precision of a given VTR point, such as trip length, vessel size, and fishery, were also incorporated into the model. The model allows for generation of out-of-sample predictions for the spatial footprint of a fishing trip, covering the universe of VTR data available. The model-generated dataset can be understood as a repeated measure of the distance on a single trip between observed hauls and the self-reported VTR location of fishing. The distance is equivalent to a radius of a circle centered around the self-reported fishing location within which there is a certain confidence of all a trip's hauls falling. For example, a one-day trip employing pot/trap gear in the Mid-Atlantic region has a 25% confidence interval extending 1.02 nautical miles from the self-reported centroid of the circle. This means that on average we would expect 25% of a one-day pot/trap trip's hauls to fall within a 1.02 nautical miles of a self-reported location. The 50% confidence interval for a one-day pot/trap gear trip extends out 2.51 nautical miles, the 75% confidence interval extends out 6.18 nautical miles, and the 90% confidence interval extends out 14.0 nautical miles.

This analysis includes all VTR commercial fishing trips employing pot/trap gear where the model-generated spatial footprint of a trip (using the 90% confidence interval) included one or more of the 13 artificial reef sites from 2011 through 2015. While commercial fishing vessels employing gear other than pot/trap gear will technically be regulated if the artificial reefs are granted SMZ status, only pot/trap gear vessel trips are included in this analysis. Hand gear and dive gear activities will continue to be allowed under SMZ designation, and vessels using other mobile gears and fixed gears stay clear of the reef site areas to avoid bottom hang-ups with reef materials.

Price information from Northeast Dealer Weighout data was used to transform all VTR catches on trips employing pot/trap gear into revenues. Reef site dependence was then assessed by calculating the percentage of total ex-vessel revenue derived from the reef site areas.

The mapping model does have important caveats. The probability distributions generated from each reported VTR point create a likelihood of actual fishing locations in all directions from a given point, and do not take into account any specific directionality that may be associated with specific fishing methods or specific locations. For example, the model does not take into account fishing behavior along depth contours or other specific habitat features such as an artificial reef. Thus, for self-reported VTR points located on the reefs the model-estimated distribution of fishing effort would tend to be expanded beyond the reef to areas that may not actually be fished. In contrast, for self-reported VTR points located outside of the reef areas the model-estimated distribution of fishing effort may attribute a portion of the effort to the reef areas. As such, given the uncertainty of the initial self-reported coordinates, it is difficult to determine if the overall model-estimated activity at the reef sites would tend to be over or under estimated. Nonetheless, since the model-estimated spatial footprint of a pot/trap trip is considerably larger than a reef site area, the model likely tends to underestimate reef activity on trips where most or all of the trip's landings occurred at a reef site. While the extent of this

underestimation is unknown, given that each reef site is generally less than one square mile it's unlikely that a significant number of trips concentrate most or all of their hauls on a reef site.

The number of VTR mapped commercial fishing trips during 2011 through 2015 that overlapped one or more of the reef sites for vessels employing pot/trap gear is shown in Table 4. In 2015, the model attributes a portion of the hauls on 826 pot/trap trips to the reef site areas. This means that there were an estimated 826 trips in 2015 where at least a portion of the landings on those trips was attributed to one or more reef site areas. Given the close proximity of some of the reef sites many pot/trap trips overlap more than one reef site. The model also estimates that vessels with reef site landings made an additional 1,234 pot/trap trips to areas that did not overlap with any of the reef sites. The percentage of trips that overlapped with one or more reef sites each year has remained relatively stable over the past five years. Although, in 2015 the number of reef site trips declined to its lowest level during the time series shown.

Table 4. Frequency of VTR Mapped Commercial Fishing Trips for Pot/Trap Vessels where the Estimated Spatial Footprint of the Trip Includes One or More of Reef Sites

	2011		2012		2013		2014		2015	
	Trips	% of Total	Trips	% of Total	Trips	% of Total	Trips	% of Total	Trips	% of Total
Reef Site Trips	971	43.9%	986	47.9%	933	39.2%	954	41.4%	826	40.1%
Other Site Trips	1,240	56.1%	1,074	52.1%	1,445	60.8%	1,352	58.6%	1,234	59.9%
	2,211		2,060		2,378		2,306		2,060	

Table 5 shows the percentage of mapped pot/trap trips by reef site. The reefs with the highest percentage of mapped pot/trap effort over the past five years are Shark River, Sea Girt, Cape May, Wildwood, Ocean City, and Townsends Inlet. In 2015, these six reef sites comprised approximately 80% of the mapped reef site effort along the New Jersey coast. The six reef sites are located in close proximity to areas along the northern and southern New Jersey coast where the vast majority of New Jersey commercial pot/trap activity takes place. Figure's 2, 3, 4, and 5 show the model-estimated spatial concentrations of total ex-vessel revenue from commercial pot/trap gear along New Jersey's coast from 2011 to 2014.

Comparing the mapped commercial pot/trap effort by reef site in Table 5 to estimates of recreational fishing effort at each reef site (Table 2), points to potential gear conflicts at the Cape May and Sea Girt reef sites, particularly between commercial pot/trap vessels and party/charter vessels. A relatively high proportion of VTR mapped commercial pot/trap fishing trips overlapped the Cape May and Sea Girt reef sites in 2015. Given that approximately half of the party/charter reef effort in 2015 was estimated to occur at the Cape May and Sea Girt reef sites, gear interactions may be occurring at these reef sites. The probability of gear conflicts at the other 11 reef sites is low, based on the recreational and commercial effort estimates shown in Table 2 and Table 5, respectively.

Table 5. Percentage of VTR Mapped Commercial Fishing Trips by Reef Site for Pot/Trap Vessels where the Estimated Spatial Footprint of the Trip Includes One or More Reef Sites

	2011	2012	2013	2014	2015
	% of Total Reef Trips				
Atlantic City Reef Site	7.4%	6.6%	5.4%	2.8%	3.6%
Barnegat Light Reef Site	3.2%	2.5%	3.1%	1.8%	2.4%
Cape May Reef Site	7.3%	9.7%	7.9%	10.3%	11.2%
Deepwater Reef Site	1.6%	1.8%	2.3%	1.8%	2.4%
Garden State North reef Site	0.9%	1.1%	2.0%	0.5%	1.2%
Garden State South Reef Site	0.7%	0.9%	2.5%	0.5%	1.0%
Great Egg Reef Site	11.7%	9.1%	7.9%	6.5%	7.3%
Little Egg Reef Site	3.4%	5.1%	3.3%	1.4%	2.2%
Ocean City Reef Site	13.7%	9.7%	8.7%	10.1%	7.3%
Sea Girt Reef Site	15.9%	18.3%	19.7%	20.8%	20.5%
Shark River Reef Site	14.7%	18.9%	21.2%	21.7%	22.0%
Townsends Inlet Reef Site	10.2%	6.2%	8.6%	10.5%	8.1%
Wildwood Reef Site	9.4%	10.1%	7.4%	11.3%	10.8%

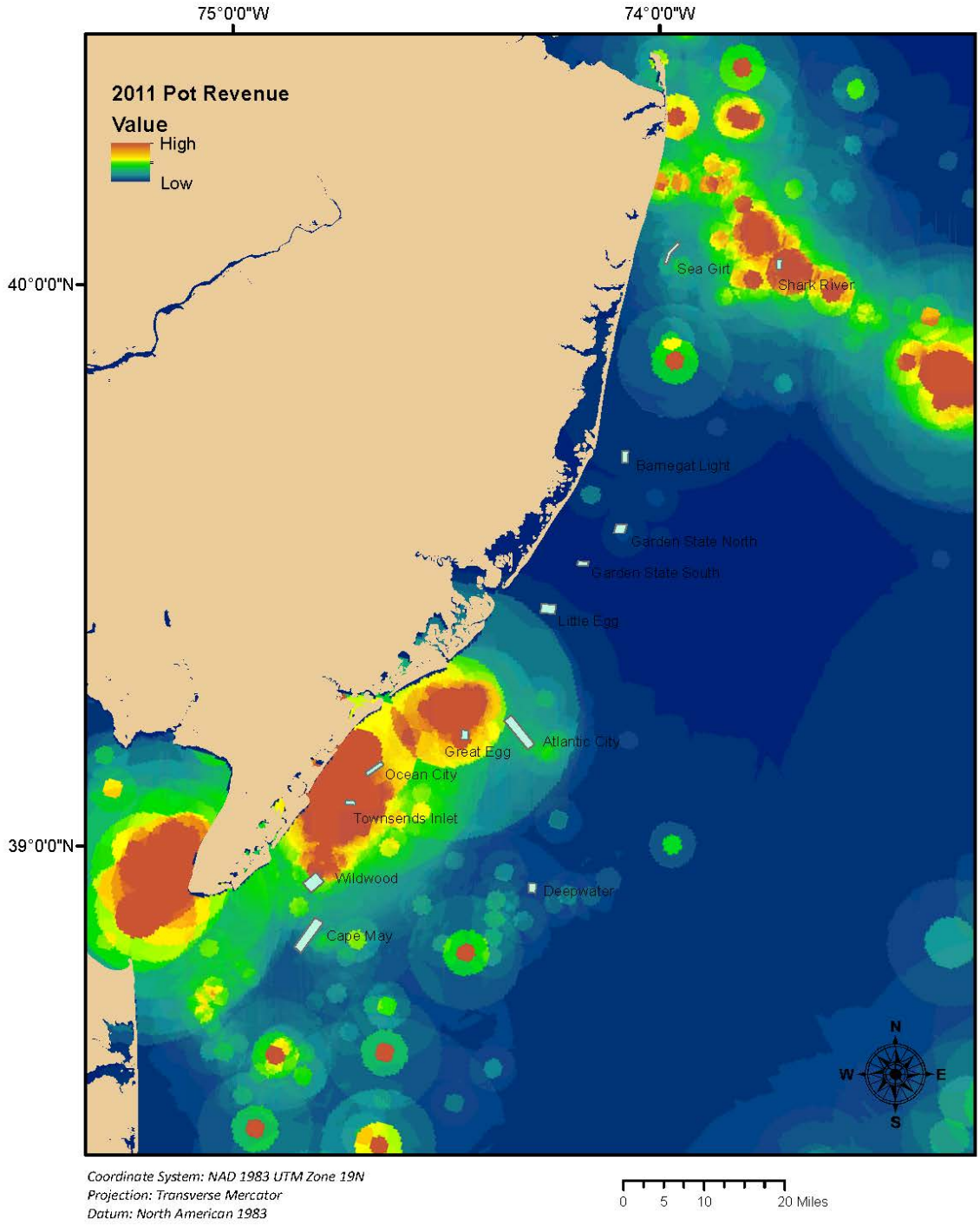

Figure 2. Ex-vessel Revenue Concentrations of Commercial Fishing Vessels using Pot/Trap Gear, 2011

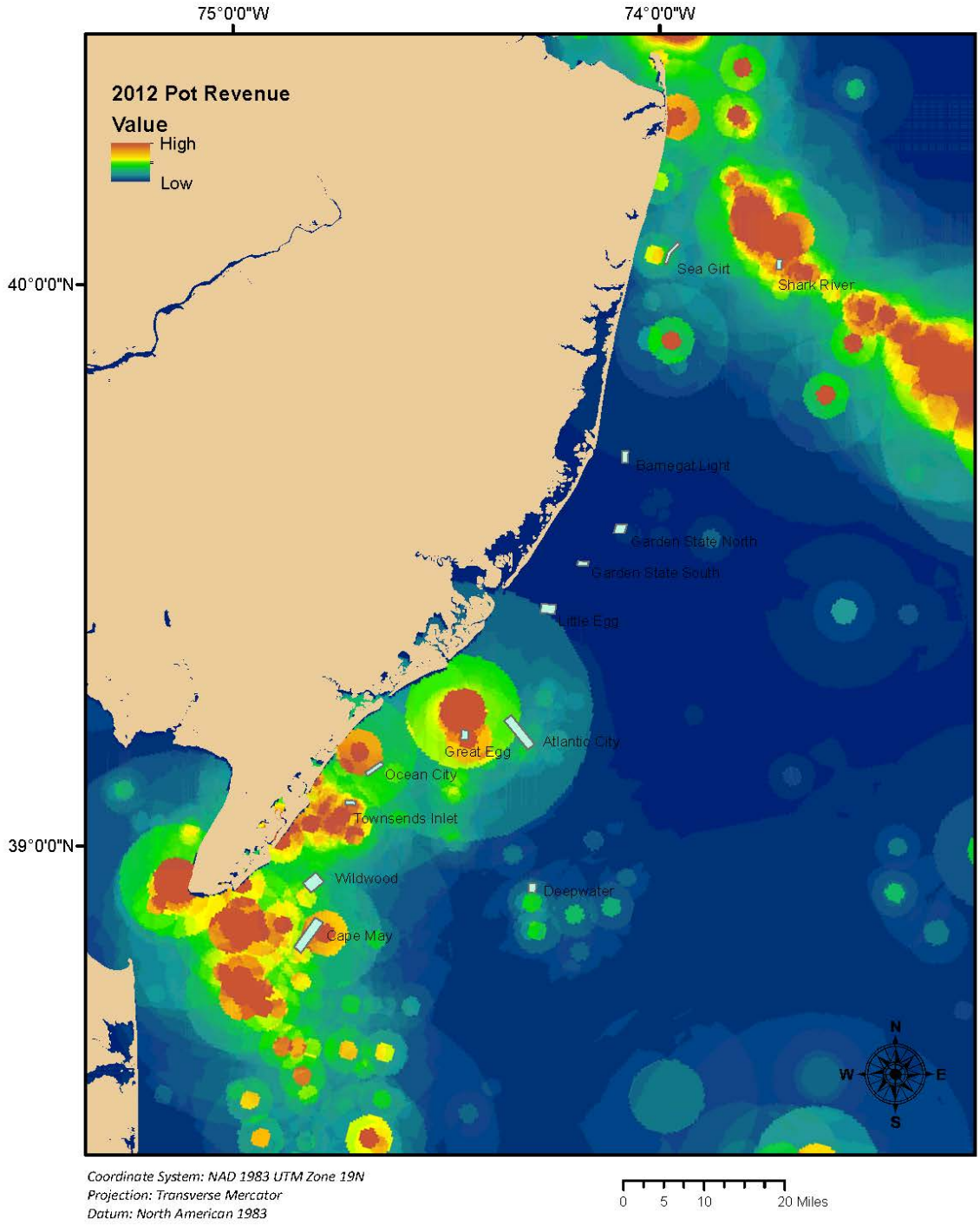

Figure 3. Ex-vessel Revenue Concentrations of Commercial Fishing Vessels using Pot/Trap Gear, 2012

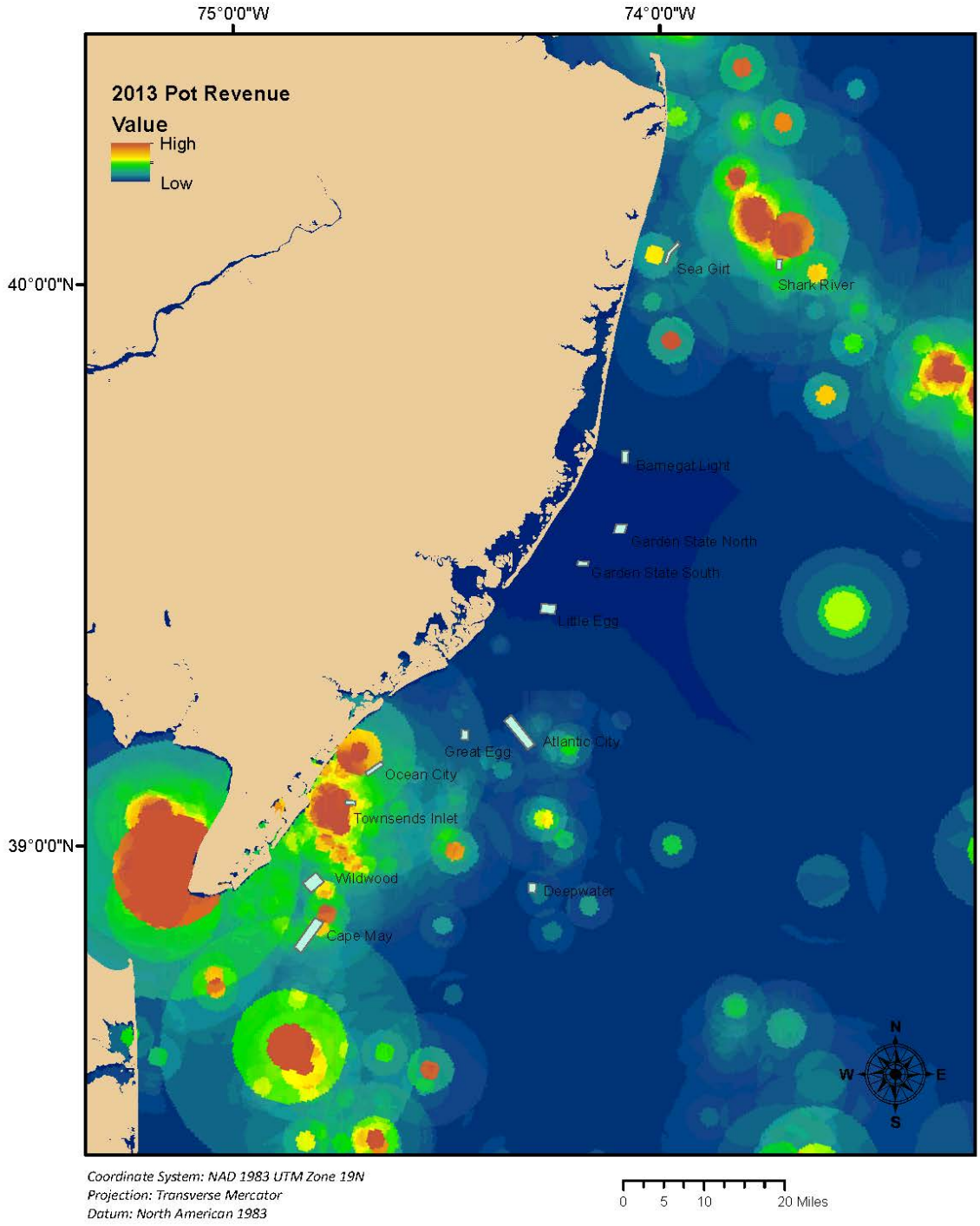

Figure 4. Ex-vessel Revenue Concentrations of Commercial Fishing Vessels using Pot/Trap Gear, 2013

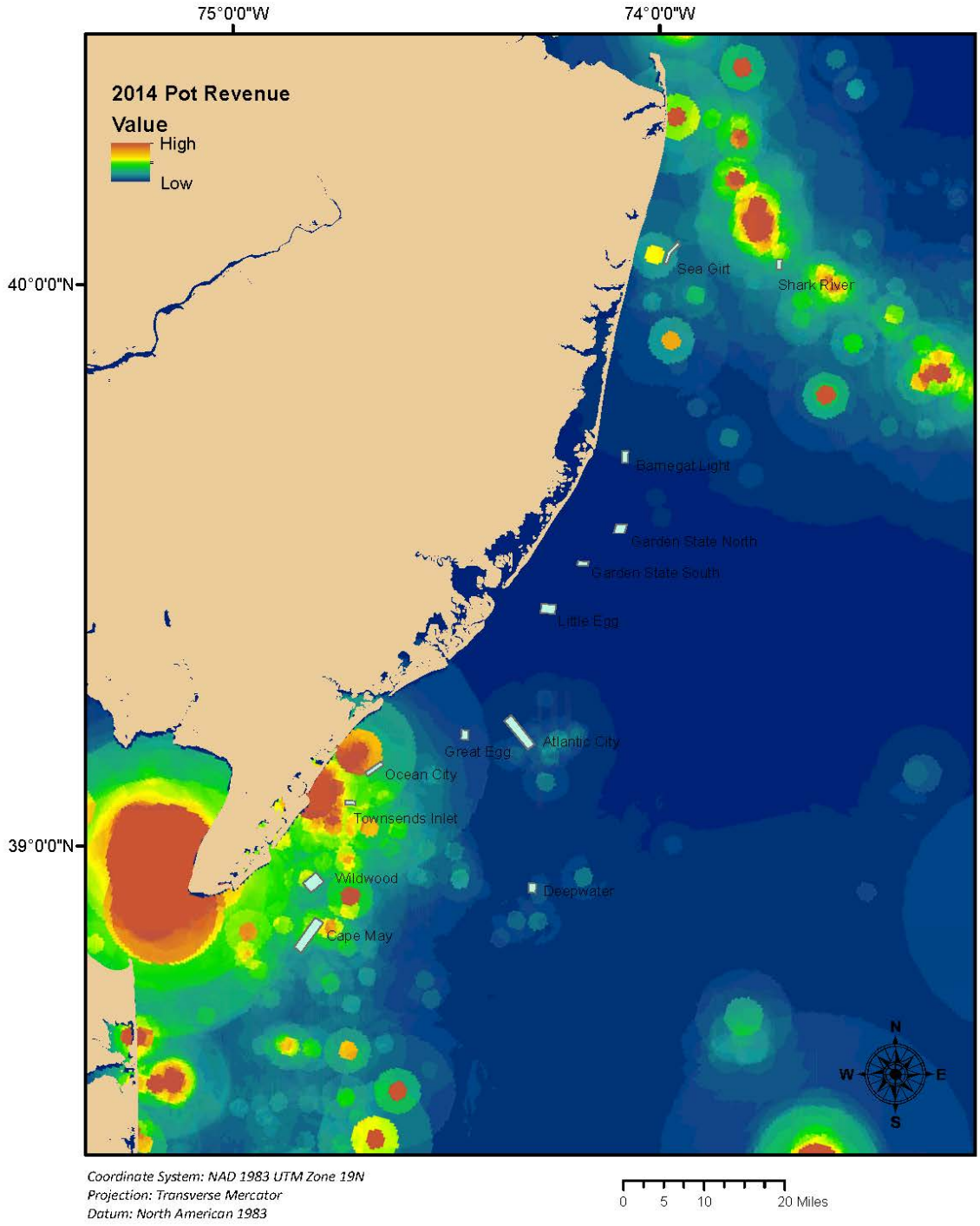

Figure 5. Ex-vessel Revenue Concentrations of Commercial Fishing Vessels using Pot/Trap Gear, 2014

3.4.2.2 Social and Economic Assessment

The estimated ex-vessel value of landings at each reef site provides an indication of the importance of the sites to commercial pot/trap fishermen. The VTR mapping approach attributed pot/trap gear ex-vessel revenue to all 13 of the reef sites in 2011, 2012, 2013, 2014, and 2015 (Table 6). Since 2012, the highest ex-vessel revenues were from landings at the Cape May reef site, which constituted almost half of the total ex-vessel revenue obtained from the 13 reef sites in 2015. Two other reef sites with measurable pot/trap ex-vessel revenue over the past few years include the Wildwood reef site and Ocean City reef site.

Table 6. Ex-Vessel Revenue of VTR Mapped Commercial Fishing Pot/Trap Trips where the Estimated Spatial Footprint of the Trip Includes One or More Reef Sites

	2011		2012		2013		2014		2015	
	$'s	%	$'s	%	$'s	%	$'s	%	$'s	%
Atlantic City Reef Site	3,002	13.4%	5,090	12.5%	1,224	4.8%	894	3.8%	1,422	5.7%
Barnegat Light Reef site	51	0.2%	41	0.1%	44	0.2%	35	0.2%	50	0.2%
Cape May Reef Site	2,086	9.3%	13,682	33.5%	9,757	38.3%	9,347	40.1%	11,761	47.2%
Deepwater Reef Site	103	0.5%	384	0.9%	373	1.5%	234	1.0%	2,273	9.1%
Garden State North reef Site	103	0.5%	35	0.1%	25	0.1%	8	0.0%	62	0.2%
Garden State South Reef Site	6	0.0%	2	0.0%	13	0.1%	2	0.0%	26	0.1%
Great Egg Reef Site	2,914	13.0%	9,602	23.5%	363	1.4%	257	1.1%	246	1.0%
Little Egg Reef Site	100	0.4%	104	0.3%	45	0.2%	11	0.0%	35	0.1%
Ocean City Reef Site	3,809	17.0%	2,313	5.7%	2,965	11.6%	3,025	13.0%	2,467	9.9%
Sea Girt Reef Site	680	3.0%	1,499	3.7%	1,314	5.2%	1,161	5.0%	1,605	6.4%
Shark River Reef Site	2,247	10.0%	2,391	5.9%	1,863	7.3%	1,052	4.5%	1,028	4.1%
Townsends Inlet Reef	3,607	16.1%	2,002	4.9%	3,204	12.6%	1,833	7.9%	832	3.3%
Wildwood Reef site	3,749	16.7%	3,684	9.0%	4,318	16.9%	5,458	23.4%	3,097	12.4%
Total	22,457		40,830		25,507		23,317		24,903	

It is important to point out, however, that since the size of each reef site is generally less than one square mile, the amount of pot/trap activity occurring at each reef site is limited. Ex-vessel revenue from pot/trap landings at all 13 reef sites combined approached only $25 thousand in 2015. This represents less than one percent of total ex-vessel revenue (i.e., reef revenue and non-reef revenue combined) obtained by vessels with pot/trap reef landings in 2015 (Table 7). Over the past 5 years, ex-vessel reef revenue from pot/trap landings has remained below 1% of total ex-vessel revenue for vessels with pot/trap reef landings.

Table 7. Total Pot/Trap Gear Ex-vessel Revenue ($'s) for Vessels with Reef Landings and the Percentage Derived from the Reef Sites

Year	Total Revenue	Total Reef Value	Reef %
2011	3,072,121	22,457	0.73%
2012	4,173,844	40,830	0.98%
2013	3,838,313	25,507	0.66%
2014	2,761,648	23,317	0.84%
2015	3,597,491	24,903	0.69%

The total revenue derived from reef trips by species is gi

When all pot/trap activity occurring in New Jersey is considered (i.e., ex-vessel revenue from vessels with and without reef landings), reef site ex-vessel revenue represented between 0.19% and 0.31% of total ex-vessel revenue from New Jersey pot/trap landings (Table 8).

Table 8. Total Pot/Trap Gear Ex-vessel Revenue ($'s) in New Jersey and the Percentage Derived from the Reef Sites

	Total Revenue	Total Reef Value	Reef %
2011	12,029,983	22,457	0.19%
2012	13,288,816	40,830	0.31%
2013	11,520,749	25,507	0.22%
2014	9,401,312	23,317	0.25%
2015	9,530,137	24,903	0.26%

If all commercial fishing activity occurring in New Jersey is considered, reef site ex-vessel revenue by pot/trap gear represents 0.02% or less of total New Jersey ex-vessel revenue from 2011 – 2014 (Table 9).

Table 9. Total Ex-vessel Revenue ($'s) in New Jersey (all gears) and the Percentage Derived from the Reef Sites

	Total Revenue	Reef %
2011	220,376,924	0.01%
2012	187,706,784	0.01%
2013	132,859,932	0.02%
2014	151,930,102	0.01%

Table 10 shows the estimated number of commercial fishing vessels that deploy pot/trap gear at the reef sites and the percent of their total annual gross revenue landed at the 13 reef sites. The number of vessels with landings at the reef sites ranged from a high of 50 in 2012 to a low of 36 in 2015. Approximately 80% to 89% of these vessels were estimated to land less than 1% of their total annual revenue from the reef sites during 2011 to 2015. All but one of the remaining vessels were estimated to land between 1% to 5% of their total annual revenue at the reef sites during 2011 to 2015. One vessel was estimated to have reef site landings equivalent to about 7% of its total annual revenue in 2014. However, total annual revenue for this vessel in 2014 was only $2,763, of which $185 (6.7%) was estimated to have been landed at one of the reef sites.

Based on the results shown in Table 10 commercial fishing vessels deploying pot/trap gear off the coast of New Jersey would likely face minimal to no losses in ex-vessel revenue if the artificial reefs are designated as SMZs. In addition, commercial pot/trap fishing effort at the reefs would shift to other open areas mitigating potential revenue losses. An important point to consider though is that pot/trap vessels likely fish at the reef sites because catch rates are higher and because conflicts with mobile gear vessels are reduced. Forcing pot/trap vessels out of these sites may increase the likelihood of conflicts with vessels fishing mobile gear.

Table 10. Number of Pot/Trap Vessels by Percent of Total Annual Ex-vessel Revenue Derived from the Reef Sites

	<=1.0%	1.0 to 5.0%	5.0 to 10.0%	>=10.0%	Total
2011	34	9	0	0	43
2012	39	11	0	0	50
2013	32	5	0	0	37
2014	32	5	1	0	38
2015	32	4	0	0	36

3.4.3 Recreational and Commercial Fishery Summary

In summary, there were low levels of commercial pot/trap activity at all 13 of the reef sites from 2011 to 2015. Ex-vessel revenue from pot/trap landings at all 13 reef sites combined was less than $25 thousand in 2015, and averaged $27.4 thousand from 2011 to 2015. The combined value of the landings at the reef sites comprised less than 0.31% of the total annual ex-vessel value landed by all pot/trap gear in New Jersey from 2011 to 2015.

The number of vessels with landings at the reef sites ranged from a high of 50 in 2012 to a low of 36 in 2015. Approximately 80% to 89% of these vessels obtained less than 1% of their total annual gross revenue from the reef sites during 2011 to 2015. All but one of the remaining vessels earned between 1% and 5% of their total annual revenue at the reef sites during 2011 to 2015. One vessel was estimated to have landings at the reef site equivalent to about 7% of its total annual revenue in 2014. This vessel's total annual revenue in 2014 amounted to only $2,763 though, of which $185 (6.7%) was estimated to have been landed at one of the reef sites. These findings indicate that commercial fishing vessels deploying pot/trap gear off the coast of New Jersey would likely face minimal to no losses in ex-vessel revenue if the artificial reefs are designated as SMZs.

The results also show potential gear interactions between commercial pot/trap vessels and recreational fishing vessels at two of the 13 artificial reef sites - Cape May and Sea Girt. The probability of gear conflicts at the other 11 reef sites is estimated to be low based on comparisons of commercial pot/trap and recreational activity occurring at the reef sites.

4.0 Recommendations

Based on the weight of evidence examined, the SMZ Monitoring Team recommends the following:

1. Based on evaluation of all relevant factors and issues as outlined in Amendment 9 to the Summer Flounder, Scup and Black Sea Bass FMP, the SMZ Monitoring Team recommends that the Council designate all 13 New Jersey's artificial reefs located in the EEZ as SMZs. The SMZ designation should stipulate that no fishing vessel or person on a fishing vessel may fish in the 13 New Jersey Special Management Zones with any gear except hook and line and spear fishing (including the taking of fish by hand).

2. The Council would reserve the right to change or revise these SMZs, including any gear restrictions imposed as a result of such designations, if future analyses cause the Council to alter its policy with respect to SMZs during a broader consideration of this issue.

3. The Council should review the 2007 National Artificial Reef Plan and modify (if necessary) the artificial reef policy it adopted in 1995 and consider incorporating its artificial reef policy into ongoing efforts to establish habitat policy within the context of an Ecosystem Approach to Fisheries Management.

6.0 References

DePiper, Geret (2014). Statistically Assessing the Precision of Self-reported VTR Fishing Locations. NOAA Technical Memorandum NFS-NE-229.

Figley, Bill (2001). Survey of New Jersey's Recreational Wreck/Artificial Reef Fisheries, 2000. New Jersey Department of Environmental Protection, Division of Fish and Wildlife, Marine Fisheries Administration, Bureau of Marine Fisheries. Fisheries Project F-15-R-41.

National Marine Fisheries Service (2016). Fisheries Economics of the United States, 2014. U.S. Dept. of Commerce, NOAA Tech. Memo. NMFS-F/SPO-163, 237p.

Steimle, F.W and C. Zetlin (2000). Reef Habitats in the Middle Atlantic Bight: Abundance, Distribution, Associated Biological Communities, and Fishery Resource Use. Marine Fisheries Review. Vol 62(2). pp 24-42.

Appendix 1

SMZ Monitoring Team

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Appendix 2
NJ SMZ Request Letter

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DEPAR1MENT OF ENVIRONMENTAL PROTECTION
NATURAL AND HISTORIC RESOURCES
Office of the Assistant Commissioner
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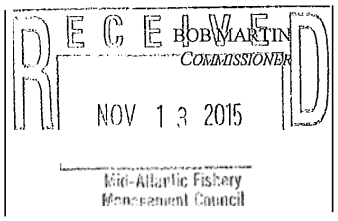
Trenton, New Jersey 08625
609-292-3541/Fax: 609-984-0836

CHRIS CHRISTIE
GOVERNOR

KIM GUADAGNO
Lt. Governor

BOB MARTIN
COMMISSIONER



November 6, 2015

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

Dear Dr. Moore:

I am writing to the Mid-Atlantic Fishery Management Council (MAFMC) to initiate the process for Special Management Zone (SMZ) designation for New Jersey's 13 artificial reefs in federal waters. I would like to request some time on the agenda for MAFMC's December 2015 meeting in Annapolis to discuss the potential for moving forward with the SMZ designation, including presentation of any materials the MAFMC deems appropriate to initiate this discussion.

Since the inception of New Jersey's Reef Program in 1984, and increasingly as reef development intensified and habitat increased, we have received complaints from individuals, head boat and charter boat captains, grassroots organizations and state legislators on behalf of their constituents that there is too much commercial gear on our reefs. The deployment of this gear severely limits recreational access to these reefs and makes unviable the intended hook-and-line use of these sites.

New Jersey's Reef Program was funded primarily through the U. S. Fish and Wildlife Service's (USFWS) Spo1t Fish Restoration Program (SFR), which is a "user pays, user benefits" program. Following several requests by the USFWS to resolve these user conflict and access issues, on April 12, 2011 SFR funding for the Reef Program and all reef construction and monitoring activities was discontinued for failure to address the issue. USFWS officials stated that funding to the Reef Program would be restored once these issues are resolved.

For the past two years, NJDEP has been working diligently with representatives from the recreational and commercial fishing sectors to develop regulations that balance access on our reefs located in marine State waters (Sandy Hook and Axel Carlson Reefs). This week, we promulgated regulations that will limit c01mnercial gear to only small sections of these reefs. In addition, we also are proposing a new reef in marine State waters where c01mnercial gear will be completely prohibited. While we have taken the necessary steps to restore recreational access on our State water reefs, recreational

access to our 13 reefs in federal waters is still severely limited by commercial gear. Therefore we are requesting an SMZ designation that would completely prohibit commercial potting gear on all 13 of these reefs.

In June 2011, for its five reefs located in federal waters, the State of Delaware formally requested an SMZ designation from the MAFMC though the Black Sea Bass provisions of the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan. Following the necessary procedural steps- including evaluating the States request, producing and evaluating a report by the MAFMC's SMZ Monitoring Committee, holding public hearings, making a recommendation to the Nation Marine Fisheries Service Regional Administration, and ultimately a decision by the Regional Administrator in July 2015-four of the five reefs were granted the SMZ designation.

New Jersey is aware there are a several necessary logistical and regulatory steps that need to occur during this process and we will fully support and respect the MAFMC process, Monitoring Committee's evaluation and final determination by the Regional Administrator. However, I am hopeful that the Council will recognize the importance of SFR funding to our fisheries management activities in New Jersey and fully support this request. Again, we are willing to provide any additional information you believe is necessary for the December meeting.

My staff and I look forward to interacting with the MAFMC on this issue. Thank you for your consideration of this important request. If you would like to discuss this matter prior to the December meeting, please contact Brandon Muffley, Marine Fisheries Administrator, at (609) 748-2020.

Sincerely,

Assistant Commissioner
Natural and Historic Resources

Appendix 3
Mid-Atlantic Fishery Management Council - Artificial Reef Policy

In June 1995, the Council adopted five policy statements on artificial reefs and the associated effects of reef activities on fisheries under Council authority. The goal was to have Council policy for artificial reefs such that all States in the Mid-Atlantic are treated uniformly. As stated in the National Plan (1985), the Federal role is one of providing technical assistance, guidance and regulations for the proper use of artificial reefs by local governments in a manner compatible with other long-term needs and to improve coordination and communication on artificial reef issues.

1) *Each new EEZ artificial reef site proposal must have a stated conservation and management objective.*

It is the Council's position that unless an organization (local government or association) has a conservation and management objective for a reef site, there is no way to evaluate the potential costs and benefits associated with a reef proposal. In essence, without stated objectives an artificial reef proposal is little more than "ocean dumping".

2) *The MAFMC endorses the National Artificial Reef Plan (1985) and encourages staff to work with ASMFC, NMFS, and the States in the updating of plan.*

The MAFMC was not heavily involved in the development of the National Artificial Reef Plan in the early 198Qs because of higher priorities for fisheries that were under or attempting to be managed at that time. It is now the understanding that ASMFC is leading the reevaluation and updating of the Reef Plan and staff is encouraged to work closely in this endeavor. Artificial reefs have become much more important to MAFMC activities with the expansive efforts by States to locate additional reefs in the EEZ, as well as our management of additional species that frequently inhabit artificial reefs (e.g. black sea bass).

3) *Only materials identified and acceptable in either the National Artificial Reef Plan (1985) or the Reef Material Criteria Handbook (1992) or revisions thereof should be used for the creation of artificial reefs.*

The Council wants only materials that are "environmentally acceptable" to be used in artificial reefs. Environmentally acceptable deals with both the toxicity of materials and also the issue that materials have to be compatible with the reef site. The latter deals with the potential energy levels at the site, and the issue that what may be acceptable at one site may be unacceptable at a different site that has a much different energy level at the bottom. The Council is greatly concerned over the usage of tires for artificial reef sites specifically. Tires have recently been shown (MD studies) to be toxic to certain organisms at reef sites with low salinity (e.g. bays and estuaries where salinities of 15 ppt or less occur), but appear to not be toxic in high salinity. The Council still believEf3 that tires are an inappropriate material because of high energy levels in the ocean which inevitably leads to tire structure breakdown and thus mobility off the reef once they get caught up in ocean currents.

4) *No fishery management regulations may be implemented for any artificial reef in the EEZ without concurrence by the MAFMC*.

The Magnuson Act states that the Council shall "prepare and submit to the Secretary a fishery management plan with respect to each fishery within its geographical area of authority that requires conservation arid management... ". It is the intent of the MAFMC that they agree with any attempt at fishery management around any artificial reef in the EEZ in the Mid-Atlantic off of New York through Virginia.

5) *The Council will attempt to facilitate communication on the siting of any new artificial reef in the EEZ with various user groups of the proposed site.*

Siting of new artificial reef is regulated by the US Army Corps of Engineers and often commercial and sport fishing interests are not well informed of Corps activities. Also individual States may coordinate with fishing interests within their State on artificial reefs, but the highly migratory nature of many fisheries necessitates information transfer to organizations beyond individual States. Council staff will attempt to widely distribute information on new sitings in the initial stages of reef proposals.

These five policy statements should help facilitate Federal, State, and local activities in the Mid-Atlantic and can only be beneficial to the ocean and coastal habitats.

NEW ENGLAND FISHERY MANAGEMENT COUNCIL
Hotel Viking, Newport, RI
November 15-17, 2016

DRAFT MONKFISH MOTIONS

1. Mr. Balzano moved on behalf of the committee:
to select Option 3 (Section 4.1.1.3) Reduce the management uncertainty buffer to 3% in the northern fishery management area (ACL=7,592; ACT=7,364 mt; TAL=6,338 mt) and Option 4 (Section 4.1.1.4) Reduce the management uncertainty buffer to 3% in the Southern Fishery Management Area (ACL=12,316 mt; ACT=11,947; TAL=9,011) as preferred alternatives.

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

2. Mr. Balzano moved on behalf of the committee:
to select Option 4 (Section 4.2.2.4) Increase the DAS allocation and trip limits in the SFMA as the preferred alternative.

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

3. Mr. Balzano moved on behalf of the committee:
to select Option 3 (Section 4.2.1.3) that would increase the incidental trip limits on a NE multispecies DAS in the NFMA to 900 and 750 lb. tail weight per DAS for Category C and D permits, respectively, as the preferred alternative.

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

4. Mr. Balzano moved on behalf of the committee:
to move Option 2 (Section 4.2.1.2) Increase the DAS allocation in the Northern Fishery Management Area to considered but rejected.

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

5. Mr. Balzano moved on behalf of the committee:
to move Options 2 and 3 (Section 4.2.2.2) Increase the DAS allocation in the SFMA and Increase the trip limits in the SFMA to considered but rejected.

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

6. Mr. Balzano moved and Mr. Alexander seconded:
to submit Monkfish Framework 10 to GARFO pending approval by the MAFMC.
The motion ***carried*** unanimously on a show of hands (17/0/0).

DECISION DOCUMENT

for

Framework Adjustment 10

to the
Monkfish
Fishery Management Plan (FMP)

MAFMC Meeting
December 13, 2016

The following decision tables in this document appear in the same order as the sections in the Draft Framework 10 document; page numbers are provided for reference.

Section 4.1.1 – Revised Annual Catch Limits
(p. 24)

NEFMC Motion:

- To select Option 3 (Section 4.1.1.3) Reduce the management uncertainty buffer to 3% in the northern fishery management area (ACL=7,592; ACT=7,364 mt; TAL=6,338 mt) and Option 4 (Section 4.1.1.4) Reduce the management uncertainty buffer to 3% in the Southern Fishery Management Area (ACL=12,316 mt; ACT=11,947; TAL=9,011) as preferred alternatives. **CARRIED** 17/0/0.

Alternatives/Options Under Consideration	Description
Option 1	**No Action**
Option 2	**Updated Discard Rate for Northern and Southern Fishery Management Areas**
Option 3	**Reduce the Management Uncertainty Buffer to 3% in the NFMA**
Option 4	**Reduce the Management Uncertainty Buffer to 3% in the SFMA**
Decisions/Questions to Consider	
•	
Monkfish Committee Recommendations	
• To select Option 3 (Section 1.1.1.3) Revised annual catch limit for the NFMA as the preferred alternative • To select Option 4 (Section 1.1.1.4) Revised annual catch limit for the SFMA as the preferred alternative • The Committee was in favor of updating the discard rate and reducing the management uncertainty buffer to 3% in both areas, which Options 3 and 4 achieve.	
Monkfish AP Comments/Recommendations	
• Quorum was not met at the October 12, 2016 AP meeting, however, the AP members present supported reducing the management uncertainty buffers to 3% in both areas.	
Other Important Considerations/DEA References	
• Biological impacts: p. 103 • Habitat impacts: p. 115 • Protected resources impacts: p. 118 • Economic impacts: p. 124 • Social impacts: p. to be completed	

Section 4.2.1 – Modify the DAS allocation and/or trip limits in the NFMA (p. 28)

NEFMC Motion:

- To select Option 3 (Section 4.2.1.3) that would increase the incidental trip limits on a NE multispecies DAS in the NFMA to 900 and 750 lb. tail weight per DAS for Category C and D permits, respectively, as the preferred alternative. **CARRIED** 17/0/0**.**
- To move Option 2 (Section 4.2.1.2) Increase the DAS allocation in the Northern Fishery Management Area to considered but rejected. **CARRIED** 17/0/0.

Alternatives/Options Under Consideration	Description
Option 1	**No Action**
Option 2	**Increase the DAS allocation in the Northern Fishery Management Area**
Option 3	**Increase the trip limits in the NFMA**
Decisions/Questions to Consider	
• Increasing the incidental limits on a NE multispecies DAS could remove the need to use a monkfish DAS in the NFMA, depending on the level of increase. Is that the intent of the Committee?	
Monkfish Committee Recommendations	
• The Committee didn't make any recommendations on changes to DAS allocations in the NFMA.	
Monkfish AP Comments/Recommendations	
• The AP did not discuss modifications to the incidental limits when on a NE multispecies DAS or increasing DAS in the NFMA.	
Other Important Considerations/DEA References	
• Biological impacts: p. 110 • Habitat impacts: p. 116 • Protected resources impacts: p. 121 • Economic impacts: p. 132 • Social impacts: p. to be completed	

Section 4.2.2 – Modify the DAS allocation and/or trip limits in the SFMA (p. 30)

NEFMC Motion:

- To select Option 4 (Section 4.2.2.4) Increase the DAS allocation and trip limits in the SFMA as the preferred alternative. **CARRIED** 16/1/0.
- To move Options 2 and 3 (Section 4.2.2.2) Increase the DAS allocation in the SFMA and Increase the trip limits in the SFMA to considered but rejected. **CARRIED** 17/0/0.

Alternatives/Options Under Consideration	Description
Option 1	**No Action**
Option 2	**Increase the DAS allocation in the SFMA**
Option 3	**Increase the trip limits in the SFMA**
Option 4	***Increase the DAS allocation and trip limits in the SFMA***
Decisions/Questions to Consider	
• The PDT is recommending moving Options 2 and 3 to considered but rejected, if the Committee intends to increase both the DAS and trip limits in the SFMA.	
Monkfish Committee Recommendations	
• Recommended Option 4 as the preferred alternative and supported the PDT recommendation to move Options 2 and 3 to considered but rejected.	
Monkfish AP Comments/Recommendations	
• Quorum was not met at the October 12, 2016 AP meeting, however, the AP members present supported a 15% in both DAS allocation and trip limits in the SFMA.	
Other Important Considerations/DEA References	
• Biological impacts: p. 113 • Habitat impacts: p. 116 • Protected resources impacts: p. 121 • Economic impacts: 134 • Social impacts: p. to be completed	

New England Fishery Management Council
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John F. Quinn, J.D., Ph.D., *Chairman* | Thomas A. Nies, *Executive Director*

DRAFT MEETING SUMMARY

Monkfish Committee

Hotel Viking, Newport, RI
November 14, 2016

The Committee met on November 14, 2016 in Newport, RI to: discuss the alternatives under consideration in Framework 10.

MEETING ATTENDANCE: Mr. Vince Balzano (Chair), Ms. Laurie Nolan (Vice Chair), Mr. Mark Alexander, Mr. Terry Alexander, Ms. Libby Etrie, Mr. Mark Gibson, Mr. Steven Heins, Dr. Cate O'Keefe, Mr. John Pappalardo, Mr. Mike Ruccio, Mr. Wes Townsend; Dr. Fiona Hogan (NEFMC staff); Dr. Willie Whitmore (GARFO); and Mr. John Almeida (NOAA General Counsel). In addition, approximately 10 members of the public attended.

KEY OUTCOMES:

- The Committee recommended a 15% increase in both DAS allocation and trip limits in the SFMA as the preferred alternative.
- The Committee recommended an increase in incidental trip limits when on a NE multispecies DAS in the NFMA of 900 and 750 lb tail weight/DAS for C and D permits, respectively, as the preferred alternative.

PRESENTATION: DAS AND TRIP LIMIT ANALYSIS

Dr. Hermsen updated the DAS allocation and trip limit analysis based on the Committee's request to increase the incidental landing limits when on a NE multispecies DAS in the NFMA at their October 18th, 2016 meeting (Hermsen, 2016). The analysis was also updated to project potential landings under a 15% increase in both DAS allocation and trip limits in the SFMA. A total of nine runs were conducted for the NFMA; seven were conducted in the SFMA (Table 7, Hermsen, 2016). Increasing the incidental limits on a NE multispecies DAS in the NFMA would effectively shift effort from a monkfish DAS to a NE multispecies DAS. In other words it would relabel directed effort to incidental effort. It would also reduce the need to use a monkfish DAS in the NFMA as the majority of trips caught less than the proposed incidental limits. The additional runs that increased the incidental limits in the NFMA when on a NE multispecies DAS did not solve for a revised level of directed monkfish DAS allocation because the "directed" effort remaining was so low it could take a large number of DAS to project that the TAL would be achieved. For the SFMA, the maximum potential landings were projected to be 12,345,092 lb. This represented a 30% increase over observed landings in FY2015.

DISCUSSION ON THE PRESENTATION

A Committee member questioned why vessels in the NFMA were not using their monkfish DAS and instead were mainly landing lower, incidental amounts of monkfish. GARFO staff explained that the fishery in the NFMA has always been incidental. For the first several years of the fishery, there weren't any monkfish DAS limits in the NFMA – DAS only had to be declared in the SFMA. Because of its incidental nature, there has always been fewer monkfish DAS used in the NFMA compared to the SFMA. Recent estimates of DAS usage were approximately 3% in the NFMA. A Committee member characterized monkfish fishing in the NFMA as a mixed trip where they're landing both monkfish and groundfish but not directing effort on monkfish.

Current regulations, allow a monkfish DAS to be declared after leaving the dock in the NFMA, provided the monkfish option is selected before the trip starts. A Committee member questioned why the onus was on the captain to do this at sea instead of being able to declare it after landing. GARFO staff considered the current regulations to provide enough flexibility for fishermen since they can declare a monkfish DAS at any time prior to landing, if they need to. Another Committee member remembered when the monkfish option was originally developed and at the time was considered the best solution to increase flexibility. GARFO staff also pointed out that only a small number of vessels in the NFMA were restricted by existing DAS allocations. A number of DAS go unused in the NFMA every year but no shift of effort from the NFMA to the SFMA had been detected in the data to date. According to the FY 2015 TAL report (https://www.greateratlantic.fisheries.noaa.gov/aps/monitoring/monkfish.html), 38% of overall landings in the NFMA were landed using otter trawl; 38% of overall landings in the SFMA were landed using gillnet gear.

A Committee member thought it would be helpful to identify the different characteristics of the fishing fleets in the two management areas. The southern fishery targets monkfish and primarily uses gillnet gear. The northern fishery primarily consists of trawlers looking to put a trip on board and use monkfish as a component of a trip. It was thought financially unviable for such vessels to move south to complete a trip.

PUBLIC COMMENT ON THE PRESENTATION

- Bill McCann – A lot of the northern vessels don't have allocation of southern groundfish stocks. Sector rules, if they don't have allocation for those stocks they can't catch them. As far as the fear factor goes they could give you 100 DAS in the NFMA but you can still only use whatever is allowed down south. They could give them the max but it doesn't matter because you can only use 32 in the SFMA.

- Jeff Kaelin, Lund's Fisheries – We don't really direct on monkfish but land it on scallop boats and buy a lot of monkfish from gillnetters in Barnegat. The Committee has had this discussion for a long time. I wonder how many of those DAS are being used in the south. You have 40,000 DAS and only a small percentage is being used. There are latent DAS and I recognize there would be the right to go between areas but we could find out how much demand there is to do that and get rid of 20,000 DAS. If we change the calculations we can get rid of that fear factor. I think people would say there's not 20,000 DAS that could be burned in the south. We could use A6 to rationalize the fishery. I do appreciate you considering a 3% uncertainty buffer. That's a positive thing.

A Committee member was concerned that monkfish would be caught when vessels move south to fish for squid. Another Committee member has fished in the south for squid but not for monkfish. The Committee member remained concerned that loopholes would be found.

AGENDA ITEM #1: FRAMEWORK 10

Council Staff outlined the alternatives under consideration for Framework 10. These included specifications for FYs 2017 - 2019. At their October 18th, 2016 meeting, the Committee selected Options 3 (ACL=7,592; ACT=7,364 mt; TAL=6,338 mt) and 4 (ACL=12,316 mt; ACT=11,947; TAL=9,011) as preferred alternatives for specifications. The AP members in attendance of their October 12, 2016 meeting were in favor of a 6% management uncertainty buffer in both management areas because of concerns surrounding the NEFSC trawl survey and assessment. Other alternatives were for increases in DAS allocation and/or trip limits for both management areas. The AP members in attendance of their October 12, 2016 meeting recommended a 15% increase in DAS allocations and trip limits in the SFMA; no recommendation was made for the NFMA.

The Committee decided to begin with the SMFA alternatives.

1. MOTION: Ms. Nolan/Mr. Pappalardo

To recommend Option 4 (Section 4.2.2 Increase the DAS allocation and trip limits in the SFMA) as preferred alternative.

MOTION #1 CARRIED/10-0-0.

Next the Committee discussed alternatives for the NFMA, beginning with the DAS allocation in the NFMA. A Committee member suggested increasing the DAS allocation in the NFMA area to 87 DAS. The Committee member didn't want to miss out on any opportunities. GARFO staff explained that the model was not able to provide an analytical solution to increase DAS in the NFMA if the incidental trip limits were increased. The relationship between DAS allocation and landings in the SFMA is very straightforward but is less so in the NFMA. Instead, increasing the incidental landing limits would reduce the need to declare a monkfish DAS in the NFMA. The 87 DAS estimate came from a run where the incidental landings limits were not increased and therefore there was still measureable directed effort for the model.

2. MOTION: Mr. T. Alexander/Ms. Etrie

To recommend Option 3 (Section 4.2.1.3 Increase the incidental trip limits on a NE multispecies DAS in the NFMA) to 900 and 750 lb tail weight per DAS for Category C and D permits, respectively, as the preferred alternative.

Rationale: Increasing the incidental limis on a NE multispecies DAS would allow vessels to fish and not use a MF DAS. This addresses the needs of GF vessels that view monkfish as a component of their trip.

PUBLIC COMMENT ON THE PRESENTATION

- Bill McCann – We were discussing increasing the monkfish DAS. I think you would be better increasing the limit on the monkfish DAS, which would entice people to use their monkfish DAS and not save them. Right now we're at no limit on a monkfish DAS but that will change.

MOTION #2 CARRIED/10-0-0.

The Committee discussed what might be an appropriate option for monkfish DAS allocations in the NFMA. GARFO staff noted that by raising the incidental limit in the NMFA essentially moves them to groundfish trips. This would also reduce the need for a monkfish DAS that are currently not restraining so it becomes a policy decision for the Committee. A Committee member reminded the Committee of concern raised at the last Committee meeting about the risk of reducing the management uncertainty buffer to 3% in the NFMA. Maintaining status quo DAS in the NFMA might help mitigate that risk especially when the existing allocation was not restricting. Another Committee member suggested the allocation could even be lowered to 37 DAS to match the southern allocation.

Staff clarified that FW10 alternatives would not adjust the unlimited trip limit when fishing on a NE multispecies and monkfish DAS in the NFMA. A Committee member noted that none of the alternatives in the NFMA were expected to increase landings in the NFMA, unless there was a behavioral shift that was inconsistent with recent patterns. A Committee member thought that the alternatives would increase flexibility but not landings in the NFMA and was uncomfortable with an increase in DAS as high as 87 DAS. However, since some vessels were being restricted by the current allocation, the Committee member was interested in discussing a lower increase in NFMA DAS. GARFO staff noted that monkfish permits are not associated with a management area and accordingly all permit holders are allocated the same amount of DAS but only a set number was allowed to be used in the SFMA. Since the Committee did not want to increase DAS in the NFMA after their discussion, the alternative in the document could be moved to considered but rejected.

3. MOTION: Ms. Etrie /Mr. T. Alexander

To move Option 2 (Section 4.2.1.2 Increase the DAS allocation in the Northern Fishery Management Area) to considered but rejected (Etrie/M. Alexander)

MOTION #3 CARRIED/10-0-0.

Staff noted that since the Committee had selected Option 4 for the SFMA alternatives, it would aid in preparing the document to move Options 2 and 3 to considered but rejected.

4. MOTION: Mr. M. Alexander/Mr. Gibson

To move Options 2 and 3 (Section 4.2.2 to increase the DAS allocation in the SFMA and Increase the trip limits in the SFMA) to considered but rejected

MOTION #4 CARRIED/10-0-0.

AGENDA ITEM #2: OTHER BUSINESS

An issue of concern for a Committee member was the current regulations that prohibit trip category vessels from leaving their gillnet gear in the water when they go in. The day boat category can leave their gear out but are restricted to 50 nets. Vessels opt into the trip boat category, which has unlimited nets. The nets being left out would be 12" and not the 6.5" net. The sector exemption from this regulation was recently rejected and GARFO thought Council action would be needed to amend it. The regulation is under the NE multispecies FMP, which would require a joint action if the Monkfish Committee addressed the issue. A Committee member suggested that it be included in NE Multispecies FW56 since it was a groundfish regulation and to include it in monkfish FW10 would delay final action.

PUBLIC COMMENT ON THE PRESENTATION

- Bill McCann – The reason is because of the 120 day blocks so that was the difference between day and trip. Day boats had to take the 120 day blocks.

Consensus statement: To encourage the Groundfish Committee to modify the regulations that requires trip gillnet vessels to bring their gear in at the end of their trip specifically considering modifications that would allow 10" or greater gillnet gear to be left between trips to facilitate more efficient monkfish trips.

Amendment 5b to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan

The National Marine Fisheries Service (NMFS) is considering management measures that would end overfishing and rebuild the overfished Atlantic dusky shark stock.

Atlantic highly migratory species (HMS) are managed under the dual authority of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act (Magnuson-Stevens Act) and the Atlantic Tunas Convention Act. Under the Magnuson-Stevens Act, NMFS must manage fisheries to maintain optimum yield on a continuing basis while preventing overfishing. Under the Atlantic Tunas Convention Act (ATCA), NMFS is authorized to promulgate regulations, as may be necessary and appropriate, to implement the recommendations from the International Commission for the Conservation of Atlantic Tunas (ICCAT). The measures proposed in this amendment and associated rulemaking are taken under the authority of the Magnuson-Stevens Act and consistent with ATCA. Currently, Atlantic sharks, tunas, swordfish, and billfish are managed under the 2006 Consolidated Atlantic HMS Fishery Management Plan (FMP), and its amendments.

NMFS made a stock status determination for dusky sharks as overfished with overfishing occurring after the stock was assessed in the 2010/2011 benchmark stock assessment (SEDAR 21), and announced its intent to prepare an Environmental Impact Statement (EIS) for Amendment 5 to the 2006 Atlantic Consolidated HMS FMP (Amendment 5) (76 FR 62331; October 7, 2011) to address conservation and management of dusky sharks and other Atlantic shark stocks. NMFS considered alternatives for conservation and management measures to end overfishing of and rebuild dusky sharks in Draft Amendment 5 (77 FR 70552, November 26, 2012). NMFS received substantial public comment questioning the bases for and impacts of the dusky shark measures and determined that additional analyses were needed before undertaking measures pertaining to dusky sharks. NMFS then finalized the management measures for the other Atlantic shark species included in Draft Amendment 5 in the Final Amendment 5a and associated final rule (78 FR 40318, July 3, 2013), while dusky shark management measures would be included in a separate rulemaking known as Amendment 5b.

NMFS released a Predraft for Amendment 5b that considered the feedback received on those initial proposals in Draft Amendment 5 and solicited additional public input and consulted with its HMS Advisory Panel at the Spring 2014 meeting (see http://www.nmfs.noaa.gov/sfa/hms/documents/fmp/am5/predraft/a5b_predraft_03-28-14.pdf). The Predraft included alternatives that were beyond the scope of the original proposals as well as new information. In 2014, additional new information regarding dusky sharks was compiled in a comprehensive Endangered Species Act Status Review that was undertaken in response to petitions to list the Northwest Atlantic and Gulf of Mexico population of dusky shark under the Endangered Species Act (http://www.fisheries.noaa.gov/pr/species/fish/dusky-shark.html; 79 FR 74954, December 16, 2014).

Subsequently, in September 2016, an update to the 2010/2011 SEDAR 21 dusky shark stock assessment was completed through the SEDAR process using the most recent time series data

through 2015 (http://sedarweb.org/sedar-21). NMFS made a stock status determination in October 2016 that the stock remains overfished with overfishing occurring.

In this document, we consider a reasonable range of alternative management measures to end overfishing and rebuild the dusky shark stock, including: modifying the recreational permitting process and increasing outreach and education; requiring the use of circle hooks by recreational shark fishermen; requiring the use of circle hooks in recreational shark tournaments; modifying the size limit for recreational shark fishing; prohibiting recreational retention of ridgeback sharks; prohibiting retention of all sharks; requiring NMFS-approved shark placards on recreational vessels; establishing protocols for releasing sharks in the pelagic longline fishery; limiting the number of hooks per pelagic longline set; requiring circle hooks in the shark bottom longline fishery; restricting areas to pelagic longline gear; extending a bottom longline time/area closure; closing the Atlantic HMS pelagic longline fishery; establishing individual dusky shark bycatch quotas; and additional outreach and educational training programs. Additionally, we clarify the annual catch limits (ACLs) and accountability measures (AMs) for all prohibited shark species, including dusky sharks.

Consistent with the regulations published by the Council on Environmental Quality, 40 C.F.R. 1501-1508 (CEQ Regulations), we have identified our preferred alternatives. A full description and analysis of the different alternatives can be found in Chapters 2.0 and 4.0 of this document. We have identified preferred alternatives that will, consistent with the Magnuson-Stevens Act and other domestic laws, rebuild and end overfishing of dusky sharks, balance the needs of the fishermen and communities with the needs of the resource, and maximize sustainable fishing opportunities. The list of preferred alternatives can be found below (Table 0.1); the list of the full range of alternatives considered can be found in Chapter 2.0. We will thoroughly consider public comment before finalizing any alternatives, and the proposed measures may be altered or different alternatives adopted at the final rule stage. The CEQ regulations direct Federal agencies to the full extent possible to integrate the requirements of the National Environmental Policy Act with other planning and environmental review procedures required by law or by agency practice so that all procedures run concurrently rather than consecutively. To that end, this document integrates the Draft Environmental Impact Statement (DEIS) required by the National Environmental Policy Act with the fisheries planning and management requirements associated with proposed amendment to a FMP under the Magnuson-Stevens Act, the Initial Regulatory Flexibility Analysis required under the Regulatory Flexibility Act, 5 U.S.C. §§601-603; and the Regulatory Impact Review prepared in accordance with Executive Order 12866, "Regulatory Planning and Review."

Table 0.1 The preferred alternatives in the DEIS for Amendment 5b to the 2006 Consolidated HMS FMP

Recreational Measures	**Preferred Alternatives in DEIS**
Permit Requirements and Outreach	*Alternative A2* Require HMS permit holders fishing for sharks recreationally to obtain a shark endorsement, which requires completion of an online shark identification and fishing regulation training course, plus additional recreational fisheries outreach.
Circle Hook Requirement	*Alternative A6a* Require the use of circle hooks by all HMS permit holders fishing for sharks recreationally and when using natural baits and using wire or heavy (200 lb or greater test) monofilament or fluorocarbon leaders.
Commercial Measures	**Preferred Alternatives in DEIS**
Shark Release Protocol	*Alternative B3* Fishermen with an Atlantic shark limited access permit with pelagic longline gear onboard must release all sharks not being retained using a dehooker or cutting the gangion less than three feet from the hook.
Additional Training Requirements	*Alternative B5* Require completion of a shark identification and fishing regulation training course as a new part of all Safe Handling and Release Workshops for HMS pelagic longline, bottom longline, and shark gillnet vessel owners and operators.
Outreach and Fleet Communication Protocol	*Alternative B6* Increase dusky shark outreach and awareness through development of additional outreach materials, and require HMS pelagic longline, bottom longline, and shark gillnet vessels to abide by a dusky shark fleet communication and relocation protocol.
Circle Hook Requirement	*Alternative B9* Require the use of circle hooks by all HMS directed shark permit holders using bottom longline gear.

National Observer Program
Observer Survey

NOAA FISHERIES

Office of Science and Technology

National Observer Program

NOAA Fisheries wants to know the factors that contribute to observer retention. This survey is only for current and past observers.

Participation in this survey is voluntary and all information supplied is safeguarded by the National Observer Program.

For more information, please visit:

http://www.st.nmfs.noaa.gov/observer-home/index

Why is NOAA Fisheries asking for your help with this survey?

Maintaining a strong observer workforce now and in the future is a priority for NOAA Fisheries. This survey for present and past observers was created to provide clarity on the factors that contribute to observer retention and to ensure NOAA Fisheries is providing the necessary support for a robust observer program.

On all U.S. coasts, observers provide catch and bycatch information that is used in stock assessments and is essential for sustainable fisheries management. In order to fulfill their duties, observers go through a rigorous training program to be able to quickly identify species and collect data. Because the technical skills observers possess take time to hone and are essential to good data collection, retaining knowledgeable and hardworking observers is important to NOAA Fisheries. The feedback from this survey will be used to continue improving the observer program and to support observers in their career development.

What type of information will be collected?

The types of information collected will include demographic information, education and work history information, pre-employment motivation, observer experience, job satisfaction information, job difficulty information, future plans, opinions about electronic monitoring, and regional information.

How long will it take to complete the survey?

You should be able to complete the survey in about 20 minutes.

Is participation voluntary?

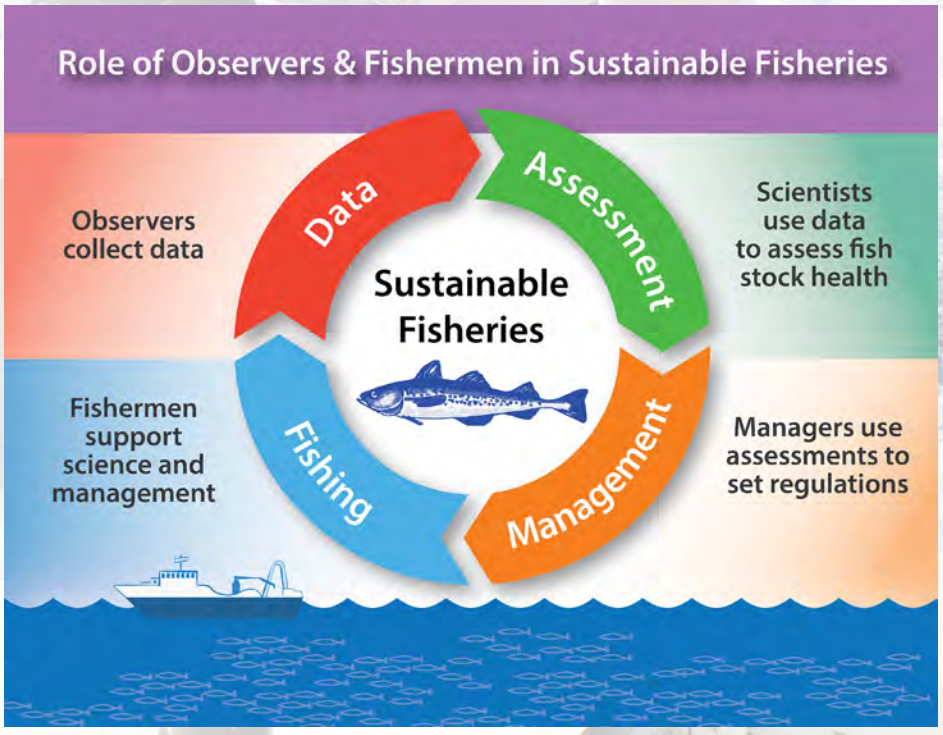
Your participation in this survey is voluntary. The information will be collected anonymously.

How will respondents be sure their data is confidential and anonymous?

NOAA Fisheries takes your privacy seriously. NOAA Fisheries will retain control over the information and safeguard it from improper access, modification, and destruction, consistent with NOAA standards for privacy and electronic information. This assurance is included in the survey. In particular, data concerning observer retention will be collected anonymously and will not be released for public use. Contact information collected for follow-up interviews is not linked to survey responses.

How will the data collected be used by NOP?

Our goal is to retain highly qualified, hardworking people like you. NOAA Fisheries will use information from the survey to improve the National Observer Program to meet that goal.



Observer Facts:

- Observers have collected catch and bycatch data since 1972.
- They are the only independent data collection source for some types of at-sea information.
- The National Observer Program supports the activities of 6 regional programs, which observe a total of 47 fisheries.
- In recent years, nearly 1000 observers spent over 83,000 days at sea.
- Data collected by observers help monitor fishery performance and complete stock assessments.
- Data collected by observers help provide a national picture on bycatch.
- The National Observer Program has aided in the development of observer programs internationally.
- Observers are essential to help test innovation in fishing gear, such as bycatch reduction devices.

Access the survey:

https://www.surveymonkey.com/r/JQM63FL

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 600

[Docket No. 120416013–6270–03]

RIN 0648–BB92

Magnuson-Stevens Act Provisions; National Standard Guidelines

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Final rule.

SUMMARY: This final action revises the guidelines for National Standards (NS) 1, 3, and 7 of the Magnuson-Stevens Fishery Conservation and Management Act (MSA or The Act) and to the General section of the NS guidelines. This action is necessary to improve and clarify the guidance within the NS guidelines. The purpose of this action is to facilitate compliance with requirements of the MSA to end and prevent overfishing, rebuild overfished stocks, and achieve optimum yield (OY).

DATES: This rule is effective October 18, 2016.

ADDRESSES: Copies of supporting documents prepared for this final rule, such as the proposed rule and public comments that were received, can be found at the Federal e-Rulemaking portal: *http://www.regulations.gov* by searching for RIN 0648–BB92.

FOR FURTHER INFORMATION CONTACT: Stephanie Hunt, 301–427–8563.

SUPPLEMENTARY INFORMATION:

Table of Contents

I. Overview of Revisions to the NS Guidelines

The MSA serves as the chief authority for fisheries management in the U.S. Exclusive Economic Zone (EEZ). The Act sets ten national standards (NS) for fishery conservation and management, and requires that the Secretary of Commerce (the Secretary) establish advisory guidelines based on the NS to assist in the development of fishery management plans. Guidelines for the NS are codified in subpart D of 50 CFR part 600. This final action amends the General section of the NS guidelines and the guidelines for NS1, NS3, and NS7.

Since 2007, fisheries management within the U.S. has experienced many changes, in particular the development and implementation of annual catch limits (ACLs) and accountability measures (AMs) under all fishery management plans to end and prevent overfishing. Due to a number of concerns raised during the implementation of ACLs and AMs, NMFS initiated a revision of the NS guidelines in 50 CFR 600.305, 600.310, 600.320, and 600.340 in order to improve the utility of the guidelines for managers and the public. NMFS published an Advance Notice of Public Rulemaking (ANPR) on May 3, 2012, (77 FR 26238, May 3, 2012) to solicit public comments on potential adjustments to the NS guidelines. The comment period on the ANPR was extended once (77 FR 39459, July 3, 2012), and then reopened (77 FR 58086, September 12, 2012), and ended on October 12, 2012. In March 2013, NMFS published a report that summarizes the comments received on the ANPR (*http://www.nmfs.noaa.gov/sfa/laws_policies/national_standards/ns1_revisions.html*). In addition to the ANPR, issues related to the NS guidelines were discussed at several other public forums. NMFS proposed revisions to the General section of the NS guidelines and the guidelines for NS1, NS3, and NS7 on January 20, 2015 (80 FR 2786, January 20, 2015). Further background is provided in the above-referenced **Federal Register** documents and is not repeated here. The proposed rule described the objective of the proposed revisions, which is to improve and streamline the NS1 guidelines, address concerns raised during the implementation of ACLs and AMs, and provide flexibility within current statutory limits to address fishery management issues.

NMFS solicited public comment on the proposed revisions to the guidelines through June 30, 2015, and during that time made presentations on the proposed revisions to seven of the eight Regional Fisheries Management Councils (Councils) and held one public meeting on March 25, 2015 (Silver Spring, Maryland). NMFS received more than 102,000 comments on all aspects of the proposed revisions. Many of the comment letters were form letters or variations on a form letter. In general, the fishing industry and the Councils supported the majority of the provisions in the proposed action meant to provide flexibility within the current statutory limits but stated that many of the new provisions required additional guidance in the final action. In general, the environmental community opposed the proposed revisions, stating that they would reverse recent successes in U.S. fisheries management and did not address pertinent issues such as ecosystem-based fisheries management (EBFM), forage fish, and climate change.

II. Major Components of the Proposed Action

Some of the major items covered in the proposed guidelines included the following: (1) Add a recommendation that Councils reassess the objectives of their fisheries on a regular basis; (2) consolidate and clarify guidance on identifying whether stocks require conservation and management; (3) provide additional flexibility in managing data limited stocks; (4) revise the guidance on stock complexes to encourage the use of indicator stocks; (5) describe how aggregate maximum sustainable yield (MSY) estimates can be used; (6) develop a definition for a depleted stock; (7) provide increased stability in fisheries by providing guidance on the use of multi-year overfishing determinations; (8) revise the guidance on optimum yield (OY) to improve clarity and better describe the role of OY under the ACL framework; (9) clarify the guidance on acceptable biological catch (ABC) control rules, describe how ABC control rules can allow for phase-in adjustments to ABC, and allow for carry-over of all or some of an unused portion of the ACL; (10) revise the guidance on AMs to improve clarity; (11) clarify the guidance on establishing ACL and AM mechanisms in FMPs; (12) clarify the guidance on adequate progress in rebuilding and extending rebuilding timelines; and (13) provide flexibility in rebuilding stocks.

III. Major Changes Made in the Final Action

The approaches proposed under items #1, 3–5, 8, and 10–11 above are retained in this final action. The main substantive change in the final action pertains to the proposed definition for

depleted stocks (#6). NMFS proposed adding the term ''depleted'' to the NS1 guidelines to describe those stocks whose biomass has declined as a result of habitat loss and other environmental conditions, as opposed to fishing pressure. However, separating out the impacts of environmental factors from the impacts of fishing on a stock is a difficult task and public comments reflected concern that the proposed definition for depleted stocks was overly restrictive and would not definitively distinguish between stocks primarily impacted by environmental factors and stocks primarily impacted by fishing pressure. Thus, the final action does not include the proposed definition of depleted stocks and instead retains the current requirement that stocks whose biomass has declined below its MSST are considered to be overfished, regardless of the factors (fishing-related or otherwise) responsible for the stock's decline. A Council may use the term ''depleted'' to further describe the status of an overfished stock that has been impacted to some extent by environmental factors in addition to (or in the absence of) fishing pressure.

In response to public comment, this final action also clarifies text on stocks that require conservation and management (#2), multi-year approaches to overfishing stock status determinations (#7), phase-in and carry-over ABC control rules (#9), adequate progress determinations for rebuilding plans (#12), and discontinuing rebuilding plans (#13), and makes minor clarifications to other text. Further explanation of why changes were or were not made is provided in the ''Response to Comments'' section below. Details on changes made in the codified text are provided in the ''Changes from Proposed Action'' section.

IV. Overview of the Major Aspects of the Final Action

A. Stocks That Require Conservation and Management

NMFS received numerous comments on proposed § 600.305(c), which contains new guidance to Councils on determining, pursuant to their obligation under MSA section 302(h)(1), whether stocks require (or, are in need of) conservation and management. The MSA establishes that each Council should prepare an FMP for each fishery under its authority that requires conservation and management. 16 U.S.C. 1801(b)(1). Because not every fishery requires federal management, NMFS believes that consolidated, streamlined guidance on determining which stocks are in need of conservation and management and thus, federal management, will be beneficial to managers. Further background and rationale for this proposed revision to the guidelines was provided on pages 2788–2789 of the proposed rule. *See* 80 FR 2788–2789, January 20, 2015.

Sections V and VI (Responses to Comments and Changes from Proposed Rule) provide a detailed explanation of changes made from the proposed to final action. Here, NMFS highlights a few of those changes. Final § 600.305(c)(1) provides—unchanged from the proposed action—that stocks that are predominately caught in Federal waters and are overfished or subject to overfishing, or likely to become overfished or subject to overfishing, are considered to require conservation and management. 16 U.S.C. 1853(a)(1)(A) (requiring that FMPs contain conservation and management necessary to prevent overfishing and rebuild overfished stocks). However, the final action clarifies that Federal management is not limited to such stocks (*i.e.,* predominantly caught in Federal waters and overfished or subject to overfishing, or likely to become so). To determine if other stocks require conservation and management, the guidelines contain a non-exhaustive list of factors (*see* § 600.305(c)(1)(i)–(x)) that Councils should consider when determining whether a stock requires conservation and management.

The final action adds an explanation at § 600.305(c)(3) that, when considering adding a stock to an FMP, no single factor is dispositive or required. One or more of the factors may provide a basis for determining a stock is in need of conservation and management. When considering removing a stock from an FMP, final § 600.305(c)(4) provides—as proposed—that Councils should consider each of the ten factors. NMFS received many comments on § 600.305(c)(1)(x) in particular. Section 600.305(c)(1)(x) speaks to the consideration of other existing management regimes when determining whether Federal management is necessary. In response to comments, the final action deletes the phrase ''could be or'' from § 600.305(c)(1)(x), which implied that the mere possibility that other management regimes may exist is an appropriate consideration for determining whether a stock requires conservation and management, which was not the intention behind the proposed revisions.

Finally, while nothing in the proposed revisions changed previous guidance on the optional usage of ecosystem component (EC) species, NMFS clarifies in the final action that Councils may still use EC species at their discretion and re-inserts a definition of EC species. However, the definition of EC species in the final action does not include criteria for designation because a Council is free to designate any stock, that is determined not in need of conservation of management, as an EC species at their discretion. Criteria for the designation of EC species is no longer necessary because the factors listed in § 600.305(c)(1)(i)–(x) of this final action clarify which stocks are in need of conservation and management and therefore cannot be designated as EC species. Because the designation of EC species may be done to accomplish several different goals, NMFS does not believe it is appropriate to prescribe specific guidance on the requirements for managing and monitoring EC species.

B. Multi-Year Approaches to Overfishing Stock Status Determinations

Another major aspect of the revised NS1 guidelines is the inclusion of guidance on a method for determining the overfishing status of a stock based on a multi-year approach. The MSA defines overfishing as a ''rate or level of fishing mortality that jeopardizes the capacity of a fishery to produce the MSY on a continuing basis.'' 16 U.S.C. 1802(34). Thresholds for deciding whether a stock is subject to overfishing can be determined either by comparing rates of fishing mortality (F) to the maximum fishing mortality threshold (MFMT) or catch to the overfishing limit (OFL). *See* § 600.310(e)(2)(i)(B)–(D).

Pursuant to MSA section 304(e)(1), NMFS must report annually to Congress and the eight Councils on the status of all Federally-managed fish stocks. 16 U.S.C. 1854(e)(1). Overfishing status determinations are typically made based on the most recent year for which there is information. When utilizing the F-based approach, the estimate of F for the most recent year for which there is data is often more uncertain than the estimates of F in prior years (NRC 1998). In addition, the extent to which the effort or catch exceeded the threshold for overfishing has not traditionally been considered when determining whether the stock was subject to overfishing. Small amounts of excess effort or catch in a single year may not jeopardize a stocks' ability to produce MSY over the long term, thus an overfishing stock status determination based on that single year's reference point may not be the most appropriate characterization of stock status. To

address this issue, the proposed revisions introduced a multi-year approach (that may not exceed 3 years) to allow Councils to examine whether the extent to which a stock has surpassed its overfishing threshold actually jeopardizes the stock's ability to produce MSY on a continuing basis. *See* § 600.310(e)(2)(ii)(A)(*3*) of the proposed action. Using a multi-year approach to determine overfishing stock status is best used when managers believe the most recent year's data point may not reflect the overall status of the stock. Further background on the proposed multi-year overfishing stock status determination provision was provided on pages 2791–2792 of the proposed rule. *See* 80 FR 2791–2792, January 20, 2015.

Public comments reflected confusion regarding proper use of this provision. Thus, the final action clarifies that, under certain circumstances, a Council may determine that it is appropriate to use a multi-year approach for overfishing status determination criteria (SDC). Such circumstances may include, but are not limited to, situations where there is high uncertainty in the estimate of F in the most recent year, cases where stock abundance fluctuations are high and assessments are not timely enough to forecast such changes, or other circumstances where the most recent catch or F data does not reflect the overall status of the stock. The final action clarifies that a Council must identify, within its FMP or FMP amendment, the circumstances (such as those listed above) in which a multi-year approach to overfishing SDC will be used. The final action also emphasizes that a multi-year approach is to be used only for retrospective stock status determinations, *i.e.,* determinations that NMFS makes to fulfill statutory reporting requirements. 16 U.S.C. 1854(e)(1). The provision may not be used to establish annual catch limits. For example, if the catch of a stock in a single year was well below its ACL, a Council may not justify setting the next year's catch level above the OFL based on the multi-year approach. NMFS provides additional explanation and clarification on this issue in the responses to comments below.

C. Acceptable Biological Catch (ABC) Control Rules

An ABC control rule accounts for scientific uncertainty in the OFL and for the Council's risk policy when establishing an ABC. The proposed guidelines would allow Councils to develop an ABC control rule that would phase-in changes to the ABC over a period of time not to exceed 3 years, so long as overfishing is prevented. *See* § 600.310(f)(2)(ii)(A) of the proposed action. NMFS also proposed allowing Councils to carry-over some of the unused portion of the ACL from one year to increase the ABC for the next year, based on increased stock abundance resulting from the fishery harvesting less than the full ACL. The proposed NS1 guidelines clarified that Councils establishing phase-in and/or carry-over provisions in their ABC control rules would need to specify when each provision can and cannot be used and how each provision prevents overfishing, based on a comprehensive analysis. *See* § 600.310(f)(2)(ii). Further background and rationale on the proposed revisions to establish phase-in and carry-over ABC control rules was provided on page 2794 of the proposed rule. *See* 80 FR 2794, January 20, 2015.

NMFS received a variety of public comments expressing concern that phase-in and carry-over provisions would increase the risk of overfishing. The final action emphasizes that Councils should conduct a comprehensive analysis of every ABC control rule—which would include those with phase-in and/or carry-over provisions—that shows how the control rule prevents overfishing. *See* § 600.310(f)(2)(i) and (ii) of final action. The final action also clarifies that, for stocks that are overfished and/or rebuilding, Councils should evaluate the appropriateness of carry-over provisions for such stocks. Finally, the final action contains language recommending that Councils should consider the reason for ACL underages when deciding whether to allow carry-over.

D. Adequate Progress Determinations for Rebuilding Plans

MSA section 304(e)(7) requires the Secretary to review rebuilding plans to ensure that adequate progress toward ending overfishing and rebuilding affected fish stocks is being made. 16 U.S.C. 1854(e)(7). NMFS received several comments in response to the ANPR requesting additional guidance on adequate progress determinations and thus, NMFS proposed guidance to clarify that the review of rebuilding progress could include the review of recent stock assessments, comparisons of catches to the ACL, or other appropriate performance measures. NMFS also proposed that the Secretary may find that adequate progress in rebuilding is not being made if: (1) $F_{rebuild}$ or the ACL associated with $F_{rebuild}$ are being exceeded and AMs are not effective at correcting for the overages; or (2) when the rebuilding expectations of the stock or stock complex have significantly changed due to new and unexpected information about the status of the stock. *See* § 600.310(f)(3)(iv). Public comment raised concern that these criteria do not consider biomass trends, which would allow adequate progress determinations to be made for stocks where, despite maintaining catch at or below $F_{rebuild,}$ the biomass is failing to increase. Having considered public comment, NMFS has decided to keep the proposed criteria for adequate progress determinations in the final action. As mentioned in the proposed action, the 2013 National Research Council (NRC) report on rebuilding highlighted that the primary objective of a rebuilding plan should be to maintain fishing mortality at or below $F_{rebuild}$. By doing so, managers can avoid issues with updating timelines that are based on biomass milestones, which are subject to uncertainty (*see* § 600.310(j)(3)(i)(A)) and changing environmental conditions that are outside the control of fishery managers. NMFS emphasizes in the final action that, despite the uncertainty associated with biomass trends, there is a strong relationship between F-rates and biomass trends. Stocks that consistently experience fishing mortality above $F_{rebuild}$ generally experience declining or little increases in biomass, while stocks that consistently experience fishing mortality equal to or below $F_{rebuild}$ generally experience increasing biomass. Cases where stock biomass is not increasing despite maintaining catch levels at or below $F_{rebuild}$ levels would be unexpected. Such cases would likely trigger the second criteria for determining that adequate progress is not being made (*i.e.,* new and unexpected information has significantly changed the rebuilding expectations of the stock). Thus, NMFS is confident that the criteria for adequate progress determinations (see § 600.310(j)(3)(iv) of the final action), address and cover situations where a rebuilding plan fails to properly constrain fishing mortality rates as well as situations where a rebuilding stock's biomass is failing to increase. NMFS believes that further guidance on this issue is not necessary to include within the NS1 guidelines.

E. Adding Flexibility in Rebuilding Plans

Calculating T_{max}

The NS1 guidelines provide guidance on determining the minimum (T_{min}), maximum (T_{max}), and target (T_{target}) time to rebuild a stock to a level that supports MSY (B_{msy}). In the past, Councils have had difficulties

calculating T_{max} based on the original data-intensive method (*i.e.,* T_{min} + one generation time) that requires data on life history, natural mortality, age at maturity, fecundity, and maximum age of the stock (Restrepo, et al. 1998). In order to allow Councils to make T_{max} calculations despite variable information and data availability amongst stocks, NMFS proposed specifying three methods to calculate T_{max} within the guidelines: (1) T_{min} plus one mean generation time (status quo); (2) the amount of time the stock is expected to take to rebuild to its B_{msy} if fished at 75 percent of the MFMT; or (3) T_{min} multiplied by two. Further background and rationale on the proposed revisions to the guidance on the calculation of T_{max} was provided on pages 2795–2796 of the proposed rule. *See* 80 FR 2795–2796, January 20, 2015.

NMFS received many comments on the proposed additional methods to calculate T_{max}, and some commenters stated that if Councils use the method that yields the longest T_{max} estimate, the resulting rebuilding plan would not be effective nor meet the statutory requirement that rebuilding plans rebuild a stock in as short a time as possible. 16 U.S.C. 1854(e)(4)(A)(i).

After taking into consideration public comment, NMFS has decided to keep the additional T_{max} calculation methods, but has revised the final action to provide additional guidance on how to determine which method to use. First, NMFS added language to the final action to emphasize that, where T_{min} exceeds 10 years, T_{max} establishes a maximum time for rebuilding that is linked to the biology of the stock. As such, NMFS also highlighted that decisions regarding which T_{max} calculation method to use should be driven by the best scientific information available with consideration of relevant biological data and the scientific uncertainty of that data (rather than the outcome of the calculation). Councils must also work with their Scientific and Statistical Committees (SSCs) (or agency scientists or peer review processes in the case of Secretarial actions) to determine which T_{max} calculation method to use. Finally, NMFS also provided examples of cases where, given data availability and the life history characteristics of a stock, it may be appropriate to use one of the alternative methods instead of the status quo calculation method (T_{min} plus one mean generation time).

Furthermore, while Councils may use T_{max} as a measureable upper bound on the duration of rebuilding time periods, Councils must set a target time for rebuilding (T_{target}) that is as short as possible, taking into consideration certain statutory factors. *See* § 600.310(j)(3)(i). Thus, Councils must demonstrate that their adopted T_{target} is the shortest time possible for rebuilding and Council action addressing an overfished fishery should be based on $T_{target.}$

Discontinuing Rebuilding Plans

Due to scientific uncertainty in the biomass estimates of fish stocks, occasionally a stock is identified as overfished, but is later determined to have never been overfished. In the past, NMFS' approach has been that, once a rebuilding plan has been implemented, the rebuilding plan cannot be discontinued until the stock has been rebuilt to B_{msy}, regardless of new information about the status of the stock when it was originally declared overfished. To address this issue, NMFS proposed to allow a rebuilding plan to be discontinued if both of the following criteria are met: (1) The Secretary retrospectively determines the stock was not overfished in the year that the overfished determination was made; and (2) the biomass of the stock is not currently below the MSST. *See* § 600.310(j)(5) of the proposed action. Further background and rationale on the proposed revisions to the guidance on the discontinuation of rebuilding plans was provided on pages 2796–2797 of the proposed rule. *See* 80 FR 2796–2797, January 20, 2015.

Based on public comments, this final action adds that the stock must be shown to have never been overfished in subsequent years following the original overfished determination, including the current year. This revision effectively covers the two criteria, thus the final action deletes the proposed second criteria. *See* § 600.310(j)(5) of the final action. Should new information demonstrate that the stock was overfished in a subsequent year, a rebuilding plan is still necessary and rebuilding timeframes should be adjusted accordingly. It should also be noted that discontinuation of a rebuilding plan that meets the criteria listed within the final action is not mandatory or automatic; a Council may choose to retain a rebuilding plan for conservation and management purposes.

V. Response to Comments

Management Objectives of FMPs

Comment 1: NMFS received several comments regarding the proposed provision to regularly re-assess FMP management objectives. Some comments requested clarity regarding

All 85 responses to comments and the Final Rule Regulations have been posted to the December meeting website at http://www.mafmc.org/briefing/december-2016

NOAA FISHERIES

Final Changes to the National Standard Guidelines

NOAA Fisheries has filed a final rule with the *Federal Register* to revise the guidelines for National Standards 1, 3, and 7 (NS1) of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) and the General section of those guidelines. This document was prepared to show the final changes in a track-change format so that the public can more easily see the changes made to the guidelines. Any discrepancies between this document and the final rule will be resolved in favor of the *Federal Register*.

Key
Black text = original language
Red text = new language added to the 2016 guidelines
~~Red text~~ = original language that NOAA Fisheries removed from the guidelines
~~Green text~~ and Green text = original language that NOAA Fisheries moved from one paragraph to another paragraph in the guidelines

§ 600.305 General.

(a) *Purpose*.

(1) This subpart establishes guidelines, based on the national standards, to assist in the development and review of FMPs, amendments, and regulations prepared by the Councils and the Secretary.

(2) In developing FMPs, the Councils have the initial authority to ascertain factual circumstances, to establish management objectives, and to propose management measures that will achieve the objectives. The Secretary will determine whether the proposed management objectives and measures are consistent with the national standards, other provisions of the Magnuson-Stevens Act~~,~~ (MSA), and other applicable law. The Secretary has an obligation under section 301(b) of the ~~Magnuson-Stevens Act~~MSA to inform the Councils of the Secretary's interpretation of the national standards so that they will have an understanding of the basis on which FMPs will be reviewed.

(3) The national standards are statutory principles that must be followed in any FMP. The guidelines summarize Secretarial interpretations that have been, and will be, applied under these principles. The guidelines are intended as aids to decision-making; FMPs formulated according to the guidelines will have a better chance for expeditious Secretarial review, approval, and implementation. FMPs that are ~~in substantial compliance with~~not formulated according to the guidelines~~, the Magnuson-Stevens Act, and~~ may not be approved by the Secretary if the FMP or FMP amendment is inconsistent with the MSA or other applicable law ~~must be approved.~~ (16 U.S.C. 1854(a)(3)).

(b) *Fishery management objectives.*

(1) Each FMP, whether prepared by a Council or by the Secretary, should identify what the FMP is designed to accomplish (i.e., the management objectives to be attained in regulating the fishery under consideration). In establishing objectives, Councils balance biological constraints with human needs, reconcile present and future costs and benefits, and integrate the diversity of public and private interests. If objectives are in conflict, priorities should be established among them.

(2) To reflect the changing needs of the fishery over time, Councils should reassess the FMP's management objectives on a regular basis.

(3) How objectives are defined is important to the management process. Objectives should address the problems of a particular fishery. The objectives should be clearly stated, practicably attainable, framed in terms of definable events and measureable benefits, and based upon a comprehensive rather than a fragmentary approach to the problems addressed. An FMP should make a clear distinction between objectives and the management measures chosen to achieve them. The objectives of each FMP provide the context within which the Secretary will judge the consistency of an FMP's conservation and management measures with the national standards.

(c) *Stocks that require conservation and management.*

(1) Magnuson-Stevens Act section 302(h)(1) requires a Council to prepare an FMP for each fishery under its authority that requires (or in other words, is in need of) conservation and management. 16 U.S.C. 1852(h)(1). Not every fishery requires Federal management. Any stocks that are predominately caught in Federal waters and are overfished or subject to overfishing, or likely to become overfished or subject to overfishing, are considered to require conservation and management. Beyond such stocks, Councils may determine that additional stocks require "conservation and management." (See Magnuson-Stevens Act definition at 16 U.S.C. 1802(5)). Based on this definition of conservation and management, and other relevant provisions of the Magnuson-Stevens Act, a Council should consider the following non-exhaustive list of factors when deciding whether additional stocks require conservation and management:

(i) The stock is an important component of the marine environment.

(ii) The stock is caught by the fishery.

(iii) Whether an FMP can improve or maintain the condition of the stock.

(iv) The stock is a target of a fishery.

(v) The stock is important to commercial, recreational, or subsistence users.

(vi) The fishery is important to the Nation or to the regional economy.

(vii) The need to resolve competing interests and conflicts among user groups and whether an FMP can further that resolution.

(viii) The economic condition of a fishery and whether an FMP can produce more efficient utilization.

(ix) The needs of a developing fishery, and whether an FMP can foster orderly growth.

(x) The extent to which the fishery is already adequately managed by states, by state/Federal programs, or by Federal regulations pursuant to other FMPs or international commissions, or by industry self-regulation, consistent with the requirements of the Magnuson-Stevens Act and other applicable law.

(2) In evaluating factors in paragraphs (c)(1)(i) through (x) of this section, a Council should consider the specific circumstances of a fishery, based on the best scientific information available, to determine whether there are biological, economic, social and/or operational concerns that can and should be addressed by Federal management.

(3) When considering adding a stock to an FMP, no single factor is dispositive or required. One or more of the above factors, and any additional considerations that may be relevant to the particular stock, may provide the basis for determining that a stock requires conservation and management. Based on the factor in paragraph (c)(1)(iii) of this section, if the amount and/or type of catch that occurs in Federal waters is a significant contributing factor to the stock's status, such information would weigh heavily in favor of adding a stock to an FMP. However, Councils should consider the factor in paragraph (c)(1)(x) of this section before deciding to include a stock in an FMP. In many circumstances, adequate management of a fishery by states, state/Federal programs, or another Federal FMP would weigh heavily against a Federal FMP action. *See, e.g.*, 16 U.S.C. 1851(a)(7) and 1856(a)(3).

(4) When considering removing a stock from, or continuing to include a stock in, an FMP, Councils should prepare a thorough analysis of factors in paragraphs (c)(1)(i) through (x) of this section, and any additional considerations that may be relevant to the particular stock. As mentioned in paragraph (c)(3) of this section, if the amount and/or type of catch that occurs in Federal waters is a significant contributing factor to the stock's status, such information would weigh heavily in favor of continuing to include a stock in an FMP. Councils should consider weighting the factors as follows. Factors in paragraphs (c)(1)(i) through (iii) of this section should be considered first, as they address maintaining a fishery resource and the marine environment. *See* 16 U.S.C. 1802(5)(A). These factors weigh in favor of continuing to include a stock in an FMP. Councils should next consider factors in paragraphs (c)(1)(iv) through (ix) of this section, which set forth key economic, social, and other reasons contained within the MSA for an FMP action. *See* 16 U.S.C. 1802(5)(B). Finally, a Council should consider the factor in paragraph (c)(1)(x) of this section before deciding to remove a stock from, or continue to include a stock in, an FMP. In many circumstances, adequate management of a fishery by states, state/Federal programs, or another Federal FMP would weigh in favor of removing a stock from an FMP. *See e.g.*, 16 U.S.C. 1851(a)(7) and 1856(a)(3).

(5) Councils may choose to identify stocks within their FMPs as ecosystem component (EC) species (*see* § § 600.305(d)(13) and 600.310(d)(1)) if a Council determines that the stocks do not require conservation and management based on the considerations and factors in paragraph (c)(1) of this section. EC species may be identified at the species or stock level, and may be grouped into complexes. Consistent with National Standard 9, MSA section 303(b)(12), and other applicable MSA sections, management measures can be

adopted in order to, for example, collect data on the EC species, minimize bycatch or bycatch mortality of EC species, protect the associated role of EC species in the ecosystem, and/or to address other ecosystem issues.

(6) A stock or stock complex may be identified in more than one FMP. In this situation, the relevant Councils should choose which FMP will be the primary FMP in which reference points for the stock or stock complex will be established. In other FMPs, the stock or stock complex may be identified as "other managed stocks" and management measures that are consistent with the objectives of the primary FMP can be established.

(7) Councils should periodically review their FMPs and the best scientific information available and determine if the stocks are appropriately identified. As appropriate, stocks should be reclassified within an FMP, added to or removed from an existing FMP, or added to a new FMP, through an FMP amendment that documents the rationale for the decision.

(d~~c~~) *Word usage~~.~~ within the National Standard Guidelines.* The word usage refers to all regulations in this subpart.

(1) *Must* is used, instead of "shall", to denote an obligation to act; it is used primarily when referring to requirements of the Magnuson-Stevens Act, the logical extension thereof, or of other applicable law.

(2) *Shall* is used only when quoting statutory language directly, to avoid confusion with the future tense.

(3) *Should* is used to indicate that an action or consideration is strongly recommended to fulfill the Secretary's interpretation of the Magnuson-Stevens Act, and is a factor reviewers will look for in evaluating a statement of organization, practices, and procedures (SOPP) or an FMP.

(4) *May* is used in a permissive sense.

(5) ~~*May not* is proscriptive; it has the same force as "must not."~~

~~(6)~~ *Will* is used descriptively, as distinguished from denoting an obligation to act or the future tense.

~~(7)~~ (6) *Could* is used when giving examples, in a hypothetical, permissive sense.

~~(8)~~ (7) *Can* is used to mean "is able to," as distinguished from "may."

~~(9)~~ (8) *Examples* are given by way of illustration and further explanation. They are not inclusive lists; they do not limit options.

~~(10)~~ (9) *Analysis*, as a paragraph heading, signals more detailed guidance as to the type of discussion and examination an FMP should contain to demonstrate compliance with the standard in question.

~~(11)~~ (10) *Council* includes the Secretary, as applicable, when preparing FMPs or amendments under section 304(c) and (g) of the Magnuson-Stevens Act.

~~(12) *Stock or stock complex* is used as a synonym for "fishery" in the sense of the Magnuson-Stevens Act's first definition of the term; that is, as "one or more of fish that can be treated as a unit for purposes of conservation and management and that are identified on the basis of geographic, scientific, technical, recreational, or economic characteristics," as distinguished from the Magnuson-Steven's Act's second definition of fishery as "any fishing for such stocks."~~

(11) *Target stocks* are stocks or stock complexes that fishers seek to catch for sale or personal use, including such fish that are discarded for economic or regulatory reasons as defined under Magnuson-Stevens Act section 3(9) and 3(38).

(12) *Non-target species* and *non-target stocks* are fish caught incidentally during the pursuit of target stocks in a fishery. Non-target stocks may require conservation and management and, if so, must be included in a FMP and be identified at the stock or stock complex level. If non-target species are not in need of conservation and management, they may be identified in an FMP as ecosystem component species.

(13) *Ecosystem Component Species* (*see* §§ 600.305(c)(5) and 600.310(d)(1)) are stocks that a Council or the Secretary has determined do not require conservation and management, but desire to list in an FMP in order to achieve ecosystem management objectives.

(e) *Relationship of National Standard 1 to other national standards— General.* National Standard 1 addresses preventing overfishing and achieving optimum yield. *See* 16 U.S.C. 1851(a)(1) and 50 CFR 600.310. National Standards 2 through 10 provide further requirements for conservation and management measures in FMPs. *See* 16 U.S.C. 1851(a)(2) through (10) and 50 CFR 600.315 through 600.355. Below is a description of how some of the other National Standards intersect with National Standard 1.

(1) *National Standard 2* (*see* § 600.315). Management measures and reference points to implement NS1 must be based on the best scientific information available. When data are insufficient to estimate reference points directly, Councils should develop reasonable proxies to the extent possible (also *see* § 600.310(e)(1)(v)(B)). In cases where scientific data are severely limited, effort should also be directed to

identifying and gathering the needed data. SSCs should advise their Councils regarding the best scientific information available for fishery management decisions.

(2) *National Standard 3* (*see* § 600.320). Reference points should generally be specified in terms of the level of stock aggregation for which the best scientific information is available (also *see* § 600.310(e)(1)(ii) and (iii)).

(3) *National Standard 6* (*see* § 600.335). Councils must build into the reference points and control rules appropriate consideration of risk, taking into account uncertainties in estimating harvest, stock conditions, life history parameters, or the effects of environmental factors.

(4) *National Standard 8* (*see* § 600.345). National Standard 8 addresses economic and social considerations and minimizing to the extent practicable adverse economic impacts on fishing communities within the context of preventing overfishing and rebuilding overfished stocks as required under National Standard 1 and other MSA provisions. Calculation of OY as reduced from maximum sustainable yield (MSY) also includes consideration of economic and social factors, but the combination of management measures chosen to achieve the OY must principally be designed to prevent overfishing and rebuild overfished stocks.

(5) *National Standard 9* (*see* § 600.350). Evaluation of stock status with respect to reference points must take into account mortality caused by bycatch. In addition, the estimation of catch should include the mortality of fish that are discarded.

§ 600.310 National Standard 1—Optimum Yield.

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

(b) *General*.

(1) The guidelines set forth in this section describe fishery management approaches to meet the objectives of National Standard 1 (NS1), and include guidance on:

(i) Specifying maximum sustainable yield (MSY) and OY;

(ii) Specifying status determination criteria (SDC) so that overfishing and overfished determinations can be made for stocks and stock complexes ~~that are part of a fishery~~in an FMP;

(iii) Preventing overfishing and achieving OY, incorporation of scientific and management uncertainty in control rules, and adaptive management using annual catch limits (ACL) and measures to ensure accountability (~~AM);~~i.e., accountability measures (AMs)); and

(iv) Rebuilding stocks and stock complexes.

(2) *Overview of Magnuson-Stevens Act concepts and provisions related to NS1—*

(i) *MSY*. The Magnuson-Stevens Act establishes MSY as the basis for fishery management and requires that: The fishing mortality rate ~~does~~must not jeopardize the capacity of a stock or stock complex to produce MSY; the abundance of an overfished stock or stock complex must be rebuilt to a level that is capable of producing MSY; and OY must not exceed MSY.

(ii) *OY*. The determination of OY is a decisional mechanism for resolving the Magnuson-Stevens Act's conservation and management objectives, achieving ~~a fishery management plan's (FMP)~~an FMP's objectives, and balancing the various interests that comprise the greatest overall benefits to the Nation. OY is based on MSY as reduced under paragraphs (e)(3)(iii)(A) and (~~iv~~B) of this section. The most important limitation on the specification of OY is that the choice of OY and the conservation and management measures proposed to achieve it must prevent overfishing.

(iii) *ACLs and AMs*. Any FMP ~~which is prepared by any Council~~ shall establish a mechanism for specifying ACLs in the FMP (including a multiyear plan), implementing regulations, or annual specifications, at a level such that overfishing does not occur in the fishery, including measures to ensure accountability (Magnuson-Stevens Act section 303(a)(15)). ~~Subject to certain exceptions and circumstances described in paragraph (h) of this section, this requirement takes effect in fishing year 2010, for fisheries determined subject to overfishing, and in fishing year 2011, for all other fisheries (Magnuson-Stevens Act section 303 note). "Council" includes the Regional Fishery Management Councils and the Secretary of Commerce, as appropriate (see § 600.305(c)(11)).~~

(iv) *Reference points*. SDC, MSY, OY, acceptable biological catch (ABC), and ACL, which are described further in paragraphs (e) and (f) of this section, are collectively referred to as "reference points."

(v) *Scientific advice*. The Magnuson-Stevens Act has requirements regarding scientific and statistical committees (SSC) of the Regional Fishery Management Councils, including but not limited to, the following provisions~~:~~ (paragraphs (b)(2)(v)(A) through (D) of this section). *See* the National Standard 2 guidelines for further guidance on SSCs and the peer review process (§ 600.315).

(A) Each Regional Fishery Management Council shall establish an SSC as described in section 302(g)(1)(A) of the Magnuson-Stevens Act.

(B) Each SSC shall provide its Regional Fishery Management Council recommendations for ABC as well as other scientific advice, as described in Magnuson-Stevens Act section 302(g)(1)(B).

(C) The Secretary and each Regional Fishery Management Council may establish a peer review process for that Council for scientific information used to advise the Council about the conservation and management of a fishery (*see* Magnuson-Stevens Act section 302(g)(1)(E)). If a peer review process is established, it should investigate the technical merits of stock assessments and other scientific information to be used by the SSC or agency or international scientists, as appropriate. For Regional Fishery Management Councils, the peer review process is not a substitute for the SSC and both the SSC and peer review process should work in conjunction with ~~the SSC~~each other. For the

Secretary, which does not have an SSC, the peer review process should provide the scientific information necessary.

(D) Each Council shall develop ACLs for each of its managed fisheries that may not exceed the "fishing level recommendations" of its SSC or peer review process (Magnuson-Stevens Act section 302(h)(6)). The SSC recommendation that is the most relevant to ACLs is ABC, as both ACL and ABC are levels of annual catch.

(3) *Approach for setting limits and accountability measures, including targets, for consistency with NS1*. ~~In general, when~~When specifying limits and accountability measures ~~intended to avoid overfishing and achieve sustainable fisheries~~, Councils must take an approach that considers uncertainty in scientific information and management control of the fishery. These guidelines describe how ~~to~~the Councils could address uncertainty such that there is a low risk that limits are exceeded as described in paragraphs (f)(~~4~~2) and (~~f~~)(~~6~~g)(4) of this section.

(~~4~~10) *Vulnerability*. A stock's vulnerability to fishing pressure is a combination of its productivity, which depends upon its life history characteristics, and its susceptibility to the fishery. Productivity refers to the capacity of the stock to produce MSY and to recover if the population is depleted and susceptibility is the potential for the stock to be impacted by the fishery, which includes direct captures, as well as indirect impacts of the fishery (e.g., loss of habitat quality).

(c) *Summary of items to include in FMPs related to NS1*. This section provides a summary of items that Councils must include in their FMPs and FMP amendments in order to address ACL, AM, and other aspects of the NS1 guidelines. ~~As described in further detail in paragraph (d) of this section, Councils may review their FMPs to decide if all stocks are "in the fishery" or whether some fit the category of "ecosystem component species."~~ Councils must ~~also~~ describe fisheries data for the stocks~~,~~ and stock complexes~~, and ecosystem component species~~ in their FMPs, or associated public documents such as Stock Assessment and Fishery Evaluation (SAFE) Reports. For all stocks and stock complexes that ~~are "in the fishery"~~require conservation and management (*see* § 600.305(c)), ~~paragraph (d)(2) of this section),~~ the Councils must evaluate and describe the following items in their FMPs and amend the FMPs, if necessary, to align their management objectives to end or prevent overfishing and to achieve OY:

(1) MSY and SDC (*see* paragraphs (e)(1) and (2) of this section).

(2) OY at the stock, stock complex, or fishery level and provide the OY specification analysis (*see* paragraph (e)(3) of this section).

(3) ABC control rule (*see* paragraph (f)(~~4~~2) of this section).

(4) Mechanisms for specifying ACLs ~~and possible sector-specific ACLs in relationship to the ABC~~ (see paragraph~~s~~ (f)(~~ 5) and (h~~4) of this section).

(5) AMs (*see* paragraph~~s~~ (g) ~~and (h)(1)~~ of this section).

(6) Stocks and stock complexes that have statutory exceptions from ACLs and AMs (*see* paragraph (h)(~~2~~1) of this section) or which fall under limited circumstances which require different approaches to meet the ~~ACL~~Magnuson-Stevens Act requirements (*see* paragraph (h)(~~3~~2) of this section).

(d) *Stocks and stock complexes— ~~Classifying stocks in an FMP~~*

(1) *Introduction*. As described in § 600.305(c), Councils should identify in their FMPs the stocks that require conservation and management. Such stocks must have ACLs, other reference points, and accountability measures. Other stocks that are identified in an FMP (i.e., EC species or stocks that the fishery interacts with but are managed primarily under another FMP, *see* § 600.305(c)(5) through (6)) do not require ACLs, other reference points, or accountability measures.

~~(1) Introduction. Magnuson-Stevens Act section 303(a)(2) requires that an FMP contain, among other things, a description of the species of fish involved in the fishery. The relevant Council determines which specific target stocks and/or non-target stocks to include in a fishery. This section provides that a Council may, but is not required to, use an "ecosystem component (EC)" species classification. As a default, all stocks in an FMP are considered to be "in the fishery," unless they are identified as EC species (see § 600.310(d)(5)) through an FMP amendment process.~~

~~(2) *Stocks in a fishery*. Stocks in a fishery may be grouped into stock complexes, as appropriate. Requirements for reference points and management measures for these stocks are described throughout these guidelines.~~

~~(3) "Target stocks" are stocks that fishers seek to catch for sale or personal use, including "economic discards" as defined under Magnuson-Stevens Act section 3(9).~~

~~(4) "Non-target species" and "non-target stocks" are fish caught incidentally during the pursuit of target stocks in a fishery, including "regulatory discards" as defined under Magnuson-Stevens Act section 3(38). They may or may not be retained for sale or personal use. Non-target species may be included in a fishery~~

and, if so, they should be identified at the stock level. Some non-target species may be identified in an FMP as ecosystem component (EC) species or stocks.

(5) Ecosystem component (EC) species.

(i) To be considered for possible classification as an EC species, the species should:

(A) Be a non-target species or non-target stock;

(B) Not be determined to be subject to overfishing, approaching overfished, or overfished;

(C) Not be likely to become subject to overfishing or overfished, according to the best available information, in the absence of conservation and management measures; and

(D) Not generally be retained for sale or personal use.

(ii) Occasional retention of the species would not, in and of itself, preclude consideration of the species under the EC classification. In addition to the general factors noted in paragraphs (d)(5)(i)(A) (D) of this section, it is important to consider whether use of the EC species classification in a given instance is consistent with MSA conservation and management requirements.

(iii) EC species may be identified at the species or stock level, and may be grouped into complexes. 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. While EC species are not considered to be "in the fishery," a 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. EC species do not require specification of reference points but should be monitored to the extent that any new pertinent scientific information becomes available (e.g., catch trends, vulnerability, etc.) to determine changes in their status or their vulnerability to the fishery. If necessary, they should be reclassified as "in the fishery."

(6) Reclassification. A Council should monitor the catch resulting from a fishery on a regular basis to determine if the stocks and species are appropriately classified in the FMP. If the criteria previously used to classify a stock or species is no longer valid, the Council should reclassify it through an FMP amendment, which documents rationale for the decision.

(7) Stocks or species identified in more than one FMP. If a stock is identified in more than one fishery, Councils should choose which FMP will be the primary FMP in which management objectives, SDC, the stock's overall ACL and other reference points for the stock are established. Conservation and management measures in other FMPs in which the stock is identified as part of a fishery should be consistent with the primary FMP's management objectives for the stock.

(8) Stock complex. "Stock complex" means a group of stocks that are sufficiently similar in geographic distribution, life history, and vulnerabilities to the fishery such that the impact of management actions on the stocks is similar.

(2) Stock complex. Stocks that require conservation and management can be grouped into stock complexes. A "stock complex" is a tool to manage a group of stocks within a FMP.

(i) At the time a stock complex is established, the FMP should provide, to the extent practicable, a full and explicit description of the proportional composition of each stock in the stock complex, to the extent possible. Stocks may be grouped into complexes for various reasons, including where stocks in a multispecies fishery cannot be targeted independent of one another and MSY can not be defined on a stock by stock basis (see paragraph (e)(1)(iii) of this section); where there is insufficient data to measure theira stock's status relative to SDC; or when it is not feasible for fishermen to distinguish individual stocks among their catch. Where practicable, the group of stocks should have a similar geographic distribution, life history characteristics, and vulnerabilities to fishing pressure such that the impact of management actions on the stocks is similar. The vulnerability of individual stocks to the fisheryshould be evaluated considered when determining if a particular stock complex should be established or reorganized, or if a particular stock should be included in a complex. Stock complexes may be comprised of: one or more indicator stocks, each of which has SDC and ACLs, and several other stocks; several stocks without an indicator stock, with SDC and an ACL for the complex as a whole; or one of more indicator stocks, each of

~~which has SDC and management objectives, with an ACL for the complex as a whole (this situation might be applicable to some salmon species).~~

(~~9~~ii) *Indicator stocks*.

(A) An indicator stock is a stock with measurable and objective SDC that can be used to help manage and evaluate more poorly known stocks that are in a stock complex.

(B) Where practicable, stock complexes should include one or more indicator stocks (each of which has SDC and ACLs). Otherwise, stock complexes may be comprised of: several stocks without an indicator stock (with SDC and an ACL for the complex as a whole), or one or more indicator stocks (each of which has SDC and management objectives) with an ACL for the complex as a whole (this situation might be applicable to some salmon species). Councils should review the available quantitative or qualitative information (e.g., catch trends, changes in vulnerability, fish health indices, etc.) of stocks within a complex on a regular basis to determine if they are being sustainably managed.

(C) If an indicator stock is used to evaluate the status of a complex, it should be representative of the typical ~~status~~vulnerability of ~~each stock~~stocks within the complex~~, due to similarity in vulnerability~~. If the stocks within a stock complex have a wide range of vulnerability, they should be reorganized into different stock complexes that have similar vulnerabilities; otherwise the indicator stock should be chosen to represent the more vulnerable stocks within the complex. ~~-~~In instances where an indicator stock is less vulnerable than other members of the complex, management measures ~~need to~~should be more conservative so that the more vulnerable members of the complex are not at risk from the fishery.

(D) More than one indicator stock can be selected to provide more information about the status of the complex. ~~When indicator stock(s) are used, periodic re-evaluation of available quantitative or qualitative information (e.g., catch trends, changes in vulnerability, fish health indices, etc.) is needed to determine whether a stock is subject to overfishing, or is approaching (or in) an overfished condition.~~

(E) When indicator stocks are used, the stock complex's MSY could be listed as "unknown," while noting that the complex is managed on the basis of one or more indicator stocks that do have known stock-specific MSYs, or suitable proxies, as described in paragraph (e)(1)(v) of this section.

~~(10) Vulnerability. A stock's vulnerability is a combination of its productivity, which depends upon its life history characteristics, and its susceptibility to the fishery. Productivity refers to the capacity of the stock to produce MSY and to recover if the population is depleted, and susceptibility is the potential for the stock to be impacted by the fishery, which includes direct captures, as well as indirect impacts to the fishery (e.g., loss of habitat quality). Councils in consultation with their SSC, should analyze the vulnerability of stocks in stock complexes where possible.~~

(e) *Features of MSY, SDC, and OY—*

(1) *MSY*. Each FMP must include an estimate of MSY for the stocks and stock complexes ~~in~~that require conservation and management. MSY may also be specified for the fishery~~,~~ as ~~described in paragraph (d)(2) of this section).~~a whole.

(i) *Definitions*.

(A) *MSY* is the largest long-term average catch or yield that can be taken from a stock or stock complex under prevailing ecological, environmental conditions and fishery technological characteristics (e.g., gear selectivity), and the distribution of catch among fleets.

(B) *MSY fishing mortality rate* (F_{msy}) is the fishing mortality rate that, if applied over the long term, would result in MSY.

(C) *MSY stock size* (B_{msy}) means the long-term average size of the stock or stock complex, measured in terms of spawning biomass or other appropriate measure of the stock's reproductive potential that would be achieved by fishing at F_{msy}.

(ii) *MSY for stocks*. MSY should be estimated for each stock based on the best scientific information available (*see* § 600.315).

(iii) *MSY for stock complexes*. When stock complexes are used, MSY should be estimated ~~on a stock-by-stock basis whenever possible. However, where MSY cannot be estimated for each~~

stock in a stock complex, then MSY may be estimated for one or more indicator stocks for the complex or for the complex as a whole. When indicator (*see* paragraph (d)(2)(ii)). When indicator stocks are used, the stock complex's MSY could be listed as "unknown," while nothing that the complex is managed on the basis of one of more indicator stocks that do not have known stock-specific MSYs, or suitable proxies, as described in paragraph (c)(1)(iv) of this section. When indicator stocks are not used, MSY, or a suitable proxy, should be calculated for the stock complex as a whole.

(iv) *Methods of estimating MSY for an aggregate group of stocks*. Estimating MSY for an aggregate group of stocks (including stock complexes and the fishery as a whole) can be done using models that account for multi-species interactions, composite properties for a group of similar species, biomass (energy) flow and production patterns, or other relevant factors (see paragraph (e)(3)(iv)(C) of this section).

(iv v) *Specifying MSY*.

(A) Because MSY is a long-term average, it need not be estimated annually, but it must be based on the best scientific information available (*see* § 600.315), and should be re-estimated as required by changes in long-term environmental or ecological conditions, fishery technological characteristics, or new scientific information.

(B) When data are insufficient to estimate MSY directly, Councils should adopt other measures of reproductive potential, based on the best scientific information available, that can serve as reasonable proxies for MSY, F_{msy}, and B_{msy}, to the extent possible.

(C) The MSY for a stock or stock complex is influenced by its interactions with other stocks in its ecosystem and these interactions may shift as multiple stocks in an ecosystem are fished. These ecological conditionsEcological and environmental information should be taken into account, to the extent possiblepracticable, when assessing stocks and specifying MSY. Ecological conditionsand environmental information that is not directly accounted for in the specification of MSY can be among the ecological factors considered when setting OY below MSY.

(D) As MSY values are estimates or are based on proxies, they will have some level of uncertainty associated with them. The degree of uncertainty in the estimates should be identified, when possiblepracticable, through the stock assessment process and peer review (*see* § 600.335), and should be taken into account when specifying the ABC Control rule (see paragraph (f)(2) of this section). Where uncertainty cannot be directly calculated, such as when proxies are used, then a proxy for the uncertainty itself should be established based on the best scientific information, including comparison to other stocks.

(2) *Status determination criteria* —

(i) *Definitions*.

(A) *Status determination criteria* (*SDC*) mean the quantifiablemeasurable and objective factors, MFMT, OFL, and MSST, or their proxies, that are used to determine if overfishing has occurred, or if the stock or stock complex is overfished. Magnuson-Stevens Act (section 3(34)) defines both "overfishing" and "overfished" to mean a rate or level of fishing mortality that jeopardizes the capacity of a fishery to produce the MSY on a continuing basis. To avoid confusion, this section clarifies that "overfished" relates to biomass of a stock or stock complex, and "overfishing" pertains to a rate or level of removal of fish from a stock or stock complex.

(B) *Overfishing* (to overfish) occurs whenever a stock or stock complex is subjected to a level of fishing mortality or annual total catch that jeopardizes the capacity of a stock or stock complex to produce MSY on a continuing basis.

(C) *Maximum fishing mortality threshold (MFMT)* means the level of fishing mortality (i.e., F), on an annual basis, above which overfishing is occurring. The MFMT or reasonable proxy may be expressed either as a single number (a fishing mortality rate or F value), or as a function of spawning biomass or other measure of reproductive potential.

(D) *Overfishing limit (OFL)* means the annual amount of catch that corresponds to the estimate of MFMT applied to a stock or stock complex's abundance and is expressed in

terms of numbers or weight of fish. The OFL is an estimate of the catch level above which overfishing is occurring.

(E) *Overfished*. A stock or stock complex is considered "overfished" when its biomass has declined below MSSTa level that jeopardizes the capacity of the stock or stock complex to produce MSY on a continuing basis.

(F) *Minimum stock size threshold (MSST)* means the level of biomass below which the capacity of the stock or stock complex is considered to be overfished. produce MSY on a continuing basis has been jeopardized.

(G) *Approaching an overfished condition*. A stock or stock complex is approaching an overfished condition when it is projected that there is more than a 50 percent chance that the biomass of the stock or stock complex will decline below the MSST within two years.

(ii) *Specification of SDC and overfishing and overfished determinations*. Each FMP must describe how objective and measurable SDCs will be specified, as described in paragraphs (e)(2)(ii)(A) and (B) of this section. To be measurable and objective, SDC must be expressed in a way that enables the Council to monitor the status of each stock or stock complex in the FMP, and determine annually, if possible, whether. Applying the SDC set forth in the FMP, the Secretary determines if overfishing is occurring and whether the stock or stock complex is overfished. (Magnuson-Stevens Act section 304(e)). SDCs are often based on fishing rates or biomass levels associated with MSY or MSY based proxies. When data are not available to specify SDCs based on MSY or MSY proxies, alternative types of SDCs that promote sustainability of the stock or stock complex can be used. For example, SDC could be based on recent average catch, fish densities derived from visual census surveys, length/weight frequencies, or other methods. In specifying SDC, a Council must provide an analysis of how the SDC were chosen and how they relate to reproductive potential. Each FMP must specify, to the extent possible, objective and measurable SDC as follows (see paragraphs (e)(2)(ii)(A) and (B) of this section): of stocks of fish within the fishery. If alternative types of SDCs are used, the Council should explain how the approach will promote sustainability of the stock or stock complex on a long term basis. A Council should consider a process that allows SDCs to be quickly updated to reflect the best scientific information available. In the case of internationally-managed stocks, the Council may decide to use the SDCs defined by the relevant international body. In this instance, the SDCs should allow the Council to monitor the status of a stock or stock complex, recognizing that the SDCs may not be defined in such a way that a Council could monitor the MFMT, OFL, or MSST as would be done with a domestically managed stock or stock complex.

(A) SDC to dDetermine oOverfishing sStatus. Each FMP must describe which of the following two methods will be used for each stock or stock complex to determine an overfishing status. Each FMP must specify a method used to determine the overfishing status for each stock or stock complex. For domestically-managed stocks or stock complexes, one of the following methods (described in (e)(2)(ii)(A)(*1*) and (*2*) of this section) should be specified. If the necessary data to use one of the methods described in either subparagraph (e)(2)(ii)(A)(*1*) or (*2*) is not available, a Council may use an alternate type of overfishing SDC as described in paragraph (e)(2)(ii).

(1) Fishing mMortality rRate eExceeds MFMT.– Exceeding the MFMT for a period of 1 year or more constitutes overfishing.

(2) Catch Eexceeds the OFL. Exceeding the annual OFL for 1 year constitutes overfishing. Should the annual catch exceed the annual OFL for 1 year or more, the stock or stock complex is considered subject to overfishing.

(3) *Multi-Year Approach to Determine Overfishing Status*. Subparagraphs (e)(2)(ii)(A)(*1*) and (*2*) establish methods to determine overfishing status based on a period of 1 year. As stated in paragraph (e)(2)(ii)(A), a Council should specify, within the FMP, which of these methods will be used to determine overfishing status. However, in certain circumstances, a Council may utilize a multi-year approach to determine overfishing status based on a period of no more than 3 years. The Council should identify in its FMP or FMP amendment, circumstances when the multi-year approach is appropriate and will be used. Such circumstances may include situations where there is high uncertainty in the estimate of F in the most recent year, cases where stock abundance fluctuations are high and assessments are not timely enough to forecast such changes, or other circumstances where the most recent catch or F data does not reflect the overall status of the stock. The multi-year approach to determine overfishing status may not be used to specify future annual catch limits at levels that do not prevent overfishing.

(B) *SDC to determine overfished status*. The MSST or reasonable proxy must be expressed in terms of spawning biomass or other measure of reproductive potential. ~~To the extent possible, the MSST should equal whichever of the following is greater: One-half the MSY stock size, or the minimum stock size at which rebuilding to the MSY level would be expected to occur within 10 years, if the stock or stock complex were exploited at the MFMT specified under paragraph (e)(2)(ii)(A)(*1*) of this section. Should the estimated size of the stock or stock complex in a given year fall below this threshold, the stock or stock complex is considered overfished~~MSST should be between ½ B_{msy} and B_{msy}, and could be informed by the life history of the stock, the natural fluctuations in biomass associated with fishing at MFMT over the long-term, the requirements of internationally-managed stocks, or other considerations.

(C) Where practicable, all sources of mortality including that resulting from bycatch, scientific research catch, and all fishing activities should be accounted for in the evaluation of stock status with respect to reference points.

(iii) *Relationship of SDC to environmental and habitat change*. Some short-term environmental changes can alter the size of a stock or stock complex without affecting its long-term reproductive potential. Long-term environmental changes may affect both the short-term size of the stock or stock complex and the long-term reproductive potential of the stock or stock complex.

(A) If environmental changes cause a stock or stock complex to fall below its MSST without affecting its long-term reproductive potential, fishing mortality must be constrained sufficiently to allow rebuilding within an acceptable time frame (*see* also ~~see~~ paragraph (j)(3)(~~ii~~i) of this section). SDC should not be respecified.

(B) If environmental, ecosystem, or habitat changes affect the long-term reproductive potential of the stock or stock complex, one or more components of the SDC must be respecified. ~~-~~Once SDC have been respecified, fishing mortality may or may not have to be reduced, depending on the status of the stock or stock complex with respect to the new criteria.

(C) If manmade environmental changes are partially responsible for a stock or stock complex's biomass being ~~in an overfished condition~~below MSST, in addition to controlling fishing mortality, Councils should recommend restoration of habitat and other ameliorative programs, to the extent possible (*see* also the guidelines issued pursuant to section 305(b) of the Magnuson-Stevens Act for Council actions concerning essential fish habitat).

(iv) *Secretarial approval of SDC*.~~–~~ Secretarial approval or disapproval of proposed SDC will be based on consideration of whether the proposal:

(A) ~~Has sufficient~~ Is based on the best scientific ~~merit~~information available;

(B) Contains the elements described in paragraph (e)(2)(ii) of this section;

(C) Provides a basis for objective measurement of the status of the stock or stock complex against the criteria; and

(D) ~~is~~Is operationally feasible.

(3) *Optimum yield*. For stocks that require conservation and management, OY may be established at the stock, ~~or~~ stock complex, ~~level~~ or ~~at the~~ fishery level.

(i) *Definitions*—

(A) *Optimum yield (OY)*. Magnuson-Stevens Act section (3)(33) defines "optimum," with respect to the yield from a fishery, as the amount of fish that will provide the greatest overall benefit to the Nation, particularly with respect to food production and recreational opportunities and taking into account the protection of marine ecosystems; that is prescribed on the basis of the MSY from the fishery, as reduced by any relevant economic, social, or ecological factor; and, in the case of an overfished fishery, that provides for rebuilding to a level consistent with producing the MSY in such fishery. ~~OY may be established at the stock or stock complex level, or at the fishery level.~~

(B) In NS1, use of the phrase "achieving, on a continuing basis, the ~~optimum yield~~OY from each fishery" means: producing, from each stock, stock complex, or fishery~~: a long-term series~~, an amount of ~~catches such~~catch that ~~the~~is, on average ~~catch is~~, equal to the ~~OY~~,Council's specified OY; prevents overfishing ~~is prevented,~~; maintains the long term average biomass ~~is~~ near or above B_{msy}~~;~~; and rebuilds overfished stocks and stock complexes ~~are rebuilt~~ consistent with timing and other requirements of section 304(e)(4) of the Magnuson-Stevens Act and paragraph (j) of this section.

(ii) *General*. OY is a long-term average amount of desired yield from a stock, stock complex, or fishery. An FMP must contain conservation and management measures, including ACLs and AMs, to achieve OY

on a continuing basis, and provisions for information collection that are designed to determine the degree to which OY is achieved. These measures should allow for practical and effective implementation and enforcement of the management regime. ~~The Secretary has an obligation to implement and enforce the FMP. If management measures prove unenforceable or too restrictive, or not rigorous enough to prevent overfishing while achieving OY they should be modified; an alternative is to reexamine the adequacy of the OY specification. Exceeding OY does not necessarily constitute overfishing. However, even if no overfishing resulted from exceeding OY, continual harvest at a level above OY would violate NS1, because OY was not achieved on a continuing basis. An FMP must contain an assessment and specification of OY, including a summary of information utilized in making such specification, consistent with requirements of section 303(a)(3) of the Magnuson-Stevens Act. A Council must identify those economic, social, and ecological factors relevant to management of a particular stock, stock complex, or fishery, and then evaluate them to determine the OY. The choice of a particular OY must be carefully documented to show that the OY selected will produce the greatest benefit to the Nation and prevent overfishing.~~If these measures cannot meet the dual requirements of NS1 (preventing overfishing while achieving, on a continuing basis, OY), Councils should either modify the measures or reexamine their OY specifications to ensure that the dual NS1 requirements can be met.

(iii)*Assessing OY.* An FMP must contain an assessment and specification of OY (MSA section 303(a)(3)). The assessment should include: a summary of information utilized in making such specification; an explanation of how the OY specification will produce the greatest benefits to the nation and prevent overfishing and rebuild overfished stocks; and a consideration of the economic, social, and ecological factors relevant to the management of a particular stock, stock complex, or fishery. Consistent with Magnuson-Stevens Act section 302(h)(5), the assessment and specification of OY should be reviewed on a continuing basis, so that it is responsive to changing circumstances in the fishery.

~~(iii)~~A) *Determining the greatest benefit to the Nation*. 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, or its proxy, to obtain OY are:

(~~A)~~ *1)* The benefits of food production ~~are~~ derived from providing seafood to consumers; maintaining an economically viable fishery together with its attendant contributions to the national, regional, and local economies; and utilizing the capacity of the Nation's fishery resources to meet nutritional needs.

(~~B)~~ *2)* The benefits of recreational opportunities reflect the quality of both the recreational fishing experience and non-consumptive fishery uses such as ecotourism, fish watching, and recreational diving. Benefits also include the contribution of recreational fishing to the national, regional, and local economies and food supplies.

(~~C)~~ *3)* 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), maintaining productive habitat, maintaining the evolutionary potential of species and ecosystems, and accommodating human use.

~~(iv)~~ (B) *Economic, Ecological, and Social Factors.* ~~Factors to consider in OY specification.~~Councils should consider the management objectives of their FMPs and their management framework to determine the relevant social, economic, and ecological factors used to determine OY. There will be inherent trade-offs when determining the objectives of the fishery. ~~Because fisheries have limited capacities, any attempt to maximize the measures of benef~~its ~~described in paragraph (e)(3)(iii) of this section will inevitably encounter practical constraints. OY cannot exceed MSY in any circumstance, and must take into account the need to prevent overfishing and rebuild overfished stocks and stock complexes. OY is prescribed on the basis of MSY as reduced by social, economic, and ecological factors. To the extent possible,establish OY for a stock, stock complex, or should be quantified and reviewed in historical, short-term, and long-term contexts. Even where quantification of social, economic, and ecological factors is not possible, the FMP still must address them in its OY specification.~~ The following is a non-exhaustive list of potential considerations for ~~each factor. An FMP must address each factor but not necessarily each example.~~social, economic, and ecological factors.

(~~A~~*1*) *Social factors*. Examples are enjoyment gained from recreational fishing, avoidance of gear conflicts and resulting disputes, preservation of a way of life for fishermen and

their families, and dependence of local communities on a fishery (e.g., involvement in fisheries and ability to adapt to change). Consideration may be given to fishery-related indicators (e.g., number of fishery permits, number of commercial fishing vessels, number of party and charter trips, landings, ex-vessel revenues etc.) and non-fishery related indicators (e.g., unemployment rates, percent of population below the poverty level, population density, etc.)~~.~~, and preference for a particular type of fishery (e.g., size of the fishing fleet, type of vessels in the fleet, permissible gear types). Other factors that may be considered include the effects that past harvest levels have had on fishing communities, the cultural place of subsistence fishing, obligations under ~~Indian~~tribal treaties, proportions of affected minority and low-income groups, and worldwide nutritional needs.

(~~B~~2) *Economic factors*. Examples are prudent consideration of the risk of overharvesting when a stock's size or reproductive potential is uncertain (*see* § 600.335(c)(2)(i)), satisfaction of consumer and recreational needs, and encouragement of domestic and export markets for U.S. harvested fish. Other factors that may be considered include: the value of fisheries, the level of capitalization, the decrease in cost per unit of catch afforded by an increase in stock size, the attendant increase in catch per unit of effort, alternate employment opportunities, and economic contribution to fishing communities, coastal areas, affected states, and the nation.

(~~C~~3) *Ecological factors*. Examples include impacts on ~~ecosystem component~~EC species, forage fish stocks, other fisheries, predator-prey or competitive interactions, marine mammals, threatened or endangered species, and birds. Species interactions that have not been explicitly taken into account when calculating MSY should be considered as relevant factors for setting OY below MSY. In addition, consideration should be given to managing forage stocks for higher biomass than B_{msy} to enhance and protect the marine ecosystem. Also important are ecological or environmental conditions that stress marine organisms or their habitat, such as natural and manmade changes in wetlands or nursery grounds, and effects of pollutants on habitat and stocks.

~~(v) Specification of OY.~~ (iv) *Specifying OY.* ~~The specification of OY must be consistent with paragraphs (e)(3)(i) (iv) of this section.~~ If the estimates of MFMT and current biomass are known with a high level of certainty and management controls can accurately limit catch, then OY could be set very close to MSY, assuming no other reductions are necessary for social, economic, or ecological factors. To the degree that such MSY estimates and management controls are lacking or unavailable, OY should be set farther from MSY. ~~If management measures cannot adequately control fishing mortality so that the specified OY can be achieved without overfishing, the Council should reevaluate the management measures and specification of OY so that the dual requirements of NS1 (preventing overfishing while achieving, on a continuing basis, OY) are met.~~

(A) The ~~amount of fish that constitutes the~~ OY ~~should~~can be expressed in terms of numbers or weight of fish~~.~~.

~~(B) Either a range or~~ and either as a single value or a range. When it is not possible to specify OY quantitatively, OY may be ~~specified for OY~~described qualitatively.

~~(C) All catch must be counted against OY, including that resulting from bycatch, scientific research, and all fishing activities.~~

~~(D) The OY specification should be translatable into an annual numerical estimate for the purposes of establishing any total allowable level of foreign fishing (TALFF) and analyzing impacts of the management regime.~~

~~(E)~~ (B) The determination of OY is based on MSY, directly or through proxy. However, even where sufficient scientific data as to the biological characteristics of the stock do not exist, or where the period of exploitation or investigation has not been long enough for adequate understanding of stock dynamics, or where frequent large-scale fluctuations in stock size diminish the meaningfulness of the MSY concept, OY must still be established based on the best scientific information available.

~~(F)~~ (C) An OY established at a fishery level may not exceed the sum of the MSY values for each of the stocks or stocks complexes within the fishery. Aggregate level MSY estimates could be used as a basis for specifying OY for the fishery (*see* paragraph (e)(1)(iv) of this section). When aggregate level MSY is estimated, single stock MSY estimates can also be used to inform single

stock management. For example, OY could be specified for a fishery, while other reference points are specified for individual stocks in order to prevent overfishing on each stock within the fishery.

(D) For internationally-managed stocks, fishing levels that are agreed upon by the U.S. at the international level are considered to be consistent with OY requirements under the MSA and these guidelines.

~~(C) There should be a mechanism in the FMP for periodic reassessment of the OY specification, so that it is responsive to changing circumstances in the fishery.~~

~~(H) Part of the OY may be held as a reserve to allow for factors such as uncertainties in estimates of stock size and domestic annual harvest (DAH).If an OY reserve is established, an adequate mechanism should be included in the FMP to permit timely release of the reserve to domestic or foreign fishermen, if necessary.~~

(v~~i~~) *OY and foreign fishing*. Section 201(d) of the Magnuson-Stevens Act provides that fishing by foreign nations is limited to that portion of the OY that will not be harvested by vessels of the United States. The FMP must include an assessment to address the following, as required by section 303(a)(4) of the Magnuson-Stevens Act:

(A) The OY specification is the basis for establishing any total allowable level of foreign fishing (TALFF).

(B) Part of the OY may be held as a reserve to allow for domestic annual harvest (DAH). If an OY reserve is established, an adequate mechanism should be included in the FMP to permit timely release of the reserve to domestic or foreign fishermen, if necessary.

(~~A~~C) *DAH*. Councils and/or the Secretary must consider the capacity of, and the extent to which, U.S. vessels will harvest the OY on an annual basis. Estimating the amount that U.S. fishing vessels will actually harvest is required to determine the surplus.

(~~B~~D) *Domestic annual processing (DAP)*. Each FMP must assess the capacity of U.S. processors. It must also assess the amount of DAP, which is the sum of two estimates: The estimated amount of U.S. harvest that domestic processors will process, which may be based on historical performance or on surveys of the expressed intention of manufacturers to process, supported by evidence of contracts, plant expansion, or other relevant information; and the estimated amount of fish that will be harvested by domestic vessels, but not processed (*e.g.*, marketed as fresh whole fish, used for private consumption, or used for bait).

(~~C~~E) *Joint venture processing (JVP)*. When DAH exceeds DAP, the surplus is available for JVP.

(f) *Acceptable biological catch~~,~~ and annual catch limits~~, and annual catch targets~~*. ~~The following features (see paragraphs (f)(~~1~~) through (f)(5) of this section) of acceptable biological catch and annual catch limits apply to stocks and stock complexes in the fishery (see paragraph (d)(2) of this section).~~

~~(1) Introduction. A control rule is a policy for establishing a limit or target fishing level that is based on the best available scientific information and is established by fishery managers in consultation with fisheries scientists. Control rules should be designed so that management actions become more conservative as biomass estimates, or other proxies, for a stock or stock complex decline and as science and management uncertainty increases. Examples of scientific uncertainty include uncertainty in the estimates of MFMT and biomass. Management uncertainty may include late catch reporting, misreporting, and underreporting of catches and is affected by a fishery's ability to control actual catch. For example, a fishery that has inseason catch data available and inseason closure authority has better management control and precision than a fishery that does not have these features.~~

(1~~2~~) *Definitions*.—

(i) *Catch* is the total quantity of fish, measured in weight or numbers of fish, taken in commercial, recreational, subsistence, tribal, and other fisheries. Catch includes fish that are retained for any purpose, as well as mortality of fish that are discarded. Catch includes fish that are retained for any purpose, as well as mortality of fish that are discarded.

(ii) *Acceptable biological catch (ABC)* is a level of a stock or stock complex's annual catch, which is based on an ABC control rule that accounts for the scientific uncertainty in the estimate of OFL ~~and~~, any other scientific uncertainty ~~(see paragraph (f)(3) of this section), and should be specified based on the ABC control rule.~~, and the Council's risk policy.

~~(iii) ABC control rule means a specified approach to setting the ABC for a stock or stock complex as a function of the scientific uncertainty in the estimate of OFL and any other scientific uncertainty (see paragraph (f)(4) of this section).~~

~~(iv)~~ (iii) *Annual catch limit (ACL)*. is a limit on the ~~level of~~total annual catch of a stock or stock complex, which cannot exceed the ABC, that serves as the basis for invoking AMs. ~~ACL cannot exceed the ABC, but~~ An ACL may be divided into sector-ACLs (*see* paragraph (f)(~~5~~4) of this section).

~~(v) *Annual catch target (ACT)* is an amount of annual catch of a stock or stock complex that is the management target of a fishery, and accounts for management uncertainty in controlling the actual catch at or below the ACL. ACTs are recommended in the system of accountability measures so that ACL is not exceeded.~~

~~(vi) *ACT control rule* means a specified approach to setting the ACT for a stock or stock complex such that the risk of exceeding the ACL due to management uncertainty is at an acceptably low level.~~

(iv) *Control rule* is a policy for establishing a limit or target catch level that is based on the best scientific information available and is established by the Council in consultation with its SSC.

(v) *Management uncertainty* refers to uncertainty in the ability of managers to constrain catch so that the ACL is not exceeded, and the uncertainty in quantifying the true catch amounts (i.e., estimation errors). The sources of management uncertainty could include: late catch reporting; misreporting; underreporting of catches; lack of sufficient inseason management, including inseason closure authority; or other factors.

(vi) *Scientific uncertainty* refers to uncertainty in the information about a stock and its reference points. Sources of scientific uncertainty could include: uncertainty in stock assessment results; uncertainty in the estimates of MFMT, MSST, the biomass of the stock, and OFL; time lags in updating assessments; the degree of retrospective revision of assessment results; uncertainty in projections; uncertainties due to the choice of assessment model; longer-term uncertainties due to potential ecosystem and environmental effects; or other factors.

(2) *ABC control rule.*—

(i) For stocks and stock complexes required to have an ABC, each Council must establish an ABC control rule that accounts for scientific uncertainty in the OFL and for the Council's risk policy, and that is based on a comprehensive analysis that shows how the control rule prevents overfishing. The Council's risk policy could be based on an acceptable probability (at least 50 percent) that catch equal to the stock's ABC will not result in overfishing, but other appropriate methods can be used. When determining the risk policy, Councils could consider the economic, social, and ecological trade-offs between being more or less risk averse. The Council's choice of a risk policy cannot result in an ABC that exceeds the OFL. The process of establishing an ABC control rule may ~~could also~~ involve science advisors or the peer review process established under Magnuson-Stevens Act section 302(g)(1)(E).

(ii) The ABC control rule must articulate how ABC will be set compared to the OFL based on the scientific knowledge about the stock or stock complex and taking into account scientific uncertainty (*see* paragraph (f)(1)(vi) of this section). The ABC control rule should consider reducing fishing mortality as stock size declines below B_{msy} and as scientific uncertainty increases, and may establish a stock abundance level below which fishing would not be allowed. When~~re~~ scientific uncertainty cannot be directly calculated, such as when proxies are used, then a proxy for the uncertainty should be established based on the best scientific information, including comparison to other stocks. The control rule may be used in a tiered approach to address different levels of scientific uncertainty. Councils can develop ABC control rules that allow for changes in catch limits to be phased-in over time or to account for the carry-over of some of the unused portion of the ACL from one year to the next. The Council must articulate within its FMP when the phase-in and/or carry-over provisions of the control rule can and cannot be used and how each provision prevents overfishing, based on a comprehensive analysis.

(A) *Phase-in ABC control rules*. Large changes in catch limits due to new scientific information about the status of the stock can have negative short-term effects on a fishing industry. To help stabilize catch levels as stock assessments are updated, a Council may choose to develop a control rule that phases in changes to ABC over a period of time, not to exceed 3 years, as long as overfishing is prevented each year (i.e., the phased-in catch level cannot exceed the OFL in any year). In addition, the Councils should evaluate the appropriateness of phase-in provisions for stocks that are overfished and/or rebuilding, as the overriding goal for such stocks is to rebuild them in as short a time as possible.

(B) *Carry-over ABC control rules*. An ABC control rule may include provisions for the carry-over of some of the unused portion of an ACL (i.e., an ACL underage) from one year to increase the ABC for the next year, based on the increased stock abundance resulting from the fishery harvesting less than the full ACL. The resulting ABC recommended by the SSC must prevent overfishing and must consider scientific uncertainty consistent with the Council's risk policy. Carry-over provisions could also allow an ACL to be adjusted upwards as long as the revised ACL does not exceed the specified ABC. When considering whether to use a carry-over provision, Councils should consider the likely reason for the ACL underage. ACL underages that result from management uncertainty (e.g., premature fishery closure) may be appropriate circumstances for considering a carry-over provision. ACL underages that occur as a result of poor or unknown stock status may not be appropriate to consider in a carry-over provision. In addition, the Councils should evaluate the appropriateness of carry-over provisions for stocks that are overfished and/or rebuilding, as the overriding goal for such stocks is to rebuild them in as short a time as possible.

(3) *Specification of ABC*. ABC may not exceed OFL (*see* paragraph (e)(2)(i)(D) of this section). Councils and their SSC should develop a process ~~for receiving~~by which the SSC can access the best scientific information ~~and advice used to establish ABC. This process should: identify the body that will apply~~available when implementing the ABC control rule (i.e., ~~calculates the ABC), and identify the review process that will evaluate the resulting ABC.~~specifying the ABC). The SSC must recommend the ABC to the Council. An SSC may recommend an ABC that differs from the result of the ABC control rule calculation, based on factors such as data uncertainty, recruitment variability, declining trends in population variables, and other factors, but must ~~explain why.~~provide an explanation for the deviation. For Secretarial FMPs or ~~FMP~~ amendments, agency scientists or a peer review process would provide the scientific advice to establish ABC. For internationally-assessed stocks, an ABC as defined in these guidelines is not required if ~~they meet~~stocks fall under the international exception (*see* paragraph (h)(~~2~~1)(ii) of this section). While the ABC is allowed to equal OFL, NMFS expects that in most cases ABC will be reduced from OFL to reduce the probability that overfishing might occur ~~in a year. Also, see paragraph (f)(5) of this section for cases where a Council recommends that ACL is equal to ABC, and ABC is equal to OFL.~~ .

(i) *Expression of ABC*. ABC should be expressed in terms of catch, but may be expressed in terms of landings as long as estimates of bycatch and any other fishing mortality not accounted for in the landings are incorporated into the determination of ABC.

(ii) *ABC for overfished stocks*. For overfished stocks and stock complexes, a rebuilding ABC must be set to reflect the annual catch that is consistent with the schedule of fishing mortality rates (i.e., $F_{rebuild}$) in the rebuilding plan.

~~(4) ABC control rule. For stocks and stock complexes required to have an ABC, each Council must establish an ABC control rule based on scientific advice from its SSC. The determination of ABC should be based, when possible, on the probability that an actual catch equal to the stock's ABC would result in overfishing. This probability that overfishing will occur cannot exceed 50 percent and should be a lower value. The ABC control rule should consider reducing fishing mortality as stock size declines and may establish a stock abundance level below which fishing would not be allowed. The process of establishing an ABC control rule could also involve science advisors or the peer review process established under Magnuson-Stevens Act section 302(g)(1)(E). The ABC control rule must articulate how ABC will be set compared to the OFL based on the scientific knowledge about the stock or stock complex and the scientific uncertainty in the estimate of OFL and any other scientific uncertainty. The ABC control rule should consider uncertainty in factors such as stock assessment results, time lags in updating assessments, the degree of retrospective revision of assessment results, and projections. The control rule may be used in a tiered approach to address different levels of scientific uncertainty.~~

(~~4~~5) *Setting the annual catch limit—*

(i) *General*. ACL cannot exceed the ABC and may be set annually or on a multiyear plan basis. ACLs in coordination with AMs must prevent overfishing (*see* MSA section 303(a)(15)). If an Annual Catch Target (ACT), or functional equivalent, is not used, management uncertainty should be accounted for in the ACL. If a Council recommends an ACL which equals ABC, and the ABC is equal to OFL, the Secretary may presume that the proposal would not prevent overfishing, in the absence of sufficient analysis and justification for the approach. A "multiyear plan" as referenced in section 303(a)(15) of the Magnuson-Stevens Act is a plan that establishes harvest

specifications or harvest guidelines for each year of a time period greater than 1 year. A multiyear plan must include a mechanism for specifying ACLs for each year with appropriate AMs to prevent overfishing and maintain an appropriate rate of rebuilding if the stock or stock complex is in a rebuilding plan. A multiyear plan must provide that, if an ACL is exceeded for a year, then AMs are ~~triggered~~implemented for the next year consistent with paragraph (g)(3) of this section.

(ii) *Sector-ACLs*. A Council may, but is not required to, divide an ACL into sector-ACLs. If sector-ACLs are used, sector-AMs should also be specified. "Sector," for purposes of this section, means a distinct user group to which separate management strategies and separate catch quotas apply. Examples of sectors include the commercial sector, recreational sector, or various gear groups within a fishery. If the management measures for different sectors differ in the degree of management uncertainty, then sector-ACLs may be necessary so that appropriate AMs can be developed for each sector. If a Council chooses to use sector-ACLs, the sum of sector-ACLs must not exceed the stock or stock complex level ACL. The system of ACLs and AMs designed must be effective in protecting the stock or stock complex as a whole. Even if sector-ACLs and sector-AMs are established, additional AMs at the stock or stock complex level may be necessary.

(iii) *ACLs for State-Federal Fisheries*. For stocks or stock complexes that have harvest in state or territorial waters, FMPs and FMP amendments should include an ACL for the overall stock that may be further divided. For example, the overall ACL could be divided into a Federal-ACL and state-ACL. However, NMFS recognizes that Federal management is limited to the portion of the fishery under Federal authority ~~(see paragraph (g)(5) of this section).~~. *See* 16 U.S.C. 1856. When stocks are co-managed by Federal, state, tribal, and/or territorial fishery managers, the goal should be to develop collaborative conservation and management strategies, and scientific capacity to support such strategies (including AMs for state or territorial and Federal waters), to prevent overfishing of shared stocks and ensure their sustainability.

(iv) *Relationship between OY and the ACL framework*. The dual goals of NS1 are to prevent overfishing and achieve OY on a continuing basis. The ABC is an upper limit on catch that prevents overfishing within an established framework of risk and other considerations. As described in paragraph (e)(3) of this section, ecological, economic, and social factors, as well as values associated with determining the greatest benefit to the Nation, are important considerations in specifying OY. These types of considerations can also be considered in the ACL framework. For example, an ACL (or ACT) could be set lower than the ABC to account for ecological, economic, and social factors (e.g., needs of forage fish, promoting stability, addressing market conditions, etc.). Additionally, economic, social, or ecological trade-offs could be evaluated when determining the risk policy for an ABC control rule (*see* paragraph (f)(2) of this section). While OY is a long-term average amount of desired yield, there is, for each year, an amount of fish that is consistent with achieving the long-term OY. A Council can choose to express OY on an annual basis, in which case the FMP or FMP amendment should indicate that the OY is an "annual OY." An annual OY cannot exceed the ACL.

~~(6) ACT control rule. If ACT is specified as part of the AMs for a fishery, an ACT control rule is utilized for setting the ACT. The ACT control rule should clearly articulate how management uncertainty in the amount of catch in the fishery is accounted for in setting ACT. The objective for establishing the ACT and related AMs is that the ACL not be exceeded.~~

~~(i) Determining management uncertainty. Two sources of management uncertainty should be accounted for in establishing the AMs for a fishery, including the ACT control rule if utilized: Uncertainty in the ability of managers to constrain catch so the ACL is not exceeded, and uncertainty in quantifying the true catch amounts (i.e., estimation efforts). To determine the level of management uncertainty in controlling catch, analyses need to consider past management performance in the fishery and factors such as time lags in reported catch. Such analyses must be based on the best available scientific information from an SSC, agency scientists, or peer review process as appropriate.~~

~~(ii) Establishing tiers and corresponding ACT control rules. Tiers can be established based on levels of management uncertainty associated with the fishery, frequency and accuracy of catch monitoring data available, and risks of exceeding the limit. An ACT control rule could be established for each tier and have, as appropriate, different formulas and standards used to establish the ACT.~~

~~(7) A Council may choose to use a single control rule that combines both scientific and management uncertainty and supports the ABC recommendation and establishment of ACL and if used ACT.~~

(g) *Accountability measures (AMs)*. ~~The following features (see paragraphs (g)(1) through (5) of this section) of accountability measures apply to those stocks and stock complexes in the fishery.~~

(1) *Introduction*. AMs are management controls to prevent ACLs, including sector-ACLs, from being exceeded, and to correct or mitigate overages of the ACL if they occur. AMs should address and minimize both the frequency and magnitude of overages and correct the problems that caused the overage in as short a time as possible. NMFS identifies two categories of AMs, inseason AMs and AMs for when the ACL is exceeded. The FMP should identify what sources of data will be used to implement AMs (e.g., inseason data, annual catch compared to the ACL, or multi-year averaging approach).

(2) *Inseason AMs*. Whenever possible, FMPs should include inseason monitoring and management measures to prevent catch from exceeding ACLs. Inseason AMs could include, but are not limited to: ~~ACT;~~an annual catch target (*see* paragraph (g)(4) of this section); closure of a fishery; closure of specific areas; changes in gear; changes in trip size or bag limits; reductions in effort; or other appropriate management controls for the fishery. If final data or data components of catch are delayed, Councils should make appropriate use of preliminary data, such as landed catch, in implementing inseason AMs. FMPs should contain inseason closure authority giving NMFS the ability to close fisheries if it determines, based on data that it deems sufficiently reliable, that an ACL has been exceeded or is projected to be reached, and that closure of the fishery is necessary to prevent overfishing. For fisheries without inseason management control to prevent the ACL from being exceeded, AMs should utilize ACTs that are set below ACLs so that catches do not exceed the ACL.

(3) *AMs for when the ACL is exceeded*. On an annual basis, the Council must determine as soon as possible after the fishing year if an ACL was exceeded. If an ACL was exceeded, AMs must be ~~triggered and~~ implemented as soon as possible to correct the operational issue that caused the ACL overage, as well as any biological consequences to the stock or stock complex resulting from the overage when it is known. These AMs could include, among other things, modifications of inseason AMs, the use or modification of ACTs, or overage adjustments. The type of AM chosen by a Council will likely vary depending on the sector of the fishery, status of the stock, the degree of the overage, recruitment patterns of the stock, or other pertinent information. If an ACL is set equal to zero and the AM for the fishery is a closure that prohibits fishing for a stock, additional AMs are not required if only small amounts of catch (including bycatch) occur, and the catch is unlikely to result in overfishing. For stocks and stock complexes in rebuilding plans, the AMs should include overage adjustments that reduce the ACLs in the next fishing year by the full amount of the overage~~s~~, unless the best scientific information available shows that a reduced overage adjustment, or no adjustment, is needed to mitigate the effects of the overage. ~~If catch exceeds the ACL for a given stock or stock complex more than once in the last four years, the system of ACLs and AMs should be re-evaluated, and modified if necessary, to improve its performance and effectiveness. A Council could choose a higher performance standard (e.g., a stock's catch should not exceed its ACL more often than once every five or six years) for a stock that is particularly vulnerable to the effects of overfishing, if the vulnerability of the stock has not already been accounted for in the ABC control rule.~~

(4) *Annual Catch Target (ACT) and ACT control rule*. ACTs, or the functional equivalent, are recommended in the system of ~~accountability measures~~AMs so that ACL is not exceeded. An ACT is an amount of annual catch of a stock or stock complex that is the management target of the fishery, and accounts for management uncertainty in controlling the ~~actual~~ catch at or below the ACL. ACT control rules can be used to articulate how management uncertainty is accounted for in setting the ACT. ACT control rules can be developed by the Council, in coordination with the SSC, to help the Council account for management uncertainty.

(~~4~~5) *AMs based on multi-year average data*. Some fisheries have highly variable annual catches and lack reliable inseason or annual data on which to base AMs. If there are insufficient data upon which to compare catch to ACL, ~~either inseason or on an annual basis,~~ AMs could be based on comparisons of average catch to average ACL over a three-year moving average period or, if supported by analysis, some other appropriate multi-year period. Councils should explain why basing AMs on a multi-year period is appropriate. Evaluation of the moving average catch to the average ACL must be conducted annually, and if the average catch exceeds the average ACL, appropriate AMs should be implemented consistent with paragraph (g)(3) of this section. ~~and AMs should be implemented if the average catch exceeds the average ACL. As a performance standard, if the average catch exceeds the average ACL for a stock or stock~~

~~complex more than once in the last four years, then the system of ACLs and AMs should be re-evaluated and modified if necessary to improve its performance and effectiveness. The initial ACL and management measures may incorporate information from previous years so that AMs based on average ACLs can be applied from the first year. Alternatively, a Council could use a stepped approach where in year 1, catch is compared to the ACL for year 1; in year 2 the average catch for the past 2 years is compared to the average ACL; then in year 3 and beyond, the most recent 3 years of catch are compared to the corresponding ACLs for those years.~~

(~~5~~6) *AMs for State-Federal Fisheries*. For stocks or stock complexes that have harvest in state or territorial waters, FMPs and FMP amendments must, at a minimum, have AMs for the portion of the fishery under Federal authority. Such AMs could include closing the EEZ when the Federal portion of the ACL is reached, or the overall stock's ACL is reached, or other measures.

(7) *Performance Standard*. If catch exceeds the ACL for a given stock or stock complex more than once in the last four years, the system of ACLs and AMs should be reevaluated, and modified if necessary, to improve its performance and effectiveness. If AMs are based on multi-year average data, the performance standard is based on a comparison of the average catch to the average ACL. A Council could choose a higher performance standard (e.g., a stock's catch should not exceed its ACL more often than once every five or six years) for a stock that is particularly vulnerable to the effects of overfishing, if the vulnerability of the stock has not already been accounted for in the ABC control rule.

(h) *Establishing ACL mechanisms and AMs in FMPs*. FMPs or FMP amendments must establish ACL mechanisms and AMs for all stocks and stock complexes ~~in the fishery,~~that require conservation and management (*see* § 600.305(c)), unless paragraph (h)(~~2~~1) of this section is applicable. These mechanisms should describe the annual or multiyear process by which ~~specific~~ ACLs, AMs, and other reference points such as OFL~~,~~ and ABC will be established. ~~If a complex has multiple indicator stocks, each indicator stock must have its own ACL; an additional ACL for the stock complex as a whole is optional. In cases where fisheries (e.g., Pacific salmon) harvest multiple indicator stocks of a single species that cannot be distinguished at the time of capture, separate ACLs for the indicator stocks are not required and the ACL can be established for the complex as a whole.~~

~~(1) In establishing ACL mechanisms and AMs, FMPs should describe:~~

~~(i) Timeframes for setting ACLs (e.g., annually or multi-year periods);~~

~~(ii) Sector-ACLs, if any (including set-asides for research or bycatch);~~

~~(iii) AMs and how AMs are triggered and what sources of data will be used (e.g., inseason data, annual catch compared to the ACL, or multi-year averaging approach); and~~

~~(iv) Sector-AMs, if there are sector-ACLs.~~

(~~2~~1) *Exceptions from ACL and AM requirements*—

(i) *Life cycle*. Section 303(a)(15) of the Magnuson-Stevens Act "shall not apply to a fishery for species that ~~has~~have a life cycle of approximately 1 year unless the Secretary has determined the fishery is subject to overfishing of that species" (~~as described in Magnuson-Stevens Act section 303 note).~~Pub. L. 109-479 104(b)(2)). This exception applies to a stock for which the average ~~length~~age of ~~time it takes for an individual to produce a reproductively active offspring~~spawners in the population is approximately 1 year ~~and that the individual has only one breeding season in its life time~~or less. While exempt from the ACL and AM requirements, FMPs or FMP amendments for these stocks must have SDC, MSY, OY, ABC, and an ABC control rule.

(ii) *International fishery agreements*. Section 303(a)(15) of the Magnuson-Stevens Act applies "unless otherwise provided for under an international agreement in which the United States participates" (~~Magnuson-Stevens Act section 303 note).~~ P.L. 109-479 104(b)(1)). This exception applies to stocks or stock complexes subject to management under an international agreement, which is defined as "any bilateral or multilateral treaty, convention, or agreement which relates to fishing and to which the United States is a party" (*see* Magnuson-Stevens Act section 3(24)). These stocks would still need to have SDC, MSY, and ~~MSY~~OY.

(~~3~~2) *Flexibility in application of NS1 guidelines*. There are limited circumstances that may not fit the standard approaches to specification of reference points and management measures set forth in these guidelines. These include, among other things, conservation and management of Endangered Species Act listed species, harvests from aquaculture operations, ~~and~~ stocks with unusual life history characteristics (e.g., Pacific salmon, where the spawning potential for a stock is spread over a multi-year period), and stocks for which data are not available either to set reference points based on MSY or MSY proxies, or to manage to reference points based on MSY or MSY proxies. In these circumstances, Councils may propose alternative approaches for satisfying ~~the NS1~~ requirements of the Magnuson-Stevens Act other than those

set forth in these guidelines. Councils must document their rationale for any alternative approaches ~~for these limited circumstances~~ in an FMP or FMP amendment, which will be reviewed for consistency with the Magnuson-Stevens Act.

(i) *Fisheries data*. In their FMPs, or associated public documents such as SAFE reports as appropriate, Councils must describe general data collection methods, as well as any specific data collection methods used for all stocks ~~in the fishery,~~ and ~~EC species~~stock complexes in their FMPs, including:

(1) Sources of fishing mortality (both landed and discarded), including commercial and recreational catch and bycatch in other fisheries;

(2) Description of the data collection and estimation methods used to quantify total catch mortality in each fishery, including information on the management tools used (~~i.~~e.g., logbooks, vessel monitoring systems, observer programs, landings reports, fish tickets, processor reports, dealer reports, recreational angler surveys, or other methods); the frequency with which data are collected and updated; and the scope of sampling coverage for each fishery; and

(3) Description of the methods used to compile catch data from various catch data collection methods and how those data are used to determine the relationship between total catch at a given point in time and the ACL for stocks and stock complexes that ~~are part of a fishery.~~ require conservation and management.

(j) *Council actions to address overfishing and rebuilding for stocks and stock complexes* ~~in the fishery~~

(1) *Notification*. The Secretary will immediately notify in writing a Regional Fishery Management Council whenever ~~it is determined~~the Secretary determines that:

(i) Overfishing is occurring;

(ii) A stock or stock complex is overfished;

(iii) A stock or stock complex is approaching an overfished condition; or

(iv) Existing remedial action taken for the purpose of ending previously identified overfishing or rebuilding a previously identified overfished stock or stock complex has not resulted in adequate progress. (*see* MSA section 304(e)).

(2) *Timing of actions*—

(i) *If a stock or stock complex is undergoing overfishing*. Upon notification that a stock or stock complex is undergoing overfishing, a Council should immediately begin working with its SSC (or agency scientists or peer review processes in the case of Secretarially-managed fisheries) to ensure that the ABC is set appropriately to end overfishing. Councils should evaluate the cause of overfishing, address the issue that caused overfishing, and reevaluate their ACLs and AMs to make sure they are adequate. ~~FMPs or FMP amendments must establish ACL and AM mechanisms in 2010, for stocks and stock complexes determined to be subject to overfishing, and in 2011, for all other stocks and stock complexes (see paragraph (b)(2)(iii) of this section). To address practical implementation aspects of the FMP and FMP amendment process, paragraphs (j)(2)(i)(A) through (C) of this section clarifies the expected timing of actions.~~

~~(A) In addition to establishing ACL and AM mechanisms, the ACLs and AMs themselves must be specified in FMPs, FMP amendments, implementing regulations, or annual specifications beginning in 2010 or 2011, as appropriate.~~

~~(B) For stocks and stock complexes still determined to be subject to overfishing at the end of 2008, ACL and AM mechanisms and the ACLs and AMs themselves must be effective in fishing year 2010.~~

~~(C) For stocks and stock complexes determined to be subject to overfishing during 2009, ACL and AM mechanisms and ACLs and AMs themselves should be effective in fishing year 2010, if possible, or in fishing year 2011, at the latest. to make sure they are adequate.~~

(ii) *If a stock or stock complex is overfished or approaching an overfished condition*. ~~(A) For notifications~~ Upon notification that a stock or stock complex is overfished or approaching an overfished condition ~~made before July 12, 2009, a Council must prepare an FMP, FMP amendment, or proposed regulations within one year of notification. If the stock or stock complex is overfished, the purpose of the action is to specify a time period for ending overfishing and rebuilding the stock or stock complex that will be as short as possible as described under section 304(e)(4) of the Magnuson-Stevens Act. If the stock or stock complex is approaching an overfished condition, the purpose of the action is to prevent the biomass from declining below the MSST.(B) For notifications that a stock or stock complex is overfished or approaching an overfished condition made after July 12, 2009~~, a Council must prepare and implement an FMP,

FMP amendment, or proposed regulations within two years of notification, consistent with the requirements of section 304(e)(3) of the Magnuson-Stevens Act. Council actions should be submitted to NMFS within 15 months of notification to ensure sufficient time for the Secretary to implement the measures, if approved. ~~If the stock or stock complex is overfished and overfishing is occurring, the rebuilding plan must end overfishing immediately and be consistent with ACL and AM requirements of the Magnuson-Stevens Act.~~

(3) *Overfished fishery*.—

(i) Where a stock or stock complex is overfished, a Council must specify a time period for rebuilding the stock or stock complex based on factors specified in Magnuson-Stevens Act section 304(e)(4). This target time for rebuilding (T_{target}) shall be as short as possible, taking into account: the status and biology of any overfished stock, the needs of fishing communities, recommendations by international organizations in which the U.S. participates, and interaction of the stock within the marine ecosystem. In addition, the time period shall not exceed 10 years, except where biology of the stock, other environmental conditions, or management measures under an international agreement to which the U.S. participates, dictate otherwise. SSCs (or agency scientists or peer review processes in the case of Secretarial actions) shall provide recommendations for achieving rebuilding targets (*see* Magnuson-Stevens Act section 302(g)(1)(B)). The above factors enter into the specification of T_{target} as follows:

(A) *The ~~"~~minimum time for rebuilding a stock~~"~~ (T_{min}). T_{min}* means the amount of time the stock or stock complex is expected to take to rebuild to its MSY biomass level in the absence of any fishing mortality.~~-~~ In this context, the term "expected" means to have at least a 50 percent probability of attaining the B_{msy}. where such probabilities can be calculated. The starting year for the T_{min} calculation should be the first year that the rebuilding plan is expected to be implemented.

~~(B) For scenarios under paragraph (j)(2)(ii)(A) of this section, the starting year for the T_{min} calculation is the first year that a rebuilding plan is implemented. For scenarios under paragraph (j)(2)(ii)(B) of this section, the starting year for the T_{min} calculation is 2 years after notification that a stock or stock complex is overfished or the first year that a rebuilding plan is implemented, whichever is sooner.~~

(B) *The maximum time for rebuilding a stock or stock complex to its B_{msy} (T_{max}).*

(*1*~~C~~) If T_{min} for the stock or stock complex is 10 years or less, then ~~the maximum time allowable for rebuilding (T_{max}) that stock to its B_{msy}~~ T_{max} is 10 years.

(~~D~~*2*) If T_{min} for the stock or stock complex exceeds 10 years, then ~~the maximum time allowable for rebuilding a stock or stock complex~~one of the following methods can be used to ~~its B_{msy} is~~determine T_{max}:

(*i*) T_{min} plus the length of time associated with one generation time for that stock or stock complex. "Generation time" is the average length of time between when an individual is born and the birth of its offspring~~.~~.

(*ii*) The amount of time the stock or stock complex is expected to take to rebuild to B_{msy} if fished at 75 percent of MFMT, or

(*iii*) T_{min} multiplied by two.

(*3*) In situations where T_{min} exceeds 10 years, T_{max} establishes a maximum time for rebuilding that is linked to the biology of the stock.When selecting a method for determining T_{max}, a Council, in consultation with its SSC, should consider the relevant biological data and scientific uncertainty of that data, and must provide a rationale for its decision based on the best scientific information available. One of the methods listed in subparagraphs (j)(3)(i)(B)(2)(*ii*) and (*iii*) may be appropriate, for example, if given data availability and the life history characteristics of the stock, there is high uncertainty in the estimate of generation time, or if generation time does not accurately reflect the productivity of the stock.

~~(E) T_{target} shall not exceed T_{max}, and should be calculated based on the factors described in this paragraph (j)(3).~~

(C) *Target time to rebuilding a stock or stock complex (T_{target}).* T_{target} is the specified time period for rebuilding a stock that is considered to be as short a time as possible, taking into account the factors described in paragraph (j)(3)(i) of this section. T_{target} shall not

exceed T_{max}, and the fishing mortality associated with achieving T_{target} is referred to as $F_{rebuild}$.

~~(ii) If a stock or stock complex reached the end of its rebuilding plan period and has not yet been determined to be rebuilt, then the rebuilding F should not be increased until the stock or stock complex has been demonstrated to be rebuilt. If the rebuilding plan was based on a T_{target} that was less than T_{max}, and the stock or stock complex is not rebuilt by T_{target}, rebuilding measures should be revised, if necessary, such that the stock or stock complex will be rebuilt by T_{max}. If the stock or stock complex has not rebuilt by T_{max}, then the fishing mortality rate should be maintained at $F_{rebuild}$ or 75 percent of the MFMT, whichever is less.~~

(ii) Council action addressing an overfished fishery must allocate both overfishing restrictions and recovery benefits fairly and equitably among sectors of the fishery.

(~~iv~~iii) For fisheries managed under an international agreement, Council action addressing an overfished fishery must reflect traditional participation in the fishery, relative to other nations, by fishermen of the United States.

(iv) *Adequate Progress*. The Secretary shall review rebuilding plans at routine intervals that may not exceed two years to determine whether the plans have resulted in adequate progress toward ending overfishing and rebuilding affected fish stocks (MSA section 304(e)(7)). Such reviews could include the review of recent stock assessments, comparisons of catches to the ACL, or other appropriate performance measures. The Secretary may find that adequate progress is not being made if $F_{rebuild}$ or the ACL associated with $F_{rebuild}$ is exceeded, and AMs are not correcting the operational issue that caused the overage, nor addressing any biological consequences to the stock or stock complex resulting from the overage when it is known (*see* paragraph (g)(3) of this section). A lack of adequate progress may also be found when the rebuilding expectations of a stock or stock complex are significantly changed due to new and unexpected information about the status of the stock. If a determination is made under this provision, the Secretary will notify the appropriate Council and recommend further conservation and management measures, and the Council must develop and implement a new or revised rebuilding plan within two years (*see* MSA sections 304(e)(3) and (e)(7)(B)). For Secretarially-managed fisheries, the Secretary would take immediate action necessary to achieve adequate progress toward rebuilding and ending overfishing.

(v) While a stock or stock complex is rebuilding, revising rebuilding timeframes (i.e., T_{target} and T_{max}) or $F_{rebuild}$ is not necessary, unless the Secretary finds that adequate progress is not being made.

(vi) ~~If~~ a ~~the~~ stock or stock complex has not rebuilt by T_{max}, then the fishing mortality rate should be maintained at its current $F_{rebuild}$ or 75 percent of the MFMT, whichever is less, until the stock or stock complex is rebuilt or the fishing mortality rate is changed as a result of the Secretary finding that adequate progress is not being made.

(4) *Emergency actions and interim measures*. ~~The Secretary, on his/her own initiative or in response to a Council request, may implement interim measures to reduce overfishing or promulgate regulations to address an emergency (Magnuson-Stevens Act section 304(e)(6) or 305(c)). In considering a Council for action, the Secretary would consider, among other things, the need for and urgency of the action and public interest considerations, such as benefits to the stock or stock complex and impacts on participants in the fishery.~~If a Council is developing a rebuilding plan or revising an existing rebuilding plan due to a lack of adequate progress (see MSA section 304(e)(7)), the Secretary may, in response to a Council request, implement interim measures that reduce, but do not necessarily end, overfishing (see MSA section 304(e)(6)) if all of the following criteria are met:

(i) The interim measures are needed to address an unanticipated and significantly changed understanding of the status of the stock or stock complex;

(ii) Ending overfishing immediately is expected to result in severe social and/or economic impacts to a fishery; and

(iii) The interim measures will ensure that the stock or stock complex will increase its current biomass through the duration of the interim measures.

~~(i) These measures may remain in effect for not more than 180 days, but may be extended for an additional 186 days if the public has had an opportunity to comment on the measures and, in the case of Council-recommended measures, the Council is actively preparing an FMP, FMP~~

amendment, or proposed regulations to address the emergency or overfishing on a permanent basis.

(ii) Often, these measures need to be implemented without prior notice and an opportunity for public comment, as it would be impracticable to provide for such processes given the need to act quickly and also contrary to the public interest to delay action. However, emergency regulations and interim measures that do not qualify for waivers or exceptions under the Administrative Procedure Act would need to follow proposed notice and comment rulemaking procedures.

(5) Discontinuing a rebuilding plan based on new scientific information. A Council may discontinue a rebuilding plan for a stock or stock complex before it reaches B_{msy} if the Secretary determines that the stock was not overfished in the year that the overfished determination (*see* MSA section 304(e)(3)) was based on and has never been overfished in any subsequent year including the current year.

(k) *International overfishing*. If the Secretary determines that a fishery is overfished or approaching a condition of being overfished due to excessive international fishing pressure, and for which there are no management measures (or no effective measures) to end overfishing under an international agreement to which the United States is a party, then the Secretary and/or the appropriate Council shall take certain actions as provided under Magnuson-Stevens Act section 304(i). The Secretary, in cooperation with the Secretary of State, must immediately take appropriate action at the international level to end the overfishing. In addition, within one year after the determination, the Secretary and/or appropriate Council shall:

(1) Develop recommendations for domestic regulations to address the relative impact of the U.S. fishing vessels on the stock. Council recommendations should be submitted to the Secretary.

(2) Develop and submit recommendations to the Secretary of State, and to the Congress, for international actions that will end overfishing in the fishery and rebuild the affected stocks, taking into account the relative impact of vessels of other nations and vessels of the United States on the relevant stock. Councils should, in consultation with the Secretary, develop recommendations that take into consideration relevant provisions of the Magnuson-Stevens Act and NS1 guidelines, including section 304(e) of the Magnuson-Stevens Act and paragraph (j)(3)(~~iv~~iii) of this section, and other applicable laws. For highly migratory species in the Pacific, recommendations from the Western Pacific, North Pacific, or Pacific Councils must be developed and submitted consistent with Magnuson-Stevens Reauthorization Act section 503(f), as appropriate.

(3) *Considerations for assessing "relative impact."* "Relative impact" under paragraphs (k)(1) and (2) of this section may include consideration of factors that include, but are not limited to: ~~d~~Domestic and international management measures already in place, management history of a given nation, estimates of a nation's landings or catch (including bycatch) in a given fishery, and estimates of a nation's mortality contributions in a given fishery. Information used to determine relative impact must be based upon the best available scientific information.

~~(l) Relationship of National Standard 1 to other national standards—General. National Standards 2 through 10 provide further requirements for conservation and management measures in FMPs, but do not alter the requirement of NS1 to prevent overfishing and rebuild overfished stocks.~~

~~(1) National Standard 2 (see § 600.315). Management measures and reference points to implement NS1 must be based on the best scientific information available. When data are insufficient to estimate reference points directly, Councils should develop reasonable proxies to the extent possible (also see paragraph (e)(1)(iv) of this section). In cases where scientific data are severely limited, effort should also be directed to identifying and gathering the needed data. SSCs should advise their Councils regarding the best scientific information available for fishery management decisions.~~

~~(2) National Standard 3 (see § 600.320). Reference points should generally be specified in terms of the level of stock aggregation for which the best scientific information is available (also see paragraph (e)(1)(iii) of this section). Also, scientific assessments must be based on the best information about the total range of the stock and potential biological structuring of the stock into biological sub-units, which may differ from the geographic units on which management is feasible.~~

~~(3) National Standard 6 (see § 600.335). Councils must build into the reference points and control rules appropriate consideration of risk, taking into account uncertainties in estimating harvest, stock conditions, life history parameters, or the effects of environmental factors.~~

~~(4) National Standard 8 (see § 600.345). National Standard 8 directs the Councils to apply economic and social factors towards sustained participation of fishing communities and to the extent practicable, minimize adverse economic impacts on such communities within the context of preventing overfishing and rebuilding overfished stocks as required under National Standard 1. Therefore, calculation of OY as~~

~~reduced from~~ ~~MSY should include~~ ~~economic and social factors, but the combination of management measures chosen to achieve the OY must principally be designed to prevent overfishing and rebuild overfished stocks.~~

~~(5) National Standard 9 (see § 600.350). Evaluation of stock status with respect to reference points must take into account mortality caused by bycatch. In addition, the estimation of catch should include the mortality of fish that are discarded.~~

~~(m~~(l) *Exceptions to requirements to prevent overfishing*.~~-~~ Exceptions to the requirement to prevent overfishing could apply under certain limited circumstances. Harvesting one stock at its optimum level may result in overfishing of another stock when the two stocks tend to be caught together (This can occur when the two stocks are part of the same fishery or if one is bycatch in the other's fishery). Before a Council may decide to allow this type of overfishing, an analysis must be performed and the analysis must contain a justification in terms of overall benefits, including a comparison of benefits under alternative management measures, and an analysis of the risk of any stock or stock complex falling below its MSST. The Council may decide to allow this type of overfishing if the fishery is not overfished and the analysis demonstrates that all of the following conditions are satisfied:

(1) Such action will result in long-term net benefits to the Nation;

(2) Mitigating measures have been considered and it has been demonstrated that a similar level of long-term net benefits cannot be achieved by modifying fleet behavior, gear selection/configuration, or other technical characteristics in a manner such that no overfishing would occur; and

(3) The resulting rate of fishing mortality will not cause any stock or stock complex to fall below its MSST more than 50 percent of the time in the long term, although it is recognized that persistent overfishing is expected to cause the affected stock to fall below its B_{msy} more than 50 percent of the time in the long term.

§ 600.320 National Standard 3—Management Units.

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

(b) *General*. The purpose of this standard is to induce a comprehensive approach to fishery management. The geographic scope of the fishery, for planning purposes, should cover the entire range of the stocks(s) of fish, and not be overly constrained by political boundaries. ~~Wherever practicable, an FMP should seek to manage interrelated stocks of fish.~~

(c) *Unity of management*. Cooperation and understanding among entities concerned with the fishery (e.g., Councils, states, Federal Government, international commissions, foreign nations) are vital to effective management. Where management of a fishery involves multiple jurisdictions, coordination among the several entities should be sought in the development of an FMP. Where a range overlaps Council areas, one FMP to cover the entire range is preferred. ~~The Secretary designates which Council(s) will prepare the FMP, under~~ (see ~~section 304(f) of the Magnuson-Stevens Act.~~).

(d) *Management unit*. The term "management unit" means a fishery or that portion of a fishery identified in an FMP as relevant to the FMP's management objectives.

(1) *Basis*. The choice of a management unit depends on the focus of the FMP's objectives, and may be organized around biological, geographic, economic, technical, social, or ecological perspectives. ~~For example:~~

~~(i) *Biological*—could be based on a stock(s) throughout its range.~~

~~(ii) *Geographic*—could be an area.~~

~~(iii) *Economic*—could be based on a fishery supplying specific product forms.~~

~~(iv) *Technical*—could be based on a fishery utilizing a specific gear type or similar fishing practices.~~

~~(v) *Social*—could be based on fishermen as the unifying element, such as when the fishermen pursue different species in a regular pattern throughout the year.~~

~~(vi) *Ecological*—could be based on species that are associated in the ecosystem or are dependent on a particular habitat.~~

(2) *Conservation and management measures*. FMPs should include conservation and management measures for that part of the management unit within U.S. waters, although the Secretary can ordinarily implement them only within the EEZ. The measures need not be identical for each geographic area within the management unit, if the FMP justifies the differences. A management unit may contain~~, in addition to regulated species,~~ stocks of fish for which there is not enough information available to specify MSY and OY or ~~to establish management measures, so that data on these species may be collected under the FMP.~~their proxies.

(e) *Analysis*. ~~To document that an~~An FMP ~~is as comprehensive as practicable, it~~ should include ~~discussions~~discussion of the following:

(1) The range and distribution of the stocks, as well as the patterns of fishing effort and harvest.

(2) Alternative management units and reasons for selecting a particular one. A less-than-comprehensive management unit may be justified if, for example, complementary management ~~exits~~exists or is planned for a separate geographic area or for a distinct use of the stocks, or if the unmanaged portion of the resource is immaterial to proper management.

(3) Management activities and habitat programs of adjacent states and their effects on the FMP's objectives and management measures. Where state action is necessary to implement measures within state waters to achieve FMP objectives, the FMP should identify what state action is necessary, discuss the consequences of state inaction or contrary action, and make appropriate recommendations. The FMP should also discuss the impact that Federal regulations will have on state management activities.

(4) Management activities of other countries having an impact on the fishery, and how the FMP's management measures are designed to take into account these impacts. International boundaries may be dealt with in several ways. For example:

(i) By limiting the management unit's scope to that portion of the stock found in U.S. waters;

(ii) By estimating MSY for the entire stock and then basing the determination of OY for the U.S. fishery on the portion of the stock within U.S. waters; or

(iii) By referring to treaties or cooperative agreements.

§ 600.340 National Standard 7—Costs and Benefits.

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

~~(b) *Necessity of Federal management.*~~

~~(1) *General*. The principle that not every fishery needs regulation is implicit in this standard. The Magnuson-Stevens Act requires Councils to prepare FMPs only for overfished fisheries and for other fisheries where regulation would serve some useful purpose and where the present or future benefits of regulation would justify the costs. For example, the need to collect data about a fishery is not, by itself, adequate justification for preparation of an FMP, since there are less costly ways to gather the data (see § 600.320(d)(2). In some cases, the FMP preparation process itself, even if it does not culminate in a document approved by the Secretary, can be useful in supplying a basis for management by one or more coastal states.~~

~~(2) *Criteria*. In deciding whether a fishery needs management through regulations implementing an FMP, the following general factors should be considered, among others:~~

~~(i) The importance of the fishery to the Nation and to the regional economy.~~

~~(ii) The condition of the stock or stocks of fish and whether an FMP can improve or maintain that condition.~~

~~(iii) The extent to which the fishery could be or is already adequately managed by states, by state/Federal programs, by Federal regulations pursuant to FMPs or international commissions, or by industry self-regulation, consistent with the policies and standards of the Magnuson-Stevens Act.~~

~~(iv) The need to resolve competing interests and conflicts among user groups and whether an FMP can further that resolution.~~

~~(v) The economic condition of a fishery and whether an FMP can produce more efficient utilization.~~

~~(vi) The needs of a developing fishery, and whether an FMP can foster orderly growth.~~

~~(vii) The costs associated with an FMP, balanced against the benefits (see paragraph (d) of this section as a guide).~~

(b~~c~~) *Alternative management measures*. Management measures should not impose unnecessary burdens on the economy, on individuals, on private or public organizations, or on Federal, state, or local governments. Factors such as fuel costs, enforcement costs, or the burdens of collecting data may well suggest a preferred alternative.

(c~~d~~) *Analysis*. The supporting analyses for FMPs should demonstrate that the benefits of fishery regulation are real and substantial relative to the added research, administrative, and enforcement costs, as well as costs to the industry of compliance. In determining the benefits and costs of management measures, each management strategy considered and its impacts on different user groups in the fishery should be evaluated. This requirement need not produce an elaborate, formalistic cost/benefit analysis. Rather, an evaluation of effects and costs, especially of differences among workable alternatives, including the status quo, is adequate. If quantitative estimates are not possible, qualitative estimates will suffice.

(1) *Burdens*. Management measures should be designed to give fishermen the greatest possible freedom of action in conducting business and pursuing recreational opportunities that are consistent with ensuring wise use of the resources and reducing conflict in the fishery. The type and level of burden placed on user groups by the regulations need to be identified. Such an examination should include, for example: Capital outlays; operating and maintenance costs; reporting costs; administrative, enforcement, and information costs; and prices to consumers. Management measures may shift costs from one level of government to another, from one part of the private sector to another, or from the government to the private sector. Redistribution of costs through regulations is likely to generate controversy. A discussion of these and any other burdens placed on the public through FMP regulations should be a part of the FMP's supporting analyses.

(2) *Gains*. The relative distribution of gains may change as a result of instituting different sets of alternatives, as may the specific type of gain. The analysis of benefits should focus on the specific gains produced by each alternative set of management measures, including the status quo. The benefits to society that result from the alternative management measures should be identified, and the level of gain assessed.

Mid-Atlantic Fishery Management Council
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Michael P. Luisi, Chairman | G. Warren Elliott, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: November 29, 2016

To: Council

From: Julia Beaty

Subject: Scup quota period framework

In December 2015, the Council and the Atlantic States Marine Fisheries Commission's Summer Flounder, Scup, and Black Sea Bass Management Board (Board) requested an analysis of the potential biological and economic impacts of modifying the dates of the commercial scup quota periods, as requested by advisors.

The Council and Board discussed pursuing these changes through a framework and associated addendum; however, depending on the expected impacts, an amendment may be required. One goal of the requested analysis was to determine if the changes could be made through a framework/addendum, or if an amendment would be required.

The following materials are enclosed within this tab to inform Council and Board discussion on initiating such a framework/addendum at their December 2016 joint meeting:

1) Staff memo summarizing initial analysis (dated November 2, 2016)

2) Summary of November 9-10, 2016 Monitoring Committee meeting (comments on scup quota periods only)

3) Summary of November 14, 2016 Advisory Panel meeting

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

MEMORANDUM

Date: November 2, 2016

To: Summer Flounder, Scup, and Black Sea Bass Monitoring Committee and Advisory Panel

From: Julia Beaty

Subject: Scup Quota Period Framework Initial Impact Analysis

Introduction

Management measures for the commercial scup fishery include an annual commercial quota which is divided into three quota periods. Each quota period is allocated a percentage of the annual quota. Different possession limits are in effect in each quota period (Table 1).

Since 2011, commercial scup landings have been 20-47% below the commercial quota. In recent years, a few advisors requested modifications to the dates of the quota periods with all other regulations related to the quota periods, including the allocations and possession limits, remaining unchanged. The requested changes are intended to allow higher possession limits for a longer period of time each year, thus increasing the likelihood that the commercial fishery will fully harvest the quota in the future.

In December 2015, the Council and Atlantic States Marine Fisheries Commission's (the Commission's) Summer Flounder, Scup, and Black Sea Bass Management Board (the Board) requested additional information on the potential biological and economic impacts of the changes requested by advisors. It may be possible to implement such a change through a framework adjustment and associated Commission addendum; however, if the impacts are expected to be significant, a Fishery Management Plan (FMP) amendment may be necessary. The Council and Board will discuss the possibility of initiating a framework/addendum or an amendment at their December 2016 joint meeting after considering the potential impacts of the changes, as well as additional input from the Monitoring Committee and the Advisory Panel.

This document summarizes an initial analysis of the potential impacts of two specific changes recommended by advisors: 1) move the month of October from the Summer

quota period to the Winter II quota period, and 2) move October from the Summer quota period to the Winter II quota period and move the first two weeks of May from the Summer quota period to the Winter I period.

Background

The scup fishery is cooperatively managed by the Council and the Commission under the Summer Flounder, Scup, and Black Sea Bass FMP. The management unit for the FMP includes scup in U.S. waters in the western Atlantic Ocean from Cape Hatteras, North Carolina northward. The Council develops recommendations for regulations in Federal waters. NOAA's National Marine Fisheries Service (NMFS) reviews these regulations and implements them if they are deemed to be consistent with FMP objectives and other statutory requirements, including the Magnuson-Stevens Fishery Conservation and Management Act. NMFS also serves as the Federal enforcement agency. The Commission works with member states to develop regulations for scup fisheries in state waters.

Amendment 8 to what was then the Summer Flounder FMP was approved by NMFS in 1996 and established several coastwide management measures for the scup fishery. At the time, the scup stock was overexploited. Amendment 8 included several measures to rebuild the stock, including a coastwide commercial quota beginning on January 1, 1997. During development of amendment 8, the Council and Commission considered, but did not fully develop, a system of quota allocation and possession limits. They agreed to submit amendment 8 to NMFS before fully developing these measures so the other measures in amendment 8 could be implemented as quickly as possible and the rebuilding program could begin. However, without trip limits and seasonal allocations, the annual quota could be fully harvested early in the year, which could have economic implications for the entire fishery and created the potential for issues regarding equitable access to the fishery. Traditionally, larger vessels harvested scup offshore during the winter months and smaller vessels harvested scup inshore during the summer. If larger vessels harvested the full annual quota early in the year, smaller vessels would not be able to harvest scup in the summer. To address this issue, the Council and Commission developed three quota periods, each allocated a percentage of the annual commercial quota and each with different possession limits. These measures were first implemented in 1997 through a regulatory amendment to the FMP (MAFMC 1996; 62 Federal Register 27978, May 22, 1997).

The dates of the quota periods and the allocation percentages have not changed since they were first implemented. These measures include a Winter I period, lasting from January 1 through April 30 and allocated 45.11% of the annual quota; a Summer period, lasting from May 1 through October 31 and allocated 38.95% of the annual quota; and a Winter II quota period, lasting from November 1 through December 31 and allocated 15.94% of the annual commercial quota (Table 1).

The Summer quota period allocation is further divided into state shares. The state shares have been modified since they were first implemented. The current state shares are shown in Table 2. State shares were removed from the Council's FMP but are managed by the Commission through Addendum V (ASMFC 2002).

Commercial landings data from 1983 through 1992 were used to define the dates and allocations for the quota periods, including the state allocations for the Summer period. These years were chosen because they were thought to best represent historical participation in the fishery and included years when scup were abundant (though they have become far more abundant since then) and available to both northern and southern states (MAFMC 1996). There was some concern that these data underestimated harvests from state waters with some gear types, especially in Massachusetts. To address this concern, the state summer shares were modified in 2002 through Addendum V to the Commission's FMP (ASMFC 2002).

The seasonal possession limits have been modified several times since they were first implemented. Current management measures include a 50,000 pound possession limit during Winter I. If 80% of the Winter I quota is harvested, the possession limit drops to 1,000 pounds for the remainder of the Winter I period. The initial Winter II possession limit is 12,000 pounds. If the Winter I quota is not fully harvested, unused quota may rollover to the Winter II period. If this occurs, the Winter II possession limit may increase up to a maximum of 18,000 pounds. There are no Federal waters possession limits during the Summer period; however, various state-specific possession limits are enforced in state waters. These possession limits are all much lower than the Winter I and Winter II possession limits (Table 3).

The Federal commercial scup fishery is closed coastwide when the allocation for a given quota period is reached. Any overages during a given quota period are subtracted from that period's allocation for the following year. If the Summer period quota is exceeded, overages from a given state during the Summer period are subtracted by the Commission from the state's Summer period share in a future year. If an individual state exceeds its Summer quota, but the overall Summer quota is not exceeded, deductions are not applied.

Although the dates of the quota periods have not been modified since their initial implementation, Framework Adjustment 3 to the FMP, implemented in 2003, allows landings during April 15-30 by state-only permitted vessels to be counted towards that state's Summer period allocation in years when the Winter I fishery closes before April 15 and when the state makes such a request in writing (68 Federal Register 62251, November 3, 2003).

Alternatives for Consideration

If the Council and Board decided to initiate a framework/addendum or amendment to modify the dates of the commercial scup quota periods, staff recommend consideration of the following management alternatives, based on advisor recommendations:

Alternative 1: No action/*status quo*

- Winter I: January 1 – April 30 (120 days)
- Summer: May 1 – October 31 (184 days)
- Winter II: November 1 – December 31 (61 days)

Alternative 2: Move October to the Winter II period

- Winter I: January 1 – April 30 (120 days)
- Summer: May 1 – September 30 (153 days)
- Winter II: October 1 – December 31 (92 days)

Alternative 3: Move October to the Winter II period and move the first two weeks of May to the Summer period

- Winter I: January 1 – May 15 (135 days)
- Summer: May 15 – September 30 (138 days)
- Winter II: October 1 – December 31 (92 days)

If alternatives which are significantly different from those previously considered or which could have substantial biological or economic impacts are added to this action, it may require that the action be implemented through an amendment rather than through a framework/addendum. Amendments usually take longer to develop than frameworks/addenda. Council staff recommend that Monitoring Committee and Advisory Panel members keep this in mind when considering the alternatives for this action.

Initial Analysis

An initial analysis of the potential impacts of the changes to the quota period dates requested by advisors is presented in this section. If the Council and board decide to initiate a management action to consider such changes, additional analyses will be developed.

The figures and tables at the end of this document show scup landings by month (Figure 1, Table 4), scup prices by month (Figure 2, Table 5), and number of vessels landing scup by month (Figure 3, Table 6), as well as the importance of each month to scup landings in each state (Figure 4).

Although October is within the Summer quota period, it had similar average values to the Winter II quota period in terms of scup landings (Figure 1, Table 4), number of vessels landing scup (Figure 3, Table 6), and the size of vessels which landed scup

(Figure 5, Table 7) during 2011-2015. The month of May, which is currently in the Summer quota period, had values for scup landings and number of vessels which landed scup which were in between the months of April (Winter I quota period) and June (Summer quota period). In general, October appears to be more similar to the Winter II period than the Summer period. May appears to be more similar to the Summer period than the Winter I period in terms of the number of vessels landing scup per month, but in between Winter I and Summer in terms of scup landings and price.

If each month contributed equally to scup landings, 8% of annual landings would occur in each month. The month of October contributed to more than 8% of annual scup landings in the states of Rhode Island, New York, and Delaware. The month of May contributed to more than 8% of annual scup landings in the states of Massachusetts, Rhode Island, and New York (Figure 4).

At their July 2016 meeting, the Monitoring Committee discussed ideas for analyzing the impacts of modifying the scup quota period dates. One Monitoring Committee member suggested that if October were moved to the Winter II period, this would allow a higher commercial possession limit (on the order of 12,000 pounds) and if scup are close inshore during that time of year, this could potentially impact recreational fisheries which mostly operate in state waters. Data from the Marine Recreational Information Program (MRIP) includes recreational catches and landings by two-month periods known as waves. From a coast-wide perspective, waves 3 (May-June), 4 (July-August), and 5 (September-October) each contributed about one third of annual scup landings from 2013 through 2015. Wave 5 dominated the scup landings (i.e. greater than 50% of annual landings) for the states of Connecticut and New Jersey and was also important (i.e. greater than 40% of annual landings) for New York and Virginia (Table 7).

Initial Conclusions

In conclusion, because October seems to be behaving similarly to the Winter II quota period, moving it to that period may not have substantial impacts on the economic aspects (e.g. landings, prices, participation) of the fishery. The month of May did show some differences from the Winter I quota period; therefore, moving half of May to the Winter I quota period may have some impacts on economic aspects of the fishery.

If the Council and Board initiate a framework/addendum during their December 2016 meeting, Council and Commission staff will work with the Monitoring Committee to perform additional analysis on the biological and economic impacts of the alternatives considered. For example, in July 2016 the Monitoring Committee recommended analysis of state trawl survey data to examine the distribution of scup in state and federal waters during the months of April and October. This analysis has not yet been completed.

Tables and Figures

Table 1: Commercial scup quota period dates, percentage of annual quota allocated, and Federal waters possession limits.

Quota Period	Dates	% of annual quota	Possession limit
Winter I	Jan 1–Apr 30	45.11%	50,000 pounds
Summer	May 1–Oct 31	38.95%	State-specific (Table 2)
Winter II	Nov 1–Dec 31	15.94%	12,000-18,000 pounds depending on amount of unused quota from Winter I

Table 2: State allocations of commercial scup quota for the Summer quota period.

State	Share of summer quota
Maine	0.1210%
New Hampshire	0.0000%
Massachusetts	21.5853%
Rhode Island	56.1894%
Connecticut	3.1537%
New York	15.8232%
New Jersey	2.9164%
Delaware	0.0000%
Maryland	0.0119%
Virginia	0.1650%
North Carolina	0.0249%

Table 3: Commercial scup possession limits for trawl vessels in state waters during the Summer quota period (May 1 – October 31) in 2016.

State	Dates	Possession limit
Maine	May 1 – Oct 31	None
New Hampshire	May 1 – Oct 31	None (allocated no quota)
Massachusetts	May 1 – Oct 31	800 lb
Rhode Island	May 1 – Oct 31	10,000 lb per vessel per week
Connecticut[a]	May 1 – July 2	1,500 lb
	July 3 – November 1[b]	750 lb
New York	May 1 – Oct 31	800 lb
New Jersey	May 1 – Oct 31	5,000 lb
Delaware	May 1 – Oct 31	None (allocated no quota)
Maryland	May 1 – Oct 31	None
Virginia	May 1 – Oct 31	None
North Carolina	May 1 – Oct 31	None

[a]Adjusted periodically to maintain consistent weekly landings rate, prevent in-season closure, and take 100% of summer period quota allocated to Connecticut.

[b]As of August 26, 2016. Possession limit may be further adjusted prior to end of Summer quota period.

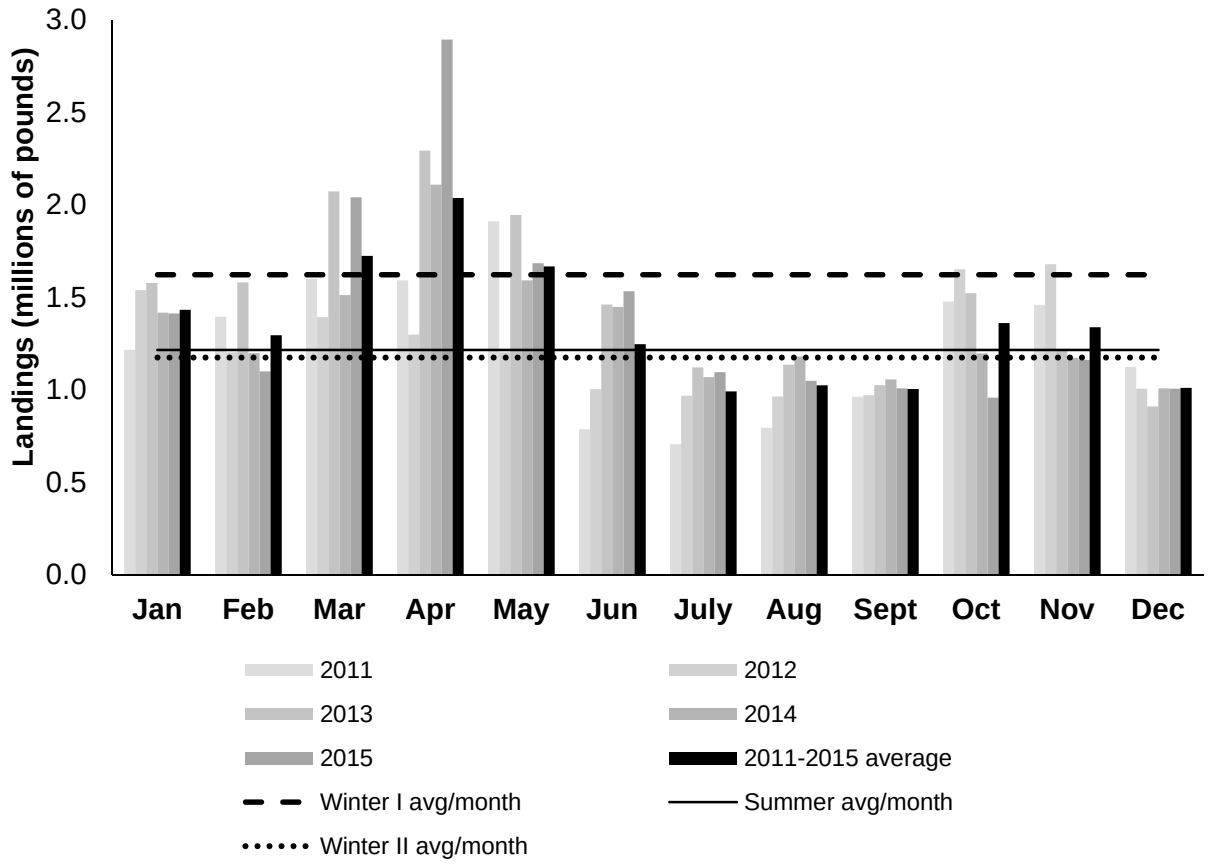


Figure 1: Commercial scup landings per month, 2011-2015 shown with average landings per month during the Winter I (January – April), Summer (May-October), and Winter II (November and December) quota periods.

Table 4: Commercial scup landings per month, 2011-2015 shown with average landings per month during the Winter I (January – April), Summer (May-October), and Winter II (November and December) quota periods.

Year	**Landings** (millions of pounds)											
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
2011	1.22	1.40	1.60	1.59	1.91	0.79	0.71	0.79	0.96	1.48	1.46	1.12
2012	1.54	1.20	1.39	1.30	1.20	1.00	0.97	0.96	0.97	1.65	1.68	1.01
2013	1.58	1.58	2.07	2.29	1.95	1.46	1.12	1.14	1.03	1.52	1.22	0.91
2014	1.42	1.20	1.51	2.11	1.59	1.45	1.07	1.18	1.06	1.20	1.17	1.01
2015	1.41	1.10	2.04	2.89	1.68	1.53	1.10	1.05	1.01	0.96	1.16	1.01
Total	7.17	6.48	8.62	10.19	8.34	6.24	4.96	5.13	5.03	6.81	6.70	5.06
Average	1.43	1.30	1.72	2.04	1.67	1.25	0.99	1.03	1.01	1.36	1.34	1.01
Winter I avg/month	1.62											
Summer avg/month	1.22											
Winter II avg/month	1.18											

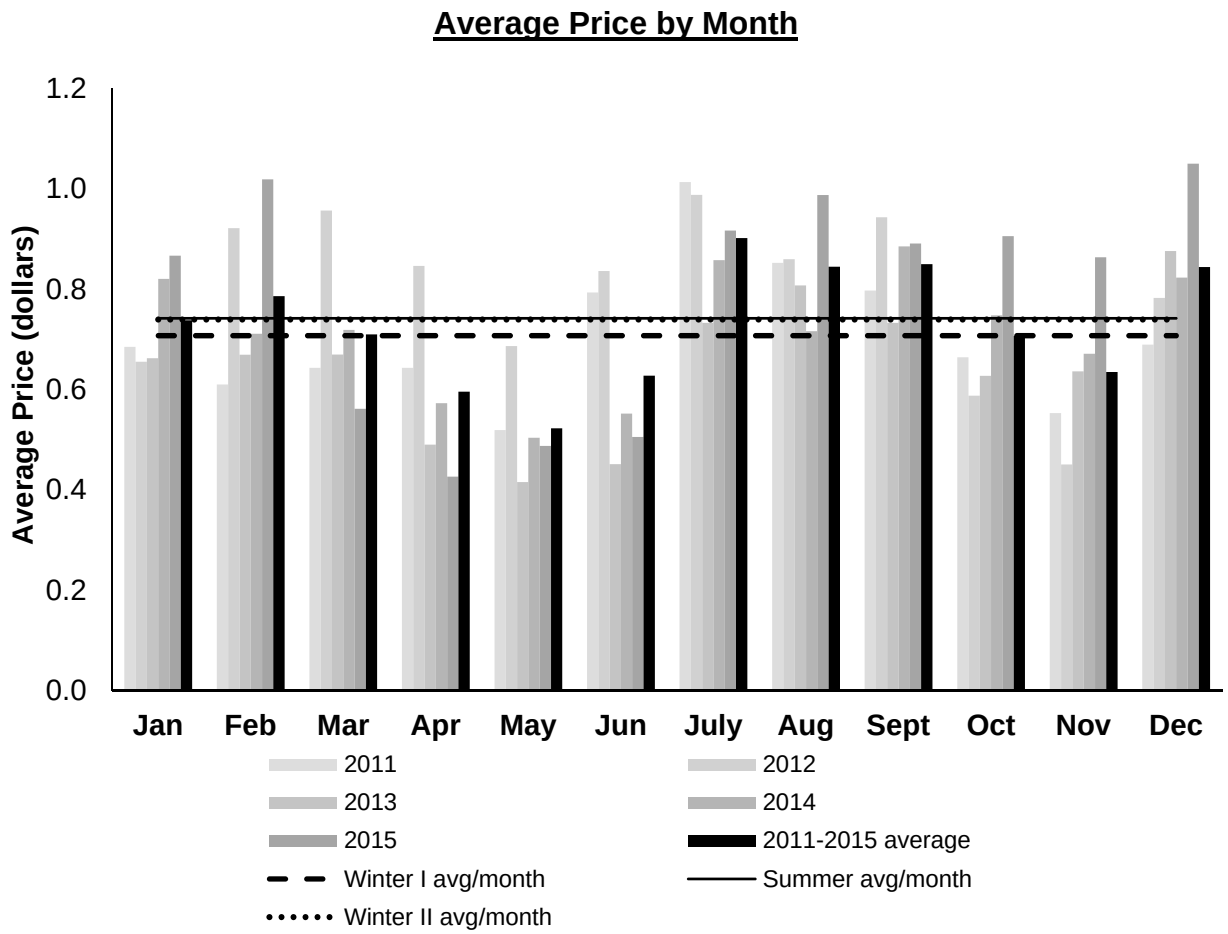


Figure 2: Average scup price per month, 2011-2015 shown with average price per month during the Winter I (January – April), Summer (May-October), and Winter II (November and December) quota periods.

Table 5: Average scup price (in dollars) per month, 2011-2015 shown with average price per month during the Winter I (January – April), Summer (May-October), and Winter II (November and December) quota periods.

Year	**Average Price** (Dollars)											
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
2011	0.69	0.61	0.64	0.64	0.52	0.79	1.01	0.85	0.80	0.66	0.55	0.69
2012	0.66	0.92	0.96	0.85	0.69	0.84	0.99	0.86	0.94	0.59	0.45	0.78
2013	0.66	0.67	0.67	0.49	0.42	0.45	0.73	0.81	0.73	0.63	0.64	0.88
2014	0.82	0.71	0.72	0.57	0.50	0.55	0.86	0.72	0.89	0.75	0.67	0.82
2015	0.87	1.02	0.56	0.43	0.49	0.51	0.92	0.99	0.89	0.91	0.86	1.05
Average	0.74	0.79	0.71	0.60	0.52	0.63	0.90	0.84	0.85	0.71	0.64	0.84
Winter I avg/month	0.71											
Summer avg/month	0.74											
Winter II avg/month	0.74											

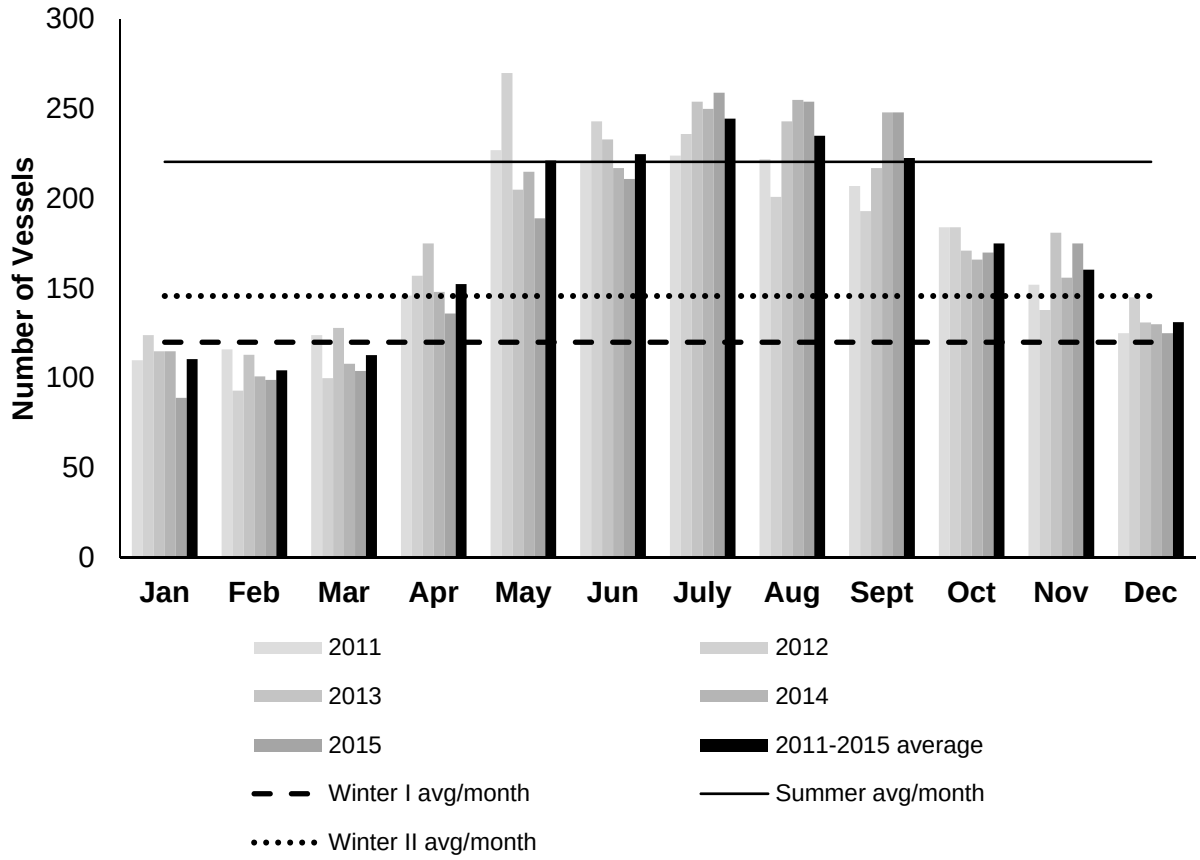


Figure 3: Number of commercial vessels which landed scup per month, 2011-2015 shown with average number of vessels per month during the Winter I (January – April), Summer (May-October), and Winter II (November and December) quota periods.

Table 6: Number of commercial vessels which landed scup per month, 2011-2015 shown with average number of vessels per month during the Winter I (January – April), Summer (May-October), and Winter II (November and December) quota periods.

Year	Number of Vessels											
	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
2011	110	116	124	146	227	220	224	222	207	184	152	125
2012	124	93	100	157	270	243	236	201	193	184	138	145
2013	115	113	128	175	205	233	254	243	217	171	181	131
2014	115	101	108	148	215	217	250	255	248	166	156	130
2015	89	99	104	136	189	211	259	254	248	170	175	125
Average	111	104	113	152	221	225	245	235	223	175	160	131
Winter I avg/month	120											
Summer avg/month	221											
Winter II avg/month	146											

Landings by Month by State

Figure 4: Percent of annual scup landings by month by state. Confidential data representing fewer than three vessels and/or dealers are not shown. (0.0% refers to low, but not confidential, amounts of landings.)

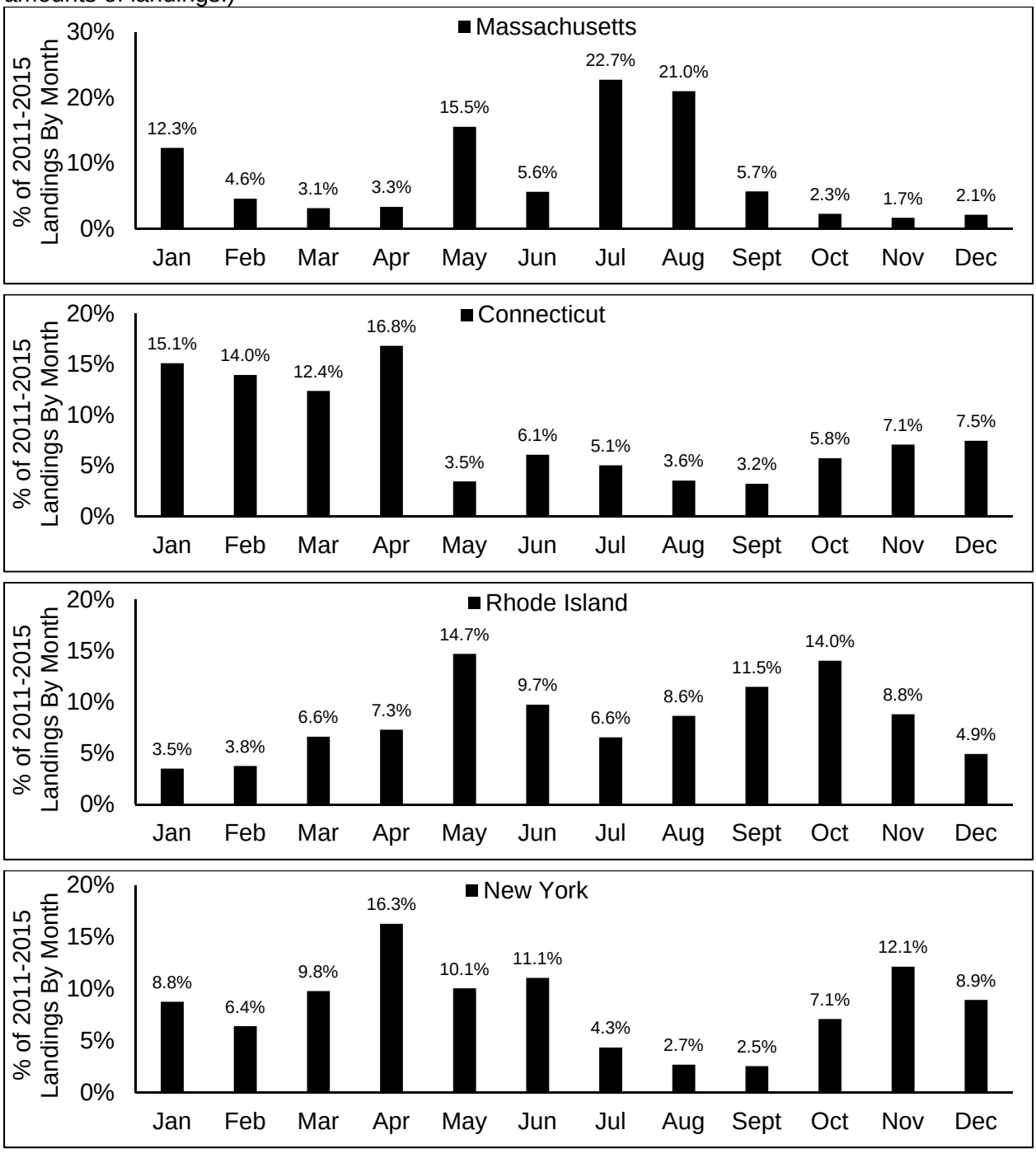
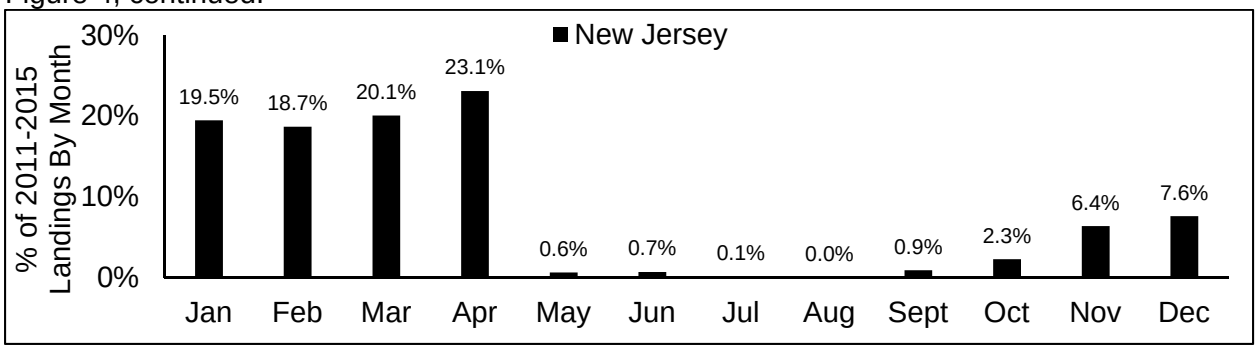
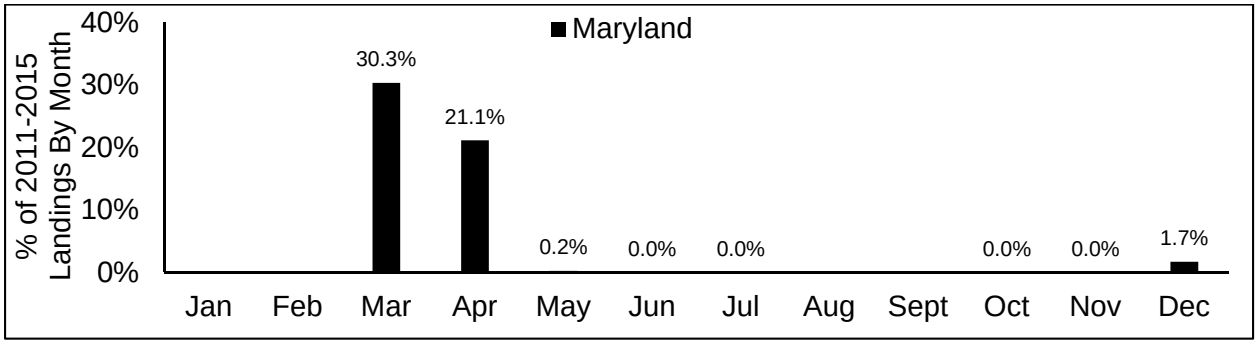
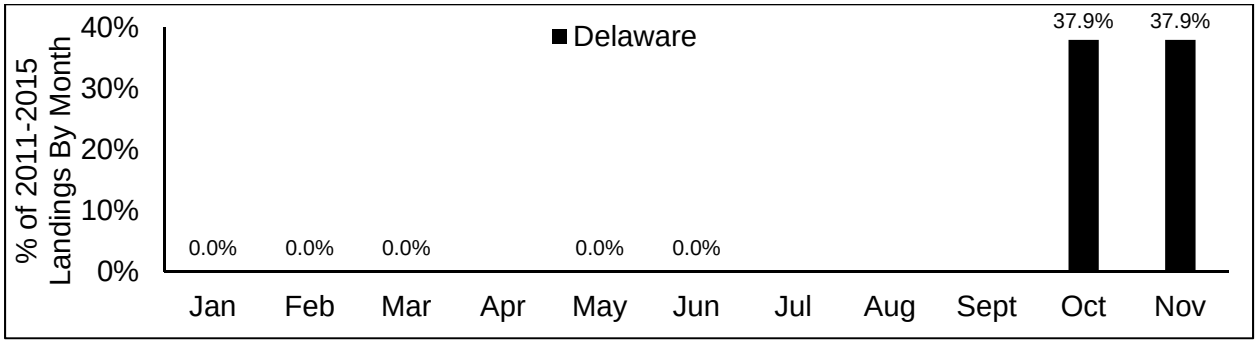
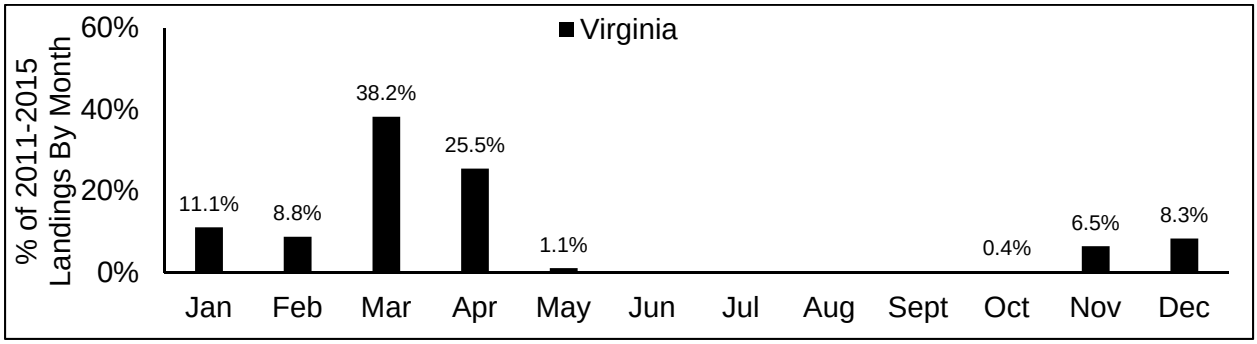


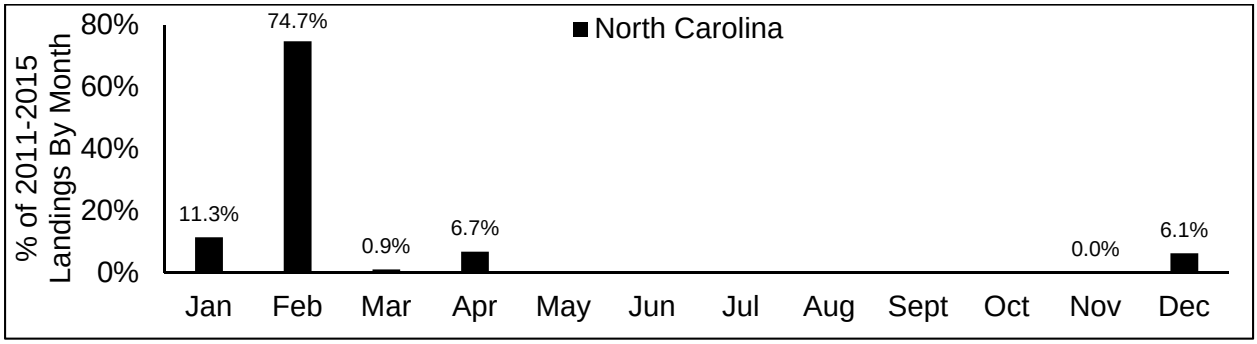
Figure 4, continued.











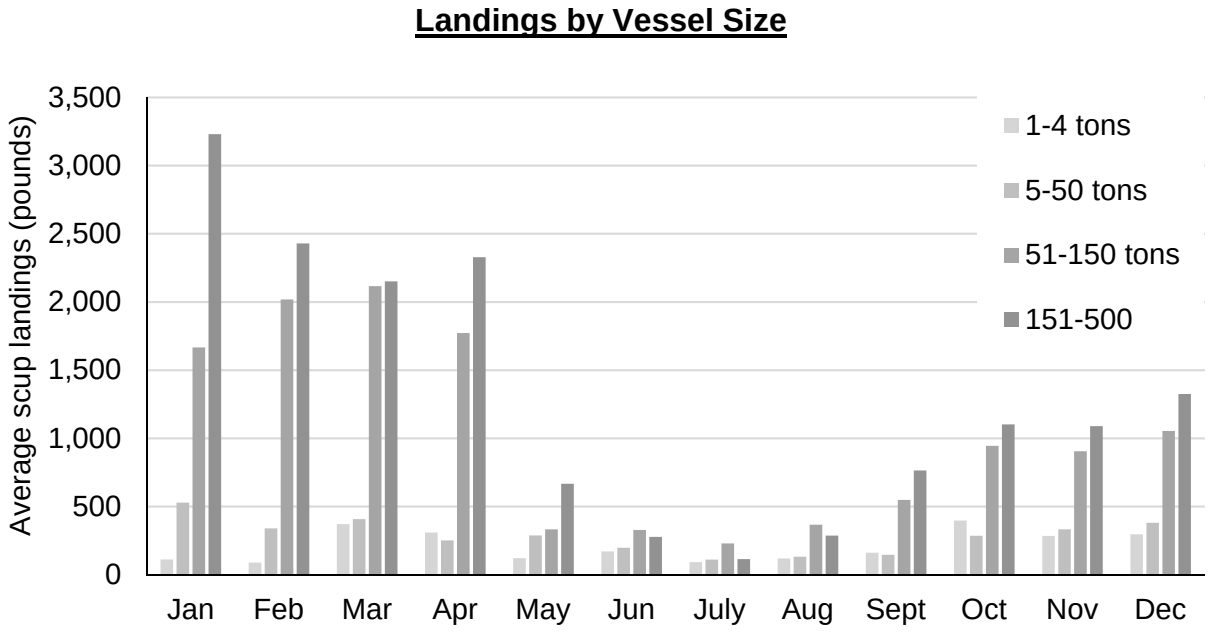


Figure 5: Average scup landings by month by vessel ton class, 2011-2015. Data for vessels greater than 500 tons are confidential and are not shown. Data from vessels with an unknown vessel class are also not shown.

Table 7: Average scup landings by month and by vessel ton class, 2011-2015. Vessels greater than 500 tons are grouped with vessels with an unknown ton class to protect confidential data.

Ton Class	Average scup landings per month, 2011-2015											
	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
1-4 tons	2%	1%	1%	6%	6%	13%	11%	11%	9%	13%	3%	9%
5-50 tons	9%	4%	1%	5%	14%	15%	14%	12%	8%	10%	4%	11%
51-150 tons	30%	23%	5%	35%	16%	24%	28%	33%	31%	32%	11%	32%
151-500 tons	58%	27%	5%	45%	31%	21%	14%	26%	43%	37%	13%	40%
Unknown or >500	1%	46%	89%	9%	34%	27%	33%	18%	10%	9%	68%	8%

Recreational Landings

Table 8: Percent of annual landings by wave and by state, 2013-2015. (Source: MRIP data, downloaded Oct. 21, 2016).

State	May/June	July/Aug	Sept/Oct	Nov/Dec
MASSACHUSETTS	71%	15%	14%	0%
RHODE ISLAND	19%	53%	28%	0%
CONNECTICUT	3%	38%	59%	0%
NEW YORK	7%	49%	42%	2%
NEW JERSEY	0%	2%	98%	0%
DELAWARE	0%	5%	0%	95%
MARYLAND	0%	0%	0%	100%
VIRGINIA	0%	57%	43%	0%
NORTH CAROLINA	41%	25%	34%	0%
Total	**31%**	**35%**	**33%**	**1%**

References

ASMFC (Atlantic States Marine Fisheries Commission). 2002. Addendum V to the Scup Fishery Management Plan: Summer Period Commercial Scup Allocation. Available at: http://www.asmfc.org/species/scup

MAFMC (Mid-Atlantic Fishery Management Council). 1996. Regulatory Amendment to the Fishery Management Plan for the Summer Flounder and Scup Fishery. Available at: http://www.mafmc.org/fisheries/fmp/sf-s-bsb

NEFSC (Northeast Fisheries Science Center). 2015. 60th Northeast Regional Stock Assessment Workshop (60th SAW) Assessment Report. U.S. Department of Commerce, Northeast Fisheries Science Center Reference Document 15-08. Available at: http://www.nefsc.noaa.gov/saw/

Summer Flounder, Scup, and Black Sea Bass Monitoring Committee
Scup Commercial Quota Period Recommendations
November 10, 2016

Monitoring Committee Attendees: Greg Wojcik (CT DEEP), John Maniscalco (NY DEC; via webinar), Peter Clarke (NJ F&W), Rich Wong (DNREC), Steve Doctor (MD DNR), Katie May Laumann (VMRC), T.D. VanMiddlesworth (NC DMF), Kiley Dancy (MAFMC Staff), Julia Beaty (MAFMC Staff), Kirby Rootes-Murdy (ASMFC Staff), Emily Gilbert (NMFS GARFO; via webinar), Mark Terceiro (NEFSC; via webinar), Jason McNamee (RI DEM; via webinar 11/9 only)

Other Attendees (all via webinar): Joe Cimino (VMRC), Bonnie Brady (Long Island Commercial Fishermen's Association)

The Monitoring Committee discussed the potential Council/Commission action to modify the scup commercial quota period dates, and reviewed initial staff analyses.

The Monitoring Committee raised no objections to either of the Advisory Panel recommendations for changes to the dates of the scup commercial quota periods. The Committee agreed that moving the first two weeks of May from the Summer quota period to the Winter I quota period, and the month of October from Summer to Winter II, could help prevent overages of the Summer quota, especially in states with low Summer quotas. Although the Committee was generally supportive of the suggested changes, they had some concerns about the potential impacts on small vessels and state-only permitted vessels. Public hearings would help better understand these potential impacts.

Summer Flounder, Scup, and Black Sea Bass Advisory Panel Webinar

November 14, 2016

Council Advisory Panel members present: Mary Fabrizio, James Fletcher, Hank Lackner, Michael Plaia*, Bob Pride

Commission Advisory Panel members present: Greg DiDomenico, Michael Hall, Marc Hoffman, Michael Plaia*

*Serves on both Council and Commission Advisory Panels.

Others present: Katie Almeida (the Town Dock), Julia Beaty (Council Staff), Kiley Dancy (Council staff), Emily Gilbert (Monitoring Committee member, GARFO staff), Meghan Lapp (SeaFreeze ltd), Robert O'Reilly (Council member, VMRC), Kirby Rootes-Murdy (Commission staff), T.D. VanMiddlesworth (Monitoring Committee member, VMRC)

Summary

The AP met to discuss potential changes to the dates of the three commercial quota periods for the scup fishery. Advisors reviewed a preliminary analysis of the potential impacts of modifying the quota period dates, reviewed recommendations from the Monitoring Committee, and provided input on a potential management action to modify these dates.

Three advisors said they supported the alternative which would move October from the Summer quota period to the Winter II quota period. Four advisors said they supported that alternative, as well as the alternative which would move October to the Winter II period and also move the first two weeks of May from the Summer period to the Winter I period.

Individual Comments

Hank Lackner: You did a great job with the analysis. It pretty much captures what I was thinking when I first brought this to the Council. I did include May in my initial thought process. Where I stand now, I'm 100% in favor of including October in Winter II. I think at this point, for the sake of ease and facilitating things, we take some small steps and possibly just change the Winter II period to include October and forget about May at the moment and see how everything plays out. Just take baby steps. If we can do this through a framework, keep it simple. If it works and everything looks good, maybe revisit it again and try to bring May into the picture.

Greg DiDomenico: Just a brief comment, I'm fully in favor of sticking with what I thought was the original change that I supported a couple of years ago. I think just changing the October date to reflect that it's in the fall is what I can support and what I think has justification, I think it's a good first step. Get this change done quickly without any complications. That's all I can support at this point.

Kirby Rootes-Murdy: Just to clarify on the public hearings point from the Commission, any time we have an addendum, we have to have a public comment period. But it's up to the states to determine if they want to have a public hearing or not. It's at their discretion as to if there would be one. But there would at least be a public comment period where anyone can submit comments to Commission staff.

James Fletcher: We need to increase scup landings. What we're not considering is how it affects tilapia and the market. The Council gave the scup market to the tilapia people. Now we're trying to get it back. Anything that can be done to get it back by increasing the landings of scup, and as much as everybody hates to hear this, lowering the price, so we can compete with tilapia. Let us eat into that market share. So change everything you can to help get more scup on the market.

Mike Plaia: Of the two proposed changes, I think moving October is more important, but I would support both changes.

Marc Hoffman: I support both changes, whatever works for the commercial guys. No problem.

Bob Pride: The October change seems consistent with the Council's intention when the periods were established.

Rob O'Reilly: I support both changes from a state with a very small quota.

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Phone: 302-674-2331 | FAX: 302-674-5399 | www.mafmc.org
Michael P. Luisi, Chairman | G. Warren Elliott, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: December 5, 2016

To: Council

From: Kiley Dancy, Staff

Subject: Summer Flounder Allocation Model Presentation and Peer Review Report

On Tuesday, December 13, the Council and the Atlantic States Marine Fisheries Commission's Summer Flounder, Scup, and Black Sea Bass Board (Board) will receive a presentation on an economic model evaluating the allocation between the recreational and commercial fisheries for summer flounder. The Council contracted this project to inform the development of the ongoing Comprehensive Summer Flounder Amendment, which may consider modifications to the current 60% commercial/40% recreational landings allocation. The model, developed by Dr. Kurt Schnier (University of California, Merced) and Dr. Rob Hicks (College of William & Mary), aims to determine which allocations would maximize marginal benefits to the commercial and recreational sectors, by combining recreational and commercial spatial discrete choice models to simulate behavior under alternative allocations between the sectors.

The Council convened a peer review panel to review this project on Friday, November 18, 2016. The review panel consisted of members of the Council's Scientific and Statistical Committee (SSC), as well as other experts. The peer review agenda, background information, and terms of reference are available at: http://www.mafmc.org/council-events/2016/nov-18-sf-allocation-peer-review-meeting, as well as in the peer review report within this tab.

The following materials are enclosed for Council and Board discussion of this subject:

1) Allocation model report, updated draft (December 2, 2016)
2) Peer review report

Commercial and Recreational Allocation for Summer Flounder

Robert Hicks
Kurt Schnier

December 2, 2016

Draft: For Internal Circulation Only

Executive Summary

This work develops economic models for assessing the economic efficiency from allocation decisions made between the recreational and commercial fishing sectors for summer flounder along the Atlantic Coast of the United States. In this work, we rely on existing datasets to analyze economic welfare changes for commercial and recreational stakeholders having direct engagement fishing for summer flounder. Our work shows that

- The existing 60/40 commercial/recreational allocation is not suboptimal from an economic efficiency perspective
- Minor changes to a 60/40 allocation *in either direction* would most likely not lower the economic benefits received from the fishery

In the work, we note numerous caveats and will not list them again here. But any discussion or use of the results in this report must bear in mind the limitations of the models, the data, and the policy analysis. Even given these caveats, this work provides a useful metric for assessing the economic efficiency of various allocations across the commercial and recreational sectors for directly engaged stakeholders.

Document Roadmap

Chapter 1 provides a broader introduction to this report. To motivate the empirical approaches taken in this report we present a small description of some historical data characterizing the commercial and recreational fisheries in Chapter 2. We develop economic models for the recreational (Chapter 3) and commercial (Chapter 4) sectors. In Chapter 5 we combine the recreational and commercial models for performing the allocation analysis, describe important caveats, and provide recommendations.

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Chapter 1

Introduction

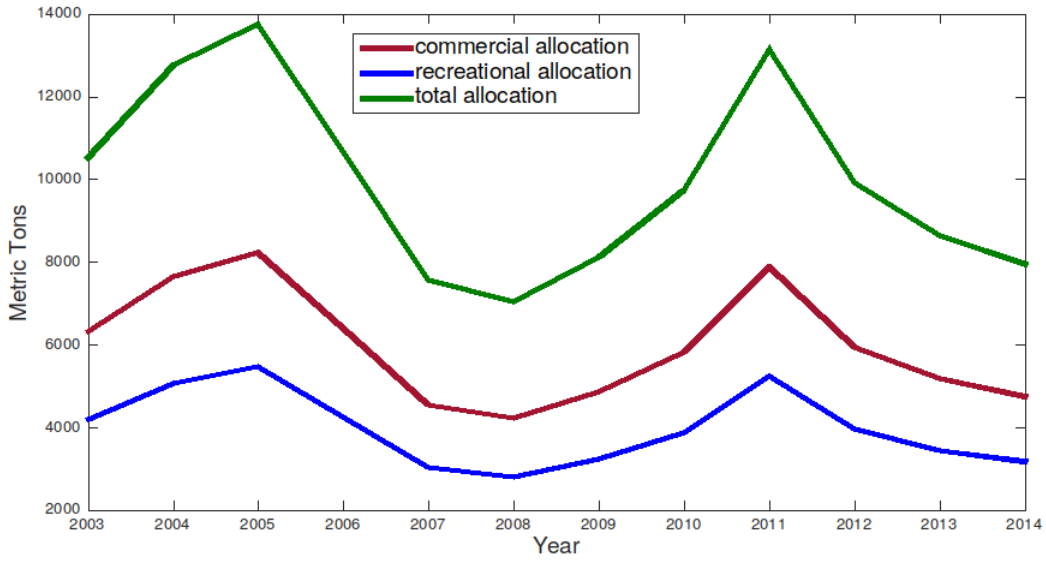
Summer flounder, also know as fluke, is an important commercial and recreational species, and are found in pelagic and demersal waters from the Gulf of Mexico through North Carolina, with larger concentrations in the mid-Atlantic and northwest Atlantic region. They spawn during the Fall and Winter along the continental shelf and they exhibit a strong seasonal inshore-offshore movement. They inhabit shallow coastal waters in the warmer months and then remain offshore during the colder months (MAFMC 2016). This strong seasonality is an important aspect of the commercial fleet, which consists of a winter offshore and a summer inshore fishery. The recreational fishery also responds to this seasonality with most directed summer flounder trips occurring during the warm summer months. The nature of the harvesting also requires management coordination because fishermen operate within both state (less than 3 miles offshore) and federal (3-200 miles offshore) waters.

The commercial and recreational landings for summer flounder were exceptionally high in the late 1970s through the 1980s, peaking at 26,100 metric tons in 1983. During the late 1980s and early 1990s the landings substantially decreased as the stock was overfished and a limited access fishery program was implemented. The first Fishery Management Plan (FMP) for summer flounder was conducted in 1988, shortly after the stock had been declared overfished Terceiro (2012). The management of the stock is conducted jointly by the Mid-Atlantic Fishery Management Council (MAFMC) and the Atlantic States Marine Fisheries Commission (ASMFC). Official policies are established by the National Marine Fisheries Service (NMFS). In 2012 the stock was declared rebuilt. The most recently published stock assessment for summer flounder was conducted in 2013. At that time it was concluded that the summer flounder stock was not overfished and that fishing mortality had decreased since 1997 (57th SAW 2013). However, in 2016

the summer flounder quota was reduced by 29% because of the observed overfishing in 2014 and the below-average recruitment rates observed in the year classes from 2010-2013 (MAFMC 2015). This reduction is part of a larger phase-in policy to reduce the total allowable catch over the coming years (MAFMC 2015). Therefore, the stock dynamics for summer flounder have recently undergone a substantial transition in the perception of overall health.

Under Amendment 2 (ratified in 1992) of the summer flounder FMP, the total allowable catch for summer flounder is divided between the commercial and recreational sectors. Currently, 60% of the total allowable catch is allocated to the commercial sector and 40% is allocated to the recreational sector. All allocations were based on historical catch rates observed between 1980-89. In addition, the commercial landings were further subdivided among the states that landed summer flounder based on their historical landings between 1980-1989 (Terceiro 2012). Sector allocations from 2003-2014 are illustrated in Figure 1.1 and are based on the limits reported on the MAFMC website.

Figure 1.1: Historical Recreational and Commercial Summer Flounder Allocations Plots



1.1 Allocation Analysis

To formulate a recommendation regarding the allocation of summer flounder across the commercial and recreational fishing sectors we will employ the equimarginal principal.

This method solely focuses on the economic impacts of the allocation, however distributional issues and social impacts may also be an important concern for policymakers (Edwards 1990). Given that one's value for summer flounder will depend on the current allocation of summer flounder to their respective sector, we account for this by calculating one's marginal value for a pound of summer flounder conditional on their current sector allocation. By equating marginal values between the commercial and recreational sectors we will be able to determine the sector allocations that maximize the total welfare.

Estimating the marginal value per a pound of summer flounder in the recreational sector utilizes a random utility model of site choice and follows an established literature discussed in Chapter 4. We develop a full model of recreational fishing along the Atlantic Coast and the model allows for mode, target, and species choice.

In order to estimate the marginal value per a pound of summer flounder in the recreation sector we use data from the NOAA Fisheries Office of Science and Technology's Marine Recreational Information Program. This data allows us to use better weighting methodology to improve our valuation models considerably (compared to the Marine Recreational Fisheries Statistics Survey Data). By linking policy changes to changes in expected catch in our model, we are able to develop measures of changes in the economic value of recreational fishing due to policy changes. Our measures are comparable to previous summer flounder studies (Gentner et al. (2010)) and Massey, Newbold and Gentner (2006)) and from our model we are able to develop marginal value estimates for a wide range of allocation possibilities.

Estimating the marginal value per a pound of summer flounder in the commercial sector has been traditionally approached from the consumer demand perspective (Carter et al. 2008; Gentner et al. 2010). However a limitation of this method is that it approaches it from a profit function perspective where harvest rates are a selection variable in a firm's profit maximization problem, whereas the modeling used to estimate recreational demand comes from a random utility model specification. The approach we elect to utilize in our modeling efforts utilizes the same random utility model foundation used in the recreational demand literature and combines it with fishery simulations to estimate the marginal values per a pound of summer flounder.

To estimate marginal value per a pound of summer flounder in the commercial fleet we will use observer data as well as trip level cost data from 2000 through 2014. The observer data contains detailed landings data for a sub-sample of the fleet operating off the east coast of the United States from Maine down to North Carolina. This includes

the vessel's trip-level landings of summer flounder as well as all other species caught. The trip-level cost data contains detailed information on the costs vessels incurred during their fishing trips. These costs include fuel, food, bait, ice and other supply costs associated with the trip. Combining the information garnered from these two data sets we are able to construct expected profits from fishing in a particular location at a particular point in time and construct a fishery simulation to estimate marginal values.

1.2 Document Roadmap

To motivate the empirical approaches taken in this report, we next present a small description of some historical data characterizing the commercial and recreational fisheries. We focus our discussion on the data we will ultimately use for the analysis since numerous fisheries summaries exist elsewhere (e.g. Terceiro (2012))

To perform the allocation analysis, we develop parallel models in the recreation (Chapter 3) and commercial (Chapter 4) sectors. In the recreational chapter, we discuss conceptual issues relating to defining the recreational choice problems, implement these, and present estimation results for a behavioral model of summer recreational flounder fishing. We describe how we use the model results to develop and marginal value schedule for quota allocation changes and discuss caveats. In the commercial chapter, we develop a new way of analyzing the impacts of policies on commercial fishermen. The model uses a similar methodology to Chapter 3, but then uses this methodology to simulate fleet behavior when quota allocation changes. This allows us to measure changes in seasonal profits under various quota allocation levels, from which we derive the marginal value schedule for the commerical fishery.

In conclusion, we perform the allocation analysis, describe important caveats, and provide recommendations in Chapter 5

Chapter 2

Fishery Summaries

2.1 Commercial Fishery Summary

The commercial allocation, annual landings and annual value for summer flounder from 2000 through 2014 are illustrated in Table 2.1. The recent commercial allocations have been decreasing, however the market value has remained relatively stable. In 2014 the commercial landings for summer flounder were 4,941.2 metric tons, which is slight over the commercial allocation of 4,767.3 metric tons. This catch resulted in a value of $32,299,399. Between 2000 and 2014 the commercial allocation has not always been completely executed. This occurred in 2003, 2004, 2007, 2008, 2010 and 2013.

The commercial allocation is divided up among the states that harvest summer flounder. The state allocations are contained in Table 2.2. The states with the largest share of the summer flounder quota are North Carolina, Virginia, New Jersey and Rhode Island. The annual landings by state and year are contained in Table 2.3. The distribution of annual landings by state is similar to the percentages allocated to each state, which implies that no one state systematically executes lower than their percentage allocation.

2.2 Fisheries Data

The primary data set we utilize for our analysis is the fishery observer data. This data set contains detailed spatial production data, however only a small percentage of vessels are contained in the observer data. To investigate the robustness of this data set we will compare it to the vessel trip report (VTR) data that contains a larger percentage of the fleet activity. Because the VTR data does not contain detailed and sequenced spatial

Table 2.1: Annual Landings and Value for Summer Flounder

Year	Commercial Allocation	Metric Tons Landed	Pounds Landed	Value
2000	5,039.9	4,998.3	11,019,193	19,692,892
2001	6,480.4	4,860.6	10,715,630	17,331,869
2002	6,316.4	6,453.5	14,227,332	21,071,477
2003	6,341.2	6,499.2	14,328,181	23,188,120
2004	7,674,8	8,139.8	17,945,026	28,882,286
2005	8,246.3	7,749.1	17.083,575	30,118,259
2006	6,418.3	6,331,9	13,959,339	29,764,388
2007	4.549.5	4,445.5	9,800,522	23,848,565
2008	4,227.5	4,096.1	9,030,351	21,926,159
2009	4,871.6	4,896.6	10,795,138	22,358,627
2010	5,842.3	5,971.1	13,163,869	28,562,911
2011	7,883.4	7,218.0	15,912,725	31,775,642
2012	5,960.2	5,672.2	12,504,943	30,389,195
2013	5,189.1	5,395,3	11,894,588	28,613,558
2014	4,767.3	4,941.2	10,893,454	32,299,399

Table 2.2: State Allocations of Summer Flounder as a Percentage of Total Allocation

State	Percentage SF
ME	0.0476%
NH	0.0005%
MA	6.8205%
RI	15.6830%
CT	2.2571%
NY	7.6470%
NJ	16.7250%
DE	0.0178%
MD	2.0391%
VA	21.3168%
NC	27.4458%

Table 2.3: Annual Landings by Year and State in Metric Tons

Year	ME	MA	RI	CT	NY	NJ	DE	MD	VA	NC
2000	3.1	357.9	772.2	112.2	368.3	838.3	5.6	0.0	1,001.0	1,536.1
2001	10.0	314.8	815.9	112.1	341.0	791.7	3.4	0.0	1,206.4	1,263.2
2002	0.2	457.9	1,037.1	161.8	477.6	1,091.8	1.2	0.0	1,347.3	1,873.0
2003	0.0	419.9	988.0	143.7	486.8	1,081.9	2.5	0.0	1,597.5	1,620.5
2004	0.1	541.0	1,399.1	184.2	723.2	1,192.9	3.4	119.1	1,771.8	2,197.3
2005	1.6	578.1	1,326.9	203.5	815.9	1,065.5	2.5	153.2	1,755.0	1,843.6
2006	0.0	417.5	963.1	143.6	553.3	1,079.5	1.6	112.4	1,250.5	1,806.0
2007	0.0	299.4	687.5	93.0	427.1	769.7	1.0	103.8	841.7	1,211.2
2008	0.0	292.4	668.3	100.1	388.4	698.9	0.6	94.4	750.1	1,091.6
2009	0.0	331.7	813.7	113.7	517.9	815.9	1.3	96.9	898.3	1,296.9
2010	0.0	386.4	1,038.5	139.9	618.5	982.2	0.8	118.6	1,175.8	1,501.9
2011	0.0	513.6	1,281.0	182.1	688.1	1,284.0	0.4	117.7	1,843.7	1,294.6
2012	0.0	404.4	1,092.9	143.1	561.5	1,029.1	0.4	75.0	1,869.8	494.5
2013	0.0	389.8	994.5	128.9	468.7	909.1	0.4	80.7	2,174.6	245.7
2014	0.0	315.7	932.1	115.0	378.1	828.5	0.8	117.4	929.4	1,320.8

behavior information we are unable to utilize it for our analysis. Table 2.4 contains information on the spatial distribution of effort within the VTR and observer data from 2012 through 2014, the last few years of our analysis. For the most part the spatial distribution of effort is similar across both data sets, however there a few sites where the rates of visitation are different.[1]

Table 2.4: Commercial Percentage of Effort by Year and Area

	VTR Data			Observer Data		
area_id	2012	2013	2014	2012	2013	2014
464	0.15	0.11	0.21	0.46	0.04	0.29
465	0.03	0.05	0.05	0.00	0.16	0.00
511	0.01	0.02	0.01	0.00	0.12	0.00
512	0.80	0.99	0.68	0.62	0.37	0.00
513	3.39	5.49	5.30	4.29	3.17	5.59
514	8.03	6.50	5.41	16.75	8.39	13.64
515	2.95	3.57	3.95	5.36	3.64	8.67
521	7.37	9.51	7.76	8.72	9.36	6.12
522	8.55	6.90	6.27	10.74	10.51	7.57
525	2.20	1.80	2.78	2.47	2.27	0.92
526	2.23	3.29	1.71	0.36	1.42	0.77
533	0.00	0.01	0.01	0.01	0.00	0.00
537	9.53	11.02	11.64	9.28	7.61	17.11
538	1.23	1.12	1.47	1.81	1.18	0.00
539	5.32	5.95	4.99	4.09	6.62	5.64
561	2.25	1.97	1.10	2.02	0.94	0.72
562	3.26	2.09	2.31	1.09	1.31	0.53
611	2.29	2.73	2.32	1.26	4.08	1.20
612	4.95	4.60	5.45	4.95	6.54	0.48
613	8.07	7.53	10.02	4.70	7.05	2.22
614	0.92	1.17	0.89	0.19	1.07	0.00
615	7.14	6.23	4.78	0.94	1.76	1.01
616	4.38	4.26	6.55	11.29	9.90	15.18
621	2.30	1.78	2.27	1.67	3.08	0.96
622	3.45	2.53	1.84	3.19	4.57	6.70
623	0.21	0.05	0.15	1.01	0.18	0.29
625	1.22	1.03	0.66	0.00	0.16	0.00
626	0.90	0.71	1.32	1.18	2.65	1.88
627	0.01	0.02	0.03	0.15	0.16	0.00
631	1.40	1.07	0.53	0.07	0.21	0.00
632	0.24	0.23	0.18	0.51	1.13	0.00
635	1.24	1.84	3.46	0.79	0.14	0.77
636	0.06	0.15	0.19	0.03	0.22	1.59
701	0.09	0.33	0.21	0.00	0.00	0.05
702	0.01	0.02	0.01	0.00	0.00	0.10

[1]VTR and Observer site selection by year are highly correlated (.754) for the period 2012-2014.

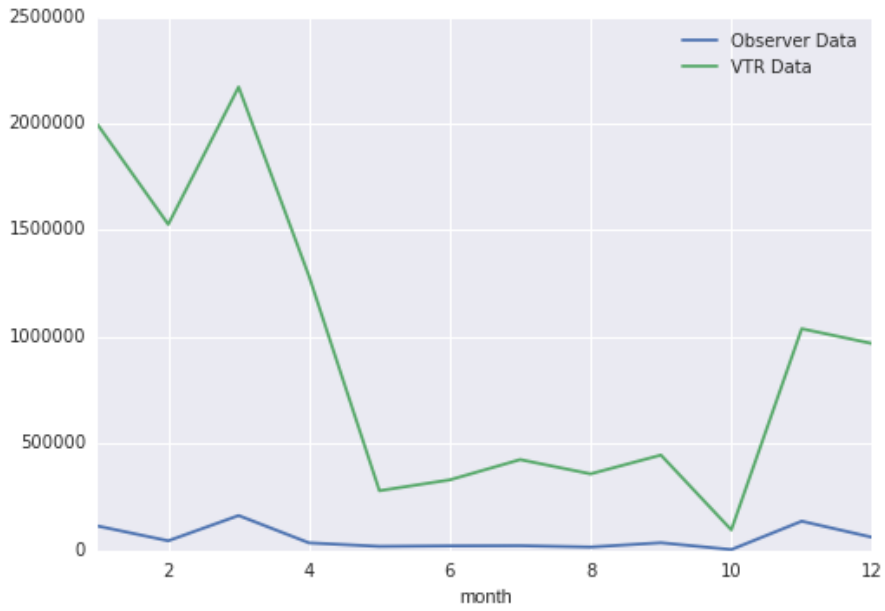
Price information is also an important element of our analysis as we will utilize it to construct expected revenue calculations within the summer flounder fishery. Table 2.1 contains information on the average daily, weekly and monthly price for summer flounder in 2014. The price for summer flounder is lower in the winter months, the time period when much of the summer flounder quota is landed, and higher in the summer months, the time period when landings are lower. Therefore, there does appear to be a correlation between the availability of summer flounder in the market and its ex-vessel price.

Figure 2.1: Summer Flounder Ex-Vessel Price (2014)

The seasonal variation in the catch of summer flounder is observed in Table 2.5 and Figure 2.2. The bulk of the summer flounder allocation is landed between the winter

months of November through March. However, the sites visited differ between November and December and those fished from January through March. The predominate sites visited in November and December are 615, 616 and 621 with increased activity in site 537 in December. Site 537 is a highly fished site in January through March as well as sites 525 and 526. Fishing activity in the summer months is more spread out across the other sites, but little effort is spent fishing in the more highly visited winter sites. This pattern is a result of the seasonal migration patterns for summer flounder. The seasonal fishing patter figure, Figure 2.2, graphical illustrates the fishing patterns. Given that the observer data contains only a fraction of the total harvest observed in the VTR data the patters are not as evident. However, as will be illustrated in the upcoming sections of the report (see Figure 4.3) the seasonal patterns are similar to those observed in the VTR data.

Figure 2.2: Commercial Summer Flounder Catch By Month (2013)



2.3 Recreational Fishery Summary

In this section, we outline the important trends with respect to summer flounder catch, regulation, and participation by recreational anglers. Unless otherwise stated, all summary statistics in this section are obtained from *National Marine Fisheries Service* (2016). The summer flounder fishery is one of the largest and extensive recreational fisheries along the Atlantic Coast of the United States, if not the entire United States. For example, from North Carolina to Rhode Island in 2014 of the approximately 25 million recreation fishing trips 16.13% were primarily targeting summer flounder and 14.13% caught summer flounder.

2.3.1 Regulatory Background

There are three primary management policies set annually for limiting recreational harvest: Bag and Minimum Size Limits; and season limits. Tables 2.6 and 2.7 show the levels set for these management policies for the years 2009 and 2014, respectively.[2] Examining minimum size limits shows there is substantial variation across states. In 2009, Connecticut and New York anglers are required to release more fish (smaller than 21 and 19.5 inches respectively), whereas anglers further south in some states could keep fish as small as 15 inches in 2009 (North Carolina). In comparison, in 2014 there is somewhat more harmonization in Minimum Size Limits with a more stark North/South divide at New Jersey. There is also substantial.

We see similar patters with respect to bag limits. In 2009 there was more heterogeneity than in 2014, with a similar North/South delineation around New Jersey, except that the from New Jersey northwards (excluding Massachussetts), anglers were allowed to retain more summer flounder. We also see that seasons are more restricted in the Northern Regions of the study area, in particular in New York, New Jersey, and Connecticut.

What variation we do see in the policies are dependent on seasonal trends with respect to harvest (a function of both biological factors and angler decisions), and as we will see shortly the majority of recreational harvest occurring in New Jersey and New York. The net effect of the three policies enacted by managers is an annual harvest in the recreational sector, that is estimated because not every recreational trip is observed

[2]These data are supplied by the Mid-Atlantic Fisheries Management Council, data for years 2009-2014 are available from the authors.

landing at the dock. The policies outlined in Table 2.7 lead to the mean total summer flounder harvest of 7,398,558 pounds as reported in Table 2.8[3]

2.3.2 Historical Recreational Trends

The mean estimated catch, harvest, and pounds harvested are reported in Table 2.8.[4] Notice that catch has been declining while harvest and harvested pounds has been mostly increasing (from 2009-2014).

Catch Trends

Table 5.1 contains the detailed catch data by state and year that fleshes out the trends we saw in Table 2.8.[5] What stands out is the catch amounts from New York and New Jersey making these states a really important focus for management. This table also shows the percentage standard errors (% SE), which demonstrates the sizable amount of uncertainty associated with the state-level totals.

To visualize what has been happening with respect to catch, we have Figures 2.3a and 2.3b showing the declining catch trends by year (for New York and New Jersey) and mostly declining trends (for other states). With the exception of Connecticut and North Carolina, nearly every state is exhibiting declining total catch per year.

[3]It is also highly likely that polices with respect to other recreational species also impact summer flounder harvest, but for the purposes of this study we ignore this.

[4]It is important to note that the point estimates presented in this table are point estimates that have associated uncertainties associated with them. For example, total catch in 2014 has a +- error of 7.3%.

[5]By catch, we mean any fish caught whether harvested or released, comprised of what NMFS calls `A+B1+B2`.

Table 2.5: Commercial Summer Flounder Catch By Area and Month (Observer Data)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
514	0.0	0.0	0.0	0.0	5.9	2.0	0.0	0.0	0.0	0.0	0.0	0.0
522	0.0	0.0	0.0	19.8	100.5	154.0	1012.0	76.0	0.0	95.0	0.0	0.0
525	24113.0	473.0	0.0	6441.2	162.0	502.9	0.0	0.0	0.0	0.0	0.0	0.0
526	40668.0	3545.0	16494.0	306.0	88.0	0.0	0.0	0.0	0.0	0.0	0.0	30.0
537	9015.0	19771.0	100426.4	15676.5	768.0	621.5	281.2	50.0	30.0	0.0	911.1	39775.9
538	0.0	0.0	0.0	4.1	45.1	132.0	504.0	0.0	0.0	0.0	0.0	0.0
539	1740.0	541.0	454.0	4711.9	813.5	1779.9	1390.7	804.0	658.0	268.0	4084.5	1568.2
561	0.0	0.0	0.0	0.0	0.0	43.0	0.0	0.0	0.0	0.0	0.0	0.0
562	322.0	0.0	0.0	0.0	14.4	0.0	0.0	0.0	0.0	0.0	0.0	10.0
611	0.0	0.0	0.0	735.9	1981.9	3180.2	2800.9	50.0	410.0	484.0	503.2	0.0
612	80.0	54.0	24.0	258.5	8686.1	8506.9	10202.5	6854.8	28120.2	481.0	18532.7	50.0
613	21814.0	9948.0	3960.0	204.3	2620.0	1210.5	986.1	1907.4	397.0	187.3	10574.6	311.0
614	0.0	0.0	0.0	0.0	0.0	3076.0	2871.9	3378.3	3987.0	0.0	6.3	0.0
615	129.0	100.0	772.0	0.0	173.1	75.0	0.0	667.0	110.0	0.0	30506.4	355.0
616	14079.5	4396.5	26449.4	4756.8	1512.1	0.0	0.0	0.0	0.0	0.0	44707.1	17384.0
621	0.0	15.0	0.0	0.0	0.0	69.0	94.3	40.0	282.0	130.9	21015.5	184.0
622	199.0	3472.4	12814.5	293.0	0.0	0.0	0.0	0.0	0.0	0.0	41.6	0.0
623	69.0	726.0	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
625	0.0	0.0	0.0	0.0	0.0	0.0	77.0	0.0	0.0	0.0	1370.0	0.0
626	0.0	0.0	231.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1765.0	0.0
627	0.0	134.3	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1000.0	0.0
631	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	290.0	0.0	0.0

Table 2.6: Summer Flounder Recreational Regulations by State 2009

State	Minimum Size (inches)	Possession Limit	Open Season
Massachusetts	18.5	5 fish	July 1 – Aug. 13
Rhode Island	21.0	6 fish	June 17 – Dec. 31
Connecticut	19.5	3 fish	June 15 – Aug. 19
New York	21.0	2 fish	May 15 - June 15 and July 3-Aug. 17
New Jersey	18.0	6 fish	May 23 – Sept. 4
Delaware	18.5	4 fish	All Year
Maryland: **Atlantic & Coastal Bays** **Chesapeake Bay**	 18.0 16.5	 3 fish 1 fish	April 15 - Sept. 13
Potomac River Fisheries Commission	16.5	1 fish	April 15-Sept. 13
Virginia	19.0	5 fish	All year
North Carolina	15.0 in all waters except the following: 14.0 in Pamlico Sound[D], Albemarle Sound[E], and Browns Inlet South[F] (lat/log are listed below)	8 fish	All Year

A. **PAMLICO SOUND** - No person may possess flounder less than 14 inches total length taken from internal waters for recreational purposes **west of a line** beginning at a point on Point of Marsh in Carteret County at 35° 04.6166'N – 76° 27.8000'W, then running northeasterly to a point at Bluff Point in Hyde County at 35° 19.7000'N – 76° 09.8500'W. In Core and Clubfoot creeks, the Highway 101 Bridge constitutes the boundary north of which flounder must be at least 14 inches total length.

B. **ALBEMARLE SOUND** - No person may possess flounder less than 14 inches total length taken from internal waters for recreational purposes **west of a line** beginning at a point 35° 57.3950'N – 76° 00.8166'W on Long Shoal Point; running easterly to a point 35° 56.7316'N – 75° 59.3000' W near Marker "5" in Alligator River; running northeasterly along the Intracoastal Waterway to a point 36° 09.3033'N - 75° 53.4916'W near Marker "171" at the mouth of North River; running northwesterly to a point 36° 09.9093'N – 75° 54.6601'W on Camden Point.

C. **BROWNS INLET-SOUTH** – No person may possess flounder less than 14 inches total length in internal and Atlantic Ocean fishing waters for recreational purposes **west and south of a line** beginning at a point 34° 37.0000'N – 77° 15.000'W; running southeasterly to a point 34° 32.0000'N – 77° 10.0000'W.

Table 2.7: Recreational Regulations by State 2014

Region	State	Minimum Size (inches)	Possession Limit	Open Season
1	**Massachusetts**	16	5 fish	May 22-September 30
2	**Rhode Island**	18	8 fish	May 1-December 31
3	**Connecticut**	18	5 fish	May 17- September 21
		16 (at 45 designated shore sites)		
	New York	18	5 fish	May 17- September 21
	New Jersey	18	5 fish	May 23- September 27
		16 (1 pilot shore site)	2 fish	May 23-September 27
4	**Delaware**	16	4 fish	January 1- December 31
	Maryland	16	4 fish	January 1- December 31
	PRFC	16	4 fish	January 1- December 31
	Virginia	16	4 fish	January 1- December 31
5	**North Carolina**	15	6 fish	January 1- December 31

Table 2.8: Total Recreational Catch, Harvest, and Pounds Landed (2010-2014)

Year	Catch	Harvest	Pounds
2010	23,721,520	1,501,465	5,108,357
2011	21,558,699	1,839,877	5,955,716
2012	16,528,040	2,272,135	6,489,675
2013	16,151,332	2,534,355	7,386,644
2014	19,455,661	2,459,205	7,398,558
2015	12,485,456	1,676,794	4,870,174

(a) New York and New Jersey

(b) Other Atlantic States

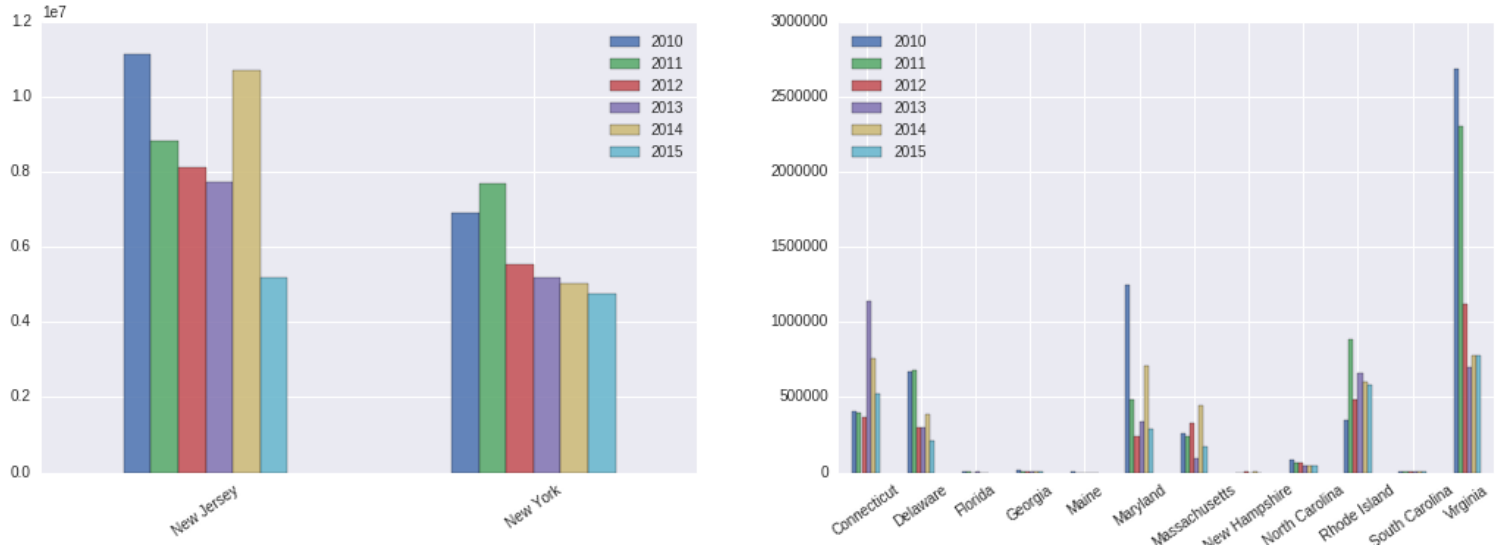


Figure 2.3: Total Recreational Catch (2010-2014)

Harvest Trends

State level harvest for years 2010-2015 are reported in Table 5.2 and the data can be visualized in Figure 2.4a for New York and New Jersey and 2.4b for other Atlantic States. [6]

Despite seeing catch falling in nearly every state during the period 2010-2015, we see harvest increasing substantially in New Jersey (except for a really steep decline in 2015) and generally upward trends in nearly every state except North Carolina and Virginia. Examining regulatory changes in New Jersey from 2014 to 2015 reveal no real change in management with bag limits stable at 5, size limits unchanged at 18 inches, and season length virtually unchanged. We also see stable regulations for Virginia and North Carolina. We see a fairly large drop in trips to New Jersey and in Virginia from 2014 to 2015.

[6] Harvest is fish landed and is comprised of what NMFS calls `A+B1`, which is observed and reported harvest.

(a) New York and New Jersey

(b) Other Atlantic States

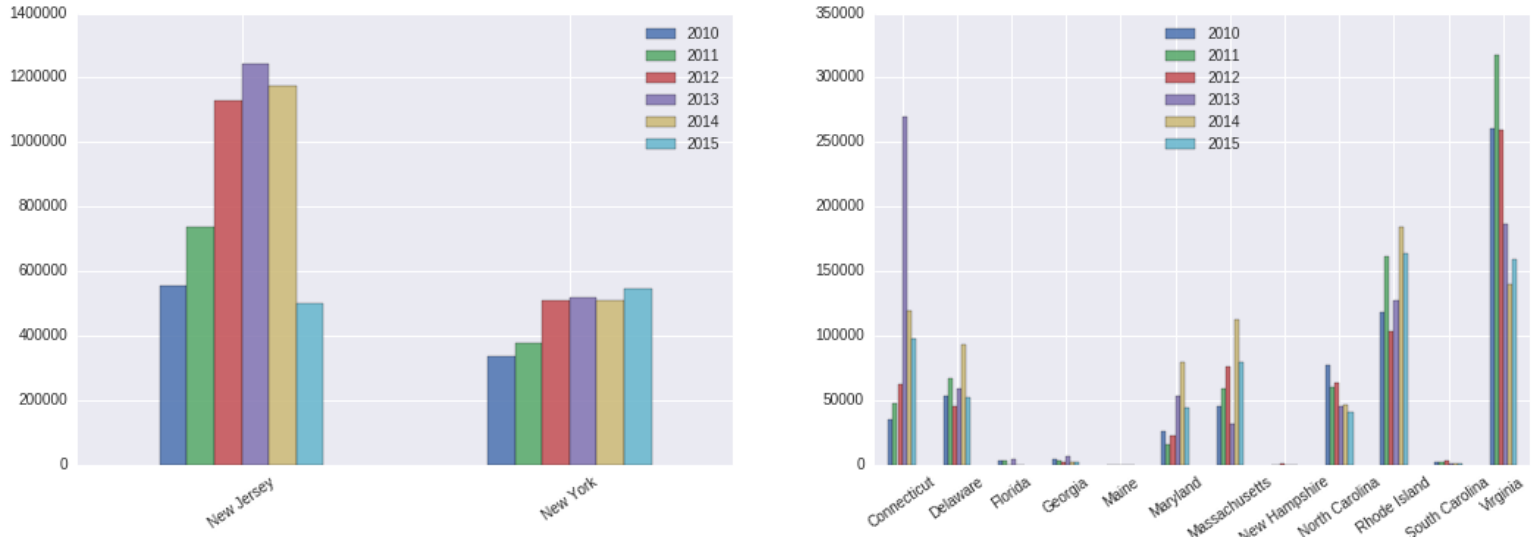
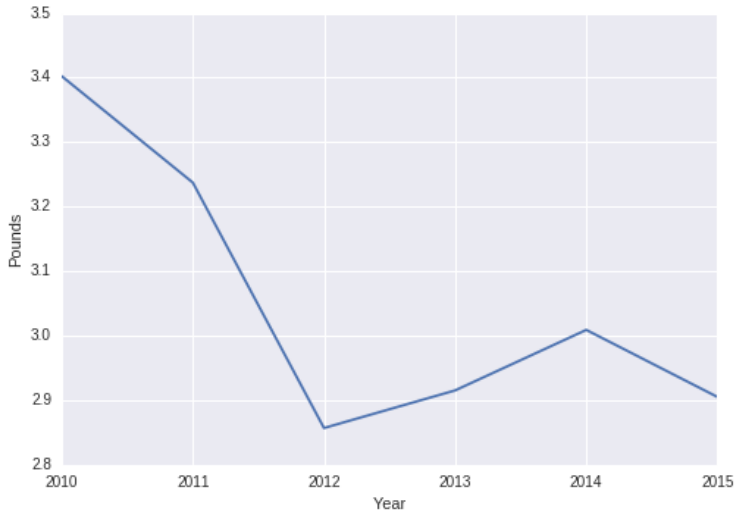


Figure 2.4: Total Recreational Harvest (2010-2014)

We see very similar trends in harvested weight in Figure 5.2. Averaging across states for a given year, the weight of the average fish harvested[7]. Figure 2.5 shows the average weight of summer flounder caught per year taken across all summer flounder catches, states, and wave. This average is influenced by biological factors (annual recruitment patters and the spatial distribution of fish), regulation (more stringent size limits will lower catch but increase the average size of this fish), and the spatial distribution of fishing (trips taken to states with lower size limits will tend to lower the average weight.).

Figure 2.5: Average Recreational Weight per Fish Landed by Year



[7]This number is absolutely a function of recreational regulations and should not be confused with the average summer flounder size.

2.3.3 Study Year: 2014

The recreation demand model in the next chapter uses data from year 2014, consequently, we focus on the 2014 data more here. Table 2.9. New Jersey alone accounts for 47.80% of harvest and 48.78% of the pounds landed in the recreational fishery in 2014. New York and New Jerset combined account for 68.5% of harvest and 71.46% of pounds landed. The next largest states are Rhode Island, Connecticut, and Virginia (the ranking depend on if you examine numbers of fish caught or pounds landed).[8]

In Table 2.10, we see that the states of North Carolina and New Jersey have the largest number of trips (accounting for approximately 40% of the trips in our study area), followed by New York and Massachussetts. Within states, we see that a very high percentage of trips are directly targeting summer flounder in New York and New Jersey (28.53% and 36.86%, respectively), and in every state in the study area (except Massachussetts, Maryland, and North Carolina), summer flounder are targeted by more than 10% of trips.

In Table 2.10, we see similar patters with respect to trips harvesting summer flounder. In New Jersey, nearly one third of trips come back with summer flounder. For many other states (except Massachussetts, Maryland, and North Carolina), more than 10% of trips land summer flounder.

2.3.4 Catch Compositions

In other work not included here for the sake of brevity, we have examined catch compositions by state for

1. trips targeting summer flounder (`prim1`), in order to ascertain what other species are commonly caught with summer flounder on "summer flounder" trips by state.

2. trips not actively targeting summer flounder, but that caught summer flounder, in order to ascertain what other species are commonly targeted on trips that have non-targeted catch summer flounder.

We find that summer flounder is such a dominant species in recreational fishing and that it is quite common to find small game (e.g., striped bass and bluefish) and

[8]This table omits the states of Maine, New Hampshire, South Carolina, Georgia, and Florida since they are dropped from the analysis due to the relatively small amounts of summer flounder activity relative to the core study area.

bottom fish (e.g. sea basses and blackdrum) catch when summer flounder is targeted. Furthermore, it is common for targeters of small game and bottom fish to catch summer flounder. What wasn't common was mixes of summer flounder with big-game fish such as tuna or marlin.

Table 2.9: Total Recreational Summer Flounder Harvest and Harvested Weight 2014

State	Harvest	% SE	Weight (lbs)	% SE
Connecticut	119502	21.1	391168	20.1
Delaware	93029	15.8	227913	16.5
Maryland	79513	56.1	179313	56.0
Massachusetts	112840	41.1	238604	36.0
New Jersey	1175383	11.7	3608939	12.1
New York	509131	14.7	1677717	16.1
North Carolina	45708	20.2	67791	22.1
Rhode Island	184668	22.5	636207	22.7
Virginia	139431	15.3	370906	17.0

Table 2.10: Recreational Trips by State 2014

	Total		SF Directed		SF Harvested	
State	Trips	% SE	Trips	% SE	Trips	% SE
Connecticut	1364928	10.9	208154	20.8	188305	16.4
Delaware	867379	10.3	182728	10.0	128873	10.1
Maryland	2472802	6.8	219234	22.7	184802	22.8
Massachusetts	3397199	6.9	66630	29.3	78065	31.0
New Jersey	4868080	6.6	1794480	9.7	1513879	10.6
New York	3955151	7.1	1128222	9.7	1019136	9.9
North Carolina	4954073	5.3	884	59.0	41738	17.4
Rhode Island	1099260	10.3	147442	16.3	121575	14.3
Virginia	2182392	8.3	310947	9.2	278128	11.6

Chapter 3

Recreational Model

Our work follows closely follows previous work in the valuation of marine recreational fishing using recreational fishing data from the National Marine Fisheries Service. Unlike many previous studies using the Marine Recreational Fishing Statistics Survey (Bockstael, McConnell and Strand (1989), McConnell and Strand (1994), McConnell, Strand and Blake-Hedges (1995), McConnell, Strand and Blake-Hedges (1995), Hicks et al. (1999), Haab, Whitehead and McConnell (2001), and Haab et al. (2008)), our work follows uses the new Marine Recreational Information Program (MRIP). This data continues to support recreational valuation models like those estimated using MRFSS data, but includes more refined survey methodology enabling for better estimation accounting for on-site sampling (see Lovell and Carter (2014), Hindsley, Landry and Gentner (2011), and Gentner et al. (2010)) and uses the Marine Recreational Information Program survey data (hereafter MRIP). Taken together, the recreational valuation model presented here

- Accounts for on-site sampling and weights the statistical model appropriately
- Constructs a full choice structure of recreational fishing
  - Anglers not observed targeting Summer Flounder may still receive economic value from an allocation change
  - Anglers observed targeting Summer Flounder have many other species substitutes for targeting
- Estimates the WTP for summer flounder angling consistent with values observed in the literature (e.g. Massey, Newbold and Gentner (2006) and Gentner et al. (2010))

- Allows for the simulation of behavior and angler willingness to pay under different quota allocations.

3.1 The Choice Structure

It is important to note that our model considers choices *ex ante*, that is before any targeting or location decisions are made. This allows our model to capture angler choices over the full range of species they might catch. This feature of our model is important as summary data suggests that even those not directly targeting summer flounder may catch summer flounder and therefore, we develop a model that allows expected trip values to be influenced by a broad range of species.

Consistent with prior work in recreational fishing valuation (e.g. McConnell and Strand (1994), Gentner et al. (2010), and Hicks et al. (1999)) we model the choice of mode [shore, private/rental, party/charter], species group [small game, bottom fish, summer flounder][1], and fishing site (at the county level). Furthermore, we calculate site-specific quality measures (e.g. mean catch) per wave. Taken as a whole, the entire choice structure consists of **80 x 3 x 3 = 720** potential choice alternatives per observed trip in the data.

3.1.1 Species Groupings

To implement the choice structure, we had to make some aggregations over species. As shown by Haab et al. (2008), it isn't possible to include species-specific choice nodes for every (or even many) species, because for each choice node we must calculate expected catch for each site and wave. This places high data requirements and to overcome this problem, past studies (e.g. McConnell and Strand (1994) and Hicks et al. (1999)) have aggregated over many species for which there is insufficient data.

We employ the McConnell and Strand (1994) aggregation scheme shown in Figure 3.1, with two notable exceptions.[2].

1. Because we have (a) a policy interest in summer flounder and (b) summer flounder

[1]Other species groups such as big game, other flat-fish, non-specific targets are ommitted from our analysis based on our analysis of catch profiles for recreational trips involving summer flounder.

[2]The reader may notice some species listed which are rarely, if ever, caught in the study area. This is because McConnell and Strand (1994) examined the entire Atlantic seaboard as well as the panhandle of Florida. However, their species group assignment is valid for the study area as it embodies both biological characteristics and recreational fishing experience when categorizing species.

is one of the most targeted and caught species in the United States, we break Summer Flounder out of the Flat Fish group

2. After breaking summer flounder out of the flat fish group, we don't have enough data to include an "other flatfish" category, so all other flatfish are dropped for our analysis.

3. When conducting our species composition analysis, we found that there was virtually no overlap between McConnell and Strand's "Big Game" category and summer flounder, so it is dropped from the analysis.

Table 3.1: The McConnell Strand Species Groupings Employed in this Study

Small Game		
Striped Bass	Bluefish	Jack
Pompano	Seatrout	Bonefish
Bonito	Snook	Red Drum
Barracuda	Mackerel	
Bottom Fish		
Sandbar Shark	Dogfish Shark	Cat Shark
Sand Tiger Shark	Smooth Dog Shark	Carp
Catfish	Toadfish	Cod/Codfish
Pollack	Hake	Sea Robin
Sea Bass	Sawfish	Grunt
Kingfish	Mullett	Tautog
Butterfish	Nurse Shark	Brown Cat Shark
Porgy/Scup	Sheepshead	Pinfish
Snapper	Grouper	Perch
Black Drum		
Flat Fish		
Summer Flounder	Winter Flounder	Southern Flounder
Sole	Founders	
Big Game		
Blue Shark	Tuna	Marlin
Thresher Shark	Great Hammerhead	Swordfish
Shortfin Mako Shark	Tiger Shark	White Shark
Smooth Hammerhead	Scalloped Hammer	Tarpon
Billfish	Sailfish	Dolphin
Cobia	Wahoo	
Other Fish		
Herring	Eel	Skate
Puffer	Blacktip Shark	Requiem Shark
Dusky Shark	Atlantic Sharpnose	Bull Shark
Smalltail Shark		

3.1.2 Limiting the Choice Set Based on Distance

From the MRIP survey we have approximately 30,000 trips (in NC-MA in 2014) $\times$ 720 choice alternatives.[3] Past studies (e.g. McConnell and Strand (1994) and Hicks et al. (1999)) have limited the choice structure by only modeling single-day trips where the one way travel distance is less than 150 miles from the recreator's home. We use the NOAA Fisheries S&T distance files (these files calculate the distance from each intercepted angler's home to every coastal county within 150 miles), and therefore, we continue with past practices for limiting the choice structure to those sites within 150 miles of the respondents home. This necessarily eliminates all persons in the MRIP sample living far away (>150 miles) from their chosen site. Practically speaking, this reduces the size of the choice set from 720 to approximately 220 choices per individual in the intercept survey.

It is important to note that there are *very good* behavioral reasons for reducing the choice set in this way. Individuals on single-day angler trips are making decisions in a way consistent with our theoretical model. Multiple day trips (e.g. an angler from NC going to Maine who takes a marine fishing trip) are probably engaging in a plethora of other activities and this makes the link between travel cost and resource we are valuing tenuous at best.

3.1.3 Summary Statistics Weighting

This study uses the MRIP data, which has information enabling proper weighting for summary statistics (e.g. mean catch of summer county per wave). Since strata are potentially over or under sampled in MRIPS, we use the supplied sample weights for calculating **any** summary statistic (e.g. average per site catch for summer flounder) in this study unless noted otherwise.[4]

3.1.4 Opportunity Cost of Time and the Price of the Trip

In the valuation of recreational resources, we need to link a non-market resource like trip quality (which for our case is catch) to a trade-off made by recreators. This study makes this link using the travel cost method. The choice set describes the trip quality along

[3] When we estimate the model, this would equate to 21.6 million rows of data

[4] We use the R Survey package for all summary statistics weighting in this chapter Lumley et al. (2004).

the coast and we construct the price of the trip as travel cost to each site s for individual i based on distance as follows:

$$tc_{is} = \$0.56 \times dist_{is}$$

where \$.56 is the federal reimbursable rate for 2014 per mile. In this study we don't have access to an economic add-on information for discerning what the literature terms "opportunity cost of time" (McConnell and Strand, 1981). Past studies using MRFSS data such as McConnell and Strand (1994) and Hicks et al. (1999) employed data for which there was a complementary economic add-on for discerning if the individual took time off work, without pay as a signal for whether the time spent traveling or on-site had costs to the individual by way of foregone wages. Gentner et al. (2010) also don't have an available economic add-on an estimate a model like ours and estimates one similar to ours and one that approximates the "opportunity cost of time" using Census data. In our work we don't attempt the approximation and agree with Gentner et al. (2010) that our model presents a lower-bound estimate. It is important to note that Gentner et al. (2010) contend that their approximation method is an upper bound to the true willingness to pay value.

3.2 Random Utility Model of Recreational Site Choice

We assume an individual will choose species group g, mode n, and site s by comparing the alternative specific utilities if it is the best one:

$$U(g,n,s) + \epsilon_{g,n,s} > U(i,j,k) + \epsilon_{i,j,k} \forall i \in G, j \in M, k \in S$$

where all species groups are denoted by G, all modes M, and all sites S.

In this study we need to be able to alter landings (keep) of SF. So we calculate mean landings and release rates (numbers of fish) for each mode and site for summer flounder.

Ignoring subscripts indexing individuals, we have for summer flounder the utility at each site k and mode j:

$$\begin{aligned} U(SF,j,k) = & \beta_{tc} TC_k + \beta_{lnm,k} log(M_k) \\ & + \beta_{SH}(mode_j == SHORE) \\ & + \beta_{PR}(mode_j == PRIVATE/RENTAL) \\ & + \beta_{SF,K}\sqrt{Keep_{SF,j,k}} + \beta_{SF,R}\sqrt{Release_{SF,j,k}} \end{aligned} \tag{3.1}$$

For the other two species, we have similar specifications. For example, for bottom fish the utility at each site k and mode j:

$$\begin{aligned} U(BT,j,k) =& \beta_{tc} TC_k + \beta_{lnm,k} log(M_k) \\ &+ \beta_{SH}(mode_j == SHORE) \\ &+ \beta_{PR}(mode_j == PRIVATE/RENTAL) \\ &+ \beta_{BT}\sqrt{Catch_{BT,j,k}} \end{aligned} \tag{3.2}$$

Following normal conventions on assumptions about site, mode, and species specific errors (ϵ), we can model the probability that an individual chooses g (species), m (mode), and s (site) as

$$P(d^i_{g,m,s}|\beta, \mathbf{X}) = \frac{e^{U(g,m,s)}}{\sum_{l\in G}\sum_{m\in M}\sum_{k\in S} e^{U(l,j,k)}}$$

Using likelihood contributions like this for each individual, we define the log-likelihood function using the Weighted Exogenous Sample Maximum Likelihood Estimation (WESMLE) approach that accounts for on-site sampling (see Lovell and Carter (2014) and Manski and Lerman (1977)),[5]

$$LL(\mathbf{d}|\beta, \mathbf{X}) = \sum_{i\in N}\sum_{g\in G}\sum_{m\in M}\sum_{s\in S}\frac{Q_s}{H_s} d_{igms} logP(d^i_{g,m,s}|\beta, \mathbf{X})$$

where the weight ($\frac{Q_k}{H_k}$) is comprised of

$$Q_k = \frac{T_k}{T}, H_k = \frac{s_k}{S}$$

and where d_{igms} is equal 1 if individual i chooses alternative $[g, m, s]$ and T_k are total (population) trips taken to site k, T are total trips (across all sites), s_k are sampled trips from site k and S is the survey sample size.[6].

3.3 Estimation Methods

We experimented with using classical maximum likelihood techniques for estimating the model but due to the size of the dataset, we resorted to using Bayesian Sampling

[5]We didn't attempt a nested estimation of this model.

[6]Using Monte-Carlo techniques generating toy data consistent with the MRIP data collection method (where sites are over and under sampled), we found the WESMLE to out-perform the choice-based sampling weight approach outlined in Haab and McConnell (2002)). These results are unreported but available from the authors.

techniques for recovering the posterior distribution of our parameters by constructing Monte Carlo Markov Chains. From Bayes Rule, we have the posterior of our parameters ($P(\beta|\mathbf{d}, \mathbf{X})$) is

$$P(\beta|\mathbf{d}, \mathbf{X}) \propto P(\mathbf{d}|\beta, \mathbf{X})P(\beta|\beta^0)$$

where $P(\mathbf{d}|\beta, \mathbf{X})$ is the likelihood function where $P(\beta|\beta^0)$ are our priors on the model parameters. In this work we assume flat priors (any real numbered parameter vector is equally likely, making our posterior

$$P(\beta|d^i_{g,m,s}, \mathbf{X}) \propto P(\mathbf{d}|\beta, \mathbf{X})$$

consequently, when we use sampling techniques to sample from the posterior distribution of parameters, we are sampling exactly from the distribution of parameters that maximizes the likelihood. When constructing our markov chain, we used the weights employed by WESMLE to account for on-site sampling. Sampling from the posterior in this way allows us to construct the distribution of our parameter estimates directly and all inference (e.g. parameter estimates and standard errors) are self weighting.

We implemented this approach in Python using the `pymc3` package (Salvatier, Wiecki and Fonnesbeck, 2016) employing the "No U-turn Sampler" (Hoffman and Gelman, 2014). This package is capable of very fast sampling when likelihood functions are computationally expensive.

3.4 Results

Summaries of the posterior distribution of the parameters are reported in Table 3.2.[7] Note that our Monte Carlo Markov Chain is comprised of 1000 samples (after burn-in) from the posterior distribution of the parameters. We summarize these samples in this table. We report the mean, the standard deviation (analogous to standard errors), and various percentiles. Looking at the parameters, we can see that the the 99% confidence intervals never overlap zero. For example, for travel cost (β_{tc}), the 99% confidence interval is [-.101449,-.096878]. P-values (not shown) for each of these variables shows these are all significant at the 5% (and 1%) levels. We also see that the dummy variables on mode (normalizing on party charter) are positive and roughly equal. This indicates that anglers are more likely to choose something besides party/charter trips.

[7]Recall that in our specification, catch rates (and keep rates for summer flounder) enter in square root form.

All of the parameters are also of the expected sign. The travel cost coefficient is negative, the aggregation term (β_{lnm}) correcting for the number of sites in each county is positive. All of the catch coefficients for each of our species/species groups are also positive. Note that in relative terms, the bottom fish has the smallest mean estimate, whereas summer flounder is the highest (landed). Summer flounder landed ($\beta_{sf,land}$) is significantly higher than summer flounder caught and released ($\beta_{sf,rel}$). This indicates that while anglers might enjoy catching summer flounder and releasing them, they are much happier keeping landed summer flounder.[8]

Figure 3.1 summarizes our results visually for five separate Monte Carlo Markov Chains (we construct 5 so we can test that the chains have converged, which they have based on the Geweke (Geweke, 2005) and Gellman-Rubin tests (Gelman et al., 2014)). In the left pane we see for each parameter the marginal distribution. These can be viewed like a histogram. For example, the probability mass for β_{tc} is centered around -.9995 and the bulk of the samples are in the approximate range [-.102,-.0975]. In the right hand pane we have the trace plot for the Markov Chain sampling process where the x axis is the sample number. Notice these "flat-line" trace plots show that the sampler is moving around the posterior space near the model parameters that maximize the likelihood function and visually confirm convergence.

3.5 Welfare Estimation

The standard welfare calculation (defined as compensating variation (CV)) for a change in policy affecting site-specific variables from $\mathbf{x}^0$ to $\mathbf{x}^1$ for individual i is defined as:

$$CV(\mathbf{x}_i^0 \rightarrow \mathbf{x}_i^1) = \frac{log\left(\sum_{i \in S} e^{\mathbf{x}_i^0 \beta}\right) - log\left(\sum_{i \in S} e^{\mathbf{x}_i^1 \beta}\right)}{\beta_{tc}} \tag{3.3}$$

This gives us the mean compensating variation *per trip*.[9]

3.5.1 Modeling Policy Changes

For our purposes, all $\mathbf{x}_i$'s will remain as observed in the data from year 2014, except for landings and released historical catch averages for summer flounder. Note that by

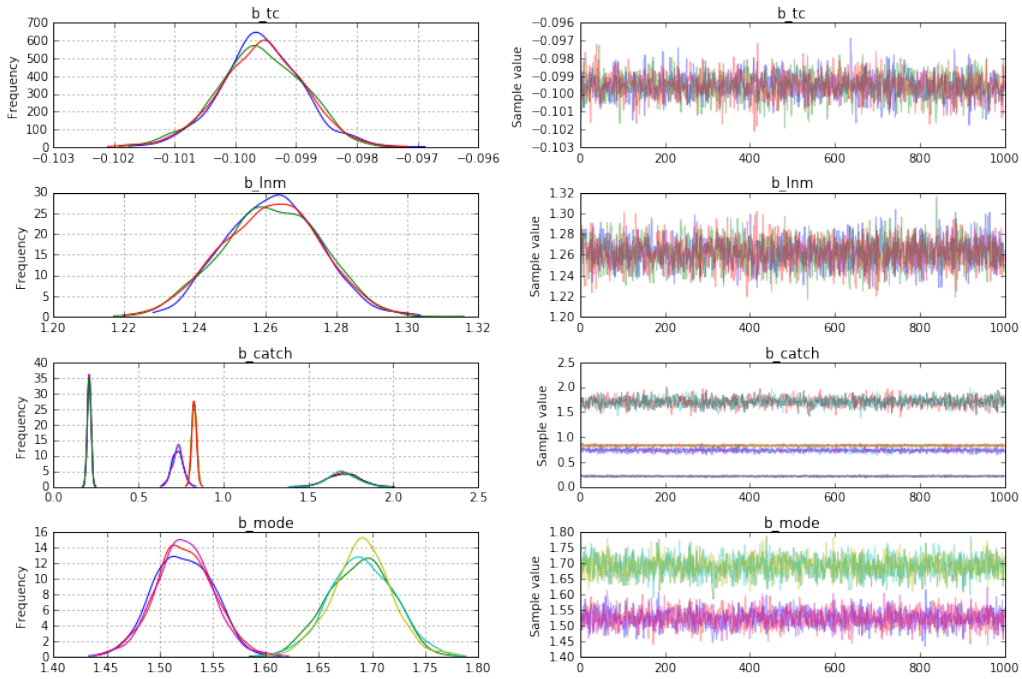
[8]It bears mentioning again that all of the catch rate variables included in the model are calculated from *sample weighted* MRIPS data that accounts for the problems with on-site sampling.

[9]Recall that since there is no economic add-on in 2014, the results presented in this section are lower bound estimates.

Table 3.2: Recreational Random Utility Model Estimates

	β_{tc}	β_{lnm}	b_{bt}	β_{sg}	$\beta_{sf,land}$	$b_{sf,rel}$	β_{pr}	β_{sh}
Mean	-0.099572	1.261703	0.210776	0.828308	1.704043	0.730967	1.522743	1.690098
Std Dev	0.000687	0.013695	0.010831	0.014509	0.087752	0.032410	0.027029	0.029306
min	-0.102108	1.216995	0.169941	0.777885	1.384343	0.628437	1.433269	1.584659
0.5%	-0.101449	1.227577	0.184025	0.789383	1.471976	0.647675	1.454465	1.614740
2.5%	-0.100980	1.235180	0.189104	0.799830	1.531269	0.665325	1.469813	1.631867
5%	-0.100733	1.238977	0.192635	0.804790	1.561199	0.677568	1.479011	1.640069
50%	-0.099575	1.261834	0.210678	0.828181	1.702743	0.731825	1.522283	1.690711
95%	-0.098457	1.284005	0.228427	0.852046	1.850422	0.784601	1.566065	1.736475
97.5%	-0.098255	1.287781	0.231412	0.856292	1.877102	0.796230	1.574819	1.747441
99.5%	-0.097822	1.296705	0.238011	0.865643	1.932048	0.815577	1.593135	1.765785
max	-0.096878	1.315996	0.250116	0.877409	2.004679	0.841560	1.621508	1.788339

Figure 3.1: Recreational Random Utility Model Posterior Distribution Plots



assumption the allocation policy

- Does not alter expected total catch (combined keep and release)[10]
- Does alter the distribution of expected total catch between keep and release categories.

Pre-policy expected Keep and Release rates for summer flounder at site s, mode m is $Keep^0_{SF,s,m}$ and $Release^0_{SF,s,m}$. Following the policy change (for example giving the fraction Δ more Keep to recreational anglers) Keep and Release change to

$$Keep^1_{SF,s,m} = Keep^0_{SF,s,m} \times (1 + \Delta) \tag{3.4}$$

$$Release^1_{SF,s,m} = Release^0_{SF,s,m} - \Delta \times Keep^0_{SF,j,k} \tag{3.5}$$

Note that: $Keep^1_{SF,s,m} + Release^1_{SF,s,m} = Keep^0_{SF,s,m} + Release^0_{SF,s,m}$.

To make this more concrete, consider summer flounder landings and release averages in the Table 3.3, before (denoted as Policy 0) and after (Policy 1) a 10% increase

[10]This analysis doesn't consider cases where total recreational and commercial TAC *and* allocations are changed. Consequently, we can think of the Welfare estimation as from a 2014 baseline and TAC.

in summer flounder landings at some site. Under policy 1, more of the released fish are allowed to be kept. So the way we model the policy, total catch (combined catch and release) is unchanged, but the policy alters the distribution of that total between catch and release categories.

Table 3.3: Example Policy Impacts on Catch and Keep Rates

Policy	Total Catch	Landings	Release
0	5	3	2
1	5	3.3	1.7

Equation 3.3 is the compensating variation for angler i on an intercepted trip. Since angler i is part of the on-site sample, she might be over or under-represented compared to a population based random sample. Taking the simple mean across all CV_i's gives us an incorrect mean welfare effect. Consequently, we again used R's Survey package and the provided MRIP weights to calculate a weighted and correct mean CV. We have to do this for *every* allocation rule under consideration. We also sample from our posterior parameter values to calculate these weighted CV's for a wide range of likely parameter vectors. In the end, we are able to construct confidence intervals around our mean CV estimate.[11]

3.5.2 Aggregation to Population

Once we have recovered the correct mean compensating variation per trip, we perform aggregations to project our estimates into total economic values and total economic values per pound. Since policies impact the distribution of catch between kept and released summer flounder, we perform the following simple steps in our analysis for computing the totals described in our results below.

1. For a $\Delta\%$ change in quota, change every expected catch and keep rate for summer flounder as described above.

2. Using this change calculate CV as described above

[11] In addition to our uncertainty about parameter estimates, our confidence intervals also include uncertainty associated with 1) total landings and 2) summer flounder weight per fish.

3. From the NOAA Fisheries website, we know the total harvested summer flounder and total weight harvested (along with standard deviations) for each state. Draw randomly from each states distribution and sum for total harvest and total harvested weight.

4. For the $\Delta\%$ change in quota, scale total harvest and total harvested weight.

5. Calculate changes in compensating variations and changes in quota allocations across each subsequent quota allocation[12]. We then approximate the marginal value for the region between each policy step t and t+1 as $MWTP_{t+1} = \frac{TWTP_t - TWTP_{t+1}}{Landings_t - Landings_{t+1}}$ and for graphing purposes center at the mid-point between the two quota amounts $\frac{Landings_t - Landings_{t+1}}{2}$.

Note that this method explicitly assumes

1. that what fishermen value *ex ante* is exactly what will be observed with respect to aggregate harvests and weights *ex post*.

2. that landings will be consistent with quota levels.

3.5.3 Results

In Table 3.4 we show compensating variation for divergences from the 2014 quota allocation baseline. So a change in quota of 50,000 means that +50,000 more pounds are given to the recreational sector for total harvest of 7,398,558 + 50,000 pounds of fish. A negative change in quota is taking pounds away from the recreational sector. In Table 3.5 we calculate the marginal willingness to pay for quota allocation levels (rather than changes in quota as in Table 3.4). In Table 3.5 we also report quota allocation levels in metric tons for more direct comparison to the commercial chapter.

Based on estimation available from NOAA National Marine Fisheries Service, the total summer flounder harvested weight (in the study region) in 2014 was 7,398,558. Consequently, in our analysis, we consider a 100% reduction and 100% increase to the summer flounder recreational allocation.

Notice that as quota approaches zero, the required total compensating variation gets larger (more negative) at a non-linear rate. This is consistent with what economists

[12]In our work, we examine the following quota changes: -100%, -80%, -60%, -40%, -20%, -5%, +5%, +20%, +40%, +60%, +80%, +100% relative to the *observed* 2014 landings

call "diminishing marginal returns" and supports intuition about how fishermen value summer flounder quota: the less quota the angler community has, the higher the relative value a pound of quota. Conversely, if we increase quota to the recreational sector, the angler community benefits, but the incremental benefit for a pound of quota enjoyed by the community is less than the first pound of quota they receive.

Figures 3.2 and 3.3 show visually the total economic value and the marginal value, respectively, of quota for the recreational sector. In Figure 3.2 at a quota change of 0 pounds, Compensating Variation is zero. In Figure 3.2, we see that doubling the recreation quota leads to a gain in economic value for recreational anglers of approximately $20 million per year. By contrast, reducing the recreational sector leads to a loss in economic value of approximately $35 million per year.[13]

We see similar patterns in Figure 3.3. For very small quota allocations in the recreational sector, the value per pound of summer flounder is approximately $10. As quota is increased, the value per pound declines (this is due to diminishing marginal returns as discussed above), so that after a doubling of recreational quota, the value per pound is approximately $2.

It should be noted that in both of these figures, the confidence intervals flare out from the Change in Pounds Allocated at 0 (for Figure 3.2) and for Pounds Allocated at approximately 7.4 million pounds (for Figure 3.3) because both of these points represent the baseline observed levels in 2014. As we move further from that baseline, the uncertainty of our estimated economic values increase.

[13]While the model can be used for analyzing these large swings in quota relative to 2014, we are more confident in our model for analyzing smaller quota changes.

Table 3.4: Total Compensating Variation for Recreational Sector by Quota Change from 2014 Observed Landings

Change in Quota (Pounds)	Change in Quota (Metric Tons)	Lower 95% CI	Mean CV	Upper 95% CI
-7,398,558	-3,356	-40,518,534	-35,025,888	-29,756,109
-5,918,846	-2,685	-23,569,401	-20,433,425	-17,564,884
-4,439,135	-2,014	-15,833,755	-13,835,185	-11,959,676
-2,959,423	-1,342	-10,236,713	-8,653,824	-7,318,248
-1,479,712	-671	-4,795,840	-4,045,957	-3,366,934
-369,928	-168	-1,112,268	-983,208	-835,250
369,928	168	779,031	955,284	1,111,872
1,479,712	671	3,190,313	3,732,857	4,464,099
2,959,423	1,342	6,199,854	7,412,389	8,448,261
4,439,135	2,014	8,971,631	10,746,294	12,733,040
5,918,846	2,685	11,953,536	13,915,225	16,191,597
7,398,558	3,356	14,331,487	16,972,007	20,119,153

3.6 Caveats

As with any model, we make assumptions and simplifications over very rich economic and biological systems in order to distill important impacts due to policy changes in the fishery. Below we list the major caveats with our work:

1. This analysis focuses *only* on recreational fishermen and ignores changes in economic value in related sectors (e.g. party/charter owner operator profits, bait and tackle shop profits, etc.) that can be solely attributed to summer flounder quota changes. Consequently, this means the estimates presented here are *lower bound estimates*.

2. As discussed previously, our estimates ignore the opportunity cost of time and again means we are providing *lower bound estimates*. We discuss this in more detail in the following section where we present our preferred model.

3. Our analysis *does not* account for changes in trips due to quota changes. We might imagine that as quota is lowered trips decrease (via bag, seasonal restriction, bag and size limit changes, etc.). We hold trips constant at 2014 observed levels. This again means that our estimates are *lower bound* estimates.

Table 3.5: Marginal Willingness to Pay by Quota Allocation

Quota (Pounds)	Quota (Metric Tons)	Lower 95% CI	Mean CV	Upper 95% CI
739,856	336	6.02	9.86	14.02
2,219,567	1,007	2.03	4.46	6.93
3,699,279	1,678	1.91	3.50	5.40
5,178,991	2,349	2.22	3.11	4.13
6,473,738	2,936	2.17	2.76	3.37
7,398,558	3,356	2.31	2.62	2.92
8,323,378	3,775	2.01	2.50	3.08
9,618,125	4,363	1.66	2.49	3.38
11,097,837	5,034	0.86	2.25	3.80
12,577,549	5,705	0.39	2.14	3.91
14,057,260	6,376	-0.35	2.07	4.52

4. When altering expected catch and release of summer flounder as described in Section 3.5.1, we assume that there is some combination of bag, size limit, and season limit that could be changed to meet quota goals. Whether this tends to push our estimate towards an upward or lower bound is unknown.

3.7 Discussion

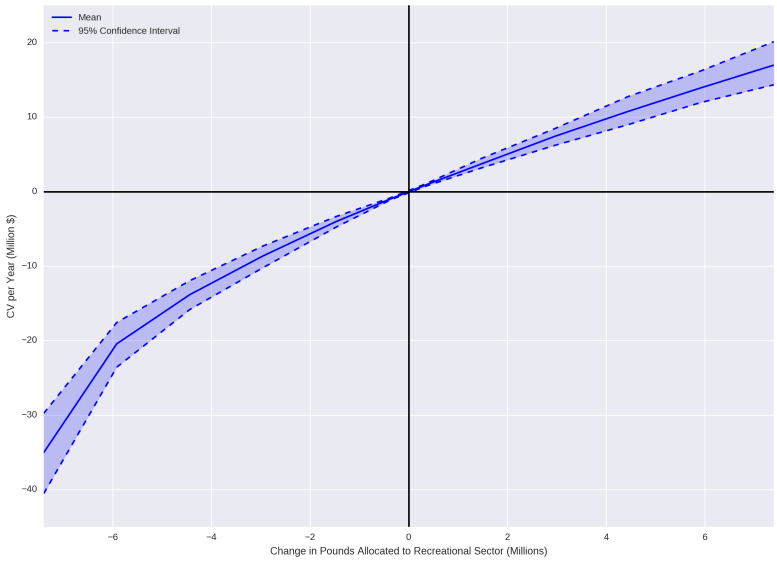
Despite the limitations of our work mentioned in the above section, the provided estimates are a very defensible *lower bound* estimates for the change in economic value associated with quota changes in the Summer Flounder Fishery. Table 3.6 lists several other studies and point estimates for marginal values associated with summer flounder.

To compare the results, it is important to note that all of the values per pound reported in Table 3.6 except ours, calculate a +1 change in expected catch *at each site for all trips*. Consequently, the policy change examines a case where every summer flounder trip probably catches and keeps an additional summer flounder. This change is much larger in magnitude than any considered in this study[15]. The most comparable estimate we produce to either Gentner et al. (2010) or Massey, Newbold and Gentner

[14]Calculated by dividing +1 fish estimate ($4.22) by 2.77 (Average weight of summer flounder used by (Gentner et al., 2010)). Also uses a sample of Maryland anglers who fished and not NOAA Fisheries MRIP data.

[15]4,061,024 trips (MRIP estimated Summer Flounder directed trips along the Atlantic Coast) × + 1 fish × 2.77 pounds per fish = 11,249,036 additional pounds of recreational harvest.

Figure 3.2: Recreational Total Change in Economic Value



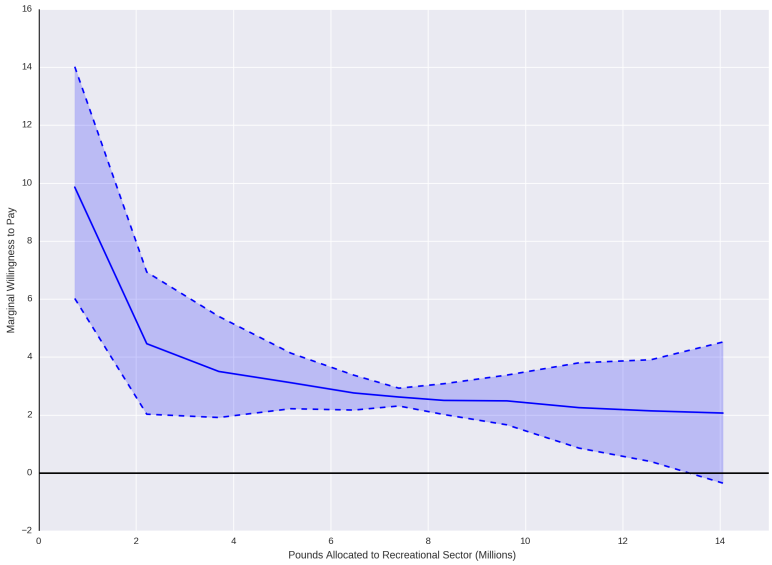
(2006) is $2.07 which corresponds to an allocation of an additional 7.4 million pounds of recreational quota.

Due to data constraints we were unable to estimate a model that fully accounts for the travel cost of recreation trips because a lack of data precluded us from accounting for the opportunity cost of time. It is well known and an established finding in the recreation demand literature that failing to include the opportunity cost of time in recreation demand models will bias welfare results (Bockstael, Strand and Hanemann (1987)). Examining the results in Gentner et al. (2010), they find that after using their opportunity cost of time correction, their economic value estimate was approximately 1.85 times higher for their preferred model.[16] Since we don't have access to data allowing us to include time in the construction of travel costs, we perform a benefits transfer by applying Gentner et al. (2010) scaling ratio to our estimates to approximate the results we would have found given complete data.[17] After applying the benefits transfer

[16]From Table 5.15 page 59.

[17]There is a well established literature on benefits transfer and the conditions under which it is a valid technique to use, particularly in a random utility model context (Parsons and Kealy (1994)). Given that both our study and Gentner et al. (2010) are using the same data (except for the including travel cost), the same study region, and the same modeling technique the literature shows benefits transfer to yield reliable estimates for welfare measures ((Parsons and Kealy (1994)).

Figure 3.3: Marginal Willingness to Pay Time Costs Excluded



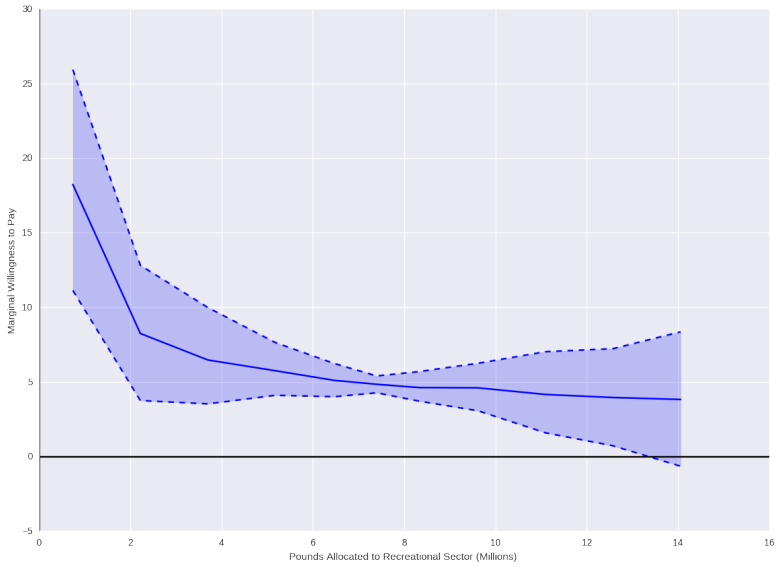
to approximate a situation where the opportunity cost of time had been included in our model, the marginal willingness to pay would have resided in the range [$18.24 to $3.83] depending on the quota level being analyzed. Consequently, our preferred marginal willingness to pay estimates include the opportunity cost of time and are given in Figure 3.4 and are calculated by scaling either Figure 3.3 or the values in Table 3.5 by 1.85.

Our results show that the recreational summer flounder fishery is extremely valuable notwithstanding our caveats above. Furthermore, our results clearly show that this value responds to allocation decisions made by managers and responds in ways that we think is reasonable: when recreational anglers don't have very much quota they value an additional pound of quota more than if the sector had lots of quota. However, even as sector allocations for the recreational sector get large (relative to observed catches in 2014), they continue to have high value per pound for summer flounder.

Table 3.6: A comparison of Summer Flounder Valuation Estimates

Study	Mean Value per Pound	Opportunity Cost of Time	Weighting	Nested
Current Study	\$9.86 - \$2.07	Not Included	Yes	No
Gentner et al. (2010)	\$3.48	Included	No	Yes
	\$2.38	Not Included	No	Yes
	\$1.45	Included	No	No
	\$0.80	Not Included	No	
	\$0.99	Included	Yes	No
	\$0.53	Not Included	Yes	No
Massey, Newbold and Gentner (2006)[14]	\$1.59	Unknown	Unknown	No

Figure 3.4: Marginal Willingness to Pay (Time Costs Included)



Chapter 4

Commercial Model

Our analysis of the commercial sector substantially differs from the previous work that has been conducted on sector allocation Gentner et al. (2010), Carter, Agar and Waters (2008). However, the modeling structure closely follows the empirical methodology used in our analysis of the recreational sector as the random utility model is the foundation McFadden (1978). Our modeling efforts consist of four distinct steps that allow us to estimate the marginal value per a pound of summer flounder within the commercial sector. In the first stage we estimate trip-level costs for the trawl fleet targeting summer flounder. In the second stage we estimate a site choice model for vessels that caught summer flounder between 2000 and 2014. In our third stage we combine the trip-level cost estimates with site choice estimates to simulate fleet activity and the execution of the summer flounder fleet allocation. Lastly, using a convolution method we estimate the marginal value per a pound of summer flounder by determining the incremental profits earned when the allocation is increased for the commercial summer flounder fleet. In the following description we divide up each estimation step and discuss them in more detail.

4.1 Estimating Trip Costs

The first step in our analysis was estimating the expected trip-level costs using the trip-level cost data from 2000 through 2014. This data has been collected by the Social Sciences Branch (SSB) of the NMFS Northeast Fisheries Science Center on an annual basis as part of Northeast Fishery Observer Program's (NEFOP) data collection efforts Das (2013). The data are obtained either through the direct observation of the observer or through interviewing the vessel captain. The data used to construct our expected costs is a subset of the broader data set constructed by the NEFOP as it focuses on just

those vessels who have landed summer flounder between 2000 and 2014 and are trawl vessels. Therefore, our estimation techniques and data utilized are slightly different from those used by Das (2013).

Given the narrowly defined subset of vessels that we elected to use in our analysis we extracted the tons of ice, the price of ice, the gallons of fuel purchased, the fuel price, costs incurred for vessel damages, general supply costs, food costs, water costs and bait costs from the NEFOP cost data to construct a total trip level cost. We also extracted information on the number of crew members employed, the month and year of harvest, vessel characteristics (i.e., gtons, hp, hold, length), the vessel's state, the steam time on the trip and the number of hauls conducted on the trip. This data was used to estimate a log-log ordinary least squares regression for trip-level costs. The covariates used to explain the total trip level costs included year fixed effects, month fixed effects, vessel-state fixed effects, vessel capital (i.e., vessel characteristics), crew, steam time, days fished and hauls conducted. The parameter estimates from our regression are contained in Table 4.1.

The regression results indicate that trip-level costs were the lowest in the early 2000s, which is most likely driven by the substantially lower fuel costs during this time period. Costs are also lower during the months of August and October which roughly corresponds with the seasonal fishing patterns within the summer flounder fishery. Vessels fishing from Connecticut, Maryland, New York and Rhode Island have lower trip level costs. This roughly corresponds with the areas that have the largest concentration of summer flounder. The fixed inputs that increase trip level costs are the vessels length and gross tonnage, whereas their horsepower and hold capacity have little impact on costs. As far as the variable inputs of production, the larger the crew size the higher the costs, but the second order effect is negative. Steam time also increases the trip-level costs but again the second order term is negative. The number of days increases the trip-level costs at an increasing rate and lastly, the number of hauls increases costs but at a decreasing rate.

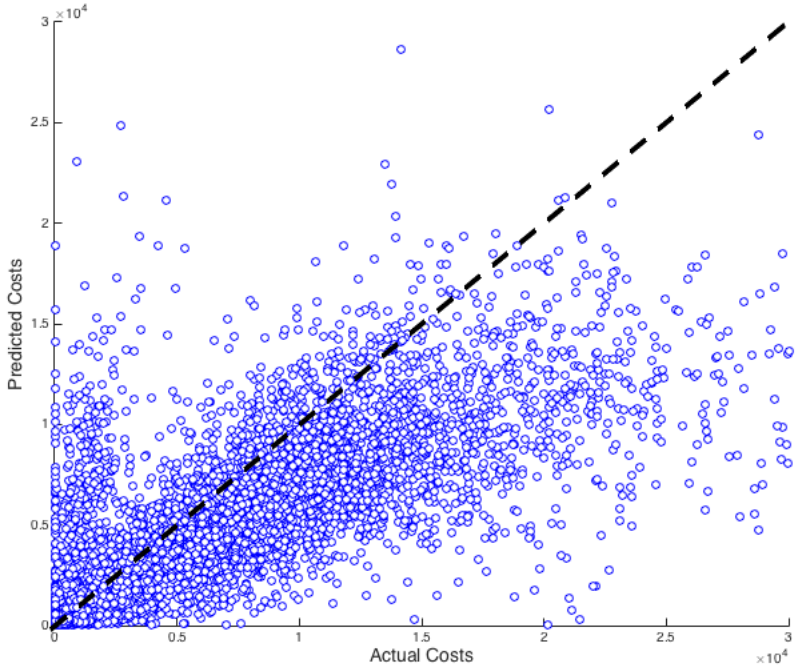
Using these parameter estimates we will estimate the expected costs per a haul within our simulation. Given that need for an accurate profile of costs we plot the actual and expected costs resulting from our regression estimates in Figure 4.1. In general our predicted trip-level costs are closely in line with those observed in the trip cost data. However, our estimates do tend to underestimate the expected trip level costs. This can be easily observed by noting that clustering of the data in Figure 4.1 below the 45-degree

Table 4.1: Trip-Level Cost Estimates

Parameter	Estimate	Parameter	Estimate	Parmeter	Estimate
Constant	-0.0457	February	-0.0858	New York	-0.4056***
	(0.7732)		(0.0916)		(0.1472)
Year 2000	-0.6720***	March	0.0151	North Carolina	0.0253
	(0.1996)		(0.0918)		(0.1783)
Year 2001	-0.7971***	April	0.0024	Rhode Island	-0.3363***
	(0.1894)		(0.1000)		(0.1343)
Year 2002	-0.3774**	May	-0.0509	ln(length)	0.8328***
	(0.1798)		(0.0927)		(0.2516)
Year 2003	-0.2969*	June	-0.0830	ln(gtons)	0.2952***
	(0.1703)		(0.0894)		(0.0897)
Year 2004	-0.4045**	July	-0.1384	ln(hp)	0.0197
	(0.1596)		(0.0854)		(0.0724)
Year 2005	0.0972	August	-0.2273***	ln(hold)	0.0076
	(0.1541)		(0.0876)		(0.0244)
Year 2006	0.2378	September	-0.1249	ln(crew)	0.2631**
	(0.1610)		(0.0903)		(0.1268)
Year 2007	0.1946	October	-0.1713*	ln(crew)*ln(crew)	-0.0659***
	(0.1597)		(0.0893)		(0.0704)
Year 2008	0.3645**	November	-0.0655	ln(steam)	0.3362***
	(0.1598)		(0.0882)		(0.0673)
Year 2009	-0.2033	Connecticut	-1.7158***	ln(steam)*ln(steam)	-0.0746***
	(0.1553)		(0.1972)		(0.0212)
Year 2010	0.1628	Maine	0.2317	ln(days)	0.7823***
	(0.1583)		(0.1620)		(0.1060)
Year 2011	0.3049*	Maryland	-1.0701***	ln(days)*ln(days)	0.1319***
	(0.1582)		(0.1826)		(0.0524)
Year 2012	0.1211	Massachusetts	0.0894	ln(hauls)	0.7095***
	(0.1598)		(0.1299)		(0.0707)
Year 2013	0.1334	New Hampshire	-0.1484	ln(hauls)*ln(hauls)	-0.1407***
	(0.1593)		(0.1724)		(0.0224)
January	-0.1165	New Jersey	-0.0608		
	(0.0888)		(0.1365)		
	Number of Obs.		13,667		
	Adjust. R^2		0.4064		

line. Although this does introduce a bias into our simulation results, as long as this bias permeates all of the trips within the simulation this will not introduce a substantial bias to our marginal valuation estimates. This will become more evident in our discussion of the simulation results.

Figure 4.1: Predictive Accuracy for the Trip-Level Cost Estimates



4.2 Random Utility Model

The random utility model has been extensively used in the fishery economics literature focused on spatial discrete choices Curtis and Hicks (2000), Hicks and Schnier (2008), Haynie, Hicks and Schnier (2009), Holland and Sutinen (1999), Holland and Sutinen (2000) and Smith and Wilen (2003). Assuming that there are N different sites that a fisherman can select from, they will select location i in time period t if the utility of selecting location i exceeds the utility they can derive from all other locations. This is expressed as,

$$U(i,t) + \epsilon_{i,t} > U(j,t) + \epsilon_{i,t} \forall j \in N$$

The error structure $\epsilon_{i,t}$ is assumed to be known by the decision agent (the fisherman) but not by the researcher. Ignoring the subscripts indexing locations and time the utility specification we utilize for our model is,

$$\begin{aligned} U(i,t) =& \gamma_i + \beta_1 Distance + \beta_2 SF_{Revenues} + \\ & \beta_3 BSB_{Revenues} + \beta_4 SCUP_{Revenues} + \\ & \beta_5 Other_{Revenues} + \beta_6 No_{Choice} + \epsilon \end{aligned} \tag{4.1}$$

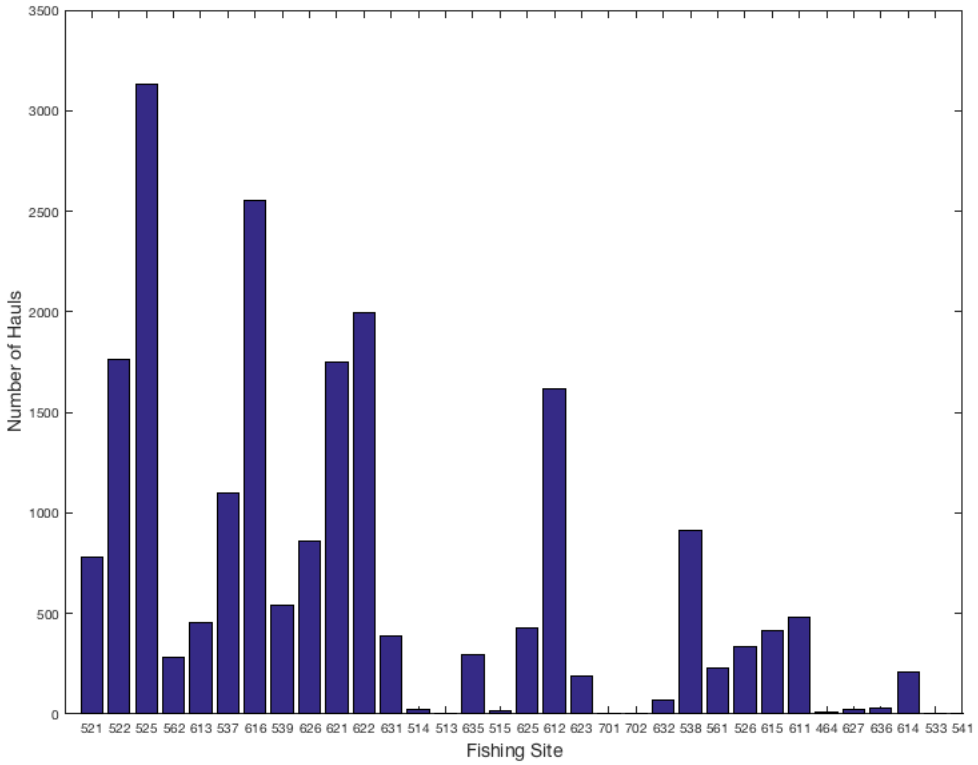
In this model γ_i are site specific constants to control for site-specific factors that are unobserved in our data set, but that drive site choice selection. The use of these alternative specific constants have proven to be exceptionally valuable in the fishery economics literature Timmins and Murdock (2007), Smith (2005) and Hicks, Horrace and Schnier (2012). *Distance* is the expected distance that a vessel will travel from the current location to all other potential locations. Within the data set on a vessel's first haul we calculated the distance using their home port as the point of origination. $SF_{Revenue}$ is the expected summer flounder revenues that a fisherman will earn if they visit the site in question in the current time period. $BSB_{Revenues}$, $SCUP_{Revenues}$ and $Other_{Revenues}$ are similar variables constructed for black sea bass, scup and all other species landed. All expected revenue calculations are constructed using a 60-day lag of the observed revenues earned in the respective locations [1]. We elected to partition out black sea bass and scup from the other species as these two species are jointly managed with summer flounder. The variable No_{Choice} is a dummy variable that indicates whether or not a location has not been visited within the past 60-days (the time window used for the revenue expectations). This helps to control for temporal variations in the sites that vessels fish, which is important given the seasonal trends that exist within this fishery.

To estimate our model we use observer data from 2000 through 2014. To ensure that we are capturing vessels that caught summer flounder during this time period we restrict the sample to trawl vessels that landed summer flounder during this time period. There were 33 distinct 3-digit NFMS zones that were fished by vessels during this time. Figure 4.2 plots a histogram of the number of hauls that were conducted in each of these sites within our sample. The top five most visited sites were locations 525, 616, 622, 621 and 522. The data set consists of 2,337 unique fishing trips and 20,900 unique hauls.

The parameter estimates from our random utility model are contained in Table 4.2. The parameter estimates are consistent with the site visitation rates. The highest

[1] We explored the use of alternative lagged time framings (i.e., 30-day, 60-day, 90-day, 180-day, 1-year) and our results were relatively robust to alternative specifications

Figure 4.2: Histogram of Hauls per a Site



valued site is location 525, which is also the most visited site, and the other highly visited sites (i.e., 616, 622, 621 and 522) have high site-specific constants. The sites with low visitation rates (i.e., 701 and 702) have larger negative site-specific constants that are consistent with our expectations. We only estimate 30 site-specific constants in our model because three of the sites had exceptionally small visitation rates and we set their site-specific constants to zero. The other parameter estimates are also consistent with our expectations. The coefficient on expected distance traveled is negatively and highly significant [2]. The revenue coefficients indicate that a higher expected summer flounder revenue as well as black sea bass revenue increases the probability that a vessel will fish in a given location, whereas a high expected revenue for all other species reduces the probability that one will fish in a given location. The expected revenues for scup

[2]The distance variable was scaled by 1000 miles

did not influence the site visitation probability [3]. Lastly, the coefficient on No_{Choice} indicates that vessels are less likely to visit a location that they have not visited in the past 60-days. The parameter estimates from this regression provides the foundation for the simulation model that will be discussed in the upcoming section.

4.3 Simulation Model

The simulation model utilizes the parameter estimates to simulate fleet activity and the execution of the total allowable catch within the commercial fishery sector. The simulation is a multi-step process that invokes different elements of existing policy limitations and seasonality to reflect the true fleet activity within the fishery. Each step is discussed in detail below.

Step One: We initialize the current total allowable catch to the commercial sector. Within the simulation we initialize the allocation at 1,000 metric tons and increase it by 1,000 metric tons until the allocation reaches 24,000 metric tons. Although 24,000 metric ton is substantially higher than recent allocations, it is near the peak level catches observed in the 1980s and it is reasonable to assume that it is highly unlikely that future allocations will ever reach that level.

Step Two: We take a random draw from the parameter distribution resulting from the random utility model. The random draw uses the parameter estimate vector as well as the variance covariance matrix for the estimates to generate a new parameter vector. This is conducted to ensure that our parameter estimate draws reflect the underlying parameter distribution.

Step Three: We randomly draw a fishing trip from the observer data and use the parameter vector from *Step Two* to predict the site visitation probabilities for each haul on the randomly drawn trip. The estimated probabilities are calculated using the following equation

$$P(i,t) = \frac{e^{U(i,t)}}{\sum_{j \in N} e^{U(j,t)}}$$

This estimated probability surface is then multiplied by the expected catch rates, $SFExp_{i,t}$ (estimated using 60-day lags) at each location in time period t, $P(i,t) * SFExp_{i,t}$, and then is summed up across all locations, $Catch_t = \sum(P(i,t) * SFExp_{i,t}$, to determine

[3] All revenues were scaled by 10,000 dollars.

Table 4.2: Random Utility Model Site Choice Estimates

Parameter	Estimate	Parameter	Estimate	Parmeter	Estimate
Site 521	4.4020***	Site 635	-0.4230	Site 464	1.8833***
	(0.3006)		(0.3371)		(0.3911)
Site 522	5.3505***	Site 515	2.4091***	Site 627	-0.5034
	(0.3031)		(0.4037)		(0.3667)
Site 525	5.800***	Site 625	1.2879***	Site 636	-2.2462***
	(0.3037)		(0.3135)		(0.3974)
Site 562	3.7990***	Site 612	2.7808***	Site 614	1.9025***
	(0.3094)		(0.3025)		(0.3084)
Site 613	2.8342***	Site 623	0.8327***	Distance	-0.0348***
	(0.2994)		(0.3085)		(0.0003)
Site 537	4.0702***	Site 701	-3.6686***	SF Revenues	3.2105***
	(0.2962)		(0.7723)		(0.2709)
Site 616	3.9001***	Site 702	-3.6686***	BSB Revenues	1.0919**
	(0.2975)		(0.5113)		(0.5360)
Site 539	2.3813***	Site 632	-0.5209	SCUP Revenues	0.0218
	(0.2999)		(0.3440)		(0.4275)
Site 626	2.1421***	Site 538	3.3288***	Other Revenues	-0.3236***
	(0.3095)		(0.2978)		(0.0871)
Site 621	2.5530***	Site 561	3.4560***	No Choice	-1.7184***
	(0.3071)		(0.3122)		(0.0857)
Site 622	3.2530***	Site 526	2.9459***		
	(0.3027)		(0.3032)		
Site 631	0.2867	Site 615	2.2182***		
	(0.3248)		(0.3028)		
Site 514	1.2294***	Site 611	2.4216***		
	(0.3077)		(0.3004)		
	Number of Obs.		20,900		
	Log Likelihood (parameters=0)		-73,077		
	Log Likelihood (estimates)		-17,219		

the expected catch in time period t. These expectations are also estimated for black sea bass as well as scup.

Step Four: We reduce the allocation of summer flounder to the commercial fleet by the $Catch_t$ to determine the remaining allocation of summer flounder. In addition, we set the total allowable catch of black sea bass to 2.5 million pounds and the total allowable catch for scup to 22 million pounds. If the catch for either or these species exceeds this allocation the expect catch is set to zero to reflect that they must be discarded.

Step Five: We calculate the expected revenue from each haul using the following formula $Rev_t = \sum(P(i,t) * (SFRevenues_{i,t} + BSBRevenues_{i,t} + SCUPRevenues_{i,t} + OtherRevenues_{i,t})$. To account for the costs incurred on the trip we subtracted the expected costs from fishing that trip using our cost estimates (see Table 4.1) discussed earlier to get a profile of trip-level profits.These profits were then added up for all fishing activity that occurred within the simulation to determine the fleet wide profits for the given allocation of summer flounder.

Step Six: We determine whether or not the current aggregate catch of summer flounder for the fleet has exceeded the allocation and if it has not we return to *Step Two* until the allocation of summer flounder is exhausted.

The above mentioned six steps represent the core of the simulation, which we refer to as *Model One*, however additional complexities have been added to make the simulation more realistic. The additional features are summarized below.

4.3.1 State Allocations for Summer Flounder, Black Sea Bass and Scup

The commercial fleets allocation of summer flounder is further subdivided among the states that harvest summer flounder. This is also true for the allocations of black sea bass and scup. Given this, we added these constraints to our second simulation model, *Model Two*. The state allocations we used for each of the three species are indicated in Table 4.3.

In order to incorporate the state allocations into the simulation model we tracked the catch of summer flounder (SF), black sea bass (BSB) and scup through the simulation. In the case that state allocation for summer flounder was exceeded we removed all vessel-trips originating from that state in *Step Three* of the simulation. This way only those

Table 4.3: State Allocations for Summer Flounder, Black Sea Bass and Scup

State	Percentage SF	Percentage BSB	Percentage SCUP
ME	0.0476%	0.1210%	0.5000%
NH	0.0005%	0.0000%	0.5000%
MA	6.8205%	21.5853%	13.0000%
RI	15.6830%	56.1894%	11.0000%
CT	2.2571%	3.1537%	1.0000%
NY	7.6470%	15.8232%	7.0000%
NJ	16.7250%	2.9164%	20.0000%
DE	0.0178%	0.0000%	5.0000%
MD	2.0391%	0.0119%	11.0000%
VA	21.3168%	0.1650%	20.0000%
NC	27.4458%	0.0249%	11.0000%

vessel-trips that were eligible to fish for summer flounder, per the state allocation rules, were eligible for random selection. If a states allocation for black sea bass or scup were exceeded, we still allowed for the vessel-trip to be selected in *Step Three*, but we zeroed out the catch of the species that had already exceeded its state allocation limit.

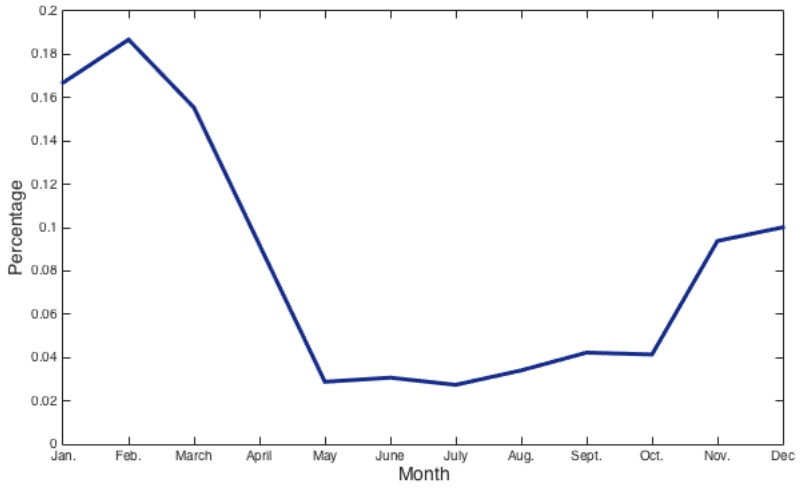
4.3.2 Seasonal Patterns in Fishing Behavior

The summer flounder fishery is a seasonal fishery will a large percentage of the catch occurring in the winter months. Figure 4.3 graphically illustrates the average percentage of the landings that occurred by month within the observer data. It is clear that a bulk of the catch arises in the months of November, December, January, February and March. Given that we are randomly generating a vessel-trip from the set of all vessel-trips, we added a seasonal constraint to the model that ensures that the simulated fleet behavior mirrors the temporal distribution of catch within the fishery. This was achieved by altering our *Step Three* by first randomly sampling a month from the distribution illustrated in Figure 4.3 and then randomly selecting a vessel-trip from within that month.

4.4 Construction of Marginal Values

For each of the different summer flounder allocations we conducted 40 different simulations. This allows us to construct confidence intervals on our estimates of the marginal

Figure 4.3: Seasonal Pattern for Summer Flounder Harvest



value per a pound of summer flounder. To calculate the marginal value we estimated the following equation

$$\text{Marginal Value}_k = (Profit_k - Profit_{k-1})/(1000 * \text{Metric Ton})$$

where, Marginal Value$_k$ is the marginal value when one increases the allocation of summer flounder to allocation level k, $Profit_k$ is our estimate of fleet profits when the allocation is k and $Profit_{k-1}$ is the estimated profit prior to the increase in the allocation from level $k-1$ to k. Given that our unit of increase is 1,000 metric tons, we divide the difference in the change in profits by the incremental change in pounds landed to get a marginal value per a pound of summer flounder. Since we have 40 different simulations for each level of k, through the convolution of all 40 at one level of k with the 40 observed at level $k-1$ we obtain 1,600 different comparisons. These 1,600 comparisons allow us to construct 95% confidence intervals by dropping the top and bottom 40 estimates of Marginal Value$_k$.

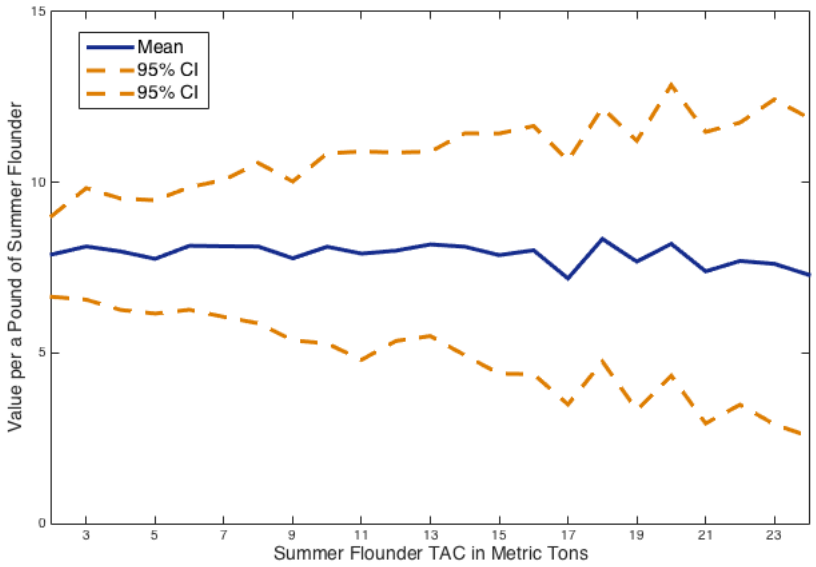
One important feature of the marginal value calculations is that they are derived from the total profits that a vessel earns while fishing. This is the sum of all species landed and not just summer flounder. Therefore, although the ex-vessel price for summer flounder ranges between two and four dollars it is possible that the marginal value for summer flounder can exceed this value. This is because summer flounder is a complement in production. When a vessel targets summer flounder they also catch other species that have market value. Therefore, the marginal value of summer flounder is not only the

value they derive from summer flounder but also the additional value they derive from the other species that are caught in conjunction with targeting summer flounder. This is an important feature of the simulation because if one reduces the allocation of summer flounder to the commercial fleet it will also impact the revenue flows that they derive from the other species that they would have caught if they were able to target more summer flounder. The following subsections discuss the results from the three different models estimated.

4.4.1 Marginal Values - Model 1

Model 1 is the simplest of the models we estimate. This model does not utilize state limits for summer flounder, black sea bass or scup and it does not invoke any seasonality. This model only uses the allocations of the three different species as the binding constraints on the simulation. The mean marginal value for each incremental increase in the allocation of summer flounder as well as the 95% confidence intervals are illustrated in Table 4.4 and graphically illustrated in Figure 4.4.

Figure 4.4: Marginal Value Estimates for Model 1



The results from *Model 1* illustrate that the average marginal value for summer flounder ranges from around $7.2 to $8.2 a pound. The confidence intervals for the estimates increase as the quota allocation increases. At the lowest quota allocation,

Table 4.4: Marginal Values for Model 1

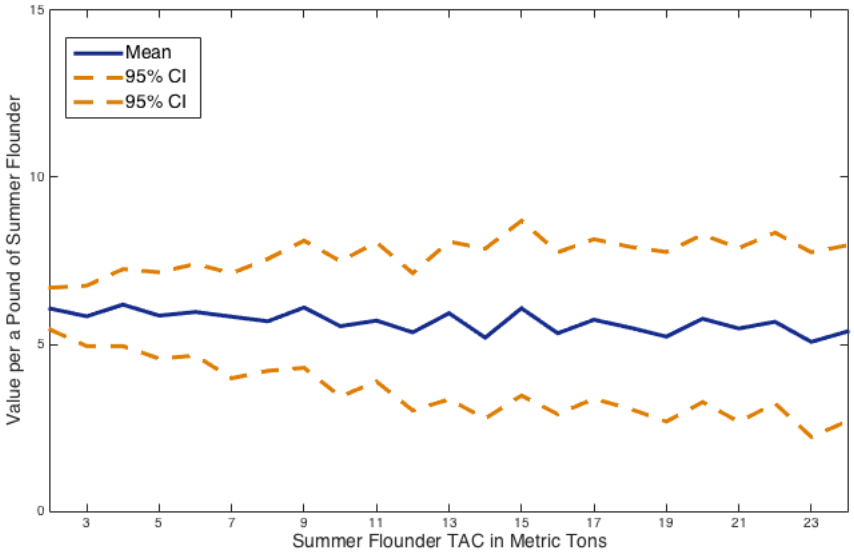
Allocation (MT)	Mean	Lower 95% CI	Upper 95% CI
2,000	7.8851	6.6453	9.0162
3,000	8.1204	6.5616	9.8310
4,000	7.9752	6.2604	9.5245
5,000	7.7581	6.1539	9.4760
6,000	8.1402	6.2661	9.8561
7,000	8.1273	6.0551	10.0714
8,000	8.1179	5.8691	10.5694
9,000	7.7738	5.3696	10.0241
10,000	8.1125	5.2754	10.8474
11,000	7.9104	4.7984	10.9040
12,000	7.9971	5.3515	10.8735
13,000	8.1800	5.4952	10.8989
14,000	8.1137	4.9322	11.4363
15,000	7.8664	4.3919	11.4297
16,000	8.0085	4.3781	11.6515
17,000	7.1833	3.4895	10.6389
18,000	8.3415	4.7475	12.1810
19,000	7.6772	3.3215	11.2153
20,000	8.1974	4.3329	12.8512
21,000	7.3900	2.9345	11.4773
22,000	7.6961	3.4828	11.7511
23,000	7.6107	2.9050	12..4311
24,000	7.2882	2.5568	11.8850

2,000 metric tons, the 95% confidence interval is between $6.65 and $9.02. At the highest quota level, 24,000 metric tons, the 95% confidence interval is between $2.56 and $11.89. The current allocation to commercial sector has been hovering between 8,000 and 13,000 metric tons. In this range the average marginal value is between $7.8 and $8.1 and the 95% confidence intervals are between $5.89 and $10.57 at 8,000 metric tons and $5.50 and $10.90 at 13,000 metric tons.

4.4.2 Marginal Values - Model 2

Model 2 augments *Model 1* by incorporating the state allocation constraints. This implies that once a given state has reached their allocation of summer flounder we no longer allowed vessels from that state to target summer flounder. If vessels reached their allocation of black sea bass and scup we did allow them to continue targeting summer flounder, but we did not allow them to retain any of the black sea bass or scup for sale (i.e., we zeroed out the revenue flow from the species). The results from this simulation are contained in Table 4.5 as well as Figure 4.5.

Figure 4.5: Marginal Value Estimates for Model 2



The results illustrate that incorporating the state allocation constraints lowered the marginal value per a pound of summer flounder by approximately 25%. Therefore, the state allocation constraints are a significant contribution to our simulation model.

Table 4.5: Marginal Values for Model 2

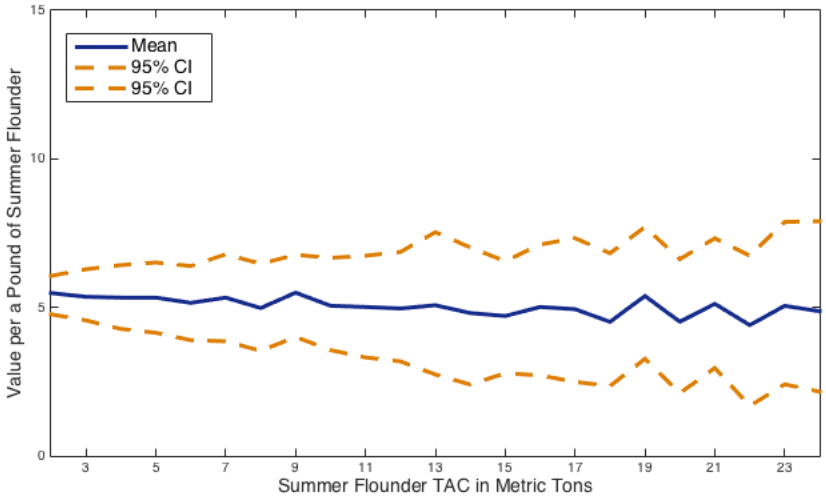
Allocation (MT)	Mean	Lower 95% CI	Upper 95% CI
2,000	6.0685	5.4347	6.6957
3,000	5.8368	4.9449	6.7553
4,000	6.1873	4.9453	7.2509
5,000	5.8575	4.5707	7.1560
6,000	5.9674	4.6613	7.4056
7,000	5.8262	3.9824	7.1283
8,000	5.6894	4.2051	7.5583
9,000	6.1013	4.2939	8.1041
10,000	5.5413	3.4329	7.4886
11,000	5.7093	3.8840	8.0508
12,000	5.3566	3.0163	7.1295
13,000	5.9295	3.3511	8.0747
14,000	5.1982	2.7767	7.8634
15,000	6.0796	3.4642	8.6992
16,000	5.3292	2.9072	7.7538
17,000	5.7339	3.3682	8.1471
18,000	5.4954	3.0646	7.9163
19,000	5.2289	2.6862	7.7639
20,000	5.7643	3.2661	8.2814
21,000	5.4730	2.6802	7.8814
22,000	5.6740	3.2282	8.3438
23,000	5.0712	2.2265	7.7550
24,000	5.3849	2.6989	7.9653

The average marginal values for *Model 2* range from slightly over \$5 to just slightly over \$6 a pound, with the values gradually decreasing as the allocation of summer flounder increases. The 95% confidence intervals range from between \$4.94 and \$6.76 at the lowest allocation, 2,000 metric tons, to between \$2.70 and \$7.97 at the highest allocation level, 24,000 metric tons. The current allocation to commercial sector has been hovering between 8,000 and 13,000 metric tons. In this range the average marginal value is between \$5.36 and \$6.10 and the 95% confidence intervals are between \$4.21 and \$7.56 at 8,000 metric tons and \$3.35 and \$8.07 at 13,000 metric tons. These are lower than the values observed under *Model 1*.

4.4.3 Marginal Values - Model 3

Model 3 builds on *Model 2* by incorporating seasonality in the execution of commercial allocation. Using the distribution of landings in Figure 3 we first randomly drew a month from this distribution and then a vessel trip as well as ensuring that the trip met the state allocation constraints. This seasonality allowed the execution of the sector allocation to mirror the actual distribution of harvest observed within the sector. The results from the simulation are illustrated in Table 4.6 and Figure 4.6.

Figure 4.6: Marginal Value Estimates for Model 3



The results from *Model 3* generate slightly lower marginal value estimates than those observed in *Model 2*. This is reasonable because we have constructed the simulation

Table 4.6: Marginal Values for Model 3

Allocation (MT)	Mean	Lower 95% CI	Upper 95% CI
2,000	5.4827	4.7681	6.0625
3,000	5.3583	4.5628	6.2845
4,000	5.3298	4.2755	6.4238
5,000	5.3301	4.1458	6.5119
6,000	5.1533	3.8970	6.3929
7,000	5.3293	3.8611	6.7917
8,000	4.9791	3.5380	6.4686
9,000	5.4968	4.0064	6.7719
10,000	5.0561	3.5626	6.6672
11,000	5.0145	3.3164	6.7422
12,000	4.9652	3.1843	6.8668
13,000	5.0733	2.7426	7.5328
14,000	4.8105	2.4053	7.0192
15,000	4.7111	2.7840	6.5570
16,000	5.0148	2.7127	7.1172
17,000	4.9404	2.4938	7.3306
18,000	4.5149	2.3536	6.8245
19,000	5.3843	3.2686	7.7050
20,000	4.5178	2.9612	7.3274
21,000	5.1218	2.9612	7.3247
22,000	4.4040	1.6833	6.7396
23,000	5.0532	2.4101	7.8775
24,000	4.8707	2.1647	7.9001

so that it mimics the seasonal inshore-offshore patterns within the fishery. The average marginal value ranges from $5.5 to around $4.4 per a pound of summer flounder, with the marginal values decreasing as the allocation to the sector increases. The 95% confidence intervals range from between $4.15 and $6.52 at the lowest allocation, 2,000 metric tons, to between $2.16 and $7.90 at the highest allocation level, 24,000 metric tons The current allocation to the commercial sector has been hovering between 8,000 and 13,000 metric tons. In this range the average marginal value is between $4.97 and $5.50 and the 95% confidence intervals are between $3.54 and $6.47 at 8,000 metric tons and $2.74 and $7.53 at 13,000 metric tons. These estimates are approximately $0.50 lower than *Model 2* and around $2 per a pound lower than *Model 1.* Given that *Model 3* most closely follows the seasonal harvesting trends as well as the state allocation constraints, the results from this model are our preferred estimates of the marginal value per a pound of summer flounder.

4.4.4 Caveats

As with any empirical study, there are limitations to our analysis. These limitations are a result of the modeling conducted as well as the available data we have used to conduct our analysis. Listed below are the major caveats with our work:

1. The data used in our analysis relies on the observer data set. This data set captures only a small portion of the total summer flounder landings. Although the observer data does closely align with the vessel trip reports it is important to note its limited coverage. The vessel trip report data can not be used in our analysis because it does not contain detailed and sequenced spatial behavior. Therefore, the observer data is the best available data set for our analysis.

2. Our analysis is a short run analysis of the commercial fleet. In our model the price of summer flounder is not endogenous and we do not account for the free entry and exit of fishermen within the summer flounder fishery. These factors may result in different results, but the data does not allow us to investigate these factors.

3. Our analysis does not account for the localized depletion within the fishery. As the quota increased, and more fishing occurs one might expect that the cost per a haul increases.

Chapter 5

Allocation Analysis and Recommendations

We conclude with our allocation analysis, which examines for a particular quota level the marginal benefits (or marginal willingness to pay) for each sector if an additional unit of quota was allocated to them. Following the equimarginal principle, we examine allocation levels where each sector's marginal benefit for the last quota unit allocated to them is equalized. Economists call this optimal because once we have established the optimal allocation, any other allocation necessarily lowers total economic benefits in the fishery.[1]

5.1 Allocation Analysis

The earlier chapters clearly demonstrate that both sectors benefit when quota is allocated to them. In this section, we compare these marginal benefits to examine

1. How the current allocation (60% Commercial and 40% recreational) compares to the optimal allocation

2. The quota allocation change that could increase economic benefits in the fishery

Both the commercial and recreational methodologies produce marginal value estimates that show what the sector is "willing to pay" for an additional unit of quota. We combine the marginal value estimates from Model 3 in the commercial Chapter 4

[1]This is a strong statement and we note the caveats to our work mentioned in this chapter and elsewhere in the document.

Figure 4.6 (the preferred model) with the marginal value schedule from the recreation Chapter 3 Figure 3.4 (also the preferred estimate). In order to do this, we assume a grand total allowable catch of 8,000 Metric Tons (as that was the approximate TAC level in 2014 and the last year of data included in our models) and imposed the following constraint on the commercial and recreational sectors:

$$Harvest_{Recreational} + Harvest_{Commercial} = 8000$$

This allows us to solve for one sector's harvest as a function of the other. The commercial harvest can be written as

$$Harvest_{Commercial} = 8000 - Harvest_{Recreational}$$

Using these constraints we combine the marginal value schedules for each sector in Figure 5.1. Note that in the figure, we use the preferred models from both the recreational and commercial sectors.

This figure shows, that once the 95% confidence intervals are included, there is no clear-cut difference in marginal value schedules for a wide swath of quota allocation levels between 2000 and 6000 metric tons. Once the uncertainty is factored into the equimarginal analysis,

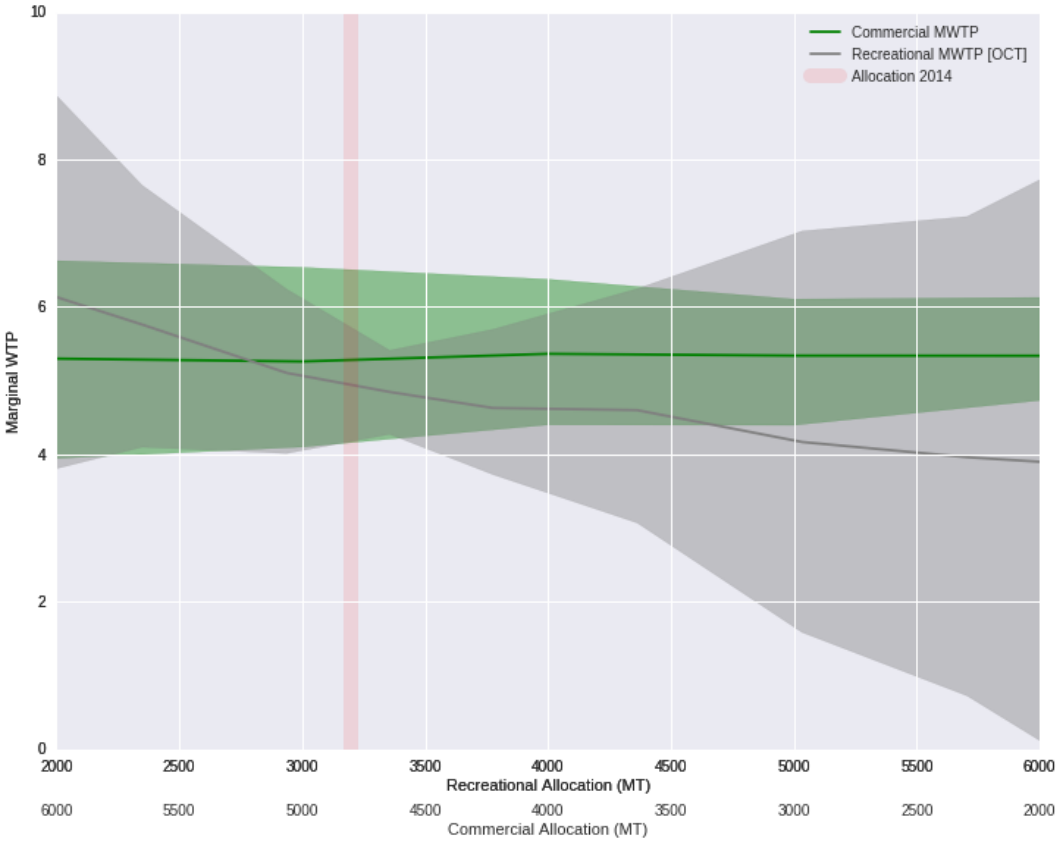
- The current allocation can't be said to be sub-optimal since stakeholders directly engaged in summer flounder fishing have very similar "Willingness to Pay" for an additional pound of fish in the neighborhood of the current allocation.
- Modest changes from the current allocation would most likely not lower benefits in the fishery.
- Large changes severely limiting one sector over another would most likely lower benefits in the fishery.

5.1.1 Caveats

The aforementioned analysis hinges on a number of key assumptions and we want to make clear some that we think are quite important to note alongside our main results.

Recreation Caveats

Figure 5.1: Marginal Benefits of Quota by Sector



1. By focusing on angler behavior, we ignore any other changes in consumer or producer surplus in the recreation sector that is *due to quota changes in the summer flounder fishery* such as losses/gains in profits at bait shops and boating repair and supply businesses. This means we are tending to underestimate the marginal value schedule for the recreation sector.

2. Our adjustment above in Figure 5.1 to account for the opportunity cost of time is an estimate of what the complete model might look like. In a sense, we are performing a benefits transfer with all of the issues that accompany it. We think it is a reasonable approximation since, both studies examine the same resource, use the same data, and employ similar methods.

3. Our methods do not account for changes in participation and numbers of trips due to policy changes. Consequently, we are tending to underestimate the marginal

value schedule for the recreational sector.

Commercial Caveats

1. The benefits accruing to commercial anglers occur in the *short-run*, since an extensive literature (see Grafton et al. (2006) for a brief overview) has shown that exogenous changes in profitability in regulated open access fisheries are often driven to low levels as commercial vessels try to out-compete each other to catch the fleet quota. Consequently, we would expect the marginal value schedule in 5.1 to decline over time.

2. Like the recreation analysis, this study only focuses on at-sea commercial behavior and ignores any changes in consumer and produce surplus in the commerical sector *solely due to quota changes* such as boating and dock services, and losses in consumer surplus for consumers of summer flounder. Consequently, we are tending to underestimate the marginal value schedule for the commercial sector.

3. Our work ignores any localized depletion due to fishing. As quota is increased, and more fishing occurs one might expect the cost per haul to increase.

5.1.2 Recommendations

Deciding the sector allocation of summer flounder between the commercial and recreational sectors, is an impactful policy decision that alters the welfare of these respective sectors. In our analysis we have focused on making conservative recommendations regarding sector allocation because each of the models developed in our analysis possess important caveats and limitations that are relevant to policy. Although, the methods and data used are the best available we have made a concerted effort to acknowledge the limitations of our efforts and its efficacy for public policy. Given our results, there are a number of short-run implications of our analysis.

In the short-run, we don't see any statistical difference between the marginal value schedules of the two sectors using the preferred set of results. This suggests that the current sector allocations conform with our results. Although the mean estimates for the commercial sectors marginal valuation lie below those within the recreational sector when the recreational allocation is below approximately 2,700 metric tons, the confidence intervals for both sectors overlap. This indicates that our results provide little empirical support for altering the current allocation. Our results also suggest that modest changes

in allocation *in either direction* would most likely not lower the economic benefits in the fishery. Large changes that severely restricted one sector over another would most likely lower the economic benefits in the fishery.

Our results can not be used to inform any long-run policy analysis as both sectors are likely to change their behavior should the existing allocation change. On the recreational side our results ignore any changes that may arise in related sectors (i.e., party/charter owners, bait and tackle shops, etc..) and changes in recreational effort that could impact their marginal valuation. On the commercial side our results do not address any changes in the prevailing market (i.e, ex-vessel prices), fleet behavior (i.e, entry and exit), or in related sectors should the allocation to the commercial sector change. Consequently, based solely on the equimarginal analysis performed here with accompanying caveats, we do not recommend changing the quota allocation as the marginal value schedules (Figure 5.1) are nearly equalized at the current allocation level.

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Appendix

Table 5.1: Total Recreational Summer Flounder Catch by State (2010-2015)

		2010	2011	2012	2013	2014	2015
Connecticut	Catch	408103.0	391627.0	368752.0	1135976.0	757270.0	522428.0
	% SE	23.1	29.7	22.8	14.6	20.7	22.2
Delaware	Catch	672223.0	682321.0	298917.0	296722.0	385462.0	207777.0
	% SE	14.6	16.6	16.6	12.2	12.2	14.1
Maryland	Catch	1250666.0	487883.0	236175.0	333283.0	710356.0	288387.0
	% SE	33.9	22.8	33.2	14.4	32.6	24.3
Massachusetts	Catch	259869.0	240958.0	326079.0	93176.0	449391.0	168620.0
	% SE	56.3	22.6	24.1	19.1	47.0	20.7
New Jersey	Catch	11117078.0	8832808.0	8111333.0	7705212.0	10688470.0	5174878.0
	% SE	8.9	10.1	10.9	12.3	11.8	9.0
New York	catch	6905742.0	7671293.0	5521735.0	5184731.0	5033970.0	4732687.0
	% SE	11.6	10.4	11.8	13.0	10.4	11.5
North Carolina	Catch	79184.0	61629.0	63505.0	45469.0	47026.0	40561.0
	% SE	13.0	16.3	17.0	17.0	19.7	23.1
Rhode Island	Catch	348766.0	885522.0	484903.0	654975.0	601986.0	576822.0
	% SE	17.3	23.8	17.2	35.1	21.3	20.9
Virginia	Catch	2679889.0	2304658.0	1116641.0	701788.0	781730.0	773296.0
	% SE	13.4	17.6	15.3	14.9	10.7	23.7

Table 5.2: Total Recreational Summer Flounder Harvest by State (2010-2015)

		2010	2011	2012	2013	2014	2015
Connecticut	Harvest	35028.0	47071.0	62501.0	269650.0	119502.0	97215.0
	% SE	30.7	33.9	41.5	18.7	21.1	28.9
Delaware	Harvest	53512.0	66820.0	45474.0	58279.0	93029.0	51450.0
	% SE	18.2	21.9	23.7	13.7	15.8	13.9
Maryland	Harvest	25215.0	15347.0	22617.0	53180.0	79513.0	44437.0
	% SE	35.7	44.8	32.2	22.1	56.1	27.9
Massachusetts	Harvest	45156.0	58372.0	75803.0	31228.0	112840.0	79109.0
	% SE	48.0	36.8	34.1	26.1	41.1	34.5
New Jersey	Harvest	552401.0	736848.0	1130407.0	1244432.0	1175383.0	497482.0
	% SE	13.7	13.0	11.8	14.6	11.7	11.1
New York	Harvest	334491.0	376198.0	509123.0	518016.0	509131.0	543278.0
	% SE	16.8	16.3	17.2	16.0	14.7	11.2
North Carolina	Harvest	77157.0	60422.0	63135.0	44941.0	45708.0	40561.0
	% SE	13.2	16.6	17.1	17.2	20.2	23.1
Rhode Island	Harvest	118455.0	161125.0	103102.0	127713.0	184668.0	164028.0
	% SE	33.0	31.3	32.9	25.8	22.5	24.9
Virginia	Harvest	260050.0	317674.0	259973.0	186916.0	139431.0	159234.0
	% SE	15.2	19.0	16.9	31.7	15.3	25.0

Table 5.3: Total Summer Flounder Harvested Weight (Pounds) for Atlantic States (2010-2015)

		2010	2011	2012	2013	2014	2015
Connecticut	Pounds	132013.0	186834.0	191119.0	888906.0	391168.0	346179.0
	% SE	31.3	35.0	39.2	18.5	20.1	29.4
Delaware	Pounds	159976.0	182733.0	141935.0	159185.0	227913.0	114638.0
	% SE	18.1	22.4	24.6	13.9	16.5	14.7
Maryland	Pounds	91834.0	55686.0	61514.0	108690.0	179313.0	103613.0
	% SE	38.3	46.7	33.1	21.7	56.0	31.7
Massachusetts	Pounds	137611.0	202665.0	175110.0	64365.0	238604.0	146532.0
	% SE	44.4	51.6	32.6	27.9	36.0	27.5
New Jersey	Pounds	1614357.0	2116951.0	3063723.0	3316971.0	3608939.0	1442827.0
	% SE	14.0	13.2	11.8	14.3	12.1	11.0
New York	Pounds	1612298.0	1718121.0	1760650.0	1954821.0	1677717.0	1708882.0
	% SE	16.8	17.4	17.3	17.2	16.1	11.7
North Carolina	Pounds	111539.0	100543.0	101642.0	70874.0	67791.0	64065.0
	% SE	13.4	16.0	17.0	17.3	22.1	23.5
Rhode Island	Pounds	458873.0	511544.0	335506.0	371948.0	636207.0	600597.0
	% SE	31.3	29.0	36.7	24.8	22.7	27.9
Virginia	Pounds	789856.0	880639.0	658476.0	450884.0	370906.0	342841.0
	% SE	15.0	18.8	17.2	31.2	17.0	23.9

(a) New York and New Jersey

(b) Other Atlantic States

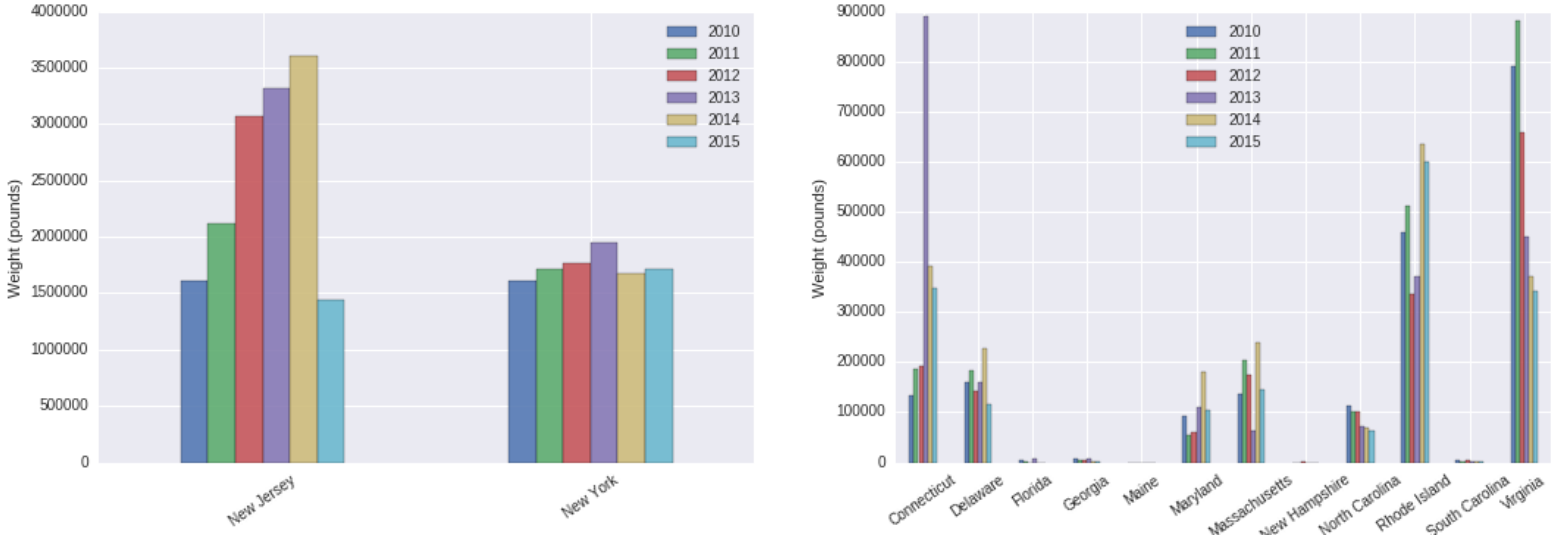


Figure 5.2: Total Recreational Harvested Weight (Pounds) (2010-2014)

Findings of the Mid-Atlantic Fishery Management Council Expert Review Panel of the Project Report "Commercial and Recreational Allocation for Summer Flounder"

Introduction and Acknowledgement

This report is a consensus report of an Expert Review Panel created to conduct a scientific peer review of the Mid-Atlantic Fishery Management Council (MAFMC) contracted research paper "Commercial and Recreational Allocation for Summer Flounder." The views expressed are those of the individual members and do not represent official positions of their employing agency or institution.

The panel expresses its gratitude to MAFMC staff Dr. José Montañez and Ms. Kiley Dancy for providing the review materials to the panel and managing the meeting logistics and to Mr. Kirby Rootes-Murdy from the Atlantic States Marine Fisheries Commission for his assistance throughout the process.

Background

The MAFMC and the Atlantic States Marine Fisheries Commission (ASMFC) are developing an amendment to the Fishery Management Plan (FMP) for Summer Flounder, Scup, and Black Sea Bass, to include a comprehensive review of all aspects of the FMP relating to summer flounder. One major issue that the MAFMC and ASMFC plan to address through the amendment is the current quota allocation between the commercial and recreational sectors of the fishery.

The MAFMC and ASMFC are interested in using an empirical basis to help evaluate allocation decisions in the summer flounder fisheries. The MAFMC contracted Dr. Kurt Schnier (University of California, Merced) and Dr. Rob Hicks (College of William & Mary) to develop a model to examine the economic efficiency of the current allocation system.

This project includes the development of two separate models, one for the commercial sector and one for the recreational sector. Each of these models is used to construct a behavioral simulation, calibrated using existing data. The simulation model is used to estimate the marginal value for summer flounder in the recreational and commercial fisheries under alternative sector allocations.

Because of the importance of allocation decisions the MAFMC convened an Expert Panel to conduct a scientific peer review of the analytical framework and empirical application of recreational and commercial models developed by Drs. Schnier and Hicks. The Panel included members from the MAFMC's Scientific and Statistical Committee (Dr. Doug Lipton, NOAA Fisheries Senior Economist; Dr. David Tomberlin, NOAA Fisheries Office of Science and Technology; Dr. Mark Holliday, NOAA Fisheries Policy Office, retired; and Dr. Lee Anderson, University of Delaware, Professor Emeritus), and an outside expert Dr. Jorge Holzer (University of Maryland). The panel was moderated by Dr. Eric Thunberg (NOAA Fisheries Northeast Fisheries Science Center). Other attendees included Kiley Dancy (MAFMC staff), Kirby Rootes-Murdy (ASMFC staff), Michael Luisi (Maryland DNR/MAFMC chairman), José Montañez (MAFMC staff, via webinar), Brandon Muffley (MAFMC staff, via webinar), Annie Hawkins (Kelley Drye & Warren), and Greg DiDomenico (Garden State Seafood Association).

The Review Panel met on November 18, 2016, in Baltimore, MD (meeting agenda attached). Review materials, including the report prepared by Drs. Schnier and Hicks were provided to the panel approximately one month prior to the meeting. During the meeting, the report authors provided a detailed presentation of both the recreational and commercial allocation models. The

Review Panel commends both Drs. Schnier and Hicks for the clarity and openness of their presentations.

The following provides comments from the Expert Panel on each of the five Terms of Reference (TORs) provided by the MAFMC. This report summarizes the Panel deliberations that occurred during the Review Panel meeting. Each panel member was also asked to provide written comments on the report. These comments are included as attachments to this consensus report.

TOR 1: Were the theoretical and statistical model specifications for the recreational valuation module done in a manner consistent with professional standards?

a. **Are the statistical methods themselves compliant with theory?**
b. **Are the statistical methods appropriate for the problem being addressed?**
c. **How appropriate were the data used in the analysis? Are the data sufficient to estimate the model? Do missing data pose a risk of biasing the parameter estimates or the model results? Are appropriate reasons listed for not including specific data sets? What proxy data are used and was it the most appropriate data to use?**
d. **Were alternative model specifications investigated and tested? Were assumptions underlying the statistical analysis of the models clearly stated?**

Findings – The Review Panel finds that the recreational valuation module was consistent with economic theory and the statistical methods applied were consistent with professional standards. The Random Utility Model (RUM) is appropriate for estimating marginal recreation values based on the available data. The Review Panel found that the data were used appropriately and that alternative data were either not available or would not have resulted in improved estimates of recreational fishing values. Alternative model specifications were investigated. The Review Panel did raise several issues that need to be considered.

- The Marine Recreational Information Program (MRIP) data were the appropriate data to use for this purpose. However, these data were not scrutinized nor adjusted by the authors for outliers or anomalies that could influence the estimated parameters either up or down. Statistical information on the properties of the data used is provided in the report but only at aggregated levels. Given high interest and skepticism surrounding MRIP data the authors should be prepared to document in detail which, how, and when these data were used and any steps taken to minimize MRIP quality impacts on the model.

- The report is written at a fairly general level, which omits a substantial amount of technical detail. However, omitting this information makes it difficult to replicate the study. A technical appendix would be appropriate to more thoroughly document the data and procedures.

- The recreational valuation model was based on a single year (2014) yet the site-specific catch rates were based on a multi-year average pooled across multiple intercept sites within a county. One limitation is assuming that the mean of pooled catch rates, over a number years with ever-changing stock and regulatory conditions, accurately reflects angler expected catch rates in 2014. It is also important to note that the choice of model year (i.e., 2014) affects the estimated total valuation since it depends on the number of trips that targeted or caught summer flounder as well as the total number of recreational fishing trips in that year.

- In addition to trips that targeted and caught summer flounder, the model included both angler trips that targeted summer flounder but did not succeed in catching any summer flounder as well as trips that take place within the management unit that didn't target summer flounder but still caught summer flounder incidentally. That these latter two sets of anglers derive value from summer flounder quota is a valid assumption of the research. However, this will need to be more clearly explained as attributing value to anglers that did not catch any

summer flounder will be hard for a lay audience to understand.

- Although attributing value to trips that did not catch or target summer flounder is a valid assumption, the model does not evaluate any angler entry-exit or opt-out decisions to link recreational choices to the level of quota. Instead, the number of trips is fixed regardless of how large or small the allocated quota is. This is a strong assumption that needs to be further evaluated for its influence on the model outcome.

- In the absence of a trip response there is nothing that would drive a change in the number of trips or recreational expenditures. This means that the caveat noted by the authors that the recreational values do not include producer surplus from related industries (e.g. bait/tackle, food, beverages, etc.) is *not* a limitation of the model at least as it was constructed and estimated. By contrast, the commercial valuation model is based on simulating a change in the number of commercial fishing trips that would be necessary to harvest the commercial quota. This means that omission of profits from related industries (e.g., purchases of gear, repairs, fuel, ice, bait etc.) is a limitation of the commercial module.

TOR 2 Were the theoretical and statistical model specifications for the commercial module done in a manner consistent with professional standards?

a. Are the statistical methods themselves compliant with theory?
b. Are the statistical methods appropriate for the problem being addressed?
c. How appropriate were the data used in the analysis? Are the data sufficient to estimate the model? Do missing data pose a risk of biasing the parameter estimates or the model results? Are appropriate reasons listed for not including specific data sets? What proxy data are used and was it the most appropriate data to use?
d. Were alternative model specifications investigated and tested? Were assumptions underlying the statistical analysis of the models clearly stated?

Findings - The Review Panel finds that one aspect of the RUM model as it was applied to the commercial fishing module was not compliant with economic theory. Specifically, the revenue-based RUM model implies that the marginal utility of profit depends on the different sources of species revenue is inconsistent with professional standards that holds that the marginal utility of profit does not depend on the source of revenue. The Review Panel recommends re-estimating the commercial RUM model in terms of catch, which would be consistent with professional standards. In all other respects the statistical methods were compliant with theory and were consistent with the problem being addressed. The available data were used appropriately although the Review Panel raised several issues that may need to be further explored or at least noted in the report. These issues as well other comments on the commercial valuation module are noted below.

- The observer data is appropriate for the purposes of the commercial valuation model, however, relatively little attention has been paid to the statistical properties of these data and their limitations. These limitations include:

- The selection of observed trips is not random. Trip selection is based on a mixture of requirements guided by protected species interactions and the Standardized Bycatch Reporting Methodology policy. Moreover, the priorities between these two purposes has changed over the years that have been included in the commercial RUM model.
- Certain vessel classes are underrepresented (e.g. smaller vessels, vessels without a valid Coast Guard safety inspection, or vessels in remote ports).
- Vessel operator fishing choices are known to differ while carrying an observer as compared to trips when an observer is not present.

- The RUM model uses data over a 15-year period from 2000 to 2014. These years reflect: many changes in the summer flounder stock size and distribution both in time and space; regulatory changes (including trip limits); changes in species jointly landed with summer flounder; changes in input prices, as well as technological change. These changes confound the estimation of the RUM model parameters and resulting valuation. These limitations need to be noted in the report.

- The commercial model takes into account state-by-state summer flounder allocations as well as quota limits on black sea bass and scup. This does reflect the management of these species but as quota limits for black sea bass and scup are reached revenue from these species no longer contributes to net return, which for marginal trips could result in negative profit. The commercial model still retains these trips and would continue to select from these trips as long as the summer flounder quota for the state is not exceeded. This process needs to be noted.

- The mean marginal valuation (MV) is flat no matter how little or large the commercial quota is. This is because (1) The marginal productivity is unchanged and there are no price effects that would tend to drive MV up at low quotas or down at high quotas, and (2) Every trip in the dataset is assumed equally likely to be drawn. Note that the lower confidence interval of the commercial valuation module does decline but this is driven by trips that become constrained by the black sea bass or scup quota or by a state summer flounder quota being reached rather than economic or technical factors.

TOR 3: Was the link between the commercial module and recreational module done in a manner consistent with professional standards?

Findings: The Review Panel finds that the link between the commercial and recreational modules was done in a manner that was consistent with professional standards and that was internally consistent within the theoretical and empirical methods used in the recreational and commercial modules. The Review Panel raised several concerns related to the stated recreational and commercial caveats and the synthesis of the two modules. These concerns include:

Recreational Module

- The opportunity cost of time was the only thing for which an adjustment beyond the model result has been made. The inability of the RUM model (given the available data) to account for the opportunity cost of time was a significant omission cited by the authors. The Review Panel accepted the authors' use of benefits transfer to remedy this omission to be a practice consistent with professional standards as its use is well documented in the literature. However,

in terms of where and how the application of benefits transfer was presented in the report (in the draft reviewed by the Panel it appears after the initial comparison of estimates of commercial and recreational benefits) it gives the appearance as being a justification after the fact. Further explanation of the conceptual basis and uncertainties associated with applying benefits transfer in this case is needed.

- In this research, the absence of an economic add-on survey to MRIP for 2014 meant that the opportunity cost of time, as well as other recreational fishing costs were underestimated. While the direction of bias is known its magnitude is not. The benefits transfer adjustment for the opportunity cost of time was based on some but not all of the results shown in Gentner et al 2010. Consideration of the full range of estimates would be appropriate.

- The potential impact of assuming no localized depletion was noted as a caveat in the commercial module but the potential for reduced recreational values due to congestion effects associated with high recreational allocation was not noted. Increased recreational participation may adversely impact catch rates in some geographic areas, and competition and congestion at fishing sites may diminish the value of a recreational fishing day. These effects would not be captured in the RUM model.

- The recreational module does not take into account potential behavioral changes associated with anglers that may have stronger recreational preferences than others. Instead, all trips are selected with equal probability. This is a strong assumption that should be noted by the authors.

Commercial Module

- The procedures used to estimate the commercial values result in flat marginal values. In the modeling context lower total values are driven by constraints on black sea bass and/or scup and not by any economic factors such as declining marginal productivity or price effects.

- Benefits transfer was applied to the opportunity cost of time for recreational anglers but was not applied to the consumer surplus (CS) associated with consumer demand for summer flounder. While an estimate of CS may not be available for summer flounder there may be other studies where CS has been estimated that could be referenced. If the application of benefits transfer conceptually is inappropriate in this circumstance, then it should be documented why.

- The data used to estimate commercial profit do not result, strictly speaking, in an estimate of economic surplus commensurate with that of the recreational values. The methods used to estimate net return are consistent with common practice but it should be noted that these estimates are accounting profit and not producer surplus. It would be correct and less confusing to simply refer to the commercial values as profit rather than producer surplus.

TOR 4: Were the results of the analysis (synthesis of the two modules) clearly interpreted? Can the model be used to map out a benefit curve given changes in allocation across commercial and recreational fisheries and can the results be used for management purposes? Can the model be used to consider allocation alternatives that were not specifically analyzed? Is it possible to make modifications to the current model that would allow for the measurement of benefits (both total and marginal) in situations where allocations are not binding?

Findings - The Review Panel finds that: 1) The synthesis of the two modules was clearly interpreted; 2) The model can be used to trace out a marginal benefit curve given changes in allocation across commercial and recreational fisheries; 3) The model can be used to consider allocation alternatives that were not specifically analyzed, and 4) Modifications to the current model would be unnecessary to measure marginal or total benefits when quota allocations are not binding.

With respect to whether or not the model results can be used for management purposes the Review Panel found that the model is considered best available science and can be used to inform a management decision.

The Review Panel found that the model results do not suggest that the existing allocation is inefficient, or that a reallocation would result in an increase in net benefits based on equi-marginal principles. Moreover, the model results do not provide a strong basis for arguing for or against any specific allocation. With the exception of very large changes in allocation, the confidence intervals for both the estimated recreational and commercial marginal benefits overlap. This means that for a wide range of summer flounder allocation options, the sector and total economic value to commercial fishermen and recreational anglers would be largely unchanged, based on the models and their associated data.

The Review Panel notes that the authors adopted an equi-marginal principle to formulate their recommendation on allocation of quota between sectors. This mean that the optimal allocation occurs when the value of the last pound of quota allocated to the commercial and recreational sectors results in the greatest combined economic value of the fishery, all else equal. The Review Panel found the equi-marginal principle to be consistent with professional standards as a useful approach to assessing allocations. However, this is not the only factor Councils may take into consideration: the relative risk of overages in one sector or another; the relative likelihood of quota not being taken by one sector or another; uncertainties not captured explicitly in the model that might affect sectors differentially, such as changes in fuel costs; transferability of quota within/between sectors, and relative economic impacts beyond the fishery itself (e.g., processing for commercial, tourist infrastructure for recreational). The synthesis of the two modules does not investigate how these additional factors might deviate the Council from the equi-marginal/economically efficient outcome derived by the models.

The Review Panel provided several additional comments.

- The recreational and commercial modules were primarily constructed based on 2014 conditions to evaluate whether or not the existing 60/40 allocation is optimal. This means that commercial and recreational values are conditioned on 2014 summer flounder stock size and availability, stock size and availability of alternative target species, recreational participation, and commercial fleet size and structure. The model results and its utility for projecting forward to allocation decisions under future biological, environmental, social, and economic conditions has to be understood within this context.

- The differences in estimated commercial values between the results for model 1 and model 3 suggests that state by state allocations in the commercial sector may be introducing much larger allocative inefficiencies compared with current levels of commercial-recreational allocations (i.e., within sector reallocations could result in higher benefits to the nation, as the modeled value of summer flounder quota was much higher in some states than others).

- Given the lack of information on the probabilities of accessing the quota by the heterogeneous harvesters in each sector, the results should be used with caution. The study currently assumes that, within each sector, every harvester is equally likely to access the quota. However, this may not hold in practice.

- The authors' included a recommendation in the report the Panel reviewed to use the lower bound estimates, as this would be a more conservative approach. The Review Panel believes the authors should not imposes their own risk factor on behalf of the MAFMC. This is best left to the MAFMC to decide. The Review Panel notes that the model results are reported showing the full confidence interval so there is no need to make any statements regarding preference for any particular upper or lower bound estimate.

TOR 5: Can this model be used to assess allocation in other fisheries? Could future models be run by other individuals without major modifications (e.g., Council and/or ASMFC staff)? Can the model be easily updated to support new MRIP estimates?

Findings – The Review Panel finds that the theory and methods to assess summer flounder allocations would be applicable to other fisheries. These methods would still be applicable to the revised MRIP estimates but the values would need to be adjusted to accommodate the new sample frame for trips. In general, applying the model to other fisheries would likely be limited to species with high encounter rates in the MRIP intercept survey. This is because application of the RUM model requires a reasonably high number of trips that targeted and/or caught the species of interest. The panel notes that even under these circumstances, an economic add-on to the MRIP intercept survey would be highly advisable, for example, to obtain necessary data to compute opportunity costs. Allocation models for species with low encounter rates would likely require employing a different method such as a "stated preference" survey.

With respect to whether the summer flounder allocation model or similar models for other species could be run by other individuals (e.g., MAFMC and/or ASMFC staff)**,** the Review Panel finds that the software and computational requirements demand specialized expertise. The model would not be able to be run by other individuals without major modifications.

ATTACHMENT

AGENDA and BACKGROUND

Summer Flounder Allocation Model Peer Review

Friday, November 18, 2016, 9:00 AM-5:00 PM

DoubleTree Baltimore-BWI Airport
890 Elkridge Landing Rd., Linthicum Heights, MD 21090
(410) 859-8400

http://www.mafmc.org/council-events/2016/nov-18-sf-allocation-peer-review-meeting

Agenda

Friday, November 18, 2016

9:00- 9:20	Introductions; Overview of Meeting Objectives and Agenda
9:20 - 10:00	Presentation: recreational module (Kurt Schnier/Rob Hicks)
10:00-10:30	Discussion, Q&A, and response to recreational module terms of reference
10:30 - 10:45	Break
10:45 - 12:00	*Continued:* Discussion, Q&A, and response to recreational module terms of reference
12:00 - 1:00	*Working Lunch:* Presentation: commercial module (Kurt Schnier/Rob Hicks); begin Q&A and discussion
1:00 - 3:30	Discussion, Q&A, and response to commercial module terms of reference
3:30 – 3:45	Break
3:45 - 5:00	Presentation: synthesis of model results; discussion and response to remaining terms of reference
5:00	Adjourn

Note: The meeting will be treated as a working meeting. The agenda reflects approximate times. Questions from the review panel may be entertained at any time during presentations.

Comments from Mark C. Holliday, Ph.D. (NOAA Fisheries Service, Retired)
Mid-Atlantic Council Scientific and Statistical Committee
November 21, 2016

O**verall:**

The research meets or exceeds the standards for a scientifically-based and statistically defensible modeling of marginal economic benefits of the allocation of the summer flounder catch between commercial and recreational sectors. The specifications are sufficiently supported by the stated assumptions and the documented caveats in the paper such that it is consistent with professional standards. The theory has been well tested previously for the recreational model and the commercial model is well documented. There are significant limits to the economic data collected by management authorities to conduct such research, and the authors did not conduct any additional primary data collection. Nonetheless, the information set used is considered to be the best available. The research result satisfactorily documents that the current 60/40 allocation is not sub-optimal, from an economic efficiency perspective based on an accounting of marginal benefits of those with direct engagement in fishing. Moreover, the authors' models of commercial and recreational fishing behavior showed clearly that modest reallocations between the two sectors would not produce substantial changes in overall benefits from the fishery.

From a public policy view the two behavioral models are by definition a limited (i.e., economic efficiency) specification of the full suite of issues facing angler and fishermen choices, as well as the Council's factors going into the allocation decision. This affects the broader utility of the models for decision-making. It is a very useful tool that takes a static look at confirming whether the 1993 allocation was the best one or not, all else being equal.

The research did not target looking forward to what should be the optimal allocation in the future given projected or hypothetical conditions with respect to stock productivity, stock availability, changes in fishing effort (trips) by existing fishermen (as well as entry and exit into the commercial and recreational fisheries), and changes in the summer flounder markets/prices through product competition/substitution, trade and aquaculture. The paper acknowledges the shortcomings of a static view, stating all else being equal, and discounts the distributional and social impacts of allocation important not only to decision makers but to angler and fishermen choice sets. The Council's long term interest is a tool to project an optimal allocation for the future under changing conditions (whether that is an annual specification, one that is revisited every x years, or in perpetuity). These considerations were presumably beyond the scope of work.

It is noted that the research was extremely data-intensive, computationally complex, and it pushed the limits of currently available statistical software and hardware. There are few analysts who could undertake this type of work successfully. These factors may limit the model's broader application to other species. Moreover, besides summer flounder (one of the most commonly observed species in the recreational data set), there may be an insufficient number of data observations for other species to satisfy the requirements of the model.

Specific Comments:

1. With respect to the recreational model, the site-specific mean catch rates per wave appear to be based on a multi-year average and computed across multiple locations in the MRIP site register at the county level, yet the allocation decision modeled was for a single year (2014). Two issues stand out: 1. How well do the means, representing a changing catch rate over a period of years, reflect the catch rate choice in 2014? The fact that there are differing regulations by State, and within a State, different regulations over time, indicates that summer flounder management is facing ever-changing conditions. The different

states value quantity of fish, size of fish, and access to fish (seasonality) differently. However, the site-specific quality measure is mean catch per wave. How did modeling 2014 accurately represent the dynamics of catch rates over time, particularly as a function of stock abundance and regulatory measures we've seen over the last 5-10 years? Was the 2014 catch rate choice to be modeled more likely a probability range versus a mean?; 2. How aggregation of sites within a county was handled is not discussed in any detail. The catch rates are not likely normally distributed. While sites in the register are weighted in proportion to their likelihood of producing a fishing trip (angler avidity) the probability of encountering summer flounder catch at a site and its computed catch rate (# fish/trip) will have different probabilities. How does this affect the angler choice set of selecting a county? Was catch rate distribution across sites within counties looked at, and how would calculation of means be affected? Inclusion of some of the statistical properties of the catch rate computation (n's, means, range, etc.) and discussion within the paper would document whether this had any effect.

2. The use of MRIP data does qualify for the "best available data" but that does not mean it has received sufficient attention by the authors. Very often no information is provided on the sample sizes used to calculate the parameters nor are their statistical properties documented. In addition, the authors do not indicate whether they subjected the raw data to any form of quality control. What is presented are tables or figures of estimates at the aggregate level (the finest detail being State estimates of catch and trips). Biases in the underlying raw data (e.g., digit bias), small sample sizes and coding errors can manifest themselves in anomalous results. From a credibility standpoint, examination of these data is critical as many participants have already viewed the raw and estimated data for States like New Jersey and New York and are skeptical of their validity. Because of the context in which this research was conducted it was suggested it needed to spend extra effort to anticipate criticism of the outcomes if the data were not sufficiently reviewed. The paper makes no mention of this issue; it should at least document what was/was not done to the raw data to assess outliers and their treatment (e.g. MRIP data showing summer flounder in Puerto Rico as cited by one of the authors in the November 18th meeting).

3. Similarly, the utility of observer data as the commercial source of data is given short attention by the authors. Its use is also justified as the only set meeting the model's criteria yet little time is spent discussing any actual evaluation of the data set. There is some uncertainty in the behavior of fishermen on observed versus unobserved trips, and this would be useful to evaluate in the context of how they data set is used in the current model. Moreover, the selection of trips to observe is not random: certain fisheries and gears were targeted for inclusion because that was where funding or regulatory requirements directed effort to be undertaken (e.g., Marine Mammal Protection Act funding; Standard Bycatch Reduction Methodology litigation outcomes). In addition, certain classes of vessels may be underrepresented (e.g., vessels too small to carry an observer; vessels in ports too remote or costly to get observers to; vessels excluded because they did not have a valid USCG safety inspection). This could affect calculation of trip costs, statistical areas fished and calculation of success rates, and/or revenue functions.

To investigate and mitigate the potential bias, comparisons of variables on trip data and tow data from other sources such as the NEFSC study fleet or other State and federal research could reveal some statistical differences. Even if there were differences identified, sensitivity analysis of the final estimated value per pound of summer flounder to the input data could find they had no impact but this type of analysis is not discussed. It would be valuable to know more about the data used including sample fraction, distribution by state, the statistical properties of the data set, and for example, the comparison of the author's cost, revenue and profit models to other researcher's work on the same topic. One could look at how representative were the sampled observer trips to the overall fleet, i.e., in terms of vessel size, number of trips, total revenue, trip location, home port, etc. Moreover, at the November 18th meeting a new NEFSC data set for weighting observer trips was revealed, and that might be useful to investigate if additional funds were made available. Comparing the author's results to other published estimates was

used in the paper's recreational section when model results were presented, for example. And attention to the question about confidence in the underlying data will be essential to the Council's ability to apply this work.

4. The use of opportunity cost estimates from Gentner to fill out a hole in the available data/model output is defensible and common in the economics literature, but the rationale and explanation in the paper is given very short treatment and justification. The authors do ascribe the positive use as a "benefits transfer" approach for opportunity costs, but they didn't propose to use this approach for any other missing information listed in their string of caveats. For example, would this technique be appropriate for the "missing" consumer surplus component on the commercial model side, why or why not? Instead they direct the reader to do their own reading of cited literature if they wish to better understand the applicability of this approach to the subject model's outcomes.

5. An additional caveat not discussed that could impact the utility of the model is that it does not account for changes in fishery availability over time as a result of climate changes impacts. If the center of the range of summer flounder is moving northward then historical catch areas will shift in the future and the models based on historical distributions of catch will become less representative of fishermen's true choices. The current costs to reach the more productive sites will be invalid. The authors might minimally describe the direction of any change in value based on distribution of fleet or fishing trips by State/port (albeit fishermen may continue to relocate in the long term).

6. Comments on Section 4.4.5 were discussed at length on November 18th; the principle is that the author's should not project their risk aversion profile on behalf of the Council. The risk policy decision is reserved for the Council to consider.

7. Several additional recreational and commercial caveats are worth noting:

- My comments and rationale for benefits transfer accounting in Figure 5.2 occurring elsewhere were discussed in detail at the November 18th meeting.
- Countering the potential for underestimating the marginal value schedule for the recreational sector caused by increases in participation and number of trips is the negative effect of such increased participation on the value of the recreational experience. Congestion in the form of crowed fishing sites, increased competition and impacts on catch rates (localized depletion) may occur with increased trips, lowering the marginal benefits value.
- Commercial caveats about dissipating value benefits over time as a result of open access was not tested or evaluated empirically for this specific fishery, and may be countered if additional forms of catch shares (as in Maryland) or sector separation tools are employed. Commercial caveats about costs per haul to increase as a result of localized depletion due to increased fishing could just as well be offset through economies of scale; it is impossible to say without any data or analysis what the net result will be.

Minor Comments/Editorial Suggestions (Needs a strong copyediting)

Search on "patter" replace with "pattern" or "patterns"; search on Massachussetts and replace with Massachusetts; search on "graphical" and replace with "graphically" (as appropriate)

P6 Para1: The range listed is not correct for summer flounder, which is east coast of Florida to Nova Scotia. What is cited appears to be the range for southern flounder *Paralichthys lethostigma*.

P6 Para 2: "Federal regulations" not "Official policies" are established by NMFS

P7 Para1: "...perception of overall health." unclear what has undergone a transition; declining stock health change is not a perception but a reality

p7 Para 3: Define/cite equimarginal principle (not principal)

P8 Para 1: Edwards (1990) not cited in reference section; using the term economic *impact* in first sentence is confounding efficiency vs. impact; *Maximizing total welfare*...to whom, accounting stance of producer and consumer surplus outside this analysis.

P8 Para 3: ...traditional*ly*

P9 Para 2: ...*motivate*??? "Inform"? "Provide a context"?

P8 Para 3: after "(Chapter 4)" add "*sectors";* in line 5 "...to develop *a"*

P10 Para 1: "...annual *ex vessel value*"; line 3: Are prices throughout paper expressed in constant dollars when evaluating trends?

P10 Para 2: "...is similar *to* the percentage"

P10 Para 3: Reference is made to comparing observer data to VTR data to investigate robustness of observer data - is this Table 2.4 on place where this is done/discussed? Why only 3 years (2012-2014) used in the table analysis, would like to see # observed trips vs. all trips, trips with VTRs, trips with VTRs AND observers. What analytical tests were run to evaluate differences (text says "for the most part" spatial data were similar -- were any statistical comparisons made? Only see one correlation coefficient mentioned. The validity of the observer data is foundational to the successful use of the model - expected to see more analysis.

P15 Figure 2.2: In B&W, figure could be misleading; legend has Observer data on top vertically whereas data line for observers is below VTR -- use dashed line or symbols in-line in addition to color as not many photocopies of paper will be in color. If the intent is to show seasonality then perhaps put observers on Y2 scale to better reveal monthly differences in values.

P16 Para 1: More documentation of the data range of the queries run for Section 2.3 should be included - heard to reproduce what you did. Suggest moving footnote 5 into first paragraph of Section 2.3 text - mapping MRIP and other conventions used for catch, harvest, landings, etc. is very confusing.

P16 Para 2: Last sentence incomplete...

P16 Para 3: line 3 "...except that ~~the~~"

P17 Para1: Table 2.7 shows 6 years of data but 7,398,558 is not the mean of those years but the point estimate for 2014. Same comment for Para 2 re: it is estimated catch, not mean estimated catch.

P17 Para 2: What defines a "sizable" amount of uncertainty -- a value-judgment being made here. The CV's for NY and NJ are under 20 percent, which for recreational survey results is almost the gold standard. If they are "sizable," what did you do to account for this uncertainty in your model/analysis?

P17 Para 2: More illuminating than saying total catch is declining would be to look at data and say catch is declining along with declining effort, or effort is stable of going up yet catch is going down; i.e., catch by itself is only part of the picture.

P22 Para 2: What is the conclusion being drawn here? Is there any? Where is the table /figure showing drop in trips from 2014-2015? The narrative of trends and the supporting for them in the form of tables and figures throughout 2.3.2 could be tightened up considerably with more and better cross references and stronger/clearer topic sentences for each paragraph trend.

P25 Para1: What is the rationale for choosing 2014, and would results hold if other years were chosen instead?

P25 Para2: Where is table or figure showing target species data?

P27 Para 1: "...our work ~~follows~~ uses"; You spelled out MRIP acronym twice, first use only is sufficient

P31 Para 3. "...mean catch of summer *flounder by* county per wave"

P32 Para 2: Confusing text and mixed tense from "Genter et al" onwards - rewrite please

P37 Figure 3.1: Label the different series peaks

P42: What does Footnote 14 refer to in the text?

P68 Para 3 "...produce*r* surplus"

Appendix Tables 5.1 - 5.3: Punctuate the numbers with commas (by thousands); add row and column totals as appropriate

Comments from Dr. Doug Lipton, NOAA Fisheries Senior Economist
Mid-Atlantic Council Scientific and Statistical Committee
November 30, 2016

1) Not meant as a critique of the authors, but of the process: A more iterative process for the analysis would be helpful in the future, similar to the procedures use for stock assessment. The analysts had to make many choices during the study regarding what data to use and the specific modeling approach to adopt. The review panel is asked to come in at the end of the process when there is little time to make substantive changes to the analysis. By reviewing the data and modeling choices earlier in the process, there is an opportunity to test and compare alternative approaches, and thus, lead to higher confidence in the output.

2) The RUM model as applied to the recreational sector aggregates fishing intercept sites to the county level and assigns catch rates to the county. The only travel cost considered is from the angler's home zip to the county centroid. There is no accounting for where the angler actually fishes on the water, and thus, the time spent to access better fishing grounds. This approach is necessitated by the data, but there needs to be a strong acknowledgement of the large amount of error this adds to the model results.

3) The recreational RUM model assigns average summer flounder keep and release for the county and wave as the angler expectation. Trips taken early in the wave, thus, have expectations that are formed mostly by data collected after they have taken their trip. Some examination of the data to see if this is an issue (e.g., low catches early in the wave, high catches late in the wave) impacted the results. Other approaches such as using some data from preceding wave (albeit, means losing observations in the first wave) could be explored.

4) The observed keep and release of summer flounder may be a result of either a binding bag limit on the trip, catch of undersized fish, angler preference to keep fewer than the bag limit, or some combination. Since there are variations in State bag and size limits, this may also confound the analysis. The implementation of the policy where it is assumed there will be an increase in keep may be overstating the welfare effects since it assumes all angers want to keep more fish.

5) The implementation of the 60 day lag (average catch for the 60 previous days) of catches in the commercial RUM model appears naïve given the known seasonality in the fishery. A more sophisticated spatial choice model could be explored in future work including looking at polynomial distributed lag models and combinations of annual and more recent lags.

6) The commercial RUM model of site choice, in addition to the issue discussed regarding species specific revenues, is estimated from data from 2000-2014. There should be some consideration of the fact that over this period, we observe North Carolina fishermen traveling longer distances to catch the statewide quota, and fishermen more closely located to fishing grounds, unable to make summer flounder trips due to lower state quotas. This phenomenon is demonstrated in the Model 1 simulations compared to Model 3, but how does it affect the distance parameter in the estimation and what are the implications for the simulations?

Comments from Dr. Jorge Holzer, University of Maryland
November 29, 2016

Overall, this is a well-executed project. The comments below refer to the commercial specification and the way the simulations on quota reallocation between the two sectors were conducted (due to the lack of additional data).

1. In the specification of the utility in the random utility model (RUM), it is unclear what the rationale is for assuming that the marginal utility of a dollar depends on where that dollar comes from (i.e. eq. 4.1. on p. 49, includes separate terms –and separate parameters to be estimated– for the revenues of the different species caught). It is suggested this specification is modified so that it uses total revenues, rather than individual revenues, to explain harvesters' choices. Alternatively, authors could use catch per species rather than revenues per species.

2. Note that, even if the suggestions in 1) are adopted, there is still a seeming mismatch between the computation of marginal values in p.55 and the utility, as specified in the RUM model and determining the probabilities of visiting the different sites. Indeed, while the former are based exclusively on expected profits, the latter are based on the specified utility, which does not include trip costs but includes the variable "distance".

3. In the commercial model, unlike the recreational model, constant marginal utility of the catch is assumed at the trip level. In other words, the utility associated with an additional pound of catch of summer flounder is the same, regardless of the total catch during the trip. This assumption, combined with the fact that, when drawing trips during the simulations, each trip in the dataset has identical probability of being drawn, effectively implies that, by design, the average marginal utility for the commercial sector will be a horizontal line. Similarly, when drawing recreational trips to meet the recreational allocation, it is assumed (again, due to lack of the necessary data to do otherwise) that each trip has the same probability of being drawn. These assumptions implied in the way the simulations are conducted are strong, although justified by the lack of additional data. Therefore, it is suggested that, in the list of caveats, it is explicitly stated that little is known about the probabilities of access of different harvesters/anglers. In the absence of transferable property rights in both fisheries and lacking additional data, the assumption of uniform random access (i.e. equal prob. of access) is the best the authors had to work with. However, there is no guarantee that the actual sorting of marginal values in the fishery is consistent with this assumption.

Comments from Dr. David Tomberlin, NOAA Office of Science and Technology
Mid-Atlantic Council Scientific and Statistical Committee
December 1, 2016

COMMENTS FOR COUNCIL:

The equimarginal principle is a useful approach to assessing allocations, but there are other factors for consideration: the relative risk of overages in one sector or another; the relative likelihood of quota not being taken by one sector or another; uncertainties not captured explicitly in the model that might affect sectors differentially, such as changes in fuel costs; and relative economic impacts beyond the fishery itself (e.g., processing for commercial, tourist infrastructure for rec).

COMMENTS FOR AUTHORS:

GENERAL:
Footnote 10 (ie that the model is limited to change in allocation only and not a change in TAC) is a significant limitation. Is there any way to help readers understand the likely implications of this limitation and how they might think about the case of simultaneous change?

It'd be good to explore benefits transfer from all three Gentner et al models rather than just the one preferred. Alternatively, you could look at how far the ratio of included to not-included would have to wander before it starts to look like evidence that an allocation shift might be needed (I don't have a specific method in mind for doing this, just throwing it out there as an idea that might help round out the picture).

DETAILS:

Pg. 29 point 3: does "overlap" mean geographic overlap or something else?

Pg. 31: how many observations were dropped in getting to the subset that meets the < 150 mile criterion? And was the subsetting on a) simply < 150 miles or b) jointly on <150 miles and also single day?

Pg. 32: if travel cost is the "lower bound" estimate, why not examine the upper bound too? I mean just explain why it's not as easy to do as the lower bound, not that you need to do it (unless it is in fact easy).

Section 3.2 / RUM model: any thoughts on what indexing by time might do (e.g., onshore / offshore movement of the fish suggest site productivity will vary during the season); is indexing by time irrelevant, unlikely to be informative, or just intractable?

Fig. 3.1: labeling is not clear in draft version

Section 4.1: summary stats on the data used for estimation would be nice, also an idea of what share of total fluke catch is accounted for by the observations kept in the data set

Comments from Dr. Lee G. Anderson, Professor Emeritus, University of Delaware
Mid-Atlantic Council Scientific and Statistical Committee
December 2, 2016

I made specific comments on copy editing and small issues during the meeting and in the review of the final panel report.

I think it should be acknowledged that this is the first time that the rum model was used in this way for commercial fisheries. It received high marks from the review panel during the discussion, although there were some suggestions for improvements. This is the first time I recall seeing estimates of the marginal benefit curves rather than just point estimates. I am pleased that the council supported this innovative work.

I think that it should be emphasized that although the report did not come out the way in a way that made either commercial or recreational interests happy (each would have like a report that gave them higher values), it did produce a definitive answer. Given the best information we have we cannot say that the current allocation is wrong on economic efficiency grounds. It is also important to keep in mind that these results are only applicable to this case at this time. It cannot be generalized to other fisheries.

This brings up a related point. Perhaps the report should have included a brief explanation of the equal-marginal principle and how it is to be interpreted. One important aspect has recently been made clear in the literature is that even if studies can show that the value of an extra fish allocated to a certain sector will have a higher value, this only become policy relevant if the actual way fish are allocated by regulation will send that fish to the higher value user.

A sex-age-length based fisheries stock assessment analysis with application to summer flounder (*Paralichthys dentatus*) in the Mid-Atlantic

Patrick J. Sullivan, Department of Natural Resources, Cornell University, Ithaca, NY, 14853-3001, USA

Model

The annual stepwise dynamics of population abundance by sex *s*, age *a*, length *l* and time *t* may be represented in matrix notation as:

$$\mathbf{N}_{t+1} = \mathbf{P}_t \mathbf{S}_t \mathbf{N}_t + \mathbf{R}_t \qquad (1)$$

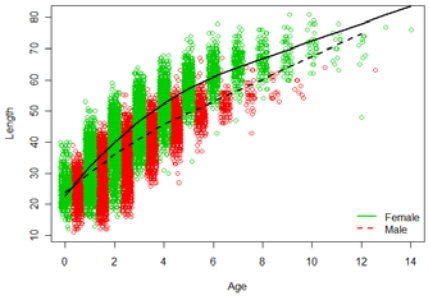
which projects the vector of the number of individuals at time *t+1* $\mathbf{N}_{t+1}$ as a product of survivorship $\mathbf{S}_t$ and growth $\mathbf{P}_t$ transition matrices times number at time *t* $\mathbf{N}_t$, with the addition of recruitment $\mathbf{R}_t$.

Results

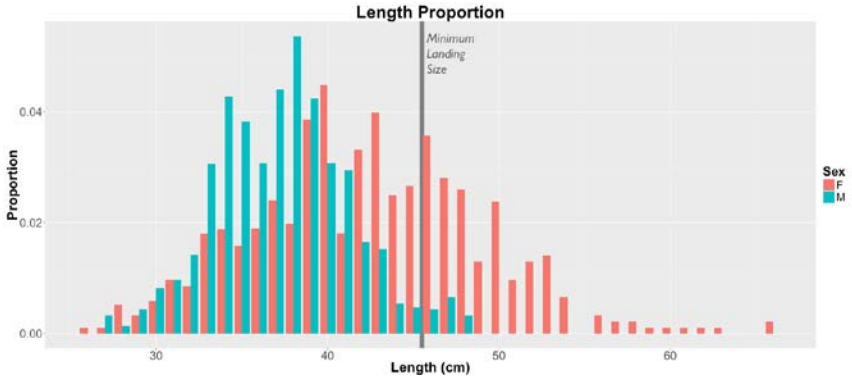
We've created this model and have applied it to simulated data that closely represents the actual data for the summer flounder fishery. The NEFSC survey and the state data are already in the proper data format for use. The next step is to put the fishery landings and discard data into the proper format.

Why consider such a model?

A sex-age-length based assessment will allow the option of exploring and implementing alternative management strategies, for example slot limits, which can may allow more efficient use of the resource while potentially reducing the risk to the stock.



NEFSC survey landings data by sex, age and length for all years.



Data collected by Rutgers University's Haskin Shellfish Research Laboratory during the first half of the 2016 fishing season (May through July) show that landings are composed primarily of female fish (the bars to the right of the grey line in the figure above) while males make up a significant portion (~60%) of the discards.

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

MEMORANDUM

Date: December 1, 2016

To: Council

From: Kiley Dancy, Staff

Subject: Summer Flounder Amendment Timelines and Next Steps

On December 14, the Council and Board are scheduled to discuss the Comprehensive Summer Flounder Amendment. Staff will provide a progress update, and ask the Council and Board to consider timeline options and priorities for issues to address. The first part of this memo describes the issues currently under consideration, along with related timeline considerations and status updates, while the second part describes timeline implications under different amendment development scenarios.

Amendment Issues and Status

The Council and Board have identified four major categories of issues to be explored through the amendment process, listed below. Several of these categories have associated sub-issues that have been raised as possible areas of focus for amendment alternatives.

1. Fishery Management Plan (FMP) Goals and Objectives

The Council and Board have discussed potential modifications to the current FMP objectives for summer flounder. The Council and Board provided feedback in December 2015 on draft revised goals and objectives, as proposed by the Fishery Management Action Team (FMAT). The FMAT has discussed this feedback and will incorporate it into a revised draft for the Council and Board to approve for inclusion in a public hearing document. This will occur when additional draft alternatives on other issues are ready for the Council and Board to approve for public hearings.

2. Commercial/Recreational Allocation

The Council and Board may consider revisions to the 60% commercial/40% recreational landings allocation for summer flounder. There are two issues impacting the timing of this analysis: the ongoing development of revised Marine Recreational Information Program (MRIP) catch estimations based on new effort estimation methodology, and the finalization of an economic model to examine economic benefits of different allocation scenarios.

As described in previous briefing documents for this amendment, major ongoing changes to the MRIP effort estimation methodology are expected to eventually result in revised time series of estimated recreational catch, landings, and effort, which will have major implications for analyzing alternatives for commercial/recreational allocation and several recreational management sub-

issues. The current Coastal Household Telephone Survey (CHTS) and the new methodology (Fishing Effort Survey or FES) are currently running side-by-side from 2015 to 2017, with full use of revised estimates and termination of the current method expected no earlier than 2018. Re-estimation of historical time series is expected sometime in mid-2017.

Preliminary results from the FES studies suggest that fishing effort estimates for shore and private/rental boat fishing have been underestimated in recent years under the existing CHTS. A recent MRIP progress update[1] states that in 2015, the side-by-side comparison suggests results similar to the earlier pilot studies, with overall FES effort estimates for private and shore mode combined 4.7 times higher than those derived using the CHTS. By mode, the FES estimates were 6.2 times higher than CHTS for shore mode, and 3.3 times higher for private/rental mode.

In addition to the MRIP considerations, the Council contracted a project to develop an economic allocation model for summer flounder to inform the discussion of this issue, to be presented to the Council and Board on Tuesday, December 13. The model aims to determine which allocations would maximize marginal economic benefits to the commercial and recreational sectors. The model has been developed such that it can easily incorporate a new MRIP time series once the new time series becomes available. Once the revised MRIP time series become available, likely sometime near the end of 2017, additional work by the model developers will be needed to incorporate the new data into the model and update the model results.

As described in the peer review report, the review panel found that the results from the current version of the model "do not suggest that the existing allocation is inefficient, or that a reallocation would result in an increase in net benefits based on equi-marginal principles. Moreover, the model results do not provide a strong basis for arguing for or against any specific allocation. With the exception of very large changes in allocation, the confidence intervals for both the estimated recreational and commercial marginal benefits overlap. This means that for a wide range of summer flounder allocation options, the sector and total economic value to commercial fishermen and recreational anglers would be largely unchanged, based on the models and their associated data." In other words, the model results alone do not provide an economic justification for an allocation shift based on marginal benefits to each sector. However, the Council and Board could base their policy decision on other factors other than economic benefits.

In summary, given that the results of the allocation model could change with revised MRIP estimates, staff and the FMAT have advised waiting until these new estimates can be incorporated before developing any alternatives or analysis for the commercial/recreational allocation issue. This development likely could not begin until late 2017 at the earliest (when the revised MRIP estimates are expected to become available).

3. Recreational Measures and Strategies

Several sub-issues have been suggested relative to the recreational fishery. These include:

a. Recreational Process, Conservation Equivalency Framework, and Recreational Allocations
b. Recreational Sector Separation (For-Hire and/or Shore Mode)
c. Alternative Recreational Strategies (allow for alternatives to minimum size, bag limit, and season restrictions; e.g., slot limits)
d. Recreational Gear Requirements or Restrictions
e. Recreational Data Collection Requirements and Protocols

[1] http://www.st.nmfs.noaa.gov/Assets/recreational/pdf/2015_FES_Progress_Report.pdf

The recreational working group has not yet begun developing alternatives for recreational issues, in part due to the uncertainty surrounding the MRIP revisions. Analysis of several issues would be impacted by the modifications to the MRIP estimation methodology described above. Specifically, the MRIP changes would impact analysis of:

- **Recreational allocation.** MRIP estimates will change by mode, state, and perhaps wave.
- **Sector separation (for-hire and/or shore mode strategies).** MRIP estimates will change for shore and private boat modes, impacting the proportions of landings by recreational sector. Estimates of shore and private boat effort are expected to be several times higher than under the current methodology.

Recreational issues that could possibly be addressed *without* revised MRIP data include:

- **Some recreational process issues.** Some improvements could be made to the process for setting recreational measures (e.g., administrative and management process, timing, methods of evaluating measures for reductions or liberalizations, etc.). The framework for conservation equivalency vs. coastwide measures could also be reconsidered. However, the FMAT has noted that some of these issues (in particular the details of conservation equivalency) are tied to recreational allocation decisions. It is also possible that some of these process improvements could be made without an FMP amendment.
- **Alternative management strategies (e.g., slot limits, cumulative length limits).** Under the current FMP, a slot limit could not be developed under coastwide measures during the specifications process. The federal regulations for specifications refer only to *minimum* sizes, not *maximum* sizes. Maximum sizes are, however, listed as a frameworkable item in the FMP. An FMP modification to allow maximum sizes to be set during specifications would be relatively straightforward to consider. Similarly, any other options for size-related measures that deviate from the minimum size could be considered through a modification to the FMP.
- **Recreational gear restrictions or recommendations.** Such measures, intended to reduce discard mortality, are unlikely to require supporting MRIP data, unless updated recreational effort information is desired to analyze potential impacts.
- **Recreational data collection** (depending on direction taken with this issue). This issue does not currently have strong directional guidance from the Council and Board. While recreational data collection is based primarily on the MRIP program at present, the Council and Board's apparent intention with this sub-issue is to consider measures/programs that may supplement or enhance the MRIP program, which would not likely conflict with or require revised MRIP effort estimates.

4. Commercial Measures and Strategies

Several sub-issues have been suggested relative to the commercial fishery. These include:

a. Commercial Allocation Strategies
b. Permit Capacity and Latent Effort
c. Commercial Landings Flexibility and Safe Harbor Provisions
d. Commercial Discard and Bycatch Reduction or Avoidance Strategies
e. Data Collection Requirements and Protocols
f. Accountability Measures for NEFMC sub-Annual Catch Limits (ACLs)

Staff and the FMAT have created an initial tasks list to begin addressing the above commercial issues. Staff has begun compiling related background information and data, including context and rationale for past decision-making, commercial fishery status and trends relative to each issue, and problem statements relative to each issue. Staff from GARFO's Analysis and Program Support division have been added to the commercial working group to facilitate pulling and analyzing commercial fishery data. Commission staff has also requested permit information from each state to begin assessing state permits relative to the issues of permit capacity and landings flexibility/safe harbor. Staff will continue to work with the working group and FMAT to address the commercial tasks list with increasing intensity in early 2017.

Timelines for Amendment Development

The timelines below provide an estimate of the development schedule under a few different assumptions regarding when and where each issue category should be addressed. As additional information has become available regarding the MRIP transition, and as Council staff has had recent discussions regarding timelines for major actions, it has become clear that the previously provided timelines for the Comprehensive Summer Flounder Amendment are likely to be unrealistic. Options below are presented based on a "modular approach," or splitting amendment issues or bundles or issues into separate actions. A single timeline to address all issues together is also presented.

Goals and Objectives ONLY:

If the Council and Board wished to complete revisions to the FMP objectives as a separate action (Framework action/addendum or short amendment), this could be done relatively quickly, depending on the joint Council/Board meeting schedule. If additional joint meetings were held prior to August, this action could likely be completed on a faster timeline. If the joint meetings remain February and August, a tentative timeline would be:

January 2017	FMAT refines draft alternatives for goals and objectives
February 2017	Council and Board consider and approve draft alternatives and public hearing document for Goals and Objectives action
March-July 2017	Public hearings and summarization of comments; preparation of documents for final action
August 2017	Final action on revisions to Goals and Objectives
September-October 2017	Staff finalizes and submits package/NEPA analysis (EA?)
Late 2017/Early 2018	Final rule effective

Goals and Objectives AND Commercial Issues:

If bundling revisions to the FMP objectives and commercial issues into one amendment (separating out recreational issues and commercial/recreational allocation), the timeline would be longer than for goals and objectives alone, but the exact timeline length would depend on the scope of issues to be addressed.

Timeline assumptions:

- All issues under "commercial issues" section above are addressed
- EIS is needed for NEPA analysis
- Minimal or no work is completed on recreational issues and commercial/recreational allocation while addressing commercial issues and goals and objectives
- Current schedule for joint Council/Board meetings used (with perhaps additional webinar meetings if needed)

This timeline would be similar if the Council and Board considered commercial issues only (without goals and objectives). A tentative timeline would be:

January-July 2017	Commercial working group and FMAT develop draft commercial range of alternatives and initial analyses/background for Council and Board consideration; FMAT refines draft alternatives for goals and objectives; staff begins Draft EIS; interim Committee/Board/AP meetings where necessary
August 2017	Council and Board consider and approve range of alternatives on commercial issues and goals and objectives
September 2017	Staff, FMAT and working groups refine analyses and develop public hearing document; continued work on Draft EIS
September-November 2017	Draft EIS submitted to NMFS for preliminary review
December 2017	Council and Board approve public hearing document and Draft EIS (Council must approve Draft EIS prior to public hearings)
January-April 2018	DEIS final submission; Notice of public hearings; Public hearings and summarization of comments; 60-day NEPA/MSA comment periods
May-June 2018	Council/Board consideration of public comments; Staff prepare documents for final action
July-August 2018	Final action
September-November 2018	Final Environmental Impact Statement finalized and submitted; NMFS and other agencies review; final edits completed
~November 2018-May 2019	Rulemaking and comment periods (4-7 months from after EIS finalized)
~Spring 2019	Final rule effective

*Note: the Board and Council could potentially consider a range of alternatives in May 2017, if the Board and Council met jointly and the development of issues is progressing well. The Commission's quarterly meeting in Spring 2017 is scheduled for May 8-11, 2017 at the Westin Hotel in Alexandria, VA.

ALL Issues (Goals and Objectives, Commercial/Recreational Allocation, Commercial Issues, Recreational Issues):

A timeline including all issues listed above in this document would likely take several years to complete, depending on the range of alternatives ultimately approved for analysis and public hearings.

Timeline assumptions:

- All proposed issues are addressed
- EIS is needed for NEPA analysis
- Revised MRIP estimates become available as scheduled (late 2017)
- Bulk of work on commercial issues is completed in 2017; bulk of recreational issues in 2018
- Current schedule for joint Council/Board meetings used, likely with additional webinar meetings

A tentative timeline would be:

January-July 2017	Commercial working group and FMAT develop draft commercial range of alternatives and initial analyses/background for Council and Board consideration; FMAT refines draft alternatives for goals and objectives; staff begins Draft EIS; interim Committee/Board/AP meetings where necessary
August 2017	Council and Board review progress on commercial issues and goals and objectives
Fall 2017	Recreational working group begins developing draft recreational range of alternatives and initial analyses/background; Commercial working group and FMAT continue to refine commercial analyses
Late 2017	Revised MRIP time series become available for management use
January-July 2018	Recreational working group and FMAT continue to develop draft recreational range of alternatives and initial analyses/background based on revised MRIP information; commercial/recreational allocation model is updated with new MRIP time series
August 2018	Council and Board consider and approve range of alternatives for all issues
September 2018	Staff, FMAT and working groups refine analyses and develop public hearing document; continued work on Draft EIS
September-November 2018	Draft EIS submitted to NMFS for preliminary review
December 2018	Council and Board approve public hearing document and Draft EIS (Council must approve Draft EIS prior to public hearings)
January-April 2019	DEIS final submission; Notice of public hearings; Public hearings and summarization of comments; 60-day NEPA/MSA comment periods
May-June 2019	Council/Board consideration of public comments; Staff prepare documents for final action
July-August 2019	Final action
September-November 2019	Final Environmental Impact Statement finalized and submitted; NMFS and other agencies review; final edits completed
~November 2019-May 2020	Rulemaking and comment periods (4-7 months from after EIS finalized)
~Spring 2020	Final rule effective

Potential Climate and Ocean Acidification Effects on Young Life-Stages of Summer Flounder

R. Christopher Chambers, Howard Marine Sciences Laboratory, Northeast Fisheries Science Center, chris.chambers@noaa.gov. MAFMC, Baltimore, MD, December 14, 2016

The effects of excess atmospheric CO_2, a greenhouse gas, from carbon combustion on our living marine resources are expected to range from subtle to profound. Researchers at the NOAA Fisheries Howard Laboratory, Highlands NJ, have been investigating two key challenges from a changing climate on fishes of the Mid-Atlantic and New England waters: responses to changing thermal conditions and to increased ocean acidity. Summer flounder (*Paralichthys dentatus*) is one of our focal species. It is the most economically valuable flatfish in U.S. Atlantic waters and has peak recreational landings in NY and NJ. Further, as a consumer of forage species and of young life-stages of economically important fishes, it is also a keystone species in shelf and inshore habitats.

We know that temperatures of ocean waters are central to marine ectotherm physiology but we know far less about the potential effects of elevated CO_2 in ocean waters (i.e., ocean acidification) on fish health, recruitment processes, and survival. The waters used by summer flounder for spawning and occupied by early life-stages (ELS) of their offspring are at risk for very rapid climate change (Saba et al. 2016. *J. Geophys. Res. Oceans*, 121, 118–32). A climate vulnerability assessment of LMRs of the Northeast Shelf Large Marine Ecosystem found that summer flounder has a very high risk of climate exposure, a high potential for changes in geographic distribution, and a high vulnerability of its early life-stages which are critical to recruitment and stock distributions (Hare et al. 2016. doi:10.1371/journal.pone.0146756). Recent studies suggest that the summer flounder stock already exhibits a northward shift (Nye et al. 2009 *MEPS* 393:111-129). Prior analyses of summer flounder thermal relations, however, have employed descriptive or correlative methods, have been mostly restricted to adults, and have not identified mechanism(s) driving these changes. Our recent research shows evidence of i) regional heterogeneity in summer flounder genotype associated with local conditions including bottom temperatures (Hoey et al., *in prep*.) and ii) a broad range of thermal tolerance by summer flounder ELS in experimental trials, but with significant and ecologically important responses to future climate regimes (Chambers et al. *in prep.*). Among other notable responses of ELS to higher temperatures is rapid development and smaller sizes at hatching and settlement.

Our recent experimental analyses of elevated CO_2 effects on summer flounder ELS (Chambers et al. 2014 *Biogeoscience* 11:1613-1626, Candelmo et al. *in prep*.) show significant negative effects of several key life processes. Responses to CO_2 levels expected by 2100 include 1) reduced fertilization rate (up to 30% reduction with an amplification of negative effects at elevated temperatures), 2) lower hatching success (> 50% reduction), and 3) a smaller size at ingress and settlement. The reduced fertilization and embryo survival rates would directly affect recruitment rates. The effect of elevated CO_2 on larval ontogeny (growth and developmental rates) would be expected to alter the prey field and predator risks of young juveniles as they enter the nursery habitat. These results, the context for the research, and plans for future experiments will be presented.

Mid-Atlantic Fishery Management Council
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Michael P. Luisi, Chairman | G. Warren Elliott, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: November 28, 2016

To: Council

From: Kiley Dancy, Staff

Subject: Summer Flounder Recreational Measures for 2017

The Council and the Atlantic States Marine Fisheries Commission's Summer Flounder, Scup, and Black Sea Bass Board (Board) will consider recreational measures for summer flounder in 2017. The following materials are enclosed for Council and Board consideration of this subject:

1) Advisory Panel meeting summary for summer flounder from November 17 webinar
2) Email comments relevant to summer flounder
3) Monitoring Committee recommendations for summer flounder from November 9-10 meeting
4) Summer flounder staff memo dated November 3, 2016

The Council and Board must recommend that the 2017 recreational fishery be managed either under conservation equivalency (state-by-state or regional) or with coastwide measures. If recommending coastwide measures, the Council and Board will need to specify a bag limit, size limit, and season to be implemented in all states and federal waters. If recommending conservation equivalency, the Council and Board must recommend a set of non-preferred coastwide measures and a set of precautionary default measures.[1] If conservation equivalency is adopted, the Commission's Technical Committee will develop proposals for specific state or regional measures in early 2017.

The Board has also initiated an addendum to consider regional options for conservation equivalency in 2017. The Board will need to consider approving the draft Addendum XXVIII for public comment.

[1] An explanation of these measures can be found in the staff memo and the Monitoring Committee recommendation summary.

Summer Flounder, Scup, and Black Sea Bass Advisory Panel Webinar

November 18, 2016

Council Advisory Panel members present: Carl Benson, Skip Feller, James Fletcher, Jeff Gutman, Gregory Hueth, Jan McDowell, Ross Pearsall, Michael Plaia*, Bob Pride, Paul Risi, Steve Witthuhn, Harvey Yenkinson,

Commission Advisory Panel members present: Jack Conway, Marc Hoffman, Ken Neill, Michael Plaia*, Art Smith, Buddy Seigel, James Tietje

*Serves on both Council and Commission Advisory Panels.

Others present: Julia Beaty (Council staff), Joe Cimino (VMRC), Kiley Dancy (Council staff), Tony DiLernia (Council member), Emily Gilbert (GARFO), Katie May Laumann (Monitoring Committee member, VMRC), Brandon Muffley (Council staff), Kirby Rootes-Murdy (ASMFC staff), Wes Townsend (Council member)

Summary

The Council and Commission's Summer Flounder, Scup, and Black Sea Bass Advisory Panels met via webinar to discuss recreational management measures for the three species in 2017. Comments on summer flounder are summarized below.

Summer Flounder Comments

Data Concerns

Four advisors voiced concerns about the data on which management recommendations are based. They were especially skeptical of the data from the Marine Recreational Information Program (MRIP) due to issues including low precision of some estimates, estimates based on low sample sizes, and estimates which do not agree with what advisors are seeing in their local areas. A few advisors also expressed concerns that data from the state and federal fishery-independent trawl surveys are inaccurate as they show lower abundances of summer flounder than what advisors are seeing on the water and at the docks.

One advisor said that landings in southern New Jersey were very low in 2016. He thought the biomass of summer flounder off New Jersey and farther south had decreased.

One advisor said recreational landings in New York were lower than normal in 2015 due to a late, cold winter. By the time the summer flounder arrived in mid-June, anglers were pursuing

other species. This advisor recommended that 2015 landings not be used to inform management decisions for this reason.

A comparison of projected 2016 recreational landings to the 2017 recreational harvest limit (RHL) indicates that landings will need to be reduced by approximately 40% to prevent an overage of the RHL. Many advisors said a reduction of this magnitude would have severe negative impacts for recreational fisheries. Two advisors said a 40% reduction would cause businesses to close. They argued that, given their concerns about the science and data used in the assessment and their skepticism of the MRIP landings data, there should be no further restrictions on recreational fishing until after a new peer-reviewed stock assessment is available. One advisor noted that new information is being developed, including a sex-specific assessment model.

Management Measures

One advisor thanked the Commission for allowing New Jersey to implement different regulations in Delaware Bay, compared to other areas of New Jersey, in 2016. This advisor said MRIP data suggest that less than 1% of New Jersey's recreational summer flounder landings came from Delaware Bay in 2016, so the change in regulations likely had minimal impacts on the stock, but it helped local businesses.

Two advisors recommended that the Commission return to state-by-state conservation equivalency, rather than regional conservation equivalency. One advisor opposed inclusion of New Jersey in a region with New York and other northern states, as the abundance and size of summer flounder are smaller in New Jersey than in neighboring states to the north.

The Acceptable Biological Catch (ABC) for summer flounder in 2018 is slightly higher than the 2017 ABC. One advisor recommended that the Council and Commission base 2017 management measures on the 2018 ABC, rather than on the 2017 ABC, to reduce the magnitude of the needed catch reductions.

One advisor said the regulations are currently so strict that there is a lot of illegal activity and undocumented harvest. He said making the regulations even more restrictive in 2017 would only exacerbate this problem. Another advisor agreed that there will be less compliance with more restrictive regulations.

Strategies to Reduce Discards

Four advisors said that discards should be reduced or eliminated in the recreational summer flounder fishery. Suggestions to achieve this goal included use of barbless hooks or certain hook sizes, as well as educational products, such as YouTube videos on handling and release techniques.

Two advisors recommended that all discards be prohibited. One advisor thought this prohibition should be coupled with a restriction on the number of fish that could be kept, regardless of the size of the fish. Another advisor thought this should be coupled with a restriction on the total cumulative length of the retained fish. For example, the combined length of all kept fish could not exceed 40 or 50 inches.

Two advisors expressed support of a slot limit (i.e., a combination of a minimum and a maximum size) to reduce mortality of large females, though they had some concerns. For example, one advisor said that, given the reduction in catch needed for 2017, a slot limit would likely have to be quite narrow to be effective. One advisor said slot limits could help anglers catch fish which they could keep, which would be beneficial even if they could only keep one fish.

Two advisors thought the actual discard mortality rate in the recreational fishery is probably higher than the 10% rate used in the assessment.

Dancy, Kiley

From: Vetcraft Sportfishing <vetcraft@aol.com>
Sent: Tuesday, November 15, 2016 1:07 PM
To: Dancy, Kiley
Subject: comments for advisory panel meeting Nov 17, 2016

Kiley.....I would like to submit the following comments regarding our summer flounder situation

This year was a very poor year for fluke fishing in south to central New Jersey based on my personal experience fishing every week of the season and experiences related to me by dock mates, fellow charter captains, and other fishing friends.This year was not an aberrant year but a continuing spiralling down in the fluke population in my area. Not only were the number of keeper size fish down but also the total number of undersized fish was way down again this year. Many of the charter captains gave up on fluke fishing toward the end of the season due to the lack of fish. Some charter captains ventured 30 plus miles to offshore wrecks trying to put together a decent catch for their patrons. One NJ captain even resorted to offloading his fluke in Delaware so as to fish under reduced size limits.

Many private boaters came back with no or few fish in the box, some traveling as many as 60 miles to various spots to try to find fish.On many weekends boaters who usually went out didn't go due to the poor results. Seeing a near vacant parking lot on open season fluke days was quite a shock. The economic loss to all businesses tied to fluke fishing in my area is quite apparent talking to marina owners, tackle shops, boat dealers, and others. With the lack of stripers, weakfish, porgies, and bluefish in our area, fluke is by far the mainstay of the economic fishing engine and the loss of this fishery would be devastating to the local fishery related businesses.

Of even greater alarm to me was seeing boats from my neighboring state of Delaware fishing along side of me at distances of 20-30 miles from their home ports trying to find fluke for their patrons. With Delaware having a minimum size of 16 inches, their inability to find fish this size closer to their home ports is of great concern. For example an area called the Old Grounds, ten miles off the coast of Delaware, was for many years a fluke haven with a massive quantity of fish in this 1.5 mile by 6 mile rocky-coral laden area. Now do to stock depletion and commercial dragging of this site, what once hosted many hundreds of boaters on any given day, now is host to a dozen or so boats at best.

Table 4 shows us Delaware, New Jersey, New York, and Connecticut all caught less fluke in 2015 then 2014. The same chart says that in 2016 (projected), the state catches in 2016 compared to 2015:

Delaware caught 88% more fish
New Jersey caught 30% more fish
New York caught 62% more fish
Connecticut caught 157% more fish

It seems to defy logic that the catch would improve so much in a state of declining biomass, particularly in the southern range of the stock. Certainly the catch, based on my observances and contacts was far less in southern and central NJ in 2016 than it was in 2015. I think MRIP data continues to be unreliable and needs massive revision, some comments to which, I have previously sent.

I know there is a push for a new stock assessment, but for sure the fluke population is in a clear state of decline. I know too that commercial fishermen are pushing for using professional commercial captains to pilot stock trawl data vessels to show adequate fluke stocks, and I am sure they will catch better, but for sure, all of the declining trawl stock data we currently have can not be erroneous.

I am certain if we continue on the same path we are on, both commercial and recreational entities will continue to suffer under reduced quotas, which may well worsen as we approach an overfished status, possibly as soon as next year.

While it is easy to point out problems, I would suggest the following solutions to help improve on total biomass, spawning stock biomass, and recruitment index, which are thel keys to improving the health of our summer flounder population. With both entities fishing under a MSR (minimal size requirement) system of management, we surely tend to destroy too many of our potential spawners in both sectors. We are lucky that fluke are capable of reproducing in their second year of life, yet we do little to take advantage of this. One of the three hallmarks of fishery management is to preserve enough individuals in a spawning stock biomass, something we are doing a very poor job at.

I feel the burden is on both sectors to do what we can to improve our spawning stock biomass and recruitment index.

Recreational:

1. Hopefully a slot limit will be allowed under the 2017 FMP for fluke to allow this as a federal option for future use (I know the states can do this under conservation equivalency).

2. A vast majority of recreational fishermen are terrible at releasing undersized fish unharmed. Little money would be needed to produce a you tube segment on proper fish handling to better educate our anglers. With social media being as pervasive as it is, this info could be disseminated at very little cost.

3. Reduce fish mortality. A 10% or greater fish mortality is wasteful and not acceptable for the fluke stock, especially in its status where overfishing is occurring.

a .Look at mandating a minimum hook size (5/0) to reduce deep hooking fish. Look at mandating circle hooks for "dragging type" rigs. Gut hooking fish is a major cause of mortality and we should make use of a hook size study done by one of our AP members a couple years ago. This is not without precedent as hook style was mandated for tournament marlin fishermen. This mandate must be applied in state waters as well, as simply requiring it in federal waters will be to little avail.

b. It is common practice (illegal) for fishermen to cut up small fluke for bait. Myself and a fellow captain presented to the NJMFC a plan to allow "ribbons" (the outside portion of the filet) from previous catches (these could be harvested commercially as well to provide extra income for the fish processors) to be used as bait. The council okayed the idea but was turned down by law enforcement. Use of these strips would cut down on this common practice. This too must be implemented in state waters to be useful.

4 .Improve law enforcement practices. Per a previous conversation I had with Dr. Bill Hogarth, director emeritus of NMFS, he mentioned if we make the regulations too tough, anglers won't abide by them. Our monitoring committee and SSC are well aware, as mentioned in our memorandum, that there is a substantial quantityof unreported, underreported, and misreported landings fluke being retained. The more we stiffen regulations and reduce quotas, the worse this problem becomes, one

which I witness to be quite substantial. It is quite likely that this is a substantial reason our fluke fisheries plans do not keep the stock adequate.

Commercial:

Let me insert this first. I personally have great respect for our commercial fishing comrades and admire their hard work in a dangerous environment.

1. One mistake we make in fluke management is a problem we have with all of our E-W migrating species under management. When a population migrates N-S like stripers, weakfish, bluefish, etc, it matters little whether a fish is harvested north or south, but such is not the case with fish like fluke, sea bass, and tog, where the species seasonally migrates inshore and offshore.

The progression of the epicenter of the fluke population to the north is quickly blamed on oceanic warming and ocean acidification. Whether one is a believer in ocean warming or not, it is clear that the few tenths of a degree of ocean warming that has occurred over the last several decades is not enough to explain the degree of northern shift of our fluke population. Recent studies are showing that the reason we have larger and more numerous fluke to our north is more because of less fishing pressure then it is to stock migration patterns.

Our commercial boats from North Carolina and Virginia (which have about 50% of the commercial fluke quota) have to travel many hundred of miles north to catch up to the fluke, a distance much greater then they did a decade or two ago. When we have unequal state quotas, overfishing will occur in regions closest to the home ports of these vessels.

I believe this northern shift is because we don't pay attention to stock spatial dynamics in a E-W migrating fishery like fluke. Fluke, like sea bass and tautog, have been shown to exhibit site and area fidelity in the migratory patterns. In other words, a fluke that migrates offshore in the winter in the northern most part of the stock range will return inshore in the spring in the northern most portion of the stock range. The same is true for the southern most fish in the stock. I believe historically we have put too much pressure on the stock in the southern region and have essentially "forced" the stock northward and depleted the stock to the south, relative to the north. I believe we should periodically **temporarily** close certain offshore fishing grounds to allow regional spawning stocks to recover. This is not unpresendented as this process is done, for example, in the scallop fishery by closing areas such as the Elephant Trunk to allow the stock to replenish. I know it is not the intention or mandate of the council to cause regionalized depletion of fluke stocks, but by not paying attention to harvesting parameters in this species, we are causing a loss of an inshore recreational fishery in the southern states of the summer flounder's range.

2. Pressure on the spawning grouping. We have very accurate data on the sectors where commercial landings come from and the timing of those catches. We also have data (much I have read about from the late 80's and early 90's) that shows the prime spawning time of fluke in their overwintering time frame. Fecundity status of fluke landed can easily be studied at fish processors establishments if further studies are allowed and funded.

I think we have little hope of rebuilding our summer fluke population if we don't do a better job of reducing pressure on the fluke when they are spawning. Many other species have this type of protection. For example, we close the rivers so the striped bass can spawn. In NJ we close tog fishing when they are spawning. In NJ also, sea bass catch limits during their spawning season is low. Even blue claw crabs have protected spawning areas in the Chesapeake. As a fluke can spawn in its

second year of life, we should be able to quickly replenish the stock and see improvements in the recruitment index by paying attention to this parameter.

Currently approx 60% of the 34 million dollar commercial fluke quota, is caught during the serial spawning offshore time frame. I would suggest some of this quota, particularly to the south, be **temporarily** shifted to other time frames and areas. Allowing the commercial fleet to offload their catch where caught would help to offset costs related to further distances to travel.

In the winter of 1981, the commercial harvest of fluke on the winter spawning grounds began and we quickly saw recreational stocks decline. The recreational catch went from 27.97 million fish in 1983 to 3.16 million fish in 1989. Clearly the harvesting of fluke during these spawning aggregations can quickly deplete a stock! Fish density per square foot is highest during spawning periods and makes for an easy catch, and will be the last bastion to show a reduced biomass.

I would ask council to consider an amendment or framework with addendum to implement changes to reduce pressure on the spawning stock and also address spatial shortages caused by overharvests in certain (southern) stocks.

3. As with the recreational fishery, a 10% dead discard rate is wasteful and unnecessary. The present system of dumping the net on the deck and shoveling over dead discards is wasteful and antiquated. Landing nets in water based areas or troughs could allow harvest of fish while greatly reducing death in discards. I would also look at continuing to mandate mesh size but not MSR so any size fluke could be retained as part of the quota.

NOAA fishery independent data

As part of our fishery data base, NOAA performs trawl data to assess our fisheries stocks. While this information is helpful if not mandated and vital, it should be done in a less draconian fashion. Here too, nets are dumped onboard and more of the fishery is depleted in the process. Good science dictates that a parameter should be measured with as little detriment to the subject matter as possible. We should not add to the depletion of a stock by our monitoring methodology. I believe money would be better spent on marine mechanical engineers designing better trawl harvesting methods, then on asking individuals to come up with bycatch reduction methodologies, as is currently done. Such knowledge gained could be implemented and shared or mandated to the commercial sector.

Conclusion

1. I am ashamed we have done such a terrible job of managing our fluke fishery and let the stock lapse where we are overfishing the biomass. As a representative of NJ, I continue to oppose Regionalized fluke management. In the years, 2011 to 2016, NJ has seen their catch decline 9%, whereas NY catch has gone up 217% and CT up 500%. Since regionalized management went into effect in 2014, NJ catch went down 55%, whereas NY has gone up 156%, and CT has gone up 199%. This management system, along with not protecting the southern portion of the spawning fluke stock, has created much economic devastation to the recreational NJ communities. I would suggest we reconsider the grouping of these three states, or abandoning regionalized management altogether.

In my opinion, state quotas should be based on number of anglers fishing for that species, data which could be collected from our MRIP system.

The economic hardship of the proposed non preferred coastwide measure of 3 fish at 19" is a devastating drop from 5 fish at 18" and will surely result in continued loss of fishery related businesses in NJ. Such a strict quota allows little use of a slot limit under conservation equivalency if NJ were to go that route. Clearly we need better stock measuring parameters and more accurate recreational catch data so as not to have such drastic miscalculations of stock size causing such restrictive catches for both recreational and commercial entities.

2. As the 2018 ABC is slightly higher then the 2017 ABC, perhaps the monitoring committee and SSC could reconsider evening out the ABC's to allow slightly more fish for 2017.

3. I would ask that the 2016 recreational harvest data, particulary for Delaware and New Jersey, be reexamined as the figures defy common sense. I would also ask for a more open process whereby advisors can see data that MRIP accumulates to make their calculations.

Capt Harv
Vetcraft Sportfishing
Cape May, New Jersey
Call or Text 610-742-3891
Email: vetcraft@aol.com

Dancy, Kiley

From: Kirby Rootes-Murdy <krootes-murdy@asmfc.org>
Sent: Monday, November 21, 2016 11:19 AM
To: Dancy, Kiley
Subject: FW: AP Webinar

Part 1 of 2

From: captain [mailto:rbusby@optonline.net]
Sent: Tuesday, November 15, 2016 9:06 AM
To: Kirby Rootes-Murdy <krootes-murdy@asmfc.org>
Subject: AP Webinar

Hi Kirby,
Hope all is well with you folks. I had a meeting last evening with my fellow captains to get their input. They unanimously supported the idea of a slot size option for summer flounder providing they were of a reasonable size. The feeling this would allow customers to at least bring home a fish or two.
We also fully support the continuation of adaptive Regional Management.
We also seriously question the belief that New York overfished for summer flounder. It is our belief that most ports other than Montauk did not have a productive season. we would like to know how that data was obtained. Hopefully not estimates again.
I will be on the webinar as much as I can between classes. As you know I teach at the College Tuesday and thursday afternoons.
Be well and I will talk to you soon.
Regards,
Bob Busby
New York

Dancy, Kiley

From: Kirby Rootes-Murdy <krootes-murdy@asmfc.org>
Sent: Monday, November 21, 2016 11:20 AM
To: Dancy, Kiley
Subject: FW: AP Meeting

Part 2 of 2

From: captain [mailto:rbusby@optonline.net]
Sent: Thursday, November 17, 2016 9:42 AM
To: Kirby Rootes-Murdy <krootes-murdy@asmfc.org>
Subject: AP Meeting

Hi,
Just some further thoughts regarding Summer Flounder in no particular order.
1- Before we went to and agreed to Regional management we were told that the states in our region could each choose it's own 128 days. That didn't happen. Would you know why not?
2- We are being told in NY that days in wave 3 have the same catch rate value as days in wave 4. Quite frankly we do not believe that. I don't believe the effort is the same nor do I believe the catch is the same. I would love to see the actual data that supports that. Would that be available?
3- As a result of that fantasy we have implemented the ubiquitous "45 day rule" which precludes much of the May fishery which is vital to certain areas.
4- In 2016 NY is said to have overfished while NJ underfished. same rules. NY fishermen must have improved their game considerably and NJ did not. Going back to that "magical year " of 1998 when the rules were the same NJ ended up with the major share of the coastwide quota while NY had 1/2 of that. Interesting that there could be such a variation.

Regards,
Bob Busby
NY

Dancy, Kiley

From: Brady Lybarger <jettyhunter@icloud.com>
Sent: Tuesday, November 22, 2016 10:24 AM
To: Dancy, Kiley
Cc: Advisors - SFSBSB; Kirby Rootes-Murdy; Beaty, Julia; Muffley, Brandon; Luisi, Michael; O'Reilly, Robert; DiLernia, Tony
Subject: Re: comments for advisory panel meeting Nov 17, 2016

Good morning Advisors,
I started working as a 2nd mate on the Nada Jane in Cape May, NJ at 9 years old crazy to think that was 27yrs ago. Now being on the other side of things, I've seen a ton of changes in my commercial fishing career.
Capt Harv has a lot of good points. A couple things we need to consider:
The historical commercial effort has shifted a lot. The fishing in the mouth of the Delaware Bay, off the beach in southern nj, and yes the old grounds is almost next to nothing.
Is it water temp, pollution, lack of bait, predators, poor fishing practices???
My concern in asking for a southern fluke area closure like a scallop access area is a delicate issue because I think if adopted you would see more harm than good for the recreational/commercial fleet in the short term. Because if there was a southern closure that would extend west to east as well. That would mean Zero to very low landings of recreational and commercial limits to see the effect of the closure for many years.
Also, having a closure will shift fishing efforts to other areas. By having closures it makes fishing more heavily concentrated in open areas.
NJ definitely has some hurdles to overcome and I wish I had a quick and easy answer but reliable data is our best way to help us with this very important issue.

Capt Brady Lybarger

Dancy, Kiley

From: James Fletcher <unfa34@gmail.com>
Sent: Sunday, November 27, 2016 9:06 PM
To: Dancy, Kiley
Subject: Summer Flounder

Summer Flounder recreational must be managed with a total allowed 45 inch possession length & no discards,
The discard mortality of 10% is a JOKE. Place discarded flounders in a aquarium with sharks that have been feed & watch what happens.
The Council MUST USE SMART PHONES FRO RECREATIONAL REPORTING! 80% of recreational fishermen go to private docks & are never checked!
Council & SSC members go to private docks this is why the SSC does not want data from smart phones! Smart Phone data will show recreational fishermen exceeding the limit by 300% to 500% .
Council is allowing the 1% rich with private boats; 80% landing at private dock landings to avoid reporting.
NMFS employees land at private docks & have known the avoidance of reporting for years {DIRTY SECRETE} .
The SSC "{ same stupid conclusion }' does not want smart phone reporting because smart phone reporting will show how incorrect the SSC & Science Center have been.
Dogfish have desecrate to the SSC {smart phone reporting being required for recreational private boat reporting will show the SSC as a total failure}.
APP for smart phone, MUST CHECK IN PRIOR TO LEAVING DOCK {like commercial fishermen} must report landings prior to returning to dock.
Being at sea with out checking in on app is $1000.00 fine, {GIVE COAST GUARD SOMETHING TO DO} returning to dock without reporting $1000.00 fine. require a permit on all recreational vessels fishing in the EEZ. [have same fines & requirements on recreational as commercial fishermen have.

ASK SSC TO EXPLAIN WHY A TOTAL LENGTH OF 45 INCHES ON SUMMER FLOUNDER WITH NO DISCARDS OF ANY FISH WILL NOT STOP DISCARDS.

--
James Fletcher
United National Fisherman's Association
123 Apple Rd.
Manns Harbor, NC 27953
252-473-3287

Dancy, Kiley

From: flukeman@aol.com
Sent: Monday, November 28, 2016 11:04 AM
To: Dancy, Kiley; Advisors - SFSBSB
Cc: Beaty, Julia; krootes-murdy@asmfc.org; Luisi, Michael; O'Reilly, Robert; DiLernia, Tony; Muffley, Brandon
Subject: Re: Reminder and Materials for Tomorrow's AP Webinar, 2-5 PM

Kiley,

In my opinion, the advisor's role is not clear or of little value to management. Every meeting, the same issues, concerns, observations and solutions are discussed and management inaction continues. When will management address the issues?

Fisheries catch data is not reflective of observations.
Proper handling techniques should be defined and demonstrated.
Biomass is not reflective of observations.
Requiring recreational catch to focus on the female population defies logic.
Discards are not acceptable and the method of elimination was included in the Vision.
Management has lost credibility with the public.
Unreported and illegal harvest is common.

A DIFFERENT APPROACH TO ATTAINING THE SUMMER FLOUNDER 40% RHL REDUCTION

Historically, there are three variables to limit the RHL: size, bag and season.

-Increasing the minimum size will increase discards. The current system does not address discards based on size increase, but on catch weight. The SSC has indicated that increasing the size differential between the recreational and commercial fisheries increases animosity. Increasing the minimum size should not be an option. It puts more pressure on female fish and increases discards.

-Reducing the bag to 3 summer flounder will harm many businesses. This harm may not be reversible.

-Reducing the season length reduces the catch and discards, but may harm businesses. The NJ, NY, and CT region had a 128 day season in 2015 and 2016. A 40% reduction, equals 51 days lost, or a 77 day season. Summer flounder businesses need to have a season the includes both Memorial Day weekend and Labor Day weekend or a 101 day season.

One way to extend the season to 101 days is to close all inshore recreational fishing on Wednesdays and Thursdays during June, July and August. NOTE: any two days will work.

I understand that other fisheries like Striped Bass. Black Sea Bass, Bluefish, Blackfish, Scup and Ling would be impacted. Offshore Tuna would be open. If only summer flounder is closed, then enforcement will be an issue. As stated above, unreported and illegal harvest is an increasing problem. You are in violation, if you are fishing inshore waters on Wednesday and Thursday. This approach allows for 5 summer flounder at 18" and a season including all major summer holidays. Hard choices need to be made to reduce the catch. For 2018, the same approach can be followed.

Carl Benson

Dancy, Kiley

From: Jim Beirnes <j.beirnes@verizon.net>
Sent: Monday, November 28, 2016 11:47 AM
To: Benson, Carl L.; Dancy, Kiley; Advisors - SFSBSB
Cc: Beaty, Julia; krootes-murdy@asmfc.org; Luisi, Michael; O'Reilly, Robert; DiLernia, Tony; Muffley, Brandon
Subject: Re: Reminder and Materials for Tomorrow's AP Webinar, 2-5 PM

Morning,
Concur with flukeman's comments and they should be taken seriously. Something is not working and maybe its time for a change.

"The true theory of our Constitution is surely the wisest and best, that the states are independent as to everything within themselves, and united as to everything respecting foreign nations. Let the general government be reduced to foreign concerns only, and let our affairs be disentangled from those of all other nations, except as to commerce, which the merchants will manage the better the more they are left free to manage for themselves, and our general government may be reduced to a very simple organization, and a very inexpensive one — a few plain duties to be performed by a few servants." — Thomas Jefferson, letter to Gideon Granger, 1800

Dancy, Kiley

From: Greg Hueth <ghueth@gmail.com>
Sent: Monday, November 28, 2016 11:54 AM
To: Benson, Carl L.
Cc: Dancy, Kiley; Advisors - SFSBSB; Beaty, Julia; krootes-murdy@asmfc.org; Luisi, Michael; O'Reilly, Robert; DiLernia, Tony; Muffley, Brandon
Subject: Re: Reminder and Materials for Tomorrow's AP Webinar, 2-5 PM

Carl,

I agree with a lot of what you said, but closing the season during the week will be very confusing and even costly. We should simple stay status quo until next full stock assessment in 2018.

The science and management they currently use to implement the season are simply terrible. It may have been the right idea 10 yrs ago, but there is new science coming out that needs to be looked at before such radicle reductions to the fishing community is made. The management and proposal for the 2017-18 season are the ones that got us into this mess to begin with and they continue down the path. Recreational boating business, the for hire fleet, tackle stores and all the local businesses that feed off the fluke will be devastated. This should not even be a consideration until everything has been looked at.

You are right, it is time for tough decisions, but why is it the fishermen always have to pay for it. Let's explore the new science and come up with new management ideas to deal with the problem. The old way simply is not working and we continue to use the system. It is called insanity!!!!!!

Greg Hueth

Dancy, Kiley

From: bob pride <bobpride@gmail.com>
Sent: Monday, November 28, 2016 1:17 PM
To: Dancy, Kiley
Cc: Advisors - SFSBSB; Kirby Rootes-Murdy; Beaty, Julia; Muffley, Brandon; Luisi, Michael; O'Reilly, Robert; DiLernia, Tony
Subject: Re: FW: comments for advisory panel meeting Nov 17, 2016

Kiley,

Capt Harv (and others before him) have pointed out the disconnect between MRIP results and the real world experience that fishery managers call "anecdotal". The credibility of MRIP and its predecessor MRFSS is pretty close to zero. When people tell managers about inconsistencies and are continually ignored it lessens any possibility of confidence in the system. The National Academy of Sciences reviewed MRFSS and the NMFS result was to essentially perpetuate the same disconnected calculations while supposedly improving the process. It is a flawed approach that should not be the basis for year to year changes..

How about tempering MRIP results with a "Delphi technique" survey of active fishermen? That is part of what the adviser process is supposed to do, but it has been denigrated to a checklist item without impact.

You have received many good suggestions from advisers. How do you propose to bring them forward for consideration? Shouldn't we agree upon adviser recommendations and bring them forward for action? Just putting comments in a book seems to lead to little or no action or serious consideration.

Bob Pride

--
Bob Pride
Technology Evangelist

Re: AP meeting summary - please review by 5pm Nov 28

bob pride

Sun 11/27/2016 10:16 AM

To: Beaty, Julia <jbeaty@mafmc.org>;

Julia
,
I believe the paragraph at the end of the summer flounder Management Measures section should be reworded. I have pasted the paragraph at the end of this message. The phrase "illegal activity" is pretty strong. Something like "ignoring the regulations" or "rebelling against regulations" might be more apt. Also, since recreational harvest is not required to be reported, "unreported harvest" is an inaccurate characterization.

I do agree there is a growing tendency for recreational anglers to keep undersized fish and a highly restrictive change will increase non-compliance. But, at the same time, overall effort will drop far more than any "protest" harvest will increase. After years of not being able to take fish home to eat, the frustration is growing, especially with these absurd MRIP estimates and with the continual addition of harsher restrictions. After 24 years of "management" and a supposedly recovered stock, summer flounder fishing success for the average angler is worse than in 1992 when we started on this journey. We all know that getting back to 10 fish at 14" year around is highly unlikely. And that was what everyone though a recovered stock meant. The questionable data, flawed and obsolete summer flounder management plan, poor marketing of the actual results of management, and reactionary short term changes to regulations have all combined to make fishery management, especially of summer flounder, an oxymoron.

As far as MRIP, it has the same big flaw as the MRFSS survey before it. The expansion of intercept data is still based upon an estimate of effort that is absurdly high. Something changed in expansion calculations for recreational effort in 2000 that the MRFSS statisticians steadfastly refused to disclose. That change resulted in a doubling of the effort over 1999. That increased effort baseline persisted for over a decade as fuel prices rose, the economy stagnated, and many other factors negatively impacted effort. MRIP has apparently adjusted the time series so it is less pronounced, but it is still a 50% increase in effort year over year from 1999 to 2000. These effort estimates are just laughable. I see recreational fishing effort that is 30-40% of what we had in Virginia in the 1990s. Yet MRIP says effort (trips) have increased. No one believes the results and as long as the expansion is flawed, the accuracy of the intercept data is moot.
Bob
Pride
oson,
VA

Two advisors said the regulations are currently so strict that there is a lot of illegal activity and unreported harvest and that making the regulations even more restrictive in 2017 would only exacerbate this problem.

From: Michael Plaia <makomike3333@yahoo.com>
Sent: Monday, November 28, 2016 1:29 PM
To: Pride, Robert; Dancy, Kiley
Cc: Advisors - SFSBSB; Kirby Rootes-Murdy; Beaty, Julia; Muffley, Brandon; Luisi, Michael; O'Reilly, Robert; DiLernia, Tony
Subject: Re: FW: comments for advisory panel meeting Nov 17, 2016

Guys,
Not to be negative Nelly, but you do realize that almost all of these "proposals" would require a legislative revision to the Mangesson-Stevens act, right?

Mike

From: Jim Beirnes <j.beirnes@verizon.net>
Sent: Tuesday, November 29, 2016 12:13 PM
To: Plaia, Michael; Pride, Robert; Dancy, Kiley
Cc: Advisors - SFSBSB; Kirby Rootes-Murdy; Beaty, Julia; Muffley, Brandon; Luisi, Michael; O'Reilly, Robert; DiLernia, Tony
Subject: Re: comments for advisory panel meeting Nov 17, 2016

As a relative newbie on here it seems apparent there is a major disconnect with what needs to be done, how it is to be done, and how to get to the goal. If the numbers are as bad as they seem, for both sides, meaning what we think is happening and what is happening and the system does not support us, then the system needs to be changed. After 30 years in the military for every regulation there will be another taking the opposite position. Instead of everyone ignoring each other and either blindly following legislation that does not work, or people being frustrated by incorrect numbers, we need to find a way to move forward. Can tell you that if a 40% reduction is put on the flounder for next year, there will be a huge outcry by both commercial and recreational people. And each will be able to cite flawed numbers or methodology as the issue. And we will be in a no win position either way.

Will be tied up in a court case this PM. I wish everyone a good call. A 40% reduction is not right as is leaving it alone not right. Especially when no one can agree on numbers to make intelligent decisions.

My point is, this is a no win until there are believable numbers. So if legislation changes need to be made, lets get on it. Or find ways around existing legislation.

"The true theory of our Constitution is surely the wisest and best, that the states are independent as to everything within themselves, and united as to everything respecting foreign nations. Let the general government be reduced to foreign concerns only, and let our affairs be disentangled from those of all other nations, except as to commerce, which the merchants will manage the better the more they are left free to manage for themselves, and our general government may be reduced to a very simple organization, and a very inexpensive one — a few plain duties to be performed by a few servants." — Thomas Jefferson, letter to Gideon Granger, 1800

Summer Flounder, Scup, and Black Sea Bass Monitoring Committee
2017 Recreational Measures Recommendations

Monitoring Committee Attendees: Greg Wojcik (CT DEEP), John Maniscalco (NY DEC; via webinar), Peter Clarke (NJ F&W), Rich Wong (DNREC), Steve Doctor (MD DNR), Katie May Laumann (VMRC), T.D. VanMiddlesworth (NC DMF), Kiley Dancy (MAFMC Staff), Julia Beaty (MAFMC Staff), Kirby Rootes-Murdy (ASMFC Staff), Emily Gilbert (NMFS GARFO; via webinar), Mark Terceiro (NEFSC; via webinar), Jason McNamee (RI DEM; via webinar 11/9 only)

Other Attendees (all via webinar): Alex Aspinwall (VMRC, 11/9 only), Joe Cimino (VMRC, 11/10 only), Bonnie Brady (Long Island Commercial Fishermen's Association), Rob O'Reilly (VMRC, 11/9 only), Carl Benson (11/9 only)

The Monitoring Committee met on Wednesday, November 9 and Thursday, November 10, 2016 in Baltimore, MD to recommend 2017 recreational management measures for summer flounder, scup, and black sea bass.

General Comments

The Monitoring Committee agreed that recent end-of-year adjustments to the MRIP data to account for low sample sizes are a source of uncertainty. This was done for the first time in August 2016 (for 2013-2015 data), and it is not known if or how such adjustments will impact the final 2016 estimates.

The Monitoring Committee agreed that if the recreational fishery for any of these three species is open during wave 1 (January 1 – February 28), there should be recreational data sampling in place to produce comparable MRIP estimates. It is important to document removals occurring from the fisheries, and wave 1 recreational catch (for states other than North Carolina) is currently not incorporated into final catch estimates or the stock assessments.

Summer Flounder

The Monitoring Committee agrees with the staff recommendation for conservation equivalency in 2017, and recommends continuing the regional approach. The Commission's Summer Flounder, Scup, and Black Sea Bass Board is developing an addendum to consider options for regional and state-by-state conservation equivalency in 2017. The Board has established a working group of Board and Technical Committee members to develop and refine addendum options, which will be presented at the December 2016 joint Council/Board meeting.

Given the required 40% coastwide reduction[1] in recreational landings, the Monitoring Committee recommends that the burden of this reduction be dispersed across all regions (though not necessarily equally). This applies the true nature of the regional approach to summer flounder management and conservation equivalency. The Committee recommends that options pursued through the addendum process minimize dramatic differences in measures between neighboring regions or states.

Conservation equivalency requires the specification of a set of non-preferred coastwide measures, as well as a set of precautionary default measures.[2] The Committee agrees with the staff recommendation that these measures be modified for 2017 given the substantial decrease in the harvest limit. The Committee agrees with the staff-recommended non-preferred coastwide measures for 2017, including a 19-inch minimum size, 3 fish possession limit, and an open season of June 1-September 15. The Committee evaluated the potential coastwide reduction associated with these measures and agreed that they were appropriate for 2017. Compared to the non-preferred coastwide measures adopted for 2016, this recommendation represents a 1-inch increase in the size limit, a 1-fish decrease in the possession limit, and a 46-day decrease in the non-preferred coastwide season.

Similarly, the Committee recommends adjusting the previously used precautionary default measures, which are intended to be more conservative than any individual state or region might implement. The Committee recommends precautionary default measures that include a minimum size of 20 inches, a possession limit of 2 fish, and an open season of July 1-August 31.

Regarding the staff recommendation to analyze slot limits, the Monitoring Committee notes that it has explored such options in the past. In past analyses, the Committee has determined that a slot range that would adequately constrain landings would need to be very narrow to compensate for an expected increase in landings. This slot limit would also likely need to be combined with a very restrictive bag limit and season that would be unappealing to most anglers. The Committee anticipates similar challenges in developing slot limit options for 2017 given the historically low harvest limit of 3.77 million pounds.

While the Monitoring Committee shares concerns about high size limits and discard rates for summer flounder, the Committee has reservations about slot limits for 2017 given the overfishing status of the stock and the below-average recruitment of summer flounder observed for the past six years. A slot limit typically results in an increased number of total removals, increasing the fishing mortality rate. The Committee recognizes that it would be helpful to provide additional

[1] The currently projected reduction required on a coastwide basis; calculated by comparing the projected 2016 recreational landings (6.28 million lb) to the 2017 recreational harvest limit (3.77 million lb).

[2] As described in the staff memo, the non-preferred coastwide measures are a set of measures that would be expected to constrain harvest to the RHL if implemented on a coastwide basis. The combination of state or regional measures under conservation equivalency is designed to be "equivalent" to these coastwide measures. The non-preferred coastwide measures are included in the federal regulations but waived in favor of state- or region-specific measures. The precautionary default measures are a conservative set of measures that would only be implemented in any state or region that failed to develop measures consistent with the conservation equivalency guidelines.

information to the Council and Board, and could revisit previous analyses of slot limits (e.g., Wiedenmann et al. 2013[3]; Wong 2009[4]).

[3] Wiedenmann, J.; Wilberg, M.; Bochenek, E; Boreman, J.; Freeman, B.; Morson, J; Powell, E.; Rothschild, B., and P. Sullivan. 2013. Report to the MAFMC: Evaluation of Management and Regulatory Options for the Summer Flounder Recreational Fishery. http://www.mafmc.org/s/Wiedenmann_et_al_Fluke_MSE_Report-t0ec.pdf.

[4]Wong, R. April 2009. White paper: Slot limit management for recreational summer flounder harvest. https://mafmc.squarespace.com/s/Slot_limit_guidance_Wong_2009-002.pdf.

Mid-Atlantic Fishery Management Council
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Phone: 302-674-2331 | FAX: 302-674-5399 | www.mafmc.org
Michael P. Luisi, Chairman | G. Warren Elliott, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: November 3, 2016

To: Chris Moore, Executive Director

From: Kiley Dancy and Julia Beaty, Staff

Subject: Summer Flounder Recreational Management Measures for 2017

In August 2015, the Council and the Atlantic States Marine Fisheries Commission's (Commission's) Summer Flounder, Scup, and Black Sea Bass Board (Board) recommended multi-year commercial quotas and recreational harvest limits for summer flounder for the 2016-2018 fishing years, based on the advice of the Scientific and Statistical Committee (SSC) and Monitoring Committee. In August 2016, the previously implemented catch and landings limits for 2017 and 2018 were revised by the Council and Board in light of new recommendations from the SSC, which were based on an updated stock assessment for summer flounder.

The July 2016 summer flounder stock assessment update[1] from the Northeast Fisheries Science Center (NEFSC) indicated that the stock was not overfished, but overfishing was occurring in 2015. Summer flounder spawning stock biomass estimates continue to trend downward. Given the revised biomass projections and overfishing limits (OFLs) provided in the assessment update for 2017 and 2018, it is clear that the previously implemented 2017 and 2018 catch limits would not be reasonably expected to prevent overfishing. Thus, in August 2016, the Council and Board adopted revised 2017 and 2018 specifications, based on revised advice from the Council's SSC and Monitoring Committee. [2]

The final rule implementing the revised 2017 commercial quota and recreational harvest limit (RHL) has not yet published, but is expected to include a 2017 RHL for summer flounder of 3.77 million lb (a reduction of approximately 30% from the 2016 RHL of 5.42 million lb).

The Monitoring Committee must recommend recreational management measures for 2017 that will constrain landings to the recreational harvest limit. The following is a review of recreational catch and landings data for the summer flounder fishery, as well as a staff recommendation.

[1] NEFSC (Northeast Fisheries Science Center). 2016. Summer Flounder Stock Assessment Update for 2016. Available at: http://www.mafmc.org/briefing/august-2016.
[2] Additional information available in the August 2016 meeting materials at: http://www.mafmc.org/briefing/august-2016.

Recreational Catch and Landings

Recreational catch of summer flounder has fluctuated since 1981, from a peak of 32.06 million fish in 1983 to a time series low of 2.68 million fish in 1989. Landings have fluctuated from a peak of 27.97 million lb in 1983 to a low of 3.16 million lb in 1989. Landings were estimated to be 4.72 million lb in 2015 (Table 1), approximately 36% below the 2015 RHL of 7.38 million lb.

Marine Recreational Information Program (MRIP) data for 2016 are incomplete and preliminary. To date, only the first four waves (January through August) of catch and landings data for the current year are available. The Monitoring Committee reviews the MRIP data once wave 4 data are available because the Council and Commission agreed that recommendations need to be made late in the current year (i.e., 2016) to give the states enough time to enact changes in their regulations for the upcoming year (i.e., 2017).

Preliminary data indicate that 12.57 million summer flounder have been caught and 1.87 million summer flounder have been landed through wave 4 in 2016. By weight, landings through wave 4 were 5.69 million lb, with the mean weight at approximately 3.04 lb per fish (Table 2).

Preliminary wave 1-4 data for 2016 can be used to project catch and landings for the entire year by assuming the same proportion of catch and landings by wave in the previous year. These projections are typically assumed to be overestimates for states with more restrictive seasonal measures in the current year, and underestimates for those with less restrictive seasonal measures. However, because state measures under regional conservation equivalency remained largely *status quo* between 2015 and 2016, the proportions by wave in 2015 and 2016 are not expected to differ substantially as a result of changes in regulations.

Total projected catch for 2016 is 14.35 million fish, and projected landings are 6.28 million lb or 2.07 million fish (Table 1). Landings by state in recent years, in thousands of fish, are shown in Table 4 and Table 6 (for waves 1-4 and all waves, respectively). Projected 2016 landings by state (in numbers of fish) are shown in Table 4 and Table 7.

Past Harvest Limits and Management Measures

RHLs for summer flounder were first implemented in 1993. Since that time they have varied from a high of 11.98 million lb in 2005 to a low of 3.77 million lb proposed for 2017 (Table 6). The 2017 proposed harvest limit is a time series low as the result of the biomass projections from the 2016 stock assessment update and the subsequent application of the Council's risk policy to derive overall catch limits. For a summary of why these harvest limit reductions are proposed, see the 2017-2018 summer flounder fact sheet at: http://www.mafmc.org/s/2016-08-24-Summer-Flounder-Fact-Sheet-2017-2018-Update.pdf.

From 1993-2001, coastwide measures were in place for all states and federal waters, with possession limits ranging from 3-10 fish and size limits ranging from 14.0-15.5 inches. Starting in 2002, conservation equivalency was implemented, and has been used as the preferred management system each year since. Under conservation equivalency, individual states or multi-state regions set measures that collectively are designed to constrain landings to the coastwide harvest limit. Federal regulations are waived and all anglers are subject to the summer flounder regulations of the state in which they land. State level conservation equivalency was adopted each year from 2002 through 2013, with each state implementing different sets of management measures. Each year from 2014 through 2016, the Commission's Board has approved the use of regional conservation equivalency, where the combination of regional measures is expected to constrain the coastwide harvest to the RHL.

Last December, the Council and Board adopted regional conservation equivalency for the summer flounder recreational fishery in 2016. Region-specific possession limits ranged from 2-8 fish with size limits ranging from 15.0-18.0 inches, with various seasons (Table 7).

Under conservation equivalency, the Council and Board must adopt two associated sets of measures: the non-preferred coastwide measures, and the precautionary default measures. The non-preferred coastwide measures are a set of measures that would be expected to constrain harvest to the RHL if implemented on a coastwide basis. The combination of state or regional measures under conservation equivalency is theoretically designed to be "equivalent" to this set of non-preferred coastwide measures. These coastwide measures are included in the federal regulations, but waived in favor of state- or region-specific measures. The non-preferred coastwide measures adopted in 2016 include a 4-fish possession limit, an 18-inch total length (TL) minimum size, and an open season from May 1 to September 30.

The precautionary default measures would be implemented in any state or region that failed to develop adequate measures to constrain or reduce landings as required by the conservation equivalency guidelines. The precautionary default measures in 2016 include a 2-fish possession limit with a 20-inch TL minimum fish size and an open season from May 1 to September 30.

Accountability Measures

In 2013, the Council modified the recreational accountability measures (AMs) for Mid-Atlantic species via the Omnibus Recreational Accountability Measures Amendment. This amendment removed the in-season closure authority for the summer flounder recreational fishery that was previously held by the NMFS Regional Administrator. Additionally, in the event of a recreational Annual Catch Limit (ACL) overage, recreational accountability measures no longer necessarily include a direct pound-for-pound payback of the overage amount in a subsequent fishing year. Instead, accountability measures are tied to stock status, and though poundage paybacks may be required in some circumstances, any potential payback amounts would be scaled relative to biomass, as described below.

The modified recreational AMs are as follows: the 3-year recreational sector ACL is evaluated against a 3-year moving average of total catch. Both landings and dead discards are evaluated in determining if the 3-year average recreational sector ACL has been exceeded. If the recreational ACL is exceeded, the appropriate AM will be determined based on the following criteria:

1. If the stock is overfished ($B < ½ B_{MSY}$), under a rebuilding plan, or the stock status is unknown: The exact amount, in pounds, by which the most recent year's recreational ACL has been exceeded, will be deducted in the following fishing year, or as soon as possible once catch data are available.
2. If biomass is above the threshold, but below the target ($½ B_{MSY} < B < B_{MSY}$), and the stock is not under a rebuilding plan:
    a. If only the recreational ACL has been exceeded, then adjustments to the recreational management measures (bag, size, and seasonal limits) would be made in the following year, or as soon as possible once catch data are available. These adjustments would take into account the performance of the measures and the conditions that precipitated the overage.
    b. If the Acceptable Biological Catch (ABC = recreational ACL + commercial ACL) is exceeded in addition to the recreational ACL, then a single year deduction will be made as

a payback, scaled based on stock biomass. The calculation for the payback amount in this case is: (overage amount) * $(B_{msy}-B)/½\ B_{msy}$.

3. If biomass is above the target ($B > B_{MSY}$): Adjustments to the recreational management measures (bag, size, and seasonal limits) would be made in the following year, or as soon as possible once catch data are available. These adjustments would take into account the performance of the measures and the conditions that precipitated the overage.

Accountability measures have not been triggered for the recreational summer flounder fishery based on a comparison of average 2013-2015 catch to the 2013-2015 average ACL. Although there was a slight (4%) overage of the recreational ACL in 2014, recreational catch was below the recreational ACL in 2013 (11%) and 2015 (35%), resulting in a 3-year average of catch that is below the 3-year average ACL. Recreational performance relative to the 2016 ACL will be evaluated in 2017, once final 2016 catch estimates are available, and will be taken into account in next year's recreational specifications process if necessary.

Methodology

The Monitoring Committee must consider and recommend whether coastwide measures or conservation equivalency (state-by-state or voluntary regional) are appropriate for 2017 (Table 8). Specifically, the Committee must recommend measures that will ensure the recreational harvest limit is not exceeded in 2017. Based on the projected landings estimate of 6.28 million lb for 2016, landings would have to be reduced by approximately 40% to achieve the 2017 harvest limit of 3.77 million lb.

In February 2016, the Board approved Addendum XXVII, which allowed for continued use of regional conservation equivalency, with the regions slightly modified compared to 2015 to allow New Jersey to implement different regulations within the New Jersey side of Delaware Bay. Other than in Delaware Bay, each's state's summer flounder measures remained *status quo* between 2015 and 2016. The Board recently initiated another Addendum to consider continuing regional conservation equivalency, or modified state-by-state conservation equivalency, in 2017. If conservation equivalency (state-by-state or regional) is adopted at the December 2016 Council and Board joint meeting, the Commission's staff will update the 2016 landings projections based on MRIP wave 5 data, which may result in a modified reduction percentage. States and/or regions would then develop proposals for recreational measures that would be reviewed by the Board in February 2017.

The Monitoring Committee must make recommendations for non-preferred coastwide measures and precautionary default measures that would be applied under conservation equivalency in the event that this strategy is selected by the Council and Board. The methodology detailed in Framework 2 (Addendum III) to the Summer Flounder, Scup and Black Sea Bass FMP and Framework 6 to the FMP (Addendum XVII) can be used to develop state-specific or regional regulations to meet the state-specific or region-specific targets (Table 8).

Because of the long-term implementation of state-specific regulations, the use of a coastwide reduction table (for minimum size and possession limits) to analyze coastwide regulations is no longer feasible. Staff note that the level of precision of annual harvest estimates from MRIP data depend on the survey sample sizes, the frequency of sampled angler trips that caught the species, and the variability of numbers caught among those trips. Harvest estimates are always progressively less precise at lower levels of stratification; annual estimates are more precise than bimonthly estimates, coastal estimates are more precise than regional estimates, and regional estimates are more precise than state estimates. For the

development of 2016 measures, states used a variety of data sources to analyze the effects of adjustments at the state and regional levels, including state-specific data sources. It is increasingly difficult to quantitatively analyze the expected effects of a coastwide set of measures.

Fishing Trips and Year Class Effects

Table 9 provides an overview of coastwide recreational fishery performance and estimates of the number of trips where summer flounder was reported as the primary target. A comparison of summer flounder directed trips to total trips suggests that summer flounder trips continue to be a substantial component of total angler trips, ranging from about 13-20 percent of total trips from 1996-2016 (Table 9). Predicting the number of summer flounder trips that might be taken in 2017 is complicated because many factors affect the demand for angler fishing trips. Changes in angler behavior are also complex and difficult to predict, and may violate the assumptions associated with specific sets of regulations and their anticipated results.

Year-class effects, in terms of fish availability, can influence the expected impacts of management measures and should be considered. The stock assessment update for 2016[3] indicates that several consecutive years of poor recruitment have been observed for summer flounder (2010-2015), resulting in a decline in biomass over the past several years. Despite constant recreational measures between 2014 and 2015, a substantial decrease in both catch and landings was observed in 2015. Although total stock biomass is projected to increase slightly in 2017, summer flounder year classes expected to become available to the fishery in 2017 are estimated to be below average.

2017 Staff Recommendation

A number of concerns related to the recreational fishery have been increasingly expressed in recent years by Council and Board members, advisors, and other stakeholders. There is increasing concern that higher size limits are placing high fishing pressure on large female summer flounder, exacerbating the trends of declining spawning stock biomass and poor recruitment. Many anglers have expressed frustration with the very high discarded to kept fish ratio. The high rate of discards has decreased angler satisfaction and angler ability to keep fish for personal consumption. In addition, there is increasing concern regarding perceived waste in the fishery and the mortality associated with discards. A 10% recreational discard mortality rate is assumed in the stock assessment; however, many stakeholders believe that actual discard mortality rates may be higher, and that managers should take steps to reduce recreational discards to reverse the trend of declining biomass.

For several years, many stakeholders have requested that the Council and Board consider recreational management strategies that provide alternatives to the single minimum size requirements typically implemented as part of the bag, size, and season combination. Specifically, some have requested slot limits (i.e., specifying both a minimum and a maximum size) to reduce discards, increase angler opportunities to take fish home, and ease fishing pressure on larger summer flounder. Other suggestions have included strategies such as cumulative length limits (keep any number of fish up to a total number of inches).

The NMFS Greater Atlantic Regional Fisheries Office has advised Council staff that adopting a coastwide slot limit is not feasible under the current FMP, as the current FMP and federal regulations allow for the use of only minimum size limits and not maximum size limits.[4] However, GARFO staff have also indicated that states could likely develop slot limits under conservation equivalency. Such approaches

[3] http://www.mafmc.org/s/Summer_flounder_2016_Assess_Update.pdf.
[4] This could be modified in the FMP, for example, through the ongoing summer flounder amendment.

could be considered via the Addendum for 2017 summer flounder management initiated by the Commission's Board in October 2016.[5]

Given the above information, staff recommend continued use of regional conservation equivalency in 2017, and additionally recommend that states or regions analyze options for alternative size and possession limit strategies. Specifically, staff recommend analysis of regional split slot limits that would allow possession of a small amount of summer flounder over two or more size slots. An example would be: 2 fish between 14-18 inches and 1 fish above 18 inches, in combination with sufficiently restrictive seasons to ensure that the coastwide RHL is not exceeded. Staff recommend that the Monitoring and Technical Committees explicitly analyze such approaches and their feasibility, for consideration by the Council and Board.

If conservation equivalency is selected by the Council and Board, a set of **non-preferred coastwide measures** must be identified, along with a set of precautionary default measures. The non-preferred coastwide measures must consist of a minimum fish size, possession limit, and season for 2017 that if implemented on a coastwide basis, would be expected to constrain harvest to the harvest limit in 2017. Under conservation equivalency, these measures are written into the federal regulations, but waived in favor of the state- or region-specific measures. The same set of non-preferred coastwide measures have been approved for the last several years, and included an 18-inch minimum size, a 4-fish possession limit, and an open season from May 1-September 30. Given the 30% reduction in the harvest limit between 2016 and 2017, and the 40% reduction required between the projected 2016 landings and 2017 harvest limit, staff do not believe that these measures, if implemented on a coastwide basis, would constrain landings to the 3.77 million lb RHL in 2017. Staff considered options to restrict the previously used non-preferred coastwide measures. As described above, there are very limited data and methods available to quantitatively analyze an appropriate coastwide alternative. Table 5 provides the 2014-2015 percentage of annual landings by state and wave; however, this table does not account for seasonal regulatory differences by state and therefore should not be used to draw conclusions about adjustments to individual state measures. However, this information provides some general basis for adjusting the non-preferred coastwide measures. Based on this information, staff recommend non-preferred coastwide measures that include a 19-inch minimum fish size, 3 fish bag limit, and open season from June 1-September 15.

The **precautionary default measures** are a set of measures that are intended to be more restrictive than measures any state would need to implement to achieve a necessary reduction, to deter states from deviating from the conservation equivalency guidelines. The Commission would require adoption of the precautionary default measures by any state that either does not submit a summer flounder management proposal to the Commission's Summer Flounder Technical Committee, or submits measures that are inconsistent with the conservation equivalency guidelines. For the past several years, the precautionary default measures have consisted of a 20-inch minimum size, a 2-fish possession limit, and an open season of May 1-September 30. Staff recommend that the precautionary default measures be adjusted for 2017 in order to sufficiently deter states from not addressing the required reductions. Staff recommend that the precautionary default measures consist of a 21-inch TL minimum size, a 2-fish possession limit, and a coastwide season from June 1-August 31, 2017. This default is likely to be more restrictive than any measure an individual state would implement in 2017.

In summary, staff recommend that the summer flounder recreational fishery be managed under regional conservation equivalency in 2017, and that states analyze options for alternative size and bag limit options,

[5] http://asmfc.org/uploads/file/58124e65pr33SummerFlounderDraftAddendumXVIII_Initiation.pdf.

specifically the use of split slot limits. Staff recommend non-preferred coastwide measures that include a 19-inch TL size limit, a 3-fish possession limit, and an open season from June 1-September 15, 2017, as well as precautionary default measures that include a 21-inch TL minimum size, 2 fish possession limit, and open season from June 1-August 31, 2017. Staff requests comments from the Monitoring Committee on the appropriateness of the recommended non-preferred coastwide and precautionary default measures.

Table 1: Summer flounder recreational catch and landings by year, Maine through North Carolina, 1981-2016, all waves. The number of fish released is presented as a proportion of the total catch (% Released).[a]

Year	Catch ('000 fish)	Landings ('000 fish)	Landings ('000 lb)	% Released	Mean weight of landed fish (lb)
1981	13,579	9,567	10,081	30%	1.05
1982	23,562	15,473	18,233	34%	1.18
1983	32,062	20,996	27,969	35%	1.33
1984	29,785	17,475	18,765	41%	1.07
1985	13,526	11,066	12,490	18%	1.13
1986	25,292	11,621	17,861	54%	1.54
1987	21,023	7,865	12,167	63%	1.55
1988	17,171	9,960	14,624	42%	1.47
1989	2,677	1,717	3,158	36%	1.84
1990	9,101	3,794	5,134	58%	1.35
1991	16,075	6,068	7,960	62%	1.31
1992	11,910	5,002	7,148	58%	1.43
1993	22,904	6,494	8,831	72%	1.36
1994	17,725	6,703	9,328	62%	1.39
1995	16,308	3,326	5,421	80%	1.63
1996	18,994	6,997	9,820	63%	1.40
1997	20,027	7,167	11,866	64%	1.66
1998	22,086	6,979	12,477	68%	1.79
1999	21,378	4,107	8,366	81%	2.04
2000	25,384	7,801	16,468	69%	2.11
2001	28,187	5,294	11,637	81%	2.20
2002	16,674	3,262	8,008	80%	2.45
2003	20,532	4,559	11,638	78%	2.55
2004	20,336	4,316	11,022	79%	2.55
2005	25,806	4,027	10,915	84%	2.71
2006	21,400	3,950	10,505	82%	2.66
2007	20,732	3,108	9,337	85%	3.00
2008	22,897	2,350	8,151	90%	3.47
2009	24,085	1,806	6,030	93%	3.34
2010	23,722	1,501	5,108	94%	3.40
2011	21,559	1,840	5,956	91%	3.24
2012	16,528	2,272	6,490	86%	2.86
2013	16,105	2,521	7,355	84%	2.92
2014	18,969	2,458	7,389	87%	3.01
2015	12,153	1,621	4,721	87%	2.91
2016 (proj.)[b]	14,350	2,065	6,279	86%	3.04

[a] Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 13, 2016 and October 18, 2016. 1981-2003 data are from MRFSS, 2004-2016 data are from MRIP.

[b] Projected using proportion by wave from 2015 MRIP data and 2016 MRIP wave 1-4 data.

Table 2: Summer flounder recreational catch and landings for waves 1-4 (January-August), Maine through North Carolina, 1981-2016.[a]

Year	Catch ('000 fish)	Landings ('000 fish)	Landings ('000 lb)	Mean Weight of landed fish (lb)
1981	11,774	8,071	8,899	1.10
1982	20,108	12,599	15,289	1.21
1983	26,979	17,128	22,523	1.31
1984	26,355	14,614	15,245	1.04
1985	10,626	8,535	9,691	1.14
1986	21,321	8,885	13,274	1.49
1987	18,749	6,656	10,393	1.56
1988	13,906	7,918	11,728	1.48
1989	2,120	1,465	2,715	1.85
1990	7,277	3,025	4,125	1.36
1991	13,977	5,186	6,796	1.31
1992	9,830	3,992	5,688	1.42
1993	17,636	4,750	6,553	1.38
1994	15,052	5,499	7,603	1.38
1995	14,315	2,765	4,629	1.67
1996	17,206	6,175	8,685	1.41
1997	14,466	4,657	7,636	1.64
1998	19,015	5,944	10,568	1.78
1999	19,113	3,629	7,441	2.05
2000	22,131	6,867	14,148	2.06
2001	25,661	4,810	10,651	2.21
2002	14,442	2,842	7,008	2.47
2003	18,177	4,123	10,615	2.57
2004	17,998	3,931	10,088	2.57
2005	22,874	3,630	9,800	2.70
2006	20,515	3,685	9,813	2.66
2007	18,659	2,898	8,803	3.04
2008	21,792	2,277	7,951	3.49
2009	23,482	1,758	5,905	3.36
2010	22,725	1,428	4,902	3.43
2011	19,347	1,708	5,511	3.23
2012	14,390	1,968	5,680	2.89
2013	14,641	2,304	6,758	2.93
2014	16,691	2,202	6,684	3.04
2015	10,633	1,463	4,291	2.93
2016	12,573	1,869	5,691	3.04

[a] Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 28, 2016. 1981-2003 data are from MRFSS, 2004-2016 data are from MRIP.

Table 3: Summer flounder recreational landings (in thousands of fish) by state for waves 1-4 (January-August), 2007-2016.[a]

State	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
ME	-	-	-	-	-	-	-	-	-	-
NH	-	<1	-	-	-	<1	-	-	-	-
MA	138	232	50	45	33	74	29	113	66	53
RI	173	203	71	118	152	103	126[b]	184	160	90
CT	111	146	45	35	47	62	268[b]	115[b]	81[b]	218
NY	844	609	298	331	349	482	501	491[b]	366[b]	713
NJ	1,040	752	817	551	719	905	1,095[b]	1,046	462	610
DE	101	33	78	50	56	44	49	86	44	82
MD	44	34	64	14	10	19	36	27	43	19
VA	342	243	275	235	301	249	171	118[b]	131	75
NC	104	25	59	50	40	31	30	25	29	10

[a] Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 18, 2016.
[b] In August 2016 MRIP revised some estimates to address small sample size issues. Revised estimates are only available at the annual level. Thus, some landings are excluded from the following wave/mode/state results due to insufficient sample sizes, including: 2013 CT, NJ, and RI charter, 2014 CT, NY, and VA charter, 2015 CT and NY charter.

Table 4: Summer flounder recreational landings (in thousands of fish) by state for all waves (January-December), 2007-2016.[a]

State	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016 (proj)[b]
ME	-	-	-	-	-	-	-	-	-	-
NH	-	<1	-	-	-	<1	-	-	-	-
MA	138	232	50	45	58	76	31	113	79	64
RI	176	204	72	118	161	103	128	185	164	92
CT	112	146	45	35	47	63	270	120	93	239
NY	866	609	299	334	376	509	518	508	492	796
NJ	1,067	762	825	552	737	1,130	1,232	1,175	497	656
DE	108	35	87	54	67	45	58	93	51	96
MD	104	58	65	25	15	23	53	80	44	19
VA	397	260	289	260	318	260	186	139	159	89
NC	139	44	75	77	60	63	45	46	46	14

[a] Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 14, 2016 and October 28, 2016.
[b] Projected using proportion by wave from 2015 MRIP data and 2016 MRIP wave 1-4 data.

Table 5: Percentage of landings (in number of fish) by wave and state, 2014 and 2015 combined. This table does not account for seasonal regulation differences and is provided as additional context for the recommended non-preferred coastwide and precautionary default measures.

	Wave 2 (Mar-Apr)	**Wave 3 (May-June)**	**Wave 4 (Jul-Aug)**	**Wave 5 (Sept-Oct)**	**Wave 6 (Nov-Dec)**
MA	0.00%	8.00%	85.20%	6.81%	0.00%
RI	0.00%	59.59%	39.18%	1.24%	0.00%
CT	0.00%	40.00%	54.21%	5.79%	0.00%
NY	0.00%	38.41%	53.75%	7.84%	0.00%
NJ	0.00%	18.03%	72.15%	9.82%	0.00%
DE	0.18%	19.72%	70.34%	9.67%	0.08%
MD	0.00%	19.38%	37.08%	43.45%	0.09%
VA	2.79%	45.92%	35.32%	15.27%	0.69%
NC	0.00%	21.37%	40.44%	37.07%	1.13%
Coast	**0.21%**	**29.08%**	**60.30%**	**10.32%**	**0.08%**

Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 14, 2016 and October 28, 2016.

Table 6: Summary of federal management measures for the summer flounder recreational fishery, 1993-2017.

Measure	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
ABC (m lb)	-	-	-	-	-	-	-	-	-	-	-	-	-
Recreational ACL (land+disc; m lb)	-	-	-	-	-	-	-	-	-	-	-	-	-
Harvest Limit (m lb)	8.38	10.67	7.76	7.41	7.41	7.41	7.41	7.41	7.16	9.72	9.28	11.21	11.98
Landings (m lb)	8.83	9.33	5.42	9.82	11.87	12.48	8.37	16.47	11.64	8.01	11.64	11.02	10.92
Possession Limit	6	8	6/8	10	8	8	8	8	3	[a]	[a]	[a]	[a]
Size Limit (TL in)	14	14	14	14	14.5	15	15	15.5	15.5	[a]	[a]	[a]	[a]
Open Season	5/15 - 9/30	4/15 - 10/15	1/1 - 12/31	1/1 - 12/31	1/1 - 12/31	1/1 - 12/31	5/29 - 9/11	5/10 - 10/2	4/15 - 10/15	[a]	[a]	[a]	[a]

Measure	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017 [c]
ABC (m lb)	-	-	-	21.50	25.50	33.95	25.58	22.34	21.94	22.57	16.26	11.30
Recreational ACL (land+disc; m lb)	-	-	-	-	-	-	11.58	10.23	9.07	9.44	6.83	4.72
Harvest Limit (m lb) - landings only	9.29	6.68	6.22	7.16	8.59	11.58	8.49	7.63	7.01	7.38	5.42	3.77
Landings (m lb)	10.51	9.34	8.15	6.03	5.11	5.96	6.49	7.01	7.40	4.72	6.28[d]	-
Possession Limit	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[b]	[b]	[b]	-
Size Limit (TL in)	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[b]	[b]	[b]	-
Open Season	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[b]	[b]	[b]	-

[a] State-specific conservation equivalency measures.
[b] Region-specific conservation equivalency measures.
[c] Proposed.
[d] Projected

Table 7: Summer flounder recreational management measures and landings (in number of fish; 2016 projected) by state and region, 2015 and 2016.

Region	State	2015				2016				
		Min. Size (in)	Poss. Limit	Open Season	Landings ('000 fish)	State	Min. Size (inches)	Poss. Limit	Open Season	Proj. Landings ('000 fish)
1	**MA**	16	5 fish	May 22-Sept. 23	79	**MA**	16	5 fish	May 22-Sept. 23	64
2	**RI**	18	8 fish	May 1-Dec. 31	164	**RI**	18	8 fish	May 1-Dec. 31	92
3	**CT**	18 16 (41 designated shore sites)	5 fish	May 17- Sept. 21	93	**CT**	18 16 (41 designated shore sites)	5 fish	May 17- Sept. 21	239
	NY	18	5 fish	May 17- Sept. 21	492	**NY**	18	5 fish	May 17- Sept. 21	796
	NJ	18 16 (1 shore site)	5 fish 2 fish	May 22-Sept. 26	497	**NJ**	18 16 (1 shore site) 17 (NJ Delaware Bay)	5 fish 2 fish 4 fish	May 21-Sept. 25	656
4	**DE**	16	4 fish	Jan. 1- Dec. 31	51	**DE**	16	4 fish	Jan. 1- Dec. 31	96
	MD	16	4 fish	Jan. 1- Dec.31	44	**MD**	16	4 fish	Jan. 1- Dec.31	19
	PRFC	16	4 fish	Jan. 1- Dec.31	--	**PRFC**	16	4 fish	Jan. 1- Dec.31	--
	VA	16	4 fish	Jan. 1- Dec. 31	159	**VA**	16	4 fish	Jan. 1- Dec. 31	89
5	**NC**	15	6 fish	Jan. 1- Dec. 31	41	**NC**	15	6 fish	Jan. 1- Dec. 31	14

Table 8: Procedures for establishing summer flounder recreational management measures.

August
Council/Commission's Board recommend recreational harvest limit.
October
MRIP data available for current year through wave 4.
November
Monitoring Committee meeting to develop recommendations to Council:
Overall % reduction required.
Use of coastwide measures or state conservation equivalency.
*Precautionary default measures.
**Coastwide measures.
December
Council/Board meeting to make recommendation to NMFS
State Conservation Equivalency OR Coastwide measures

State Conservation Equivalency Measures

Late December
Commission staff summarizes and distributes state-specific and multi-state conservation equivalency guidelines to states.

Early January
Council staff submits recreational measure package to NMFS. Package includes:
- Overall % reduction required.
- Recommendation to implement conservation equivalency and precautionary default measures (Preferred Alternative).
-Coastwide measures (Non-preferred Alternative).

States submit conservation equivalency proposals to ASMFC.

January 15
ASMFC distributes state-specific or multi-state conservation equivalency proposals to Technical Committee.

Late January
ASMFC Technical Committee meeting:
-Evaluation of proposals.
-ASMFC staff summarizes Technical Committee recommendations and distributes to Board.

February
Board meeting to approve/disapprove proposals and submits to NMFS within two weeks, but no later than end of February.

March 1 (on or around)
NMFS publishes proposed rule for recreational measures announcing the overall % reduction required, state-specific or multi-state conservation equivalency measures and precautionary default measures (as the preferred alternative), and coastwide measures as the non-preferred alternative.

March 15
During comment period, Board submits comment to inform whether conservation equivalency proposals are approved.

April
NMFS publishes final rule announcing overall % reduction required and one of the following scenarios:
-State-specific or multi-state conservation equivalency measures with precautionary default measures, or -Coastwide measures.

Coastwide Measures

Early January
Council staff submits recreational measure package to NMFS. Package includes:
-Overall % reduction required.
-Coastwide measures.

February 15
NMFS publishes proposed rule for recreational measures announcing the overall % reduction required and Coastwide measures.

April
NMFS publishes final rule announcing overall % reduction required and Coastwide measures.

*Precautionary default measures - measures to achieve at least the % required reduction in each state, e.g., one fish possession limit and 15.5 inch bag limit would have achieved at least a 41% reduction in landings for each state in 1999.
**Coastwide measures - measure to achieve % reduction coastwide.

Table 9: Number of summer flounder recreational fishing trips, harvest limit, landings, and fishery performance (i.e., percent overage or underage) from Maine through North Carolina, 1996 to 2017.

Year	Number of Summer Flounder Directed Trips (millions)[a]	Percentage of Directed Trips Relative to Total Trips[a,b]	Recreational Harvest Limit (million lb)[c]	Recreational Landings of Summer Flounder (million lb)[d]	Percentage Overage (+)/ Underage(-)
1996	4.89	17.9%	7.41	9.82	+33%
1997	5.60	18.8%	7.41	11.87	+60%
1998	5.27	20.5%	7.41	12.48	+68%
1999	4.22	16.8%	7.41	8.37	+13%
2000	5.80	16.7%	7.41	16.47	+122%
2001	6.13	16.6%	7.16	11.64	+63%
2002	4.56	14.8%	9.72	8.01	-18%
2003	5.62	16.0%	9.28	11.64	+25%
2004	4.86	14.3%	11.21	11.02	-2%
2005	5.85	16.0%	11.98	10.92	-9%
2006	4.99	13.6%	9.29	10.51	+13%
2007	5.49	14.5%	6.68	9.34	+40%
2008	4.93	13.4%	6.21	8.15	+31%
2009	4.60	15.6%	7.16	6.03	-16%
2010	4.45	15.1%	8.59	5.11	-41%
2011	4.50	16.8%	11.58	5.96	-49%
2012	4.24	16.4%	8.59	6.49	-24%
2013	3.73	14.6%	7.63	7.36	-4%
2014	4.06	15.6%	7.01	7.39	+5%
2015	3.39	15.4%	7.38	NA	-36%
2016	NA	NA	5.42	NA	NA
2017	NA	NA	3.77	NA	NA

[a] Estimated number of recreational fishing trips (expanded) where the primary target species was summer flounder, Maine through North Carolina. Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 14, 2016.

[b] Source of total trips for all species combined: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 14, 2016.

[c] RHLs for 2003 through 2014 are adjusted for research set-aside; this program was suspended starting in 2015.

[d] Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 14, 2016.

NA = Data not available.

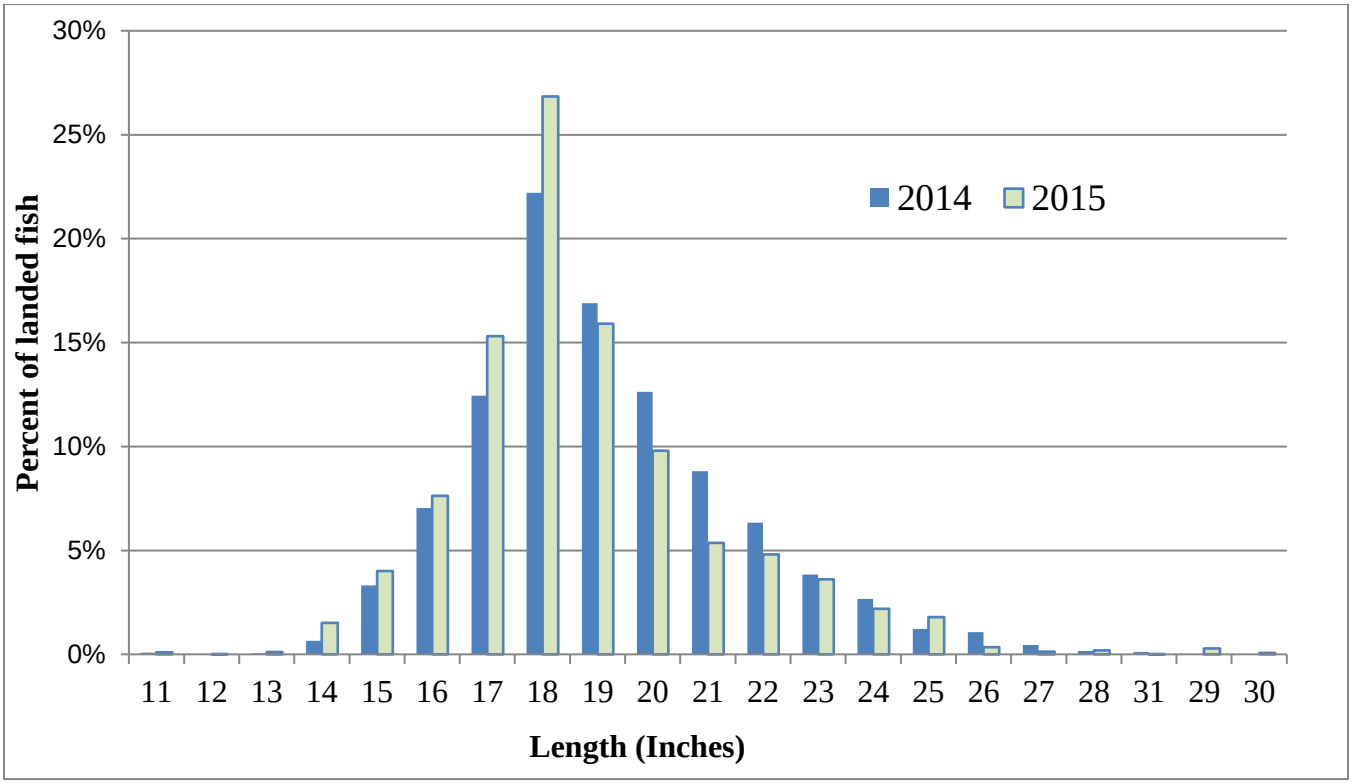

Figure 1: Expanded length frequencies of landed summer flounder from 2014 and 2015 MRIP data, as a percentage of total landed fish. Each length bin contains fish from X.0 to X.99 inches. Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 14, 2016.

Mid-Atlantic Fishery Management Council
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Phone: 302-674-2331 | FAX: 302-674-5399 | www.mafmc.org
Michael P. Luisi, Chairman | G. Warren Elliott, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: November 30, 2016

To: Council

From: Julia Beaty

Subject: Scup Recreational Measures for 2017

The following materials are enclosed for Council and Board consideration of scup recreational management measures for 2017.

1) Scup staff memo dated November 3, 2016
2) Monitoring Committee recommendations for scup from November 9-10 meeting
3) Summary of November 17, 2016 Advisory Panel webinar (scup comments only)

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

MEMORANDUM

Date: November 2, 2016

To: Chris Moore, Executive Director

From: Julia Beaty and Kiley Dancy, Staff

Subject: Scup Recreational Management Measures for 2017

Introduction

In August 2015, the Council and the Atlantic States Marine Fisheries Commission's (Commission's) Summer Flounder, Scup, and Black Sea Bass Board (Board) recommended commercial quotas and recreational harvest limits (RHLs) for scup for the 2016-2018 fishing years, based on the advice of the Scientific and Statistical Committee (SSC) and Monitoring Committee. These measures have been implemented and include a 2017 scup RHL of 5.50 million pounds. The SSC, Monitoring Committee, Council, and Board reviewed these measures in the summer of 2016 and recommended no changes.

The Monitoring Committee must recommend recreational management measures for 2017 that will constrain landings to the 2017 RHL. This document summarizes recreational catch and landings data to support the Monitoring Committee's deliberations.

Recreational landings in 2016 are projected exceed the 2016 RHL. A comparison of 2016 projected landings to the 2017 RHL indicate that a reduction of about 29% is necessary to prevent an overage of the 2017 RHL. Council staff recommend that this reduction be implemented in both state and federal waters. To achieve this reduction in federal waters, staff recommend that the recreational bag limit in federal be reduced from 50 to 20 fish.

Recreational Catch and Landings

Since 1981, recreational scup catch fluctuated from a peak of 30.87 million fish in 1986 to a low of 2.67 million fish in 1998. Landings fluctuated from a high of 11.61 million pounds in 1986 to a low of 0.87 million pounds in 1998 (Table 1).

In 2015, recreational landings were about 4.05 million fish and 4.62 million pounds, approximately 32% below the 2015 RHL of 6.80 million pounds. Approximately 8.39 million scup were caught, with a release rate of 52% (Table 1).

Recreational catch and landings data through the Marine Recreational Information Program (MRIP) for

2016 are currently incomplete and preliminary. To date, only the first four waves (January - August) of catch and landings data are available for 2016. The Council and Commission agreed that management recommendations must be made late in the current year to give the states enough time to enact changes to their regulations for the upcoming year; therefore, the Monitoring Committee reviews MRIP data and develops their recommendations once preliminary wave 4 data are available.

Preliminary data indicate that 9.34 million scup were caught and 3.32 million scup were landed through wave 4 in 2016. Landings through wave 4 totaled 4.01 million pounds, with a mean weight of landed scup of approximately 1.21 pounds. Landings during waves 1-4 in 2016 were about 53% higher than wave 1-4 landings in 2015 (about 2.63 million pounds; Table 2). Wave 1-4 landings increased between 2015 and 2016 in Massachusetts (39% increase), Rhode Island (13% increase), Connecticut (137% increase), New York (63% increase), New Jersey (1,290% increase, though landings were still low relative to other states), and Virginia (405,557% increase, though landings were still low relative to other states; Table 3).

This increase in landings between 2015 and 2016 could be the result of increased scup abundance. It may also be the result of changes in angler behavior. A 2015 benchmark stock assessment indicated that scup recruitment (i.e. the number of age 0 scup) was slightly above average in 2014 (though it was below average in 2012 and 2013).[1] A 2016 data update showed evidence of a strong 2015 year class.[2] Scup reach the minimum size for retention in the federal waters recreational fishery (9 inches TL) when they are two or three years old;[3] therefore, the 2015 year class would not have contributed to the high 2015 recreational landings. It could, however, contribute to high landings in 2017. The length distributions of landed scup in 2014 and 2015 are shown in Figure 1.

Preliminary wave 1-4 data for 2016 were used to project catch and landings for the entire year by assuming the same proportion of catch and landings by wave in the previous year. There were no changes to the state or federal recreational measures for scup between 2015 and 2016; therefore, any changes in the proportion of catch by wave between 2015 and 2016 would be the result of factors other than regulations. Projections for the states of Maryland, Delaware, Virginia, and North Carolina were adjusted because projections using the proportion of landings by wave in 2015 produced unreasonable estimates. Specifically, Maryland, Delaware, and North Carolina had no estimated recreational landings during waves 1-4 in 2016, which produced an estimate of no scup landings in 2016. These projections were thus replaced with the average wave 5 and 6 landings during 2013-2015 (Table 4).

Projections for Virginia's total 2016 landings were calculated using 2013-2015 average proportion of landings by wave, rather than using only the 2015 proportions. When only 2015 proportions were used for Virginia, it produced an extremely unlikely estimate of about 7.5 million pounds of recreational landings in the state of Virginia alone in 2016. This was due to the extremely large increase in Virginia's wave 1-4 landings between 2015 and 2016 (Table 3) and due to the fact that 99.6% of Virginia's scup

[1] Northeast Fisheries Science Center. 2015. 60th Northeast Regional Stock Assessment Workshop (60th SAW) Assessment Report. U.S. Department of Commerce, Northeast Fisheries Science Center Reference Document 15-08. Available at: http://www.nefsc.noaa.gov/saw/

[2] Northeast Fisheries Science Center. 2016. Scup Data Update for 2016. Available at: http://www.mafmc.org/ssc-meetings/2016/july-20-21

[3] Northeast Fisheries Science Center. 2015. 60th Northeast Regional Stock Assessment Workshop (60th SAW) Assessment Report. U.S. Department of Commerce, Northeast Fisheries Science Center Reference Document 15-08. Available at: http://www.nefsc.noaa.gov/saw/

landings in 2015 occurred in wave 5. Using average 2013-2015 proportions by wave produced a much more reasonable 2016 estimate of 56,577 pounds (Table 4).

Although New Jersey also saw a large increase in wave 1-4 landings between 2014 and 2015, those projections were not adjusted because the increase was not beyond the scale of what has occurred in the past. Specifically, landings in New Jersey exceeded the 2016 projected amount (i.e. 394,998 pounds) in 1994 and 2010. The proportion of New Jersey's scup landings during waves 5-6 remained generally stable for the past 5 years, with wave 5-6 landings contributing to 90-100% of annual landings during 2011 and 2013-2015 and about 25% of annual landings in 2012.

Using the methodology described above, 2016 recreational scup landings from Maine through North Carolina were projected to be about 7.70 million pounds, which is about 26% higher than the 2016 RHL. If wave 5-6 landings occur as projected, then 2016 will be the first year that the recreational fishery has exceeded the RHL since 2010 (Table 5).

Using this same methodology, landings in numbers of fish are expected to be 6.72 million scup in 2016. The Commission sets a target of the states of Massachusetts, Rhode Island, Connecticut, and New York landing the number of scup which are equivalent to 97% of the RHL. This target is projected to be exceeded by about 13% (Table 6).

During 2007-2016 (through wave 4) about 2% of scup landings (in numbers) were harvested from federal waters (> 3 miles at sea), while the remaining 98% came from state waters (Table 7). Most scup landings originated in state waters from Massachusetts through New York. Scup landings in Delaware, Maryland, and North Carolina mostly originated in federal waters (Table 8); however, landings in those states were very low (Table 2). There is some uncertainty associated with data on fishing areas because this information is self-reported by anglers.

During waves 1-4 in 2016, anglers took an estimated 635,831 trips in which scup was the primary target species. This is 38% greater than the number of directed scup trips during all of 2015 (Table 5).

Past Harvest Limits and Management Measures

Scup RHLs were first implemented in 1996. Since then the RHL varied from a low of 1.24 million pounds in 1999 and 2000 to a high of 8.45 million pounds in 2012. The 2017 RHL is 5.50 million pounds (Table 9).

Until 2002, the recreational scup fishery was managed with coastwide measures as dictated by the FMP. These measures included a common minimum fish size, possession limit, and an open season that were implemented in both state and federal waters. In 2003, the Commission developed an addendum which created RHLs for state waters and allocated 97% of the coastwide RHL to the states of Massachusetts through New York. State waters measures have grown increasingly complex, with variable possession limits and minimum sizes by fishing mode (i.e., for-hire vs. private angler) and by season (Table 10).

For 2016, the Council and Board adopted federal management measures that include a 50 fish possession limit, a 9-inch total length (TL) size limit, and an open season from January 1 through December 31. These are identical to the 2015 federal regulations (Table 9). The Commission continued the regional approach to scup management in state waters. All state regulations remained *status quo* between 2015 and 2016 (Table 10).

Accountability Measures

In 2013, the Council modified the recreational accountability measures (AMs) for Mid-Atlantic species through the Omnibus Recreational AM Amendment. This amendment removed the in-season closure authority for the scup recreational fishery that was previously held by the NMFS Regional Administrator. Additionally, in the event of an Annual Catch Limit (ACL) overage, recreational AMs will no longer necessarily include a direct pound-for-pound payback of the overage amount in a subsequent fishing year. Instead, AMs are now tied to stock status. Though paybacks may be required in some circumstances, any potential payback amounts would be scaled relative to biomass, as described below.

The modified recreational AMs are as follows: the 3-year recreational sector ACL is evaluated against a 3-year moving average of total catch. Both landings and dead discards are evaluated in determining if the 3-year average recreational sector ACL has been exceeded. If the recreational ACL is exceeded, the appropriate AM will be determined based on the following criteria:

1. If the stock is overfished ($B < \frac{1}{2} B_{MSY}$), under a rebuilding plan, or the stock status is unknown: The exact amount, in pounds, by which the most recent year's recreational ACL has been exceeded, will be deducted in the following fishing year, or as soon as possible once catch data are available.
2. If biomass is above the threshold, but below the target ($\frac{1}{2} B_{MSY} < B < B_{MSY}$), and the stock is not under a rebuilding plan:
    a. If only the recreational ACL has been exceeded, then adjustments to the recreational management measures (bag, size, and seasonal limits) will be made in the following year, or as soon as possible once catch data are available. These adjustments will take into account the performance of the measure and conditions that precipitated the overage.
    b. If the Acceptable Biological Catch (ABC = recreational ACL + commercial ACL) is exceeded in addition to the recreational ACL, then a single year deduction will be made as a payback, scaled based on stock biomass. The calculation for the payback amount in this case is: (overage amount) * $(B_{msy}-B)/\frac{1}{2} B_{msy}$.
3. If biomass is above the target ($B > B_{MSY}$): Adjustments to the recreational management measures (bag, size, and seasonal limits) will be made in the following year, or as soon as possible once catch data are available. These adjustments will take into account the performance of the measure and conditions that precipitated the overage.

AMs have not been triggered for the recreational scup fishery based on a comparison of average 2013-2015 catch to the 2013-2015 average ACL. Recreational performance for 2016 will be evaluated in 2017, once final catch estimates are available, and will be taken into account in next year's recreational specifications process if necessary.

Monitoring Committee Responsibility

The Monitoring Committee must consider and recommend management measures to ensure that landings in 2017 will not exceed the RHL. Recreational possession limits, minimum fish size limits, and recreational seasons can all be modified to achieve this goal.

Landings in 2016 are used as a proxy for landings in 2017 when considering such measures. Based on the projected 2016 landings estimate of 7.70 million pounds, landings must be reduced in 2017 to achieve the 2017 RHL of 5.50 million pounds. 2016 landings must be reduced by 2.2 million pounds, or about 29%, to achieve, but not exceed the 2017 RHL.

Fishing Trips and Year Class Effects

Table 5 shows the number of trips in which anglers targeted scup over the past 20 years. Predicting the number of trips that might be taken in 2017 is complicated. Changes in fishing site characteristics (travel costs, catch rates, available species, water quality, etc.), fishery management policies (possession limits, size restrictions, closed seasons), and angler demographics affect the demand for angler fishing trips. This makes evaluation of changes in angler behavior difficult and complex. Changes in angler behavior may result in a violation of the assumptions associated with specific sets of regulations and their anticipated results.

Additionally, year-class effects should be considered relative to fish availability and recreational catches. For example, the recent benchmark stock assessment for scup states that recruitment (i.e., number of age 0 fish) in 2014 was slightly above average, but was below average in 2012 and 2013. Scup reach the minimum size for retention in the recreational fishery (9 inches TL) when they are about two or three years old.[4] When higher than average year classes become available to the recreational fishery, they may result in increased catches. Lower than average year classes could result in decreased catches. There are many factors that influence both availability and catch. Multiple indices of recruitment, including the Northeast Fisheries Science Center's (NEFSC's) trawl survey and state trawl surveys in Rhode Island and New York, showed evidence of a strong year class in 2015, which could lead to increased availability of scup to recreational anglers in 2017.

Staff Recommendation

Projected landings in 2016 must be reduced by 29% to achieve, but not exceed, the 2017 RHL. Council staff recommend that this reduction be achieved through a decrease in the federal waters recreational possession limit from 50 to 20 scup. This recommendation is based on the number of scup per trip using 2011 MRFSS data for waves 1-4. Due to changes in estimation between MRFSS and MRIP, staff were not able to use more recent catch per trip data to develop this recommendation.

Given the Board's typical approval of regional management for scup and given that 98% of scup landings originate in state waters (Table 7), staff recommend that the states implement measures to reduce landings in 2017.Staff recommend that the same 29% reduction apply in state and federal waters, and in all states, rather than applying differing levels of the reduction in different states.

[4] Northeast Fisheries Science Center. 2015. 60th Northeast Regional Stock Assessment Workshop (60th SAW) Assessment Report. U.S. Department of Commerce, Northeast Fisheries Science Center Reference Document 15-08. Available at: http://www.nefsc.noaa.gov/saw/

Table 1: Recreational scup catch and landings by year, Maine through North Carolina, 1981-2016.[a]

Year	**Catch** (millions of fish)	**Landings** (millions of fish)	**Landings** (millions of pounds)	**% Released**	**Avg. weight of landed fish** (pounds)
1981	10.38	9.08	5.81	12%	0.64
1982	7.18	6.45	5.20	10%	0.81
1983	10.16	8.84	6.25	13%	0.71
1984	7.77	6.06	2.42	22%	0.40
1985	13.86	10.81	6.09	22%	0.56
1986	30.87	24.82	11.60	20%	0.47
1987	12.38	9.92	6.20	20%	0.62
1988	7.54	6.06	4.27	20%	0.70
1989	11.39	9.18	5.56	19%	0.61
1990	10.17	8.04	4.14	21%	0.51
1991	16.85	13.28	8.09	21%	0.61
1992	10.08	7.76	4.41	23%	0.57
1993	7.08	5.66	3.20	20%	0.56
1994	5.65	4.27	2.63	24%	0.62
1995	3.77	2.42	1.34	36%	0.56
1996	4.68	2.97	2.16	36%	0.73
1997	3.07	1.92	1.20	38%	0.62
1998	2.67	1.21	0.87	55%	0.72
1999	4.64	3.25	1.89	30%	0.58
2000	11.28	7.24	5.44	36%	0.75
2001	9.93	5.10	4.26	49%	0.84
2002	7.58	3.65	3.62	52%	0.99
2003	14.66	9.45	8.48	36%	0.90
2004	13.43	7.15	7.28	47%	1.02
2005	7.04	2.59	2.69	63%	1.04
2006	9.61	3.43	3.72	64%	1.08
2007	10.05	4.75	4.56	53%	0.96
2008	10.71	3.49	3.79	67%	1.09
2009	8.70	3.13	3.23	64%	1.03
2010	11.15	5.15	5.97	54%	1.16
2011	6.47	3.06	3.67	53%	1.20
2012	8.83	3.67	4.17	58%	1.14
2013	10.02	4.98	5.44	50%	1.09
2014	8.99	4.13	4.74	54%	1.15
2015	8.39	4.05	4.62	52%	1.14
2016[b]	9.34	6.72	7.70	28%	1.14

[a] Source: personal communication with the NMFS Fisheries Statistics Division, October 19, 2016.

[b] 2016 catch and landings are projected using proportion by wave from 2015 data and 2016 wave 1-4 data (Source: personal communication with NMFS Fisheries Statistics Division, October 19, 2016).

Table 2: Recreational scup catch and landings, waves 1-4 (Jan.-Aug.), Maine through North Carolina.[a]

Year	**Catch** (millions of fish)	**Landings** (millions of fish)	**Landings** (millions of pounds)	**Avg. weight of landed fish** (pounds)
1981	5.71	4.60	2.52	0.55
1982	5.30	4.91	4.17	0.85
1983	5.60	4.75	3.33	0.70
1984	6.73	5.23	1.78	0.34
1985	5.48	4.43	3.09	0.70
1986	16.85	13.94	5.91	0.42
1987	9.19	7.40	4.78	0.65
1988	4.27	3.35	2.25	0.67
1989	6.33	5.21	3.41	0.65
1990	6.31	5.00	2.34	0.47
1991	10.22	8.09	4.77	0.59
1992	5.50	4.29	2.51	0.58
1993	3.98	3.23	1.66	0.51
1994	2.62	2.08	1.19	0.57
1995	1.33	0.87	0.50	0.58
1996	2.61	1.56	1.16	0.75
1997	1.70	1.07	0.77	0.72
1998	1.71	0.77	0.59	0.77
1999	2.52	1.75	0.96	0.55
2000	5.73	3.99	2.99	0.75
2001	6.28	3.12	2.42	0.78
2002	4.02	1.79	1.56	0.87
2003	9.00	5.96	5.67	0.95
2004	8.35	4.74	4.64	0.98
2005	2.77	1.31	1.46	1.11
2006	5.12	2.17	2.22	1.03
2007	5.15	2.90	2.53	0.87
2008	6.52	2.12	2.24	1.06
2009	6.72	2.47	2.52	1.02
2010	7.86	3.79	4.48	1.18
2011	3.94	1.78	2.09	1.18
2012	6.63	2.79	3.10	1.11
2013	6.65	3.48	3.72	1.07
2014	5.37	2.79	3.43	1.23
2015	4.38	2.33	2.63	1.13
2016	9.34[b]	3.32[b]	4.01[b]	1.21

[a] Source: personal communication with NMFS Fisheries Statistics Division, October 19, 2016.

[b] Preliminary estimates

Table 3: Recreational scup landings (in pounds) by state, waves 1-4, 2007-2016.[a]

State	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
ME	0	0	0	0	0	0	0	0	0	0
NH	0	0	0	0	0	0	0	0	0	0
MA	1,342,123	686,592	797,059	869,914	719,734	1,751,880	1,878,260	1,530,016	1,035,886	1,436,206
RI	136,099	441,663	75,473	245,273	262,075	200,950	546,791	751,875	506,801	574,348
CT	384,381	298,314	326,330	880,253	790,339	530,376	427,283	263,195	226,044	535,889
NY	637,899	798,533	1,299,362	2,103,610	320,151	533,165	865,325	889,018	856,359	1,398,169
NJ	24,238	8,844	21,902	370,263	530	84,932	767	0	3,007	40,263
DE	479	441	232	0	35	16	0	28	0	0
MD	200	69	0	0	0	0	0	0	0	0
VA	344	1,037	14	4,995	776	0	2,471	0	7	28,396
NC	0	0	0	1,386	260	970	339	388	84	0
Total	**2,525,763**	**2,235,493**	**2,520,372**	**4,475,694**	**2,093,900**	**3,102,289**	**3,721,236**	**3,434,520**	**2,628,188**	**4,013,271**

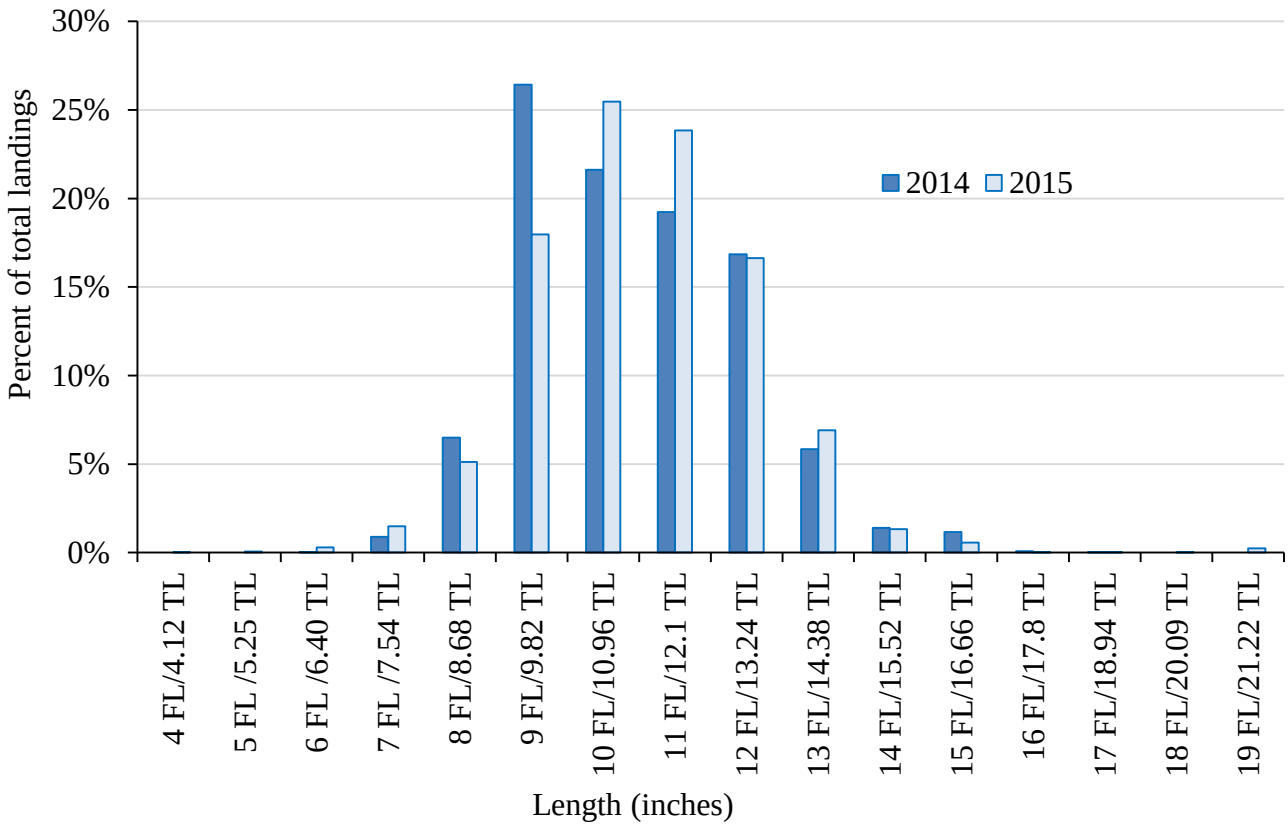

Figure 1: Expanded length frequencies of landed scup in 2014 and 2015 from Maine through North Carolina, as a percent of total recreational landings of scup.

Source: personal communication with the National Marine Fisheries Service, Fisheries Statistics Division, October 19, 2016. Fork length to total length conversion based on Hamer 1979 (TL = 1.14*FL - 0.44).[5]

[5] Hamer, P.E. 1979. Studies of the scup, *Stenotomus chrysops*, in the Middle Atlantic Bight. New Jersey Division of Fish, Game and Shellfish, Misc. Rep. No. 18M, 67 p.

Table 4: 2016 projected landings by state (in pounds) and values used to calculate projections.

State	2015 Wave 5-6 Landings (pounds)	2015 Wave 5-6 Landings (% of annual)	2013-2015 Wave 5-6 Avg. Landings (pounds)	2013-2015 Wave 5-6 Landings (% of annual)	2016 Wave 1-4 Landings (pounds)	2016 Projected Annual Landings (pounds)	% of Projected 2016 Total Landings
ME	0	--	0	--	0	0	0.0%
NH	0	--	0	--	0	0	0.0%
MA	1,035,886	19.5%	242,275	14.8%	1,436,206	1,783,722[a]	23.2%
RI	506,801	14.3%	234,925	26.6%	574,348	670,558[a]	8.7%
CT	226,044	54.6%	432,358	57.4%	535,889	1,179,421[a]	15.3%
NY	856,359	61.3%	703,962	40.5%	1,398,169	3,611,037[a]	46.9%
NJ	3,007	89.8%	57,886	96.3%	40,263	394,998[a]	5.1%
DE	0	100.0%	196	50.0%	0	196[b]	0.0%
MD	0	100.0%	68	100.0%	0	68[b]	0.0%
VA	7	99.6%	613	33.2%	28,396	56,577[c]	0.7%
NC	84	4.5%	141	25.7%	0	0[a]	0.0%
Total	**2,628,188**		**1,672,424**		**4,013,271**	**7,696,719**	

[a] Calculated using 2016 wave 1-4 landings and the proportion of annual landings during waves 5-6 in 2015.

[b] Average wave 5-6 landings, 2013-2015

[c] Calculated using 2016 wave 1-4 landings and the average proportion of annual landings during waves 5-6 in 2013-2015.

Table 5: Number of scup recreational fishing trips, harvest limit, recreational landings, and fishery performance (i.e. RHL overage or underage) from Maine through North Carolina, 1997 to 2016.

Year	**Number of Directed Fishing Trips[a]**	**Directed Scup Trips As % Of All Trips[a,b]**	**RHL** (millions of pounds)[c]	**Landings** (millions of pounds)[d]	**% RHL Overage (+)/ Underage (-)**
1997	194,640	0.65%	1.95	1.20	-38%
1998	204,703	0.80%	1.55	0.87	-44%
1999	220,909	0.88%	1.24	1.89	+52%
2000	452,099	1.30%	1.24	5.44	+339%
2001	459,813	1.25%	1.77	4.26	+141%
2002	471,340	1.53%	2.71	3.62	+34%
2003	934,956	2.66%	4.01	8.48	+111%
2004	710,221	2.08%	4.01	7.28	+82%
2005	550,964	1.51%	3.96	2.69	-32%
2006	554,594	1.51%	4.15	3.72	-10%
2007	516,752	1.37%	2.74	4.56	+66%
2008	536,307	1.46%	1.83	3.79	+107%
2009	538,084	1.83%	2.59	3.23	+25%
2010	699,516	2.37%	3.01	5.97	+98%
2011	477,275	1.78%	5.74	3.67	-36%
2012	603,126	2.33%	8.45	4.17	-51%
2013	532,439	2.09%	7.55	5.44	-28%
2014	418,687	1.61%	7.03	4.74	-33%
2015	461,840	2.09%	6.80	4.62	-32%
2016	635,831[e]	3.76% [e]	6.09	7.70[f]	+26%[f]

[a] Estimated number of recreational fishing trips (expanded) where the primary target species was scup, Maine through North Carolina. Source: personal communication with the National Marine Fisheries Service, Fisheries Statistics Division, October 19, 2016.

[b] Source of total trips for all species combined: personal communication with the National Marine Fisheries Service, Fisheries Statistics Division, October 19, 2016.

[c] RHLs for 2002 through 2014 are adjusted for research set-aside.

[d] Source: personal communication with the National Marine Fisheries Service, Fisheries Statistics Division, October 19, 2016.

[e] Preliminary estimate for waves 1-4 (January – August)

[f] Projected

N/A = Data not available.

Table 6: Projected recreational scup landings (in number of fish) relative to Commission target for 2016, by state.

State	2016 Target	2016 Projected Landings[a]	Percent Overage
MA	5,181,842[b]	1,521,096	13%
RI		625,403	
CT		817,081	
NY		2,878,442	
NJ	None	842,737	N/A
DE	None	176	N/A
MD	None	103	N/A
VA	None	37,342	N/A
NC	None	0	N/A
Total		3,319,954	

[a] Source: personal communication with the National Marine Fisheries Service, Fisheries Statistics Division, October 19, 2016. Projected as described on page 3.

[b] The target for the states of MA-NY is 97% of the RHL in numbers of fish. The 2016 target shown is approximate, calculated using the 2016 RHL (6.09 million pounds) and the 2015 mean weight of landed fish (1.14 pounds).

N/A=Not applicable.

Table 7: Percentage of recreational scup landings (numbers of fish) by year and area, Maine through North Carolina, 2007-2016. Area information is self-reported based on the area where the majority of fishing activity occurred per angler trip.[a]

Year	**State Waters** (<= 3 miles)	**EEZ** (> 3 miles)
2007	99%	1%
2008	99%	1%
2009	99%	1%
2010	98%	2%
2011	96%	4%
2012	100%	0%
2013	94%	6%
2014	97%	3%
2015	99%	1%
2016	97%	3%
Avg. 2007-2016	98%	2%
Avg. 2014- 2016	98%	2%

[a] Source: personal communication with the National Marine Fisheries Service, Fisheries Statistics Division, October 19, 2016.

Table 8: Proportion of 2013-2015 recreational landings (in pounds) from state and federal waters by state. Area information is self-reported based on the area where the majority of fishing activity occurred per angler trip.[a]

State	**State Waters** (<= 3 miles)	**EEZ** (> 3 miles)
MAINE	--	--
NEW HAMPSHIRE	--	--
MASSACHUSETTS	96%	4%
RHODE ISLAND	96%	4%
CONNECTICUT	96%	4%
NEW YORK	96%	4%
NEW JERSEY	96%	4%
DELAWARE	5%	95%
MARYLAND	0%	100%
VIRGINIA	100%	0%
NORTH CAROLINA	20%	80%

[a] Source: personal communication with the National Marine Fisheries Service, Fisheries Statistics Division, October 19, 2016.

Table 9: Summary of federal management measures for the scup recreational fishery, 1997-2017. ABCs, TACs, ACLs, RHLs, and landings are in millions of pounds. Landings are totals for the states of Maine through North Carolina.

Measure	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
ABC	--	--	--	--	--	--	--	--	--	--
TAC[a]	7.28	5.92	5.92	8.37	12.92	18.65	18.65	18.65	19.79	13.97
Recreational ACL	--	--	--	--	--	--	--	--	--	--
RHL	1.55	1.24	1.24	1.76	2.71	4.01	3.99	3.96	3.99	2.74
Recreational landings[b]	0.87	1.89	5.44	4.26	3.62	8.48	7.28	2.69	3.72	4.56
Possession Limit	-	-	-	50	20	50	50	50	50	50
Size Limit (inches, TL)	7	7	-	9	10	10	10	10	10	10
Open Season	1/1 -12/31	1/1 -12/31	1/1 -12/31	8/15 - 10/31	7/1 - 10/2	1/1-2/28 and 7/1-11/30	1/1-2/28 and 9/7-11/30	1/1-2/28 and 9/18-11/30	1/1-2/28 and 9/18-11/30	1/1-2/28 and 9/18-11/30
Measure	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
ABC	--	11.70	17.09	51.70	40.88	38.71	35.99	33.77	31.11	28.40
TAC[a]	9.90	15.54	17.09	31.92	40.88	38.71	35.99	33.77	31.11	28.40
Recreational ACL	--	--	--	--	31.89	30.19	28.07	26.35	6.84	6.25
RHL	1.83	2.59	3.01	5.74	8.45	7.55	7.03	6.80	6.09	5.50
Recreational landings[b]	3.79	3.23	5.97	3.67	4.17	5.44	4.74	4.62	7.70[c]	--
Possession Limit	15	15	10	10	20	30	30	50	50	--
Size Limit (inches, TL)	10.5	10.5	10.5	10.5	10.5	10	9	9	9	--
Open Season	1/1-2/28 and 9/18-11/30	1/1-2/28 and 10/1-10/31	1/1-2/28 and 10/1-10/31	6/6 - 9/26	1/1-12/31	1/1-12/31	1/1-12/31	1/1-12/31	1/1-12/31	--

[a] Prior to the implementation of the 2011 Omnibus ACLs and AMs Amendment, the Council specified a Total Allowable Catch (TAC) instead of an ABC for scup. Both terms refer to the total catch limit in a given year, but the amounts occasionally differed during the transition years of 2009-2011. In 2009 this was due to NMFS specifying a revised catch limit after new scientific information became available. In 2011, the difference was due to the Council specifying a more conservative limit than recommended by the SSC.

[b] Source: personal communication with the National Marine Fisheries Service, Fisheries Statistics Division, October 19, 2016.

[c] Projected

Table 10: Scup recreational management measures by state, 2015 and 2016.

State	Minimum Size (inches)	Possession Limit	Fishing Season
Massachusetts (private and shore)	10	30 fish	May 1- December 31
Massachusetts (party/charter)	10	45 fish	May 1 - June 30
		30 fish	July 1 - December 31
Rhode Island (private and shore)	10	30 fish	May 1- December 31
RI Shore Program (7 designated sites)	9	30 fish	May 1- December 31
Rhode Island (party/charter)	10	30 fish	May 1-August 31; November 1-December 31
		45 fish	September 1-October 31
Connecticut (private angler)	10	30 fish	May 1- December 31
Connecticut (45 designated shore sites)	9		
Connecticut (party/charter)	10	30 fish	May 1-August 31 and November 1-December 31
		45 fish	September 1-October 31
New York (private and shore)	10	30 fish	May 1- December 31
New York (party/charter)	10	30 fish	May 1- August 31 and November 1-December 31
		45 fish	September 1- October 31
New Jersey	9	50 fish	Jan 1-Feb 28 and July 1 – December 31
Delaware	8	50 fish	All Year
Maryland	8	50 fish	All Year
Virginia	8	50 fish	All Year
North Carolina, North of Cape Hatteras	8	50 fish	All Year

Table 11: Number of scup landed per trip and frequency of occurrence based on 2011 Marine Recreational Fisheries Statistics Survey data for waves 1-4 and estimated landings per trip under 15 and 20 fish bag limits, assuming compliance.

# per trip	Frequency	# landed	New # per trip with 15 fish limit	# landed with 15 fish limit	# landed with 20 fish limit	New # per trip with 20 fish limit
1	78	78	1	78	1	78
2	44	88	2	88	2	88
3	15	45	3	45	3	45
4	20	80	4	80	4	80
5	5	25	5	25	5	25
6	10	60	6	60	6	60
7	5	35	7	35	7	35
8	4	32	8	32	8	32
9	6	54	9	54	9	54
10	6	60	10	60	10	60
12	2	24	12	24	12	24
14	3	42	14	42	14	42
16	3	48	15	45	16	48
17	1	17	15	15	17	17
19	3	57	15	45	19	57
21	2	42	15	30	20	40
35	1	35	15	15	20	20
26	4	104	15	60	20	80
27	4	108	15	60	20	80
28	1	28	15	15	20	20
30	1	30	15	15	20	20
31	1	31	15	15	20	20
32	1	32	15	15	20	20
34	2	68	15	30	20	40
35	1	35	15	15	20	20
37	1	37	15	15	20	20
38	1	38	15	15	20	20
40	7	280	15	105	20	140
41	1	41	15	15	20	20
43	1	43	15	15	20	20
45	1	45	15	15	20	20
48	1	48	15	15	20	20
50	1	50	15	15	20	20
Total	**237**	**1,840**		**1,208**		**1,385**
Reduction				**34%**		**25%**

Summer Flounder, Scup, and Black Sea Bass Monitoring Committee
2017 Recreational Measures Recommendations

Monitoring Committee Attendees: Greg Wojcik (CT DEEP), John Maniscalco (NY DEC; via webinar), Peter Clarke (NJ F&W), Rich Wong (DNREC), Steve Doctor (MD DNR), Katie May Laumann (VMRC), T.D. VanMiddlesworth (NC DMF), Kiley Dancy (MAFMC Staff), Julia Beaty (MAFMC Staff), Kirby Rootes-Murdy (ASMFC Staff), Emily Gilbert (NMFS GARFO; via webinar), Mark Terceiro (NEFSC; via webinar), Jason McNamee (RI DEM; via webinar 11/9 only)

Other Attendees (all via webinar): Alex Aspinwall (VMRC, 11/9 only), Joe Cimino (VMRC, 11/10 only), Bonnie Brady (Long Island Commercial Fishermen's Association), Rob O'Reilly (VMRC, 11/9 only), Carl Benson (11/9 only)

The Monitoring Committee met on Wednesday, November 9 and Thursday, November 10, 2016 in Baltimore, MD to recommend 2017 recreational management measures for summer flounder, scup, and black sea bass.

General Comments

The Monitoring Committee agreed that recent end-of-year adjustments to the MRIP data to account for low sample sizes are a source of uncertainty. This was done for the first time in August 2016 (for 2013-2015 data), and it is not known if or how such adjustments will impact the final 2016 estimates.

The Monitoring Committee agreed that if the recreational fishery for any of these three species is open during wave 1 (January 1 – February 28), there should be recreational data sampling in place to produce comparable MRIP estimates. It is important to document removals occurring from the fisheries, and wave 1 recreational catch (for states other than North Carolina) is currently not incorporated into final catch estimates or the stock assessments.

Scup

Due to high estimated 2016 wave 4 landings in New York compared to previous years, the Monitoring Committee agreed that the 2016 projections for New York should be modified based on the 2013-2015 proportion of landings by wave. This resulted in a revised coast-wide projected estimate of 6.44 million pounds of landings in 2016, requiring a 15% reduction to achieve the 2017 RHL of 5.50 million pounds.

Wave 5 has been an important component of annual scup landings in previous years. Preliminary wave 5 estimates have not yet been published. Given this uncertainty, it will be important to re-calculate the reduction once wave 5 preliminary estimates are available. These estimates will not be available until after the December Council and Board meeting.

The Committee supports the ongoing regional approach for setting recreational scup measures in state waters. This approach provides flexibility for the states to accommodate the needs of the modes and areas for their individual states.

The vast majority of recreational scup landings come from state waters from New York through Massachusetts (about 98% in 2015); therefore, adjustments to the federal measures will have little impact (on the order of 2%) on coast-wide harvest.

The Monitoring Committee recommends that the federal waters bag limit decrease from 50 to 40 fish and that states also decrease their bag limits. For example, the Monitoring Committee recommends, as a starting point for discussion, a decrease from 30 to 25 fish for most seasons and modes and from 45 to 40 fish for the party/charter bonus seasons. The magnitude of these adjustments may change after preliminary wave 5 estimates are available.

The Monitoring Committee recommends no changes to the federal recreational season or size limit. Given that most harvest occurs in state waters in New York through Massachusetts, and given that those states have a higher size limit and shorter season than federal waters, an increase in the federal waters size limit or a decrease in the season would not achieve the needed reduction.

State regulations are complex by mode and wave. This makes it difficult to predict changes in harvest under different measures. Future efforts to simplify measures would be beneficial for evaluating regulations, especially in cases when changes are necessary. The Monitoring Committee recommends that the Board consider this when discussing 2017 state measures adjustments.

Summer Flounder, Scup, and Black Sea Bass Advisory Panel Webinar

November 18, 2016

Council Advisory Panel members present: Carl Benson, Skip Feller, James Fletcher, Jeff Gutman, Gregory Hueth, Jan McDowell, Ross Pearsall, Michael Plaia*, Bob Pride, Paul Risi, Steve Witthuhn, Harvey Yenkinson,

Commission Advisory Panel members present: Jack Conway, Marc Hoffman, Ken Neill, Michael Plaia*, Art Smith, Buddy Seigel, James Tietje

*Serves on both Council and Commission Advisory Panels.

Others present: Julia Beaty (Council staff), Joe Cimino (VMRC), Kiley Dancy (Council staff), Tony DiLernia (Council member), Emily Gilbert (GARFO), Katie May Laumann (Monitoring Committee member, VMRC), Brandon Muffley (Council staff), Kirby Rootes-Murdy (ASMFC staff), Wes Townsend (Council member)

Summary

The Council and Commission's Summer Flounder, Scup, and Black Sea Bass Advisory Panels met via webinar to discuss recreational management measures for the three species in 2017. Comments on scup are summarized below.

Scup Comments

Data Concerns

One advisor thought the projections for scup landings during wave 5 (September and October) seemed unreasonably high, especially in Connecticut. Another advisor said the 2016 wave 1 - 4 (January – August) MRIP estimates for landings in Virginia were extremely high and did not match what he has seen and heard in his local area. He thought the actual Virginia landings were similar to the estimated Delaware and Maryland landings (i.e., zero or very low). One advisor said the MRIP data on landings per angler per trip is not reflective of the Connecticut fishery, where many anglers keep more than 20 fish per trip.

One advisor said that because MRIP does not sample private docks, a large proportion of recreational catch is undocumented.

One advisor thought the 15% recreational discard mortality assumption used in the stock assessment is too high.

Management Measures

A comparison of projected 2016 recreational landings to the 2017 RHL indicates that scup landings will need to be reduced by 15% to prevent an overage of the RHL. One advisor called this a manufactured crisis, given that scup biomass is at 210% of the biomass target. He argued that the Council's risk policy prevents them from effectively managing rebuilt stocks and should be modified. Three other advisors agreed with him.

Two advisors argued that dead discards should be eliminated through a bag limit with no minimum size restriction. One advisor said discards could not be totally eliminated as some anglers on party boats do not want to keep scup and will discard any that they catch.

One advisor said a high bag limit in federal waters helps party and charter businesses attract customers, even though very few anglers actually keep the full 50 scup which they are allowed. He said that the Monitoring Committee's recommendation for a 40 scup bag limit in federal waters would not have major impacts, but bag limits below 40 scup would negatively impact recreational fisheries, especially the for-hire sector. He said a 13 fish bag limit[1] would destroy the for-hire fleet as it is not high enough for anglers to justify the cost of a party or charter trip, given the small size of scup. Another advisor questioned the need to reduce the federal waters possession limit to 40 fish because the data suggest this will have little to no impact on reducing the coastwide harvest.

One advisor said the high biomass of scup is negatively impacting other species, including lobsters, clams, and crabs.

[1] The Monitoring Committee's revised 2016 scup landings projections show that a 15% reduction in landings may be needed to prevent an overage of the 2017 RHL. Based on MRIP data on landings per angler per trip in 2015, this could be achieved with a 13 fish coastwide bag limit.

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

MEMORANDUM

Date: November 30, 2016

To: Council

From: Kiley Dancy, Staff

Subject: Black Sea Bass Recreational Measures for 2017

The Council and the Atlantic States Marine Fisheries Commission's Summer Flounder, Scup, and Black Sea Bass Board (Board) will discuss recreational measures for black sea bass in 2017. As discussed in the materials listed below, a benchmark stock assessment is currently being finalized for black sea bass. The Council's Scientific and Statistical Committee (SSC) will review the results of the assessment in January 2017, and consider adjustments to the currently implemented 2017 catch limits. For this reason, staff and the Monitoring Committee recommend delaying adoption of 2017 recreational measures until early 2017, after this SSC review.

The current federal measures (15-fish possession limit, 12.5-inch minimum size, and federal season of May 15-September 21 and October 22-December 31) would remain in place until modified. Under this scenario, if the Board chose to continue the ad hoc regional approach in state waters, modifications to state measures would also be considered following the adoption of new catch limits. Council and Commission staff are currently working with GARFO to develop a revised timeline for this process that will allow timely modification of recreational measures in early 2017, while allowing for additional input from advisors and the Monitoring and Technical Committees.

If the Council and Board agree with the recommendation to delay consideration of 2017 recreational measures, no specific action is needed at the December meeting. The following materials are enclosed for Council and Board consideration of this subject:

1) Advisory Panel meeting summary for black sea bass (November 17 webinar)
2) Advisor email comments relevant to black sea bass
3) Letter to the ASMFC Summer Flounder, Scup, and Black Sea Bass Management Board from Nichola Meserve (MA Administrative Board Member Proxy)
4) Monitoring Committee recommendations for black sea bass (November 9-10 meeting)
5) Black sea bass staff memo dated November 2, 2016

Summer Flounder, Scup, and Black Sea Bass Advisory Panel Webinar

November 18, 2016

Council Advisory Panel members present: Carl Benson, Skip Feller, James Fletcher, Jeff Gutman, Gregory Hueth, Jan McDowell, Ross Pearsall, Michael Plaia*, Bob Pride, Paul Risi, Steve Witthuhn, Harvey Yenkinson,

Commission Advisory Panel members present: Jack Conway, Marc Hoffman, Ken Neill, Michael Plaia*, Art Smith, Buddy Seigel, James Tietje

*Serves on both Council and Commission Advisory Panels.

Others present: Julia Beaty (Council staff), Joe Cimino (VMRC), Kiley Dancy (Council staff), Tony DiLernia (Council member), Emily Gilbert (GARFO), Katie May Laumann (Monitoring Committee member, VMRC), Brandon Muffley (Council staff), Kirby Rootes-Murdy (ASMFC staff), Wes Townsend (Council member)

Summary

The Council and Commission's Summer Flounder, Scup, and Black Sea Bass Advisory Panels met via webinar to discuss recreational management measures for the three species in 2017. Comments on black sea bass are summarized below.

Black Sea Bass Comments

Data Concerns

As with the other two species, one advisor expressed concerns about the accuracy of the MRIP data and low sample sizes for black sea bass.

Management Measures

The results of a new benchmark stock assessment will not be available until early 2017. Council staff and the Monitoring Committee recommend postponing consideration of 2017 recreational management measures until after the assessment results are available. One advisor said some states cannot quickly change their management measures, which could result in a change in measures part way through the recreational fishing season. He recommended that the Council, Commission, and states do everything they can to implement the changes as quickly as possible.

One advisor recommended implementation of transiting provisions to allow anglers to transit through federal waters when in possession of fish legally caught in state waters.

One advisor said that, as with summer flounder, discards of black sea bass should be prohibited and barbless hooks should at least be recommended, if not required.

One advisor said the New Jersey black sea bass fishery should not be managed with the other states in the Northern Region (MA, NY, CT, RI) because black sea bass tend to be smaller in New Jersey. He thought it would be preferable to have a bag limit with no minimum size as this would reduce discard mortality.

Mr. Michael C. Plaia

119 Currituck Road

Newtown, CT 06470

November 24, 2016

Mid-Atlantic Fisheries Management Council

Summer flounder, scup, and black sea bass management board

Gentlemen;

I am an advisor to both the Council and Commission for summer flounder, scup and black sea bass. I am writing to draw your attention to a rule which is causing problems for recreational fishermen from Connecticut, New York, Rhode Island and Massachusetts. Many fishermen were cited for possession of black sea bass, during the time the season was closed in federal waters but open in state waters. These fishermen were fishing in state waters around Block Island, where fishing for black sea bass was perfectly legal, but then they had to transit Federal Waters to return to their home port. It was while they were transiting Federal waters that they were stopped and cited for illegal possession of the fish.

I was the one who raised this issue at the Advisory Panel meeting. We need a rule similar to the current rule for striped bass, which will allow fishermen to transit Federal waters in possession of legally caught fish from state waters. The current rule only covers striped bass. The Council should consider a new rulemaking which covers all species of fish and shellfish. Many fishermen from all four states regularly fish the fertile waters around Block Island and this issue is sure to arise again, since all fishermen returning to the mainland must cross Federal waters to return to their home port.

Yours Truly,

Michael C. Plaia

Commonwealth of Massachusetts

Division of Marine Fisheries

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Secretary
George N. Peterson, Jr.
Commissioner
Mary-Lee King
Deputy Commissioner

MEMORANDUM

TO: ASMFC Summer Flounder, Scup, and Black Sea Bass Management Board

FROM: Nichola Meserve, MA Administrative Board Member (Proxy)

DATE: November 30, 2016

RE: Working Group for 2017 Recreational Black Sea Bass Management

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Overview

Next month, this Management Board will consider extending the ad hoc regional management approach for the recreational black sea bass fishery into 2017 by Board action, as permitted under Addendum XXVII. The decision facing the Board carries significant consequences. Four consecutive years of targeted harvest cuts under the approach have had a profound impact on the recreational black sea bass fisheries in the Northern Region of Massachusetts through New Jersey.

Without the necessity of a draft addendum by which the implications of such an action could be considered, I'm requesting the formation of a working group to review the management approach's performance. Ideally, this working group would report back to the Board prior to a definitive action to continue the management approach.

My request is based on a review of the fishery's performance and changes to state regulations under the ad hoc regional management approach (below). It indicates that the end result has been disproportionate impacts on the states, counter to the management approach's stated goal, while still causing overages of the recreational harvest limit (RHL).

The development of an entirely new recreational management approach for next year (through an addendum) seems unlikely given the late date and the timeline for revising the 2017 RHL, as does a return to coastwide management. While we may be tied to the management approach for 2017, my interpretation of what it means "*to extend the provisions in section 3.2*" of Addendum XXVII provides the Board with enough leeway to address the growing disparity among states in the Northern Region. If it were to agree, the requested working group would also propose specifics on how the approach could be implemented in 2017 for the Board's consideration.

Fishery Performance Review

The ad hoc regional management approach has been utilized since 2012. State-specific allocations and regulations were established for 2011 only, prior to which a single set of coastwide measures were annually selected. The goal of ad hoc regional management, as described in Addenda XXII, XXIII, XXV, and XXVII, is *"to mitigate potential disproportionate impacts on states that can result from coastwide measures."* The problem statements in these addenda also highlight overages of the annual RHLs as a concern.

Given the reasons for establishing the ad hoc regional management approach, I evaluated two questions (below). The evaluation uses data from the following sources:

(a) RHLs, in pounds, from ASMFC press releases;

(b) recreational harvest estimates, in pounds, from the Marine Recreational Information Program, as queried on 11/10/16 (see Appendix); 2016 harvest data are preliminary and through August only;

(c) annual harvest targets, as percentages, from ASMFC addenda or Board minutes; these were typically developed by the Technical Committee based on preliminary MRIP harvest estimates in numbers of fish and preliminary estimates of the RHL in numbers of fish; and

(d) state regulations from ASMFC FMP reviews.

Analysis of fishery performance in 2016 is not included in some cases because of the open nature of the recreational fishery during all or most of September–December in nearly all states (Massachusetts being the exception); consequently, results were considered to be premature.

1. *Has the ad hoc regional management approach been successful in constraining coastwide harvest to the RHL?*

A comparison of the coastwide harvest to the RHL since 2012 indicates that the ad hoc regional management approach has been unsuccessful in restricting harvest to the RHL in every year of its use (Figure 1). Given the largely static RHL, this has necessitated cutting harvest in every year following its use. Interestingly, the use of state shares in 2011 resulted in harvest below the RHL and allowed for a liberalization in 2012.

This failure of the approach results from states' achieved harvests exceeding their targets, primarily in the Northern Region (because it is responsible for 90–95% of coastwide harvest). Accordingly, I evaluated how well Northern Region state regulations have performed with regards to achieving their expected harvests. Since 2012, states in the Northern Region have implemented state-specific regulations to achieve the same target as a percent increase or decrease from their prior year harvest. As a region, the regulations have consistently resulted in greater harvest than expected, and have had variable results at the state harvest level (Tables 1 & 2).

Under the ad hoc regional approach, when a state's estimated harvest is greater than expected, it negatively impacts all the states in the Northern Region. The states can only implement regulations that have been developed with a Technical Committee-approved methodology and are projected to achieve their target. If the management approach is continued, the Technical Committee should be tasked with evaluating the success of its approved methodology and, if deemed necessary, considering revisions to the methodology to improve the fit between expected state harvest and estimates of achieved state harvest. For example, should past effectiveness of regulations, non-compliance, and stock projections be factored into expected harvest? Note that Addendum XXVII (and its precursors) requires the reduction tables that are to be provided by the TC for developing regulations to *"be adjusted for each region to account for past effectiveness of the regulations."* (Did this occur in any or all prior years?)

2. *Has the ad hoc regional management approach impacted states in a consistent manner?*

I evaluated this question by reviewing how estimates of Northern Region state-specific harvests and targets have changed under the management approach (Figures 2 & 3); and how state regulations (season length, bag, and size limit) have evolved since coastwide management ended (Table 3).

In summary, because of the way the management approach works, some states have been able to incrementally build their harvests and targets more—and restrict their fisheries less—than other states. The management approach will continue to provide the most benefit to those states that implement the least effective regulations, furthering a de facto shift in allocation, if unchanged.

Extending the Provisions of Addendum XXVII

Addendum XXVII provides the Board the opportunity *"to extend the provisions in section 3.2 ad hoc regional black sea bass management for one year, expiring at the end of 2017."* The provisions of Section 3.2 include the following:

- The states of MA–NJ will comprise the Northern Region.
- The states of DE–NC (north of Cape Hatteras) will comprise the Southern Region.
- All states will agree to the regulations implemented within their region.
- The Northern Region states will implement state-specific regulations to achieve a regional percent change in harvest based on the region's prior year landings.
- The Southern Region states will implement uniform regulations consistent with Federal waters regulations set by NOAA Fisheries.
- The regulations of the two regions combined will result in a projected harvest no greater than the RHL.
- A back-up set of measures will be implemented by NOAA Fisheries if the states fail to implement regulations projected to result in harvest no greater than the RHL.
- Reduction tables, provided by the Technical Committee, will be used to determine which suite of possession limits, size limits and closed seasons will constrain harvest to the RHL. Tables will be adjusted for each region to account for past effectiveness of the regulations.
- State regulations will be reviewed by the Technical Committee and approved by the Board prior to implementation.

The requested working group should consider the following if/when proposing specifics on how the ad hoc regional management approach is implemented in 2017:

1) Under Addendum XXVII, the 2016 regulations for Federal waters and Southern Region state waters were allowed to remain unchanged from 2015 (due to the contribution to coastwide harvest), while the 2016 regulations for Northern Region state waters were restricted to reduce harvest by 23%. Does continuing Addendum XXVII into 2017 require that the Federal and Southern Region regulations again be status quo, regardless of whether a coastwide cut or liberalization is in effect? What would be fair given the different treatment of the regions the past five years?
2) Under Addendum XXVII, the Northern Region states all implemented regulations to take the same 23% percent reduction in 2016 (based on the preliminary 2015 MRIP data at least). Does continuing Addendum XXVII into 2017 require that the Northern Region states all implement the same percent increase or decrease? None of the language in Addendum XXVII explicitly suggests this. Keep in mind that the 2016 target reductions per state in the Northern Region were not uniform when based on final 2015 MRIP data, resulting in some states taking larger projected cuts and other states taking smaller projected cuts. Also recall that the percent liberalizations implemented in 2012 varied by state (for an overall 37% regional liberalization in the north). If all states within a region cannot "agree to the regulations," what is the process for resolution?
3) Under Addendum XXVII, the reduction tables provided by the Technical Committee for developing 2016 regulations were to be adjusted for each region to account for past effectiveness of the regulations. Regardless of whether this happened in 2016, will it be done for 2017? Considering that the effectiveness of 2016 regulations will vary by state, would the reduction tables be adjusted by state? Should the Technical Committee make adjustments to the reduction tables based on any other factors (e.g., non-compliance, stock projections)?

Figure 1. Comparison of black sea bass RHL to coastwide landings (MA-NC), 2011–2016. 2016 landings are through August only and are considered preliminary.

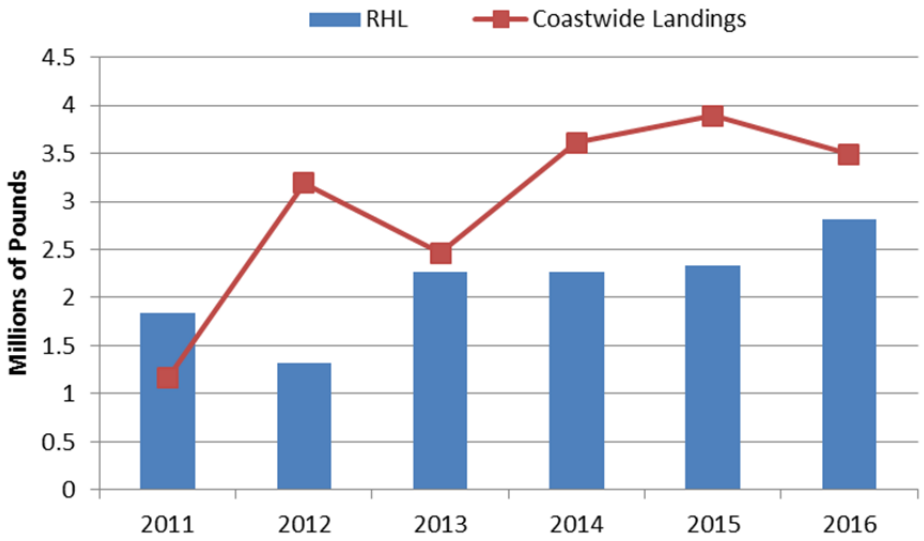


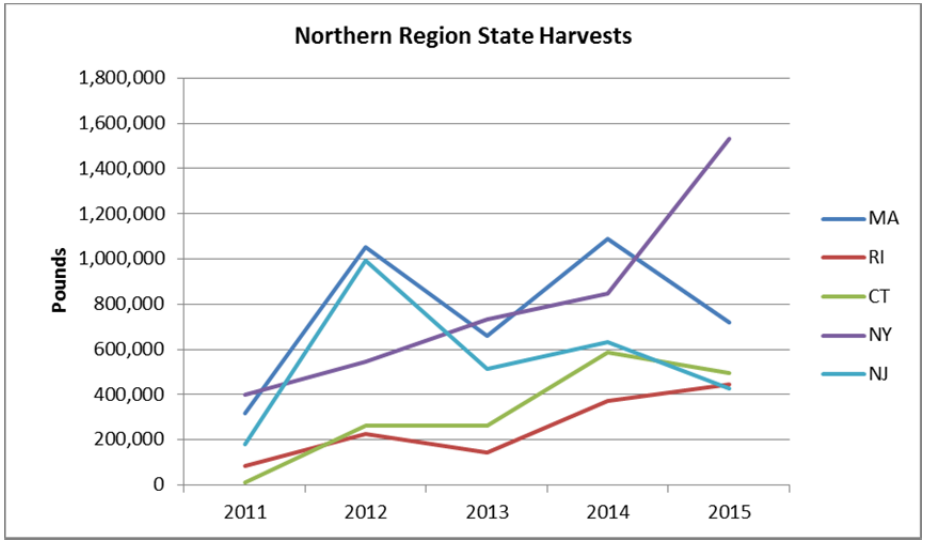
Table 1. Northern Region harvest targets vs. harvests achieved (as percentages based on pounds), 2011–2016. The 2016 achieved harvest percent will increase when September–December 2016 harvest estimates are available. The 2016 harvest target was based on preliminary 2015 data which were subsequently subject to significant revisions.

	2011	2012	2013	2014	2015	2016
Target	-40%	37%	-32%	-7%	-33%	-23%
Achieved	-68%	208%	-25%	52%	3%	-8%

Table 2. Northern Region state-specific harvest targets vs. harvests achieved (as percentages based on pounds), 2011–2016. Red font denotes greater harvest than expected. The targets for 2012 varied by state but were not available for this analysis; the overall target of 37% was used for all states. The 2016 harvest target was based on preliminary 2015 data which were subsequently subject to significant revisions (so the actual target varied by state).

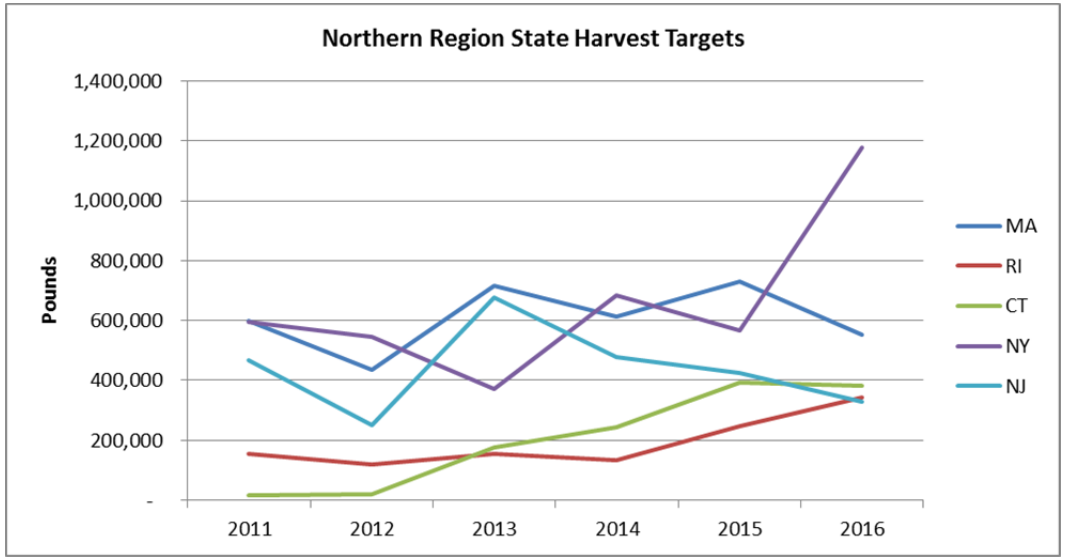
	2011		2012		2013		2014		2015		2016	
	Target	**Achieved**	**Target**	**Achieved**	**Target**	**Achieved**	**Target**	**Achieved**	**Target**	**Achieved**	**Target**	**Achieved**
MA	-43%	-70%	37%	230%	-32%	-37%	-7%	65%	-33%	-34%	-23%	TBD
RI	-37%	-65%	37%	163%	-32%	-36%	-7%	156%	-33%	20%	-23%	TBD
CT	-37%	-43%	37%	1798%	-32%	0%	-7%	123%	-33%	-15%	-23%	TBD
NY	-39%	-59%	37%	37%	-32%	35%	-7%	15%	-33%	81%	-23%	TBD
NJ	-40%	-77%	37%	447%	-32%	-48%	-7%	23%	-33%	-32%	-23%	TBD

Figure 2. Northern Region state harvests, 2011–2015, in pounds, and percent change from 2011 (state share management) and 2012 (first year of ad hoc regional management) to 2015. (2016 data excluded due to highly incomplete harvest estimates.)



State	2011 to 2015 Change in Harvest	2012 to 2015 Change in Harvest
MA	126%	-32%
RI	417%	96%
CT	3503%	90%
NY	284%	181%
NJ	136%	-57%

Figure 3. Northern Region state harvest targets, 2011–2016, in pounds, and percent change from 2011 (state share management) and 2012 (first year of ad hoc regional management) to 2016. Poundage targets estimated by applying target rates in Table 2 to prior year harvest in pounds.



State	2011 to 2016 Change in Target	2012 to 2016 Change in Target
MA	-8%	27%
RI	121%	191%
CT	2410%	1925%
NY	98%	116%
NJ	-30%	32%

Table 3. State regulatory changes from 2010 to 2016.

2010 Regulations (last year of coastwide management)					
		Size (“)	**Bag (#)**	**Season**	
Coastwide (MA-NC*)		12.5	20**	5/22–10/11 & 11/1–12/31	204 days
2016 Regulations					
State		**Size**	**Bag**	**Season**	
MA		15	5	5/21–8/31	103 days
RI		15	3	6/24–8/31	191 days
			7	9/1–12/31	
CT	Private/Shore	15	5	5/1–12/31	245 days
	For-hire Vessel		8		
NY		15	3	6/27–8/31	188 days
			8	9/1–10/31	
			10	11/1–12/31	
NJ		12.5	10	5/23–6/19	161 days
		12.5	2	7/1–8/31	
		13	15	10/22–12/31	
DE–NC*		12.5	15	5/15–9/21 & 10/22–12/31	201 days

2010 to 2016 Regulatory Changes			
		Season Length	**Size and Bag Limit Changes (Bag limit reductions from 25 fish; size limit increases from 12.5”)**
MA		-101 days	102 days: fishery closed 102 days: bag reduced by 20 fish & size limit increased by 2.5” 1 day: fishery newly opened at 5 fish & 15”
RI		-13 days	33 days: fishery closed 69 days: bag reduced by 22 fish & size limit increased by 2.5” 102 days: bag reduced by 18 fish & size limit increased by 2.5” 20 days: fishery newly opened at 7 fish & 15”
CT	Private/Shore	+41 days	204 days: bag reduced by 20 fish & size limit increased by 2.5” 41 days: fishery newly opened at 5 fish & 15”
	For-hire Vessel		204 days: bag reduced by 17 fish & size limit increased by 2.5” 41 days: fishery newly opened at 8 fish & 15”
NY		-16 days	36 days: fishery closed 66 days: bag reduced by 22 fish & size limit increased by 2.5” 41 days: bag reduced by 17 fish & size limit increased by 2.5” 61 days: bag reduced by 15 fish & size limit increased by 2.5” 20 days: fishery newly opened at 8 fish & 15”
NJ		-43 days	53 days: fishery closed 62 days: bag reduced by 23 fish (no change in size limit) 28 days: bag reduced by 15 fish (no change in size limit) 61 days: bag reduced by 10 fish & size limit increased by 0.5” 10 days: fisher newly opened at 15 fish & 13”
DE–NC*		-3 days	20 days: fishery closed 184 days: bag reduced by 10 fish (no change in size limit) 17 days: fishery newly opened at 15 fish & 12.5”

* NC for north of Cape Hatteras only

** The coastwide maximum was 25 fish; MA opted to be more conservative, with a 20-fish limit.

Appendix

Table A1. Marine Recreational Information Program harvest estimates, in pounds, used to develop relevant figures and tables within this document. Queried 11/10/16. NC data are for the entire state. 2016 data are through Wave 4 only and are considered preliminary.

Year	MA	RI	CT	NY	NJ	DE	MD	VA	NC*	Total
2010	1,052,441	246,229	24,138	975,624	780,115	29,430	41,507	24,702	186,803	3,360,989
2011	318,383	85,903	13,758	399,031	181,699	46,232	51,730	26,747	143,234	1,266,717
2012	1,052,049	226,132	261,164	545,222	993,613	49,966	42,174	2,599	127,621	3,300,540
2013	660,797	144,722	262,392	734,729	515,176	44,365	39,170	33,660	68,225	2,503,236
2014	1,087,847	370,531	586,113	847,181	631,457	30,962	87,086	24,433	132,351	3,797,961
2015	718,101	444,337	495,675	1,531,493	428,319	26,893	78,052	63,694	100,146	3,886,710
2016	888,775	294,872	801,284	1,020,663	319,267	22,329	20,630	59,466	64,631	3,491,917

Summer Flounder, Scup, and Black Sea Bass Monitoring Committee
2017 Recreational Measures Recommendations

Monitoring Committee Attendees: Greg Wojcik (CT DEEP), John Maniscalco (NY DEC; via webinar), Peter Clarke (NJ F&W), Rich Wong (DNREC), Steve Doctor (MD DNR), Katie May Laumann (VMRC), T.D. VanMiddlesworth (NC DMF), Kiley Dancy (MAFMC Staff), Julia Beaty (MAFMC Staff), Kirby Rootes-Murdy (ASMFC Staff), Emily Gilbert (NMFS GARFO; via webinar), Mark Terceiro (NEFSC; via webinar), Jason McNamee (RI DEM; via webinar 11/9 only)

Other Attendees (all via webinar): Alex Aspinwall (VMRC, 11/9 only), Joe Cimino (VMRC, 11/10 only), Bonnie Brady (Long Island Commercial Fishermen's Association), Rob O'Reilly (VMRC, 11/9 only), Carl Benson (11/9 only)

The Monitoring Committee met on Wednesday, November 9 and Thursday, November 10, 2016 in Baltimore, MD to recommend 2017 recreational management measures for summer flounder, scup, and black sea bass.

General Comments

The Monitoring Committee agreed that recent end-of-year adjustments to the MRIP data to account for low sample sizes are a source of uncertainty. This was done for the first time in August 2016 (for 2013-2015 data), and it is not known if or how such adjustments will impact the final 2016 estimates.

The Monitoring Committee agreed that if the recreational fishery for any of these three species is open during wave 1 (January 1 – February 28), there should be recreational data sampling in place to produce comparable MRIP estimates. It is important to document removals occurring from the fisheries, and wave 1 recreational catch (for states other than North Carolina) is currently not incorporated into final catch estimates or the stock assessments.

Black Sea Bass

The Monitoring Committee agrees with the staff recommendation to postpone in-depth analysis of

revisions to the recreational management measures until early 2017, once the assessment results become available and the Scientific and Statistical Committee revisits 2017 catch and landings limits. Accountability measures for black sea bass would also be addressed at that time.

The Committee notes that this delay will complicate timely implementation of recreational measures, and likely means that adjustments to the front end of the season in 2017 will not be feasible. Necessary seasonal adjustments would thus need to be made to the middle or end of the 2017 seasons.

Mid-Atlantic Fishery Management Council
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Michael P. Luisi, Chairman | G. Warren Elliott, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: November 2, 2016

To: Chris Moore, Executive Director

From: Kiley Dancy and Julia Beaty, Staff

Subject: Black Sea Bass Recreational Management Measures for 2017

In August 2016, the Council and the Atlantic States Marine Fisheries Commission's (Commission's) Summer Flounder, Scup, and Black Sea Bass Board (Board) recommended no changes to the previously implemented commercial quotas and recreational harvest limits for black sea bass in 2017, based on the July 2016 advice of the Scientific and Statistical Committee (SSC) and Monitoring Committee. The final rule implementing the 2017 landings limits published on December 28, 2015 (80 FR 80690), and includes a 2017 recreational harvest limit (RHL) of 2.82 million pounds.

However, a benchmark stock assessment is currently in development for black sea bass, and is scheduled to undergo peer review from November 29-December 2, 2016 at the 62nd Stock Assessment Review Committee (SARC 62). The SSC plans to review the results of the assessment peer review and recommend a revised 2017 ABC in January 2017.

The Monitoring Committee is responsible for recommending recreational management measures for 2017 that will constrain landings to the recreational harvest limit. Recreational measures for 2017 must also address the average 2013-2015 recreational overage of the recreational Annual Catch Limit (ACL), consistent with the Council's recreational accountability measures (AMs) as revised in 2013.

Given the timing of the assessment, Council staff recommend that current federal and state measures remain in place until early 2017, when the Monitoring and Technical Committees would then make specific recommendations for 2017 recreational measures based on the results of the stock assessment peer review and resulting SSC recommendations. Staff recommend that the Committee begin planning for how to quickly and efficiently respond to potential harvest limit revisions in early 2017.

This document includes a review of recreational catch and landings data for the black sea bass fishery. Additional information will be provided in early 2017 for the Monitoring Committee's consideration of revised 2017 recreational measures

Recreational Catch and Landings

Recreational catch of black sea bass has fluctuated since 1981, from a peak of 28.9 million fish in 1986 to a low of 3.4 million fish in 1984. Landings have fluctuated from a peak of 12.39 million lb in 1986 to a

low of 1.15 million lb in 1998. Landings were estimated to be 3.79 million lb in 2015 (Table 2), approximately 63% above the 2015 RHL of 2.33 million lb.

Marine Recreational Information Program (MRIP) data for 2016 are incomplete and preliminary. To date, only the first four waves (January through August) of catch and landings data for the current year are available. The Monitoring Committee reviews the MRIP data once wave 4 data are available because the Council and Commission have agreed that recommendations need to be made late in the current year (i.e., 2016) to give the states enough time to enact changes in their regulations for the upcoming year (i.e., 2017). Preliminary data indicate that 8.43 million black sea bass have been caught and 1.68 million black sea bass have been landed through wave 4 in 2016 (north of Cape Hatteras, NC). By weight, landings through wave 4 were 3.43 million lb, with the mean weight at approximately 2.04 lb per landed fish (Table 3). These preliminary estimates indicate that the 2016 RHL of 2.82 million lb has already been exceeded by approximately 22%.

Preliminary wave 1-4 data for 2016 can be used to project catch and landings for the entire year, by assuming the same proportion of catch and landings by wave in the previous year. Because prior year proportions are used in this method, if seasonal adjustments are not taken into account, landings will tend to be overestimated for states with more restrictive seasons in the current year, and for those with less restrictive seasons, landings are likely to be underestimated. Between 2015 and 2016, no states adjusted open seasons for waves 5 and 6; however, several states opened more days in waves 3 and 4, which is expected to impact the percentage of annual landings by wave for those states.

Projection adjustments were made for the states of Rhode Island, Connecticut, New York, and New Jersey, all of which increased the number of open days in waves 3 and/or 4 between 2015 and 2016. For these states, the percentage of annual landings expected to originate from waves 1 through 4 was adjusted slightly upward, in line with the increased percentage of total open days from waves 3 and 4. In last year's projections for Massachusetts, zero harvest was assumed for waves 5 and 6 in 2015 given a recreational closure for those waves. However, a small amount of harvest still occurred in wave 5 in 2015. To account for this management uncertainty resulting from non-compliance, the assumption of zero harvest from Massachusetts in waves 5 and 6 was not maintained for 2016 projections. Projected landings by state are given in Table 4 (pounds) and Table 6 (number), and trends by state over time are shown in Figure 1 and Figure 2.

The coastwide (north of Cape Hatteras, NC) projected catch for 2016 is 12.65 million fish, and projected landings are 5.06 million lb or 2.48 million fish (Table 2).

Past Harvest Limits and Management Measures

Recreational harvest limits for black sea bass have ranged from a high of 4.13 million lb in 2005 to a low of 1.14 million lb in 2009. The 2017 RHL is identical to the 2016 RHL, at 2.82 million lb (Table 7).

Until 2010, the black sea bass recreational fishery was managed with coastwide measures as dictated by the FMP, which included an identical minimum fish size, possession limit, and an open season that were implemented in both state and federal waters. Since 2011, the Commission has developed addenda which have enabled "ad hoc regional management." This process essentially results in two regions: the northern states of Massachusetts through New Jersey, which set state-specific measures, and the southern states of Delaware through North Carolina (north of Cape Hatteras), which typically set measures consistent with federal measures given that most landings from southern states are taken in the EEZ (Table 4). Where state and federal measures differ, federal party/charter permit holders and private anglers fishing in federal

waters are bound by whichever regulations are more restrictive. Many federal for-hire permit holders drop their federal permits during periods when state waters are open but federal waters are closed, allowing them to fish in state waters during this time. Most reapply for the permit once this period of inconsistency is complete. In practice under ad hoc regional management, landings in the northern states are constrained by state measures rather than federal. As such, any adjustments to the federal recreational measures should be considered primarily adjustments to the measures for the southern region.

In 2016, federal and southern states measures included a 12.5-inch TL minimum size, a 15-fish possession limit, and an open season of May 15-September 21 and October 22-December 31 (Table 7; Table 8). The Commission's Addendum XXVII, approved February 2016, allowed for ad hoc regional management in 2016 with the option to extend this management strategy into 2017. Northern states implemented state-specific measures in 2016 with minimum fish sizes ranging from 13 to 14 inches TL, possession limits from 1 to 10 fish, and various seasons (Table 8).

Accountability Measures

In 2013, the Council modified the recreational accountability measures (AMs) for Mid-Atlantic species through an Omnibus Recreational Accountability Measures Amendment. This amendment removed the in-season closure authority for the black sea bass recreational fishery that was previously held by the NMFS Regional Administrator. Additionally, in the event of an Annual Catch Limit (ACL) overage, recreational AMs will no longer necessarily include a direct pound-for-pound payback of the overage amount in a subsequent fishing year. Instead, AMs are now tied to stock status, and though paybacks may be required in some circumstances, any potential payback amounts would be scaled relative to biomass, as described below.

The modified recreational AMs are as follows: the 3-year recreational sector ACL is evaluated against a 3-year moving average of total catch. Both landings and dead discards are evaluated in determining if the 3-year average recreational sector ACL has been exceeded. If the recreational ACL is exceeded, the appropriate AM will be determined based on the following criteria:

1. If the stock is overfished ($B < \frac{1}{2} B_{MSY}$), under a rebuilding plan, or the stock status is unknown: The exact amount, in pounds, by which the most recent year's recreational ACL has been exceeded, will be deducted in the following fishing year, or as soon as possible once catch data are available.
2. If biomass is above the threshold, but below the target ($\frac{1}{2} B_{MSY} < B < B_{MSY}$), and the stock is not under a rebuilding plan:
    a. If only the recreational ACL has been exceeded, then adjustments to the recreational management measures (bag, size, and seasonal limits) would be made in the following year, or as soon as possible once catch data are available. These adjustments would take into account the performance of the measure and conditions that precipitated the overage.
    b. If the Acceptable Biological Catch (ABC = recreational ACL + commercial ACL) is exceeded in addition to the recreational ACL, then a single year deduction will be made as a payback, scaled based on stock biomass. The calculation for the payback amount in this case is: (overage amount) * $(B_{msy}-B)/\frac{1}{2} B_{msy}$.
3. If biomass is above the target ($B > B_{MSY}$): Adjustments to the recreational management measures (bag, size, and seasonal limits) would be made in the following year, or as soon as possible once catch data are available. These adjustments would take into account the performance of the measure and conditions that precipitated the overage.

Recreational AMs have been triggered for black sea bass based on a comparison of the 3-year average ACL to the 3-year average of catch, as described above. The 2013-2015 average recreational catch (4.11 million lb) exceeded the 2013-2015 average recreational ACL (2.90 million lb; Table 1).

Table 1: Recreational AM evaluation for black sea bass, comparing 3-year average total catch to the 3-year average ACL.

	2013	2014	2015	3-year average
Rec ACL (mil lb)	2.90	2.90	2.90	2.90
Total rec. catch (mil lb)	3.08	4.53	4.71	4.11
Landings	*2.46*	*3.67*	*3.79*	*3.31*
Discards	*0.62*	*0.86*	*0.92*	*0.80*
Overage percent	6.2%	56.2%	62.4	41.6%
Overage amount (mil lb)	0.18	1.63	1.81	1.21

Because the most recent estimate of black sea bass biomass is above the target biomass, the AM triggered includes required adjustments to the recreational management measures (bag, size, and season). The Monitoring Committee will need to take into account the performance of past measures and conditions that precipitated the overage. The Monitoring Committee should consider continuing to update the data and methodology used to calculate effective recreational measures and reductions as a way to take into consideration the performance of past measures and improve understanding of how adjustments have effected recent recreational performance.

Fishing Trips and Year Class Effects

Predicting the number of trips that might be taken in 2017 is complicated (Table 9). Changes in fishing site characteristics (travel costs, catch rates, available species, water quality, etc.), fishery management policies (possession limits, size restrictions, closed seasons), and angler demographics can affect the demand for angler fishing trips. Changes in angler behavior may result in a violation of the assumptions associated with specific sets of regulations and their anticipated results.

Year-class effects in terms of fish availability can influence the expected impacts of management measures and should be considered. The Monitoring Committee has previously noted potential year class effects from the large 2011 year class of black sea bass, and should review additional year class information from the benchmark assessment once available.

2017 Staff Recommendation

The previously adopted 2017 harvest limit is 2.82 million lb. If this limit were to remain unchanged, based on preliminary data through wave 4 of 2016, landings would have to be reduced in 2017 by 44% compared to 2016 projections, to constrain harvest to the 2017 recreational harvest limit of 2.82 million lb. However, as described above, a benchmark stock assessment is in development for black sea bass, with peer review scheduled for November 29-December 2, 2016. The SSC will review the assessment and peer review results in January 2016, followed by Council and Board review and potential catch limit revisions in February 2017. In the event that the stock assessment is deemed unacceptable for management use, the SSC would revert to an updated run of the Data Limited Toolkit approach[1] incorporating the most recent survey indices. Thus, the Council and Board are likely to consider harvest limit revisions in either scenario.

[1] First adopted in the fall of 2015 for 2016 measures; see http://www.mafmc.org/ssc-meetings/2015/sept-16-17.

Given expected harvest limit revisions, staff recommends postponing in-depth analysis of revisions to the recreational management measures until early 2017. Because this will require a short time frame for recommending, approving, and implementing recreational measures prior to the core fishing season, the Monitoring Committee should begin to plan for approaches to 2017 recreational management, including how to quickly and efficiently respond to expected harvest limit revisions.

Information on recreational fishery trends, through wave 4 of 2016, is provided in the tables and figures below to facilitate initial discussions of options for 2017. This information will be updated and supplemented for any future discussions of the Monitoring Committee, Board, and Council regarding 2017 measures.

Table 2: Black sea bass recreational catch and landings by year, 1982 to 2015, and projected catch and landings for 2016, Maine to Cape Hatteras, NC. The number of fish released is presented as a proportion of the total catch (% Released).

Year	Catch[a] ('000 fish)	Landings[a] ('000 fish)	Landings[a] ('000 lb)	% Released	Mean weight of landed fish (lb)
1982	11,386	10,045	9,894	12%	0.98
1983	7,561	4,537	4,079	40%	0.90
1984	3,428	1,780	1,447	48%	0.81
1985	6,047	3,388	2,097	44%	0.62
1986	28,946	21,742	12,392	25%	0.57
1987	5,052	2,883	1,924	43%	0.67
1988	8,186	3,088	2,869	62%	0.93
1989	6,427	4,239	3,289	34%	0.78
1990	9,135	3,881	2,761	58%	0.71
1991	10,829	5,269	4,186	51%	0.79
1992	7,722	3,592	2,706	53%	0.75
1993	9,023	6,007	4,842	33%	0.81
1994	7,166	3,430	2,948	52%	0.86
1995	14,059	6,747	6,207	52%	0.92
1996	8,143	3,624	3,993	55%	1.10
1997	10,646	4,739	4,268	55%	0.90
1998	5,146	1,148	1,152	78%	1.00
1999	7,400	1,378	1,664	81%	1.21
2000	16,927	3,629	3,988	79%	1.10
2001	13,869	2,841	3,421	80%	1.20
2002	14,703	3,351	4,349	77%	1.30
2003	12,128	3,251	3,289	73%	1.01
2004	7,238	1,531	1,973	79%	1.29
2005	7,041	1,263	1,883	82%	1.49
2006	7,602	1,286	1,800	83%	1.40
2007	8,727	1,528	2,175	82%	1.42
2008	10,653	1,294	2,031	88%	1.57
2009	9,224	1,806	2,558	80%	1.42
2010	9,964	2,207	3,190	78%	1.45
2011	4,737	817	1,171	83%	1.43
2012	12,536	1,874	3,185	85%	1.70
2013	9,807	1,282	2,464	87%	1.92
2014	10,870	2,118	3,667	81%	1.73
2015	9,429	2,215	3,790	77%	1.71
2016 (proj.)[b]	12,653	2,477	5,064	80%	2.04

[a] 1982-2003 data are from MRFSS, 2004-2016 data are from MRIP. Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 27, 2016.

[b] Projected using proportion by wave from 2015 MRIP data and 2016 MRIP wave 1-4 data, with adjustments for RI, CT, NY, and NJ to account for seasonal openings in waves 3 and 4 between 2015 and 2016 (Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 27, 2016).

Table 3: Black sea bass recreational catch and landings for waves 1-4, Maine through Cape Hatteras, North Carolina, 2005-2016.[a]

Year	Catch ('000 fish)	Landings ('000 fish)	Landings ('000 lb)	Mean Weight (lb)
2005	3,628	824	1,308	1.59
2006	3,491	710	1,075	1.51
2007	4,440	1,090	1,547	1.42
2008	6,261	618	996	1.61
2009	6,765	1,470	2,030	1.38
2010	4,693	1,284	1,897	1.48
2011	2,524	478	689	1.44
2012	7,534	1,252	2,280	1.82
2013	5,954	928	1,792	1.93
2014	6,341	1,287	2,456	1.91
2015	6,137	1,505	2,590	1.72
2016	8,434	1,682	3,428	2.04

[a] Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 27, 2016.

Table 4: Landings of black sea bass (in lb) by state and area (state vs. federal waters), 2014 and 2015, Maine through North Carolina, and projected landings for 2016 by state. Area information is self-reported based on the area where most fishing activity occurred per angler trip.

State	2014 Landings (lb)	2015 Landings (lb)	Avg. % of Coastwide Landings (lb) 2014-2015	2016 projected landings (lb)	Proj. % of coastwide landings in 2016	% from State Waters (<= 3 mi), 2014-2015	% from EEZ (> 3 mi), 2014-2015
NH	0	0	0.0%	0	0.0%	--	--
MA	1,087,856	718,108	24.2%	894,392	17.7%	93%	7%
RI	370,534	444,341	10.9%	634,973	12.5%	77%	23%
CT	586,118	495,679	14.5%	1,603,071	31.7%	95%	5%
NY	847,188	1,531,507	31.9%	1,365,107	27.0%	76%	24%
NJ	631,461	428,323	14.2%	371,612	7.3%	13%	87%
DE	30,963	26,893	0.8%	39,850	0.8%	4%	96%
MD	87,087	78,053	2.2%	89,591	1.8%	10%	90%
VA	24,433	63,695	1.2%	63,463	1.3%	26%	74%
NC	1,180[a]	3,887[a]	0.1%	1,803 [a]	0.0% [a]	16%[b]	84%[b]
Total	**3,666,820**	**3,790,487**	**100.0%**	**5,063,861**	**100.0%**	**69%**	**31%**

[a] Through Cape Hatteras, NC.

[b] All of North Carolina, both north and south of Cape Hatteras.

Table 5: Black sea bass recreational landings (in thousands of fish) by state for waves 1-4, Maine through Cape Hatteras, NC, 2007-2016.

State	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
ME	-	-	-	-	-	-	-	-	-	-
NH	-	-	-	-	-	3	12	-	-	-
MA	69	154	367	641	159	454	190	349	338	380
RI	11	12	23	133	12	55	51	110	99	133
CT	1	60	0	15	3	87	96	187	143	381
NY	265	111	429	227	105	271	256	277	635	504
NJ	614	203	483	210	129	314	243	308	228	228
DE	77	18	34	16	14	33	34	18	12	17
MD	32	22	24	18	38	31	25	32	13	16
VA	14	29	109	17	13	3	12	4	36	21
NC	7	9	2	7	6	2	8	<1	1	<1

Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 28, 2016.

Table 6: Black sea bass recreational landings (in thousands of fish) by state for all waves, Maine through Cape Hatteras, NC, 2007-2016.[a]

State	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016 (proj.)[b]
ME	-	-	-	-	-	-	-	-	-	-
NH	-	-	-	-	-	3	12	-	-	-
MA	149	246	431	702	195	520	292	457	343	385
RI	44	52	36	160	50	103	75	214	234	296
CT	24	60	0	16	8	111	110	397	331	756
NY	410	260	566	543	274	322	353	469	877	636
NJ	725	580	583	687	148	735	345	468	310	280
DE	93	23	37	21	43	40	37	24	23	31
MD	39	26	33	36	47	33	30	68	58	69
VA	36	38	115	30	19	4	21	19	39	23
NC	9	9	3	11	31	4	8	<1	2	1

[a] Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 28, 2016.

[b] Projected using proportion by wave from 2015 MRIP data and 2016 MRIP wave 1-4 data, with adjustments for RI, CT, NY, and NJ to account for seasonal openings in waves 3 and 4 between 2015 and 2016 (Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 28, 2016).

Table 7: Summary of management measures for the black sea bass recreational fishery, 1997-2016.

Measure	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	
ABC (m lb)	-	-	-	-	-	-	-	-	-	-	
Recreational ACL (m lb)	-	-	-	-	-	-	-	-	-	-	
Harvest Limit (m lb)[a]	-	3.15	3.15	3.15	3.15	3.43	3.43	4.01	4.13	3.99	
Landings (m lb)[b]	4.3	1.2	1.7	4.0	3.4	4.4	3.3	2.0	1.9	1.8	
Possession Limit	-	-[c]	-[c]	-[c]	25	25	25	25	25	25	
Size Limit (TL in)	9	10	10	10	11	11.5	12	12	12	12	
Open Season	1/1-12/31	1/1-7/30 and 8/16-12/31	1/1-12/31	1/1-12/31	1/1-2/28 and 5/10-12/31	1/1-12/31	1/1-9/1 and 9/16-11/30	1/1-9/7 and 9/22-11/30	1/1-9/7 and 9/22-11/30	1/1-12/31	
Measure	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017[d]**
ABC (m lb)				4.50	4.50	4.50	5.50	5.50	5.50	6.67	6.67
Recreational ACL (m lb)	-	-	-	-	-	-	2.90	2.90	2.90	3.52	3.52
Harvest Limit (m lb)[a]	2.47	2.11	1.14	1.83	1.84	1.32	2.26	2.26	2.33	2.82	2.82
Landings (m lb)[b]	2.17	2.03	2.56	3.19	1.17	3.19	2.46	3.67	3.79	-	-
Possession Limit	25	25	25	25	25	20 or 25	20	15	15	15	-
Size Limit (TL in)	12	12	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	-
Open Season	1/1-12/31	1/1-12/31	1/1-12/31	1/1-10/5	5/22-10/1 and 11/1-12/31	1/1-2/29, 5/19-10/14 and 11/1-12/31	5/19-10/14 and 11/1-12/31	5/19-9/21 and 10/18-12/31	5/15-9/21 and 10/22-12/31	5/15-9/21 and 10/22-12/31	-

[a] For 2006-2014, recreational harvest limits are adjusted for Research Set Aside (RSA). Quotas and harvest limits for 2015-2016 do not reflect an adjustment for RSA due to the suspension of the program in 2014.

[b] Landings for Maine through Cape Hatteras, NC. 1997-2003 data are from MRFSS, 2004-2015 data are from MRIP.

[c] There was no federal possession limit but some states implemented a 20 fish possession limit in these years.

[d] Implemented; subject to change in early 2017 based on results of black sea bass stock assessment in development.

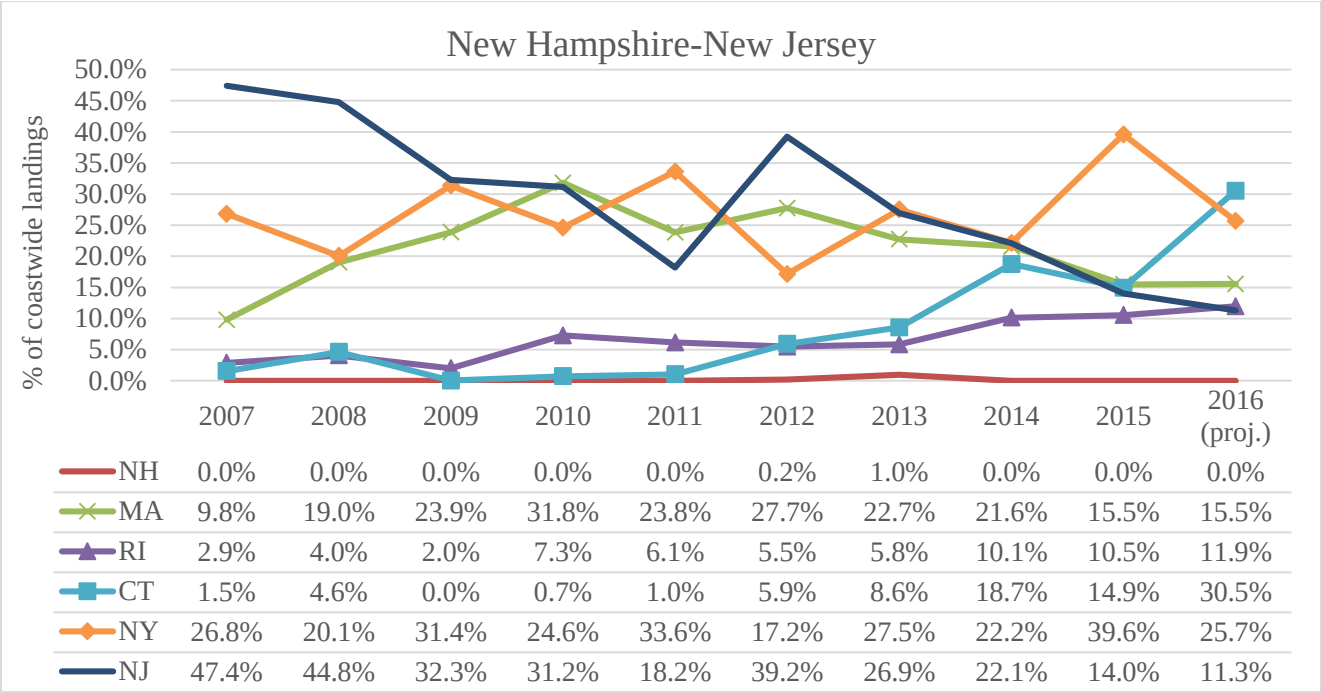
Table 8: Black sea bass recreational management measures by state, 2015 (a) and 2016 (b).

a) 2015 measures by state.

State	Minimum Size (inches)	Possession Limit	Open Season
Maine	13	10 fish	May 19 - September 21 and October 18-December 31
New Hampshire	13	10 fish	January 1 - December 31
Massachusetts	14	8 fish	May 23 - August 27
Rhode Island	14	1 fish	July 2 - August 31
		7 fish	September 1 - December 31
Connecticut	14	3 fish	June 1 - August 31
		5 fish	September 1- December 31
Connecticut authorized party/charter monitoring program vessels	14	8 fish	June 21-December 31
New York	14	8 fish	July 15 - October 31
		10 fish	November 1 - December 31
New Jersey	12.5	2 fish	July 1 - July 31
		15 fish	May 27 - June 30; October 22- December 31
Delaware	12.5	15 fish	May 15 - September 21 and October 22 - December 31
Maryland	12.5	15 fish	May 15 - September 21 and October 22 - December 31
Potomac River Fisheries Commission	12.5	15 fish	May 15 - September 21 and October 22 - December 31
Virginia	12.5	15 fish	May 15 - September 21 and October 22 - December 31
North Carolina (north of Cape Hatteras)	12.5	15 fish	May 15 - September 21 and October 22 - December 31

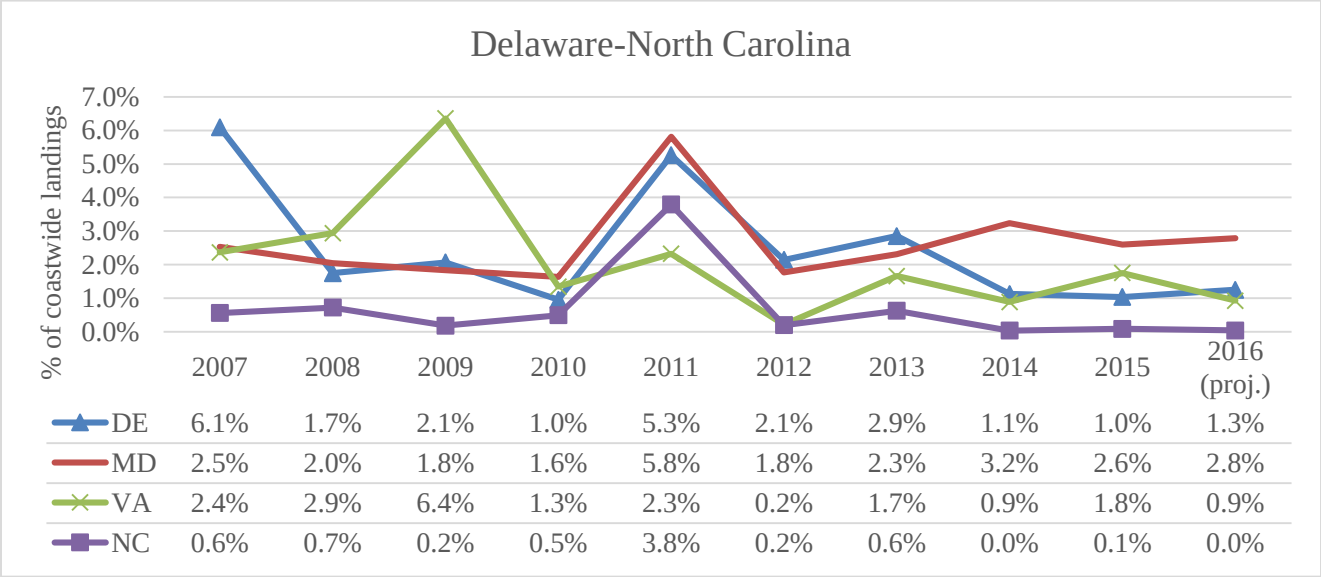
b) 2016 measures by state.

State	Minimum Size (inches)	Possession Limit	Open Season
Maine	13	10 fish	May 19-September 21; October 18- December 31
New Hampshire	13	10 fish	January 1-December 31
Massachusetts	15	5 fish	May 21-August 31
Rhode Island	15	3 fish	June 24- August 31
		7 fish	September 1-December 31
Connecticut (Private & Shore)	15	5 fish	May 1-December 31
CT (Authorized party/charter monitoring program vessels)		8 fish	
New York	15	3	June 27 – August 31
		8 fish	September 1-October 31
		10 fish	November 1-December 31
New Jersey	12.5	10 fish	May 23-June 19
		2 fish	July 1-August 31
	13	15 fish	October 22-December 31
Delaware	12.5	15 fish	May 15-September 21; October 22-December 31
Maryland	12.5	15 fish	May 15-September 21; October 22-December 31
Virginia	12.5	15 fish	May 15-September 21; October 22-December 31
North Carolina, North of Cape Hatteras (N of 35° 15'N)	12.5	15 fish	May 15-September 21; October 22-December 31



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016 (proj.)
NH	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	1.0%	0.0%	0.0%	0.0%
MA	9.8%	19.0%	23.9%	31.8%	23.8%	27.7%	22.7%	21.6%	15.5%	15.5%
RI	2.9%	4.0%	2.0%	7.3%	6.1%	5.5%	5.8%	10.1%	10.5%	11.9%
CT	1.5%	4.6%	0.0%	0.7%	1.0%	5.9%	8.6%	18.7%	14.9%	30.5%
NY	26.8%	20.1%	31.4%	24.6%	33.6%	17.2%	27.5%	22.2%	39.6%	25.7%
NJ	47.4%	44.8%	32.3%	31.2%	18.2%	39.2%	26.9%	22.1%	14.0%	11.3%

Figure 1: Percentage of coastwide black sea bass landings (in number of fish) by state, 2007-2016 (projected) for New Hampshire-New Jersey.



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016 (proj.)
DE	6.1%	1.7%	2.1%	1.0%	5.3%	2.1%	2.9%	1.1%	1.0%	1.3%
MD	2.5%	2.0%	1.8%	1.6%	5.8%	1.8%	2.3%	3.2%	2.6%	2.8%
VA	2.4%	2.9%	6.4%	1.3%	2.3%	0.2%	1.7%	0.9%	1.8%	0.9%
NC	0.6%	0.7%	0.2%	0.5%	3.8%	0.2%	0.6%	0.0%	0.1%	0.0%

Figure 2: Percentage of coastwide black sea bass landings (in number of fish) by state, 2007-2016 (projected) for Delaware-North Carolina.

Table 9: Number of directed black sea bass recreational fishing trips (Maine through North Carolina), recreational harvest limits, recreational landings, and fishery performance from 1995 to 2017.

Year	Number of Directed Fishing Trips[a]	Percentage of Directed Trips relative to Total Trips[b]	Recreational Harvest Limit (million lb)[c]	Recreational Landings of BSB (million lb)[d,e]	Percentage Overage (+%)/ Underage (-%)
1995	313,537	1.2	None	6.34	None
1996	231,090	0.8	None	3.99	None
1997	310,898	1.0	None	4.26	None
1998	137,734	0.5	3.15	1.14	-64%
1999	136,452	0.5	3.15	1.64	-48%
2000	255,789	0.7	3.15	3.98	+26%
2001	293,191	0.8	3.15	3.41	+8%
2002	283,537	0.9	3.43	4.37	+27%
2003	285,861	0.8	3.43	3.30	-4%
2004	149,670	0.4	4.01	1.97	-51%
2005	199,603	0.5	4.13	1.88	-54%
2006	253,040	0.7	3.99	1.80	-55%
2007	368,042	1.0	2.47	2.18	-12%
2008	256,341	0.7	2.11	2.03	-4%
2009	393,389	1.3	1.14	2.56	+125%
2010	417,663	1.4	1.83	3.19	+74%
2011	193,655	0.7	1.83	1.17	-36%
2012	267,932	0.8	1.32	3.19	+142%
2013	261,582	1.0	2.26	2.46	+9%
2014	403,624	1.0	2.26	3.67	+62%
2015	505,571	1.8	2.33	3.79	+63%
2016	NA	NA	2.82	NA	NA
2017	NA	NA	2.82[f]	NA	NA

[a] Estimated number of recreational fishing trips (expanded) where the primary target species was black sea bass, Maine through North Carolina. Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 27, 2016.

[b] Source of total trips (Maine through North Carolina) for all species combined: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 18, 2016.

[c] Harvest limits for 2002 through 2014 are adjusted for research set-aside.

[d] Maine through Cape Hatteras, NC.

[e] 1994-2003 data are from MRFSS, 2004-2015 data are from MRIP. Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 27, 2016.

[f] Implemented; subject to change based on new assessment information in early 2017.

NA = Data not available.

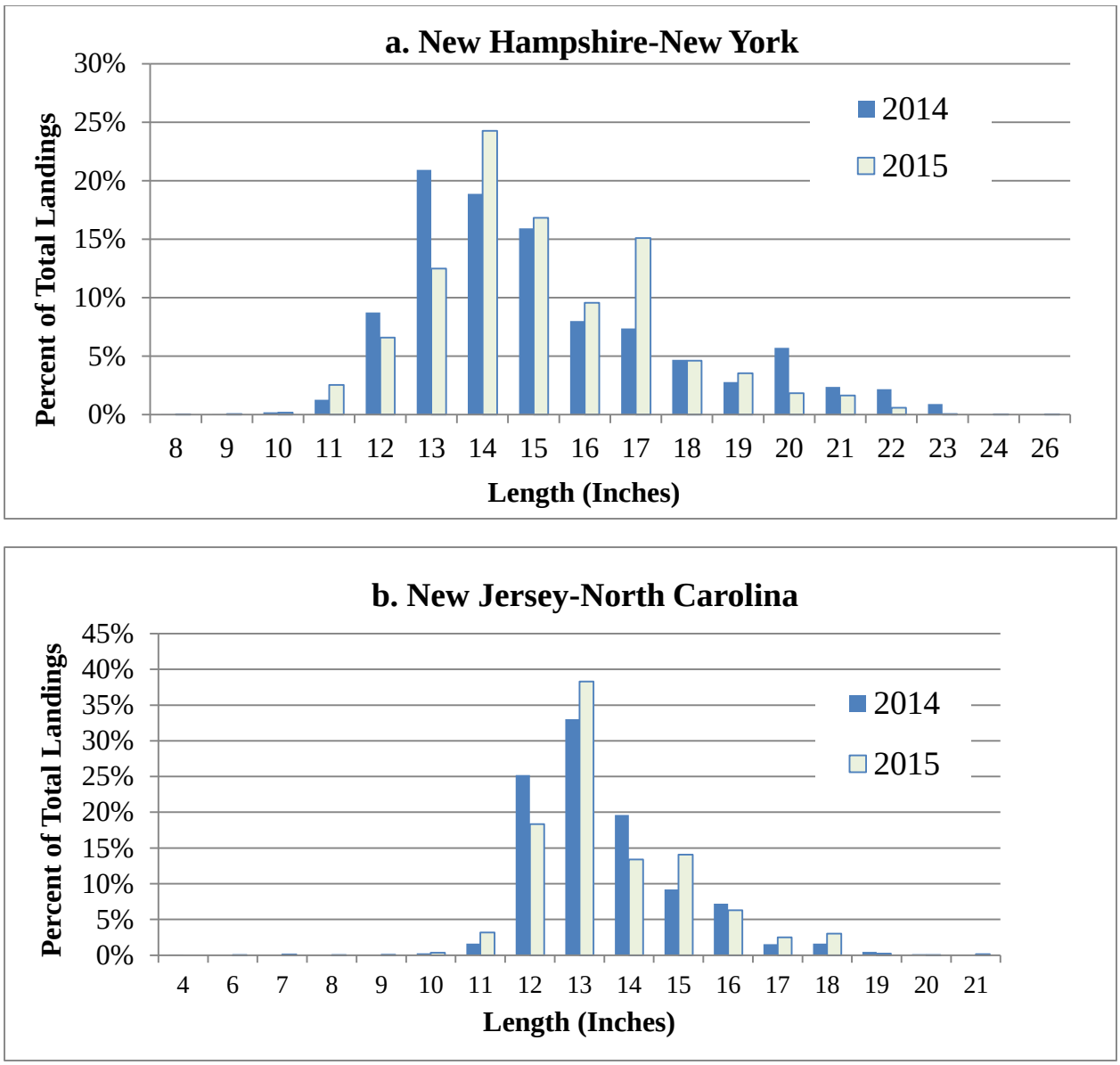


Figure 3: Expanded length frequencies of landed black sea bass from 2014 and 2015 MRIP data, as a percent of total landed fish, for a) New Hampshire through New York (13 or 15-inch size limits) and b) New Jersey through North Carolina (generally 12.5-inch size limit, except for New Jersey fall season). Each length bin contains fish from X.0 to X.99 inches. Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 28, 2016.

DRAFT

2017 IMPLEMENTATION PLAN

MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

DRAFT 11/30/2016

CONTENTS

INTRODUCTION

The Council initiated its Visioning and Strategic Planning Project in 2011 in an effort to address current and future challenges and secure a more stable and sustainable future for Mid-Atlantic fisheries. Between September 2011 and February 2012, the Council collected input for the strategic plan from more than 1,500 stakeholders through surveys, roundtable meetings, and position letters. Their input was summarized in the *Stakeholder Input Report*, released by the Council in June 2012.

In August 2012, the Council established a Visioning and Strategic Planning Working Group composed of Council members, stakeholders, and regional leadership. Through a series of meetings from August-December 2012, the working group crafted a vision, mission, goals, and objectives for the strategic plan. The framework developed by the working group was further refined by Council staff and approved by the Council in August 2013. The final 2014 – 2018 Strategic Plan is available at www.mafmc.org/strategic-plan, along with other related documents and background information.

The Council's strategic plan provides the first comprehensive strategic approach for fisheries management in federal waters off the Mid-Atlantic coast. Over the next five years, the strategic plan will guide the Council's efforts to achieve sustainable and productive fisheries, a healthy marine ecosystem, and stable coastal communities.

Implementation of the strategic plan will be a long-term process supported through the annual development of one-year implementation plans that identify specific tasks necessary for achieving the Council's goals and objectives. Annual implementation plans are designed for use as a planning tool by the Council and staff and as a way to update the public on progress toward achieving the goals and objectives of the strategic plan. Each year's plan is designed to provide a comprehensive and realistic framework for merging the Council's ongoing projects with new initiatives.

STRATEGIC PLAN OVERVIEW

Vision

Healthy and productive marine ecosystems supporting thriving, sustainable marine fisheries that provide the greatest overall benefit to stakeholders.

Mission

The Council manages marine fisheries in federal waters of the Mid-Atlantic region for their long-term sustainability and productivity consistent with the National Standards of the Magnuson-Stevens Fishery Conservation and Management Act. The Council is committed to the effective stewardship of these fisheries and associated habitats by incorporating scientific information and informed public input in transparent processes that produce fishery management plans and programs.

Core Values

- Stewardship
- Integrity
- Effectiveness
- Fairness
- Competence
- Clear Communication

2014 – 2018 GOALS, OBJECTIVES, AND STRATEGIES

Communication

Goal: Engage, Inform, and educate stakeholders to promote public awareness and encourage constructive participation in the Council process.

Objectives:

- Develop and implement a strategic communications plan to provide clear and accurate information to a broad range of stakeholders
- Engage a diverse audience of stakeholders
- Increase stakeholder trust and facilitate greater stakeholder engagement by making the Council process accessible and transparent
- Increase awareness and understanding of fishery science and management
- Increase stakeholder involvement in the development of fishery management actions

Science

Goal: Ensure that the Council's management decisions are based on timely and accurate scientific data that are analyzed and modeled in a manner that improves management performance and builds stakeholder confidence

Objectives:

- Promote the collection and analysis of accurate and timely scientific data to support the Council's management plans and programs
- Improve our understanding of the social and economic dimensions of Mid-Atlantic fishing communities
- Promote the collection and analysis of data needed to support the Council's transition to an Ecosystem Approach to Fisheries Management
- Encourage effective stakeholder participation in data collection and analysis
- Promote efficient and accurate methods of monitoring and reporting

Management

Goal: Develop fishery management strategies that provide for productive, sustainable fisheries.

Objectives:

- Evaluate the Council's fishery management plans
- Incorporate economic and social analysis of management alternatives into the decision-making process
- Develop management strategies that enable efficient operation of commercial and recreational fishing businesses
- Develop innovative management strategies for recreational and commercial fisheries
- Advance ecosystem approaches to fisheries management in the Mid-Atlantic

Governance

Goal: Ensure that the Council's governance structures and practices fairly represent stakeholder interests, are coordinated with the Council's management partners, and include a clear and well-defined decision-making process.

Objectives:

- Establish a formal decision-making process for the development and evaluation of management actions
- Develop and strengthen partnerships to promote greater efficiency and enhance coordination among management partners and other relevant organizations
- Ensure that stakeholder interests are accurately understood and meaningfully considered in the Council process

PROPOSED 2017 DELIVERABLES

This section provides an overview of deliverables expected by the end of the implementation plan period. Since many of the proposed implementation activities cannot be measured with traditional metrics, the list of deliverables establishes a mechanism for measuring the Council's progress toward achieving the goals and objectives of the strategic plan.

SUMMER FLOUNDER, SCUP, BLACK SEA BASS

- ☐ 2017 black sea bass specifications (review based on benchmark assessment results)
- ☐ 2018 specifications for summer flounder, scup, and black sea bass (review)
- ☐ 2018 recreational management measures for summer flounder, scup, and black sea bass
- ☐ Advisory Panel fishery performance reports
- ☐ Comprehensive summer flounder amendment (ongoing)
- ☐ Black sea bass amendment (initiate)
- ☐ Scup framework to modify quota periods

MACKEREL, SQUID, BUTTERFISH

- ☐ 2018-2020 specifications for squids and butterfish (develop and approve)
- ☐ Squid capacity amendment (ongoing)
- ☐ 2018 specifications for Atlantic mackerel (review)
- ☐ Advisory Panel fishery performance reports
- ☐ Butterfish cap review
- ☐ Goals and objectives for MSB
- ☐ Chub mackerel amendment (initiate)

RIVER HERRING AND SHAD

- ☐ RH/S cap for Atlantic mackerel fishery for 2018 (review)
- ☐ RH/S progress update

BLUEFISH

- ☐ 2018 bluefish specifications (review)
- ☐ Advisory Panel fishery performance report
- ☐ Bluefish allocation amendment (initiate)

GOLDEN AND BLUELINE TILEFISH

- ☐ 2018-2020 golden and blueline tilefish specifications (develop and approve)
- ☐ Advisory Panel fishery performance reports
- ☐ 5 year IFQ review

SURFCLAMS AND OCEAN QUAHOGS

- ☐ 2018-2020 surfclam and ocean quahog specifications (develop and approve)
- ☐ Advisory Panel fishery performance reports
- ☐ Excessive shares amendment (ongoing)
- ☐ ITQ review project (contract)
- ☐ Review and revise FMP goals and objectives

SPINY DOGFISH

- ☐ 2018 spiny dogfish specifications (review)

- ☐ Advisory Panel fishery performance report

ECOSYSTEM AND OCEAN PLANNING/HABITAT

- ☐ EFH review paper (ongoing)
- ☐ Add Deep Sea Coral protection areas to national MPA network

GENERAL

- ☐ EAFM guidance document (refine risk assessment approach for 2018)
- ☐ 2019-2023 Strategic Plan (initiate development)

COMMUNICATION AND OUTREACH

- ☐ Implementation of Council Communication and Outreach Plan
- ☐ Council action web pages
- ☐ Fact sheets and outreach materials
- ☐ Public comment policy/guidelines

SCIENCE AND RESEARCH

- ☐ Mid-Atlantic collaborative research program review
- ☐ 2016 – 2017 Mid-Atlantic collaborative research projects (ongoing)
- ☐ Framework to modify Council's risk policy
- ☐ Omnibus amendment for data modernization (GARFO lead)
- ☐ 2017 tilefish survey project

POSSIBLE ADDITIONS

- ☐ Black sea bass adaptive management project (contract)
- ☐ Black sea bass allocation project (contract)
- ☐ River and shad stock in fishery issue
- ☐ False albacore action
- ☐ Squid trimester action
- ☐ Surfclam and ocean quahog changes to harvest regulations

ACTION DEVELOPMENT CHECKLIST

A significant portion of the strategies included in the Council's strategic plan cannot be "completed" because they relate to tasks that should be considered an intrinsic part of every project or action. This section is the companion to the Proposed Deliverables section—it provides a mechanism for ensuring that the Council is upholding the standards included in its strategic plan. The Action Development Checklist was designed to be used by the Council and Staff as a guide for integrating the Council's strategic goals into the development and evaluation of management alternatives.

COMMUNICATION

- ☐ Ensure that communication materials meet the federal plain language guidelines
- ☐ Provide conference lines or webinar access to meetings whenever possible
- ☐ Ensure that meetings and events are posted on Council website calendar in a timely manner and with relevant information and documents
- ☐ Follow Council guidelines for collection and summarization of public comments
- ☐ Ensure that background information about the action is included with briefing materials each time the issue is discussed at a Council meeting
- ☐ Consider the feasibility and appropriateness of a workshop as part of the action development process
- ☐ Ensure that scoping and public hearings are held in locations with high concentrations of interested individuals
- ☐ Use targeted communication to inform stakeholders and solicit public input from individuals and groups that are most likely to be interested in or affected by the potential action

SCIENCE

- ☐ Fully consider species interactions in the assessment process and in the determination of catch limits
- ☐ Effectively communicate stakeholders' concerns or recommendations regarding monitoring/observing to the NEFSC

MANAGEMENT

- ☐ Evaluate the cumulative social and economic impacts of proposed and existing management alternatives
- ☐ Consider energy efficiency in the development of management measures
- ☐ Account for uncertainty in recreational catch estimates
- ☐ Support the development of models and analyses that evaluate alternative bag, size, and seasonal limits
- ☐ Reduce regulatory discards
- ☐ Ensure fair access to recreational fisheries throughout their range
- ☐ Incorporate species interactions into fishery management plans and coordinate these considerations across appropriate management plans
- ☐ Consider the relationship between essential fish habitat and productivity of marine resources into management decisions
- ☐ Minimize adverse ecosystem impacts

GOVERNANCE

- ☐ Follow Council guidelines for evaluation of stakeholder input
- ☐ Use advisory bodies and stakeholder input to inform the decision-making process and actively monitor changing conditions in the fisheries and ecosystem

SCIENCE AND RESEARCH NEEDS

This section summarizes the specific science and research needs that were identified in the strategic plan. These strategies are handled differently because they require additional planning in coordination with NOAA's Northeast Fisheries Science Center and other research institutions. The Science Center has already played a significant role in the development of the strategic plan, but since the Council has little control over how and when the science-related tasks of the strategic plan will be addressed, the implementation of these strategies requires a unique approach.

DATA NEEDS

- ☐ Timeline for completion of acceptable benchmark assessments for all of the Council's managed fisheries
- ☐ Oceanographic data related to climate change and ocean acidification
- ☐ Regional evaluation of species interactions within the marine ecosystem
- ☐ Climate change risk assessment for the Northeast marine ecosystem
- ☐ Habitat data—particularly data to link habitat protection with fishery productivity
- ☐ Relevant and up-to-date social and economic data about Mid-Atlantic communities
- ☐ Real-time commercial fisheries data
- ☐ Bioeconomic models

RESEARCH METHODOLOGY, FUNDING, AND PROGRAM ADMINISTRATION

- ☐ Electronic VTRs / log books in the commercial and for-hire sectors
- ☐ Innovative technologies (e.g., electronic monitoring, smart phones, etc.) to improve the accuracy and/or efficiency of data collection
- ☐ Evaluation of potential uses for volunteer angler data in recreational management decisions
- ☐ Additional observer program funding options
- ☐ Cooperative and collaborative research program expansion

MANAGEMENT STRATEGY INNOVATION

- ☐ Management strategies that account for uncertainty in recreational catch estimates
- ☐ Management strategies that reduce regulatory discards
- ☐ Management strategies that minimize adverse ecosystem impacts
- ☐ Management strategies that ensure fair access to recreational fisheries

2017 IMPLEMENTATION ACTIVITIES

This section identifies the specific activities and projects that the Council plans to begin or complete in 2017. The matrix is organized around the four goal areas identified in the strategic plan and includes anticipated timelines for completion of each task. Please note that the matrix below does not include routine or annual activities such as development of advisory panel fishery performance reports or annual specifications.

Implementation Activity	*Year* 14	15	16	17	18
COMMUNICATION & OUTREACH					
1. Implementation of Council Communication and Outreach Plan				●	●
2. Public comment policy/guidelines				●	
SCIENCE & RESEARCH					
3. Mid-Atlantic collaborative research program review			●	●	
4. 2016 – 2017 Mid-Atlantic collaborative research projects (ongoing)			●	●	
5. Framework to modify Council's risk policy			●	●	
6. Omnibus amendment for data modernization (GARFO lead)			●	●	
7. 2017 tilefish survey project				●	
MANAGEMENT					
Mackerel, Squid, Butterfish, and River Herring/Shad					
8. Squid Capacity Amendment		●	●	●	
9. Longfin squid mesh increase review			●		
10. Butterfish cap review		●	●		
Summer Flounder, Scup, Black Sea Bass					
11. Comprehensive summer flounder amendment	●	●	●	●	
12. Black sea bass amendment (initiate)				●	
13. Scup framework to modify quota periods				●	
River Herring and Shad					
14. Squid capacity amendment (ongoing)			●	●	
15. Butterfish cap review				●	
16. Goals and objectives for MSB				●	
17. Chub mackerel amendment (initiate)				●	
18. RH/S cap for Atlantic mackerel fishery for 2018 (review)				●	
19. RH/S progress update				●	
20. Address additional conservation of river herring and shad through an interagency working group	●	●	●	●	
Surfclam and Ocean Quahog					
21. Excessive Shares Amendment		●	●	●	
22. 5 Year ITQ Review (contract)			●	●	

Implementation Activity	*Year* 14	15	16	17	18
23. Review and revise FMP goals and objectives				●	
Golden and Blueline Tilefish					
24. 5-year IFQ review	●	●	●	●	
Ecosystems and Ocean Planning/Habitat					
25. EFH review paper (ongoing)		●	●	●	
26. Add Deep Sea Coral protection areas to national MPA network				●	
General					
27. EAFM Guidance Document (refine risk assessment approach for 2018)	●	●	●	●	
28. 2019-2023 Strategic Plan				●	●
GOVERNANCE					
29. Complete advisory panel fishery performance reports for each fishery	●	●	●	●	●
30. Participate on Seafood Marketing Committee		●	●	●	●
31. Participate in Partnership for Mid-Atlantic Fisheries Science	●	●	●	●	●
32. Participate in Atlantic Coastal Cooperative Statistics Program	●	●	●	●	●
33. Marine Recreational Information Program	●	●	●	●	●
34. Mid-Atlantic Regional Association for Coastal Ocean Observing System	●	●	●	●	●
35. Participate on the Chesapeake Bay Goal Implementation Team	●	●	●	●	●
36. Participate in Coastal and Marine Spatial Planning activities through coordination with Bureau of Ocean Energy Management (BOEM) and the Mid-Atlantic Regional Planning Body	●	●	●	●	●
37. Participate in Protected Resources Take Reduction meetings	●	●	●	●	●
38. Continue to coordinate with the NEFSC, particularly in relation to the goals, objectives, and strategies of the NEFSC strategic plan	●	●	●	●	●

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

November 18, 2016

Mr. John Bullard
Regional Administrator
National Marine Fisheries Service
Greater Atlantic Regional Fisheries Office
55 Great Republic Drive
Gloucester, MA 01930

Dear John:

Thank you for your October 21 letter on the development of fishery management plan amendments to implement the fishing restrictions associated with the Northeast Canyons and Seamounts Marine National Monument. The Council discussed this issue during its November 15 meeting in Newport, Rhode Island, and concluded that it will not develop the required plan amendments.

Pending a formal response from the Mid-Atlantic Fishery Management Council, we assume that the National Marine Fisheries Service will take the lead to develop the appropriate regulations via a secretarial amendment. We will consult with your office and others within NMFS as necessary to support your work on this issue.

Sincerely,

Thomas A. Nies

Thomas A. Nies
Executive Director

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

November 21, 2016

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

Dear Dr. Moore:

The New England Fishery Management Council (NEFMC) discussed priorities for 2017 at our November Council meeting. The Council is interested in developing an amendment to the Monkfish Fishery Management Plan that will consider catch shares for that fishery. Before we initiate that action as lead Council, we would like to know whether the Mid-Atlantic Fisheries Management Council shares our interest.

In 2010, our Councils initiated an amendment to consider catch shares in the fishery. As explained in the scoping document, the Councils believed that catch shares would improve the economic performance of the fishery, increase flexibility for fishermen, and would reduce the regulatory burden on fishermen. Scoping hearings were held from Maine to North Carolina in early 2011. The public response to the proposal to develop catch shares was mixed, with fishermen on both sides of the issue. For the next four years the Monkfish Committee struggled to develop the amendment. Ultimately, a lack of progress led to a suspension of the effort in 2014 largely because the Committee could not reach agreement on catch share alternatives. However, interest in considering a catch share program for the monkfish fishery remains high in New England. The issue was raised at a recent Monkfish Committee meeting, and seemed to be supported by some Mid-Atlantic Fishery Management Council members on the Committee.

Because there appears to be some confusion in the industry, I would like to explain what we mean by a "catch share" program. We use this term in the same way as that used by the National Marine Fisheries Service. A catch share program is a fisheries management strategy that dedicates a secure share of fish to individual fishermen, cooperatives, or fishing communities for their exclusive use.

Our Council has not determined what form of catch share program is best for this fishery. The wide variety of possible catch share alternatives include individual fishing quotas (IFQs) as well as a program similar to groundfish sectors. We are willing to consider the full range of programs that are identified. We believe that by keeping the amendment focused only on catch share alternatives, the Councils will be able to prepare an amendment for consideration in a reasonable time period.

On behalf of the NEFMC, please consult with your Council and determine whether there is interest in an amendment that would consider catch share programs for the Monkfish FMP. Please let me know if you have questions.

Sincerely,

Thomas A. Nies

Thomas A. Nies
Executive Director

cc: Mr. John Bullard, RA, GARFO

Mid-Atlantic Fishery Management Council
800 North State Street, Suite 201, Dover, DE 19901
Phone: 302-674-2331 | FAX: 302-674-5399 | www.mafmc.org
Michael P. Luisi, Chairman | G. Warren Elliott, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: 11/30/16

To: Chris Moore

From: Jason Didden

Subject: Blueline Tilefish Recreational Measures Modifications – *Framework or Specifications?*

The Council can modify blueline tilefish recreational measures via a Framework Adjustment or the specifications process. Specifications must be set during 2017 for January 1, 2018. Depending on Council prioritization, modifying blueline tilefish recreational measures via either a Framework Adjustment or the specifications process would likely result in implementation in late 2017.

Therefore, considering modifications to blueline tilefish recreational measures in the specifications document could involve considerable administrative savings with minimal effect to the resulting action.

Preliminary Agenda (Revised)

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.

Sunday, October 23, 2016

2:00 – 6:00 p.m. **Registration**

6:30 – 8:30 p.m. **Welcome Reception**

Monday October 24, 2016

7:00 a.m. – Noon **Registration**

8:30 a.m. – Noon **75th Annual Meeting Plenary Session – *Honoring our Past, Celebrating the Present and Envisioning the Future***

1. Welcome/Kick-off, ASMFC Chair Doug Grout, Chief of Marine Fisheries, New Hampshire Fish and Game
2. Plenary Overview, ASMFC Executive Director Bob Beal
3. ASMFC History
   - Honoring the Past (1941-1991), Phil Coates, former Massachusetts Division of Marine Fisheries Director and ASMFC Commissioner (1979-2000)
   - Celebrating the Present (1992- 2016), Susan Shipman, former Georgia Coastal Resources Division Director and ASMFC Commissioner (1994-2008)
4. ASMFC Highlights – Interactive Session
5. Morning Session Wrap-up and Overview of Things to Come, Bob Beal
6. Break
7. Envisioning the Future
   - Introduction, Patrick Keliher, Commissioner, Maine Department of Marine Resources
   - Observations on the Current and Future State of the Ocean and Marine Resources, Guest Speaker Dr. Robert Steneck, Maine School of Marine Sciences
   - Panel Discussion on Adapting to Future Challenges

Panelists: Jack Dunnigan, Former ASMFC Executive Director and Assistant Administrator for Oceans and Coastal Services; Gordon Colvin, former Director of Marine Resources, New York State Department of Environmental Conservation and ASMFC Commissioner (1982-2007); Robert Boyles, Jr., Deputy for Marine Resources, South Carolina Department of Natural Resources; Patrick Keliher; Jason McNamee, Chief, Marine Resources Division, Rhode Island Division of Fish and Wildlife; and Kathy Knowlton, Fisheries Statistics Unit Leader, Georgia Coastal Resources Division

8. Plenary Wrap-up and Adjournment, Bob Beal

1:00 – 5:00 p.m. **Law Enforcement Committee**

(A portion of this meeting is a closed session for Committee members and authorized personnel only)

Members: Anthony, Blanchard, Burton, Cloutier, Cornish, Donovan, Eastman, Frampton, Furlong, Gordon, Green, Hettenbach, Hogan, Huss, Kersey, King, Lynn, Messeck, Moran, Overturf, Schlaht, Snellbaker

Chair: Eastman

Staff: Robson

1. Call to Order/Roll Call of the Law Enforcement Committee (LEC) Representatives *(M. Eastman)*
2. Approval of Agenda and Minutes from May 2016
3. Public Comment
4. Discussion of Emerging ISFMP Issues
5. Review and Discussion of 2017 Action Plan Items
6. Interstate Violator Compacts and Application to Marine Fisheries
7. Review Proposed Jonah Crab Claw Harvest Regulations
8. Review Warrant and Search Provisions Among LEC Jurisdictions
9. Review and Discussion of Ongoing Enforcement Activities *(Closed Session)*
10. Other Business/Recess

1:00 – 1:30 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

Staff: Appelman

1. Welcome/Call to Order *(D. Borden)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from February 2016
3. Public Comment
4. Review and Set Spiny Dogfish Fishery Specifications for 2017/2018 Season **Final Action**
   - Review Mid-Atlantic Fishery Management Council 2016-2018 Specifications Recommendation *(M. Appelman)*

5. Consider 2016 Spiny Dogfish Fishery Management Plan Review and State Compliance *(M. Appelman)* **Action**
6. Other Business/Adjourn

1:45 – 2:45 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
Staff: Harp

1. Welcome/Call to Order (*A. Nowalsky)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from August 2016
3. Public Comment
4. Updates from NOAA Fisheries Highly Migratory Species (HMS) Division (*K. Brewster-Geisz*)
   - Review Proposed Rule for HMS Amendment 5b (Dusky Sharks) and 2016 Stock Assessment Results
   - Review Draft Environmental Assessment for Amendment 10 to the 2006 Consolidated HMS Fishery Management Plan: Essential Fish Habitat
   - Review Proposed Review Proposed Rule for Blacknose Possession Limits for Federally-permitted Vessels
   - Review Proposed Rule for the 2017 Atlantic Shark Commercial Fishing Season
5. Set 2017 Coastal Sharks Fishery Specifications *(A. Harp)* **Final Action**
6. Other Business/Adjourn

2:00 – 5:00 p.m. **Registration**

2:00 – 3:00 p.m. **Welcome Tea for Spouses/Guests**

3:00 – 5:00 p.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, Nelson
Staff: Appelman

1. Welcome/Call to Order *(J. Gilmore)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from August 2016

3. Public Comment
4. Technical Committee Report *(N. Lengyel)*
   - Performance Evaluation of Addendum IV Regulatory Measures
5. Review the 2016 Atlantic Striped Bass Stock Assessment Update *(G. Nelson)*
6. Consider the Advisory Panel Request to Submit Comment to the Mid-Atlantic Fishery Management Council on its Draft Squid Capacity Amendment *(J. Gilmore)* **Possible Action**
7. Other Business/Adjourn

Tuesday October 25, 2016

7:30 a.m. – Noon **Registration**

8:00 – 10:00 a.m. **Executive Committee**
Breakfast to be served at 7:30 a.m.
(A portion of this meeting may be a closed session for Commissioners and Committee members only)
Members: Abbott, Blazer, Boyles, Bull, Chanda, Clark, Davis, Estes, Gilmore, Grout, Keliher, McNamee, Miller, Pierce, Shiels, Simpson, Woodward
Chair: Grout
Staff: Leach

1. Welcome/Call to Order *(D. Grout)*
2. Board Consent
   - Approval of Agenda
   - Approval of Meeting Summary from August 2016
3. Public Comment
4. Consider Approval of FY16 Audit *(L. Leach)* **Action**
5. Review Conservation Equivalency Guidance Document *(T. Kerns)* **Action**
6. Review ASMFC Standard Meeting Practices Document *(R. Beal)* **Action**
7. Awards Committee Report *(S. Woodward)*
8. Review Performance Appraisal/Merit Increase Protocol *(R. Beal)*
9. Review Resolution Regarding Revision of Retirement Plan *(L. Leach)* **Action**
10. Discuss Revision of Action Plan to Include ACCSP Goal *(R. Beal)*
11. Discuss Health Benefits for Retired ASMFC Employees *(R. Beal)*
12. Other Business/Adjourn

8:00 a.m. – Noon **Law Enforcement Committee (continued)**

1. Social (Open to Commissioners and Staff)
2. Update on Future Safe Harbor Issues and Input (Other Emerging Issues)
3. Update on Aerial Enforcement Subcommittee Discussions
4. Federal/State Agency Reports
5. Lobster Enforcement Subcommittee Report and Discussion
6. Review Law Enforcement Committee Comments and Recommendations to ASMFC Boards
7. Review Out-of-State Shipment/Sale Tracking for Enforcement Needs
8. Review Updated ISFMP Issues
9. Other Business/Adjourn

10:15 a.m. – 12:15 p.m. **South Atlantic State/Federal Fisheries Management Board**

Member States: New York, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida
Other Members: PRFC, DC, NMFS, USFWS, SAFMC
Other Participants: Lynn, McDonough, Murphy, Rickabaugh
Chair: Estes
Staff: Kerns

1. Welcome/Call to Order *(J. Estes)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from August 2016
3. Public Comment
4. Consider Draft Cobia FMP Public Information Document for Public Comment *(L. Daniel)* **Action**
5. Red Drum Working Group Report *(J. Kipp)*
   - Presentation of Follow Up Tasks to the Red Drum Assessment
6. Progress Report on the Spot and Atlantic Croaker Benchmark Stock Assessments *(J. Kipp)*
7. Consider 2016 Fishery Management Plan Reviews and State Compliance *(A. Hirrlinger*) **Action**
   - Black Drum
   - Spanish Mackerel
   - Spotted Seatrout
8. Review and Populate Advisory Panel Membership (*T. Berger*) **Action**
9. SEAMAP Funding Update *(S. Madsen)*
10. Other Business/Adjourn

1:15 – 3:15 p.m. **Tautog Management Board**

Member States: Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia
Other Participants: McNamee, Snellbaker
Chair: Nowalsky
Staff: Harp

1. Welcome/Call to Order (*A. Nowalsky)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from August 2016
3. Public Comment
4. Review 2016 Stock Assessment Update *(J. McNamee)*
5. Provide Plan Development Team Guidance on Draft Amendment 1 *(A. Harp, A. Nowalsky)*
6. Update on Tautog Tagging Trial *(A. Harp)*
7. Other Business/Adjourn

2:30 – 5:00 p.m. **Registration**

3:30 – 4:30 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
Other Participants: Wojcik, Snellbaker
Chair: Luisi
Staff: Rootes-Murdy

1. Welcome/Call to Order *(M. Luisi)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from February 2016
3. Public Comment
4. Review Marine Recreational Information Program Wave 4 Harvest Estimates for Summer Flounder, Scup, and Black Sea Bass (if available) *(K. Rootes-Murdy)*
5. Consider Management Approaches for 2017 Summer Flounder and Black Sea Bass Recreational Fisheries **Possible Action**
   - Summer Flounder Working Group Report *(K. Rootes-Murdy)*
6. Update on Stock Assessment Progress for Black Sea Bass *(K. Rootes-Murdy)*
7. Consider 2016 Fishery Management Plan Reviews and State Compliance *(K. Rootes-Murdy)* **Action**
   - Summer Flounder
   - Scup
   - Black Sea Bass
8. Other Business/Adjourn

4:45 – 5:30 p.m. **Shad and River Herring Management Board**

Member States: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida
Other Members: DC, PRFC, USFWS, NMFS
Other Participants: Chase, Furlong
Chair: Goldsborough
Staff: Harp

1. Welcome/Call to Order *(B. Goldsborough)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from May 2016
3. Public Comment
4. Consider Approval of the Nemasket River, Massachusetts Sustainable Fishery Management Plan for River Herring *(B. Chase)* **Final Action**
   - Review Technical Committee Memo on the Nemasket River Sustainable Fishery Management Plan
5. Discuss the Timetable for the Five-Year Update of Shad and River Herring Sustainable Fishery Management Plans *(A. Harp)*

6. Review Mid-Atlantic Fishery Management Council Decision on Potential Management of Shad and River Herring *(B. Goldsborough)*
7. Other Business/Adjourn

6:30 – 9:00 p.m. **Annual Dinner**

Wednesday October 26, 2016

8:00 – 10:00 a.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
Other Participants: Breese, Doctor, Messeck
Chair: Gilmore
Staff: Rootes-Murdy

1. Welcome/Call to Order *(J. Gilmore)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from August 2016
3. Public Comment
4. Consider Comments from the Adaptive Resource Management (ARM) Subcommittee on Draft Addendum VIII *(K. Rootes-Murdy)* **Possible Action**
   - ARM Subcommittee Report *(K. Anstead)*
5. Horseshoe Crab Technical Committees Report *(S. Doctor)* **Possible Action**
   - Shorebird and Horseshoe Crab Survey Reports Summary
   - ARM Framework Harvest Output for 2017
   - Recommendations on Bait Trials
6. Set 2017 Delaware Bay Horseshoe Crab Fishery Specifications *(K. Rootes-Murdy)* **Final Action**
7. Consider 2016 Horseshoe Crab Fishery Management Plan Review and State Compliance *(K. Rootes-Murdy)* **Action**
8. Other Business/Adjourn

10:15 – 11:15 a.m. **Atlantic Coastal Cooperative Statistics Program (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. Council Consent
   - Approval of Agenda
   - Approval of Minutes from August 2016
3. Public Comment
4. ACCSP Status Report *(M. Cahall)*
   - Program Updates
   - Committee Updates
5. Presentation of the Universe of Electronic Reporting Efforts on the Atlantic Coast *(M. Cahall)*
6. Consider Recommendations of FY2017 Submitted Proposals *(P. Campfield, J. Morgan)* **Action**
7. Consider Addendum to Memorandum of Understanding to Reflect Governance Change *(R. Boyles, Jr.)* **Action**
8. Other Business/Adjourn

11:30 a.m. – 12:30 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 August 2016
3. Public Comment
4. Election of Commission Chair and Vice-chair (*R. Beal*) **Action**
5. Review and Consider Approval of the 2017 ASMFC Action Plan **Action**
6. Other Business/Adjourn

12:30 – 1:45 p.m. **Captain David H. Hart Award Luncheon**

2:00 – 5:00 p.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
Other Participants: Kaelin, McNamee, Kersey
Chair: Ballou
Staff: Ware

1. Welcome/Call to Order *(R. Ballou)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from August 2016
3. Public Comment
4. Review Timeline of Menhaden Activities through 2019 *(M. Ware)*

5. Set 2017 Atlantic Menhaden Fishery Specifications **Final Action**
    - Review Stock Projections and Recent Juvenile Abundance Indices Trends *(J. McNamee)*
    - Consider Postponed Motion to Set the 2017 Total Allowable Catch (TAC)
        - *Motion to set the 2017 Coastal TAC for the Atlantic Menhaden Fishery at 225,456 metric tons (20% Increase)*
6. Consider Draft Amendment 3 Public Information Document for Public Comment **Action**
    - Overview of Public Information Document *(M. Ware)*
    - Advisory Panel Report *(J. Kaelin)*
7. Technical Committee Report *(J. McNamee)*
    - Review of "The Fate of an Atlantic Menhaden Year Class"
8. Biological Ecological Reference Points Working Group Progress Report *(S. Madsen)*
9. Review and Populate Advisory Panel Membership *(T. Berger)* **Action**
10. Other Business/Adjourn

Thursday October 27, 2016

8:00 – 10:30 a.m. **Interstate Fisheries Management Program (ISFMP) 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 August 2016
3. Public Comment
4. Executive Committee Report *(D. Grout)*
5. Review Revisions to the Conservation Equivalency Guidance Document *(T. Kerns)* **Final Action**
6. Update on the Climate Change Working Group *(T. Kerns)*
7. Discuss Risk and Uncertainty Policy Workgroup White Paper *(J. McNamee)*
8. Habitat Committee Report *(T. Kerns)* **Action**
    - Review and Consider the Sciaenid Habitat Source Document
    - Review State Reports on Climate Change Initiatives
    - Review the Draft Letter to BOEM regarding Seismic Testing
9. Atlantic Coastal Fish Habitat Partnership Report (*P. Campfield)*
10. Law Enforcement Committee Report *(M. Robson)*
11. Discuss and Consider Comment on the National Park Service Management Policies (*J. Gilmore*)
12. Review Non-Compliance Findings, If Necessary **Possible Action**
13. Other Business/Adjourn

10:45 a.m. – 12:15 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 February 2016
3. Public Comment
4. Elect Vice-chair **Action**
5. Review and Discuss White Paper on Fishery Performance and Alternative Management Tools *(A. Harp, R. White)* **Possible Action**
6. Set 2017 Atlantic Herring Specifications for Area 1A **Final Action**
7. Other Business/Adjourn

12:30 – 4:00 p.m. American Lobster Management Board *(Lunch to be provided)*

Member States: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia
Other Members: NMFS
Chair: Borden
Other Participants: Cornish, Reardon
Staff: Ware

1. Welcome/Call to Order *(D. Borden)*
2. Board Consent
   - Approval of Agenda
   - Approval of Proceedings from August 2016
3. Public Comment
4. Consider American Lobster Draft Addendum XXV for Public Comment *(M. Ware)* **Action**
5. Discuss Trap Caps Included in Addenda XXI and XXII *(M. Ware)*
6. American Lobster Reporting Work Group Report *(M. Ware)* **Possible Action**
7. Consider Jonah Crab Draft Addendum II for Public Comment **Action**
   - Jonah Crab Working Group Report *(M. Ware)*
8. Consider 2016 American Lobster Fishery Management Plan Review and State Compliance *(M. Ware)* **Action**
9. Update on the Atlantic Marine Monument Designation *(M. Ware)*
10. Update on New England Fishery Management Council Deep-Sea Coral Amendment *(M. Ware)*
11. Other Business/Adjourn

New England Fishery Management Council Meeting Agenda
Tuesday - Thursday, November 15-17, 2016
Hotel Viking, 1 Bellevue Avenue, Newport, RI 02840
tel: (401) 847-3300 | www.hotelviking.com

Sending comments? Written comments must be received at the NEFMC office no later than 5 p.m., Wednesday, Nov. 9, 2016 to be considered at this meeting. Please address them to Council Chairman Dr. John Quinn or Executive Director Tom Nies at: NEFMC, 50 Water St., Mill 2, Newburyport, MA 01950. Email submissions should be sent to comments@nefmc.org.

Tuesday, November 15, 2016

9:00 a.m. **Introductions and Announcements** (Chairman Dr. John Quinn)

9:05 **Reports on Recent Activities**
Council Chairman, Council Executive Director, NOAA's Greater Atlantic Regional Fisheries Office Regional Administrator, NOAA General Counsel, Northeast Fisheries Science Center, Mid-Atlantic Fishery Management Council, Atlantic States Marine Fisheries Commission, U.S. Coast Guard, NOAA Enforcement

10:30 **VMS/Enforcement Committee Report** (Terry Alexander)
Update on codend certification program development; brief overview of Anthropocene Institute mapping project; initial input on measures under consideration in Atlantic Herring Framework 5 and Amendment 8

11:00 **Skate Committee Report** (Dr. Matt McKenzie)
Receive Skate Monitoring Report with overview on stock status, landings, and revenue; approve scoping document for Northeast Skate Complex Amendment 5 to consider limited access

12:00 p.m. **Presentation on Draft Amendment 5b to the 2006 Consolidated Highly Migratory Species (HMS) Fishery Management Plan to End Overfishing and Rebuild Dusky Sharks** (NMFS HMS staff)

12:30 **Lunch Break**

1:45 **Monkfish Committee Report** (Vincent Balzano)
Final action on Framework Adjustment 10 to set fishing year (FY) 2017-2019 specifications and additional measures if needed

3:00 **Small Mesh Multispecies (Whiting) Committee Report** (Mark Gibson)
Receive committee progress report on development of limited access options for Amendment 22

3:45 **Habitat Committee Report** (Dr. John Quinn)
Review preliminary impacts analysis for Omnibus Deep-Sea Coral Amendment; discuss alternatives that overlap with new Northeast Canyons and Seamounts Marine National Monument; consider a management action to implement fishing regulations in the monument area

5:30 **Public Hearing on Draft Amendment 5b to the 2006 Consolidated HMS Plan Following Council Adjournment** (NMFS HMS staff)

Wednesday, November 16, 2016

8:30 a.m. **Scientific and Statistical Committee (SSC) Report** (Dr. Jake Kritzer)
Receive Atlantic sea scallop overfishing limit (OFL) and acceptable biological catch (ABC) recommendations for FY 2017 and OFL and ABC defaults for FY 2018; discuss issues related to improving control rules and ABC recommendations for groundfish and other stocks

9:30 **Scallop Committee Report** (Mary Beth Tooley)
Final action on Framework 28, including: FY 2017 specifications and default specifications for FY 2018; and measures to (1) potentially restrict possession of shell stock inshore of the days-at-sea demarcation line north of 42° 20' N, (2) modify the process for setting annual catch limits (ACLs), and (3) modify the Closed Area I Access Area boundary consistent with potential changes to habitat and groundfish mortality closures. Specifications include ABCs, ACLs, days-at-sea, access-area allocations, Northern Gulf of Maine total allowable catch (TAC), and observer/research set-asides

12:00 p.m. **Open Period for Public Comments**
Opportunity for the public to provide brief comments on issues relevant to Council business but not listed on this agenda (please limit remarks to 3-5 minutes)

12:15 **Lunch Break**

1:30 **Groundfish Committee Report** (Terry Stockwell)
Final action on most Framework 56 measures, including: (1) 2017 U.S./Canada specifications; (2) scallop fishery sub-ACL for northern windowpane; (3) scallop fishery accountability measure (AM) triggers for Georges Bank (GB) yellowtail flounder; (4) GB haddock sub-ACL increase for the Atlantic herring midwater trawl fishery; and (4) timely notification process for recreational measures; review draft scoping notice for Groundfish Monitoring Program Amendment

4:30 **National Standard 1 Guidelines** (Deb Lambert, NMFS staff)
Briefing on revisions to National Standard Guidelines 1, 3, and 7 to the Magnuson-Stevens Fishery Conservation and Management Act

Thursday, November 17, 2016

8:30 a.m. **2017 Council Priorities – Final Action** (Executive Director Tom Nies)

10:30 **Observer Safety Program Review** (Jane DiCosimo, NMFS)
Briefing on NMFS's comprehensive review of all elements associated with observer safety

11:00 **Atlantic Herring Committee Report** (Peter Kendall)
Framework Adjustment 5: Final action to modify haddock bycatch AMs in the Atlantic herring midwater trawl fishery; Amendment 8: Approve agenda for second Management Strategy Evaluation (MSE) workshop to develop ABC control rule alternatives; receive update on measures to address localized depletion

12:30 p.m. **Lunch Break**

1:30 **Atlantic Herring Committee Report Continued**

3:45 **Other business**

Times listed next to the agenda items are estimates and are subject to change.
The meeting is physically accessible to people with disabilities. Council member financial disclosure forms are available for examination at the meeting.

Although other non-emergency issues not contained on this agenda may come before this Council for discussion, those issues may not be the subject of formal action during this meeting. Council action will be restricted to those issues specifically listed in this notice and any issues arising after publication of this notice that require emergency action under section 305 (c) of the Magnuson-Stevens Act, provided the public has been notified of the Council's intent to take final action to address the emergency.

Documents pertaining to Council actions are available for review prior to a final vote by the Council.
Please check the Council's website, www.nefmc.org, or call (978) 465-0492 for copies.

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

4055 Faber Place Drive, Suite 201, North Charleston SC 29405
Call: (843) 571-4366 | Toll-Free: (866) SAFMC-10 | Fax: (843) 769-4520 | Connect: www.safmc.net

Dr. Michelle Duval, Chair | Charlie Phillips, Vice Chair
Gregg T. Waugh, Executive Director

AGENDA

DoubleTree by Hilton Atlantic Beach Oceanfront
2717 W. Fort Macon Road
Atlantic Beach NC 28512
Phone: 800-222-8733 or 252-240-1155/Fax: 252-222-4065

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.

Written comments received by close of business the Monday before the meeting (11/28) will be compiled, posted to the website as part of the meeting materials, and included in the administrative record. Please use the online comment form at:
https://goo.gl/forms/I61wWA0UFZyPpqNl1
to ensure your comments are posted immediately to the Council's website and available for Council consideration.

Individuals that wish to submit comments after 11/28 must use the Council's online form at:
https://goo.gl/forms/I61wWA0UFZyPpqNl1
Comments will automatically be posted to the website and available for Council consideration. Comments received prior to noon on Thursday of the Council meeting (12/8) will be a part of the meeting administrative record.

To view comments
https://docs.google.com/spreadsheets/d/1pv2uVo77ZO1R74Z5zPem7iaJlSPe9Oqb_VYrGel44vA/edit?usp=sharing

Monday, December 5, 2016 **COMMITTEE MEETINGS**

8:30 A.M. to 9:30 A.M. **AP Selection Committee/Chester Brewer (TAB 1)**

(1) Review applications for the SEDAR Advisory Panel and provide recommendations (**CLOSED SESSION**) – **ACTION**
(2) System Management Plan (SMP) Advisory Panel – **ACTION**

9:30 A.M. – 10:30 A.M. **Law Enforcement Committee/Mel Bell (TAB 2)**

(1) Report on level of commercial logbook reporting at time of permit renewal – SEFSC – **ACTION**
(2) Compliance with reporting requirements – **ACTION**
(3) Follow up on items from Joint LEAP/ LE Committee meeting – **ACTION**

10:30 A.M. – 12 Noon **SSC Selection Committee/Charlie Phillips (TAB 3)**

(1) SSC Conflict of Interest Policy – **ACTION**
(2) SSC Update on complex analysis review process – **ACTION**
(3) SSC Public Comment Policy – **ACTION**

12:00 Noon to 1:30 P.M. **Lunch**

Monday, December 5, 2016 **COMMITTEE MEETINGS**

1:30 P.M. – 2:30 P.M. **Protected Resources Committee/Dr. Wilson Laney (TAB 4)**

(1) Update from SERO – **ACTION**
(2) Snapper Grouper BiOp – **ACTION**
(3) Appoint Council Member to the Large Whale Take Reduction Team – **ACTION**
(4) Update from FWS – **ACTION**

2:30 P.M. to 5:00 P.M. **Habitat Protection and Ecosystem-Based Management Committee/ Doug Haymans & Dr. Wilson Laney (TAB 5)**

(1) Habitat Protection and Ecosystem Based Management AP Report – **ACTION**
(2) Review and Approve SAFMC EFH Policy Statements for FEP II – **ACTION**
(3) Habitat and Ecosystem Tools and Model Development
(4) Council Actions on Habitat – **ACTION**
(5) Lenfest Ecosystem Task Force – Final Report – **ACTION**

Monday Reception hosted by Lenfest – 5:30 pm

Tuesday, December 6, 2016 **COMMITTEE MEETINGS**

8:30 A.M. to 10:30 A.M. **SEDAR Committee/Dr. Michelle Duval (TAB 6)**

(1) Recommend appointments to the following (**CLOSED SESSION**): – **ACTION**
  a. SEDAR 50, Blueline tilefish
  b. SEDAR 48, Black Grouper
  c. SEDAR 56, Black Sea Bass
  d. SEDAR Stock ID and Meristics Workshop
(2) SEDAR projects Update & Approvals – **ACTION**
  a. SEDAR 48, Black Grouper, TORS & Schedule
  b. SEDAR 56, Black Sea Bass, TORs & Schedule
  c. Ongoing Project Updates
(3) Review SEDAR Steering Committee Report – **ACTION**
(4) Assessment priorities – **ACTION**
  a. SSC assessment prioritization recommendations
  b. Long-term assessment plan

10:30 A.M. to 11:30 A.M. **Spiny Lobster Committee/Jessica McCawley (TAB 7)**

(1) FWC presentation on spiny lobster regulations in Florida – **ACTION**
(2) Discussion Document on action to restrict recreational traps in the South Atlantic EEZ – **ACTION**
(3) SSC recommendations for OFL and ABC – **ACTION**

11:30 A.M. to 1:00 P.M. **Lunch**

Tuesday, December 6, 2016 **COMMITTEE MEETINGS**

1:00 P.M. to 4:00 P.M. **Joint Dolphin Wahoo/Snapper Grouper/Mackerel Cobia Committee/Anna Beckwith, Dr. Michelle Duval, & Ben Hartig (TAB 8)**

(1) Overview of Commercial & Recreational Dolphin Wahoo Catches versus ACLs – NMFS – **ACTION**
(2) Status of Dolphin Regulatory Amendment 1 - NMFS
(3) Status of 2015 Commercial Yellowtail Snapper Catch – **ACTION**
(4) DW Amendment 10/SG Amendment 44 (Dolphin and Yellowtail Snapper Allocation)
  a. Discuss and approve for public hearings – **ACTION**
(5) DW Amendment 11/SG Amendment 45/CMP Amendment 31 (For-Hire Limited Entry)
  a. Discuss and provide guidance to staff – **ACTION**

Tuesday, December 6, 2016 **COMMITTEE MEETINGS**

4:00 P.M. to 5:00 P.M. Information & Education Committee/Mark Brown (TAB 9)

(1) Report from I&E Advisory Panel **– ACTION**

5:00 P.M. to 6:00 P.M. Executive Finance Committee/Dr. Michelle Duval (TAB 16)

(1) National Standard 1 Final Rule
   a. Discuss and take action as appropriate **– ACTION**

(2) Electronic Reporting Project Proposals
   a. Discuss and take action as appropriate **– ACTION**

Wednesday, December 7, 2016 **COMMITTEE MEETINGS**

8:00 A.M. to 12:00 Noon Snapper Grouper Committee Meeting/Dr. Michelle Duval (TAB 10)

(1) Status of Commercial & Recreational Catches versus Quotas for Species under ACLs – NMFS SERO **– ACTION**

(2) Status of Amendments under Formal Review – NMFS SERO
   a. Regulatory Amendment 16 (BSB pot closure) – submitted 3/4/16
   b. Amendment 36 (Spawning SMZs) – submitted 8/30/16
   c. Amendment 37 (Hogfish) – submitted 9/23/16

(3) Advisory Panel Report – Kenneth Fex, AP Chair
   a. Discuss and take action as appropriate **– ACTION**

(4) Scientific & Statistical Committee Report – Dr. Marcel Reichert, SSC Chair
   a. Discuss and take action as appropriate **– ACTION**

(5) Evaluating the efficacy of descending devices in increasing the survival of deepwater groupers – Brendan Runde, NCSU
   a. Discuss and take action as appropriate **– ACTION**

(6) Red Grouper discards from the commercial discard logbook data
   a. Discuss and take action as appropriate **– ACTION**

(7) Snapper Grouper Amendment 41 (Mutton Snapper)
   a. Discuss, modify document, and approve for formal review**– ACTION**

(8) Annual review of Vision Blueprint
   a. Discuss and take action as appropriate **– ACTION**

Lunch 12:00 noon – 1:30 pm

1:30 P.M. – 4:30 P.M. Snapper Grouper Committee Meeting Continued/Dr. Michelle Duval

(9) Recreational Visioning Amendment (Vision Blueprint Regulatory Amendment 26)
   a. Discuss, modify document, and approve for scoping **– ACTION**

(10) Commercial Visioning Amendment (Vision Blueprint Regulatory Amendment 27)
   a. Discuss, modify document, and approve for scoping **– ACTION**

(11) Red Snapper Landings by County in Florida – NMFS SEFSC
   a. Discuss and take action as appropriate **– ACTION**

(12) Snapper Grouper Amendment 43 (Red Snapper)
   a. Discuss, modify document, and approve for scoping **– ACTION**

Wednesday, December 7, 2016 PUBLIC COMMENTS

4:30 P.M. Public comment will first be accepted on items before the Council for approval for formal review, public hearings, or scoping:

Approval for Formal Review:

(1) Atlantic For-Hire Amendment
(2) Snapper Grouper Amendment 41 (Mutton)
(3) CMP 29 – Gulf King Mackerel Allocations
(4) CMP 30 – Cobia Fishing Year

Approval for Scoping:

(1) Snapper Grouper Amendment 43 (Red Snapper) (in-person)
(2) Recreational Visioning Amendment (webinar)
(3) Commercial Visioning Amendment (webinar)

Approval for Public Hearings (in-person):

(1) Dolphin Wahoo Amendment 10/Snapper Grouper Amendment 44 (Allocations)

Public comment will then be accepted regarding any of the other items on the Council agenda. The Council Chair, based on the number of individuals wishing to comment, will determine the amount of time provided to each commenter.

Thursday, December 8, 2016 COMMITTEE MEETINGS

8:00 A.M. to 9:00 A.M. Personnel Committee/Jessica McCawley (TAB 11) (CLOSED)

(1) Executive Director's Performance Review
  a. Discuss and take action – **ACTION**

9:00 A.M. to 10:00 A.M. Snapper Grouper Committee Meeting Continued /Dr. Michelle Duval (TAB 10)

(15) Golden Tilefish
  a. Consider emergency rule for 2017 season – **ACTION**
  b. Direction to staff on how to proceed for amendment development – **ACTION**

10:00 A.M. to 11:00 A.M. HMS Committee/Anna Beckwith (TAB 12)

(1) Draft Amendment 5b to the 2006 Consolidated Atlantic HMS FMP (Dusky Shark) – NMFS HMS
  a. Discuss and take action as appropriate – **ACTION**

11:00 A.M. to 12:00 Noon Mackerel Cobia Committee/Ben Hartig (TAB 13)

(1) Status of Commercial Catches versus Quotas for Species under ACLs – NMFS SERO
  a. Discuss and take action as appropriate – **ACTION**
(2) Status of Recreational Catches versus Quotas for Species under ACLs (for cobia include the number of MRIP intercepts, catch, and PSE by wave by state for 2015 and 2016) – NMFS SERO
  a. Discuss and take action as appropriate – **ACTION**
(3) Framework Amendments 4 & 5/CMP Amendment 26 (King mackerel ACLs/boundary/management measures) – status of review
(4) Report from October 2016 Gulf Council meeting
(5) CMP Amendment 30 (Cobia Fishing Year)
  a. Discuss, modify document, and approve for formal review – **ACTION**
(6) Cobia Public Information Document (ASMFC Document) – Dr. Louis Daniel, ASMFC
  a. Discuss and develop any comments/guidance – **ACTION**
(7) CMP Amendment 29 (Gulf king mackerel allocations)
  a. Discuss, modify document, and approve for formal review – **ACTION**

Thursday, December 8, 2016 COMMITTEE MEETINGS

Lunch 12:00 noon – 1:30 P.M.

1:30 P.M. to 2:30 P.M. Citizen Science Committee/Chris Conklin (TAB 14)

(1) Status of Citizen Science Program
- a. Discuss and take action as appropriate **– ACTION**

2:30 P.M. to 4:30 P.M. Data Collection Committee/Mel Bell (TAB 15)

(1) Bycatch Reporting Amendment: Status Update/Review SBRM Rule – NMFS SERO
- a. Discuss and take action as appropriate **– ACTION**

(2) Voluntary Commercial Logbook Electronic Reporting
- a. Status Update – NMFS SEFSC
- b. Reporting Options and Advances – Mike Cahall, ACCSP
- c. Discuss and take action as appropriate **– ACTION**

(3) Status of SAFMC/ACCSP Pilot – Dr. Mike Errigo, SAFMC
- a. Discuss and take action as appropriate **– ACTION**

(4) SAFMC For-Hire Reporting Amendment
- a. Headboat electronic reporting status and implementation outreach – Ken Brennan, SEFSC
- b. Overview of document – John Carmichael
- c. Committee reviews and approves for formal review (GMFMC approve Jan 2017) – **ACTION**

4:30 P.M. to 5:30 P.M. Executive Finance Committee Continued/Dr. Michelle Duval (TAB 16)

(1) Status of Expenditures for CY 2016

(2) Draft CY 2017 Activity Schedules & Budget
- a. Discuss and take action as appropriate **– ACTION**

(3) Council Follow-up and Priorities
- a. Discuss and take action as appropriate **– ACTION**

(4) Standards and Procedures for Webinar Meetings
- a. Discuss and provide guidance **– ACTION**

ASMFC Public Hearing (Cobia PID) – beginning at 6:00 p.m.

Friday, December 9, 2016

8:30 A.M. to 1:00 P.M. **COUNCIL SESSION** (TAB 17)

[Legal Briefing on Litigation - Monica Smit-Brunello (CLOSED SESSION) if needed]

8:30 - 8:45

Call to Order, Adoption of Agenda and Approval of September 2016 Minutes/Dr. Michelle Duval

Presentations:

(1) Law Enforcement Officer of the Year Award

(2) Dr. Louis Daniel

8:45 - 9:30

Snapper Grouper Committee Report/Dr. Michelle Duval (TAB 10)

- Approve/Disapprove Snapper Grouper Amendment 41 (Mutton Snapper) for Secretarial Review – **ACTION**
- Approve/Disapprove Snapper Grouper Regulatory Amendment 26 (Recreational Vision Blueprint) for Scoping – **ACTION**
- Approve/Disapprove Snapper Grouper Regulatory Amendment 27 (Commercial Vision Blueprint) for Scoping – **ACTION**
- Approve/Disapprove Snapper Grouper Amendment 43 (Red Snapper) for Scoping – **ACTION**
- Approve/Disapprove Golden Tilefish Emergency Action and Provide Guidance on Amendment Development – **ACTION**
- Consider other Committee recommendations and take action as appropriate – **ACTION**

9:30 - 10:00

Mackerel Cobia Committee Report/Ben Hartig (TAB 13)

- Approve/Disapprove Coastal Migratory Pelagics Amendment 30 (Atlantic Cobia Recreational Fishing Year) for Secretarial Review – **ACTION**
- Discuss/Approve Comments on ASMFC Cobia PID – **ACTION**
- Approve/Disapprove Coastal Migratory Pelagics Amendment 29 (Gulf King Mackerel Quota Share) for Secretarial Review – **ACTION**
- Consider other Committee recommendations and take action as appropriate – **ACTION**

10:00 - 10:15

Data Collection Committee Report/Mel Bell (TAB 15)

- Approve/Disapprove For-Hire Reporting Amendment for Secretarial Review – **ACTION**
- Consider Committee recommendations and take action as appropriate – **ACTION**

10:15 - 10:30

Joint Dolphin Wahoo/Snapper Grouper/Mackerel Cobia Committee Report/Anna Beckwith, Dr. Michelle Duval, & Ben Hartig (TAB 8)

- Approve/Disapprove DW Amendment 10/SG Amendment 44 (Dolphin & Yellowtail Snapper Allocation for Public Hearings – **ACTION**
- Consider Committee recommendations and take action as appropriate – **ACTION**

10:30 - 10:40

Information & Education Committee Report/Mark Brown (TAB 9)

- Consider Committee recommendations and take action as appropriate – **ACTION**

Friday, December 9, 2016

8:30 A.M. to 1:00 P.M. **COUNCIL SESSION CONTINUED** (TAB 17)

10:40 - 10:50 Protected Resources Committee Report/Dr. Wilson Laney (TAB 4)
- Consider Committee recommendations and take action as appropriate – **ACTION**

10:50 - 11:00 AP Selection Committee Report/Chester Brewer (TAB 1)
- Consider Committee recommendations and take action as appropriate – **ACTION**

11:00 - 11:10 SSC Selection Committee Report/Charlie Phillips (TAB 3)
- Consider Committee recommendations and take action as appropriate – **ACTION**

11:10 - 11:20 SEDAR Committee Report/Dr. Michelle Duval (TAB 6)
- Consider Committee recommendations and take action as appropriate – **ACTION**

11:20 - 11:30 Habitat & Ecosystem Committee Report/Doug Haymans (TAB 5)
- Consider Committee recommendations and take action as appropriate – **ACTION**

11:30 - 11:40 Law Enforcement Committee Report/Mel Bell (TAB 2)
- Consider Committee recommendations and take action as appropriate – **ACTION**

11:40 - 11:50 Spiny Lobster Committee Report/Jessica McCawley (TAB 7)
- Consider Committee recommendations and take action as appropriate – **ACTION**

11:50 - 12:00 HMS Committee Report/Anna Beckwith (TAB 12)
- Consider Committee recommendations and take action as appropriate – **ACTION**

12:00 - 12:10 Citizen Science Committee Report/Chris Conklin (TAB 14)
- Consider Committee recommendations and take action as appropriate – **ACTION**

12:10 - 12:20 Executive Finance Committee Report/Dr. Michelle Duval (TAB 16)
- Approve Council Follow-Up and Priorities – **ACTION**
- Approve Regional Operations Agreement – **ACTION**
- Consider other Committee recommendations and take action as appropriate – **ACTION**

12:20 - 12:25 SERO Report/Dr. Roy Crabtree (**Attachment 1**)

Friday, December 9, 2016

8:30 A.M. to 1:00 P.M.	**COUNCIL SESSION CONTINUED** (TAB 17)
12:25 - 12:30	SEFSC Report/Dr. Bonnie Ponwith (**Attachment 2**) • Status of Bycatch Collection Programs • Annual Headboat Report
12:30 – 12:40	Review Experimental Fishing Permit requests as appropriate (**Attachment 3**) **– ACTION** • Comment on South Carolina Aquarium Request **– ACTION**
12:40 - 12:50	Agency and Liaison Reports and additional information (**Attachment 4**) **– ACTION**
12:50 – 12:55	Other Business **– ACTION**
12:55 – 1:00	Upcoming Meetings (**Attachment 5**) **– ACTION**
1:00 P.M.	ADJOURN

Updated 11/28/2016

2016 – 2017 Planned Council Meeting Topics

December 12-15, 2016 — Royal Sonesta Harbor Court Baltimore, Baltimore, MD

- 2017 Summer Flounder, Scup, Black Sea Bass Recreational Specifications – *Adopt*
- Summer Flounder Amendment – *Status updated and review timelines*
- Scup Quota Period Framework – *Initiate/framework meeting 1*
- Squid Capacity Amendment – *Adopt alternatives for public hearing document*
- Omnibus Industry Funded Monitoring Amendment – *Adopt final alternatives*
- NJ SMZ Recommendation – *Final action*
- Monkfish specifications – *Final action*
- Review and approve 2017 Implementation plan

February 14-16, 2017 — Hilton Garden Inn Outer Banks, Kitty Hawk, NC

- Scup Quota Period Framework – *Framework meeting 1*
- Black sea bass 2017-2019 specifications – *Adopt*
- Summer Flounder Amendment – *Review draft commercial range of alternatives*

MAFMC 2017 COUNCIL MEETINGS

February 14-16, 2017	Hilton Garden Inn 5353 N. Virginia Dare Trail Kitty Hawk, NC 252-261-1290
April 11-13, 2017	Icona Golden Inn 7849 Dune Dr. Avalon, NJ 08202 609-368-5155
June 6-8, 2017	The Main 100 Main St. Norfolk, VA 23510 757-763-6200
August 8-10, 2017	Courtyard Marriott 21 North Juniper St. Philadelphia, PA 19107 215-496-3200
October 10-12, 2017	Hyatt Long Island East End 451 East Main St. Riverhead, NY 11901 631-208-0002
December 11-14, 2017	Westin Annapolis 100 Westgate Circle Annapolis, MD 21401 410-972-4300

Mid-Atlantic Fishery Management Council
800 North State Street, Suite 201, Dover, DE 19901
Phone: 302-674-2331 | FAX: 302-674-5399 | www.mafmc.org
Michael P. Luisi, Chairman | G. Warren Elliott, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: 10/31/16

To: Chris Moore

From: Jason Didden

Subject: Tilefish Survey Proposals

The results of the review of the five tilefish survey proposals resulted in a preliminary preferred proposal: *Fisheries-independent pilot survey for golden (Lopholatilus chamaelonticeps) and blueline (Caulolatilus microps) tilefish throughout the range from Georges Bank to Cape Hatteras* submitted by the Research Foundation for SUNY Stony Brook. The primary strengths of this proposal included addressing both tilefish species throughout the entire Mid-Atlantic (per the request for proposals) and using a well understood gear type and methodology. These project characteristics make the SUNY project the most likely to lead to an implementable fishery-independent survey that could positively contribute to future assessments for golden and blueline tilefish. In addition, the SUNY proposal could provide information on geographic distribution and fishery selectivity, which have been identified as sources of uncertainty in the tilefish assessments. Like several of the other proposals, it also has strong industry and NMFS collaborating partners.

The review group identified several needs for additional information and/or modifications prior to any contract finalization, including:

- Consider using only long-bottom longline (which fishermen in the southeast have conveyed can be used to effectively target bluelines over both unstructured and mixed habitats) and only a single hook size. Alternatively, better justify plans to use multiple gear combinations (longline lengths and hook sizes) relative to the ability to resolve the effects of multiple gear types, including trade-offs between the number of gears used and the sample size for each gear.

- Based on the best information available, provide a table that shows the expected precision of key estimates given a range of sample sizes and if necessary, gear configurations.

- Provide additional information on the coordination phase of the project. If practical, increase stakeholder and NMFS stock assessment and survey scientist involvement to review all aspects of the proposed survey design before work commences.

- Given the potential effects of saturation and bait loss, ensure there is a record of hook size for each fish (including non-target species) and the number of empty and baited hooks retrieved after each set. Consider using hook timers and current meters to allow additional analysis of saturation effects (including impacts on costs).

SEDAR 50 (Blueline Tilefish) Stock Identification Joint SSC Review Webinar

Friday, October 28, 2016 from 12-3pm (EST)

SEDAR STEERING COMMITTEE CHARGE: Request a joint (Mid-Atlantic, South Atlantic, Gulf of Mexico) SSC review of the Stock ID report via webinar to provide advice on addressing the stock unit – management unit overlap for Blueline Tilefish in the Gulf of Mexico, and comment on the risks of management based on the Gulf Council boundary.

ATTENDEES:

Appointed SSC Members: GMFMC: Mary Christman, Will Patterson
SAFMC: Anne Lange, George Sedberry, Fred Serchuk
MAFMC: John Boreman

SEDAR Staff: Julia Byrd & John Carmichael

Other Attendees: Steven Atran, Scott Crosson, Jason Didden, Michelle Duval, Mike Errigo, Nick Farmer, Nikolai Klibansky, Jack McGovern, Paul Nitschke, Jennifer Potts, Marcel Reichert, Ryan Rindone, Amy Schueller, Alexei Sharov, Carrie Simmons, Jessica Stephen, Kate Wilke, Erik Williams

APPOINTED SSC PARTICIPANT CONSENSUS STATEMENTS:

Task 1: Review the SEDAR 50 Stock ID Work Group Report (SEDAR50-DW12)

- Genetic evidence failed to reject null hypothesis of one continuous genetic stock. However, concern was raised about the limited sample size and geographic distribution of samples available from the Gulf of Mexico.
- Spatial data (fishery independent and fishery dependent) suggest Blueline Tilefish occur with a near continuous distribution in outer continental shelf benthic habitats from the Mid-Atlantic through the Gulf of Mexico.
- Blueline Tilefish habitat is sufficiently distributed from the western Gulf of Mexico through the South Atlantic/Mid-Atlantic to facilitate gene flow among regions.
- There is limited information on Blueline Tilefish adult movement; however, the Loop Current does provide a mechanism for larval connectivity between the Gulf of Mexico and South Atlantic.
- The Panel recognizes the limited information to fully describe the population structure of Blueline Tilefish throughout the species' range in U.S. waters, and therefore endorses the research recommendations from the Stock ID work group report.

- There are limited data to determine spatial variability of life history parameters due to the aging issues, and little data available from the Gulf of Mexico to assess population demographic differences among regions. The reproductive data available at the workshop have some spatial and substantial temporal limitations, but results of analyses of the existing data do not refute the existence of one population along the Atlantic Coast of the U.S. from the Florida Keys through Virginia.

Task 2: Provide advice on the level of overlap between the Atlantic Blueline Tilefish stock and the management jurisdictions of the Gulf of Mexico and South Atlantic Fishery Management Councils

- There is insufficient information to estimate what proportion of total Blueline Tilefish biomass exists in shelf areas under the management jurisdiction of the GMFMC, SAFMC, or MAFMC.
- In the past, Councils have used historical landings to allocate between regions. However, due to the short duration of Blueline Tilefish fishing effort in some Council jurisdictions, and regulatory changes that may have affected landings in recent years, this Panel does not think recent landings are likely to be representative of productivity. Therefore, landings history may be a poor proxy of abundance and not an ideal method for allocation of Blueline Tilefish.

Task 3: Provide guidance on the risks associated with management based on the Gulf of Mexico Fishery Management Council boundary

- There is no information to examine source/sink population dynamics for Blueline Tilefish across its range in U.S. waters.
- This task is difficult to address since this Panel does not know what management is being planned in all regions, and the risks will depend on the extent different management regimes in each region are capable of preventing overfishing.

2016 FALL NRCC MEETING AGENDA

The Carlyle Dupont Circle Hotel—Washington, D.C.
Call-in Information: (866) 647-1746, participant code: 6042534
All times are approximate

Tuesday, October 11

1200-1210

1. Welcome, introductions, modifications and additions to agenda, announcements (Bullard, Hare)

1210-1310

2. National Monument Discussion
   Discussion leader: Pentony
   - Discuss the recently announced Northeast Canyons and Seamounts Marine National Monument

1310-1410

3. Aquaculture Policy in the Region
   Discussion leader: Pentony
   - Presentation on the Gulf Council's aquaculture program
   - Review of the New England Council's aquaculture policy (Kevin Madley, GARFO's Regional Aquaculture Coordinator)
   - Discuss next steps for our region

1410-1510

4. Offshore Energy Issues
   Discussion leader: Nies
   - Discuss coordination between NEFMC, MAFMC, and ASMFC

1510-1520 Break

1520-1630

5. Climate Change: NE Action Plan Update and Management of Shifting Species
   Discussion leaders: Hare and Bullard
   - Update on NE Regional Climate Action Plan
   - Discuss joint management of summer flounder and black sea bass
   - At our Spring 2016 meeting, the NRCC tasked itself to create a working group to address shifting species and climate change. Any updates to report on this initiative?

1630-1700

6. Permit Splitting Omnibus Amendment
   Discussion leader: Nies
   - Discuss possible development of an omnibus amendment to address an interest in allowing permit splitting, and to further modify permit upgrade

restrictions (e.g., removing the restriction on increases in length, adding a restriction on weight/displacement).

1700-1720

7. Windowpane Flounder AMs
   Discussion leader: Nies
   - Provide update on anticipated implementation of windowpane flounder AMs and impacts on MAFMC-managed species.

1720-1730

8. Update on SBRM and Lobsters
   Discussion leader: Pentony
   - Background: As discussed at our spring meeting, the SBRM amendment made an inadvertent error by exempting lobster permit holders who do not have other Federal permits. The NRCC supported fixing this problem as expeditiously as possible. GARFO will report out on the plan for resolving this issue.
   - Addresses 2016 Spring Action Item #5

1730-Adjourn Day 1

Dinner or Happy Hour: TBD

Wednesday, October 12

0900-1000

9. Priority Discussion
   NEFMC, MAFMC, ASMFC, GARFO, and NEFSC outline priorities
   - Discuss prioritization and coordination of resources, as needed
   - Review operating agreements

1000-1200 (Break as needed)

10. Review Current Assessment Schedule established at Spring 2016 NRCC meeting and other assessment topics
    Discussion leader: Weinberg/Simpkins
    - Report out on Action Items
      - Cod stock structure
      - Plan B Working Group (Spring 2016 Action Item #2)
      - Mackerel assessment update
    - Assessment Issues/Topics
      - MRIP Transition Schedule and coordination of national process with regional assessments
      - Groundfish Operational Assessments Timing
    - Review previously established 2017-18 schedule and Additional work
      - NEFSC survey transition

    - SBRM 3-year review
    - Halibut data-poor efforts; coordination between NEFMC and NEFSC
- Strategic long-term planning for assessments to match management cycles/needs and improve research connections
    - Utility of National Stock Assessment Program prioritization process for such strategic planning

1200-1300 Lunch

1300-1500

11. Continue with Assessment Related Discussions

Break 1500-1515

1515-1530

12. Update on Skinning and Filleting Regulations as they apply to both New England and Mid-Atlantic Species
    Discussion leader: MAFMC
    - At our last meeting, Rick Robins offered to have the MAFMC take the lead on looking across the two Councils' FMPs to summarize skinning and fileting regulations. The plan was to have the MAFMC to report back to the NRCC at this meeting.
    - Addresses 2016 Spring Action Item #6

1530-1535

13. Update on Cooperative Research Program Review
    Discussion leader: Simpkins
    - The NEFSC will report out on the Cooperative Research Program review and discuss possibly developing a white paper on study fleet best practice
    - Addresses 2016 Spring Action Item #1

1535-1600

14. Meeting wrap up
    - Discuss workload and scope of NRCC – interest in making modifications to how the group is currently functioning? (Beal)
    - Complete any unfinished discussions or unresolved new business
    - Review action items and assignments
    - Confirm May 9-10, 2017 Spring meeting date (GARFO host) and identify Fall 2017 (MAFMC host) meeting date
    - Adjourn meeting

Hard stop for all participants at 4:00 pm