APRIL 2018 MEETING AGENDA

April 10-12, 2018
Montauk Yacht Club
32 Star Island Road
Montauk, NY 11954
Telephone 631-668-3100

Tuesday, April 10th

1:00 p.m.	**Council Convenes**
1:00 p.m.	**Mackerel, Squid, Butterfish Committee Meeting as a Committee of the Whole**
1:00 p.m. – 1:30 p.m.	**Summary of SAW/SARC 64 (Tab 1)** *Jim Weinberg - NEFSC*
1:30 p.m. – 4:00 p.m.	**Atlantic Mackerel and Squid Issues (Tab 2)** – Approve range of rebuilding alternatives and identify preliminary preferred alternative (Framework Meeting 1) – Consider mackerel closure impacts on Atlantic herring fishery – Approve range of 2019-2021 mackerel specifications and identify preliminary preferred alternatives – Approve range of 2019-2021 river herring/shad cap measures and identify preliminary preferred alternatives – Possible emergency action regarding squid trimester 2 closure
4:00 p.m. – 5:00 p.m.	**Shortfin Mako Shark (Tab 3)** *Guy DuBeck – NMFS, Highly Migratory Species Management Division* – Emergency Interim Final Rule Measures – Management options for upcoming amendment

Wednesday, April 11th

9:00 a.m.	**Council Convenes**
9:00 a.m. – 10:00 a.m.	**Status of the Ecosystem Report (Tab 4)** *Sarah Gaichas - NEFSC*
10:00 a.m. – 12:00 p.m.	**Blueline Tilefish Specifications (Tab 5)** – Develop and approve 2019-2021 blueline tilefish specifications
12:00 p.m. – 1:30 p.m.	**Lunch**

1:30 p.m.- 2:00 p.m.	**Law Enforcement Report** – NOAA Office of Law Enforcement – U.S. Coast Guard
2:00 p.m. – 3:30 p.m.	**Golden Tilefish Specifications (Tab 6)** – Review SSC, Advisory Panel, Monitoring Committee, and staff recommendations for 2019 specifications
3:30 p.m. – 4:00 p.m.	**Golden Tilefish Permit Issue (Tab 7)** – Discuss permit data and next steps
4:00 p.m. – 5:00 p.m.	**Summer Flounder, Scup, Black Sea Bass Mesh Selectivity Study (Tab 8)** *Emerson Hasbrouck - Cornell*

Thursday, April 12th

9:00 a.m.	**Council Convenes**
9:00 a.m. - 1:00 p.m.	**Business Session**

Committee Reports (Tab 9)
- Scientific and Statistical Committee

Executive Director's Report (Tab 10)
Chris Moore
- Develop Comments for South-Atlantic For-Hire Electronic Reporting Amendment

Organization Reports (Tab 11)
- NMFS Greater Atlantic Regional Office
- NMFS Northeast Fisheries Science Center
- NOAA Office of General Counsel
- Atlantic States Marine Fisheries Commission

Liaison Reports (Tab 12)
- New England Council
- South Atlantic Council
- Regional Planning Body

Continuing and New Business

Recreational Black Sea Bass
Motion to bring back tabled motion – deFur/Batsavage (motion carries by consent)

Tabled from December Council Meeting: Move that the 2018 federal waters black sea bass measures include a 15-fish possession limit, 12.5-inch minimum size and season from May 15 – December 31. These measures assume the Commission process will develop measures to constrain harvest to the 2018 RHL. A backstop measure of 14 inches, 5 fish possession limit and a season from May 15 – September 15 would go into effect should the Commission not implement measures to constrain harvest to the 2018 RHL.
Nowalsky/DiLernia (21/0/0)
Council as whole: passes unanimously

Move that the Council continue the development of an LOA program for implementation of a 2019 Wave 1 fishery.
DiLernia/Heins

Move to substitute to 1) refer the black sea bass Wave 1 LOA implementation provisions to Committee; 2) provide for a 2019 Wave 1 fishery under the specifications process as implemented in 2018; and 3) prioritize Council staff time to work with the ASMFC on Addendum XXX provisions ahead of the Wave 1 LOA framework.
Nowalsky/Hughes

Motion to amend to strike the word "process" under item #2
Alexander/Reid (16/3/3)
Motion carries

Move to substitute to 1) refer the black sea bass 2020 Wave 1 LOA implementation provisions to Committee; 2) provide for a 2019 Wave 1 fishery under the specifications as implemented in 2018; and 3) prioritize Council staff time to work with the ASMFC on Addendum XXX provisions ahead of the Wave 1 LOA framework.
Nowalsky/Hughes (20/1/1)
Motion carries

Main motion: move to 1) refer the black sea bass 2020 Wave 1 LOA implementation provisions to Committee; 2) provide for a 2019 Wave 1 fishery under the specifications as implemented in 2018; and 3) prioritize Council staff time to work with the ASMFC on Addendum XXX provisions ahead of the Wave 1 LOA framework. Committee (21/0/1)
Council: Motion passes unanimously

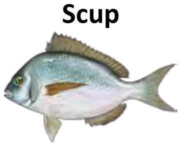
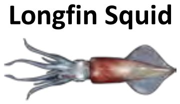
Summer Flounder, Scup and Black Sea Bass Commercial Accountability Measure Framework
Move to accept the staff recommendations of Alternative 1A – status quo, ACL evaluation and Alternative 2B – scaled payback of the discard overage.
Nolan/Heins (21/0/1)
Council: Motion passes unanimously

Habitat
Move to support the continued collaborative approach analyzing the social, economic, and ecological impacts and the cumulative impacts of wind energy facilities to the Northeast US continental shelf.
Hughes/Elliott (no opposition, carries by consent)

Move to submit a letter to the Secretaries of Interior and Commerce requesting that: (1) no new wind energy areas be sited, nor project designs finalized, until the study is complete and fisheries impacts can be properly evaluated and (2) request that NOAA adopt a more active role in working with BOEM to effectively site future wind energy projects.
Hughes/Mann (no opposition, motion carries by consent with 1 abstention)

Stock Status of MAFMC-Managed Species

(as of March 30, 2018)

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. Most recent assessment update was 2017.
Black Sea Bass 	$F40\%_{MSP}$=0.36	10.7 million lbs	No	No	Most recent benchmark assessment was 2016.
Bluefish 	$F_{35\%SPR}$=0.19	111.7 million lbs	No	No	Most recent benchmark assessment was 2015.
***Illex* Squid (short finned)** 	Unknown	Unknown	Unknown	Unknown	Most recent benchmark assessment was 2006; not able to determine current exploitation rates or stock biomass.
Longfin Squid 	Unknown	46.7 million lbs	Unknown	No	Most recent assessment update was 2017; not able to determine current exploitation rates.
Atlantic Mackerel 	$F_{40\%}$=0.26	217.0 million pounds	Yes (pending)	Yes (pending)	Most recent benchmark assessment was 2017; 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 assessment update was 2017.

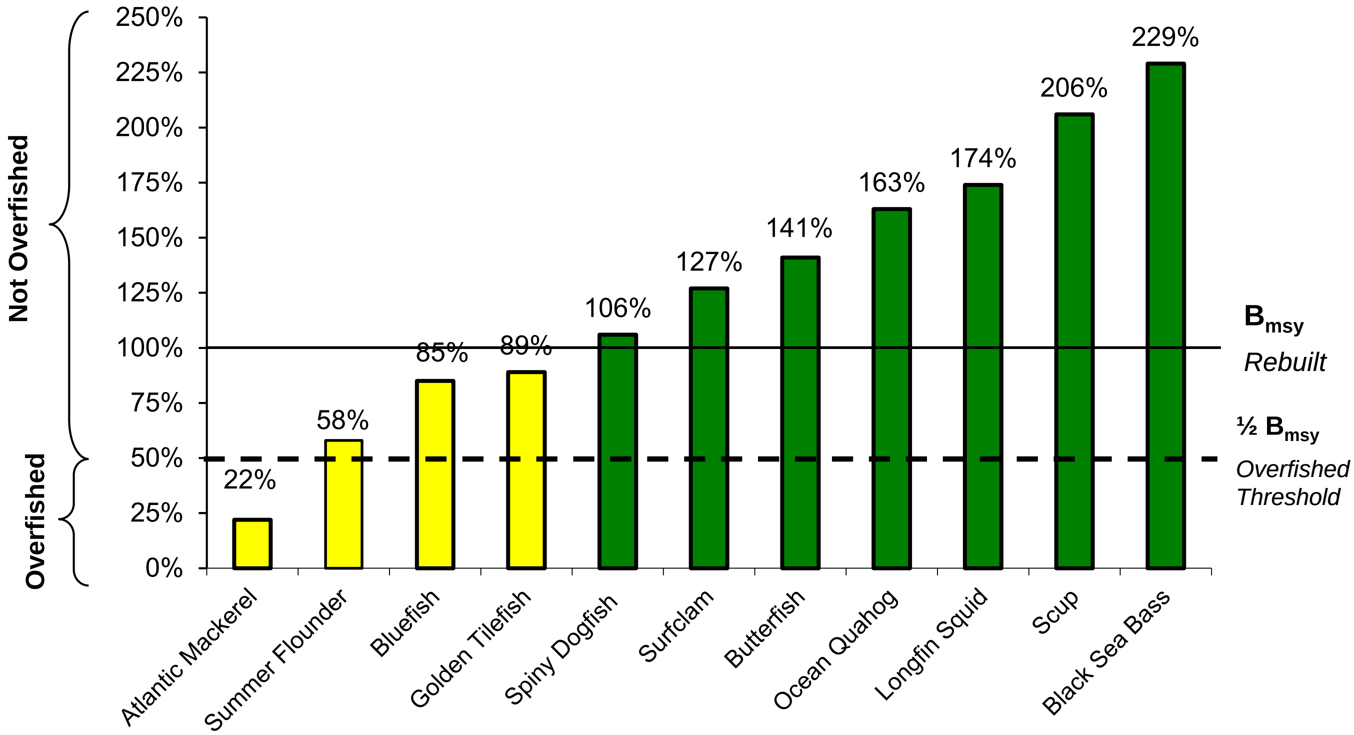
SPECIES	STATUS DETERMINATION CRITERIA		OVERFISHING	OVERFISHED	REBUILDING PROGRAM / STOCK STATUS
	Overfishing $F_{threshold}$	**Overfished** ½ B_{MSY}			
Surfclam 	$F/F_{threshold} = 1$[a]	$SSB/SSB_{threshold} = 1$[b]	No	No	Most recent benchmark assessment was 2016.
Ocean Quahog 	$F/F_{threshold} = 1$[c]	$SSB/SSB_{threshold} = 1$[d]	No	No	Most recent benchmark assessment was 2017.
Golden Tilefish 	$F_{38\%MSP}=0.310$	10.46 million lbs	No	No	Most recent assessment update was 2017.
Blueline Tilefish 	Unknown	Unknown	South of Cape Hatteras: No North of Cape Hatteras: Unknown	South of Cape Hatteras: No North of Cape Hatteras: Unknown	Most recent benchmark assessment was 2017.
Spiny Dogfish (Joint mgmt with NEFMC) 	$F_{MSY}=0.2439$	175.6 million lbs Female SSB	No	No	Most recent assessment update was 2015. Most recent benchmark assessment was 2010.
Monkfish (Joint mgmt with NEFMC) 	NFMA & SFMA $F_{MAX}=0.2$	NFMA - 1.25 kg/tow SFMA - 0.93 kg/tow (autumn trawl survey)	Unknown	Unknown	Most recent benchmark assessment was 2010. Most recent operational assessment was in 2016.

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

[a] $F_{threshold}$ is calculated as 4.136 times the mean F during 1982 - 2015
[b] $SSB_{threshold}$ is calculated as $SSB_0/4$
[c] $F_{threshold}$ is 0.019
[d] $SSB_{threshold}$ is calculated as $0.4*SSB_0$

Stock Size Relative to Biological Reference Points

(as of March 30, 2018)



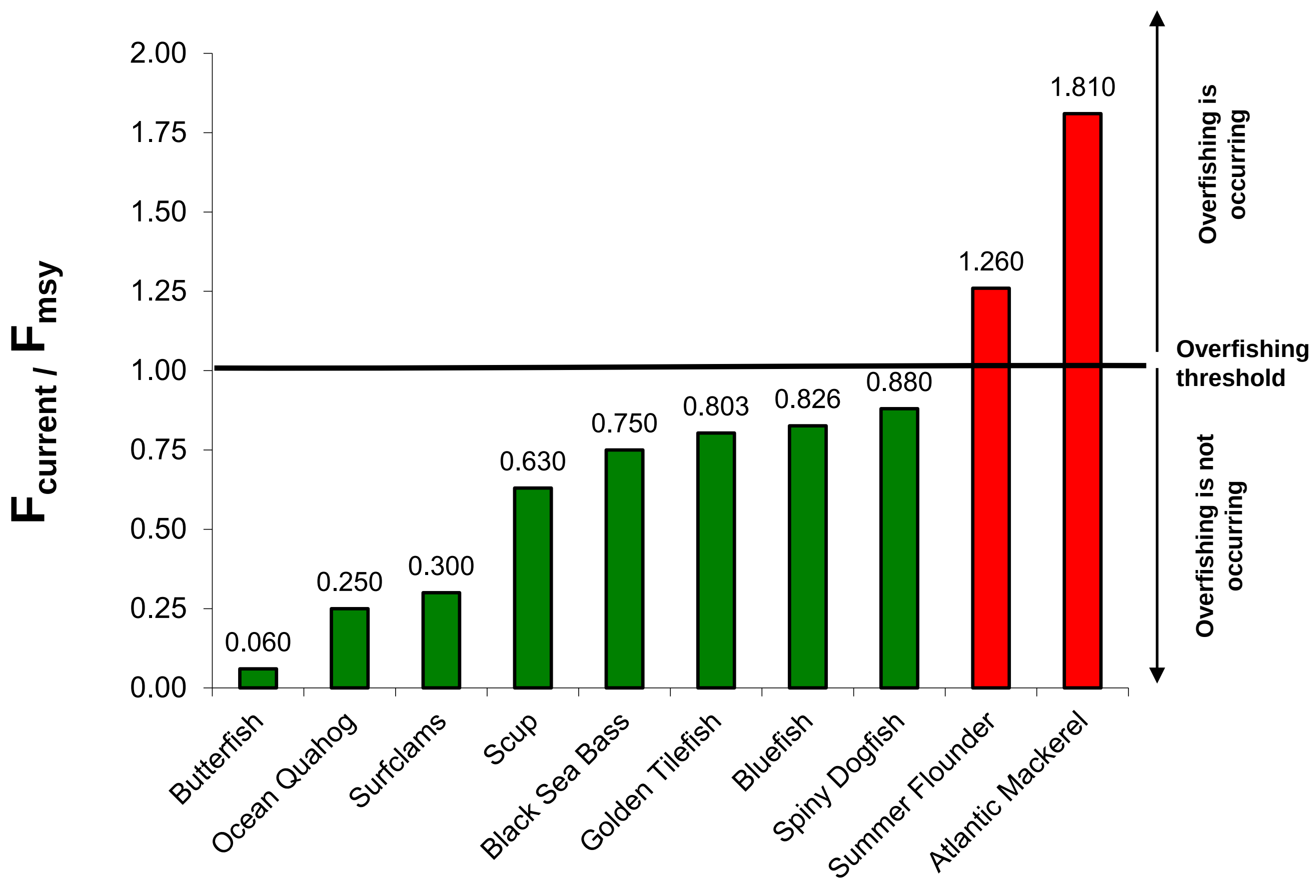
Notes:

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

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

Fishing Mortality Ratios for MAFMC-Managed Species

(as of March 30, 2018)



Note:

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

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

Northeast Fisheries Science Center Reference Document 18-03

64th Northeast Regional Stock Assessment Workshop (64th SAW)

Assessment Summary Report

by the Northeast Fisheries Science Center

January 2018

Northeast Fisheries Science Center Reference Document 18-03

64th Northeast Regional Stock Assessment Workshop (64th SAW)

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U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Fisheries Science Center
Woods Hole, Massachusetts

January 2018

Northeast Fisheries Science Center Reference Documents

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SAW-64 ASSESSMENT SUMMARY REPORT

Introduction

The 64th SAW Assessment Summary Report contains summary and detailed technical information on one stock assessment reviewed during November 28-30, 2017 at the Stock Assessment Workshop (SAW) by the 64th Stock Assessment Review Committee (SARC-64): Atlantic mackerel. The SARC-64 consisted of three external, independent reviewers appointed by the Center for Independent Experts [CIE], and an external SARC chairman from the MAFMC SSC. The SARC evaluated whether each Term of Reference (listed in the Appendix) was completed successfully based on whether the work provided a scientifically credible basis for developing fishery management advice. The reviewers' reports for SAW/SARC-64 are available at: https://www.nefsc.noaa.gov/saw/reports.html under the heading "SARC 64 Panelist Reports."

An important aspect of any assessment is the determination of current stock status. The status of the stock relates to both the rate of removal of fish from the population – the exploitation rate – and the current stock size. The exploitation rate is the proportion of the stock alive at the beginning of the year that is caught during the year. When that proportion exceeds the amount specified in an overfishing definition, overfishing is occurring. Fishery removal rates are usually expressed in terms of the instantaneous fishing mortality rate, F, and the maximum removal rate is denoted as $F_{THRESHOLD}$.

Another important factor for classifying the status of a resource is the current stock level, spawning stock biomass (SSB) or total stock biomass (TSB). Overfishing definitions, therefore, characteristically include specification of a minimum biomass threshold as well as a maximum fishing threshold. If the biomass of a stock falls below the biomass threshold ($B_{THRESHOLD}$) the stock is in an overfished condition. The Sustainable Fisheries Act mandates that a stock rebuilding plan be developed should this situation arise.

As there are two dimensions to stock status – the rate of removal and the biomass level – it is possible that a stock not currently subject to overfishing in terms of exploitation rates is in an overfished condition; that is, has a biomass level less than the threshold level. This may be due to heavy exploitation in the past, or a result of other factors such as unfavorable environmental conditions. In this case, future recruitment to the stock is very important and the probability of improvement may increase greatly by increasing the stock size. Conversely, fishing down a stock that is at a high biomass level should generally increase the long-term sustainable yield. Stocks under federal jurisdiction are managed on the basis of maximum sustainable yield (MSY). The biomass that produces this yield is called B_{MSY} and the fishing mortality rate that produces MSY is called F_{MSY}.

Given this, federally managed stocks under review are classified with respect to current overfishing definitions. A stock is overfished if its current biomass is below $B_{THRESHOLD}$ and overfishing is occurring if current F is greater than $F_{THRESHOLD}$. The table below depicts status criteria.

		BIOMASS		
		$B < B_{THRESHOLD}$	$B_{THRESHOLD} < B < B_{MSY}$	$B > B_{MSY}$
EXPLOITATION RATE	$F > F_{THRESHOLD}$	Overfished, overfishing is occurring; reduce F, adopt and follow rebuilding plan	Not overfished, overfishing is occurring; reduce F, rebuild stock	$F = F_{TARGET} <= F_{MSY}$
	$F < F_{THRESHOLD}$	Overfished, overfishing is not occurring; adopt and follow rebuilding plan	Not overfished, overfishing is not occurring; rebuild stock	$F = F_{TARGET} <= F_{MSY}$

Fisheries management may take into account scientific and management uncertainty, and overfishing guidelines often include a control rule in the overfishing definition. Generically, the control rules suggest actions at various levels of stock biomass and incorporate an assessment of risk, in that F targets are set so as to avoid exceeding F thresholds.

Outcome of Stock Assessment Review Meeting

Text in this section is based on SARC-64 Review Panel reports (available at https://www.nefsc.noaa.gov/saw/reports.html under the heading "SARC-64 Panelist Reports").

SARC-64 concluded that the stock of Atlantic Mackerel (*Scomber scombrus*) in the Northwest Atlantic is currently overfished and overfishing is occurring. An assessment model (ASAP) containing a northern and a southern contingent of the single stock was accepted by the SARC as the best scientific information available for determining stock status. As proposed by the SAW WG, $F_{40\%}$ is considered by the SARC to be an acceptable proxy for F_{MSY}, the overfishing threshold.

Glossary

ADAPT. A commonly used form of computer program used to optimally fit a Virtual Population Assessment (VPA) to abundance data.

ASAP. The Age Structured Assessment Program is an age-structured model that uses forward computations assuming separability of fishing mortality into year and age components to estimate population sizes given observed catches, catch-at-age, and indices of abundance. Discards can be treated explicitly. The separability assumption is relaxed by allowing for fleet-specific computations and by allowing the selectivity at age to change smoothly over time or in blocks of years. The software can also allow the catchability associated with each abundance index to vary smoothly with time. The problem's dimensions (number of ages, years, fleets and abundance indices) are defined at input and limited by hardware only. The input is arranged assuming data is available for most years, but missing years are allowed. The model currently does not allow use of length data nor indices of survival rates. Diagnostics include index fits, residuals in catch and catch-at-age, and effective sample size calculations. Weights are input for different components of the objective function and allow for relatively simple age-structured production model type models up to fully parameterized models.

ASPM. Age-structured production models, also known as statistical catch-at-age (SCAA) models, are a technique of stock assessment that integrate fishery catch and fishery-independent sampling information. The procedures are flexible, allowing for uncertainty in the absolute magnitudes of catches as part of the estimation. Unlike virtual population analysis (VPA) that tracks the cumulative catches of various year classes as they age, ASPM is a forward projection simulation of the exploited population. ASPM is similar to the NOAA Fishery Toolbox applications ASAP (Age Structured Assessment Program) and SS2 (Stock Synthesis 2).

Availability. Refers to the distribution of fish of different ages or sizes relative to that taken in the fishery.

Biological reference points. Specific values for the variables that describe the state of a fishery system which are used to evaluate its status. Reference points are most often specified in terms of fishing mortality rate and/or spawning stock biomass. The reference points may indicate 1) a desired state of the fishery, such as a fishing mortality rate that will achieve a high level of sustainable yield, or 2) a state of the fishery that should be avoided, such as a high fishing mortality rate which risks a stock collapse and long-term loss of potential yield. The former type of reference points are referred to as "target reference points" and the latter are referred to as "limit reference points" or "thresholds." Some common examples of reference points are $F_{0.1}$, F_{MAX}, and F_{MSY}, which are defined later in this glossary.

B_0. Virgin stock biomass, i.e., the long-term average biomass value expected in the absence of fishing mortality.

B_{MSY}. Long-term average biomass that would be achieved if fishing at a constant fishing mortality rate equal to F_{MSY}.

Biomass Dynamics Model. A simple stock assessment model that tracks changes in stock using assumptions about growth and can be tuned to abundance data such as commercial catch rates, research survey trends or biomass estimates.

Catchability. Proportion of the stock removed by one unit of effective fishing effort (typically age-specific due to differences in selectivity and availability by age).

Control Rule. Describes a plan for pre-agreed management actions as a function of variables related to the status of the stock. For example, a control rule can specify how F or yield should vary with biomass. In the National Standard Guidelines (NSG), the "MSY control rule" is used to determine the limit fishing mortality, or Maximum Fishing Mortality Threshold (MFMT). Control rules are also known as "decision rules" or "harvest control laws."

Catch per Unit of Effort (CPUE). Measures the relative success of fishing operations, but also can be used as a proxy for relative abundance based on the assumption that CPUE is linearly related to stock size. The use of CPUE that has not been properly standardized for temporal-spatial changes in catchability should be avoided.

Exploitation pattern. The fishing mortality on each age (or group of adjacent ages) of a stock relative to the highest mortality on any age. The exploitation pattern is expressed as a series of values ranging from 0.0 to 1.0. The pattern is referred to as "flat-topped" when the values for all the oldest ages are about 1.0, and "dome-shaped" when the values for some intermediate ages are about 1.0 and those for the oldest ages are significantly lower. This pattern often varies by type of fishing gear, area, and seasonal distribution of fishing, and the growth and migration of the fish. The pattern can be changed by modifications to fishing gear, for example, increasing mesh or hook size, or by changing the proportion of harvest by gear type.

Mortality rates. Populations of animals decline exponentially. This means that the number of animals that die in an "instant" is at all times proportional to the number present. The decline is defined by survival curves such as: $N_{t+1} = N_t e^{-z}$

where N_t is the number of animals in the population at time t and N_{t+1} is the number present in the next time period; Z is the total instantaneous mortality rate which can be separated into deaths due to fishing (fishing mortality or F) and deaths due to all other causes (natural mortality or M) and e is the base of the natural logarithm (2.71828). To better understand the concept of an instantaneous mortality rate, consider the following example. Suppose the instantaneous total mortality rate is 2 (i.e., Z = 2) and we want to know how many animals out of an initial population of 1 million fish will be alive at the end of one year. If the year is apportioned into 365 days (that is, the 'instant' of time is one day), then 2/365 or 0.548% of the population will die each day. On the first day of the year, 5,480 fish will die (1,000,000 x 0.00548), leaving 994,520 alive. On day 2, another 5,450 fish die (994,520 x 0.00548) leaving 989,070 alive. At the end of the year, 134,593 fish [1,000,000 x $(1 - 0.00548)^{365}$] remain alive. If we had instead selected a smaller 'instant' of time, say an hour, 0.0228% of the population would have died by the end of the first time interval (an hour), leaving 135,304 fish alive at the end of the year [1,000,000 x $(1 - 0.00228)^{8760}$]. As the instant of time becomes shorter and shorter, the exact answer to the number of animals surviving is given by the survival curve mentioned above, or, in this example:

$N_{t+1} = 1{,}000{,}000e^{-2} = 135{,}335$ fish

Exploitation rate. The proportion of a population alive at the beginning of the year that is caught during the year. That is, if 1 million fish were alive on January 1 and 200,000 were caught during the year, the exploitation rate is 0.20 (200,000 / 1,000,000) or 20%.

F_{MAX}. The rate of fishing mortality that produces the maximum level of yield per recruit. This is the point beyond which growth overfishing begins.

$F_{0.1}$. The fishing mortality rate where the increase in yield per recruit for an increase in a unit of effort is only 10% of the yield per recruit produced by the first unit of effort on the unexploited stock (i.e., the slope of the yield-per-recruit curve for the $F_{0.1}$ rate is only one-tenth the slope of the curve at its origin).

$F_{10\%}$. The fishing mortality rate which reduces the spawning stock biomass per recruit (SSB/R) to 10% of the amount present in the absence of fishing. More generally, Fx%, is the fishing mortality rate that reduces the SSB/R to x% of the level that would exist in the absence of fishing.

F_{MSY}. The fishing mortality rate that produces the maximum sustainable yield.

Fishery Management Plan (FMP). Plan containing conservation and management measures for fishery resources, and other provisions required by the MSFCMA, developed by Fishery Management Councils or the Secretary of Commerce.

Generation Time. In the context of the National Standard Guidelines, generation time is a measure of the time required for a female to produce a reproductively-active female offspring for use in setting maximum allowable rebuilding time periods.

Growth overfishing. The situation existing when the rate of fishing mortality is above F_{MAX} and when fish are harvested before they reach their growth potential.

Limit Reference Points. Benchmarks used to indicate when harvests should be constrained substantially so that the stock remains within safe biological limits. The probability of exceeding limits should be low. In the National Standard Guidelines, limits are referred to as thresholds. In much of the international literature (e.g., FAO documents), "thresholds" are used as buffer points that signal when a limit is being approached.

Landings per Unit of Effort (LPUE). Analogous to CPUE and measures the relative success of fishing operations, but is also sometimes used a proxy for relative abundance based on the assumption that CPUE is linearly related to stock size.

MSFCMA. Magnuson-Stevens Fishery Conservation and Management Act. U.S. Public Law 94-265, as amended through October 11, 1996. Available as NOAA Technical Memorandum NMFS-F/SPO-23, 1996.

Maximum Fishing Mortality Threshold (MFMT, $F_{THRESHOLD}$). One of the Status Determination Criteria (SDC) for determining if overfishing is occurring. It will usually be equivalent to the F corresponding to the MSY Control Rule. If current fishing mortality rates are above $F_{THRESHOLD}$, overfishing is occurring.

Minimum Stock Size Threshold (MSST, $B_{THRESHOLD}$). Another of the Status Determination Criteria. The greater of (a) ½B_{MSY}, or (b) the minimum stock size at which rebuilding to B_{MSY} will occur within 10 years of fishing at the MFMT. MSST should be measured in terms of spawning biomass or other appropriate measures of productive capacity. If current stock size is below $B_{THRESHOLD}$, the stock is overfished.

Maximum Spawning Potential (MSP). This type of reference point is used in some fishery management plans to define overfishing. The MSP is the spawning stock biomass per recruit (SSB/R) when fishing mortality is zero. The degree to which fishing reduces the SSB/R is expressed as a percentage of the MSP (i.e., %MSP). A stock is considered overfished when the fishery reduces the %MSP below the level specified in the overfishing definition. The values of %MSP used to define overfishing can be derived from stock-recruitment data or chosen by analogy using available information on the level required to sustain the stock.

Maximum Sustainable Yield (MSY). The largest average catch that can be taken from a stock under existing environmental conditions.

Overfishing. According to the National Standard Guidelines, "overfishing occurs whenever a stock or stock complex is subjected to a rate or level of fishing mortality that jeopardizes the capacity of a stock or stock complex to produce MSY on a continuing basis." Overfishing is occurring if the MFMT is exceeded for 1 year or more.

Optimum Yield (OY). 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. MSY constitutes a "ceiling" for OY. OY may be lower than MSY, depending on relevant economic, social, or ecological factors. In the case of an overfished fishery, OY should provide for rebuilding to B_{MSY}.

Partial Recruitment. Patterns of relative vulnerability of fish of different sizes or ages due to the combined effects of selectivity and availability.

Rebuilding Plan. A plan that must be designed to recover stocks to the B_{MSY} level within 10 years when they are overfished (i.e. when B < MSST). Normally, the 10 years would refer to an expected time to rebuild in a probabilistic sense.

Recruitment. This is the number of young fish that survive (from birth) to a specific age or grow to a specific size. The specific age or size at which recruitment is measured may correspond to when the young fish become vulnerable to capture in a fishery or when the number of fish in a cohort can be reliably estimated by a stock assessment.

Recruitment overfishing. The situation existing when the fishing mortality rate is so high as to cause a reduction in spawning stock which causes recruitment to become impaired.

Recruitment per spawning stock biomass (R/SSB). The number of fishery recruits (usually age 1 or 2) produced from a given weight of spawners, usually expressed as numbers of recruits per kilogram of mature fish in the stock. This ratio can be computed for each year class and is often used as an index of pre-recruit survival, since a high R/SSB ratio in one year indicates above-average numbers resulting from a given spawning biomass for a particular year class, and vice versa.

Reference Points. Values of parameters (e.g. B_{MSY}, F_{MSY}, $F_{0.1}$) that are useful benchmarks for guiding management decisions. Biological reference points are typically limits that should not be exceeded with significant probability (e.g., MSST) or targets for management (e.g., OY).

Risk. The probability of an event times the cost associated with the event (loss function). Sometimes "risk" is simply used to denote the probability of an undesirable result (e.g. the risk of biomass falling below MSST).

Status Determination Criteria (SDC). Objective and measurable criteria used to determine if a stock is being overfished or is in an overfished state according to the National Standard Guidelines.

Selectivity. Measures the relative vulnerability of different age (size) classes to the fishing gears(s).

Spawning Stock Biomass (SSB). The total weight of all sexually mature fish in a stock.

Spawning stock biomass per recruit (SSB/R or SBR). The expected lifetime contribution to the spawning stock biomass for each recruit. SSB/R is calculated assuming that F is constant over the life span of a year class. The calculated value is also dependent on the exploitation pattern and rates of growth and natural mortality, all of which are also assumed to be constant.

Stock Synthesis (SS). This application provides a statistical framework for calibration of a population dynamics model using a diversity of fishery and survey data. SS is designed to accommodate both age and size structure and with multiple stock sub-areas. Selectivity can be cast as age specific only, size-specific in the observations only, or size-specific with the ability to capture the major effect of size-specific survivorship. The overall model contains subcomponents which simulate the population dynamics of the stock and fisheries, derive the expected values for the various observed data, and quantify the magnitude of difference between observed and expected data. Parameters are sought which will maximize the goodness-of-fit. A management layer is also included in the model allowing uncertainty in estimated parameters to be propagated to the management quantities, thus facilitating a description of the risk of various possible management scenarios. The structure of SS allows for building of simple to complex models depending upon the data available.

Survival Ratios. Ratios of recruits to spawners (or spawning biomass) in a stock-recruitment analysis. The same as the recruitment per spawning stock biomass (R/SSB).

TAC. Total allowable catch is the total regulated catch from a stock in a given time period, usually a year.

Target Reference Points. Benchmarks used to guide management objectives for achieving a desirable outcome (e.g., OY). Target reference points should not be exceeded on average.

Uncertainty. Uncertainty results from a lack of perfect knowledge of many factors that affect stock assessments, estimation of reference points, and management. Rosenberg and Restrepo (1994) identify five types: measurement error (in observed quantities), process error (or natural population variability), model error (mis-specification of assumed values or model structure), estimation error (in population parameters or reference points, due to any of the preceding types of errors), and implementation error (or the inability to achieve targets exactly for whatever reason)

Virtual Population Analysis (VPA) (or cohort analysis). A retrospective analysis of the catches from a given year class which provides estimates of fishing mortality and stock size at each age over its life in the fishery. This technique is used extensively in fishery assessments.

Year class (or cohort). Fish born in a given year. For example, the 1987 year class of cod includes all cod born in 1987. This year class would be age 1 in 1988, age 2 in 1989, and so on.

Yield per recruit (Y/R or YPR). The average expected yield in weight from a single recruit. Y/R is calculated assuming that F is constant over the life span of a year class. The calculated value is also dependent on the exploitation pattern, rate of growth, and natural mortality rate, all of which are assumed to be constant.

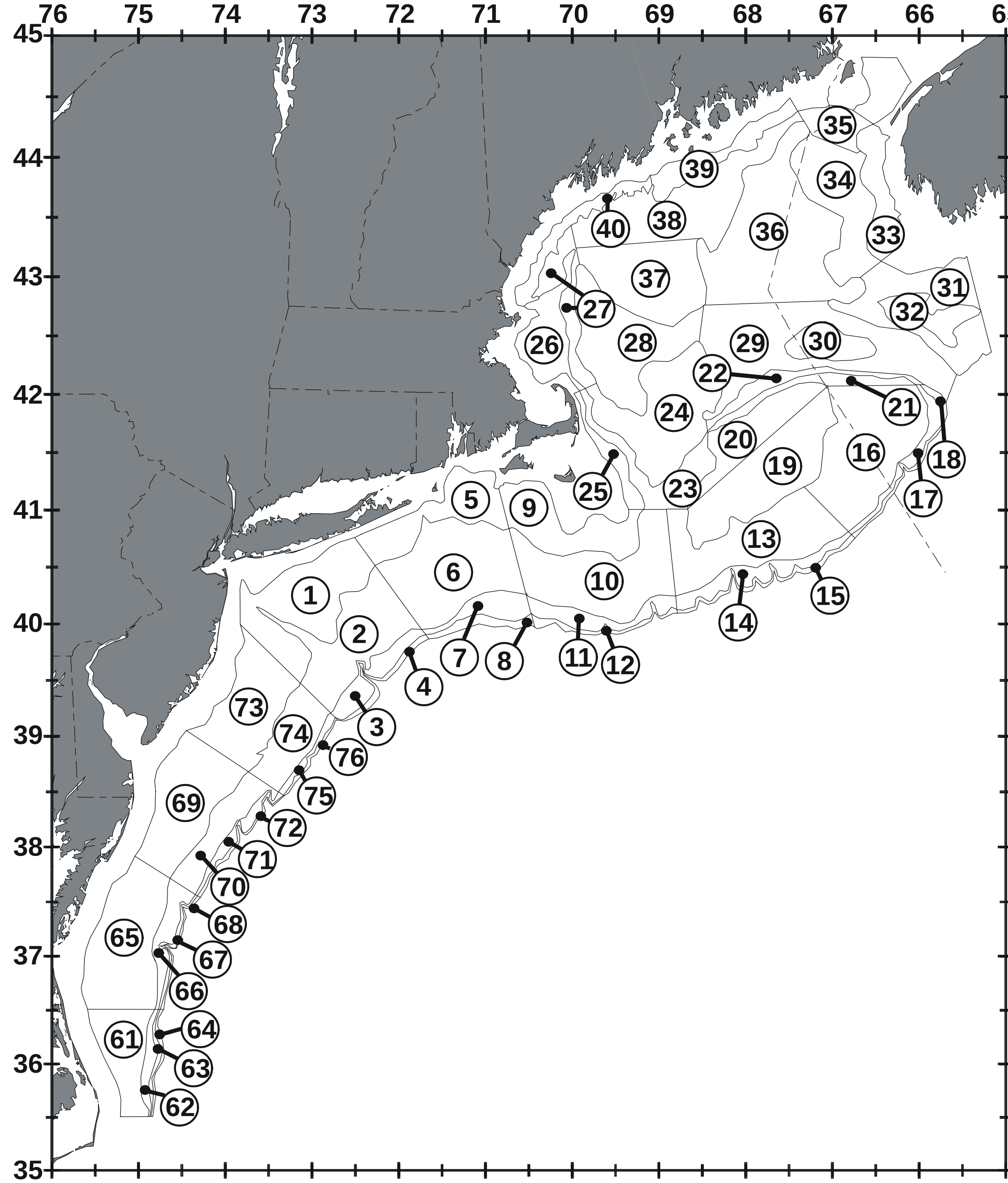

Figure 1. Offshore depth strata sampled during Northeast Fisheries Science Center bottom trawl research surveys. Some of these may not be sampled presently.

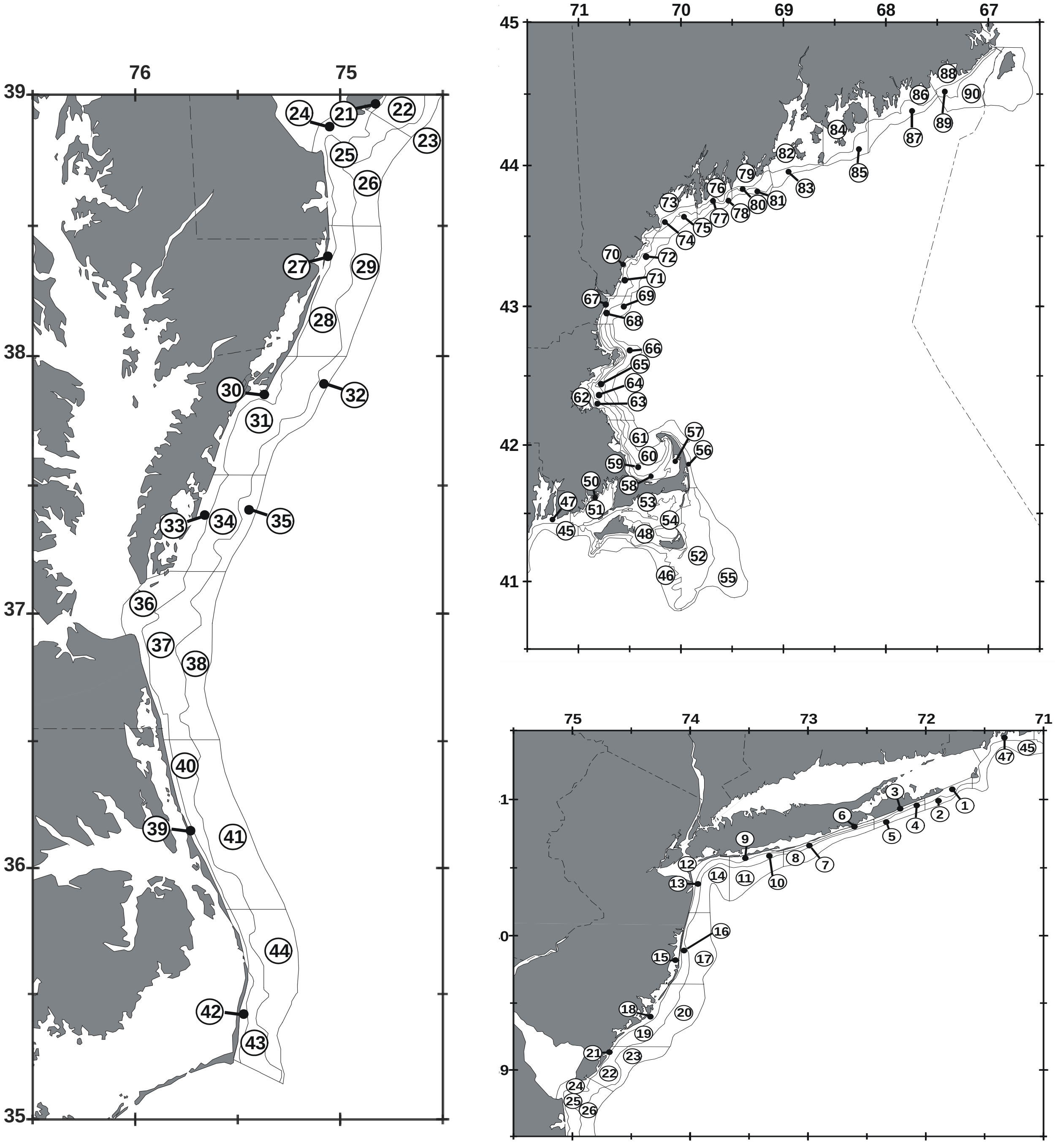

Figure 2. Inshore depth strata sampled during Northeast Fisheries Science Center bottom trawl research surveys. Some of these may not be sampled presently.

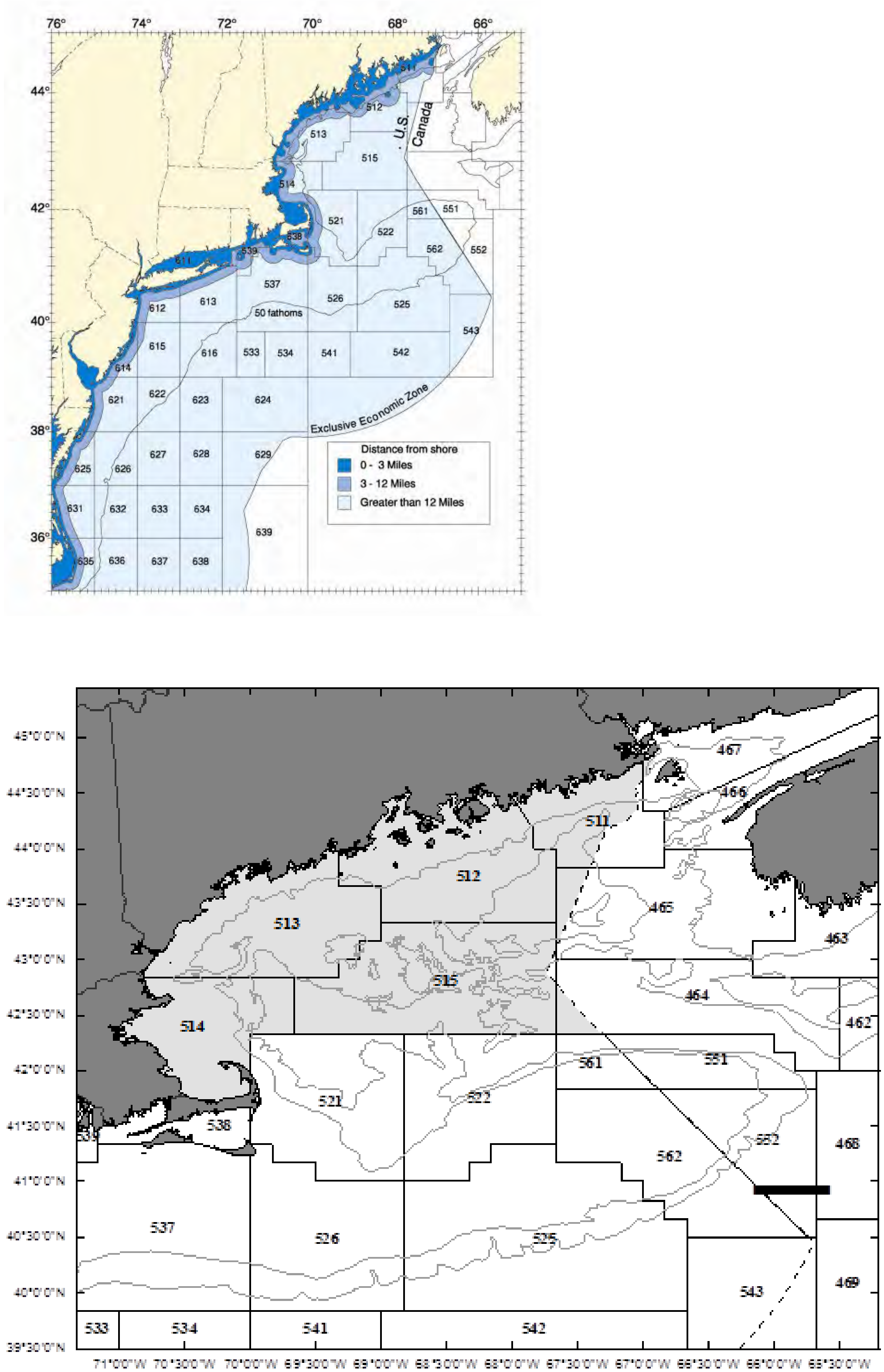

Figure 3. Statistical areas used for reporting commercial catches.

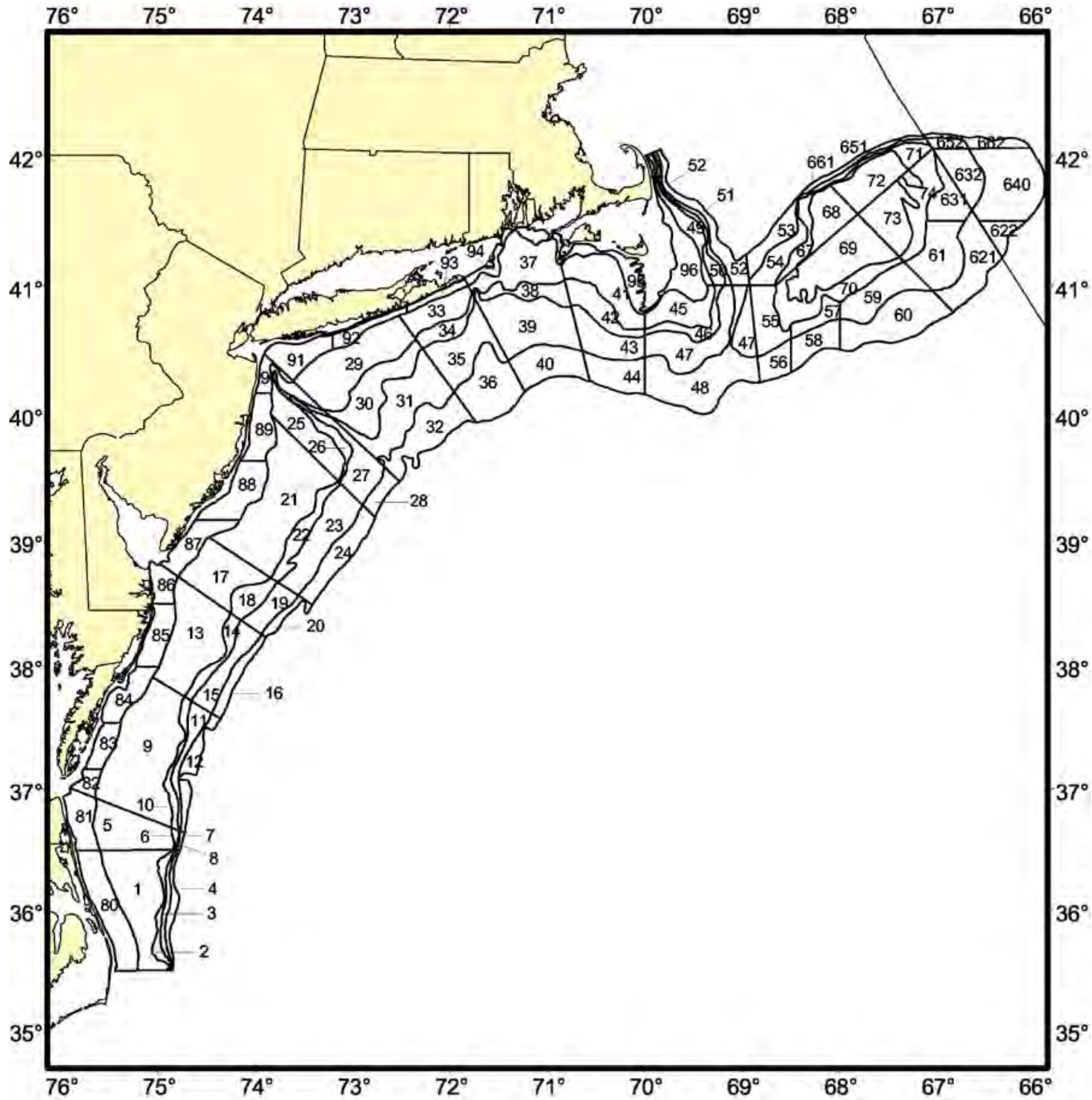

Figure 4. Northeast Fisheries Science Center clam resource survey strata, along the east coast of the US.

A. ATLANTIC MACKEREL ASSESSMENT SUMMARY FOR 2017

State of Stock

The SAW64 peer review panel recommends that the northwest stock of Atlantic Mackerel (*Scomber scombrus*) be considered overfished with overfishing occurring (Figure A1). An assessment model (ASAP) for the unit stock is accepted as appropriate for determining the stock status for Atlantic Mackerel. The 2016 spawning stock biomass (SSB) is estimated to be 43,519 mt and the fully selected fishing mortality is estimated to be 0.47.

$F_{40\%}$ is recommended as the proxy for F_{MSY} (the overfishing threshold) and was estimated to be 0.26. The distribution of the $SSB_{MSY\ proxy}$ (the biomass target) was calculated from 100-year projections at $F_{40\%}$ and was estimated to have a median of 196,894 mt with 90% credible intervals of 108,161 - 429,550 mt. The peer review panel recommends that the northwest Atlantic Mackerel stock be considered overfished if spawning stock biomass is less than half of $SSB_{MSY\ PROXY}$, which for this assessment equaled 98,447 mt.

Based on model results and sensitivity analyses, it is almost certain that the stock is overfished and undergoing overfishing. The stock was estimated to be at an all-time low in 2012 having experienced increasing exploitation (overfishing) through the early 2000s to a high in 2010. Indications are that recent recruitment is near the time series mean but highly uncertain.

No previously accepted assessment results are available for comparison.

Projections

Short-term (2018-2020) projections were conducted assuming a harvest at $F_{MSY\ proxy}$ (0.26) and a 2017 catch of 21,898 mt. This catch equaled the 2017 stock-wide Allowable Biological catch (ABC) set by the Mid-Atlantic Fishery Management Council's (MAFMC) Science and Statistical Committee (SSC) plus an additional 2,000 mt added due to a subsequent increase in the 2017 Canadian TAC. Recruitment was modeled by sampling from an empirical cumulative density function derived from the 1975-2016 recruitment estimates of the ASAP model because estimates from 1968-1974 were not considered representative of current conditions. Three-year projections indicated OFLs of 24,948 mt in 2018, 30,023 mt in 2019, and 33,250 mt in 2020 (Table A1). These projections are influenced by the 2015 year class, which was estimated at a relatively high level but with higher uncertainty than other recruitment estimates, as is typical for the terminal year recruitment estimate.

Catch and Status Table

(Weights in metric tons (mt), recruitment in millions, arithmetic means; min, max and mean values for years 1968-2016)

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Commercial landings	25,546	21,734	22,634	9,877	533	5,333	4,372	5,905	5,616	5,687
Commercial discards	159	747	125	97	38	33	20	52	13	18
Recreational catch	633	857	684	938	1,042	767	951	1,142	1,384	1,611
Canadian catch	53,394	29,671	42,232	38,736	11,534	6,468	9,017	6,872	4,937	8,000
Catch used in assessment	79,733	53,008	65,675	49,648	13,147	12,601	14,360	13,971	11,950	15,316
Spawning stock biomass	103,390	66,969	43,732	24,001	16,899	16,837	18,849	17,007	24,328	43,519
Recruitment (age 1)	99.1	216.9	156.8	18.0	115.8	82.9	37.8	91.2	162.7	455.4
Fully selected F	1.02	0.93	1.62	2.09	1.06	1.21	1.12	1.01	0.75	0.47

Year	Min	Max	Mean
Commercial landings	533	56,640	12,093
Commercial discards	13	5,409	808
Recreational catch	365	4,223	1,651
Canadian catch	4,937	55,282	25,777
Catch used in assessment	11,950	432,608	93,917
Spawning stock biomass	16,837	1,134,034	309,108
Recruitment (age 1)	18.0	5,254.0	532.4
Fully selected F	0.08	2.09	0.51

Stock Distribution and Identification

The MAFMC's Fishery Management Plan for Atlantic Mackerel defines the management unit as all northwest Atlantic Mackerel under U.S. jurisdiction. Fishery removals comprise both U.S. and Canadian reported catches; therefore, a stock-wide ABC is set by the MAFMC's SSC and the U.S. ABC is set to the stock-wide ABC minus estimated Canadian catch (MAFMC 2011). Based on the work of Sette (1943, 1950), the stock is considered to comprise two spawning contingents: a northern contingent spawning primarily in the southern Gulf of St. Lawrence and a southern contingent spawning in the Mid-Atlantic Bight, Southern New England and the western Gulf of Maine. The two contingents mix during winter months on the Northeast U.S. shelf; however, the degree of mixing and natal homing is unknown. Mackerel in the northwest Atlantic were modeled as one stock for this assessment. The Canadian fishery catches largely the northern contingent while the US fishery likely catches both contingents.

Catches

Aggregate total catch across all countries increased from 7,353 mt in 1960 to a high of 432,608 mt in 1973 during the peak of the distant water fleets (Figure A2). With the development of 200-mile exclusive economic zones, total catch declined to an average of approximately 30,000 mt from 1978-1983 before increasing to a peak of 86,423 mt in 1990, likely due to the 1982 year class as well as the operation of the U.S. joint-venture fishery. From 1992-2001, total catch averaged approximately 35,000 mt and then increased to a peak of 112,425 mt in 2006, presumably due to the 1999 year class. Total catch then declined and has averaged 13,558 mt since 2011. Over the 1968-2016 time series, the progression of multiple large year classes through the fishery, including the 1967, 1982, and 1999 cohorts, was evident. In recent years, a truncation in age structure is apparent with fish older than 6 years not regularly caught.

In Canada, reported catches represent a subset of total Canadian catch because the bait fishery, recreational fishery and commercial discards are not monitored. Unreported catches in Canada have been estimated to be approximately 6,000 mt in recent years. In the U.S., commercial discards have been a relatively minor component of the catch, ranging from 13 mt in 2015 to 5,409 mt in 1994 and averaging less than 800 mt annually since 1989. Recreational catch (assuming discarded fish do not survive) averaged 2,957 mt between 1981 and 1991, peaking in 1986 at 4,223 mt and generally declining thereafter, averaging only 1,170 mt between 1992 and 2016.

Data and Assessment

A statistical catch-at age-model (ASAP) was developed to estimate fishing mortality, recruitment and abundance from 1968-2016. While the primary model framework was ASAP, a censored catch assessment model (CCAM) and a state-space stock assessment model (SAM) were developed to examine model uncertainty. Relative abundance indices used in the ASAP and SAM models included NEFSC spring bottom trawl survey indices for ages 3^+ and a range-wide SSB index developed from a dedicated Mackerel egg survey in Canada and ecosystem surveys in the U.S.. The censored catch model could only incorporate one index; therefore, the range-wide SSB index was used. Resulting estimates of F and SSB did not show significant retrospective bias; therefore, retro-adjustments were unnecessary. Consideration of the ASAP, CCAM, and SAM models suggests that results are robust to model choice.

Biological Reference Points

A stock-recruitment relationship was not clear for this stock. As a result, $F_{40\%}$ was selected as a proxy for F_{MSY} due to consistency with the Canadian reference point and ability to prevent stock collapse for stocks with similar life histories. Total spawning stock biomass at $F_{40\%}$ ($SSB_{40\%}$) was selected as the stock biomass reference point. $F_{40\%}$ equals 0.26 and based on a long-term projection at $F_{MSY\ proxy}$, the associated $SSB_{MSY\ proxy}$ equals 196,894 mt (90% CIs of 108,161 – 429,550 mt) and $B_{MSY\ proxy}$ equals 255,646 mt (90% CIs of 140,103 – 534,278 mt). The overfishing threshold has been defined as ½ $SSB_{MSY\ proxy}$, which equals 98,447 mt. MSY equals 41,334 mt (90% CIs of 22,878 – 87,281 mt).

Fishing Mortality

Estimates of fishing mortality at full selection (ages 6+) during the early portion of the time series exhibited a peak of 0.74 in 1976 and then sharply declined as foreign catches decreased (Figure A3). Fishing mortality then slowly increased during the 1980s and 1990s before spiking to a high of 2.1 in 2010. Between 2006 and 2014, fishing mortality approached or exceeded 1.0. Since 2010, fishing mortality generally decreased and was estimated to be 0.47 in 2016 (90% CI of 0.25 - 0.93).

Biomass

With the exception of two periods of increasing SSB trends during the mid-1980s and early-2000s as the 1982 and 1999 cohorts moved through the stock, the northwest Atlantic Mackerel stock exhibited a dramatic drop in spawning stock biomass from a peak in 1972 of approximately 1.1 million mt to 16,837 mt in 2012 (Figure A4). Since 2012, spawning stock biomass increased to 43,519 mt in 2016 (90% CI of 23,462 - 77,672 mt).

Total January 1 biomass in 2016 was estimated to be 101,687 mt (90% CI of 56,692 – 185,921 mt). With the exception of the early portion of the time series, total stock biomass was very similar to spawning stock and exploitable biomass estimates. However, during the early period total biomass was much larger than spawning stock biomass due to a large portion of juveniles (Figure A4).

Recruitment (at age 1)

Recruitment from 1968-1975 was estimated to be high, averaging 1,917 million fish (Figure A5), corresponding with high catches during this period. With the exception of strong year classes in 1982 (2,030 million fish), 1999 (1,223 million fish) and to a lesser extent 2003 (744 million fish), recruitment has been comparatively low since. Recruitment from 1975-2016 averaged 285 million fish although from 2006-2015, averaged only 136 million fish. The estimated recruitment in 2016 was 455 million fish.

Ecosystem Considerations

Analyses of the diets of predator species well sampled by the NEFSC bottom trawl surveys indicated a low occurrence of Mackerel in predator diets from 1973-2016 with approximately 0.2% of all predator stomachs containing Mackerel, including undentified Scombridae. Additional potentially important predators of Mackerel are not sampled by the NEFSC trawl surveys, including highly migratory species, marine mammals, and seabirds. Consumption by these predators is more difficult to estimate due to incomplete information on population levels and annual diet information. Predator food habits were not available for the months the northern contingent was outside of the area sampled by the NEFSC trawl survey.

Changes in the distribution of Atlantic Mackerel to the north and east have been observed. Several working papers suggested that some of these changes could be associated with environmental variables, but cause and effect could not be formally identified.

Special Comments

The current assessment overcomes many of the problems encountered in the previous assessments. The current assessment does not exhibit a retrospective pattern and uses a stockwide egg survey for the first time. The current assessment is able to provide a stock status recommendation and biological reference points, which based on previous assessments were unknown.

Research and monitoring should emphasize:

- Updating and improving fishery-independent surveys, particularly the egg survey and bottom trawl survey. Processing of the US egg survey is particularly important.
- Continuing work to understand the mechanisms that affect the distribution of the northern and southern contingents.
- Continuing cooperation with industry to understand factors affecting fishery performance.
- Continuing characterization of total removals, particularly catch that is not well-sampled (e.g., recreational catch, bait catch, and discards).
- Continuing collaborations with Canadian scientists.

References

Deroba JJ, Shepherd G, Gregoire F, Nieland J, Link J. 2010. Stock Assessment of Atlantic Mackerel in the Northwest Atlantic - 2009. TRAC Reference Document 2010/01.

MAFMC (Mid-Atlantic Fisheries Management Council). 2011. Amendment 13 to the Atlantic Mackerel, squids and butterfish fishery management plan. Available at: https://www.greateratlantic.fisheries.noaa.gov/nero/regs/frdoc/11/11OmnibusAmendmentEA&CommentsFinal.pdf

NEFSC (Northeast Fisheries Science Center). 2006. 42nd Northeast Regional Stock Assessment Workshop (42nd SAW) Stock Assessment Report, Part A: Silver Hake, Atlantic Mackerel, and Northern Shortfin Squid. Ref Doc 06-09a. 290 p.

NMFS (National Marine Fisheries Service). 2017. National Marine Fisheries Service - 3rd Quarter 2017 Update, Table A: Summary of Stock Status for FSSI Stocks.

Sette OE. 1943. Biology of the Atlantic Mackerel (*Scomber scombrus*) of North America, Part I: Early Life History, Including the Growth, Drift, and Mortality of the Egg and Larval Populations. Fishery Bulletin 38 (50): 149-237.

Sette OE. 1950. Biology of the Atlantic Mackerel (*Scomber scombrus*) of North America, Part II: Migrations and Habits. Fishery Bulletin 49 (51): 251-358.

Tables

Table A1: Three-year (2018-2020) projections of Atlantic Mackerel at $F_{MSYproxy}$, assuming a 2017 harvest of 21,898 mt.

		2017	**2018**	**2019**	**2020**
SSB (mt)	Median	101,825	132,532	153,198	165,487
	5th Percentile	44,017	62,299	81,410	92,754
	95th Percentile	207,193	260,273	305,940	359,842
Recruitment (000s)	Median	164,337	164,359	164,453	164,332
	5th Percentile	35,335	35,381		35,315
	95th Percentile	1,169,815	1,179,224	1,201,696	1,178,003
January 1 biomass (mt)	Median	135,714	172,598	200,558	216,681
	5th Percentile	71,745	84,355	107,435	121,498
	95th Percentile	252,303	344,668	401,743	455,147
Catch (mt)	Median	21,898	24,948	30,023	33,250
	5th Percentile	-	11,069	15,549	18,428
	95th Percentile	-	50,317	56,857	68,034

Figures

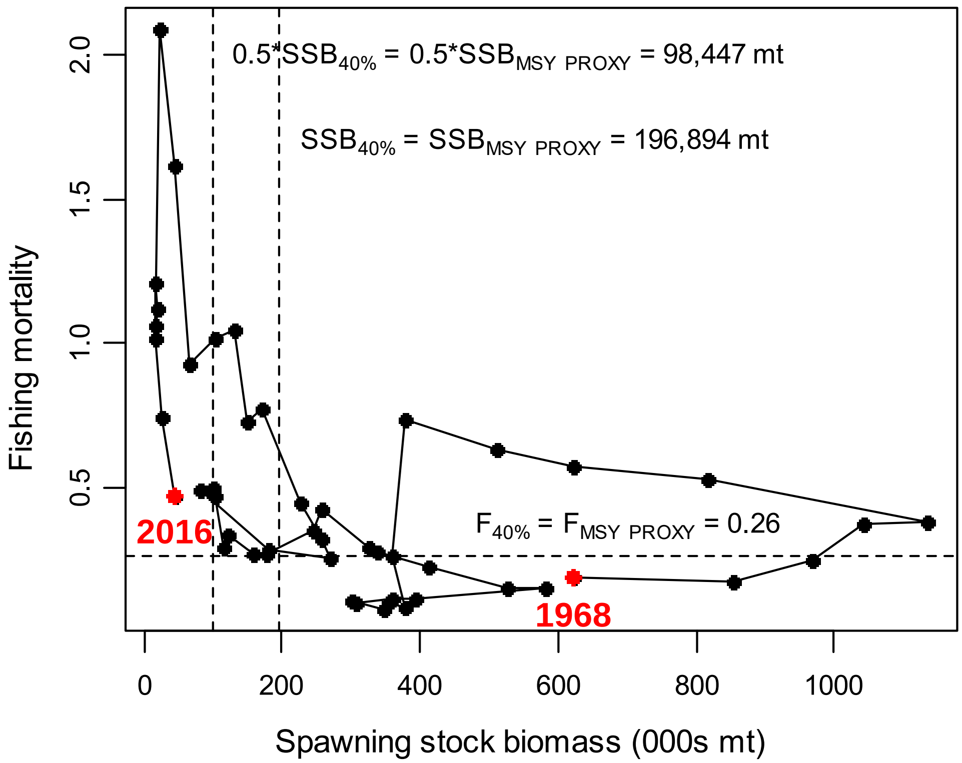

Figure A1: Time series trajectory of Atlantic Mackerel fully selected fishing mortality and spawning stock biomass estimates from 1968 to 2016 relative to the corresponding biological reference points.

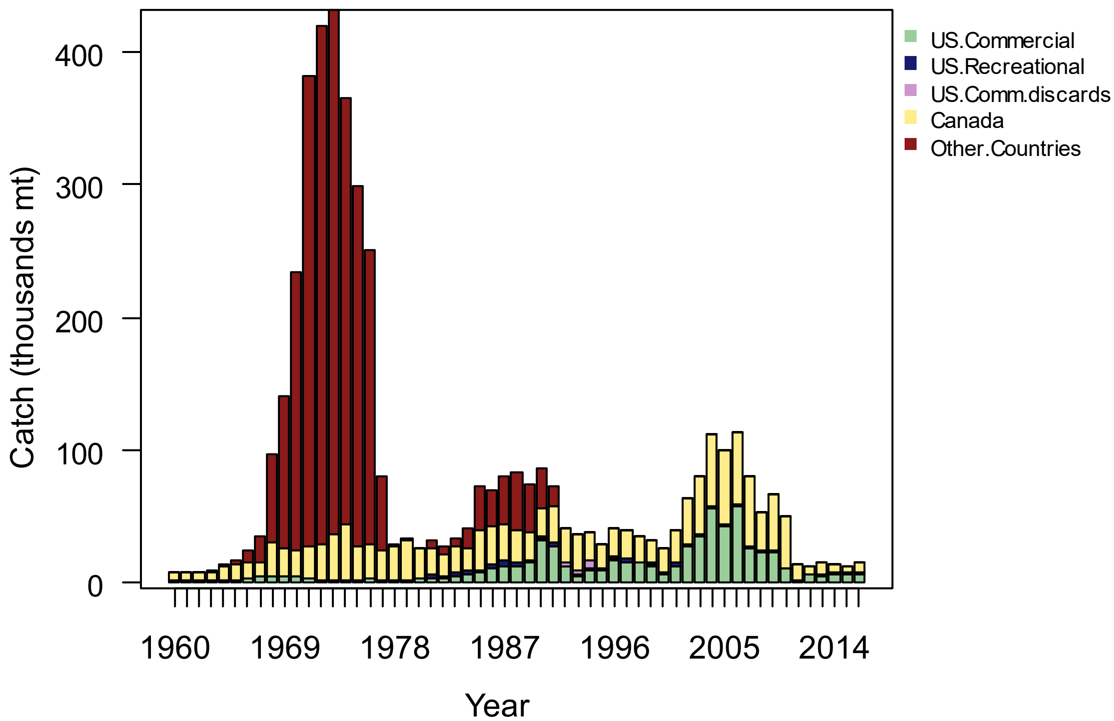

Figure A2: Total catch of Atlantic Mackerel by all sources from 1960 through 2016. US.Commercial represents U.S. commercial landings, US.Recreational represents U.S. recreational catch (landings plus discards), US.Comm.discards, represents discards by the U.S. commercial fishery, Canada represents Canadian landings (discards are not available), and Other.Countries represents landings by all other countries.

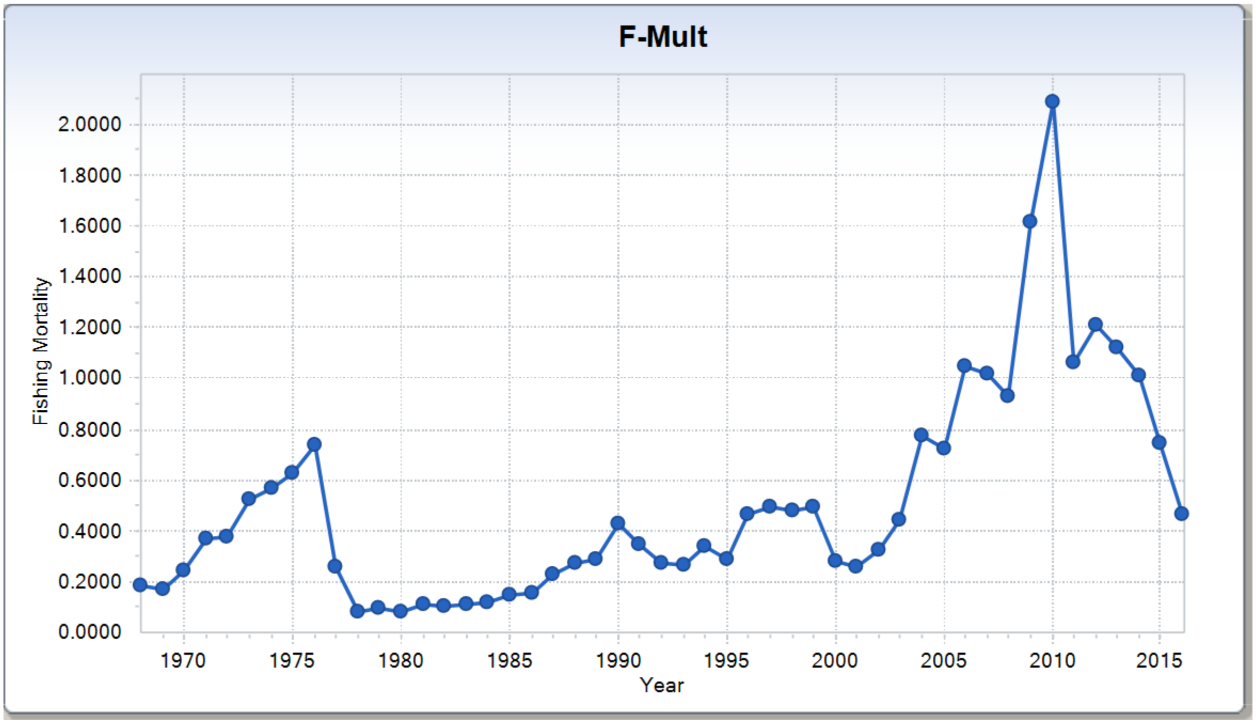

Figure A3: Estimates of Atlantic Mackerel fishing mortality from 1968-2016.

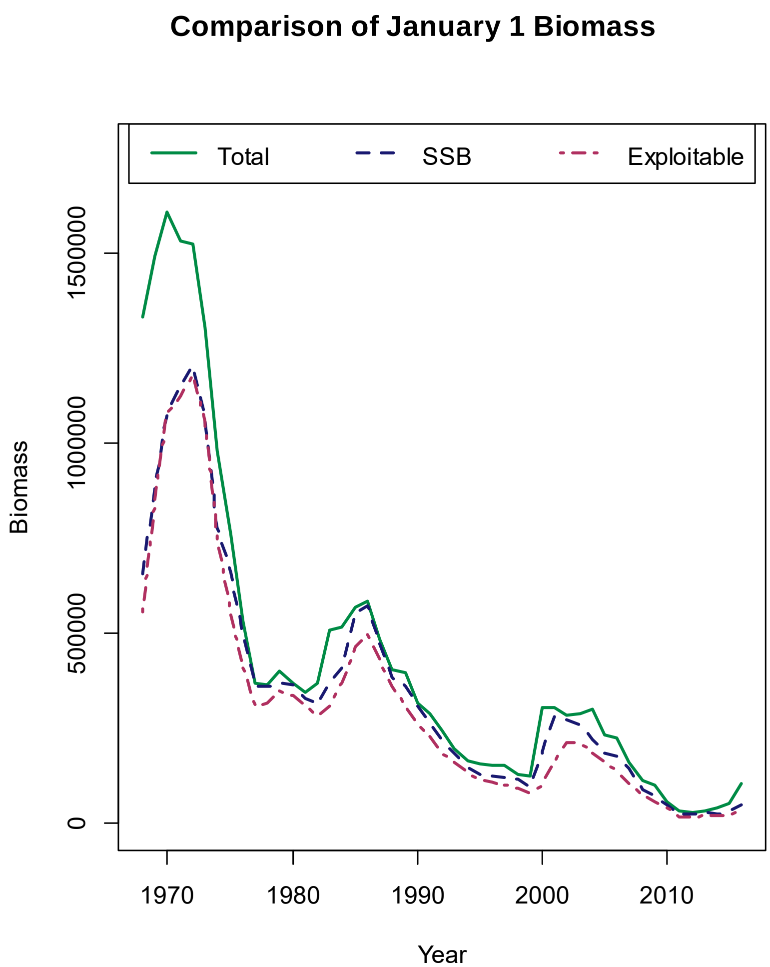

Figure A4: Atlantic Mackerel total, spawning stock and exploitable biomass estimates between 1968-2016.

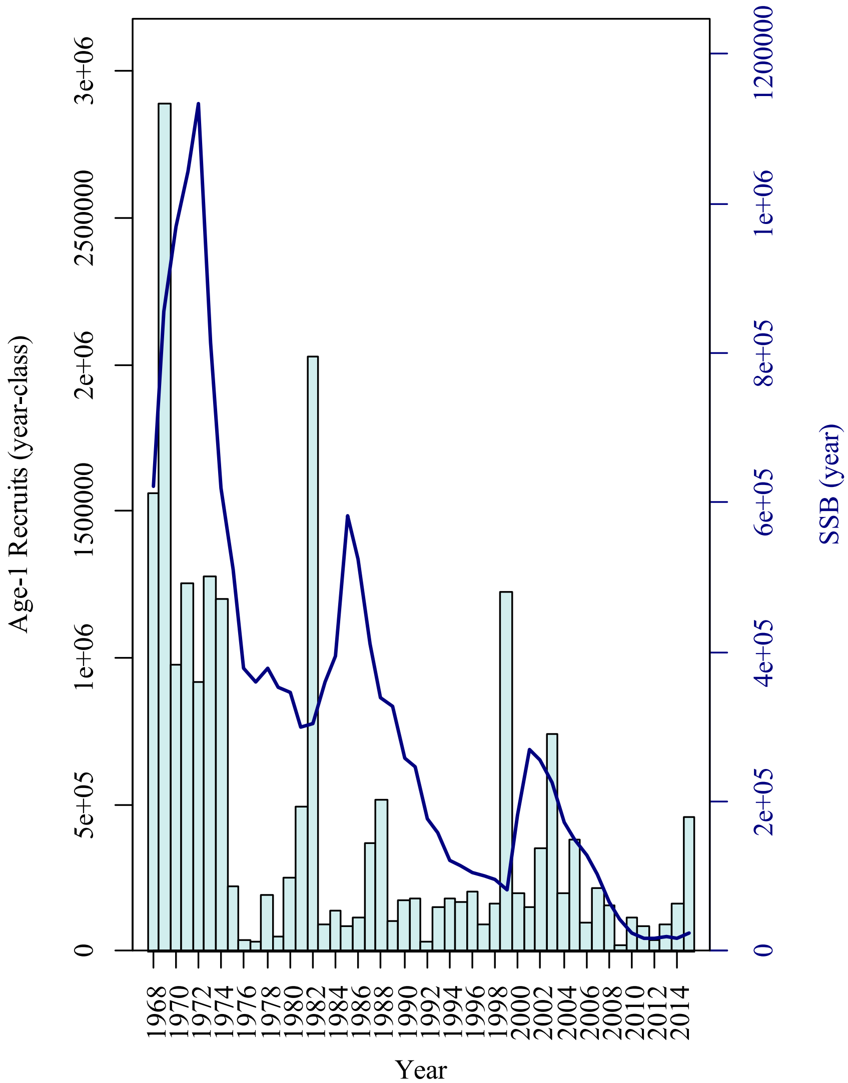

Figure A5: Estimates of Atlantic Mackerel spawning stock biomass (solid blue line) and lagged age-1 recruitment (light blue bars) from the final ASAP model.

Appendix

Stock Assessment Terms of Reference for SAW/SARC-64, Nov. 28-30, 2017

A. Atlantic mackerel (NAFO Subareas 3-6)

1. Spatial and ecosystem influences on stock dynamics:
   a. Evaluate possible spatial influences on the stock dynamics. Recommend any need to modify the current stock definition for future stock assessments.
   b. Describe data (e.g., oceanographic, habitat, or species interactions) that might pertain to Atlantic mackerel distribution and availability. If possible, integrate the results into the stock assessment (TOR-4).

2. Estimate catch from all sources including landings and discards. Describe the spatial and temporal distribution of landings, discards, and fishing effort. Characterize the uncertainty in these sources of data.

3. Evaluate fishery independent and fishery dependent indices being used in the assessment (e.g., indices of relative or absolute abundance, recruitment, state surveys, age-length data, etc.). Characterize the uncertainty and any bias in these sources of data.

4. Estimate annual fishing mortality, recruitment and stock biomass (both total and spawning stock) for the time series, and estimate their uncertainty. Develop alternative approaches which might also be able to estimate population parameters. Include a comparison of new assessment results with those from previous assessment(s).

5. State the existing stock status definitions for “overfished” and “overfishing”. Then update or redefine biological reference points (BRPs; point estimates or proxies for B_{MSY}, $B_{THRESHOLD}$, F_{MSY} and MSY) and provide estimates of their uncertainty. If analytic model-based estimates are unavailable, consider recommending alternative measurable proxies for BRPs. Comment on the scientific adequacy of existing BRPs and the “new” (i.e., updated, redefined, or alternative) BRPs.

6. Make a recommended stock status determination (overfishing and overfished) based on new results developed for this peer review. Include qualitative written statements about the condition of the stock that will help to inform NOAA Fisheries[a] about stock status.

7. Develop approaches and apply them to conduct stock projections.
   a. Provide numerical annual projections (3 years) and the statistical distribution (e.g., probability density function) of the catch at F_{MSY} or an F_{MSY} proxy (i.e. the overfishing level, OFL) (see Appendix to the SAW TORs). Each projection should estimate and report annual probabilities of exceeding threshold BRPs for F, and probabilities of falling below threshold BRPs for biomass. Use a sensitivity analysis approach in which a range of assumptions about the most important uncertainties in the assessment are considered (e.g., terminal year abundance, variability in recruitment).

b. Comment on which projections seem most realistic. Consider the major uncertainties in the assessment as well as sensitivity of the projections to various assumptions. Identify reasonable projection parameters (recruitment, weight-at-age, retrospective adjustments, etc.) to use when setting specifications.
c. Describe this stock's vulnerability (see "Appendix to the SAW TORs") to becoming overfished, and how this could affect the choice of ABC.

8. Review, evaluate and report on the status of the SARC and Working Group research recommendations listed in most recent peer reviewed assessment and review panel reports. Identify new research recommendations.

[a]NOAA Fisheries has final responsibility for making the stock status determination based on best available scientific information.

Appendix to SAW TORs: Clarification of Terms used in the SAW Terms of Reference

On "Acceptable Biological Catch" (DOC National Standard Guidelines Federal Register 74 (11), 1-16-2009):

Acceptable biological catch (ABC) is a level of a stock or stock complex's annual catch that accounts for the scientific uncertainty in the estimate of Overfishing Limit (OFL) and any other scientific uncertainty…" *(p. 3208) [In other words, OFL ≥ ABC.]*

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 in the rebuilding plan. *(p. 3209)*

NMFS expects that in most cases ABC will be reduced from OFL to reduce the probability that overfishing might occur in a year. (p. 3180)

ABC refers to a level of ''catch'' that is ''acceptable'' given the ''biological'' characteristics of the stock or stock complex. As such, Optimal Yield (OY) does not equate with ABC. The specification of OY is required to consider a variety of factors, including social and economic factors, and the protection of marine ecosystems, which are not part of the ABC concept. (p. 3189)

On "Vulnerability" (DOC National Standard Guidelines Federal Register 74 (11), 1-16-2009):

"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 Maximum Sustainable Yield (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)." (p. 3205)

Participation among members of a Stock Assessment Working Group:

Anyone participating in SAW meetings that will be running or presenting results from an assessment model is expected to supply the source code, a compiled executable, an input file with the proposed configuration, and a detailed model description in advance of the model meeting. Source code for NOAA Toolbox programs is available on request. These measures allow transparency and a fair evaluation of differences that emerge between models.

Guidance to SAW WG about "Number of Models to include in the Assessment Report":

In general, for any TOR in which one or more models are explored by the WG, give a detailed presentation of the "best" model, including inputs, outputs, diagnostics of model adequacy, and sensitivity analyses that evaluate robustness of model results to the assumptions. In less detail, describe other models that were evaluated by the WG and explain their strengths, weaknesses and results in relation to the "best" model. If selection of a "best" model is not possible, present alternative models in detail, and summarize the relative utility each model, including a comparison of results. It should be highlighted whether any models represent a minority opinion.

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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: March 29, 2018

To: Council

From: Jason Didden

Subject: MSB Issues, Tab 2

This Tab contains several memos and communications from the public, described below:

1st Memo, page 2: Mackerel Rebuilding Framework Action (Framework Meeting 1).

2nd Memo, page 11: 2018 Mackerel closure and Atlantic Herring interaction issue, possible emergency action, with related public comments (page 13) attached.

3rd Memo, page 19: Trimester 2 longfin squid closure timing issue, possible emergency action.

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Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: March 29, 2018

To: Council

From: Jason Didden, Staff

Subject: Mackerel Action (Probably Framework); Framework Meeting 1

Introduction

A recent assessment found Atlantic mackerel ("mackerel" hereafter) to be overfished with overfishing occurring (official status change pending). The Magnuson–Stevens Fishery Conservation and Management Act (MSA) requires rebuilding to "be as short as possible, taking into account the status and biology of any overfished stocks of fish, the needs of fishing communities, recommendations by international organizations in which the United States participates, and the interaction of the overfished stock of fish within the marine ecosystem" and to "not exceed 10 years, except in cases where the biology of the stock of fish, other environmental conditions, or management measures under an international agreement in which the United States participates dictate otherwise." Current projections suggest that due to a strong incoming year class (hatched in 2015), mackerel can rebuild as soon as 2021, though recruitment at the end of a time series is typically one of the most uncertain outputs of assessments. Assuming a rebuilding action is implemented in early 2019, then 10 years would be 2028 and would be the standard maximum for a rebuilding plan. This framework action[1] will present alternatives with the purposes of rebuilding the mackerel stock with associated management measures (including 2019-2021 specifications), as well as setting the river herring/shad (RH/S) cap for the mackerel fishery. The goal of the first framework meeting is to identify a clear range of alternatives and identify preliminary preferred alternatives if possible.

Background

The mackerel stock was assessed in 2017 with 2016 as the terminal year of data. The summary report and reviewer reports have been posted to the Northeast Regional Stock Assessment Workshop (SAW) report webpage: https://www.nefsc.noaa.gov/saw/reports.html. The full assessment report should be posted there in April 2018. $F_{40\%}$ was recommended as

[1] The Mackerel, Squid, and Butterfish (MSB) Fishery Management Plan (FMP) allows that "any management measures currently included in the FMP" may be adjusted via a framework action unless they "require significant departures from previously contemplated measures."

the proxy for F_{MSY} (fishing mortality at "maximum sustainable yield") and was estimated to be 0.26[2]. Fishing mortality (F) in 2016 was estimated to be 0.47, so overfishing was occurring in 2016. The 2016 spawning stock biomass (SSB) was estimated to be 43,519 metric tons (MT), or 22% of the SSB target so mackerel is "overfished" (below 50% of the target). The target is the SSB associated with the F_{MSY} proxy or "$SSBmsy_{proxy}$," and is estimated to be 196,894 MT. Once rebuilt, the MSY_{proxy} is estimated to be 41,334 MT (combined U.S. and Canadian catch). Landings in the early 1970s peaked at over 400,000 MT/year, but are believed to have been driven by recruitment not representative of current conditions.

The alternatives in this document seek to rebuild mackerel to $SSBmsy_{proxy}$ as defined in the recent mackerel assessment (196,894 MT). The Council's Ecosystem Approach to Fisheries Management (EAFM) Guidance Document states "It shall be the policy of the Council to support the maintenance of an adequate forage base in the Mid-Atlantic to ensure ecosystem productivity, structure and function and to support sustainable fishing communities" and "the Council could adopt biological reference points (overfishing levels or OFL) for forage stocks that are more conservative than the required MSA standard of Fmsy." Acknowledging that the science to evaluate the biological and socioeconomic tradeoffs of more precautionary management is lacking, the Council adopted a policy that it would promote data collection and development of analyses to get to the point where the Council could evaluate the relevant tradeoffs and "establish an optimal forage fish harvest policy."

Views vary on the precaution inherent in using the recommended $F_{40\%}$ as a proxy for F_{MSY} (and for the resulting $SSBmsy_{proxy}$ target). Clark 1993, Mace 1994, Gabriel and Mace 1999, and Legault and Brooks 2013 generally recommended $F_{40\%}$ for typical stocks. Clark 2002 notes that for typical stocks, fishing at $F_{40\%}$ would be expected to result in a target biomass that is 20%-35% of an unfished biomass. Pikitch et al 2012 recommended more conservative approaches for forage species to support predators, and this has spawned ongoing debate (e.g. Hilborn et al 2017 to the contrary). Staff notes that once the stock is rebuilt, the Council's risk policy already produces catches less than catch at the $Fmsy_{proxy}$, which should maintain biomass above the target $SSBmsy_{proxy}$. If the Council establishes an optimal forage fish harvest policy in the future then the mackerel biological reference points could be reconsidered.

Draft Alternatives for Consideration

Four rebuilding options are presented below. All are influenced strongly by the indications of 2015 being a good year class, and all projections have SSB increasing from 43,519 MT in 2016 to above 160,000 in 2019 MT based on the 2015 year class working into the population. The projections also assume generally typical recruitment occurs after 2015 (sampled from 1975-2016 observed/estimated recruitment).

[2] F40% was selected as a proxy for F_{MSY} due to consistency with the Canadian reference point and ability to prevent stock collapse for stocks with similar life histories. F40% produces 40% of the "spawning stock biomass per recruit" (equivalent to lifetime egg production) relative to an unfished condition.

The MSA typically allows up to a 10-year rebuilding timeline. In this case, a 10-year plan only provides slightly more ABC (2% more in 2019) than the 7-year timeline, so it would be hard to justify that 7 years wouldn't be as short as possible (with accounting for the various factors listed in the introduction) especially given the upward trend in possible catches. Accordingly, only timeframes up to 7 years are recommended by staff for further development.

The Council's current risk policy states that the SSC should provide Acceptable Biological Catches (ABCs) that are the lesser of rebuilding ABCs or standard risk policy (P*) ABCs. In the first two options below, the existing risk policy would be maintained, and the SSC would recommend a relatively low P* ABC even if the Council selects a 10-year rebuilding timeline. Accordingly, under the current risk policy, in May 2018 the SSC is likely to recommend a P*-based ABC that is similar to either Option 1 or Option 2 (but the SSC could also do something different based on its evaluation of the new mackerel assessment). In Option 3 or Option 4, the Council would amend its risk policy to indicate that in this case of mackerel rebuilding, the risk policy of the Council is changed to just use a 5-year (Option #3) or 7-year (Option #4) rebuilding timeline, and the catches below are those predicted to rebuild in 5 years or 7 years based on the recent assessment and associated projections. Staff would ask the SSC to provide contingent rebuilding ABCs for these options in case the Council choses to change its risk policy.

***Option #1*: Mackerel Rebuilding, 10 year, no change to risk policy**, lower P* will prevail, use 100% CV, atypical species (actually projected to rebuild in 3 years – 104% of SSB target in 2021)

Option #1 ABCs
2019- 17,430 MT (24% probability of overfishing, F = .14)
2020- 27,955 MT (29% probability of overfishing, F = .19)
2021- 29,740 MT (34% probability of overfishing, F = .18)

***Option #2*: Mackerel Rebuilding, 10 year, no change to risk policy**, lower P* will prevail, use 60% CV, typical species (actually projected to rebuild in 3 years – 100% of SSB target in 2021)

Option #2 ABCs
2019- 22,577 MT (27% probability of overfishing, F = .14)
2020- 28,805 MT (33% probability of overfishing, F = .14)
2021- 34,167 MT (38% probability of overfishing, F = .14)

***Option #3*: Mackerel Rebuilding, 5 year, change risk policy** to use this 5 year rebuilding plan at this time. (projected to rebuild in 5 years – 100% of SSB target in 2023). **Staff recommends Option #3 as a preliminary preferred alternative.** In 2021, when setting specifications for 2022-2024, staff will use updated information, and hopefully an updated assessment, to make new projections. The Council could continue with any specifications that avoid overfishing, rebuild by the original 10-year deadline (2028), and are consistent with the SSC's recommendations given the Council's risk policy.

Option #3 ABCs

2019- 29,184 MT (rebuilding F=.237)
2020- 32,480 MT (rebuilding F=.237)
2021- 35,195 MT (rebuilding F=.237)

***Option #4*: Mackerel Rebuilding, 7 year, change risk policy** to use this 7 year rebuilding plan at this time. (projected to rebuild in 7 years – 100% of SSB target in 2025). In 2021, when setting specifications for 2022-2024, staff will use updated information, and hopefully an updated assessment, to make new projections. The Council could continue with any specifications that avoid overfishing, rebuild by the original 10-year deadline (2028), and are consistent with the SSC's recommendations given the Council's risk policy.

Option #4 ABCs
2019- 30,868 MT (rebuilding F=.252)
2020- 34,016 MT (rebuilding F=.252)
2021- 36,551 MT (rebuilding F=.252)

As noted above, staff recommends Option #3 and recommends that the Council identify it as a preliminary preferred if the Council concurs. Option #3 is recommended by staff because it will allow the fishery to take advantage of the building biomass, but still rebuilds the fishery in a relatively short time given the various assumptions used in the projections. It would also allow the Council some flexibility to reconsider the rebuilding timeline when specifications are set in 2021 for 2022 and beyond.

For the 2nd (and final) framework meeting (August 2018), staff would develop and describe all of the various specifications and management measures needed for all options requested by the Council for 2019-2021. In this memo (see below), staff describes the current 2018 measures and how the ABCs in Option 3 could translate into the additional specifications and measures used in managing mackerel for 2019. The current measures are also described. Given the assessment and recent catches, some of the suggested approaches differ from past years. An FMAT is being formed and will analyze Options 1-4 and/or others identified by the Council for 2019-2021. The MSB AP is meeting April 13 and will provide additional input regarding this action. A meeting of the RH/S Advisory Panel will also be scheduled. Final action is anticipated in August 2018.

Current Measures

The current overall ABC is 19,898 MT. 8,889 MT (45%) is set aside to cover Canadian catches (this was set before Canada increased its quota to 10,000 MT). This leaves 11,009 MT for the U.S. ABC/ACL. This is split 6.2% recreational (683 MT) and 93.8% commercial (10,327 MT). As mentioned previously by the MSB Monitoring Committee, recreational catches have been exceeding their allocation but are difficult to control federally. 10% of the commercial allocation is set aside as a management uncertainty buffer for an annual catch target (ACT) of 9,294 MT. 1.26% of the ACT is set aside for discards, leaving 9,177 MT for landings or "domestic annual harvest (DAH)" (20.2 million pounds). The directed fishery closes at 95% of the DAH, and then a 20,000 pound trip limit is implemented for limited access permits. Incidental permits have a 20,000 pound trip limit regardless of fishery closure status. Limited access permits consist of 3 categories, Tier 1 with no initial trip limits, Tier 2 with 1 135,000-pound initial trip limit, and Tier 3 with a 100,000-pound initial trip limit. To restrict Tier 3 participants to their historical participation levels, they become restricted to a 20,000 pound trip limit if they catch 7% of the DAH – this is a limit for them and not a set-aside. Additional details can be found at https://www.greateratlantic.fisheries.noaa.gov/sustainable/species/msb/index.html#el111022. At

100% of the DAH possession is prohibited in federal waters. The current regulations suggest that encountering any mackerel after 100% of the DAH has been caught could be a violation, but preliminary research by GARFO indicates that a past regulation "clean-up" may have inadvertently changed the intent of this regulation, and the correct intent is to prohibit possession (GARFO can issue a regulatory correction). This will be discussed more at the April 2018 Council meeting. See also the separate memo on mackerel-herring issues later in this briefing book section. The RH/S cap can also close the directed mackerel fishery as has occurred in 2018.

Illustration of 2019 Mackerel Management Measures Under Option #3

**Option #3 total ABC for 2019 = 29,184 MT. (From previous page)

U.S. ABC

The Mackerel, Squid, and Butterfish Fishery Management Plan requires Canadian catch to be deducted from the total ABC. The 2017 Canadian quota was 10,000 MT, a 2,000 MT increase from 2016. From 2012-2017 (2017 preliminary) the median proportion of catch from Canada was 51.8% of catch. 2012 was chosen as the starting point to evaluate catch proportions because 2011 was an unusually low year for U.S. catches. Canadian quotas have been increasing in recent years, and if the U.S. increases ABCs then it seems likely that Canada will follow suit. Accordingly, staff recommends setting aside half (50%) of each year's ABC for Canadian catch. This may create some normative pressure for Canada to limit their quota increases – there is currently no formal resource sharing agreement. This approach would leave 14,592 MT for the U.S. ABC.

**Option #3 total U.S. ABC for 2019 = 14,592 MT = Annual Catch Limit (ACL)

Recreational and Commercial Allocations

Currently the recreational fishery is allocated 6.2%, which would be 905 MT. The total median recreational catch 2013-2017 has been 1,209 MT (range of 767 MT to 1,611 MT). However only 8%-26% comes from federal waters and could be impacted by federal regulations. Closing federal waters could drive more recreational catch into state waters and not impact total catch. Given the lack of control over this fishery, staff recommends moving from a percentage allocation to a deduction of 1,209 MT for total recreational catch to avoid substantial ACL overages. The higher than assumed recreational catch has not caused overall ACL overages in recent years due to the low commercial catches.

**Option #3 Recreational Allocation = 1,209 MT and Commercial Allocation = 13,383 MT

Annual Catch Target (ACT) and Domestic Annual Harvest (DAH, i.e. landings)

There is currently a 10% management uncertainty buffer, which would amount to 1,338 MT, or almost 3 million pounds. This buffer has been maintained primarily to address the uncertain ability of NMFS to close this fishery at an exact amount, given the fishery can produce over 4,000 MT of mackerel a week during a good season (e.g. 2006). Uncertainty in discards and possible misreporting (especially in the herring fishery) may also contribute to management uncertainty but probably to a lesser degree. Because of other measures described below, staff recommends this buffer be reduced to 3%, or 401 MT (about 885,000 pounds) in 2019, leaving 12,982 for the Annual Catch Target (ACT). DAH (landings) is the ACT minus expected discards. 2012-2016 discards accounted for 0.37% of catch, leaving 12,933 MT for DAH.

**Option #3 Commercial Annual Catch Target (ACT) = 12,982 MT, landings or Domestic Annual Harvest (DAH, i.e. landings) = 12,933 MT.

Within-year DAH Usage

The possibility of a total mackerel closure in 2018 is causing substantial concern about possible effects on the herring fishery. As such, staff recommends that trip limits between 20,000 pounds and 40,000 pounds trip be considered for implementation for limited access permits at 85% and 80% of the DAH respectively, or 10,993 MT and 10,347 MT. Trips above 20,000 pounds accounted for 81% of landings 2015-2017 and trips above 40,000 pounds accounted for 79% of landings. The trip limits should slow the fishery down early enough to avoid the requirement for such a high management uncertainty buffer, allow some quota to last longer in the year, and minimize mackerel discarding during herring fishing. There would be 2,328 MT of quota in a 40,000 pound trip limit option (enough for 128 trips at 40,000 pounds). Or there would be 1,682 MT of quota in a 20,000 pound trip limit option (enough for 185 trips at 20,000 pounds).

To further control landings, staff also suggests consideration of lowering the trip limit for incidental permits to 5,000 pounds once the above 85% or 80% trigger is hit.

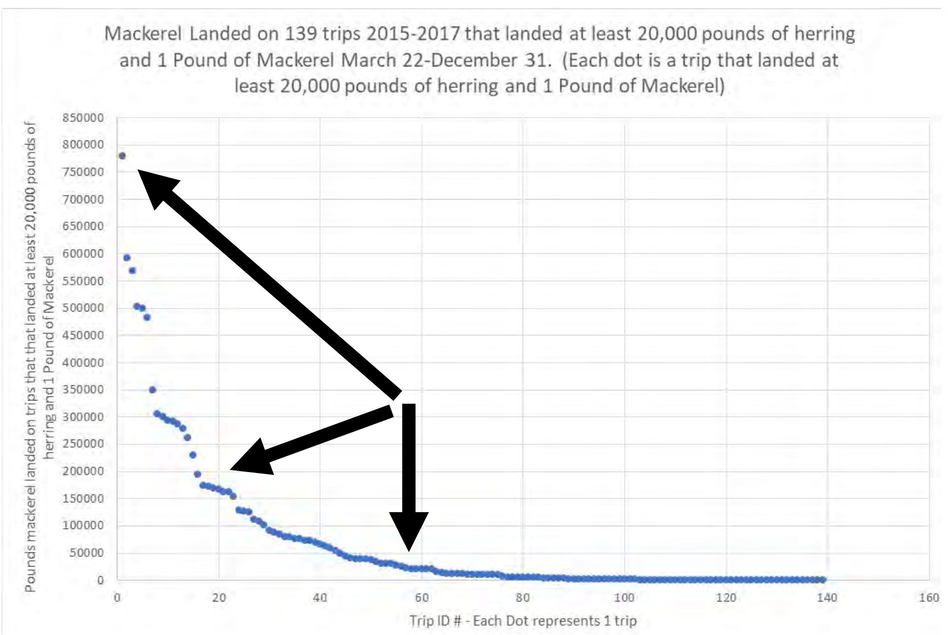
At 98% of the DAH (12,675 MT) a 5,000 pound trip limit would be implemented to cover remaining incidental catches. Landings after 98% of the DAH at 5,000 pounds would be expected to be relatively low and there would still be a 3% management uncertainty buffer to cover any ACT overages. The system described above would be somewhat experimental and would likely need future adjusting related to achieving but not exceeding the ACT. Any ACL overages would have to be paid back the following year but should not be substantial given the stepped limits described above.

Recent history may provide a rough idea of how 2018 may proceed for the mackerel fishery, and how the above stepped system may perform. There is also another memo in this tab that considers 2018 issues more directly.

For data reported through 03/21/2018, 89% of the mackerel quota had been landed. The fishery was closed on February 27, 2018 due to the RH/S cap being reached. Based on 2018 landings to date and 2015-2017 landings later in each year, and setting all trips that were over 20,000 pounds to 20,000 pounds, one would expect the mackerel fishery to reach 100% of its quota (and go to a zero possession limit in federal waters) at some point in November. At the current 20,000 pound trip limit, an additional 500 MT of DAH might avoid any 2018 total closure based on 2015-2017 average monthly landings (or 250 MT if the trip limit in November and December was 5,000 pounds). Alternatively, having a 5,000 pound trip limit instead of a zero trip limit starting in November would be predicted to cause less than a 250 MT ACT overage, which could be absorbed by the current 1,033 MT management uncertainty buffer. However, it is somewhat difficult to accurately predict performance since there has never been a 20,000 trip limit in effect for mackerel. In addition, recent small-scale directed fishing in November-December by incidental permit holders within the 20,000 pound trip limit complicates predicting landings for the remainder of 2018 because they will be unaffected by the current directed fishery closure until 100% of the quota is landed.

The interaction between herring and mackerel landings can also be examined. For all landings 2015-2017, trips with more than 20,000 pounds of mackerel only accounted for 7.5% of all herring landings. The figure below illustrates how much mackerel has been caught on the 139 trips 2015-2017 that reported at least 20,000 pounds of herring and 1 pound of mackerel from March 22-December 31 over those years. Most herring trips with at least 20,000 pounds of herring landed little or no mackerel. 57 did have more than 20,000 pounds of mackerel (see arrows in the figure below) and could have had regulatory discarding issues with a 20,000 pound trip limit, though some of those trips may not have occurred if a mackerel trip limit of 20,000 pounds had been in place.

Figure 1. Mackerel landings on herring trips.



<u>River Herring and Shad (RH/S) Cap</u>

The current RH/S cap is 82 MT, with a mackerel DAH of 9,177 MT. To maintain a consistent incentive for the fishery to avoid RH/S, staff recommends the RH/S cap continue to be scaled down or up with the DAH. Also, if the DAH is above 10,000 MT, the trigger previously used for DAH's above 10,000 MT could be used. Under Option #3, the DAH (12,933 MT) is 40.9% higher than the current DAH (9,177 MT), so the scaled RH/S cap would be 116 MT. With the trigger, when landings are below 10,000 MT an 89 MT RH/S cap would apply (same as 2015) and only if landings surpass 10,000 MT would the RH/S cap be increased to 116 MT. The current RH/S cap of 82 MT scales to 89 MT as 9,177 MT scales to 10,000 MT (both ending numbers are 8.5% higher than the starting numbers) and the same applies for scaling up to Option 3's DAH (both ending numbers are 40.9% higher than the starting numbers). The trigger is designed to maintain a strong incentive to avoid RH/S even at low landings levels. Based on past performance, some RH/S cap closures would continue to be expected. Since the cap is independent of RH/S abundance, if RH/S decline in abundance it will be easier to stay within the cap, and if they increase in abundance it will be more difficult to stay within the cap. There are no paybacks for exceeding the cap (the cap has no absolute biological basis). The cap does create an incentive to avoid RH/S because the full mackerel quota can only be harvested if RH/S bycatch rates are relatively low compared to 2005-2012 bycatch rates. The table below summarizes the performance of mackerel's RH/S cap 2015-2018.

Table 1. Mackerel Fishery River Herring/Shad Catch Cap Performance, 2015-2018[1]

Catch Cap	Year	Permit Count	Trip Count	RHS Catch Rate[2]	Est. RHS (mt)	Herring (mt)	Mackerel (mt)	Total catch (mt)	Observed Trips	CV[4]	Coverage Percent
RHS Mackere	2015	13	55	0.1%	12	3,564	4,591	8,739	4	0.23	7%
	2016	13	55	0.1%	13	5,684	4,599	10,436	13	0.68	24%
	2017	17	71	0.3%	39	6,360	5,822	12,396	17	0.38	24%
	2018[1]	12	57	0.9%	109	3,891	7,944	12,130	4	0.34	7%

[1] - 2018 data are preliminary.
[2] - RHS catch rate used to extrapolate RHS catch. Phased-in transition rates using some data from the previous year are used when < 5 observed trips occur.
[3] - Coefficient of Variation (CV) of in-season observed trips.

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MEMORANDUM

Date: March 29, 2018

To: Council

From: Jason Didden

Subject: Atlantic Mackerel-Atlantic Herring Issue (2018)

The possibility of a total mackerel closure in 2018 is causing substantial concern about possible effects on the herring fishery. The current regulations suggest that encountering any mackerel after 100% of the quota has been caught could be a violation, but preliminary research by GARFO indicates that a past regulation "clean-up" may have inadvertently changed the intent of this regulation, and the correct intent is to only prohibit possession (GARFO can issue a simple regulatory correction to fix this).

This correction would not totally address whether operationally the herring fishery can occur without being able to possess any mackerel, and other analyses in this tab indicate that there is mixed catch. Comments from some herring fishery participants (attached following this memo) indicate that their fishery cannot operate without allowing some incidental mackerel retention.

Based on 2015-2017 landings, and setting all post March 21 trips (after the last quota update) that were over 20,000 pounds to 20,000 pounds, we expect the mackerel fishery to reach 100% of its quota (and go to a zero possession limit in federal waters) at some point in November 2018 (if the 2018 fishery operates in a manner similar to recent years).

For landings after March 21 in those years, only 7% of total herring landings occurred on trips that also landed more than 5,000 pounds of mackerel, so it appears that a 5,000 pound trip limit would cover most herring landings. If the mackerel trip limit went to 5,000 pounds in November and December, one would expect approximately a 250 MT landings quota overage (again based on 2015-2017 landings), which could be absorbed by the current 1,033 MT management uncertainty buffer. Early fall landings are relatively low and should not cause a substantial ACL overage if the fishery reached 100% of the quota somewhat earlier than expected (i.e. before November 1) and then still went to a 5,000 pound trip limit. Preliminary analyses of portside sampling data from the State of Maine also support that a trip limit of 5,000 pounds would cover most herring trips in Areas 1A and 1B. As described in attached public comments, there is also concern that a zero-possession limit would heavily impact mid to late season small-scale participants.

Measures considered for a mackerel framework (see other memo in this briefing book section) should address the issue for future years but cannot in 2018. The criteria for NMFS to take emergency action, which could affect 2018, are (Policy Directive 01-101-07):

Emergency Criteria

The phrase "an emergency exists involving any fishery" is defined as a situation that:

1. **Results from recent, unforeseen events or recently discovered circumstances; and**
2. **Presents serious conservation or management problems in the fishery; and**
3. **Can be addressed through emergency regulations for which the immediate benefits outweigh the value of advance notice, public comment, and deliberative consideration of the impacts on participants to the same extent as would be expected under the normal rulemaking process.**

The understanding of the potential impact to the Atlantic herring fishery of a 100% mackerel closure is recent (this is the first closure in modern management) and unforeseen based on the impact analyses in the last mackerel specifications Environmental Assessment. The relatively high landings in early 2018 were also a recent circumstance. Given the substantial interaction between mackerel and herring, serious management problems seem likely. Given the mackerel ACL would not be expected to be exceeded with the 5,000 pound trip limit discussed above and would facilitate operation of the herring fishery, it would appear the benefits of emergency action could outweigh the value of using the normal rulemaking process (preserving economic opportunity is included in the list of justifications for emergency actions).

Depending on the Council's preference, a possible emergency action request could be to change the mackerel trip limit to 5,000 pounds on November 1, or when the mackerel quota reaches 100% if that occurs sooner than November 1. There is also a possibility of using an in-season action by NMFS to accomplish the same goal, and this will be discussed further at the April 2018 Council meeting.

5 public comments received for briefing book (i.e. by 3/28/18)

1. Michael Pratt, F/V PERFECT C's

March 26, 2018

Council Meeting Public Comment: Atlantic Mackerel and Squid Issues

Dear Dr. Moore,

My name is Michael Pratt, and I am a full-time commercial fisherman, and the owner and operator of the 42' F/V PERFECT C's out of Marshfield, MA.

Thank you, and the other council members for giving me the opportunity to share my concerns.

One hundred percent of my income is from commercial fishing. Over the last seven years, approximately 75% of my earnings are from hook and line fishing for mackerel. From May 1st through the end of December, the only species we target are mackerel. We work hard to provide a steady daily supply of sushi grade mackerel to a large number of small markets. Generally, September through December are my most profitable months, this is due to the availability of mackerel in near shore waters and the fat content of the mackerels flesh.

The potential early closure of the mackerel fishery would have a devastating affect on me, my crew, and, also those that I do business with.

My vessel has undergone significant changes to be outfitted exclusively for mackerel. Specifically, the boat has modified fish holds that are capable of holding large amounts of refrigerated seawater, a deck-mounted diesel driven RSW system, and a deck-mounted Trans-Vac fish pump. In addition to this, the boat has an array of electronic jigging machines. The downfall to this system is that the equipment is custom and specific for our mackerel fishery, thus making the vessel impractical to use in other fisheries.

One important highlight of the hook and line mackerel fishery is that it is such a clean and sustainable fishery. This is something I am proud to be part of and truly support. We have zero by-catch, zero discard, and zero impact on the seabed. The National Marine Fisheries Service Observer data taken from my vessels dedicated mackerel trips will support this important fact. The latest observed trip on my vessel is recorded under trip id N25042.

My vessel profitably operates on mackerel for a full fishing year on less pounds than a large mid-water trawler lands per trip. We target quality before quantity and we command a higher return price because of that.

There are a lot of conversations about the 2015 year-class supporting the whole fishery. Undoubtedly, the 2015 year-class is huge, and it is for that reason that it is the target for the majority of the high capacity fleet. The fish of this year class have been too small for us to work on, due to the fact that most of our markets want only fish over 300 grams. My point is that there are definitely other older strong year classes of fish available other than 2015. But because of the sheer amount available in the 2015 year-class, they become the most efficient target for the mid-water trawl fleet. It alarms me to think that these may be the only fish sampled and included in the data used to make stock assessments.

Managing a pelagic fishery is very complicated, let alone a fishery like this that has taken a 90% total allowable catch reduction (TAC) over the last eight years. With all of the technology available to the fleet, such as electronic monitoring and electronic catch reporting, we should have been able to avoid a handful of boats landing a years worth of quota in only 8 weeks. It seems quite possible that if the fishery was not closed because of the river herring allowance being reached, we would have exceeded the mackerel TAC with a few more fishing days. This could have potentially ruined the herring fishery for the remainder of 2018, and would have also had a huge impact on the lobster industry as well. The removal of so much forage from one area so quickly leads to the problem known as localized depletion.

As a fisherman I am naturally skeptical of scientific stock assessments. Recently, I learned that managers believe that the recreational fleet may have landed up to 6 million pounds of mackerel last year, and that there is a substantial shore fishery in Massachusetts. I am not aware of any significant shore fisheries in any states. I also believe the data that indicates the recreational sector is responsible for a 6 million pound harvest needs to be examined. I can only account for what I see, and at present, it is a large healthy biomass of all sized mackerel that continue to return year after year. I hope the council and other managers will be able to find a solution to the problem we are facing, something that will satisfy the large and small boat mackerel fisherman. My livelihood depends on this.

The businesses I provide fresh mackerel to count on a steady supply of quality fish. If I am prevented from landing mackerel, they will find a steady supply somewhere else, possibly using farmed fish or buying from Canada. Either way, once I lose my customers, it could be permanent. I have not had a chance to catch my first mackerel for the 2018 season yet, and I am hearing a lot of discussion**s** about setting quota aside to cover dead discards in other fisheries. I really hope managers will make sure that the small amounts of quota I depend on are available to me before setting aside allocations that allow for dead discarded mackerel in other fisheries.

Thank you again for your time and for giving me a voice. Please feel free to contact me directly to discuss this further.

Sincerely,

Michael Pratt

F/V PERFECT C's

781-760-0718

Michaelpratt1@verizon.net

2. Ethan Chase, FV Western Sea

To those concerned on the Mid Atlantic Council, And New England Fisheries Management Council.

All of us on the Herring Seiner FV Western Sea and our fellow seining boats would like to express our concern about the dwindling Mackerel quota.

Herring Seiners catch less then 1% by-catch, including Mackerel and other species. We need to have an incidental by-catch set aside portion of quota for Herring seiners only. If there is no Mackerel quota left and we catch a few we fear our fishery being closed due to the Mackerel quota being at 100% during our short Herring season.

We would like you all to please address our concerns to the Mid Atlantic Counsel who controls the Mackerel Quota.

Thank you for all your work preserving our fishery and the families it supports.
Sincerely, Glenn Robbins, Shaun Rockett, Jeff Mclean, Ethan Chase, Andrew Banow, Neal Herrick, Steven Little, Jason Parent, Paul Judkins, Shane Percy, Ryan Anderson, Glen Lawrence, Ben Banow, Glenn Hall, Cindy Hall, and many more including all of our beloved family members.

This has great effect on all the Herring Seiners, multitudes of bait dealers and all the New England lobsterman. Some of our dealers include Corea Co op, Superior Bait, Capt R Herring, Atwood Lobster, Channel Fish, Coffin Bait, Inland, Robertson Bait, Double Eagle and many, many others.

FV Western Sea
17 Alden Lane
Eliot Maine
03903

3. Barry Matthews FV Ocean Venture

Good Afternoon,
As a herring seiner, I would like to bring to your attention my concerns in regard to the decreasing mackerel quota and subsequent closure of this fishery. As you know if the mackerel fishery reaches 100% it triggers a premature closure of the herring fishery. The by-catch for herring seiners is less than 1% which includes mackerel.

For years the herring harvesters whether it be an A permit, B permit, etc. have been categorized under the same laws and regulations.

I think this is one of many reasons why this has been a mistake, seiners and midwater trawlers fish differently, in different areas, at different times of the year ,so they need to have different set asides. Also, hook boats that go out of Massachusetts and target mackerel in the summer could reach their quota and close our fishery. This is why I feel we need a separate set aside for Seiners for our summer fishery. The Lobster fishery highly depends on herring for a source of bait in the summer and a premature closure in the fishery would be disastrous.

Thank you for your attention on this matter.
Barry Matthews FV Ocean Venture. 21 Sophie Ln., Hampden, ME 04444

4. Mark Bichrest and individuals connected to FV Ruth & Pat

To those concerned on the New England Fisheries Management Council.
All of us on the Herring Seiner FV Ruth & Pat and our fellow seining boats would like to express our concern about the dwindling Mackerel quota.
Herring Seiners catch less then 1% by-catch, including Mackerel and other species. We need to have an incidental by-catch set aside portion of quota for Herring seiners only. If there is no Mackerel quota left and we catch a few we fear our fishery being closed due to the Mackerel quota being at 100% during our short Herring season.
We would like you all to please address our concerns to the Mid Atlantic Council who controls the Mackerel Quota.
Thank you for all your work preserving our fishery and the families it supports.Mark Bichrest, Jennie bichrest, Emily Morse, Robbie Bichrest, Brandon Wyman, Kyle Mcpherson, Buck Alexander, Josh Morse and many more including all of our beloved family members.
FV Ruth & Pat
PO Box 276
Sebasco Estates
ME 04079

5. Christian Berardi, F/V Kathryn T

3/27/18

April 2018 Council Meeting Public Comment: Atlantic Mackerel and Squid Issues:

Dear Dr. Moore,

I would first like to thank you and the other council members for the opportunity to comment and for your time to hear my concerns.

My name is Christian Berardi. I am a commercial fisherman and the owner/operator of the F/V Kathryn T out of Green Harbor, MA. I am writing you to introduce myself and to make my presence known in the Atlantic Mackerel fishery as well as express the impact the fishery has on my business.

As a young fisherman and a newer participant in the fishing industry, the mackerel fishery provides one of the only open access opportunities left. This has been instrumental in my ability to build my business to what it is today, 6 years later. The fishery accounts for 70-100% of my income depending on the year and also allows for a fishing season, which extends from May through December. On top of this I've had the opportunity to develop a secondary business as a bait dealer to the local lobstermen and tackle shops solely because of this open access fishery.

My crew and I fish from a small 38' day trip vessel using hook and line methods, specifically auto-jigging machines. This presents us with the unique opportunity to easily target specific size classes of mackerel as well as reduce by-catch to virtually zero.

Although we are a small vessel, we land a quantity of mackerel from May to December that has fostered new niche markets as well as a sustainable fishing business for a new entrant like me. Last year for example, two thirds of the fish were 300+ gram food grade mackerel sold through a local fish processor. We have been able to build a high-end mackerel market because of the methods we employ as well as the consistent supply we can provide by fishing eight months of the year.

The other third of the mackerel landed was sold as bait to lobstermen and small tackle shops. Our supply of mackerel provides flexibility to the local lobster industry to get fresh bait on demand instead of frozen scheduled deliveries as is typical in our area. We also provide local tackle shops with quality bait for their recreational fishing clientele, which include the numerous tourists that visit our area during the summer months.

As I've expressed in the comments above, the Atlantic Mackerel fishery is vital to my business. Specifically, the small vessel fishery, of which I am a part, has created unique opportunities for me as well as other members of the local fishing industry on both the commercial and recreational sides.

I am aware there are potential issues that may arise for the fishery this year regarding the current level of mackerel landings as well as river herring by-catch. I hope, during your efforts to explore the impacts of any future decisions you and your council make regarding this fishery, that you will take into account not just the impact on the herring fishery or mid-water fleet but also on the small boat fleet such as mine and other commercial fisherman in my situation. If we lose access to this resource it will have a ruinous effect on me, my crew, my partner businesses, and on the market we have worked so hard to build for this valuable and sustainable approach to the mackerel fishery.

I know that you and your team have a difficult job and must weigh the impact on the numerous stakeholders that are affected by any decision you make. I appreciate the forum you have provided to express my comments. I would also welcome you or anyone else involved in the decision making process regarding the mackerel fishery to reach out to me to discuss changes or solutions in the future or if you would like me to provide any documentation and/or helpful information regarding my specific methods or contribution to the fishery.

Sincerely,

Christian Berardi,

F/V Kathryn T

Green Harbor, MA

MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

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: March 29, 2018

To: Council

From: Jason Didden

Subject: Trimester 2 longfin squid closure timing issue

In 2017 the Council voted to reduce the Trimester 2 (May-August) post-closure trip limit from 2,500 pounds to 250 pounds via the Squid Amendment. This was selected as preferred because the Council decided additional post-closure control of the longfin squid fishery was needed during Trimester 2 given several recent substantial Trimester 2 quota overages caused by post-closure landings.

The Environmental Assessment document for this action took staff longer than expected to complete and implementation is expected in the fall of 2018. One potential option to consider regarding Trimester 2 of 2018 is to request that NMFS implement the Council's preferred alternative under emergency rulemaking for 2018 if Trimester 2 closes.

In 2016, after the Trimester 2 closure, longfin squid trips between 250 pounds and 2,500 pounds accounted for 3.4 million pounds yielding $4.1 million. So potentially $4.1 million could be a forgone opportunity in years of high longfin squid abundance during Trimester 2 under this alternative. In 2016, 129 federal permit holders made landings between 250 pounds and 2,500 pounds from June 27 to August 31- these are the type of participants most likely to be affected. Their average longfin squid landings value from those trips was $31,444 while, while their total landings value for 2016 averaged $649,473. Therefore, the affected landings accounted for 5% of these vessels' average total landings value in 2016. There was not a closure in 2017.

There may be a compensating factor regarding this issue and limiting effort in Trimester 2. Effort versus *landings per unit of effort* correlations developed for the Squid Amendment strongly suggest that limiting longfin squid effort in April-September will lead to higher *landings per unit of effort* in the following October-March.

The criteria for NMFS to take emergency action are (Policy Directive 01-101-07):

Emergency Criteria

The phrase "an emergency exists involving any fishery" is defined as a situation that:

1. Results from recent, unforeseen events or recently discovered circumstances; and
2. Presents serious conservation or management problems in the fishery; and
3. Can be addressed through emergency regulations for which the immediate benefits outweigh the value of advance notice, public comment, and deliberative consideration of the impacts on participants to the same extent as would be expected under the normal rulemaking process.

The longer than expected time to submit the Environmental Assessment document for this action was unforeseen. Given the substantial recent overages serious management problems with conservation implications seem possible. Given the current timing of the Amendment, it would appear the benefits of emergency action could outweigh the value of using the normal rulemaking process. While there is no overfishing definition for longfin squid, substantial Trimester 2 overages could potentially damage the fishery resource.

Depending on the Council's preference, a possible emergency action request could be to change the longfin squid post-closure trip limit from 2,500 pounds to 250 pounds for Trimester 2 of 2018.

NOAA Fisheries Announces Emergency Regulations to Address Overfishing of North Atlantic Shortfin Mako Sharks

NOAA's National Marine Fisheries Service (NOAA Fisheries) announces an interim final rule to adopt internationally recommended management measures in the Atlantic highly migratory species (HMS) fisheries. The emergency rule implements management measures to address overfishing of North Atlantic shortfin mako sharks. These measures are based on the International Commission for the Conservation of Atlantic Tuna's (ICCAT's) Standing Committee for Research and Statistics (SCRS) benchmark stock assessment for North Atlantic shortfin mako sharks, which found the stock to be overfished with overfishing occurring.

Who is affected?

- Any commercial fishermen with HMS permits who interacts with shortfin mako sharks.
- Any recreational fishermen who catches or targets shortfin mako sharks.
- Any tournament that has a prize category for shortfin mako sharks.
- Any dealers who buys or sells shortfin mako sharks or products.

What are the measures?

<table>
<tr><th>Commercial Measures</th></tr>
<tr><td>Live release of shortfin mako sharks in the commercial pelagic longline fishery, no landings of shortfin mako sharks by fishermen using other commercial gear types.</td></tr>
<tr><td>The recommendation requires the release of all shortfin mako sharks in a manner that causes the least harm, while giving due consideration to the safety of crew members. Therefore, this emergency rule implements the following measures.
1. Fishermen using pelagic longline gear (who are already required to have a functional electronic monitoring system)
a. Release all live shortfin mako sharks with a minimum of harm, while giving due consideration to the safety of crew members and
b. Retain a shortfin mako shark only if it is dead at haulback.
2. Fishermen using non-pelagic longline commercial gear (e.g., bottom longline, gillnet, handgear, etc) must release all shortfin sharks, alive or dead, with a minimum of harm, while giving due consideration to the safety of crew members.</td></tr>
<tr><th>Recreational Measures</th></tr>
<tr><td>Recreational minimum size limit of 83 inches (210 cm) FL for shortfin mako sharks.</td></tr>
<tr><td>The recommendation requires the release of all shortfin mako sharks in a manner that causes the least harm, while giving due consideration to the safety of crew members. Therefore, this emergency rule implements the following measures.
1. Fishermen that hold an HMS Angling or Charter/Headboat permits, and fishermen that hold Atlantic Tunas General category and Swordfish General Commercial permits when participating in a registered HMS tournament are encouraged to practice catch and release of all shortfin mako sharks.
2. Fishermen that hold the above permits may only land a shortfin mako shark (male or female) if the shark meets the following minimum size: 83 inches (210 cm) FL.</td></tr>
</table>

NOAA Fisheries has been promoting the live release of shortfin mako sharks since 2013 through the "Release Mako" app. It is a free app for mobile devices that allows fishermen to share information about releasing North Atlantic shortfin mako sharks. Download the free Release Mako app.

When will this happen?

Measures are immediately effective on March 2, 2018. These measures are effective for up to 180 days from publication of the emergency rule, with a possible extension of up to 186 days, but are expected to be replaced by measures being considered in a proposed and final regulatory amendment currently under development.

Is there an Environmental Assessment for this emergency rule?

Yes. The Environmental Assessment for the emergency rule is available on the HMS website.

Can I comment on this emergency rule?

Yes. Written comments may be submitted by **May 7, 2018**, to the HMS Management Division by either of the following methods:

- Electronic Submissions: Submit all electronic public comments via the Federal e-Rulemaking portal. Go to *www.regulations.gov/#!docketDetail;D=NOAA-NMFS-2018-0010*, click the ''Comment Now!'' icon, complete the required fields, and enter or attach your comments.
- Mail: Submit written comments to NMFS, Highly Migratory Species Management Division, 1315 East-West Highway, Silver Spring, MD 20910. Mark the outside of the envelope ''Comments on Atlantic Shortfin Mako Emergency Rule.''

Comments sent by any other method, to any other address or individual, or received after the end of the comment period, may not be considered by NOAA Fisheries. All comments received are a part of the public record and will generally be posted for public viewing on www.regulations.gov without change. All personal identifying information (e.g., name, address, etc.), confidential business information, or otherwise sensitive information submitted voluntarily by the sender will be publicly accessible. NOAA Fisheries will accept anonymous comments (enter ''N/ A'' in the required fields if you wish to remain anonymous).

During the comment period, NOAA Fisheries will hold one public hearing for this interim final rule.

Public Hearing – March 7, 2018 from 11:00 a.m. – 12:15 p.m.
HMS Advisory Panel Meeting
Sheraton Silver Spring
8777 Georgia Avenue
Silver Spring, MD 20910

This notice is a courtesy to Atlantic HMS fishery participants to help keep you informed about the fisheries. For further information on these emergency measures, contact the HMS Management Division at (301) 427-8503 or visit the HMS website.

NOAA Fisheries Requests Comments on Options to Address Overfishing of North Atlantic Shortfin Mako Sharks

March 1, 2018

NOAA's National Marine Fisheries Service (NOAA Fisheries) announces its intent to prepare an Environmental Impact Statement (EIS) and Fishery Management Plan (FMP) Amendment to comply with International Commission for the Conservation of Atlantic Tuna (ICCAT) Recommendation 17-08 and address overfishing and establish the foundation for a rebuilding plan for North Atlantic shortfin mako sharks. The measures initially will be implemented through an interim final rule, under the emergency rulemaking authority of section 305(c) of the Magnuson-Stevens Conservation and Management Act (Magnuson-Stevens Act), and the Atlantic Tunas Convention Act (ATCA), 16 U.S.C. 971 et seq. Since the interim final rule may only be effective for up to 366 days, NOAA Fisheries is developing a regulatory amendment to the 2006 Consolidated HMS Fishery Management Plan that will consider and evaluate conservation and management options to address overfishing and to establish a foundation for a rebuilding plan the North Atlantic shortfin mako shark stock when the interim rule has expired.

NOAA Fisheries announces the scoping phase of this rulemaking process. NOAA Fisheries has drafted an issues and options document that summarizes the North Atlantic shortfin mako shark stock assessment and the ICCAT recommendation and offers preliminary ideas on potential management approaches to address overfishing on the stock in order to encourage and initiate public comment. NOAA Fisheries has scheduled the following scoping meetings and conference call to take public comment.

- **Public Scoping Meeting** – March 15, 2018 from 4:00 – 8:00 p.m.
  National Marine Fisheries Service
  Southeast Fisheries Science Center
  3500 Delwood Beach Road
  Panama City, FL 32408

- **Public Scoping Meeting** – March 21, 2018 from 4:00 – 8:00 p.m.
  Commissioners Meeting Room
  Dare County Administration Building
  954 Marshall C. Collins Dr.
  Manteo, NC 27954

- **Conference Call Scoping Meeting** – April 4, 2018 from 2:00 – 4:00 p.m.
  To participate in the conference call, please call: (800) 779-3136
  Passcode: 9421185

To participate in the webinar, RSVP at: https://noaaevents2.webex.com/noaaevents2/onstage/g.php?MTID=e0e45a6863a2dec162452b2b6240ef3e3, A confirmation email with webinar log-in information will be sent after RSVP is registered.

- **Public Scoping Meeting** – April 11, 2018 from 4:00 – 8:00 p.m.
  Little Egg Harbor Branch Public Library
  290 Mathistown Road
  Little Egg Harbor, NJ 08087

- **Public Scoping Meeting** – April 19, 2018 from 5:00 – 8:00 p.m.
  National Marine Fisheries Service
  Grater Atlantic Regional Office
  55 Great Republic Dr.
  Gloucester, MA 01930

Because the rulemakings overlap for some gear types, the public scoping meetings being held in Panama City, FL, Manteo, NC, and Manahawkin, NJ will be held in conjunction with public scoping meetings for pelagic longline bluefin tuna area-based and weak hook management. The shortfin mako shark management measure presentation will likely be given first unless polling of the audience indicates another approach is appropriate. After each presentation, public comment for that issue will be received. Meeting attendees interested in this issue are encouraged to show up at the beginning of the meeting to help determine the order of the presentations. The second presentation will not start any later than 6 pm.

In addition to the four scoping meetings and conference call, NOAA Fisheries has requested to present the issues and options presentation to the five Atlantic Regional Fishery Management Councils (the New England, Mid-Atlantic, South Atlantic, Gulf of Mexico, and Caribbean Fishery Management Councils) and the Atlantic and Gulf States Marine Fisheries Commissions during the public comment period. Please see the Councils' and Commissions' spring meeting notices for times and locations. NOAA Fisheries welcomes additional thoughts and comments on appropriate management measures. The issues and options document is available on the HMS website.

Specifically, NOAA Fisheries requests comments on commercial management options including, but not limited to, the ICCAT recommendations, quota levels, electronic monitoring, minimum sizes, retention restrictions, and prohibited species. In addition, NOAA Fisheries is seeking comments on recreational management options including, but not limited to, retention limits and restrictions, minimum sizes, gear modifications, landings restrictions and prohibited species. NOAA Fisheries also seeks comments on recreational monitoring requirements and the rebuilding program options for shortfin mako sharks. Comments received during scoping will assist NOAA Fisheries in determining the options for future proposed rulemaking to conserve and manage shark resources and shark fisheries, consistent with the Magnuson-Stevens Act and other applicable laws.

Submit Comments by May 7, 2018:

Written comments, identified by "NOAA-NMFS-2018-0011", may be submitted electronically via the Federal eRulemaking Portal, or mail to the contact information included below. All comments received are a part of the public record and will generally be posted to Federal eRulemaking Portal without change. All Personal Identifying Information (for example, name, address, etc.) voluntarily submitted by the commenter may be publicly accessible. Do not submit Confidential Business Information or otherwise sensitive or protected information. NOAA Fisheries will accept anonymous comments (enter N/A in the required fields, if you wish to remain anonymous). You may submit attachments to electronic comments in Microsoft Word, Excel, WordPerfect, or Adobe PDF file formats only.

This notice is a courtesy to Atlantic HMS fishery participants to help keep you informed about the fisheries. For further information on these emergency measures, contact the HMS Management Division at (301) 427-8503 or visit the HMS website.

Issues and Options for

Amendment 11 to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan

March 2018

Highly Migratory Species Management Division
Office of Sustainable Fisheries
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, Maryland 20910

1 Introduction

The National Marine Fisheries Service (NMFS) intends to amend the 2006 Consolidated Atlantic Highly Migratory Species (HMS) Fishery Management Plan (FMP) (Consolidated HMS FMP) to address overfishing of the North Atlantic shortfin mako shark. This document examines potential management options to address overfishing of and begin rebuilding the North Atlantic shortfin mako stock and also requests additional information and input from consulting parties and the public prior to development of a formal Draft Environmental Impact Statement (DEIS) and proposed rule. The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) requires NMFS to "consult with and consider the comments and views of affected Councils, commissions and advisory groups appointed under Acts implementing relevant international fishery agreements pertaining to highly migratory species, and the [HMS] advisory panel in preparing and implementing any fishery management plan or amendment." Therefore, we are starting our scoping stage and requesting comments and views on this Issues and Options document for Amendment 11 to the 2006 Consolidated Atlantic HMS FMP by May 7, 2018. An electronic version of this document is available on the HMS Management Division website at: https://www.fisheries.noaa.gov/topic/atlantic-highly-migratory-species.

In August 2017, the International Commission for the Conservation of Atlantic Tunas (ICCAT) Standing Committee on Research and Statistics (SCRS) conducted a new benchmark stock assessment on the North Atlantic shortfin mako shark stock. In November 2017 at its annual meeting, ICCAT accepted this stock assessment and its results, which indicated that the stock was overfished with overfishing occurring. On December 13, 2017, based on the results of this assessment, NMFS also determined the stock to be overfished with overfishing occurring. Based on the stock assessment, ICCAT adopted new management measures for shortfin mako (Recommendation 17-08), which the United States must implement as necessary and appropriate under the Atlantic Tunas Convention Act (ATCA). NMFS initially implemented these measures through an interim final rule using emergency Magnuson-Stevens Act authority to temporarily and immediately implement commercial and recreational measures. In 2018, ICCAT will review the catches from the first six months of 2018 and decide whether the measures contained in Recommendation 17-08 should be modified. Without implementing the interim final rule, the reported U.S. catch data for the first half of 2018 would reflect catches under the existing management practices, and thus not reflect the true potential of the new measures at addressing overfishing. Any resulting action by ICCAT based on such incomplete information could disadvantage U.S. fishermen. For more details on the stock assessment and recommendation, please refer to the ICCAT website at http://www.iccat.int/.

NMFS is developing Amendment 11 to the 2006 Consolidated Atlantic HMS FMP (Amendment 11) in response to the ICCAT Recommendation and the stock status determination. NMFS anticipates that the proposed rule and DEIS will be available in mid-2018 and the Final Amendment 11 and its related documents will be available in Spring 2019. NMFS requests receipt of any comments on this scoping document by May 7, 2018.

Any written comments on this document should be submitted to Guý DuBeck, HMS Management Division, F/SF1, Office of Sustainable Fisheries, 1315 East West Highway, Silver Spring, MD 20910 or via the Federal e-Rulemaking Portal (*www.regulations.gov/#!docketDetail;D=NOAA-NMFS*-2018-0011) by May 7, 2018. For further information, contact Guý DuBeck or Karyl Brewster-Geisz at (301) 427-8503.

This document includes a summary of the anticipated purpose and need (Chapter 1) of the FMP amendment and tables summarizing the potential environmental, social, and economic impacts of conservation and management options that NMFS is considering at this time (Chapter 2). The options outlined in Chapter 2 may be modified, removed, or supplemented based on any comments received, additional analyses, and other factors, as appropriate.

NMFS specifically solicits opinions and advice on the potential range of options and whether there are additional options that should be addressed and considered in the rulemaking process. Additionally, NMFS solicits opinions and advice on the impacts described for each option.

1.1 Management History

Atlantic HMS fisheries are managed under the dual authority of the Magnuson-Stevens Act and ATCA. HMS fisheries require management at the international, national, and state levels because of the highly migratory nature of the species. NMFS manages HMS fisheries in federal waters (domestic) and the high seas (international), while individual states establish regulations for some HMS in their own waters. However, there are exceptions to this generalization. For example, as a condition of their permit, federally-permitted HMS fishermen are required to follow federal regulations in all waters, including state waters, unless the state has more restrictive regulations, in which case the state laws prevail. Additionally, in 2005, the Atlantic States Marine Fisheries Commission (ASMFC) agreed to develop an interstate coastal shark FMP. This interstate FMP coordinates management measures among all states along the Atlantic coast (Florida to Maine). NMFS participated in the development of this interstate shark FMP, which went into effect in 2010.

On the international level, NMFS participates in the stock assessments conducted by the SCRS and in the annual ICCAT meetings. NMFS implements conservation and management measures adopted through ICCAT and through other relevant international agreements, consistent with specific domestic implementing legislation. ICCAT has assessed the Atlantic blue and the shortfin mako shark stocks, participated with the International Council for the Exploration of the Sea (ICES) on a joint porbeagle assessment, and has conducted several ecosystem risk assessments for various shark species, among other things. Stock assessments and management recommendations or resolutions are listed on ICCAT's website at http://www.iccat.int. As described below, in recent years ICCAT has adopted several shark-specific recommendations, to address sharks caught in association with ICCAT fisheries.

NMFS manages sharks domestically through the 2006 Consolidated HMS FMP and its amendments, along with other Atlantic HMS. For more information on the complete HMS management history as it relates to sharks, please refer to the 2006 Consolidated HMS FMP and Amendments 2, 3, 5a, 5b, 6, 9, and 10, which address shark conservation and management. Relevant proposed rules, final rules, and other official notices, along with supporting documents including the original FMPs, can be found on the HMS Management Division's webpage at https://www.fisheries.noaa.gov/topic/atlantic-highly-migratory-species. Documents can also be requested by calling the HMS Management Division at (301) 427-8503.

1.2 Shortfin Mako Shark Stock Assessment

ICCAT's SCRS has assessed blue, shortfin mako, and porbeagle sharks. All SCRS final stock assessment reports can be found at www.iccat.int/en/assess.htm. The shortfin mako ICCAT SCRS report from 2017 can be found at http://iccat.int/Documents/Meetings/Docs/2017_SCRS_REP_ENG.pdf

The 2017 stock assessment included significant updates to inputs and model structures compared to the 2012 shortfin mako shark assessment. In addition to including a new model structure, the new assessment also used improved and longer catch time series (1950-2015), sex-specific biological parameters, updated length composition data, and new tagging data. One of the primary changes in data for the new stock assessment was a new estimate of the fishing mortality rate largely derived from satellite tagging research (Byrne et al. 2017). For this research, 40 shortfin mako sharks were tagged and then tracked in the North Atlantic between 2013 and 2016 for periods of 81-754 days. Of these tagged sharks, 12 (30 percent) were captured by fishing vessels (Figure 1). These direct observations of mortality resulted in fishing mortality rate estimates of 0.19-0.53, which are significantly higher than the estimates of 0.015-0.024 used in previous assessments (SCRS 2012).

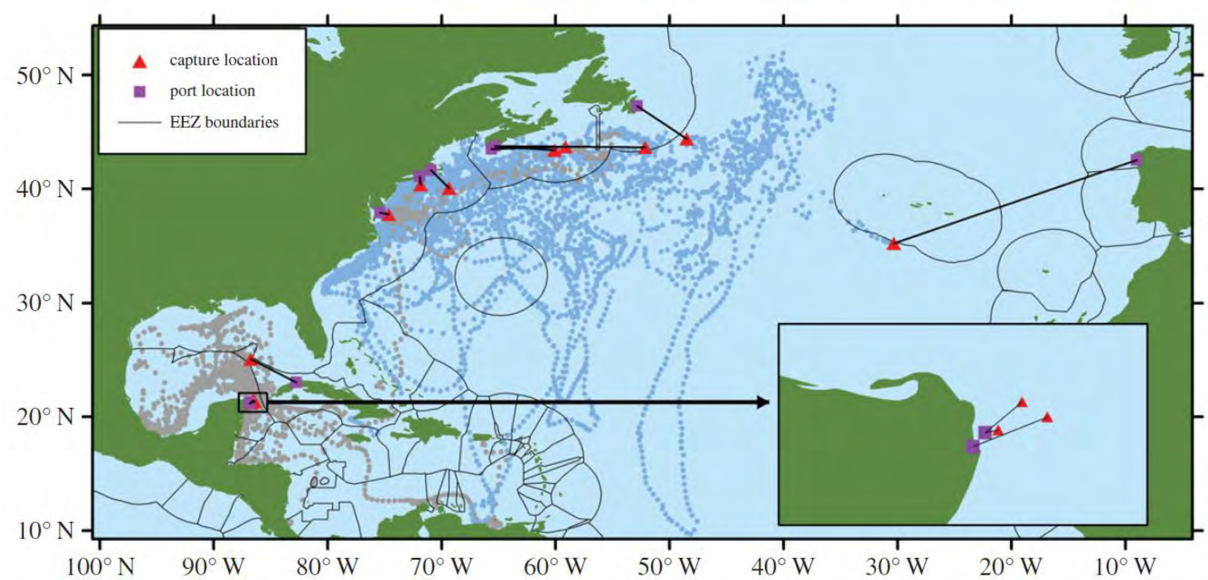

Figure 1. Tracks (dots) and capture locations (triangles) of 40 satellite tagged shortfin mako sharks from Byrne et al. (2017).

In November 2017 at its annual meeting, ICCAT accepted this stock assessment and its results, which determined that the stock was overfished with overfishing occurring applying ICCAT criteria. On December 13, 2017, based on the results of this assessment, NMFS determined the stock to be overfished with overfishing occurring. The assessment specifically indicated that B_{2015} is substantially less than B_{MSY} for eight of the nine models (B_{2015}/B_{MSY} = 0.57-0.85). In the ninth model, spawning stock fecundity (SSF) was less than SSF_{MSY} (SSF_{2015}/SSF_{MSY} = 0.95). Additionally, the assessment indicated that F_{2015} was greater than F_{MSY} (1.93-4.38), with a combined 90-percent probability from all models that the population is overfished with overfishing occurring (Figure 2).

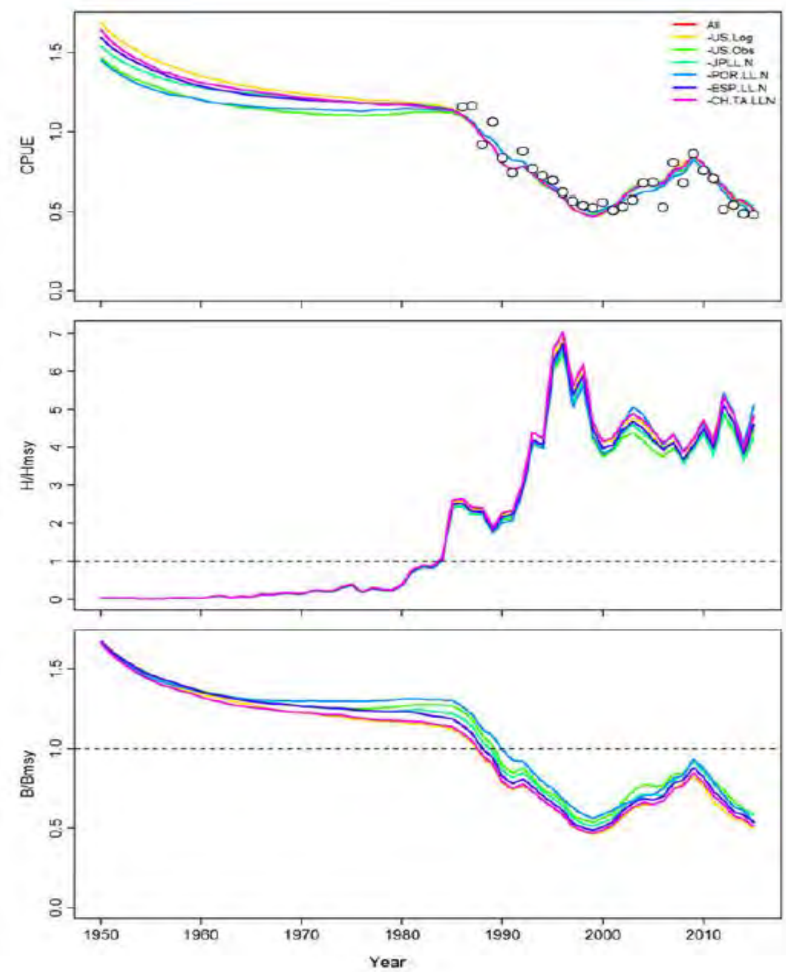

Figure 2. Trends in North Atlantic shortfin mako shark CPUE, F/F_{MSY}, and B/B_{MSY} using the C1 catch scenario used in the 2017 stock assessment. Circles denote US pelagic longline CPUE.

The 2017 assessment estimated that total North Atlantic shortfin mako shark catches across all nations are currently between 3,600 and 4,750 mt per year and that total catches would have to be reduced below 1,000 mt (72-79 percent reductions) to prevent further population declines. The projections indicate that a total allowable catch of 0 mt would produce a greater than 50-percent probability of rebuilding the stock by the year 2040, which is approximately equal to one mean generation time. Research indicates that post-release survival rates of shortfin mako sharks are high (70 percent); however, the assessment could not determine if requiring live releases alone would reduce landings sufficiently to end overfishing and rebuild the stock.

1.3 ICCAT Recommendation 17-08

In November 2017, as a result of the most recent stock assessment, ICCAT adopted Recommendation 17-08 requiring new commercial and recreational management measures for shortfin mako sharks, which the United States must implement under the Atlantic Tunas Convention Act. The recommendation requires the release of all shortfin mako sharks in a manner that causes the least harm, while giving due consideration to the safety of crew members. Under the commercial measures, fishermen using pelagic longline gear must release all live shortfin mako sharks and can retain a shortfin mako shark only if it is dead at haulback and either an observer or functioning electronic monitoring system are on board. Under the recreational measures, fishermen that hold an HMS Angling or HMS Charter/Headboat permit, and fishermen that hold Atlantic Tunas General category and/or Swordfish General Commercial permits when participating in a registered HMS tournament, and who choose to land a shortfin mako shark can only land – at a minimum – males at least 71 inches (180 cm) FL and females at least 83 inches (210 cm) FL. For more details on the recommendation, please refer to the ICCAT website at http://www.iccat.int/.

1.4 Purpose, Need, and Objectives

The purpose of Amendment 11 is to develop and implement management measures that would address overfishing and will take steps towards rebuilding the North Atlantic shortfin mako shark stock. This action is consistent with ICCAT Recommendation 17-08, and U.S. responsibilities under ATCA and the Magnuson-Stevens Act.

The need of Amendment 11 is to implement management measures consistent with the requirements of ATCA, the Magnuson-Stevens Act, and other statutes. On December 13, 2017, NMFS determined that North Atlantic shortfin mako sharks are overfished with overfishing occurring. NMFS, as required by Magnuson-Stevens Act on behalf of the Secretary, must take action to end overfishing immediately and to implement conservation and management measures to rebuild overfished stocks within two years of making this determination. To address overfishing and to ensure that timely data is provided to ICCAT under a provision in Recommendation 17-08, an interim final rule was published to implement management measures for North Atlantic shortfin mako sharks based on the measures in the ICCAT Recommendation, and using NMFS' authority to issue emergency regulations under the Magnuson-Stevens Act. Under this authority, temporary regulations may remain in effect for no more than 180 days, but may be extended for an additional 186 days as described in section 305(c) of the Magnuson-Stevens Act. Since the emergency rule may only be effective for up to 366 days, NMFS is developing an amendment to the 2006 Consolidated Atlantic HMS Fishery Management Plan that will consider and evaluate the measures in ICCAT Recommendation 17-08 and additional management options to address overfishing and to establish a foundation for rebuilding the North

Atlantic shortfin mako shark stock. This amendment is expected to be implemented prior to the expiration of the emergency rule. This Issues and Options paper is part of the scoping process for that FMP amendment and associated rulemaking.

The goal of this issues and options document is to examine potential management options to address overfishing of and take steps toward rebuilding the Atlantic shortfin mako stock, and to request additional information and input from consulting parties and the public, prior to development of a DEIS and proposed rule.

Objectives: To achieve the purpose and address the need for acting, NMFS would implement management measures to address overfishing and take steps toward rebuilding the stock. More specifically, NMFS has identified the following objectives with regard to this proposed action:

- Address overfishing of shortfin mako sharks;

- Develop and implement management measures consistent with the ICCAT Recommendation 17-08; and

- Take steps towards rebuilding the shortfin mako shark stock.

State of the Ecosystem - Mid-Atlantic Bight

Northeast Fisheries Science Center

March 28, 2018

Introduction

The purpose of this report is to provide **ecosystem-scale information for fishery managers** to consider along with existing species-scale analyses. An overview of ecosystem relationships as represented by **a conceptual model helps place more detailed species-level management in context** by highlighting relationships between focal species groups organized by Mid Atlantic Fishery Management Council (MAFMC) Fishery Management Plan (FMP), managed human activities, environmental drivers, habitats, and key ecological links (Fig. 1). Here, human activities link to high level strategic management objectives. Many components of the conceptual model are represented by indicators in this report, and key paths connecting components and objectives are highlighted.

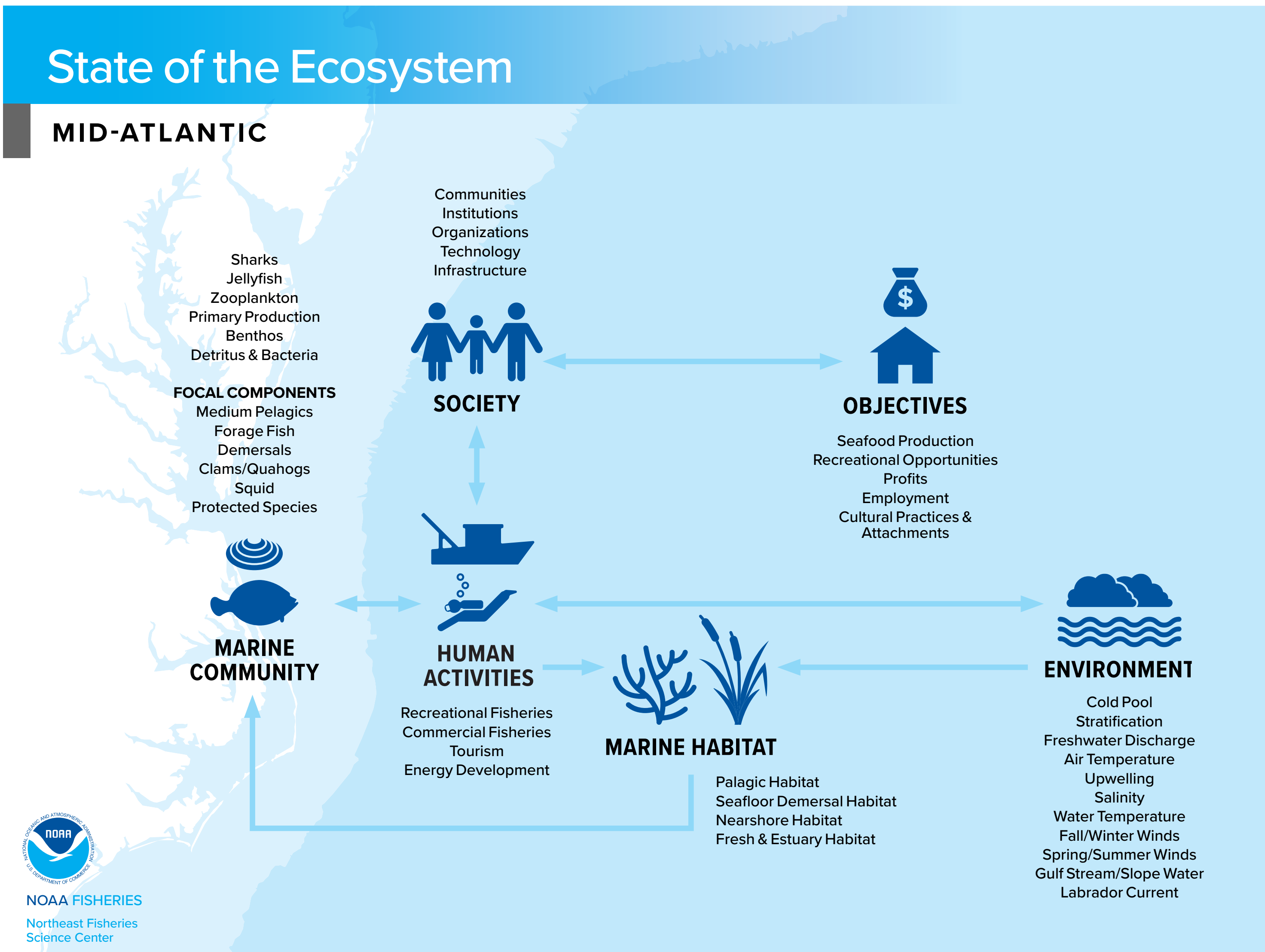

Figure 1: Mid-Atlantic Ecosystem

Executive Summary

We have organized this report using a proposed set of **ecosystem-scale objectives** derived from US legislation and current management practices. We report indicators at the spatial scale of either the Mid-Atlantic Bight (MAB; Fig. 2), for Mid Atlantic states, or Northeast US coastwide where appropriate. Indicator spatial scale is noted in each section heading.

Table 1: Mid-Atlantic ecosystem objectives

Objective Categories	Indicators reported here
Seafood production	Landings by feeding guild, mariculture
Profits	Revenue by feeding guild
Recreation	Number of anglers and trips; recreational catch
Stability	Diversity indices (fishery and species)
Social-Cultural	Commercial and recreational reliance; social vulnerability
Biomass	Biomass or abundance by feeding guild from surveys
Productivity	Condition and recruitment of MAFMC managed species
Trophic structure	Relative biomass of feeding guilds, primary productivity
Habitat	Thermal habitat projections, estimated habitat occurrence

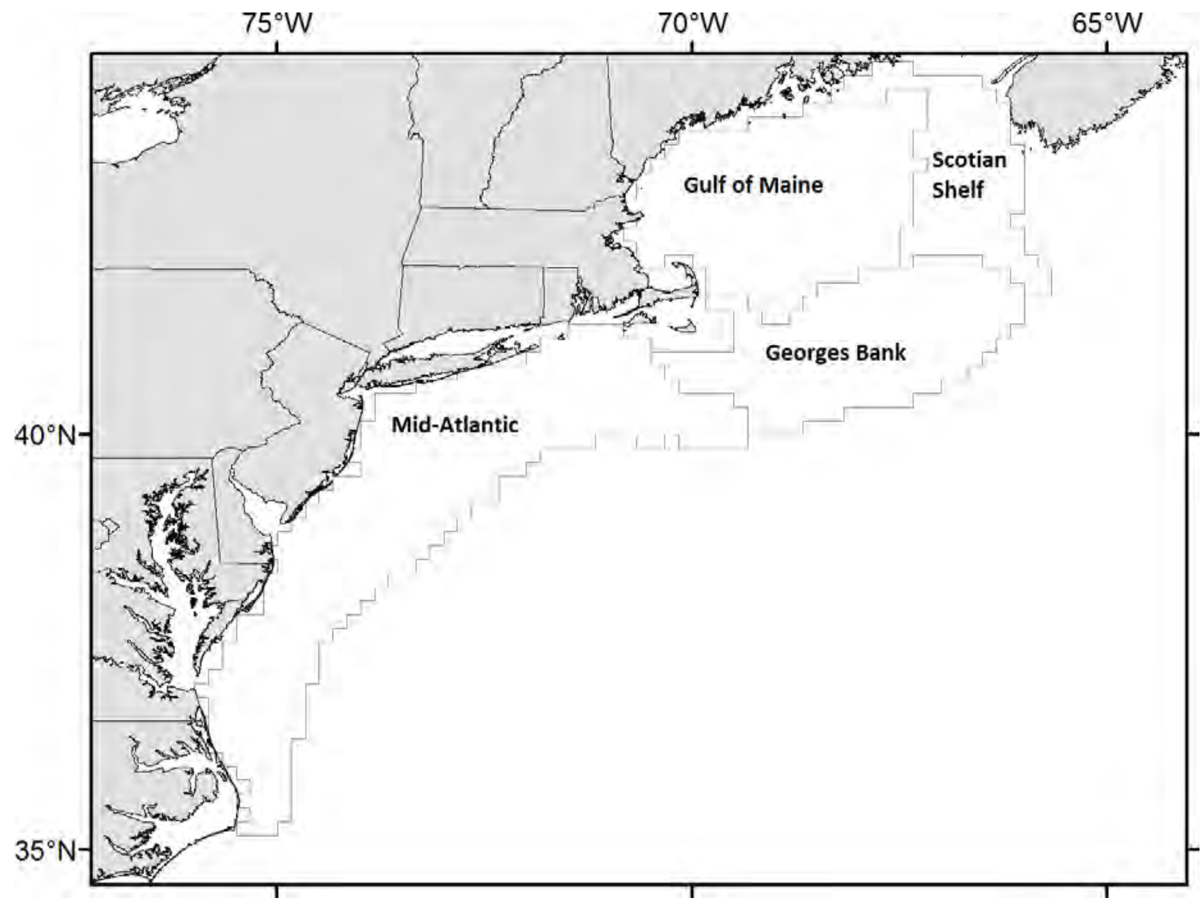

Figure 2: Mid Atlantic Bight (MAB) spatial extent

We also report single-species status relative to established objectives and reference points. The Mid Atlantic Council (MAFMC) is meeting objectives at the managed species (stockwide) level for fishing mortality (F) rates for 8 of 15 stocks and biomass (B) levels for 11 of 15 stocks relative to established reference points (Fig. 3). The exceptions include high F rates for summer flounder and Atlantic mackerel, low B status for Atlantic mackerel, and likely high F rates for blueline tilefish. Three stocks (*Illex* squid, Northern and Southern monkfish) have unknown status for both F and B, blueline tilefish for B, and longfin squid have unknown F status.

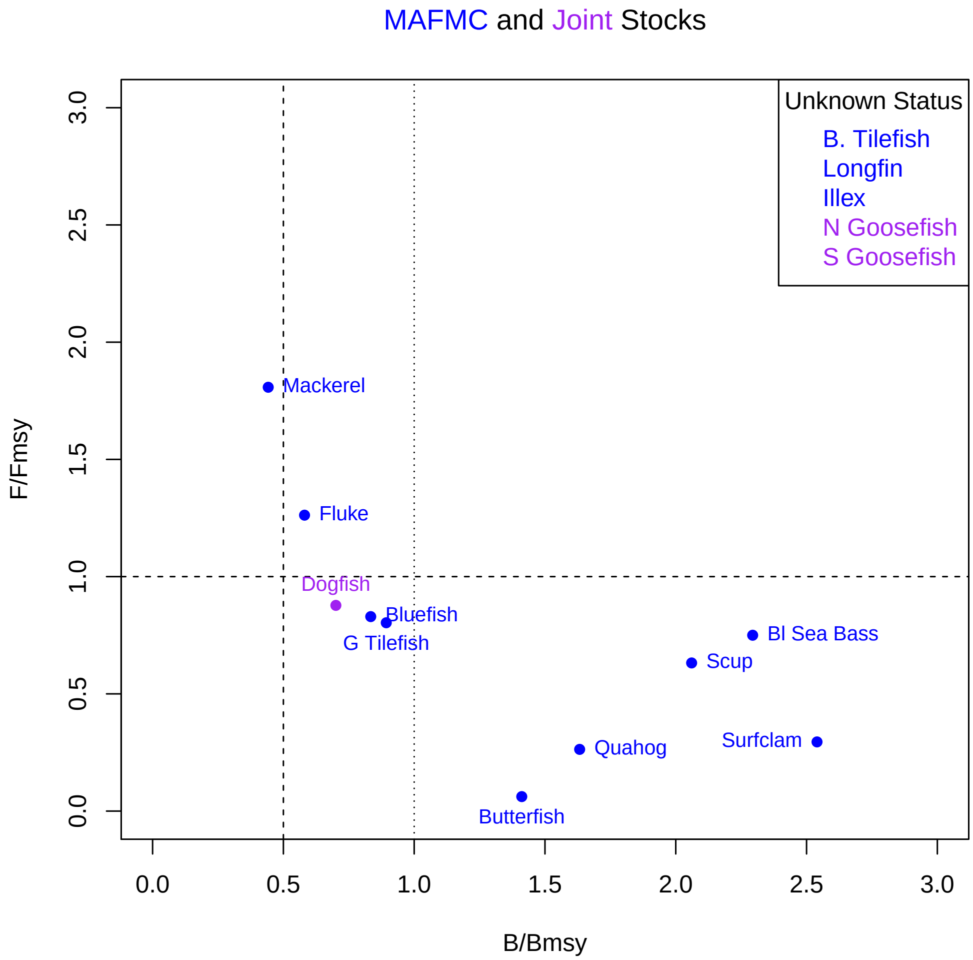

Figure 3: Summary of single species status for MAFMC stocks

Performance against human dimensions objectives is mixed, with declines in seafood production and recreational opportunities but stabilization of fleet numbers and revenue diversity. Revenue has seen substantial interannual variability in recent years, driven primarily by increases in prices of benthos (i.e. scallops & clams). Total volume of landings have decreased since at least 2010, with seafood production by both commercial and recreational fisheries declining overall. This corresponds to a stark decrease in recreational fishing effort and participation since 2008, although the number of commercial fleets, and the diversity of revenue generated from those fleets, have been relatively stable in the last few years. The diversity of species revenue, measured at the individual permit level, has also been relatively stable over the past 10 years. However, many communities in the Mid-Atlantic Bight (MAB) that are highly engaged and/or reliant on commercial fishing are socially vulnerable, and **5 of the 6 largest commercial fishing ports in the MAB (in terms of revenue) are heavily dependent on benthic species which are in turn highly vulnerable to climate change.**

Fisheries are currently meeting objectives with respect to protected species bycatch reduction, but climate and ecosystem changes may upset this balance. Fisheries interactions with harbor porpoise have decreased due to management measures, but climate driven distribution changes for sea turtles may lead to future fishery interactions and potential regulations. In addition, the most endangered species in the system (North Atlantic right whale) may be declining over the most recent few years after a slow but steady increase. **Ecosystem conditions combined with changing distributions may be contributing to the decline and observed unusual mortality event for right whales in 2017.**

Biomass of resource species changes seasonally in this dynamic system. Survey biomass trends for aggregated trophic groups of resource species differ in the fall and spring. Larval survey data indicates species diversity has increased in the spring, but no similar shift has been witnessed in the fall. At the lowest trophic level, benthos, including commercial shellfish, show long term increases in both seasons. In contrast, piscivores at higher trophic levels have conflicting long term trends depending on the season sampled. Seasonally divergent aggregate trends require further investigation.

Additional indicators in this report suggest a note of caution for the aggregate productivity of fish species in the region (fish condition declined and recovered for some species while survey based aggregate "recruitment" has declined overall). These changes in fish productivity may be linked to observed patterns in plankton communities, to changes in habitat, or both. While there are some long-term productivity trends at the bottom of the food web in the Mid Atlantic, changes in species composition and shifts in seasonal timing may have a greater impact on upper trophic levels. Temperature is increasing in long term sea surface records as well as surface and bottom measurements from surveys. The seasonal temperature signal also shows sustained warming. **Warming waters have impacts on the ecosystem that can be complex due to differential impacts at the species level, including observed shifts in species distribution and changes in productivity as thermal habitats shift.**

Changes for 2018

Indicators throughout the report have been updated with the most recent data, and in some cases replaced with more management-relevant indicators based on Council feedback from the 2017 report. In particular, new sections on species-specific habitat status and trends and climate projections of thermal habitat for key species have replaced last year's more general physical environment and climate sections. This report draws on a wider range of expertise and attempts to further link information across indicators to give an integrated overview of ecosystem status relevant to fishery management decision making.

Many metrics aggregate species by similar functional groups. Species that comprise the functional groups are listed below. Relative to the 2017 report, these categories have been aggregated into fewer groups for simplification and clarity.

Table 2: Mid-Atlantic feeding guilds.

Group	N species	Major species in the group
A: **Apex predator** (Highest trophic level)	4	shark (Unc.), swordfish, yellowfin and bluefin tuna
B: **Piscivore** (Eat fish)	23	spiny dogfish, summer flounder, bluefish, striped bass, weakfish, monkfish, winter and thorny skates, silver and offshore hake, Atlantic cod and halibut, fourspot flounder
C: **Planktivore** (Eat plankton)	16	Atlantic and blueback herring, alewife, shad, menhaden, cusk, Atlantic mackerel, butterfish, blackbelly rosefish, sculpins, lumpfish, northern searobin, northern sand lance, northern shortfin and longfin squid
E: **Benthivore** (Eat bottom dwellers)	25	black sea bass, scup, tilefish, tautog, cunner, blue crab, red crab, lobster, ocean pout, haddock, yellowtail, winter, and witch flounders, barndoor skate, American plaice, other crabs
F: **Benthos** (Filter feeders)	9	scallops, surfclam, quahog, mussels, whelks, conchs, sand dollars and urchins

Our assessment of indicator trends has changed this year. In the 2017 time series plots, monotonic (but not necessarily linear) trends were assessed for both the full time series and the most recent 10 years (shaded dark grey background). Recent simulation analysis suggest that statistical significance tests are unreliable for short time series, but reliable for longer ones. Therefore, similar to 2017, we indicate significant increasing long term trends with orange lines, while significant decreasing long term trends have purple lines. However, we no longer indicate significant trends for the most recent period but rather discuss recent/current status and trend of each indicator relative to the full time series. Time series mean is indicated with a dashed line and the final ten years of the time series are highlighted through a grey background.

Human Dimensions

Seafood production (MAB)

Seafood production is a stated goal of optimal fishery management as part of the definition of "benefits to the nation" under MSA. Both commercial and recreational fishing contributes to seafood production, the latter for personal consumption, and indicators for each of these human activities track management performance against this objective.

The MAFMC only manages a portion of the total commercial landings that occur in the MAB region. For example, blue crabs represent a substantial portion of category D (Benthivores) landings. Therefore in 2016, MAFMC accounted for 15% of the Benthivore landings and 12% of the revenue generated from those landings in the MAB.

Table 3: Proportion of landings and revenue derived from managed species in the Mid-Atlantic region.

Groups	MAB Landings	MAB Revenue
Piscivore	0.16	0.50
Planktivore	0.64	0.93
Benthivore	0.15	0.12
Benthos	0.62	0.10

Figure 4 shows the removals for human consumption of trophic groups including both all species landed in the MAB as well as the subset of those removals managed by the MAFMC. Landings for managed species are all trending up in recent years, but only Benthivore landings are above the long term-mean. There is a significant decline in MAFMC-managed landings of benthos. We note that time series at the Mid-Atlantic regional scale may not include all state landings prior to 1994.

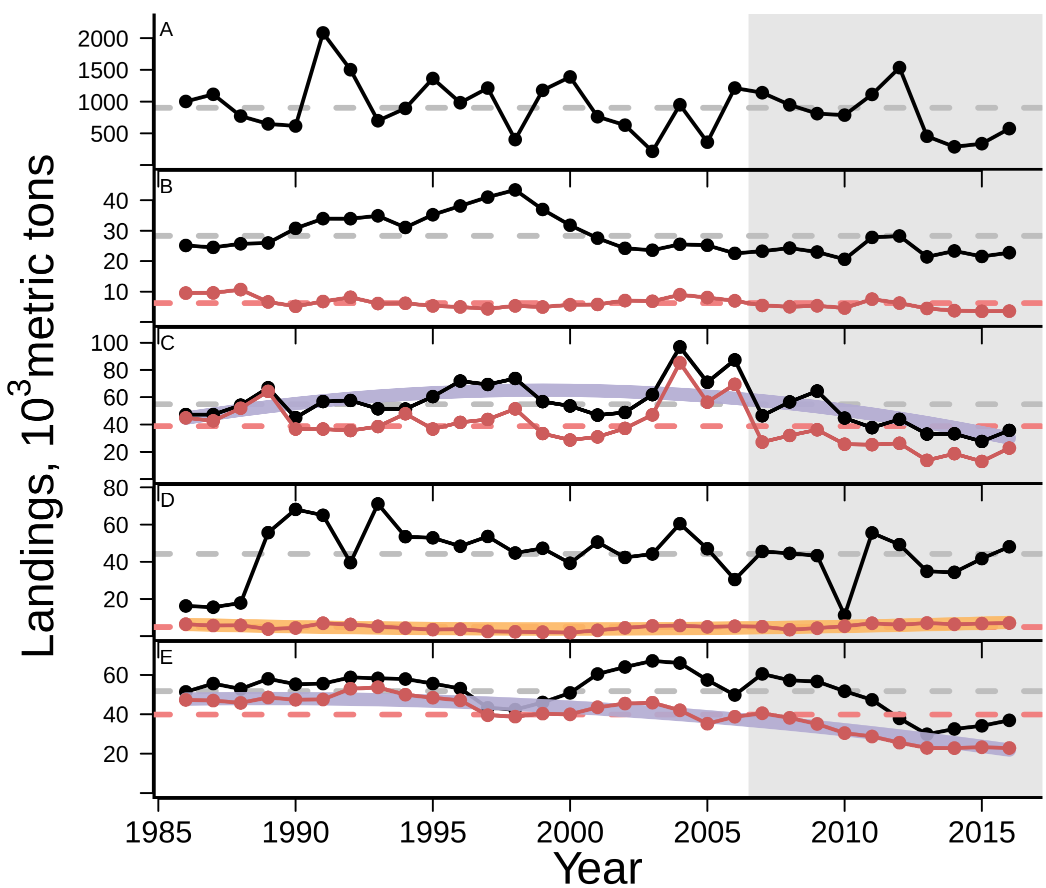

Figure 4: MAFMC seafood specific landings (red) and total commericial landings (black). A: Apex predators, B: Piscivore, C: Planktivore, D: Benthivore, E: Benthos

Total commercial seafood landings from all species and from MAFMC managed species in teh MAB indicate total seafood production. Years prior to 1977 included foreign landings, so we begin the time series in 1986. Recent landings are all domestic fisheries. Looking across all regions, there is a significant recent decrease in seafood landings, indicating high risk to regional domestic seafood production.

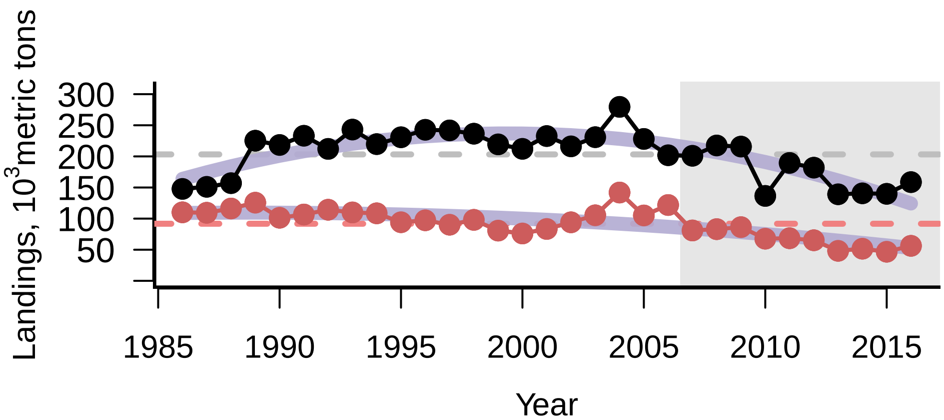

Figure 5: Total commercial seafood landings (black), MAFMC managed seafood landings (red)

Recreational seafood landings (as opposed to total landings which include catch and release that are captured under other risk elements/indicators) were used to assess food use of recreationally caught fish in the Mid-Atlantic.

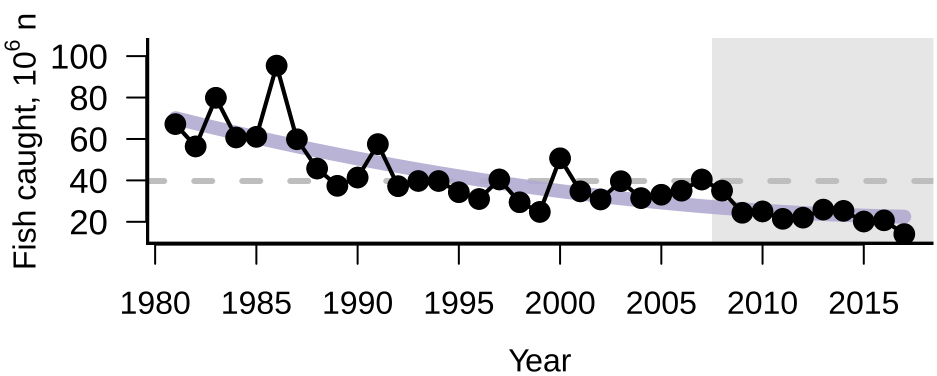

Figure 6: Total recreational harvest

Commercial Fishery Revenue (MAB)

This indicator links the human activity of commercial fishing to the profits objective. This year we present the "Bennet Indicator" which attributes changes in revenue to the combination of changes in price and changes in landings volume for each species. Prior to 2000, revenue was generally negative compared to average (Fig. 7). In most years prior to 2000, this was caused by lower prices. After 2000, there were periods of positive and negative revenue gain. Prices were generally positive after the year 2000. Between 1990 and 2000, prices for all feeding guild groups were negative compared to the average (Fig. 8A). After the year 2000, increases in prices for the benthos group contributed the most to revenue increases, while the Benthivore group had both years of positive and negative contribution to revenue gain. Between 1990 and 2005 there were positive volumes for most feeding guilds (Fig. 8B). After 2005, volumes were usually negative caused mainly by declines in the benthos and Benthivore groups.

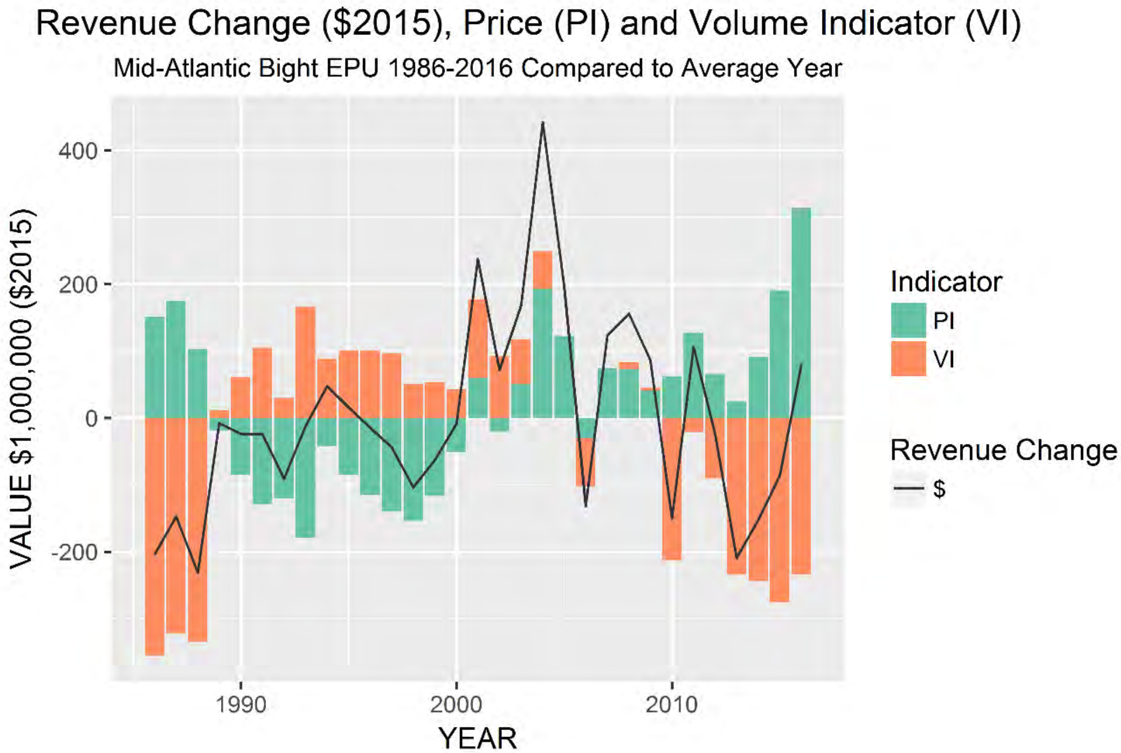

Figure 7: Bennet indicator, all species aggregated

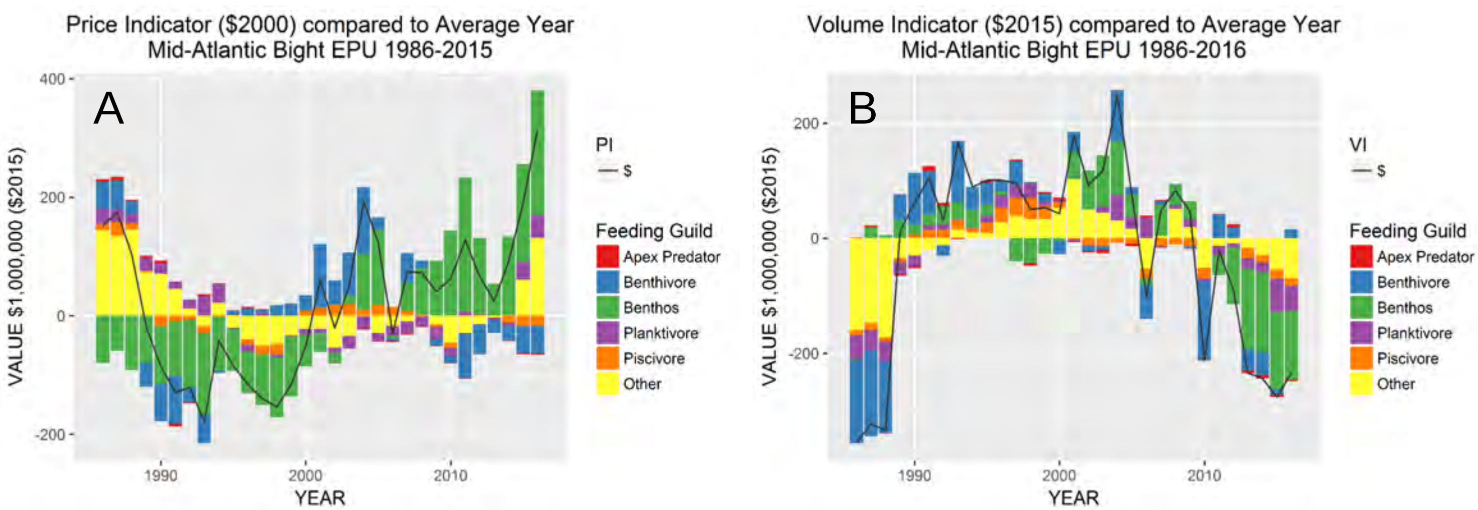

Figure 8: Bennet indicator, (A) price component and (B) volume component by functional group

Ecosystem-wide and Managed Species Total Revenue (MAB)

Average total revenue from MAFMC managed species ranges from 17-21% of total revenue from commercial fishing in the Mid Atlantic region over the last 5 years (Fig. 9).

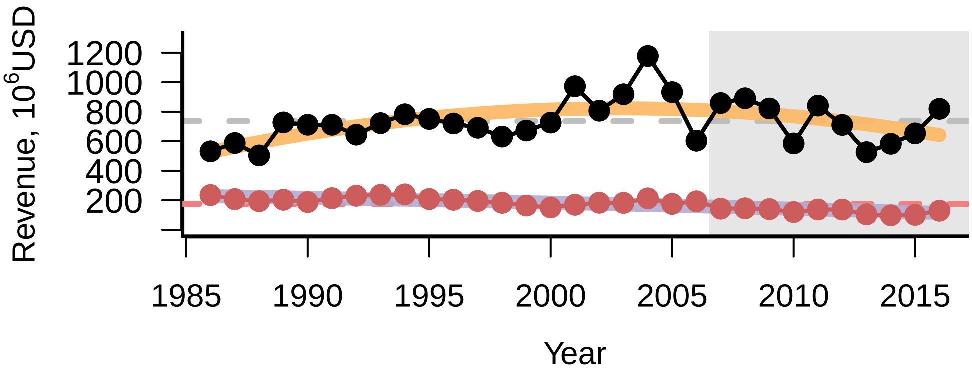

Figure 9: Total revenue by region and MAFMC managed species

Commercial Fleet Diversity (coastwide, Mid Atlantic permits)

Maintaining diversity can provide the capacity to adapt to change at the ecosystem level for dependent fishing communities, and can address objectives related to stability. Diversity estimates have been developed for fleets and species landed by vessels with Mid-Atlantic permits. A fleet is defined here as the combination of gear code (Scallop Dredge, Other Dredge, Gillnet, Hand Gear, Longline, Bottom Trawl, Midwater Trawl, Pot, Purse Seine, or Clam Dredge) and vessel length category (Less than 30 ft, 30 to 50 ft, 50 to 75 feet, 75 ft and above). The metric presented assesses the diversity of the overarching fleet, in terms of all revenue generated.

A declining trend in diversity indicates reliance on either a smaller number of resources, or a less diverse pool of resources but cannot distinguish whether specialization (by choice), or alternatively stovepiping (constrained choices), is occurring in the Northeastern Large Marine Ecosystem.

The number of fleets in the Mid-Atlantic seems to be negatively correlated to the revenue diversity metric in the most recent five years, which indicates that the latter results are being dominated by changes in the distribution of revenue across fleets, as opposed to the number of active fleets.

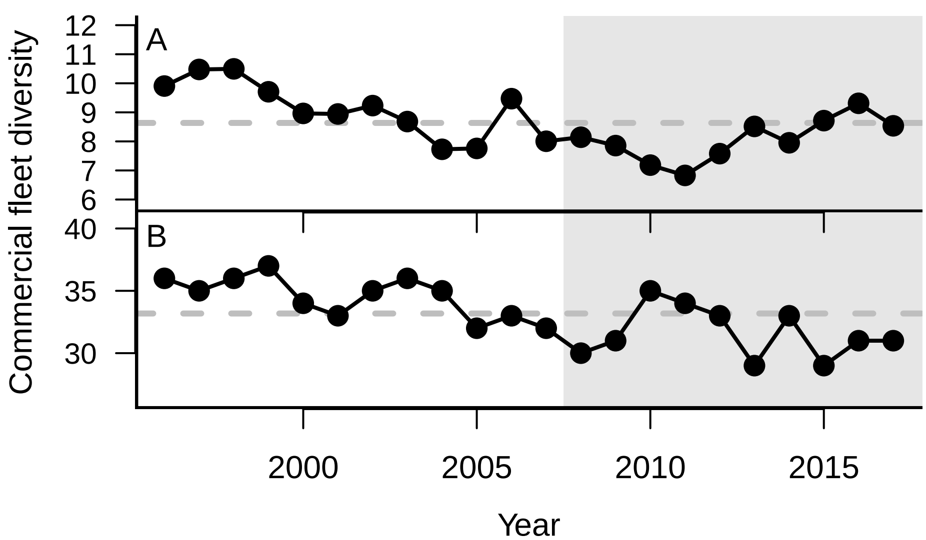

Figure 10: (A) Fleet diversity and (B) fleet count

Another diversity index is the average effective Shannon index for species revenue at the permit level, for all permits landing any amount of MAFMC FMP species within a year (including both Monkfish and Spiny Dogfish). Although the exact value of the effective Shannon index is relatively uninformative, the major change in diversity seems to have occurred in the late 1990's, with much of the recent index relatively stable.

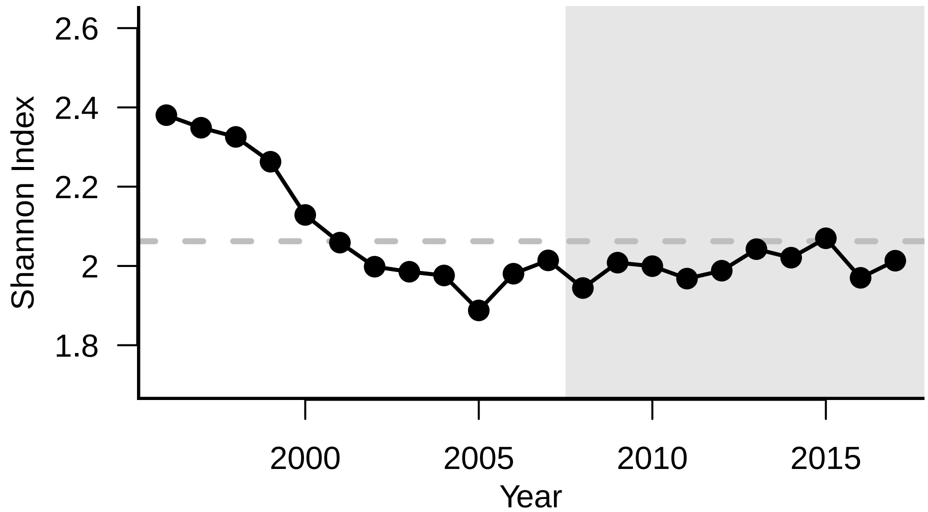

Figure 11: Diversity in species revenue

Recreational Opportunities (Mid Atlantic states)

Providing recreational opportunities is a stated goal of optimal fishery management as part of the definition of "benefits to the nation" under MSA. Recreational fishing is important in the Mid-Atlantic region with many coastal communities having high recreational dependence. Although there is an overall trend of increasing recreational fishery participation in terms of number of anglers, the most recent 10 years has shown a striking decline in both recreation indices.

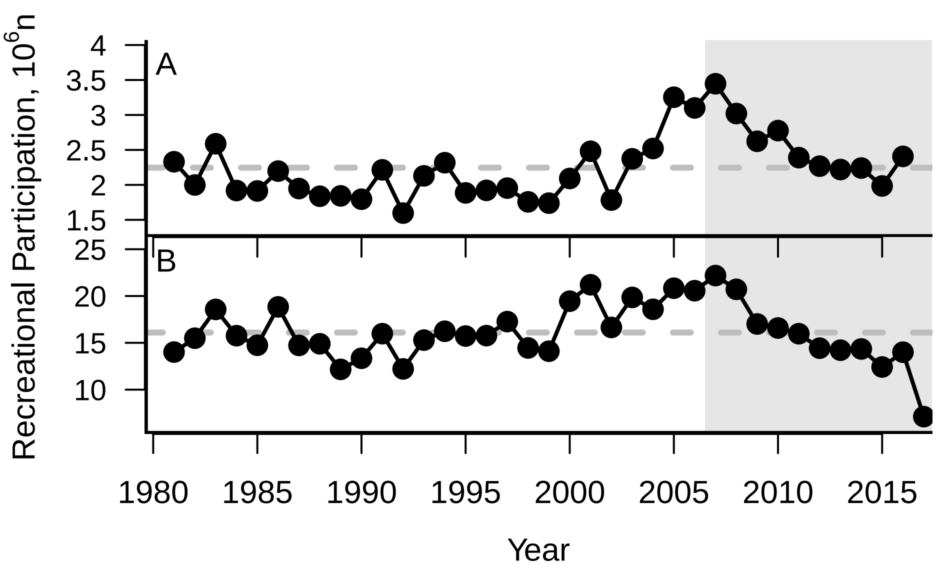

Figure 12: (A) Number of anglers and (B) number of trips

Mariculture (Mid Atlantic states)

Aquaculture indicators address both seafood production and possibly habitat objectives in that planted bivalves such as oysters provide both habitat structure and contribute locally to improved water quality at high densities. Individual states collect and report aquaculture data by surveying commercial farmers, and at this time, data in the Mid-Atlantic are available for Virginia, Maryland, and New Jersey. From the reported data, Virginia is the largest producer of oysters, although oyster aquaculture is increasing overall throughout the Mid-Atlantic. Hard-clam production data from Virginia show no changes in overall trend.

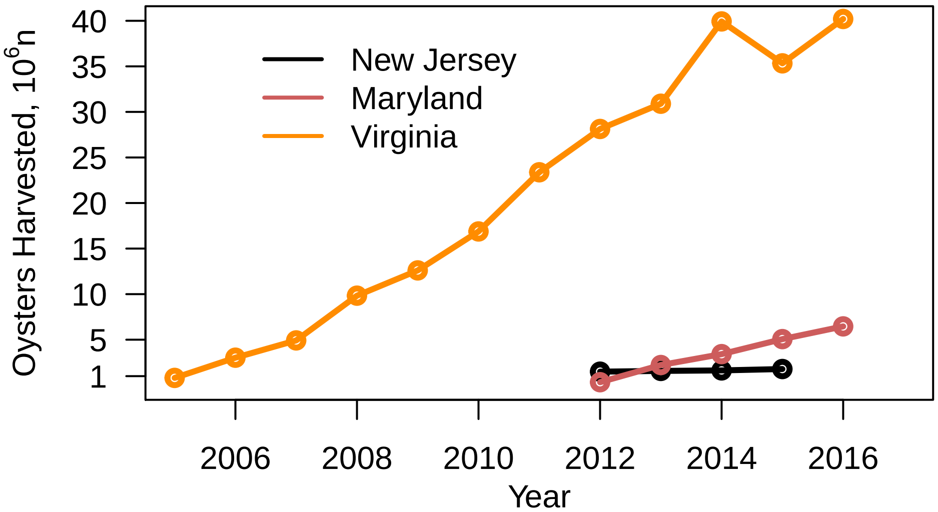

Figure 13: Oyster aquaculture production in terms of number of oysters sold from Virginia, Maryland, and New Jersey.

Harmful Algal Blooms (Chesapeake Bay)

Harmful algal bloom (HAB) data on the continental shelf of the Mid-Atlantic region is sparse. In the lower Chesapeake Bay, annual blooms of the dinoflagellate *Cochlodinium polykrikoides* have been observed for several decades and more recently, blooms of *Alexandrium monilatum*, a toxin-producing dinoflagellate common to the Gulf of Mexico, have invaded the region. Both dinoflagellate species have been associated with fish kills either directly or indirectly, the latter due to the prevalence of hypoxic waters following a bloom. Available data regarding the incidence of algal bloom events in Chesapeake Bay (both harmful and otherwise) show that there has been an increase in the number of reported bloom events within the past three years, with the most notable contributors being *C. polykrikoides* and *A. monilatum*. The average number of cells in reported *C. polykrikoides* blooms increased dramatically from >3,500,000 cells per liter in 2016 to >35,000,000 cells per liter in 2017; all reported within the vicinity of the York River mouth. Fish exposed to *C. polykrikoides* cell concentrations >300,000 cells per liter will experience near total mortality in as little as 1 hour of exposure.

Blooms of *C. polykrikoides* and *Auerococcus anophagefferens* (responsible for "brown tides") occur regularly in the Long Island Sound region, with the most extensive and longest-lasting brown tide event ever recorded occurring in 2017. Long Island also has annual blooms of *Alexandrium catenella*, which has become more prevalent over the last few decades, though it was known to exist in the region more than 40 years ago. Blooms of toxic *Dinophysis* species have also been recorded in Long Island for the first time in recent years, though there have not been any official closures by state regulators.

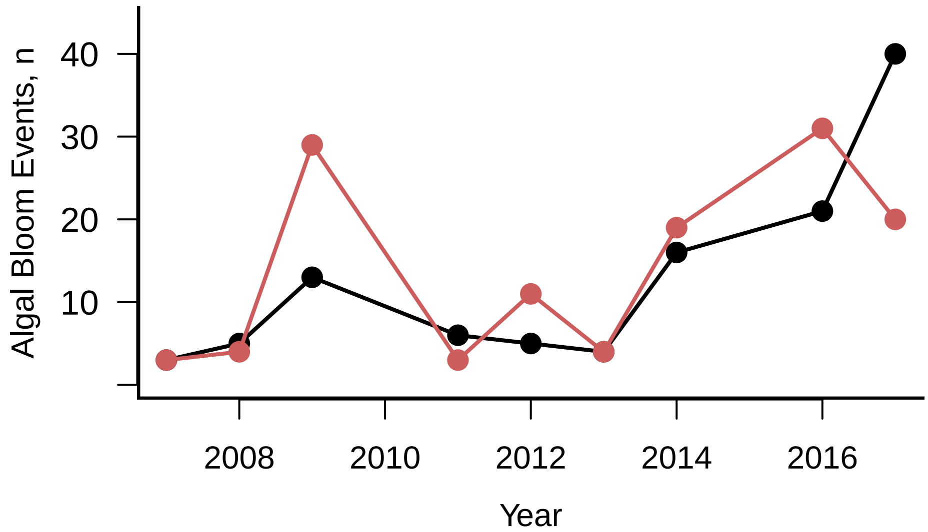

Figure 14: Occurrence of all blooms at concentrations warranting action by the Virginia Department of Health (black), and occurrence of *C. polykrikoides* in Chesapeake Bay at cell concentrations >300,000 cells per L (red).

Community social vulnerability, engagement and dependence on commercial fisheries (Mid Atlantic states)

The NOAA Fisheries Community Social Vulnerability Indicators (CSVIs) are statistical measures of the vulnerability of communities to events such as regulatory changes to fisheries, wind farms, and other ocean-based businesses, as well as to natural hazards, disasters, and climate change. The CSVIs currently serve as indicators of social vulnerability, gentrification pressure vulnerability, commercial and recreational fishing reliance and engagement, sea level rise risk, species vulnerability to climate change, and catch composition diversity.

Here, we look at the extent to which commercial and recreational fishing reliance intersect with community social vulnerability in the Mid-Atlantic region. Commercial fishing reliance is a measure of per capita pounds landed, value landed, commercial permits and commercial dealers in a community. Recreational reliance is a per capita measure of shore, private vessel and for-hire recreational fishing in a community. Social vulnerability represents social factors that can shape either an individual or community's ability to adapt to change. There are many socially vulnerable communities in the Mid-Atlantic region, but with varying degrees of commercial and/or recreational fishing reliance. While there are some communities that are both moderate to highly socially vulnerable and moderate to highly reliant on commercial fishing (Fig.15) there are many more communities that are both moderate to highly vulnerable and moderate to highly reliant on recreational fishing (Fig. 15) primarily in New Jersey and New York.

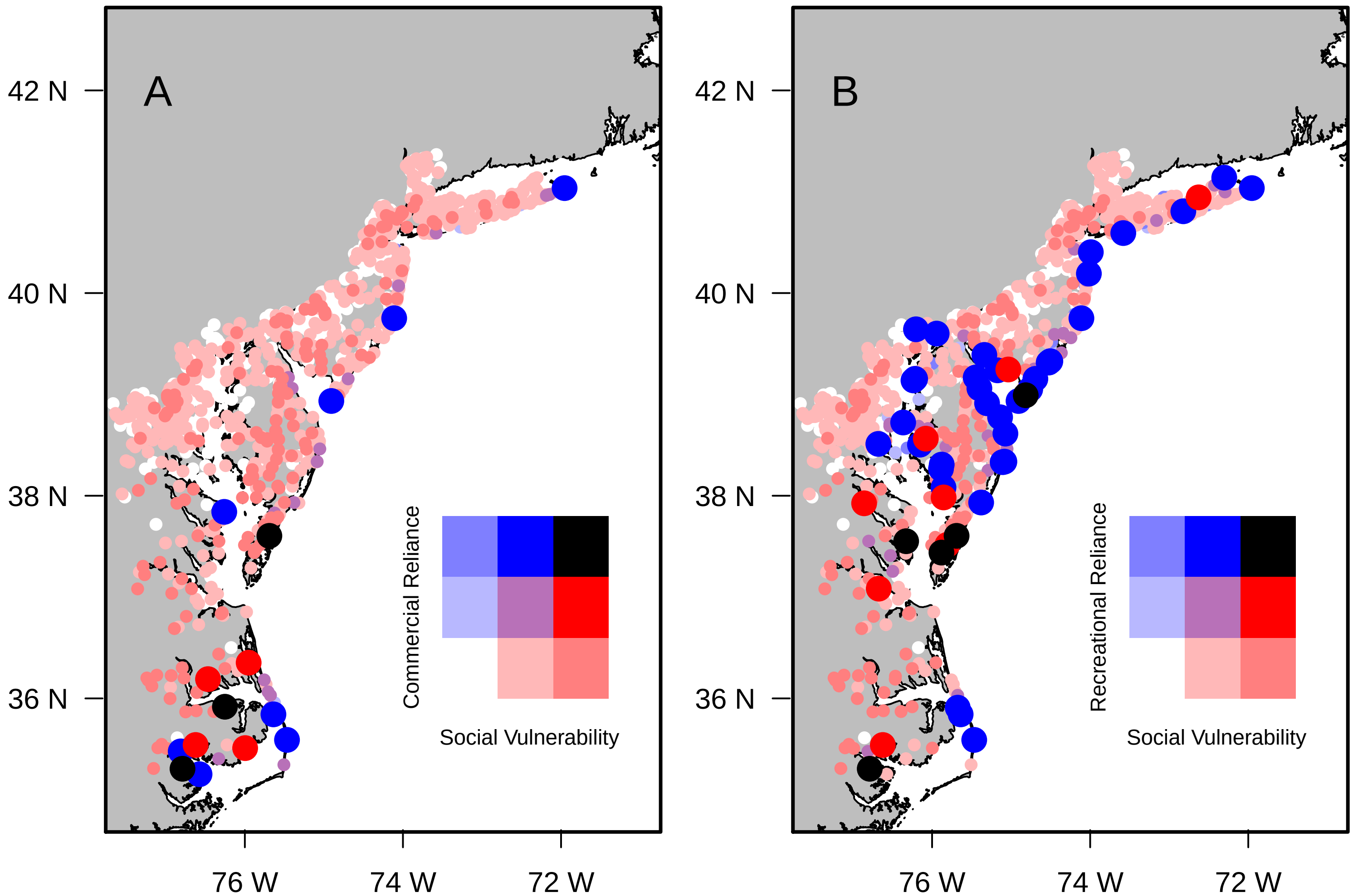

Figure 15: Commercial (A) and recreational (B) reliance and social vulnerability (MAB)

Climate Vulnerability of Coastal Fishing Communities (Mid Atlantic states)

Six key Mid-Atlantic fishing communities were evaluated for their dependence on species vulnerable to climate change and catch composition diversity (Fig. 16). Five of the six communities had a majority of revenue from species highly vulnerable to climate change.

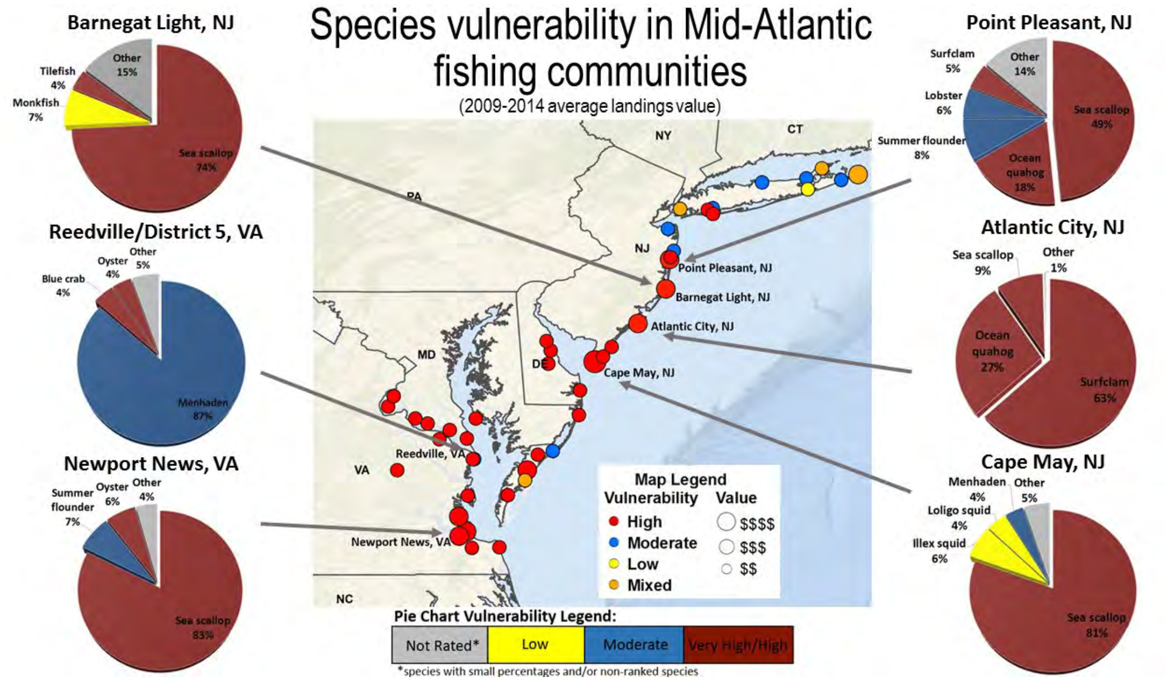

Figure 16: Species vulnerability in Mid-Atlantic fishing communities

Protected species-fishery interactions

Protected species include marine mammals (under the Marine Mammal Protection Act), Endangered and Threatened species (under the Endangered Species Act), and migratory birds (under the Migratory Bird Treaty Act). In the Northeast US, endangered/threatened species include Atlantic salmon, Atlantic and shortnose sturgeon, all sea turtle species, and 5 baleen whales. Fishery management objectives for protected species generally focus on reducing interactions between resource and protected species; here we report on the current status of these interactions as well as indicating the potential for future interactions driven by observed and predicted ecosystem changes in the Mid-Atlantic region.

Harbor porpoise (coastwide)

Harbor porpoise bycatch has resulted in fisheries closures in the past, but current bycatch levels demonstrate that management measures have been effective, reducing this fishery interaction. The 5-year mean bycatch has been below the maximum permitted level (Potential Biological Removal, PBR) since 2011 (Fig. 17), and the most recent annual bycatch estimate is one of the lowest in the time series. Increased compliance and reduced fishing effort are thought to contribute to low bycatch estimates. There should be an updated harbor porpoise abundance estimate this year. Recent analyses have examined regional harbor porpoise diet, however, the impact of ecosystem changes on bycatch, population, or distribution remain unclear.

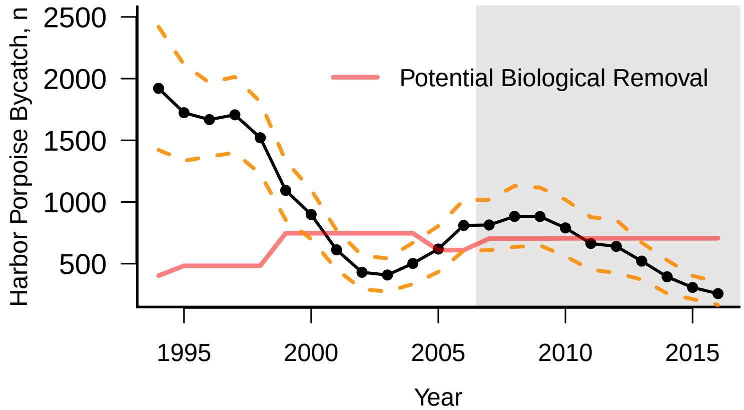

Figure 17: Harbor porpoise bycatch estimated compared with PBR

Sea Turtles (coastwide)

Sea turtles are known to be susceptible to climate and ecosystem changes, and their distribution is influenced by water temperature. Sea turtle diets contain a considerable amount of gelatinous zooplankton, which are also influenced by changes in the pelagic ecosystem. At present, management measures to reduce sea turtle-fishery interactions are limited to the regions with historical observations of sea turtles and based on historical ocean temperature distributions. However, changes in climate may cause turtles to shift northward into areas with heavy fishing, possibly resulting in increased bycatch, and necessitating new management measures.

Right whale (coastwide)

North Atlantic right whales are among the most endangered large whale populations in the world. Changes in right whale trends can have implications for fisheries management where fisheries interact with these whales. Additional management restrictions could have a large impact on fishing times, gears, etc.

Although the population increased steadily from 1990 to 2011, it has decreased recently. From Pace et al 2017: "The probability that the population's trajectory post-2010 was a decline was estimated at 99.99%." Reduced survival rates of adult females and diverging abundance trends between sexes have also been observed. Further, right whale distribution has changed since 2010. The reasons for these changes is unclear, but changes in climate and primary prey (Calanus finmarchicus) are suspected. Not yet reflected in this trend are the 17 right whale deaths observed in 2017, 5 due to vessel strike (1 in US waters, 4 in Canadian waters), 3 from entanglement (2 in Canadian gear, 1 in unknown gear), and the rest from unknown causes.

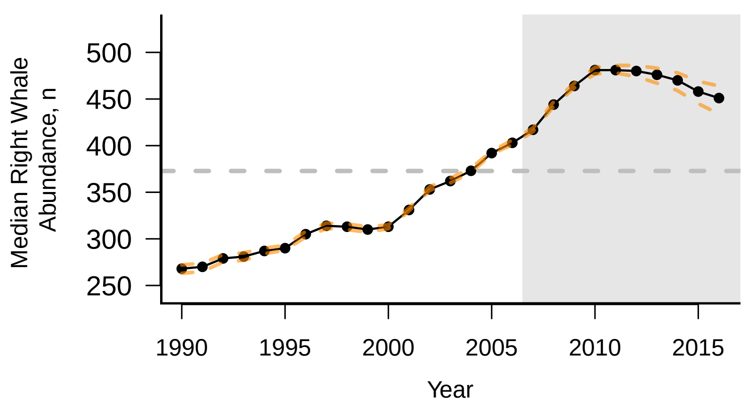

Figure 18: Right whale population estimate

Resource Species

Patterns for groups of species that feed on similar prey can indicate how overall ecosystem conditions are changing, and provide context for individual species stock assessments. This information is from NEFSC bottom trawl surveys in spring and fall. We note that the Mid-Atlantic region was not sampled by the 2017 fall bottom trawl survey due to vessel repairs so the fall time series have not changed from the 2017 report.

Trends in Biomass (MAB)

Biomass across trophic levels shows different trends between the fall and spring NEFSC trawl surveys in the MAB, with no groups having similar significant trends across seasons. At the lowest trophic level, benthos, including commercial shellfish, show long term increases in fall, but not a significant trend in spring. In contrast, piscivores at higher trophic levels have conflicting long term trends depending on the season sampled, decreasing in fall and increasing in spring.

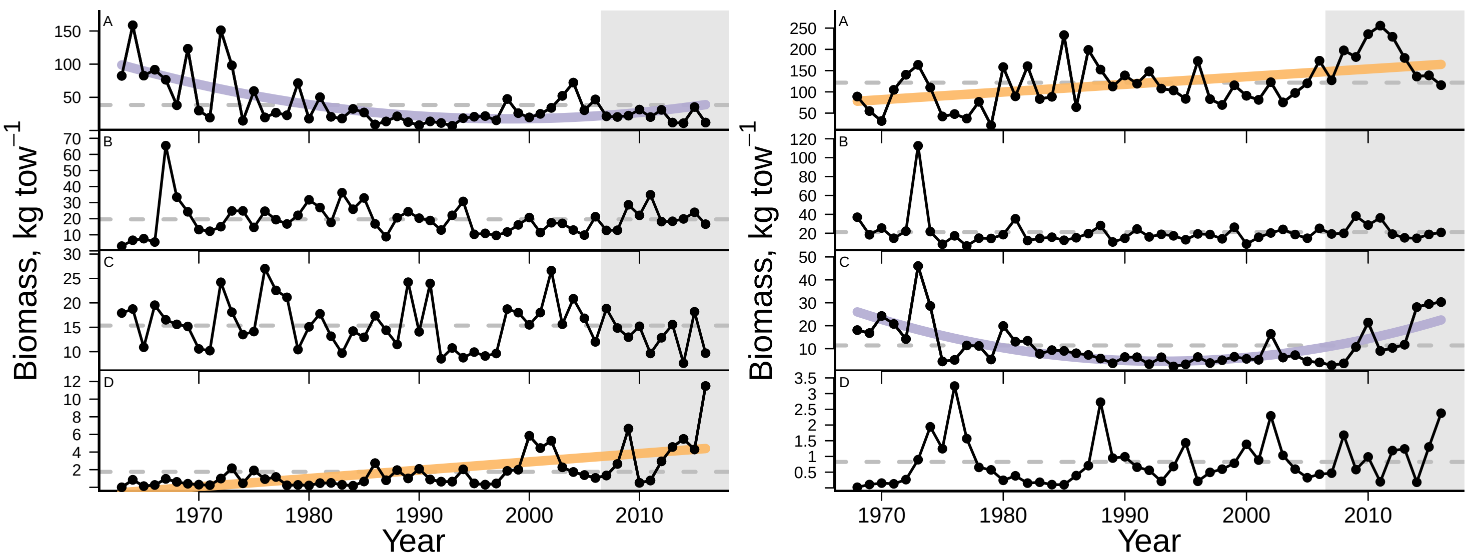

Figure 19: Fall (left) and spring (right) MAB Survey Biomass (A: Piscivore, B: Planktivore, C: Benthivore, D: Benthos)

Seasonally divergent aggregate biomass trends require further investigation. They could indicate the trends of different fish communities with seasonal differences that are the result of regular seasonal migrations, or they could indicate movement of new species into/out of the region on a seasonal basis, or both. These trends across trophic levels point to the potentially complex and dynamic trophic structure of the Mid-Atlantic ecosystem.

Species composition (coastwide)

Diversity in species composition mainly addresses objectives related to ecosystem structure and stability; maintaining diversity can provide the capacity to adapt to change at the ecosystem level and for dependent fishing communities. Diversity here is estimated using data from the NOAA NEFSC Oceans and Climate branch public dataset for 45 abundant and well-identified ichthyoplankton taxa, and shows a decrease for one season (spring), suggesting that survey timing may be interacting with changes in spawn timing or migration of adult fish, as well as a potential change in ichthyoplankton availability due to adult fish distribution shifts (see below). The decrease in spring ichthyoplankton diversity coincides with an increase in the spring abundance of sand lance (*Ammodytes* spp.) larvae, an important prey species. Researchers documented a significant seasonal shift from winter to spring based on annual relative proportions from 1977-1987 to 1999-2008.

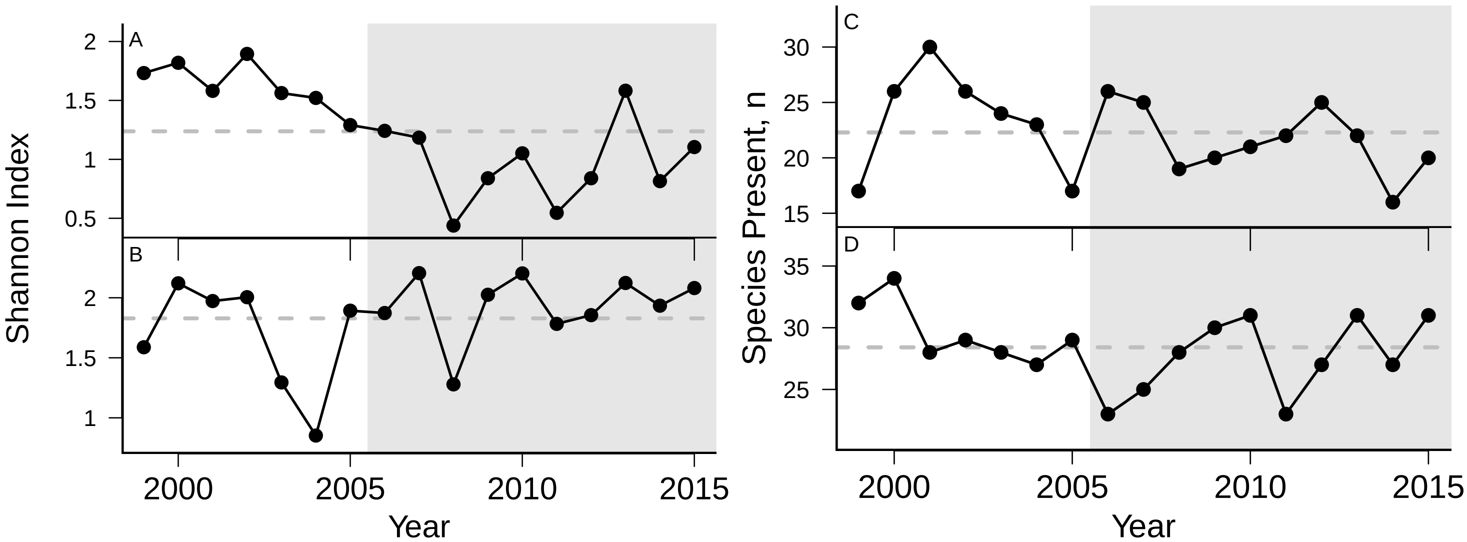

Figure 20: Ichthyoplankton Shannon diversity and species counts in the spring (Top row) and fall (bottom row)

Species distribution (coastwide)

Spatial distribution can change for a variety of different reasons resulting in distributions that have changed over time for some species more than for others. Two species of particular interest to the MAFMC are black sea bass and summer flounder. Black sea bass distributions measured by NEFSC surveys have shifted northward relative to historical distributions while summer flounder have expanded inshore (Fig. 21; Fig. 22). Recent work looking at multiple factors that are associated with a species' prefered habitat show an increase in potential habitat for both species most notably in the spring (Fig. 23). Other work using temperature data from the NEFSC trawl survey developed thermal habitat preference for resource species.

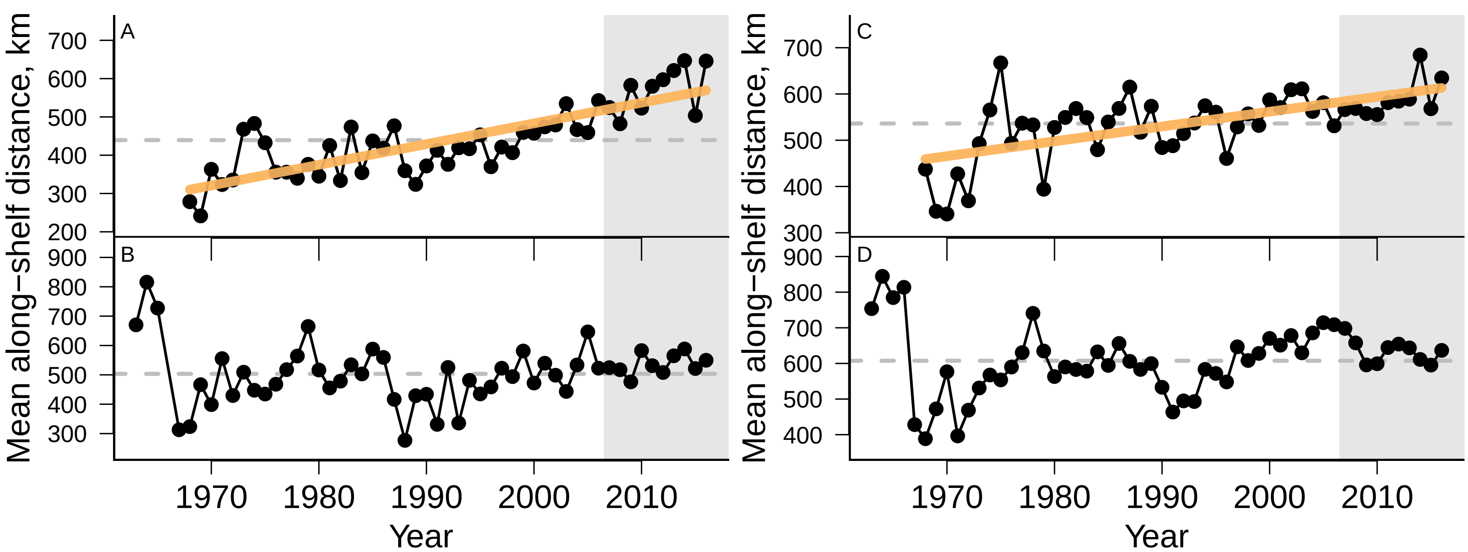

Figure 21: Black sea bass (left) and summer flounder (right) along shelf distance trends (Top row: spring, bottom row: fall)

Thermal habitat for individual species can then be projected using global climate models (Fig. 22). While thermal habitat is only part of the picture, and species may adapt to new thermal regimes, these projections indicate the potential for key species to thrive or not over the coming decades, where further ocean warming is expected. Black sea bass thermal habitat is projected to decline, while summer flounder thermal habitat continues to expand and move further offshore in the MAB. The projections shown here are for fall only, but spring projections are also available.

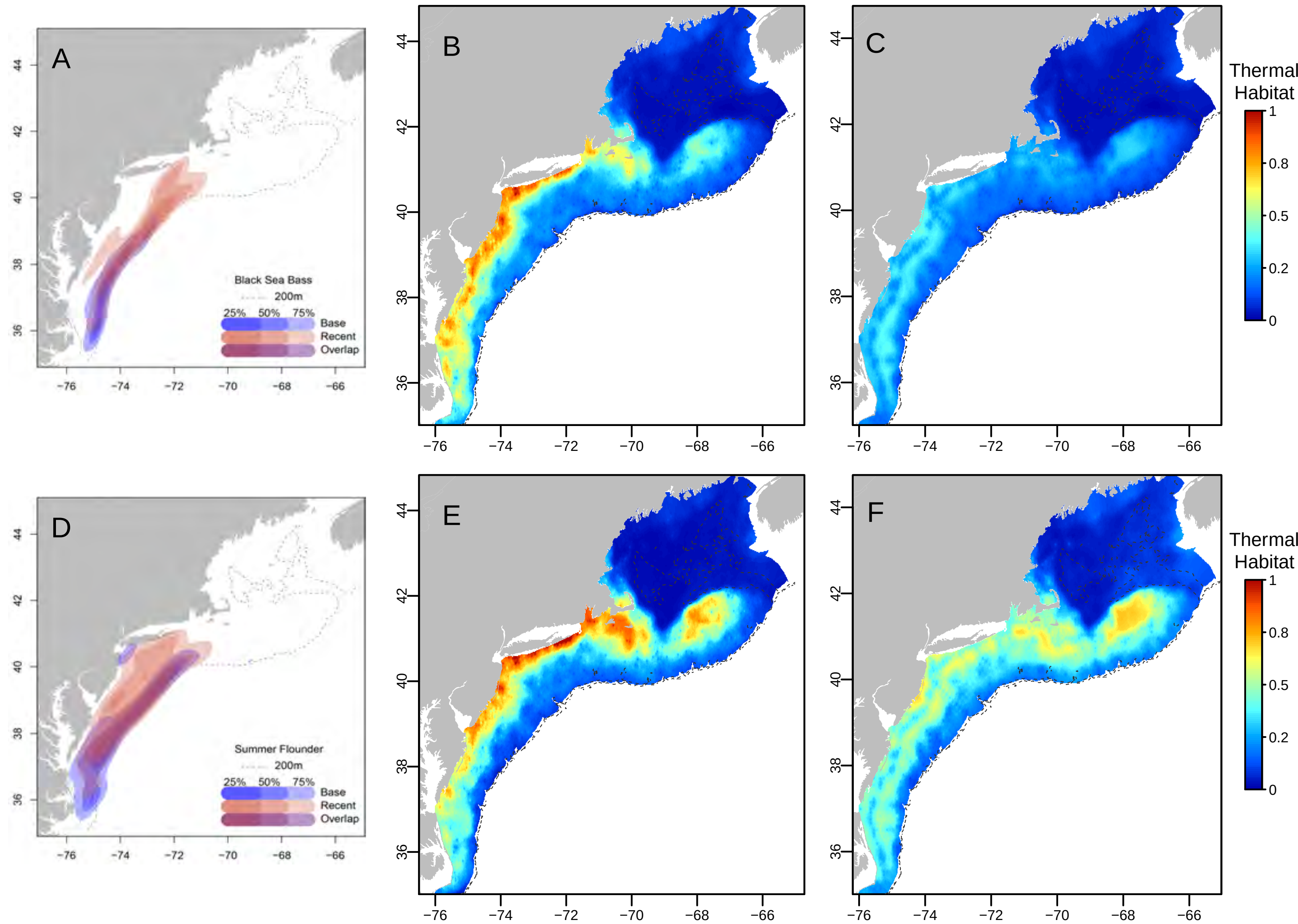

Figure 22: Current and historical abundance estimates (A), current thermal habitat estimate (B), and 20-40 year thermal habitat projection (C) for black sea bass (top) and summer flounder (bottom).

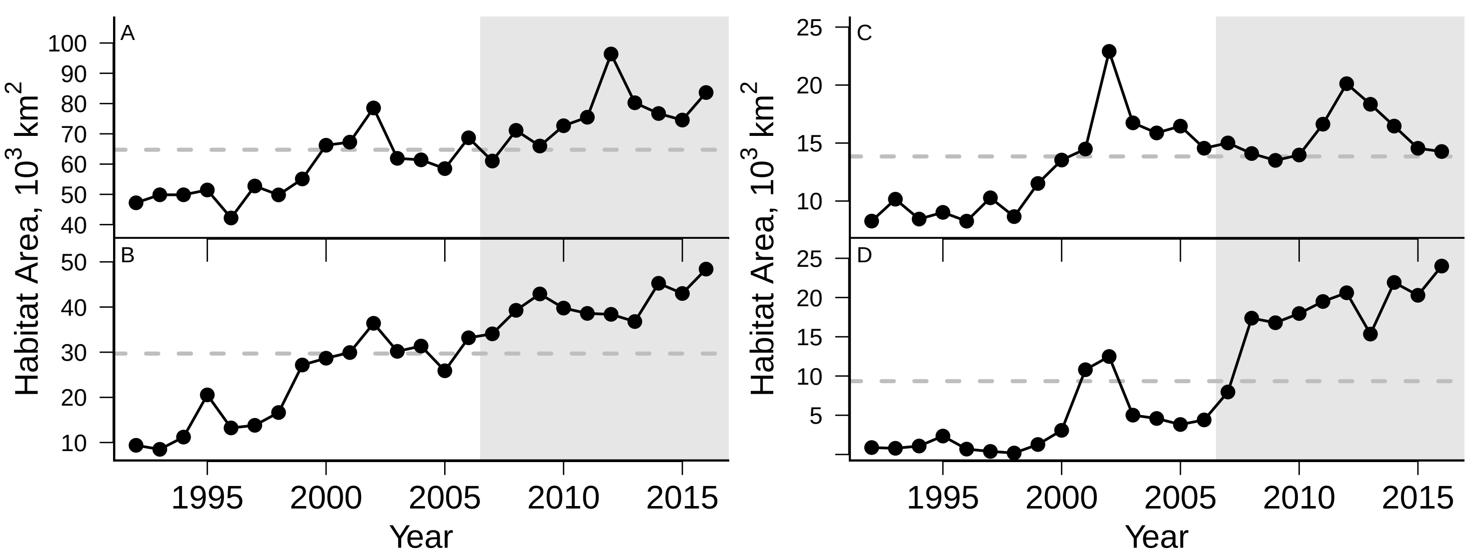

Figure 23: Summer flounder (left) and black sea bass (right) modeled shelf habitat trends (Top row: spring, bottom row: fall)

A full suite of the current distribution maps is available at www.nefsc.noaa.gov/ecosys/current-conditions/kernel-density.html, and all thermal habitat projections can be found at www.nefsc.noaa.gov/ecosys/climate-change/projected-thermal-habitat/

Incoming species (coastwide)

New species may be entering the Mid Atlantic ecosystem. Fishery observer records indicate that southern kingfish sightings have increased since 2014 when species validation methods were implemented, but this increasing trend has been in place since 2010. Further information from fishermen on new and uncommon species is welcome for this report.

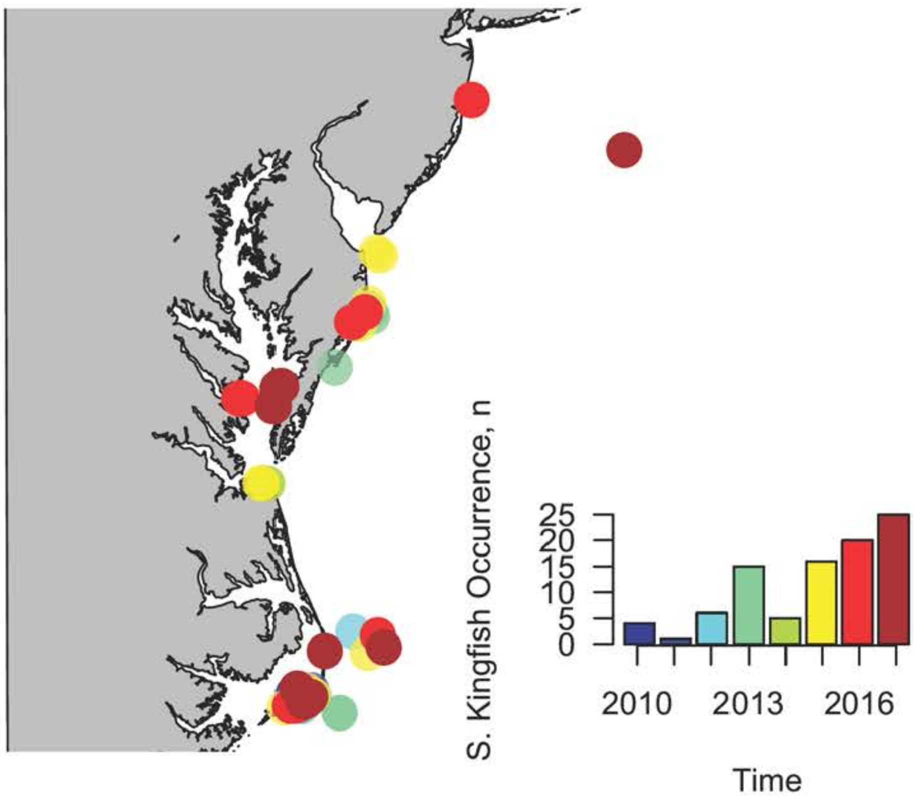

Figure 24: Southern kingfish occurrences in the observer database

Ecosystem Conditions and Productivity

Productivity of the system can be influenced by many factors. Temperature affects the behavior and physiology of marine organisms while changes in productivity and species composition at the base of the food web can influence juvenile survival. In this section we report temperature and lower trophic level production trends and annual cycles for the most recent year. We also look at fish productivity through recruitment and fish condition.

Observed ocean conditions

Long-term ocean temperature (coastwide)

Sea surface temperature (SST) measurements have been collected on the Northeast Continental Shelf since the mid-1800s. The highest mean annual temperature in this time series was recorded in 2012, as the ecosystem warmed above the levels last seen in the late 1940s. The 2017 datum is the sixth highest temperature in the time series. The positive trend over the full time series (1856-2016) is significant, and the trend over the most recent decade of the time series is even greater.

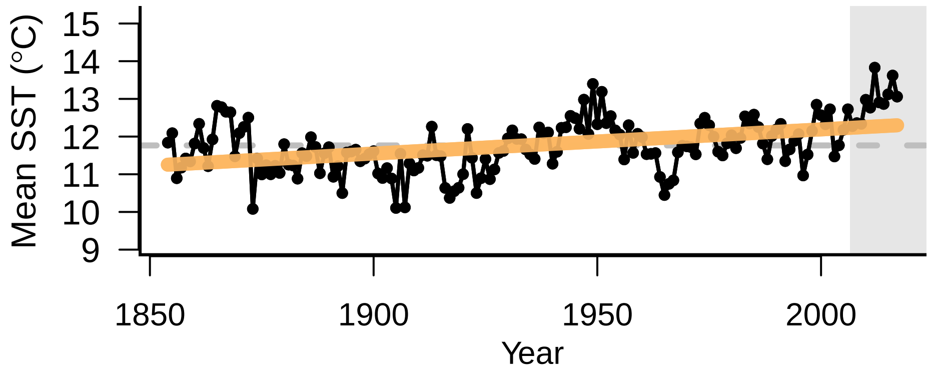

Figure 25: Long-term sea surface temperatures on the Northeast Continental Shelf

Annual cycles (2017) in ocean temperature and primary production (MAB)

The Mid-Atlantic experienced above average sea surface temperatures (SSTs) during 2017. In the figure below, the long term mean SST is shown as a black line with areas representing plus and minus one standard deviation of the mean as a shade of gray. SSTs for 2017 that were above the mean are shown in red and below the mean in blue, with emphasis added when the temperature exceeded or decreased below one standard deviation of the mean. Last winter was characterized by well above average temperatures in the Mid-Atlantic that transitioned to generally moderate conditions during summer. The Bight returned to warm conditions during October and remained above average for the balance of the year.

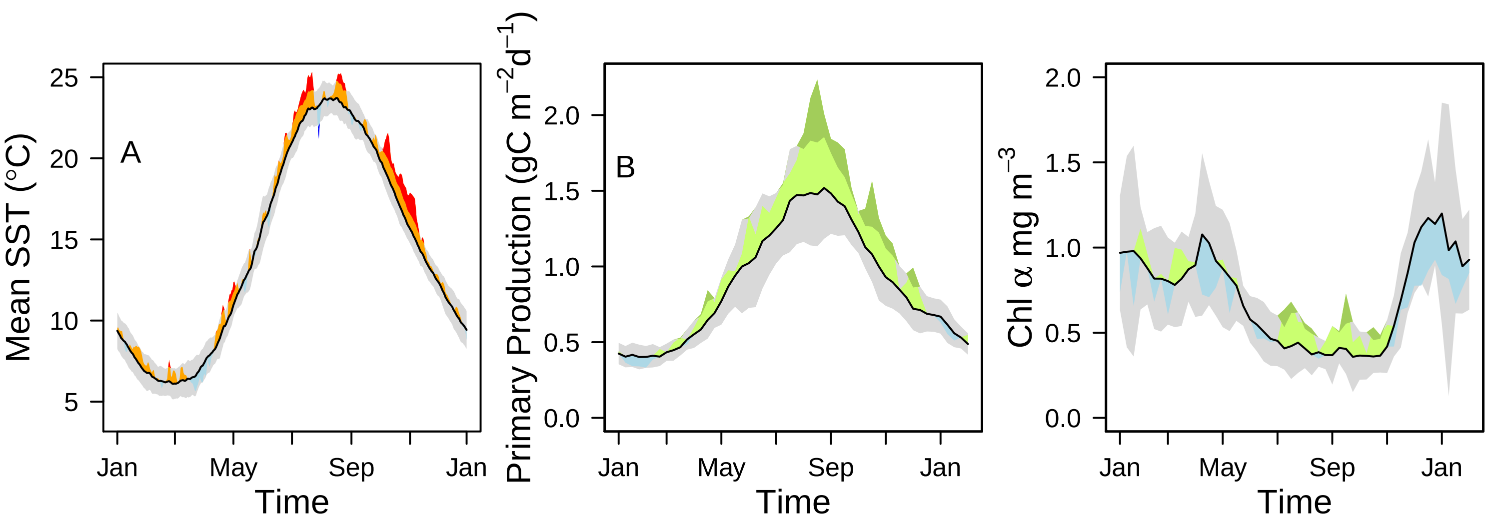

Figure 26: SST (A), primary production (B), and Chl a (C) over 2017 (colored polygons) compared against long-term mean (black line) and +/- 1 standard deviation (grey polygon) in the Mid-Atlantic

While sea surface temperature in the U.S. NES was warmer than average for 2017, there were some regions that experienced cooler than average conditions in some seasons. For most of the year the southern Mid-Atlantic Bight was cooler than average despite the entire U.S. NES region being above average.

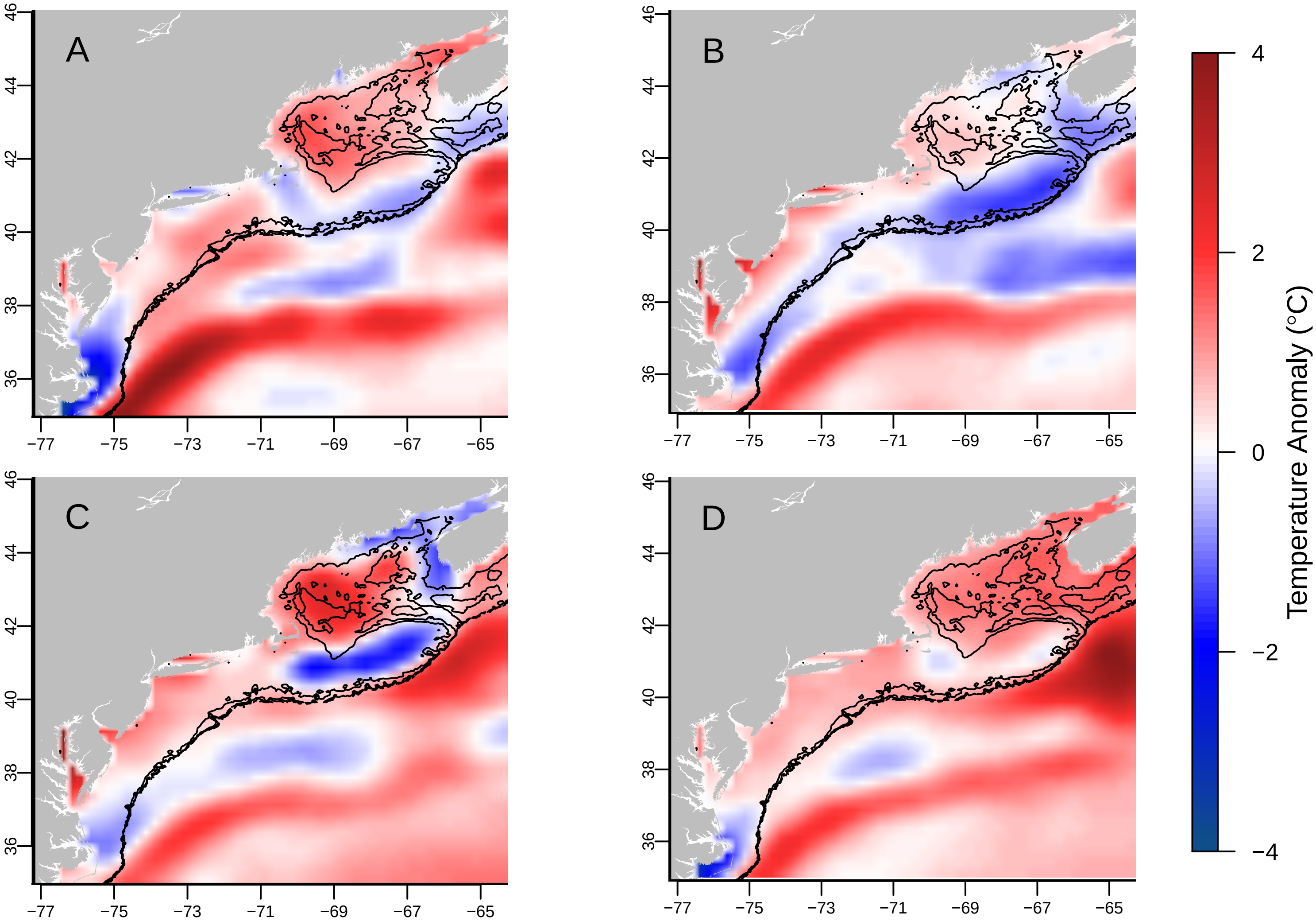

Figure 27: Sea surface temperature anomalies in winter (A), spring (B), summer (C), and fall (D) 2017.

Patterns in the lower trophic levels (MAB)

Chlorophyll a (CHL), an index for phytoplankton biomass, was above average in 2017, but there has been no distinct trend over the time series. Primary production (PP) was also above average during most of 2017 throughout the MAB and has had an upward trend since 2004. The high PP rates in the summer are likely due to increased remineralization of nutrients and regenerated production by smaller phytoplankton species. This suggests that while overall PP may be increasing, not all of excess PP may be available to higher trophic levels.

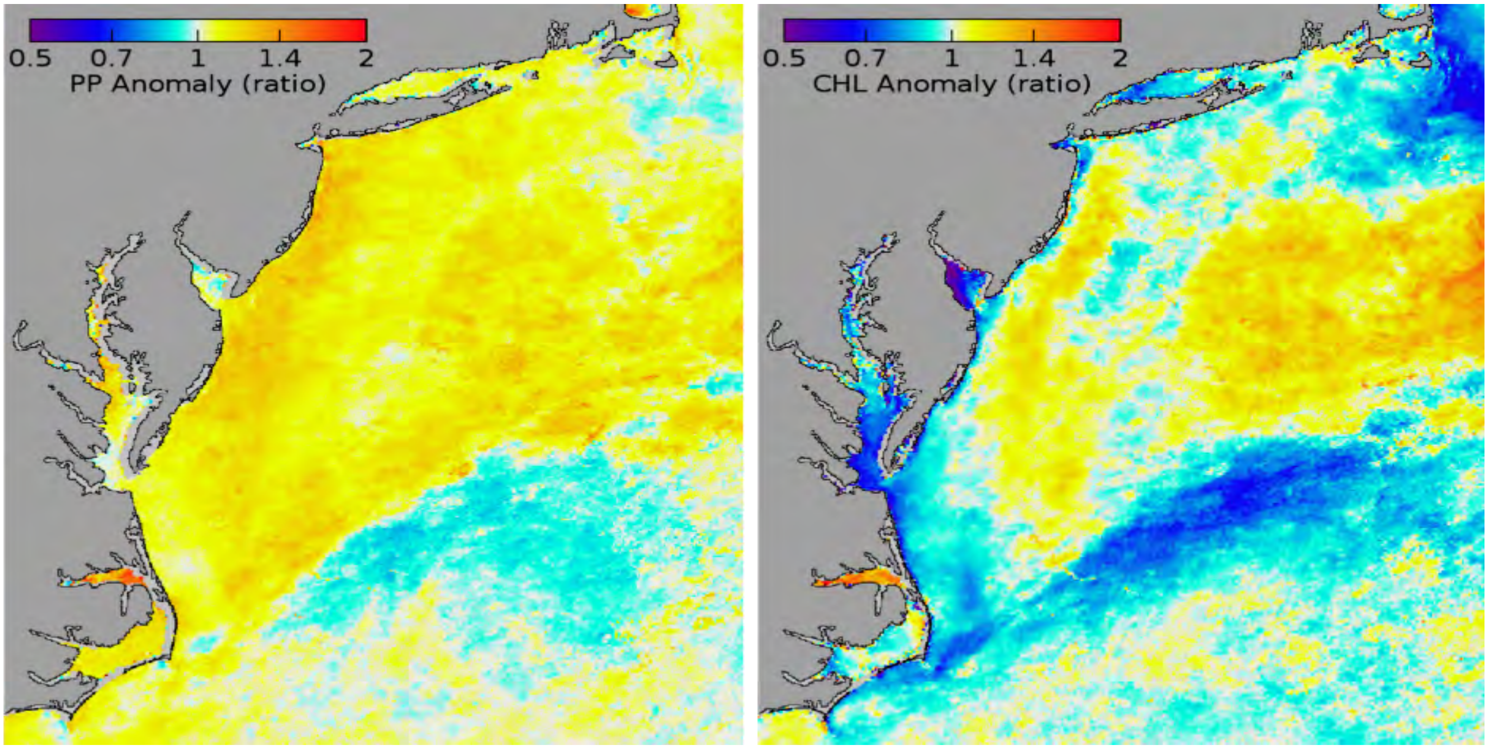

Figure 28: Primary production and chlorophyll anomaly maps

There is a coherent pattern between the primary production anomaly and the copepod size index for the MAB, with distinct peaks in production centered around 2002, 2010, and 2015, when the copepod size index was positive. The copepod size index relates the abundance anomaly of small bodied copepods to the abundance of a large bodied copepod, *Calanus finmarchicus*. Additionally, *Centropages typicus*, an important copepod in the MAB, exhibits a long-term decline in abundance, with negative anomaly observations beginning in the early 2000's.

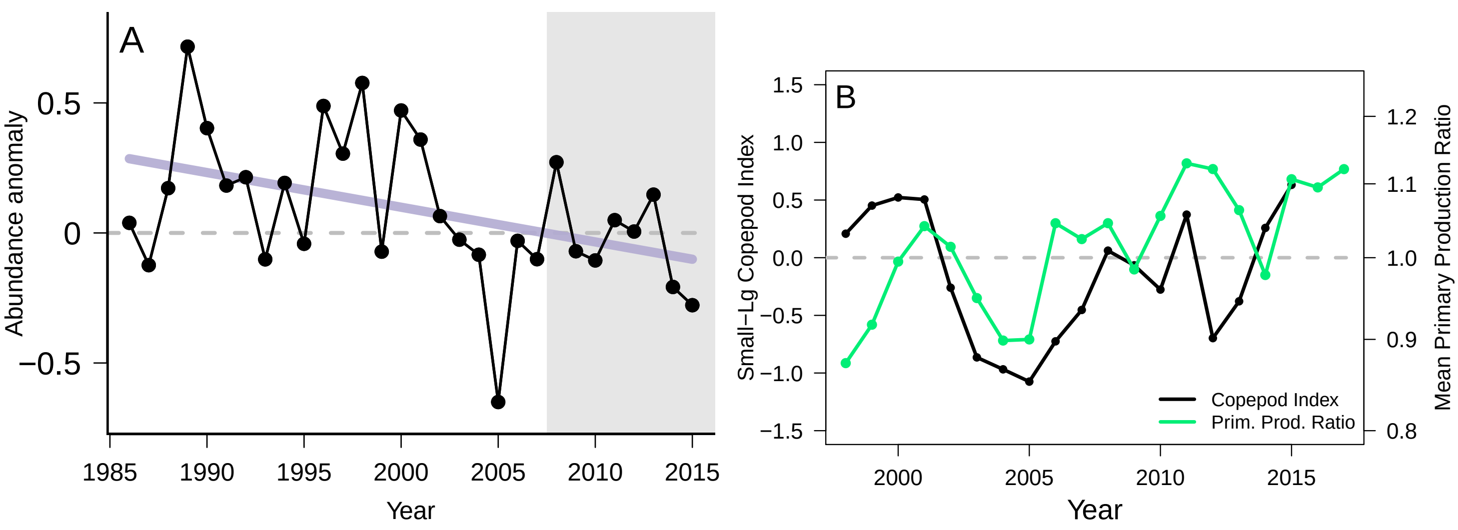

Figure 29: *C. typicus* abundance anomaly (A), and small-large copepod index with primary productivity anomaly (B) in the Mid-Atlantic.

Groundfish condition (coastwide)

Fish condition is measured as the weight per length–a measure of "fatness". This information is from NEFSC bottom trawl surveys and shows a change in condition across all species at around 2000. Between 2010-2013 many species started to have better condition, while black sea bass, goosefish and male spiny dogfish remained thinner for their length on average. This matches the trend in small-large copepods, perhaps reflecting changing nutrition across many species contributing to changes in condition.

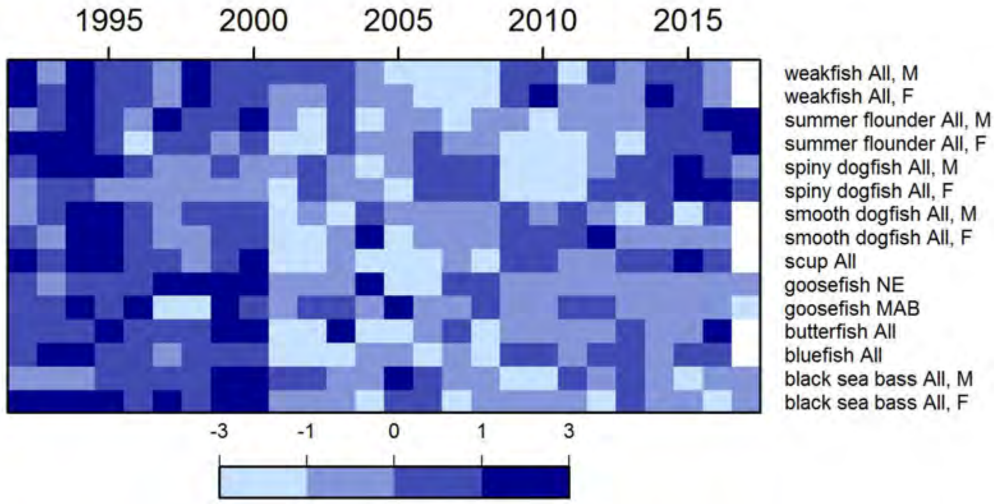

Figure 30: Groundfish condition, MAB

Groundfish productivity (MAB)

The number of small fish relative to the biomass of larger fish of the same species from the NEFSC survey is a simple measure of productivity, intended to complement model-based stock assessment estimates of recruitment for commercial species. There is a general decrease in this indicator when aggregated across managed species in the Mid-Atlantic.

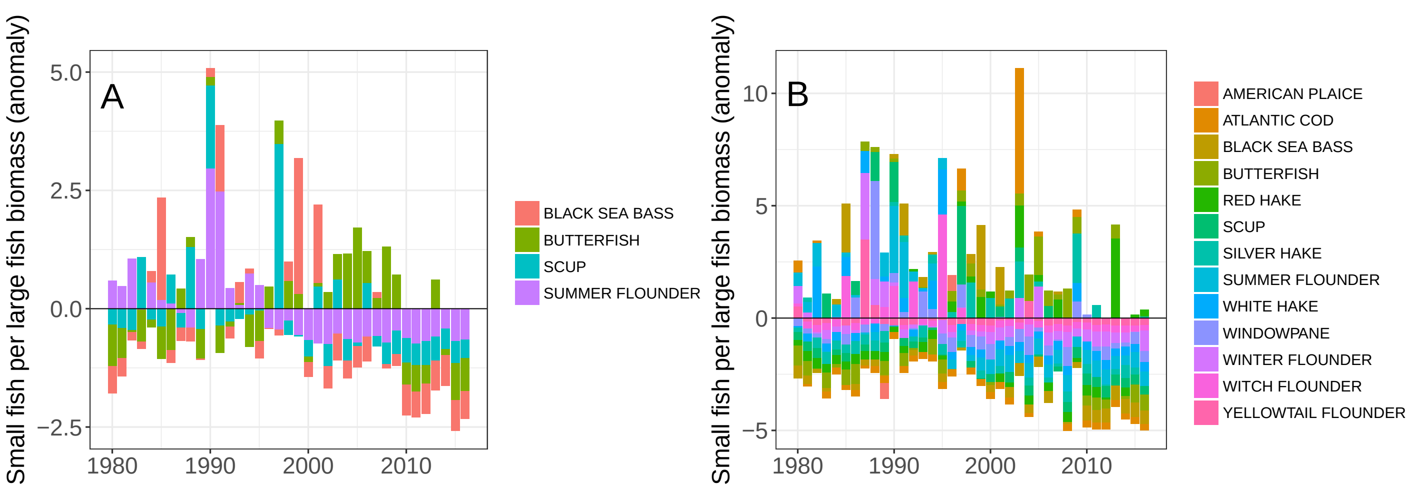

Figure 31: Groundfish productivity (A: MAFMC managed species, B: Commercial MAB Species)

Work in Progress

Forage fish energy content (coastwide)

Work is in progress to address changes in forage fish energy content, which links observed changes in the plankton to resource and protected species condition, reproductive success, and population dynamics. A collaborative project between UMASS Dartmouth Biology Department (Dr. Ken Oliveira, M.S student Kelcie Bean) and NEFSC Population Biology Branch (Mark Wuenschel) is underway to evaluate energy content of forage species. The study focuses on the following species; Atlantic herring, alewife, silver hake, butterfish, round herring, northern sandlance, menhaden, Atlantic mackerel, longfin squid, and northern shortfin squid. Samples are being analyzed from the 2017 spring bottom trawl survey (n=1200), 2017 fall bottom trawl survey (n=1000), and from NEFSC study Fleet (n=400). The percentage dry weight (water content) will be measured, as a predictor of energy density, and subsamples are being analyzed to determine remaining proximate composition (lipid, protein, ash) from which total energy can be calculated. Samples from multiple seasons, and regions will enable evaluation of spatial and temporal patterns in energy content of forage. These current estimates will also be compared to historical estimates of forage energy content in the region (where available), to evaluate if long-term changes have occurred. This study is more of an up to date 'snapshot' on the energy content of forage fishes, and not a time series per se; however, we hope the results will provide justification for and establish practical methods (e.g. % dry weight) to monitor energy content of key species on a routine basis.

Management Complexity (Mid Atlantic)

Constituents have frequently raised concerns about the complexity of fishery regulations and the need to simplify them to improve their efficacy. Complex regulations may lead to non-compliance and/or impact other fisheries. This could be evaluated by quantifying the number of regulations and/or the frequency of regulatory changes (based on evaluation of the Code of federal regulations). In terms of recreational fisheries, the magnitude and frequency of change of management measures (size and bag limits, seasons, etc.) could also be evaluated/quantified.

Research Recommendations

The SSC reviewed a draft of this report in March 2018, and requested a clearer definition of "Mid Atlantic" be included in the report (such as a map–*included in this revision*). Further, some important ecosystem dynamics happen at larger scales than the Mid Atlantic, so the SSC requested more rationale for the scale of indicators, and that indicators specific to the Mid-Atlantic region be clearly delineated from indicators representing a larger region. *Indicator scale has been included in section headings in this revision.* The SSC noted that some work had been done between the US and Canada to assemble survey information on species throughout the continental shelf across the international border and suggested that this information be examined and included if available and relevant. *This will be taken up as possible over the coming year.*

The SSC commented that the indicators presented in the report generally align with the overall objectives, that the objectives are the right ones to look at, and that this is a good starting point; however, there may be better indicators than the ones presented. For example, gross revenue is just a proxy for economic performance, which could be refined. Similarly, recreational participation is driven by both management and other influences well outside MAFMC management, such as availability of leisure time and competing recreational opportunities. As such, the SSC encourages more in-depth analysis of the social and economic indicators in the report. *This will be taken up as possible over the coming year.*

Acknowledgements

Editors: Sarah Gaichas, Sean Hardison, Sean Lucey

Contributors: Donald Anderson, Amani Bassyouni, Lisa Calvo, Lisa Colburn, Geret DePiper, Deb Duarte, Kevin Friedland, Sarah Gaichas, Heather Haas, Sean Hardison, Mike Hammil, Kimberly Hyde, Loren Kellogg, Kristin Kleisner, Dave Kulis, Sean Lucey, Chris Melrose, Ryan Morse, Kimberly Murray, Chris Orphanides, Charles Perretti, Karl Roscher, Vincent Saba, Laurel Smith, Mark Terceiro, John Walden, Harvey Walsh, Mark Wuenschel

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

MEMORANDUM

Date: March 26, 2018

To: Council

From: Matthew Seeley, Staff

Subject: Development and Approval of 2019-2021 Blueline Tilefish Specifications

As part of the 2019-2021 multi-year specification process for Blueline Tilefish, the Scientific and Statistical Committee (SSC) and Tilefish Monitoring Committee (MC) reviewed the most recent information to develop and approve specifications.

The following materials are enclosed:

1) Blueline Tilefish MC Summary (March 2018)
2) SSC Report – See Committee Reports Tab (March 2018)
3) Blueline Tilefish Requested Analyses (March 2018)
4) Staff Recommendation Memo to Chris Moore (February 2018)
5) Blueline Tilefish Fishery Performance Report (February 2018)
6) Blueline Tilefish AP Information Document, Council Staff (February 2018)

Additional materials can be found on the Council Website

1) Tilefish Pilot Survey Report
2) SEDAR 50 Report
3) Blueline Tilefish DLMTool Final Report (MAFMC/SAFMC Subcommittee) (March 2018)

	OFL	ABC		Rec ACL	Rec TAL	Comm ACL	Comm TAL
SSC	North of Hatteras 236,329 lbs (107.20 mt)	SAFMC 78,980 lbs (35.82 mt)	MAFMC 100,520 lbs (45.60 mt)	N/A	N/A	N/A	N/A
MC	N/A	100,520 lbs (45.60 mt)		73,380 lbs (33.28 mt)	71,912 lbs (32.62 mt)	27,140 lbs (12.31 mt)	26,869 lbs (12.19 mt)

Tilefish Monitoring Committee
Webinar Meeting Summary
March 16, 2018

2019-2021 Blueline Tilefish Recommendations

Attendees: Matt Seeley and José Montañez (Council Staff), John Maniscalco (NYSDEC), Paul Nitschke (NEFSC), Dan Farnham (Golden Tilefish Fishing Industry), Jeff Brust (NJDFW), and Cynthia Hanson for Doug Potts (GARFO). **Others in attendance:** Laurie Nolan (Golden Tilefish Fishing Industry and Council Member), Dewey Hemilright (Blueline Tilefish Fishing Industry and Council Member), Frank Green (Tilefish Advisory Panel Member), Fred Akers (Recreational Tilefish Angler), Steve Heins (Tilefish Committee Chair), and Jason Didden (Council Staff).

Discussion: The Tilefish Monitoring Committee (MC) was presented with a summary of the Scientific and Statistical Committee (SSC) deliberations of the March 2018 SSC meeting, where the SSC reviewed the 2018 Blueline Tilefish Advisory Panel Fishery Performance Report, the 2018 Blueline Tilefish Advisory Panel Information Document, and the DLMTool ABC recommendations from the joint Mid- and South Atlantic Blueline Tilefish Subcommittee. Based on the updated information presented, the SSC recommended a three-year ABC based on the DLMTool with a 150% CV buffer. The blueline tilefish recommended ABC for each year 2019, 2020, and 2021 is 100,520 pounds (45.6 mt). The monitoring committee discussed the different components of the blueline tilefish catch and recent fishery trends.

The Monitoring Committees' Comments and Recommendations

Annual Catch Targets and Landings Limits and Basis for Derivation

The recommendations in this section were made for the next three years (2019-2021). The Monitoring Committee endorses the management measures recommended by staff for 2019-2021. The Tilefish MC recommended the annual catch limit (ACL) equal the annual catch target (ACT; no adjustment for management uncertainty)[1] of 73,380 pounds (33.28 mt) for the recreational sector and 27,140 pounds (12.31 mt) for the commercial sector for each year 2019, 2020, and 2021. The MC recommended the total allowable landings (TAL) be reduced by 2% and 1% for recreational and commercial discards, respectively. The recommended recreational TAL is 71,912 pounds (32.62 mt) for each year (2019, 2020, and 2021). The recommend commercial TAL is 26,869 pounds (12.19 mt) for each year (2019, 2020, and 2021). All catch and landings limits are shown in Table 1.

[1] The MC discussed industry concerns related to recreational blueline tilefish landings. The MC believes that the limited data available outside of MRIP is the best available science. The MC will continue to monitor this issue.

The MC shares the SSC's concern over the poorly described level of recreational catch for blueline tilefish. The MC notes that recreational effort and landings by party/charter vessels have increased in recent years and that private vessel activity has the potential to greatly alter total landings. Effort to develop private recreational methods is underway and anticipated to be in effect in 2020.

Recreational Management Measures

The MC recommended no changes to the current recreational management measures. The recreational season will run May 1 – October 31 with bag limits set at 7 fish for U.S. Coast Guard inspected vessels, 5 fish for uninspected vessels, and 3 fish for private vessels. The MC recommended to not use MRIP numbers to estimate recreational harvest of blueline tilefish. Intercepts are continuously low for blueline tilefish (e.g. rare event species).The MC questioned whether MRIP recreational harvest estimates remain below the detection levels of the survey.

There is currently no system set in place to monitor the recreational ACL. The Delphi method was run in 2016 and offered recreational landings for charter, headboat, and private anglers. The Delphi method was used to develop a recreational time series for blueline tilefish through extrapolation of survey results. To identify an adjusted proportion for the private anglers to charter anglers, in 2015 (terminal year of data analyzed in the Delphi), private landings of 11,326 pounds was divided by the charter landings of 10,770 (Table 2). This ratio was used to back calculate private recreational landings in relation to charter landings from vessel trip reports (VTRs). This method had been peer reviewed and accepted as best available science by SEDAR 50 and further recommended by the MC. In 2017 and 2018, Council staff combined party/charter VTRs and MRIP data to estimate recreational landings[2]. However, the MC questioned whether MRIP detectability issues for estimating blueline private recreational harvest have improved enough to warrant the use of the MRIP survey in monitoring the recreational component. To monitor the recreational fishery in the future, the MC recommended using the Delphi percentage of 105.16% of charter vessel landings to estimate landings for the private angler. This is an interim fix to not having private recreational landings and will be used until more data is available or an improved method is developed. Party and charter landings will continue to be monitored using the most updated VTRs as those anglers are required to report, there are better data requirements, and more outreach effort has been applied to party/charter fishermen.

Commercial Management Measures

The MC recommended changes to the current 300-pound (gutted weight) blueline tilefish commercial trip limit. The commercial trip limit will start at 500 pounds per trip on January 1 of the fishing year until 70% (18,808 pounds or 8.53 mt) of the commercial TAL has been met. Then,

---

[2] For-hire landings as reported through VTRs are in numbers of fish. Numbers were further projected into pounds by using the available MRIP landings in numbers and pounds to calculate the average weight per blueline tilefish. This weight was applied to the number of fish as reported through VTRs to calculate estimated for-hire landings in pounds. Using "total catch" in the MRIP Query as the type of catch resulted in an average weight of 4.4 pounds per fish (15,166 pounds/3444 fish).

the commercial trip limit will be reduced to 300 pounds per trip for the remaining 30% (8061 pounds or 3.66 mt) of the commercial TAL. Previous comments on Amendment 6 to the Tilefish Fishery Management Plan indicated that a 500-pound commercial trip limit will lead to some directed blueline tilefish trips. Trip landing data under the 300-pound trip limit suggested little evidence for targeted commercial blueline trips. Increasing the trip limit offers a greater chance of reaching optimum yield, while the reduction to 300 pounds at 70% of the TAL offers a buffer to reduce the likelihood of exceeding the commercial TAL and further spreads landings throughout the year. All MC members are supportive of this alteration to the commercial trip limit.

Discards

The MC recommended no changes to the 2% recreational and 1% commercial reduction from ACT to TAL regarding blueline tilefish discards. The current measures were developed using the average percentage of discards from 2011-2015. According to VTR data, discards in the recreational and commercial fisheries were both ~1%. Due to the uncertainty in landings within the recreational fishery and the change in trip limit for the commercial fishery, the MC recommended a status quo reduction from the ACT to TAL.

Table 1. Summary of SSC and MC recommendation for catch and landings limits for blueline tilefish for 2019-2021.

Specification	Recreational	Commercial
ABC	100,520 lbs (45.60 mt)	
ACLs	73,380 lbs (33.28 mt)	27,140 lbs (12.31 mt)
ACTs	73,380 lbs (33.28 mt)	27,140 lbs (12.31 mt)
TALs	71,912 lbs (32.62 mt)	26,869 lbs (12.19 mt)

Table 2. Recreational time series for VA-ME (numbers of fish) from 2003-2015 constructed from the Delphi Method (Memo to Chris Moore from Jason Didden on February 23, 2016).

Year	Charter VTR	Headboat VTR	Adjusted Charter (5.99X)	Adjusted Headboat (1.40X)	Private (105.16% of Charter)	Total landings	Total Catch (2% Discards)
2003	Confidential but low - 2003-2006 data averaged for annual total amounts					211	215
2004						211	215
2005						211	215
2006						211	215
2007	500	2,498	2,995	3,495		6,490	6,623
2008	216	391	1,294	547		1,841	1,878
2009	313	3,861	1,875	5,402		7,277	7,426
2010	159	2,127	952	2,976		3,928	4,009
2011	324	3,261	1,941	4,563	2,041	8,544	8,719
2012	381	9,670	2,282	13,530	2,400	18,212	18,584
2013	711	11,127	4,259	15,569	4,479	24,306	24,802
2014	983	14,866	5,888	20,800	6,192	32,881	33,552
2015	1,798	11,636	10,770	16,281	11,326	38,377	39,160

Report of the March 2018
Meeting of the MAFMC SSC

See Committee Reports
Tab # 9

MID-ATLANTIC | FISHERY MANAGEMENT COUNCIL

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: March 26, 2018

To: Council

From: Matthew Seeley, Staff

Subject: Blueline Tilefish Requested Analyses

Following the Tilefish Advisory Panel Meeting, Council Staff received a request for specific blueline tilefish analyses. This request came in response to the comments provided in the Advisory Panel Fishery Performance Report. These data analyses support the Blueline Tilefish Fishery Information Document and provide further detail on the fishery.

1. What is the breakdown by gear of pounds of blueline tilefish landed (and percent) in 2017?

Gear	Pounds	Percentage
Longline	2844	28.56
Handline	1932	19.40
Trawl	3728	37.44
Gill Net	9	0.09
Dredge	95	0.95
Unknown	1349	13.55
Sum	9957	100.00

2. Of the 2017 landings, what gear was used and how many trips landed 1-99 lbs, 100-199 lbs, 200-299 lbs, 300-399 lbs, or 400+ lbs?

	1-99	100-199	200-299	300-399	400+	Sum
Longline	10	3	4	3		20
Handline	10	3	1	1	1	16
Trawl	101	4	4			109
Gill Net	1					1
Dredge	2					2
Unknown	23	4	1			28
Sum	147	14	10	4	1	176

3. Based on VTR data, what statistical areas accounted for the most harvest in 2017?

Percentage	Stat Area
49.76	616
17.86	626
12.21	622
9.72	537
5.38	621
5.07	Other

4. What are the commercial landings by state in 2017?

State	Landings (lbs)
CT	338
DE	245
NJ	1300
NY	2638
RI	2309
VA	3127

5. In 2017, how many trips landed both golden and blueline tilefish? What gear landed both species?

Gear	Number of trips	Percentage
Longline	19	13.97
Handline	7	5.15
Trawl	89	65.44
Gill Net	1	0.74
Dredge	2	1.47
Unknown	18	13.24
Sum	136	100.00

6. In 2017, when a blueline tilefish was caught in trawl gear, what other species were landed?

Species	Landings (lbs)
Squid (Loligo)	877,550
Scup	182,166
Summer Flounder	90,681
Butterfish	83,936
Silver Hake	80,294
Squid (Illex)	39,728
John Dory	33,768
Black Sea Bass	29,515
Angler	29,377
Winter Skate	20,227
Golden Tilefish	17,515
Red Hake	16,620
Atlantic Croaker	7,740
Whiting (King)	3,870

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: February 23, 2018

To: Dr. Chris Moore, Executive Director

From: Matthew Seeley, Staff

Subject: Blueline Tilefish ABCs

Summary

This memo supports the March 2018 SSC meeting for setting blueline tilefish specifications for up to three years (2019-2021).

Introduction

The Magnuson Stevens Act (MSA) as currently amended requires each Council's Scientific and Statistical Committee (SSC) to provide, among other things, ongoing scientific advice for fishery management decisions, including recommendations for acceptable biological catches (ABCs). The SSC recommends ABCs to the Mid-Atlantic Fishery Management Council (the Council) that address scientific uncertainty such that overfishing is unlikely to occur per the Council's risk policy. The Council's ABC recommendations to NMFS for the upcoming fishing year(s) cannot exceed the ABC recommendation of the SSC. As such, the SSC's ABC recommendations form the upper limit for catches of Council-managed species.

Once the SSC meets and decides on an ABC, the Tilefish Monitoring Committee will meet to discuss if changes to other management measures should be recommended per the ABCs from the SSC and other management considerations. These measures include Annual Catch Limits (ACLs), Annual Catch Targets (ACTs), and Accountability Measures (AMs). Based on the SSC's and Monitoring Committee's recommendations, the Council will make recommendations to the NMFS Northeast Regional Administrator. Based on NMFS' evaluation of the Council's recommendations, NMFS will publish a Proposed Rule for specifications and then a Final Rule, which may change from the Proposed Rule based on public comment.

Regulatory Review

In June of 2015 emergency regulations were put into place in the Mid-Atlantic to temporarily constrain fishing effort on the blueline tilefish stock. These regulations consisted of a 300-pound commercial trip limit and a recreational seven fish bag limit and were extended through the 2016 fishing year.

In 2016, based on the output of the DLM Toolkit, which simulates stock responses to different harvest strategies, the SSC recommended a 2017 blueline tilefish ABC of 87,031 pounds as meeting the Council's risk policy to best avoid overfishing when guidance from a standard stock assessment is not available. This toolkit has been used previously by the SSC to develop ABC recommendations for black sea bass and Atlantic mackerel. Details on the analysis and rationale of the SSC can be found in the working group's report, available at http://www.mafmc.org/briefing/april-2016 (see subcommittee report and SSC presentation). This document also notes that due to the limited information on recreational blueline tilefish catch, the recreational catch histories used in the toolkit resulted from a Delphi Approach workshop with fishermen to develop an approximation of 2015 recreational catch, and then a time series was created based on the Delphi Approach estimate and other available data.

In Spring 2017 the SSC recommended a status quo ABC of 87,031 pounds for 2018. Specifications were only recommended for one year as the SEDAR 50 benchmark assessment was anticipated to be completed late in 2017 and dramatically change the biological reference points.

Biological Reference Points, Stock Status, and Projections

In early 2017, the SSC determined that under the ABC control rule, blueline tilefish are classified as a fishery where the overfishing limit (OFL) cannot be specified given the current state of knowledge and thus, the SSC used methods that do not rely on biological reference points.

The SEDAR 50 assessment for blueline tilefish concluded in late 2017. Within the assessment, blueline tilefish were split into two separate stocks, north and south of Cape Hatteras. ABC recommendations were set for the region south of Cape Hatteras (not overfished, overfishing not occurring), but data limitations restricted an ABC recommendation for the region north of Cape Hatteras, which encompasses the Mid-Atlantic management areas. To assist in developing an ABC recommendation, the Mid- and South Atlantic Councils/SSCs, as well as staff from the Northeast and Southeast Fisheries Science Centers developed a joint subcommittee to rerun the DLM Toolkit for the region north of Cape Hatteras. The results will be partitioned at the Council boundaries using coastwide catch data from the recently completed pilot tilefish survey funded by the MAFMC out of SUNY Stony Brook.

Landings

Updated 2017 dealer landings information is provided in Table 1; the lower 2015/2016 commercial landings were the expected outcome of the emergency regulations in place for part of 2015 and most of 2016. In 2016, dealer landings adjustments were made (landings times 0.89) for landings coming from Virginia. Landings from statistical areas 631 and 632 (which straddle the North Carolina-Virginia border) were apportioned half to north of the North Carolina/Virginia border and half south. These adjustments were initially made to account for landings lacking area information or for the chance those fish may have been caught south of the Virginia border, yet landed in Virginia. For 2017, no adjustments were made to the dealer landings following the methods and recommendations from the joint Mid- and South Atlantic

Blueline Tilefish Subcommittee, which stated that landings into a certain state within the modeled area are 100% landings into that state.

The Delphi process[1] judged VTR records as unreliable before 2012, so the included VTR time series begins in 2012 to facilitate comparison with the most recent years (Table 2). Since 2016, MRIP (2017-preliminary) has estimated substantial blueline tilefish catch for the Mid-Atlantic, totaling 36,818 fish in 2016 (10,644 MD, 3,040 NJ, 23,134 VA) and 3,444 fish in 2017 (all VA). Considering the current changes occurring with MRIP and since blueline tilefish are a rare event species it remains unclear on how these numbers may be affected in the near future.

<u>OFL/ABC Recommendations</u>

OFL

The SSC determined that the approach to estimating the ABC for blueline tilefish qualifies it as a stock for which there is no accepted OFL. Additionally, an OFL recommendation was not provided through the SEDAR 50 assessment.

ABC

The joint Mid- and South Atlantic Blueline Tilefish Subcommittee ran the DLM Toolkit for the stock north of Cape Hatteras using a more recent time series of total blueline tilefish catch (2002-2015) than the SEDAR 50 assessment. The subcommittee agreed that the recommended ABC would be the mode of the total allowable catch distribution provided by a composite management procedure, which is a combined distribution comprised of total allowable catch values estimated by DLMTool's Fdem_ML and YPR_ML management procedures. The DLM Toolkit provided an ABC for the stock north of Cape Hatteras of 236,329 pounds.

To appropriately partition this ABC recommendation to the Mid- and South Atlantic Council's jurisdictions, the subcommittee agreed that using blueline tilefish catch data from the Mid-Atlantic Council funded pilot tilefish survey offered the most updated and reliable stock distribution information. The pilot tilefish survey was conducted using a random stratified design across the Mid-Atlantic from just north of Hudson Canyon to Cape Hatteras (Figure 1). This region was broken into nine strata. Strata 1-3 were removed for blueline tilefish evaluation due to no catch in those regions. Of the 75 blueline tilefish caught, 37 were north of the North Carolina/Virginia border and 38 were between the North Carolina/Virginia border and Cape Hatteras. Incorporating this catch with the sampled stratified area plus a 24.8% area adjustment (in strata 9 of the survey) to account for the unsampled area within strata 9 resulted in a stratified proportion of 56% - MAFMC and 44% - SAFMC.

Considering the recommendations from the joint Mid- and South Atlantic Blueline Tilefish Subcommittee and given recent fishery performance, which has been constrained by the

[1] A Delphi Approach workshop with fishermen was used to develop an approximation of 2015 recreational catch, and then a time series was created based on the Delphi Approach estimate and other available data.

regulations, Council staff recommends a blueline tilefish ABC of 132,344 pounds and specifying it for 3 years (2019-2021).

Table 1. Dealer Landings

Year	Pounds Landed
1999	33
2000	2,446
2001	955
2002	269
2003	7,601
2004	5,829
2005	2,032
2006	3,039
2007	20,459
2008	8,749
2009	9,635
2010	8,360
2011	8,182
2012	9,624
2013	26,780
2014	217,016
2015	73,668
2016	14,203
2017	9,957

Table 2. For-hire VTR kept fish from VA-ME (numbers of fish)

Year	Party Kept Fish	Charter Kept Fish
2012	9,670	381
2013	11,127	711
2014	14,866	983
2015	12,138	2,253
2016	13,476	2,017
2017	8,213	1,413

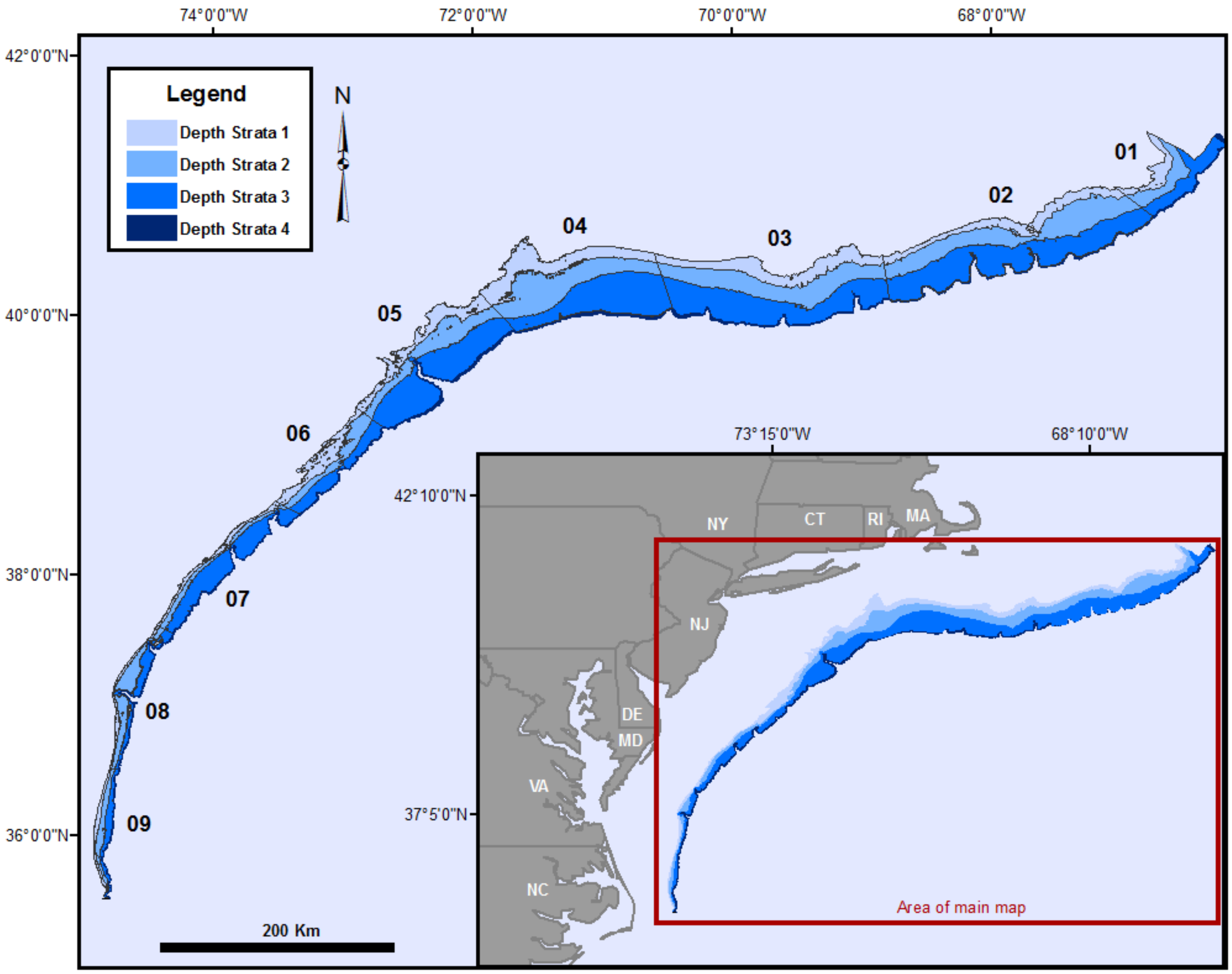

Figure 1. Pilot tilefish survey sampling regions based on a random stratified design.

2018 Tilefish Advisory Panel (AP)
Blueline Tilefish Fishery Performance Report (FPR)

The Mid-Atlantic Fishery Management Council's (Council's) Tilefish Advisory Panel (AP) met via Webinar on February 21, 2018 to review the fishery information document and develop the **Blueline** Tilefish Fishery Performance Report (FPR) based on advisor perspectives on catch/ landings patterns and other trends in this fishery. The following is the report from the AP.

The Advisers in attendance were: David Arbeitman, Skip Feller, Jeffrey Gutman, and John Nolan III. They represent tilefish commercial fishermen (from New York); recreational fishermen (private/head boats, bait and tackle business, from New Jersey and Virginia). Also in attendance were: Laurie Nolan – Council Member; Ec Newellman; Paul Nitschke – NEFSC; Yan Jiao – SSC Member; Matthew Seeley and José Montañez – Council Staff.

The fishery performance report's primary purpose is to contextualize catch histories for the Scientific and Statistical Committee (SSC) because of the potential importance of this and related information for determining Acceptable Biological Catches (ABCs) in cases of fisheries with high levels of assessment uncertainty. The goal is to allow comparing and contrasting of the most recent year's conditions (2016/2017) and fishery characteristics with previous years. The following trigger questions were used to guide discussion, and the summary of the AP's input follows.

*What factors have influenced recent catch?
– Markets/economy? – Environment? – Fishery regulations? – Other factors?

*Are the current fishery regulations appropriate? How could they be improved?
-Gear regulations and exemptions? -Trip Limits? -Others?

*Where should the Council and Commission focus their research priorities?

*What else is important for the Council to know?

General Observations

- No major changes have been observed for bluelines in terms of catch rates/composition. Once blueline limits are met then recreational trips search for other targets (goldens). There is a sense from some AP members that the fishery restrictions are/will be benefiting recreational catch per unit effort (CPUE).
- Two AP members want to leave the 3, 5, 7 bag limit (very important). If head boat bag limits drop lower than 7 the head boat community will have greater difficulty filling their trips. The larger bag limit is necessary to encourage anglers to come out.

Factors Influencing Catch

- When targeting other species, trip limits restrict commercial fishermen from targeting areas where bluelines are present.

- Recreational limits depress catch and effort.
- Weather continues to impact effort – Weather in 2017 (hurricanes) similar or slightly windier vs 2016.
- Recreational effort changes – Some areas seem to have higher numbers of deep-droppers (Northern), others lower in 2017 (Mid Delmarva area – less offshore activity generally in 2017). The fishery is becoming more and more understood and more people have the required gear. Moderate tuna availability in deeper water translates into highest effort (enough tuna to create effort, but not so much as to occupy interest for a whole trip). This applies for bluelines even more than goldens due to shallower depth of bluelines.

Input on Regulations

- Has the 300-pound incidental trip limit caused any regulatory discarding? Not too often – incidental landings in 2017 were typical and generally accommodated by the 300-pound trip limit. Some southern area effort has had to shift within particular trips to avoid bluelines once 300 pounds were retained.
- Has the 7-fish recreational trip limit caused any regulatory discarding? No, but it continues to cause shifts in effort away from bluelines once the limit is reached.
- Some AP members would like the Council to consider a higher trip limit for longer recreational trips, structured after Gulf of Mexico regulations (makes filling trips easier). Other AP members were concerned about the impact of higher recreational limits on the overall fishery especially given low ABC and recreational catch uncertainty. Advisors want to avoid creating a directed fishery especially with the uncertainty of the overall stock.
- Regarding the recreational measures in Amendment 6[1] to the Tilefish FMP:
  Advisors recommended multi-day considerations for head boat trips. Following this recommendation, one advisor recommended standing pat with the current system as it is very important to keep the recreational and commercial sector within the ABC.

Research Priority Ideas

- Continue to organize/facilitate surveys to help inform the assessments.
- Need a successful assessment to provide biological reference points.

Other Issues Raised

- General concern about appropriateness of current ABC given recent catches. Blueline ABC is 1/20th of golden tilefish despite likely similar productivity in mid-Atlantic – does not make sense.

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[1] May 1 – October 31 and per-person recreational bag limits of 7 blueline tilefish on for-hire inspected vessels, 5 blueline tilefish on for-hire uninspected vessels, and 3 blueline tilefish on private vessels

Credit: Duane Raver, Jr.

Blueline Tilefish - Advisory Panel Information Document[1]
February 2018

Management System

A final rule was published to establish management measures for the blueline tilefish fishery north of the Virginia/North Carolina border through Amendment 6 to the Tilefish Fishery Management Plan. This rule also publicized status quo management measures for 2018. The intended effect of this action was to establish permanent management measures for the fishery consistent with the requirements of the Magnuson-Stevens Act. This rule became effective on December 15, 2017. Under this rule commercial vessels can fish year-round until closure and are limited to 300 pounds gutted (heads and fins attached) weight. The recreational blueline tilefish season runs from May 1 through October 31 and the possession limit depends on the type of vessel being used. Anglers fishing from private vessels are allowed to keep up to three blueline tilefish per person per trip. Anglers fishing from a for-hire vessel that has been issued a valid Tilefish Charter/Party Permit but does not have a current U.S. Coast Guard safety inspection sticker can retain up to five blueline tilefish per person per trip. Finally, anglers on for-hire vessels that have both a valid Tilefish Charter/Party Permit and a current U.S. Coast Guard safety inspection sticker can retain up to seven blueline tilefish per person per trip.

Basic Biology

Blueline tilefish are primarily distributed from Campeche, Mexico northward through the Mid-Atlantic (Dooley 1978, NMFS survey and observer data). Several recently-completed studies suggest that blueline tilefish from the eastern Gulf of Mexico through the Mid-Atlantic are comprised of one genetic stock (http://sedarweb.org/sedar-50-data-workshop). Blueline tilefish inhabit the shelf edge and upper slope reefs at depths of 46-256m (Sedberry et al. 2006) and temperatures between 15-23°C. Blueline tilefish are considered opportunistic predators that feed on prey associated with substrate (crabs, shrimp, fish, echinoderms, polychaetes, etc.) (Ross 1982). They are considered relatively sedentary and thought not to undertake north-south migrations along the coast. The species constructs burrows in sandy areas in close association with rocky outcroppings in the South Atlantic Bight (SEDAR 50 Stock ID workshop).
Blueline tilefish, like other tilefish species, are a large, long-lived fish, reaching sizes up to about 900 mm. This species also exhibits dimorphic growth with males attaining larger size-at-age than females. Males are predominant in the size categories greater than 650 mm FL. An aging

[1] This document was prepared by the MAFMC staff. Data employed in the preparation of this document are from unpublished National Marine Fisheries Service (NMFS) Dealer, Vessel Trip Reports (VTRs), Permit, and Marine Recreational Statistics (MRFSS/MRIP) databases.

workshop conducted to support the new blueline tilefish assessment (SEDAR 50) has called into question the ability to accurately age blueline tilefish, so previous age determinations may have substantial error. They are classified as indeterminate spawners, with up to 110 spawns per individual based on the estimates of a spawning event every 2 days during a protracted spawning season from approximately February through November.

The Council funded a pilot survey for golden and blueline tilefish in the Mid-Atlantic to develop better information about the state of the golden and blueline tilefish stocks off the Mid-Atlantic. A review committee is analyzing the final report to identify significant findings and provide recommendations on next steps.

The SAFMC's SSC has provided an updated blueline tilefish ABC for the region south of Cape Hatteras (172,000, 175,000, 178,000 pounds whole weight for 2018, 2019, and 2020, respectively). Genetic work done for SEDAR 50 suggests a genetically homogenous population off the entire Atlantic coast, but does not suggest what catch may be appropriate off various parts of the coast.

Given the differences between the blueline tilefish fisheries off the Mid- and South Atlantic, and the gaps in information on blueline tilefish off the Mid-Atlantic incorporated in the last stock assessment, the results of SEDAR 50 (similar to those of SEDAR 32) are not sufficient for management off the Mid-Atlantic (north of Cape Hatteras). The MAFMC and SAFMC have formed a blueline tilefish subcommittee to assist in making ABC recommendations to their respective SSCs using the Data Limited Toolkit. This will offer an opportunity to partition blueline tilefish ABCs that cross the two management areas. The SSC will develop the 2019-2021 blueline tilefish ABC recommendations using recommendations from the subcommittee at its March meeting.

Status of the Stock

NMFS lists blueline tilefish as overfished, but not overfishing from the SEDAR 32 assessment (http://www.nmfs.noaa.gov/sfa/fisheries_eco/status_of_fisheries/status_updates.html). Updated stock status information was identified through SEDAR 50, the 2017 benchmark assessment. The blueline tilefish stock, which was split into north and south of Cape Hatteras stocks, was determined to be not overfished with overfishing not occurring for the region south of Cape Hatteras. Unfortunately, this assessment did not provide stock status information relevant to the Mid-Atlantic management area due to insufficient data. This is being addressed by the joint Mid- and South Atlantic blueline tilefish subcommittee.

Fishery Performance

Landings into VA-ME (Figure 1) were generally very low except for 2013-2015, when regulations south of Virginia, the lack of regulations in Federal waters from Virginia north, and the lack of state regulations in New Jersey drove effort somewhat northward and landings into New Jersey.

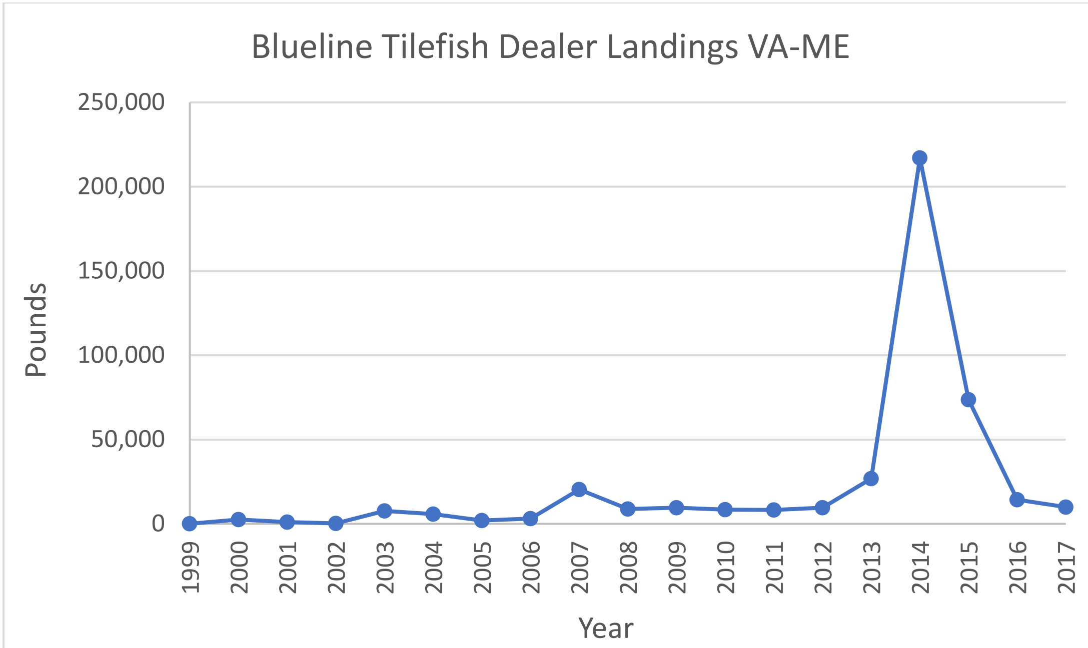

Figure 1. Commercial U.S. Blueline Tilefish Landings (live weight) from Maine-Virginia, 1999-2017. Source: 1999-2017 NMFS unpublished dealer data.

Landings were low and variable from VA-MA except for the higher NJ landings in 2013-2015. Further breakdown by year/state may violate data confidentiality rules (especially for 2016) Landings in 2017 were 9,957 pounds.

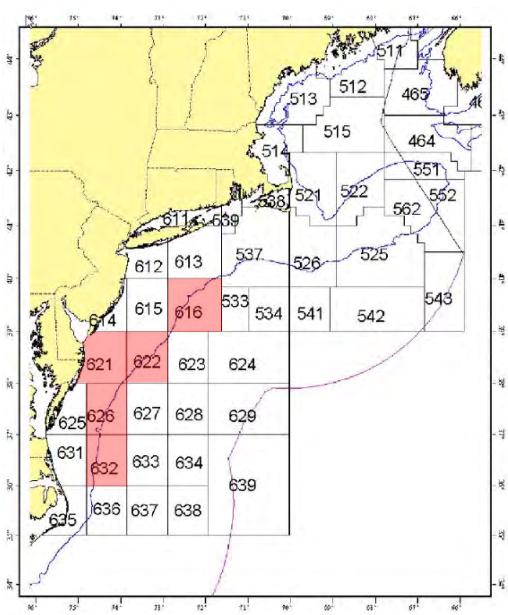

Figure 2. NMFS statistical areas accounting for the majority of blueline tilefish landings, 1994-2017 (Commercial and VTR).

Landings from the entire time-series are approximately 2/3 from bottom longline, with most of the remaining landings coming from bottom trawl and handline. Over half of all landings in the time series were bottom longline into New Jersey in 2013-2015. Landings from all other gear types are low and variable from year to year.

For location of catch, Statistical Areas 616, 621, 622, 626, and 632 accounts for the majority of catch in years without substantial trend other than the overall ramp up in the recent years in areas 621, 626, and 632. Further breakdown by year/area may violate data confidentiality rules (especially for 2016 and 2017).

Commercial blueline tilefish ex-vessel revenues (nominal) and price (inflation adjusted to 2016 dollars) are described in the two figures immediately below.

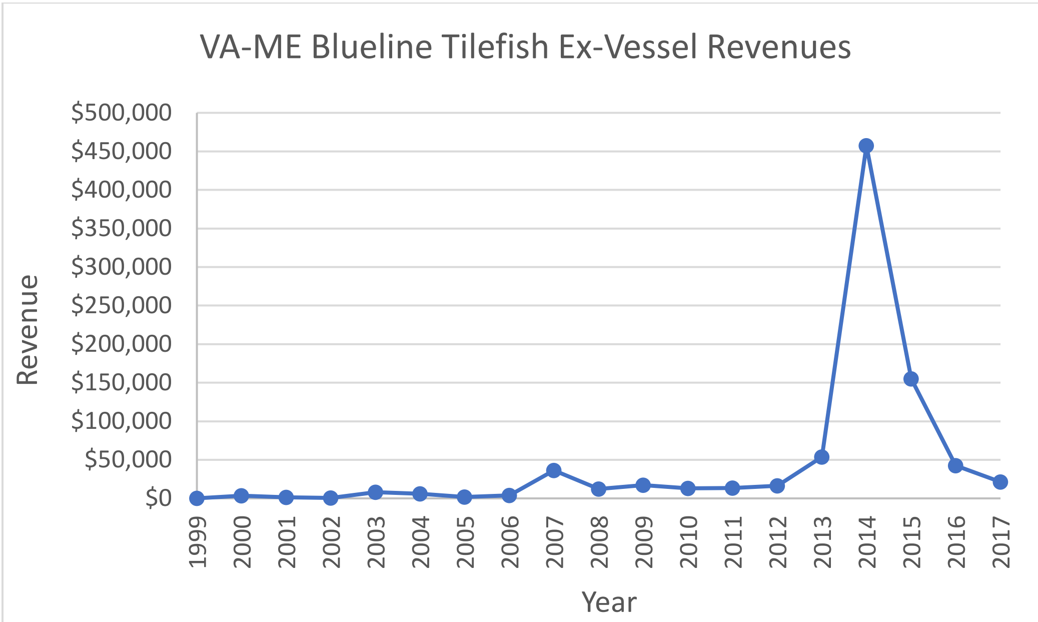

Figure 3. Ex-Vessel Revenues for blueline tilefish, Maine through Virginia combined, 1999-2017.

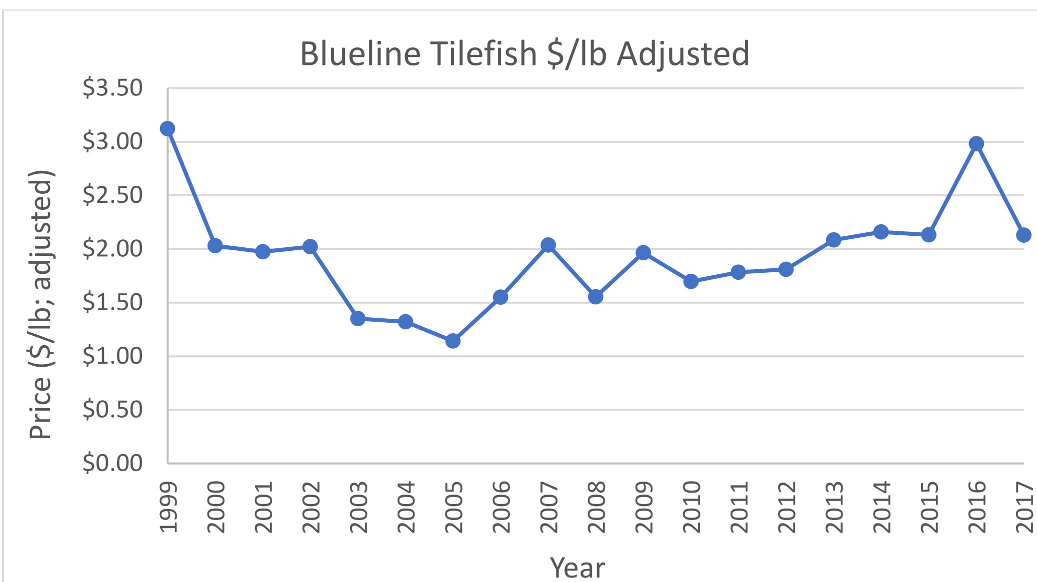

Figure 4. Price for blueline tilefish, Maine through Virginia combined, 1999-2017. Note: Price data have been adjusted by the GDP deflator indexed for 2016 (2017 – unadjusted).

Recreational Fishery

The recreational fishery is relatively small. Blueline tilefish intercepts in the MRIP program are an exceedingly rare event, but in 2016 MRIP estimates were 10,644 fish for Maryland, 3,040 fish for New Jersey, and 14,240 fish for Virginia. Preliminary 2017 MRIP estimates are 3,444 fish (all Virginia).

It is believed that VTR reporting compliance for blueline tilefish has been low, especially historically and for charter vessels. Table 1 provides the available VTR reports for blueline tilefish since 2012, when previous work with the advisors and other blueline tilefish recreational fishermen has suggested VTR reporting compliance began to encompass at least the primary head boats.

Year	Frequency	Number of Fish
2012	103	10,051
2013	120	11,838
2014	138	15,849
2015	170	14,391
2016	160	15,531
2017	112	9,682

Table 1. Blueline tilefish VTR landings from ME-VA, 2012-2017.

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: 26 March 2018

To: Council

From: José Montañez, Staff

Subject: Review of Golden Tilefish 2019 Specifications

As part of the 2018-2020 multi-year specification process for Golden Tilefish, the Scientific and Statistical Committee (SSC) and Golden Tilefish Monitoring Committee (MC) reviewed the most recent information available to determine whether modification of the current 2019 specifications is warranted.

The following materials are enclosed on this subject:

1) March 2018 SSC Report – See Committee Reports Tab
2) Report of the March 2018 Meeting of the MAFMC Golden Tilefish MC
3) Golden Tilefish Fishery Performance Report (February 2018)
4) Golden Tilefish AP Information Document, Council Staff (February 2018)
5) Golden Tilefish Data Update, NEFSC (February 2018)
6) Staff Recommendation Memo to Chris Moore (February 2018)

Tilefish Monitoring Committee
Webinar Meeting Summary
March 16, 2018

2019 Golden Tilefish Recommendations

Attendees: José Montañez and Matt Seeley (Council Staff), John Maniscalco (NYSDEC), Paul Nitschke (NEFSC), Dan Farnham (Golden Tilefish Fishing Industry), Jeff Brust (NJDFW), and Cynthia Hanson for Doug Potts (GARFO). **Others in attendance:** Laurie Nolan (Golden Tilefish Fishing Industry and Council Member), Dewey Hemilright (Blueline Tilefish Fishing Industry and Council Member), Frank Green (Tilefish Advisory Panel Member), Fred Akers (Recreational Tilefish Angler), Steve Heins (Tilefish Committee Chair), and Jason Didden (Council Staff).

Discussion: The Tilefish Monitoring Committee (MC) was presented with a summary of the Scientific and Statistical Committee (SSC) deliberations of the March 2018 SSC meeting, where the SSC reviewed the Golden Tilefish Data Update, the 2018 Golden Tilefish Advisory Panel Fishery Performance Report, and the 2018 Golden Tilefish Advisory Panel Information Document. The data update provided by the NEFSC is consistent with the expectations of the SSC as the 2013 year class moves through the fishery. Therefore, the SSC recommends no change to ABC specifications for the 2019 fishing year (1.636 million pounds or 742 mt).

After reviewing all available data, the MC discussed the different components of the golden tilefish catch and recent fishery trends. The MC indicated that fishing trends are behaving as previously expected. Therefore, the MC recommends no change to the catch and landings limits specifications for the 2019 fishing year (Table 1).

The MC discussed recent trends in the recreational fishery and incidental commercial fishery. The MC did not recommend changes to the current 500-pounds whole weight (458-pounds gutted) incidental trip limit or the 8-fish per person per trip bag limit.

The MC indicated that in the future, they may evaluate the possibility of setting golden tilefish commercial quotas for longer than a 3-year specifications cycle. This may be advisable given that the industry is seeking long-term commercial stability in the fishery and the historical performance of the constant harvest strategy in stock rebuilding. Any changes to the current maximum specifications cycle would need to account for biological factors, Council's risk policy requirements, and other administrative issues.

Table 1. Summary of Monitoring Committee recommendation for catch and landings limits for golden tilefish for 2019. The 2019 values have been specified in the final specifications for 2018-2020.

	2019	**2020**	**Basis (2018-2020)**
IFQ ACT	**1.554 m lb (705 mt)**	1.554 m lb (705 mt)	IFQ 95% of ACL Incidental 5% of ACL. Deduction for management uncertainty = 0
Incidental ACT	**0.08 m lb (37 mt)**	0.08 m lb (37 mt)	
IFQ Discards	**0**	0	
Incidental Discards	**0.009 m lb (4 mt)**	0.009 m lb (4 mt)	Avg. discard (2012-2016) mostly sm/lg mesh OT and Gillnet gear
IFQ TAL	**1.554 m lb (705 mt)**	1.554 m lb (705 mt)	IFQ ACT – IFQ discards
Incidental TAL	**0.07 m lb (33 mt)**	0.07 m lb (33 mt)	Incidental ACT – Incidental discards
IFQ Quota	**1,554,038 (704.90 mt)**	1,554,038 (704.90 mt)	
Incidental Quota	**72,398 lb (32.84 mt)**	72,398 lb (32.84 mt)	

2018 Tilefish Advisory Panel (AP)
Golden Tilefish Fishery Performance Report (FPR)

The Mid-Atlantic Fishery Management Council's (Council's) Tilefish Panel met via Webinar on February 21, 2018 to review the fishery information document and develop the Golden Tilefish Fishery Performance Report (FPR) based on advisor perspectives on catch and landings patterns and other trends in this fishery. The following is the report from the Tilefish AP.

The Advisers in attendance were: David Arbeitman, Skip Feller, Jeffry Gutman, and John Nolan III. They represent tilefish commercial fisherman (from New York) and recreational fishermen (private/head boats, bait and tackle business, from New Jersey and Virginia). Also in attendance were: Laurie Nolan - Council Members; Paul Nitschke - NEFSC; Yan Jiao (SSC member - Virginia Tech College of Natural Resources); Ec Newellman; Matt Seeley and José Montañez - Council Staff.

Market Issues

Prices continue to be stable in all market categories except the kitten category. In recent years there has been an increase in the amount of kitten size fish landed and they represent a large proportion of the total catch. The decrease in price ($/pound) in the kitten category in recent years has impacted the overall average tilefish price. In 2017 there was an increase in both landings and ex-vessel revenues, while the overall average coastwide golden tilefish price decreased, due to the decrease in the price for the kitten size category. A major reason for the stable tilefish prices in recent years is due to the fact that the tilefish industry continues to coordinate times of landings to avoid market gluts and market floods and spread tilefish landings throughout the year. The ability to do this has improved since IFQs came into place.

Golden tilefish caught in the Mid-Atlantic region are sold as whole or gutted fish. Traditionally, most tilefish landings were sold to the Korean markets. Due to marketing efforts, tilefish has become a very well-known popular item. They are found as a "regular" on restaurant menus rather than an occasional "special." Local fish markets, as well as grocery stores like Whole Foods, carry tilefish. Businesses like Sea to Table, a door-to-door seafood delivery service, have also helped spread the word on what a great eating fish tilefish are. Having a steady year-round supply of tilefish has influenced the positive market development for this product.

Traditionally, large tilefish were worth up to $1.00 more per pound than extra-large tilefish. Due to the head size of an extra-large tilefish, there is a lot of waste. Recently, price spread ($/pound) between large and extra-large fish is decreasing. Industry has been getting specific requests for extra-large fish. Rather than discarding the head and the rack of an extra-large, soups and broth are being made and the waste is eliminated. Extra-large fish have been marketed as 25+ pound fish in both New York and New Jersey in past years. However, more recently (since around 2016), New Jersey has change the extra-large to 20+ pounds fish. This may explain some of the small increase in extra-large market category landings that has been observed in the last few years. Industry and Council/NEFSC staff will work to improve coordination across tilefish ports to better define fish market size (weight) to maintain reporting consistency.

Fishing trip expenses continue to rise (e.g., gear, bait, ice, tackle, and food). Due to the high cost of operations, tilefish vessels fish as close to home port as possible. For example, the cost of squid used for bait has doubled since October 2017. *Illex* has gone from .50 to $1.00/pound. While the domestic squid season/landings have been good, low foreign landings and high demand are expected to keep squid prices at the current high level or even higher.

<u>Environmental Issues</u>

The industry has observed no tilefish aggregation changes due to changes in water temperatures, in contrast with what they observe with other fishes. The temperatures where golden tilefish are found seem stable due to extreme depth. (Note: tilefish are generally found in rough bottom, small burrows, and sheltered areas at bottom water temperatures ranging from 48.2ºF to 57.2ºF [9°C to 14°C], generally in depths between 328 and 984 ft [100 to 300 m]).

Dogfish interaction reduces tilefish catches and strongly affects where people fish. The dogfish are so thick now, when fishermen encounter them, they have no choice but to move to other fishing areas. The dogfish interaction used to be about two or three months in the winter. However, in the last seven years, dogfish presence is about eight months, and extends to June. Skate interaction also reduces tilefish catches; this is limited to the winter period. Skates can severely damage tilefish gear. When fishermen encounter skates, they move to other fishing areas.

Adverse weather conditions (e.g., storms, rough seas, high winds, and tide) can impact fishing operations. Severe winter conditions experienced in the Northeast in 2013-2017 significantly affected the effectiveness of tilefish fishing operations/practices, resulting in longer fishing trips.

Recreational and commercial fishermen continue to see aggregations of fish in small areas in the spring/summer time around the Wilmington canyon (>80 to 90 fathoms).

Commercial fishermen indicated that they continue to see aggregations of large fish in all canyons in the Mid-Atlantic region. Overall landings are on the rise for the current fishing year (November 1, 2017 – October 31, 2018) when compared to the same time last year and the Kitten fish size category (2 to 3.5 pounds) continues to be a large percentage of their overall catch composition.

Two advisors representing the recreational fishery indicated that the amount of large fish aggregations in some southern mid-Atlantic canyons (e.g., Washington, Baltimore, Poor Man's, Wilmington, and Norfolk) have decreased in size. They also indicated that a higher percentage of their catch is comprised of smaller fish.

Industry members indicated that some lobster trap fishermen have caught small tilefish (~4-5) in 40/50 fathom range in statistical areas 613 (and perhaps 615 as well) through September. This is something that they have not seen before.

Management Issues & Management Induced Effort Shifts

The number of tilefish vessels participating in the fishery was steady since the onset of the IFQ management system. Currently, three vessels constitute the vast bulk of the landings (~ 70% of the landings/IFQ allocation). New Jersey currently holds 30% of the allocation.

The implementation of the IFQ system has particularly benefited those in the former "part-time" and "tier 2" vessel categories of the old limited access program. These vessels can plan their fishing activities throughout the year, rather than being forced into a derby fishery on November 1 (start of the fishing year) if they plan to harvest tilefish in a given year. These vessels participate in several fisheries (e.g., monkfish, scallop, and swordfish) and the IFQ system allows them to "fill in" tile fishing when it works best for them. Under the IFQ system, the former "part-time, tier 2, and full-time" vessels are working closely with each other and dealers to avoid landing large quantities of tilefish at the same time and avoid drastic price reductions.

One panel member indicated that even smaller participants in the tilefish IFQ fishery (smaller in terms of IFQ allocation and/or boat size) have greatly benefited from the IFQ management system as they can better plan their fishing operations (fish when and where they need to) and the fact that tilefish prices are relatively good and stable, and in fact, a large proportion of their ex-vessel revenues come from tilefish.

One advisory panel member indicated that changes in tilefish regulations in Virginia (from 7 fish any combination of golden/blueline tilefish per angler per trip to 7 blueline and 8 golden per angler per trip) could result in an increase in recreational golden tilefish effort.

Another advisor indicated that the current federal recreational blueline tilefish season/closures (not able to catch blueline from November 1 through April 30) will likely impact golden tilefish fishing effort as some anglers may stop fishing all together; as it is harder to sell golden tilefish only directed trips, especially in the winter fishery.

General Fishing Trends

AP members pointed out that for the last five winter seasons (January-March, 2013-2017) fishing practices have been impacted by severe weather resulting in longer fishing trips than on average. Panel members indicated that the slight increase in trip length is due to severe winter storm patterns. Severe winter conditions in the last four years have made fishing less productive and longer trips than average as fishing operations are significantly impacted. While severe weather conditions affect all fishing boats, smaller boats are particularly susceptible to severe winter and wind conditions.

Industry indicated that CPUE in 2017 increased and the percentage of kitten size category (2 to 3.5 pounds) in the catch is also increasing. The influx of kittens is all over the place.

Industry tries to fish as close to port as possible. Basically, fishing in the same areas to maintain low trip expenses. Increasing operating costs keep people from going further out and searching. Industry also indicated that due to recent Northeast Canyons and Seamounts Marine National

Monument closures, they do not have access to fishing grounds in the Oceanographer, Gilbert, and Lydonia canyons.

Fishermen are not moving around much as they are finding a healthy mix of animals in traditional fishing grounds. However, there are areas that are thought to have more quantities of larger fish than smaller fish that could be targeted if needed.

The topography of the traditional fishing areas is well known and they have the advantage of little or no gear conflict, unlike some of the potential tile fishing areas which are used for other fisheries.

Other Issues

- Extra-large fish have been marketed as 25+ pound fish in both New York and New Jersey in past years. However, more recently (since around 2014), New Jersey has change the extra-large to 20+ pounds fish. This may explain some of the small increase in extra-large market category landings that has been observed in the last few years. Industry and Council/NEFSC staff will work to improve coordination across tilefish ports to better define fish market size (weight) to maintain reporting consistency.

-Constant harvest strategy worked well in rebuilding the fishery. Industry would like to get back to a constant ACL in the future given healthy trends in the catch. Industry does not want to see different ACL every year.

-One headboat captain indicated that five or six headboats[1] directly fish for golden tilefish but not 100% or full time. Some AP members commented that while the headboat participation in the golden tilefish recreational fishery appears stable they have seen an increase in participation by recreational private boats (July through September) and that private golden tilefish recreational landings are not recorded (and potential sale of fish recreationally caught).

-Another advisor indicated that while there are five headboats that fish for tilefish (both blueline and golden) in the mid-Atlantic they have a limited number of dedicated tilefish trips throughout the season (summer time). For example, the boat that has the largest number of trips scheduled during the year (a boat Point Pleasant) has about 24 scheduled trips per year and not all trips are conducted. The other four boats have substantially less tilefish trips scheduled per year.

-Panel members raised concerns and questioned the tilefish catches reported in the NMFS recreational statistics database as they are inaccurate and unreliable. It was recommended that this type of data is not be used for the management of this species. It was also stated that recreational values reported under the VTR data seems to be more realistic of tilefish catches.

-AP members are concerned about the fishermen targeting golden tilefish under the incidental limit rules. Some of the vessels engaging in this practice do not have the required permitting

[1] Two from New Jersey, one from New York, one from Ocean City, MD (direct tilefish but only a few times per year), and 1 from Rudee Inlet, VA.

requirements to sell fish and do not have the Coast Guard Safety requirements needed to be in compliance with Federal regulations as applicable to commercial vessels.

-The AP members indicated that the landings monitoring program of the IFQ system is very reliable. In all, there is good accountability mechanisms to track landings in the directed commercial fishery (IFQ vessel) and VTR data (commercial and recreational vessels). However, there is concern that directed incidental trips (non-otter trawl vessels) may be missing. In addition, there is no accurate information of catch/landings by private recreational anglers.

-Two AP members would like the Council to consider a differential trip limit (for hire vs private) and longer recreational trips. In addition, they suggested that the Council considers recreational management strategies (e.g., longer recreational trips), structured after the Gulf of Mexico regulations.

-Some AP members would like the Council to consider a recreational allocation.

-Some AP members indicated concerns about relaxing recreational regulations (as they could potentially lead to higher recreational landings) while the commercial quota could remain at status quo levels or potentially decrease in the future.

-A commercial AP member expressed concerns over increasing any effort, bag limit or quota in the fishery at this time. They felt it would be unfair to allow for an increase in effort/bag limit in the recreational sector while maintaining status quo for the commercial sector.

-Recreational AP members indicated that the for-hire fishery (more significantly the headboat fishery) seems to be losing trips due to weather conditions.

From: Jeff <jgutman28@comcast.net>
Sent: Tuesday, February 27, 2018 9:32:22 PM
To: Seeley, Matthew
Subject: Re: Tilefish Fishery Performance Reports

Matt and Jose,

I apologize for the late comment but I was out of town. I wanted to add that there are not hundreds of boats out everyday CANYON tuna fishing and then deep dropping for tilefish. I know this because I was out tuna fishing every fishable day in September and October. Tuna fishing was an absolute disaster in 2017 for the boats from Hyannis, Point Judith and Montauk through all of New Jersey and south to Virginia. Except for a few bluebird days, there was little effort by private boats. I was also out at the canyons, many different canyons throughout the summer and saw very few boats. There was some activity with tournaments but those guys rarely deep drop. I can't speak for summer time south of the Washington canyon but there was not much effort up where the goldens live.

Thanks,
Jeff Gutman
F/V Voyager

Golden Tilefish - Advisory Panel Information Document[1]
February 2018

Management System

The Fishery Management Plan (FMP) which initiated the management for this species became effective November 1, 2001 (66 FR 49136; September 26, 2001) and included management and administrative measures to ensure effective management of the golden tilefish resource. The FMP also implemented a limited entry program and a tiered commercial quota allocation of the overall TAL. Amendment 1 to the Tilefish FMP created an IFQ (Individual Fishing Quota) program that took effect on November 1, 2009 (74 FR 42580; September 24, 2009). The commercial golden tilefish fisheries (IFQ and incidental) are managed using catch and landings limits, commercial quotas, trip limits, gear regulations, permit requirements, and other provisions as prescribed by the FMP. While there is no direct recreational allocation, Amendment 1 implemented a recreational possession limit of eight golden tilefish per angler per trip, with no minimum fish length. Golden tilefish was under a stock rebuilding strategy beginning in 2001 until it was declared rebuilt in 2014. The Tilefish FMP, including subsequent Amendments and Frameworks, are available on the Council website at: http://www.mafmc.org/fisheries/fmp/tilefish.

Basic Biology

The information presented in this section can also be found in the Tilefish FMP (MAFMC, 2001; http://www.mafmc.org/fisheries/fmp/tilefish). Golden tilefish (*Lopholatilus chamaeleonticeps*; tilefish from this point forward in this section) are found along the outer continental shelf and slope from Nova Scotia, Canada to Surinam on the northern coast of South America (Dooley 1978 and Markle et al. 1980)[2] in depths of 250 to 1500 feet. In the southern New England/mid-Atlantic area, tilefish generally occur at depths of 250 to 1200 feet and at temperatures from 48°F to 62°F or 8.9°C to 16.7°C (Nelson and Carpenter 1968; Low et al. 1983; Grimes et al. 1986).

Katz et al. (1983) studied stock structure of tilefish from off the Yucatan Peninsula in Mexico to the southern New England region using both biochemical and morphological information. They identified two stocks -- one in the mid-Atlantic/southern New England and the other in the Gulf of Mexico and the south of Cape Hatteras.

[1] This document was prepared by the MAFMC staff. Data employed in the preparation of this document are from unpublished National Marine Fisheries Service (NMFS) Dealer, Vessel Trip Reports (VTRs), Permit, and Marine Recreational Statistics (MRFSS/MRIP) databases.

[2] See Tilefish FMP document for additional information on references used in this section (http://www.mafmc.org/fisheries/fmp/tilefish).

Tilefish are shelter seeking and perhaps habitat limited. There are indications that at least some of the population is relatively nonmigratory (Turner 1986). Warme et al. (1977) first reported that tilefish occupied excavations in submarine canyon walls along with a variety of other fishes and invertebrates, and they referred to these areas as "pueblo villages." Valentine et al. (1980) described tilefish use of scour depressions around boulders for shelter. Able et al. (1982) observed tilefish use of vertical burrows in Pleistocene clay substrates in the Hudson Canyon area, and Grimes et al. (1986) found vertical burrows to be the predominant type of shelter used by tilefish in the mid-Atlantic/southern New England region. Able et al. (1982) suggested that sediment type might control the distribution and abundance of the species, and the longline fishery for tilefish in the Hudson Canyon area is primarily restricted to areas with Pleistocene clay substrate (Turner 1986).

Males achieved larger sizes than females, but they apparently did not live as long (Turner 1986). The largest male was 44.1 inches at 20 years old, and the largest female was 39 years at 40.2 inches FL. The oldest fish was a 46 year old female of 33.5 inches, while the oldest male was 41.3 inches and 29 years. On average, tilefish (sexes combined) grow about 3.5 to 4 inches fork length (FL) per year for the first four years, and thereafter growth slows, especially for females. After age 3, mean last back-calculated lengths of males were larger than those of females. At age 4 males and females averaged 19.3 and 18.9 inches FL, respectively, and by the tenth year males averaged 32.3 while females averaged 26.4 inches FL (Turner 1986).

The size of sexual maturity of tilefish collected off New Jersey in 1971-73 was 24-26 inches TL in females and 26-28 inches TL in males (Morse 1981). Idelberger (1985) reported that 50% of females were mature at about 20 inches FL, a finding consistent with studies of the South Atlantic stock, where some males delayed participating in spawning for 2-3 years when they were 4-6 inches larger (Erickson and Grossman 1986). Grimes et al. (1988) reported that in the late 1970s and early 1980s, both sexes were sexually mature at about 19-26 inches FL and 5-7 years of age; the mean size at 50% maturity varied with the method used and between sexes. Grimes et al. (1986) estimated that 50% of the females were mature at about 19 inches FL using a visual method and about 23 inches FL using a histological method. For males, the visual method estimated 50% maturity at 24 inches FL while the histological method estimated 50% maturity at 21 inches FL. The visual method is consistent with NEFSC (Northeast Fisheries Science Center) estimates for other species (O'Brien et al. 1993). Grimes et al. (1988) reported that the mean size and age of maturity in males (but not females) was reduced after 4-5 years of heavy fishing effort. Vidal (2009) conducted an aging study to evaluate changes in growth curves since 1982, the last time the reproductive biology was evaluated by Grimes et al. (1988). Histological results from Vidal's study indicate that size at 50% maturity was 18 inches for females and 19 inches for males (NEFSC 2009).

> "*These results show a significant decrease in size and age at maturation since the last evaluation of this stock in the early 1980's (Grimes et al. 1986). An environment in which survival rates are low for potentially reproducing individuals, often favors selection of individuals that are able to reproduce at smaller sizes and younger ages (Hutchings 1993; Reznick et al. 1990). In a hook fishery, it is assumed that the smallest fish in the population are less vulnerable to the gear depending on*

the hook size. In this fishery, hook size has been intentionally increased to avoid catch of the smallest fish in the population. The fact that such dramatic changes have manifested in this stock may suggest a density-dependent effect of decreased population size. It is uncertain at this point in time, whether these changes are consequences of phenotypic plasticity or selection towards genotypes with lower size and age at maturation."

Nothing is known about the diets and feeding habits of tilefish larvae, but they probably prey on zooplankton. The examination of stomach and intestinal contents by various investigators reveal that tilefish feed on a great variety of food items (Collins 1884, Linton 1901a and 1901b, and Bigelow and Schroeder 1953). Among those items identified by Linton (1901a and 1901b) were several species of crabs, mollusks, annelid worms, polychaetes, sea cucumbers, anemones, tunicates and fish bones. Bigelow and Schroeder (1953) identified shrimp, sea urchins and several species of fishes in tilefish stomachs. Freeman and Turner (1977) reported examining nearly 150 tilefish ranging in length from 11.5 to 41.5 inches. Crustaceans were the principal food items of tilefish with the squat lobster (*Munida*) and spider crabs (*Euprognatha*) were by far the most important crustaceans. The authors report that crustaceans were the most important food item regardless of the size of tilefish, but that small tilefish fed more on mollusks and echinoderms than larger tilefish. Tilefish burrows provide habitat for numerous other species of fish and invertebrates (Able et al. 1982 and Grimes et al. 1986) and in this respect, they are similar to "pueblo villages" (Warme et al. 1977).

Able et al. (1982) and Grimes et al. (1986) concluded that a primary function of tilefish burrows was predator avoidance. The NEFSC database only notes goosefish as a predator. While tilefish are sometimes preyed upon by spiny dogfish and conger eels, by far the most important predator of tilefish is other tilefish (Freeman and Turner 1977). It is also probable that large bottom-dwelling sharks of the genus *Carcharhinus*, especially the dusky and sandbar, prey upon free swimming tilefish.

Status of the Stock

Reports on stock status, including Stock Assessment Workshop (SAW) reports, and Stock Assessment Review Committee (SARC) reports, and assessment update reports are available online at the Northeast Fisheries Science Center (NEFSC) website: http://www.nefsc.noaa.gov/.

Biological Reference Points

The biological reference points for golden tilefish were updated during the 2017 stock assessment update (Nitschke 2017), as a result of a change to the recruitment penalty used in the assessment model (i.e., likelihood constant turned off).[3] The fishing mortality threshold for

[3] Incorporation of likelihood constants into the objective function can cause biases in assessment models. This bias can result in reductions in the estimated recruitment and biomass. For additional details see: Nitschke 2017; Golden

golden tilefish is $F_{38\%}$ (as $F_{MSY\ proxy}$) = 0.310, and $SSB_{38\%}$ ($SSB_{MSY\ proxy}$) is 21 million pounds (9,492 mt).

Stock Status

The last full assessment update was completed in February 2017. This update indicates that the golden tilefish stock was not overfished and overfishing was not occurring in 2016, relative to the newly updated biological reference points. Fishing mortality in 2016 was estimated at F=0.249; 20% below the fishing mortality threshold of F=0.310 ($F_{MSY\ proxy}$). SSB in 2016 was estimated at 18.69 million pounds (8,479 mt), and was at 89% of the biomass target ($SSB_{MSY\ proxy}$).

Data Update

The NEFSC is developing a golden tilefish data update through 2017. The update will contain recent trends in the golden tilefish fishery, including, commercial landings, stock size, fishing mortality rate, catch per unit effort, commercial landings by market category (size composition), and landings by area. The update will be posted at the Council's website (http://www.mafmc.org/) as soon as it is available.

Fishery Performance

For the 1970 to 2017 calendar years, golden tilefish landings have ranged from 128 thousand pounds (1970) to 8.7 million pounds (1979). For the 2001 to 2017 period, golden tilefish landings have averaged 1.8 million pounds, ranging from 1.1 (2016) to 2.5 (2004) million pounds. In 2017, commercial golden tilefish landings were 1.5 million pounds (Figure 1).

The principal measure used to manage golden tilefish is monitoring via dealer weighout data that is submitted weekly. The directed fishery is managed via an IFQ program. If a permanent IFQ allocation is exceeded, including any overage that results from golden tilefish landed by a lessee in excess of the lease amount, the permanent allocation will be reduced by the amount of the overage in the subsequent fishing year. If a permanent IFQ allocation overage is not deducted from the appropriate allocation before the IFQ allocation permit is issued for the subsequent fishing year, a revised IFQ allocation permit reflecting the deduction of the overage will be issued. If the allocation cannot be reduced in the subsequent fishing year because the full allocation had already been landed or transferred, the IFQ allocation permit would indicate a reduced allocation for the amount of the overage in the next fishing year.

Tilefish, *Lopholatilus chamaeleonticeps*, stock assessment update through 2016 in the Middle Atlantic-Southern New England Region. NMFS/NEFSC, Woods Hole, MA. Available at http://www.mafmc.org/council-events/2017/march-2017-ssc-meeting.

A vessel that holds an Open Access Commercial/Incidental Tilefish Permit can possess up to 500 pounds live weight (455 pounds gutted) at one time without an IFQ Allocation Permit. If the incidental harvest exceeds 5 percent of the TAL for a given fishing year, the incidental trip limit of 500 pounds may be reduced in the following fishing year.

Table 1 summarizes the golden tilefish management measures for the 2005-2020 fishing years (FYs). Commercial golden tilefish landings have been below the commercial quota specified each year since the Tilefish FMP was first implemented except for FY 2003/2004 (not shown in Table 1), and 2010. In 2003 and 2004, the commercial quota was exceeded by 0.3 (16%) and 0.6 (31%) million pounds respectively.[4]

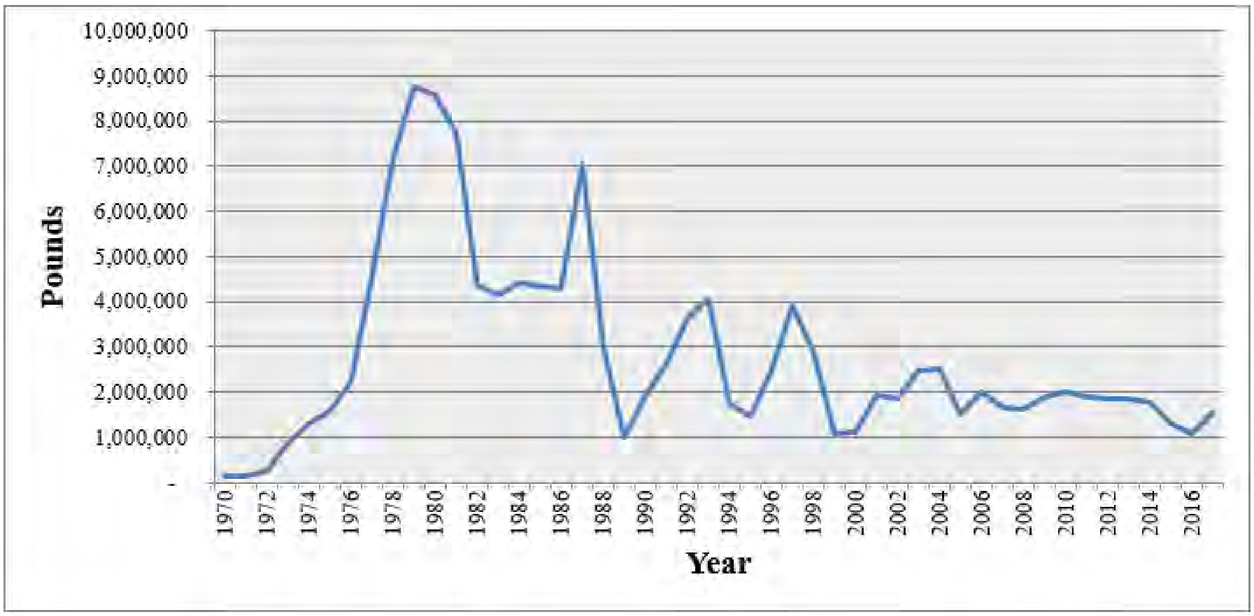

Figure 1. Commercial U.S. Golden Tilefish Landings (live weight) from Maine-Virginia, 1970-2017. Source: 1970-1993 Tilefish FMP. 1994-2017 NMFS unpublished dealer data.

Golden tilefish are primarily caught by longline and bottom otter trawl. Based on dealer data from 2013 through 2017, the bulk of the golden tilefish landings are taken by longline gear (98%) followed by bottom trawl gear (2%). No other gear had any significant commercial landings. Minimal catches were also recorded for hand line and gillnets (Table 2).

[4] As a result of the decision of the Hadaja v. Evans lawsuit, the permitting and reporting requirements for the FMP were postponed for close to a year (May 15, 2003 through May 31, 2004). During that time period, it was not mandatory for permitted golden tilefish vessels to report their landings. In addition, during that time period, vessels that were not part of the golden tilefish limited entry program also landed golden tilefish.

Table 1. Summary of management measures and landings for FY[a] 2005 through 2020.

Management Measures	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
ABC (m lb)	-	-	-	-	-	-	-	-	2.013	2.013	1.766	1.898	1.898	1.636	1.636	1.636
TAL (m lb)	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.755	1.887	1.887	1.627	1.627	1.627
Com. quota-initial (m lb)	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.755	1.887	1.887	1.627	1.627	1.627
Com. quota-adjusted (m lb)	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.995	1.755	1.887	1.887	1.627	1.627	1.627
Com. landings	1.497	1.897	1.777	1.672	1.887	1.997	1.946	1.874	1.841	1.830	1.354	1.060	1.485	-	-	-
Com. overage/underage (m lb)	-0.498	-0.098	-0.218	-0.323	-0.108	+0.002	-0.049	-0.121	-0.154	-0.165	-0.401	-0.827	-0.402	-	-	-
Incidental trip limit (lb)	133	300	300	300	300	300	300	500	500	500	500	500	500	500	500	500
Rec. possession limit	-	-	-	-	-	8[b]	8[b]	8[b]	8[b]	8[b]	8[b]	8[b]	8[b]	8[b]	8[b]	8[b]

[a] FY 2005 (November 1, 2005 - October 31, 2006).
[b] Eight fish per person per trip.

Table 2. Golden tilefish commercial landings ('000 pounds live weight) by gear, Maine through Virginia, 2013-2017 combined.

Gear	Pounds	Percent
Otter Trawl Bottom, Fish	128	1.69
Otter Trawl Bottom, Other	*	*
Gillnet, Anchored/Sink/Other	7	*
Lines Hand	25	*
Lines Long Set with Hooks	7,396	97.7
Pot & Trap	*	*
Dredge, other	*	*
Unknown, Other Combined Gears	6,9	*
All Gear	7,570	100.0

Note: * = less than 1,000 pounds or less than 1 percent.

Approximately 55 percent of the landings for 2017 were caught in statistical area 616; statistical area 537 had 26 percent; statistical areas 626 and 526 had 6 percent each (Table 3). NMFS statistical areas are shown in Figure 2.

For the 1999 to 2017 period, commercial golden tilefish landings are spread across the years with no strong seasonal variation (Tables 4 and 5). However, in recent years, a slight downward trend in the proportion of golden tilefish landed during the winter period (November-February) and a slight upward trend in the proportion of golden tilefish landed during the May-June period are evident when compared to earlier years (Table 5).

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Table 3. Golden tilefish percent landings by statistical area and year, 1996-2017.

Year	525	526	537	539	612	613	616	622	626	Other
1996	0.05	5.22	64.04	0.39	*	1.09	27.81	0.01	-	1.40
1997	0.03	0.68	79.50	0.02	*	2.59	16.41	0.01	*	0.74
1998	1.26	2.19	81.95	0.04	0.02	5.45	8.55	*	*	0.53
1999	0.97	0.22	55.79	0.02	0.22	3.71	36.60	0.02	0.02	0.43
2000	0.36	3.80	46.09	0.01	0.05	2.36	43.94	0.47	0.14	2.78
2001	0.23	3.09	23.92	*	0.01	3.16	68.96	*	0.10	0.52
2002	0.13	8.73	35.85	0.07	0.01	18.49	36.54	0.02	0.02	0.14
2003	0.88	1.81	38.46	0.10	*	11.85	46.53	0.05	0.05	0.26
2004	1.02	2.59	62.63	0.05	5.28	0.71	25.96	0.03	0.06	1.66
2005	0.12	0.25	62.97	0.02	0.03	6.11	25.69	0.03	0.20	4.56
2006	*	1.54	64.28	0.50	1.24	0.71	30.10	0.04	0.05	1.53
2007	0.03	0.44	57.57	0.01	-	5.53	33.93	0.86	0.46	1.18
2008	1.09	0.08	44.03	0.01	*	4.61	46.95	2.05	0.02	1.15
2009	2.16	0.05	42.58	1.30	0.04	4.36	46.12	1.34	1.16	0.89
2010	0.01	0.03	57.09	0.55	0.02	8.38	32.85	0.70	0.04	0.32
2011	0.02	0.04	52.99	0.03	-	3.12	39.95	0.35	0.06	3.46
2012	0.01	0.03	52.35	0.04	0.01	0.58	43.78	0.45	0.10	2.65
2013	*	0.69	56.01	1.06	0.06	0.68	35.31	1.43	4.57	0.17
2014	0.01	0.56	49.18	1.88	0.01	1.28	42.68	2.97	0.36	1.08
2015	3.04	0.98	29.83	2.54	*	0.01	53.65	2.93	5.52	1.50
2016	1.02	4.80	32.16	0.01	-	0.98	54.18	0.66	5.79	0.41
2017	0.01	5.80	26.03	2.90	-	1.01	55.42	0.55	5.92	2.36
All	0.53	1.72	53.96	0.47	0.47	3.94	35.95	0.59	0.89	1.29

Note: - = no landings; * = less than 0.01 percent.

Table 4. Golden tilefish commercial landings (1,000 live pounds) by month and year, Maine through Virginia, 1999-2017.

Year	Month												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1999	118	114	124	103	93	91	55	106	83	59	77	75	1,096
2000	52	105	159	101	107	99	34	91	42	107	96	112	1,105
2001	107	151	159	188	153	179	177	157	156	156	161	176	1,920
2002	143	232	257	144	164	117	107	141	148	146	68	200	1,866
2003	183	181	295	254	209	185	152	180	210	202	189	223	2,463
2004	197	355	514	332	132	77	113	119	183	187	120	189	2,519
2005	127	159	235	168	33	57	92	129	96	94	141	158	1,487
2006	159	245	324	108	127	142	86	138	129	141	169	228	1,996
2007	122	118	192	147	141	96	131	133	125	174	77	189	1,646
2008	235	206	202	173	124	123	62	90	101	90	109	104	1,619
2009	90	145	185	200	219	211	184	157	156	127	94	134	1,902
2010	128	152	274	216	195	157	149	157	156	186	119	137	2,025
2011	152	95	269	234	203	137	160	127	120	194	65	150	1,905
2012	146	114	142	207	151	131	158	203	186	221	39	139	1,837
2013	106	119	174	245	226	193	152	152	126	169	74	126	1,863
2014	114	93	146	183	187	233	214	172	134	153	46	102	1,777
2015	68	70	144	128	181	146	130	127	123	89	41	62	1,308
2016	43	52	91	93	88	119	150	127	91	112	68	64	1,089
2017	86	69	77	193	195	179	136	134	105	180	47	133	1,533
Total	2,374	2,776	3,963	3,415	2,930	2,672	2,441	2,641	2,460	2,787	1,799	2,699	32,955
Avg. 99-17	125	146	209	180	154	141	128	139	129	147	95	142	1,737

Table 5. Percent of golden tilefish commercial landings (live pounds) by month and year, Maine through Virginia, 1999-2017.

Year	Month												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1999	10.75	10.38	11.28	9.41	8.50	8.29	4.99	9.66	7.55	5.36	6.98	6.86	100.00
2000	4.68	9.48	14.41	9.13	9.67	8.95	3.05	8.26	3.78	9.71	8.70	10.18	100.00
2001	5.59	7.88	8.30	9.77	7.95	9.32	9.24	8.16	8.13	8.11	8.40	9.14	100.00
2002	7.64	12.43	13.76	7.70	8.78	6.28	5.74	7.57	7.92	7.85	3.63	10.70	100.00
2003	7.44	7.33	11.98	10.31	8.47	7.52	6.18	7.32	8.52	8.19	7.68	9.05	100.00
2004	7.81	14.11	20.42	13.20	5.25	3.06	4.47	4.74	7.26	7.43	4.76	7.49	100.00
2005	8.54	10.70	15.78	11.28	2.24	3.82	6.16	8.66	6.44	6.32	9.46	10.60	100.00
2006	7.95	12.30	16.22	5.39	6.38	7.10	4.33	6.93	6.46	7.06	8.46	11.41	100.00
2007	7.43	7.15	11.67	8.93	8.58	5.85	7.94	8.08	7.61	10.60	4.68	11.47	100.00
2008	14.53	12.72	12.47	10.68	7.68	7.58	3.81	5.59	6.25	5.55	6.73	6.42	100.00
2009	4.72	7.62	9.74	10.50	11.52	11.08	9.66	8.26	8.22	6.69	4.93	7.04	100.00
2010	6.33	7.51	13.51	10.67	9.62	7.73	7.37	7.75	7.69	9.17	5.90	6.75	100.00
2011	7.96	4.96	14.13	12.26	10.66	7.20	8.40	6.66	6.31	10.18	3.42	7.87	100.00
2012	7.95	6.23	7.71	11.26	8.21	7.12	8.60	11.06	10.15	12.01	2.15	7.55	100.00
2013	5.67	6.39	9.34	13.17	12.14	10.37	8.18	8.17	6.75	9.07	3.97	6.78	100.00
2014	6.42	5.26	8.21	10.32	10.51	13.12	12.05	9.65	7.54	8.62	2.58	5.72	100.00
2015	5.21	5.38	10.98	9.79	13.87	11.16	9.91	9.72	9.40	6.97	3.12	4.73	100.00
2016	3.95	4.80	8.40	8.51	8.12	10.96	13.77	11.65	7.42	10.31	6.20	5.91	100.00
2017	5.58	4.52	5.05	12.56	12.72	11.67	8.84	8.72	6.87	11.73	3.05	8.69	100.00
Total	7.20	8.42	12.03	10.36	8.89	8.11	7.41	8.01	7.46	8.46	5.46	8.19	100.00

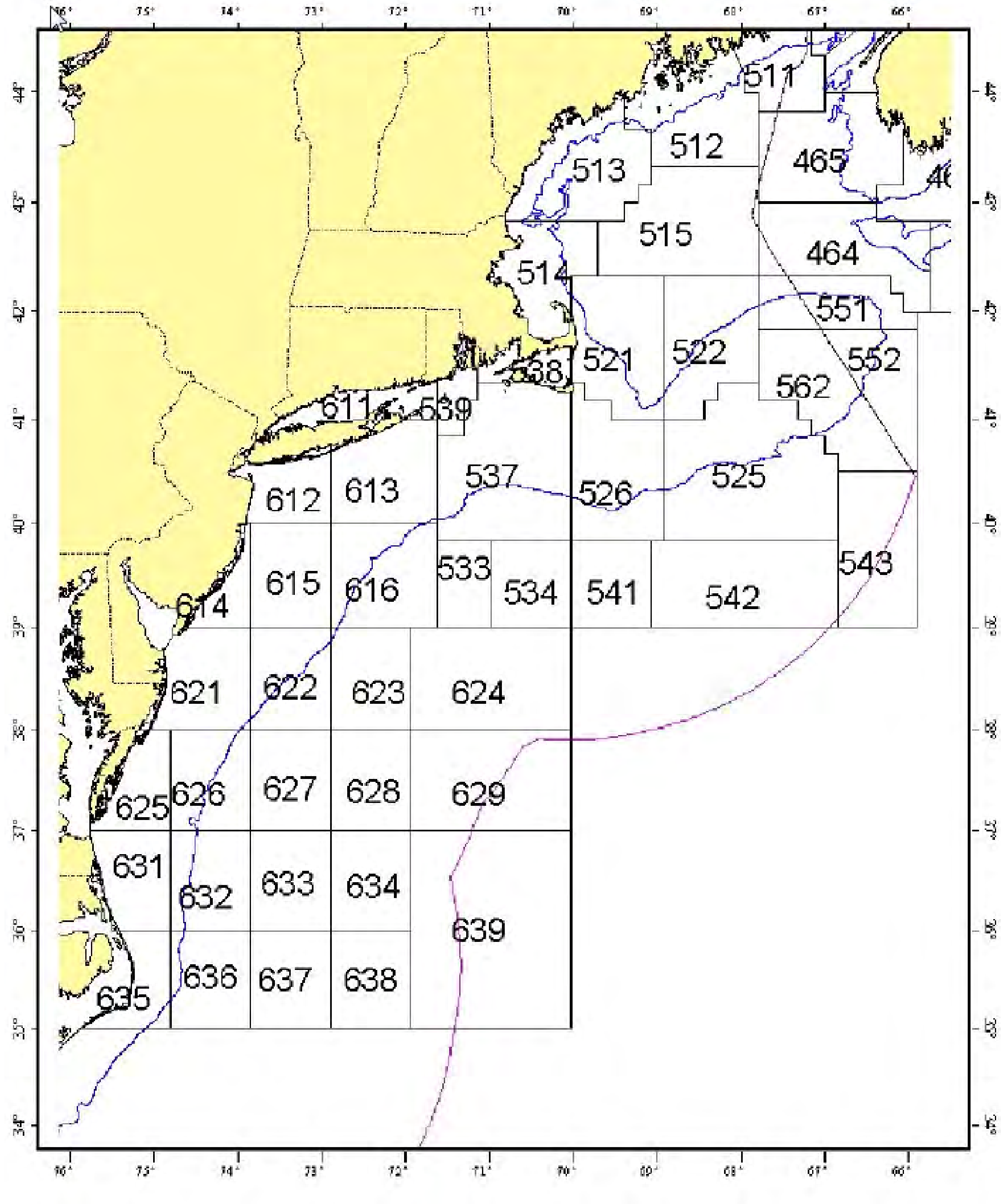

Figure 2. NMFS Statistical Areas.

Commercial golden tilefish landings (landed weight) have ranged from 1.0 million pounds in 2016 (calendar year) to 2.3 million pounds in 2004 for the 1999 through 2017 period. Commercial golden tilefish ex-vessel revenues have ranged from $2.5 (year 2000) to $5.9 (year 2013) million for the same time period. In 2017 ex-vessel revenues were approximatelly $4.6 million. In 2017 commercial tilefish landings and revenues increased by 41% and 9%, respectivley, compared to 2016.

The mean price for golden tilefish (adjusted) has ranged from $1.15 per pound in 2004 to $4.24 per pound in 2016 (Figure 3). For 2017, the mean price for golden tilefish was $3.33 per pound.

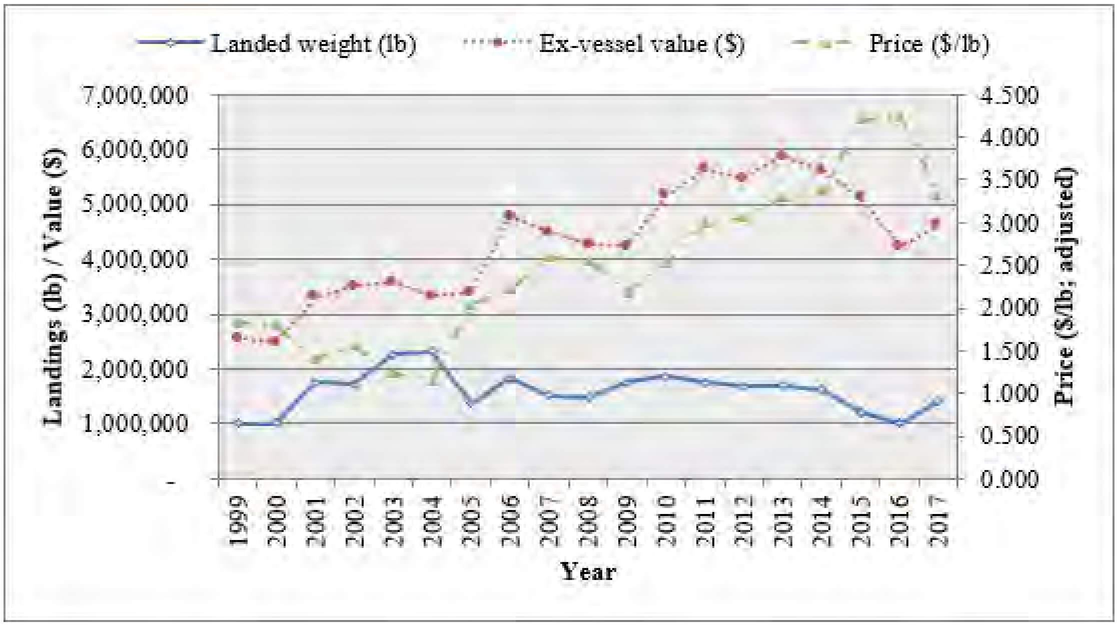

Figure 3. Landings (landed weight), ex-vessel value, and price for golden tilefish, Maine through Virginia combined, 1999-2017. Note: Price data have been adjusted by the GDP deflator indexed for 2016.

The 2013 through 2017 coastwide average ex-vessel price per pound for all market categories combined was $3.66. Price differential indicates that larger fish tend to bring higher prices (Table 6). Nevertheless, even though there is a price differential for various sizes of golden tilefish landed, goden tilefish fishermen land all fish caught as the survival rate of discarded fish is very low (L. Nolan 2006; Kitts et al. 2007). Furthermore, Amendment 1 to the Tilefish FMP prohibited the practice of highgrading (MAFMC 2009).

Table 6. Landings, ex-vessel value, and price of golden tilefish by size category, from Maine thought Virginia, 2013 through 2017.

Market category	Landed weight (pounds)	Value ($)	Price ($/pound)	Approximate market size range (pounds)
Extra large	396,322	1,744,842	4.40	> 25
Large	2,091,816	9,415,407	4.50	7 – 24
Large/medium[a]	593,064	2,534,485	4.27	5 -7
Medium	1,699,360	6,011,679	3.54	3.5 – 5
Small or kittens	1,757,980	4,595,091	2.61	2 – 3.5
Extra small	205,196	462,591	2.25	< 2
Unclassified	203,338	686,483	3.38	---
All	6,947,076	25,450,578	3.66	---

[a]Large/medium code was implemented on May 1, 2016. Prior to that, golden tilefish sold in the large/medium range were sold as unclassified fish.

The ports and communities that are dependent on golden tilefish are fully described in Amendment 1 to the FMP (section 6.5; MAFMC 2009; found at http://www.mafmc.org/fmp/pdf/Tilefish_Amend_1_Vol_1.pdf). Additional information on "Community Profiles for the Northeast US Fisheries" can be found at https://www.nefsc.noaa.gov/read/socialsci/communitySnapshots.php.

To examine recent landings patterns among ports, 2016-2017 NMFS dealer data are used. The top commercial landings ports for golden tilefish are shown in Table 7. A "top port" is defined as any port that landed at least 10,000 pounds of golden tilefish. Ports that received 1% or greater of their total revenue from golden tilefish are shown in Table 8.

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Table 7. Top ports of landing (live weight) for golden tilefish, based on NMFS 2016 - 2017 dealer data. Since this table includes only the "top ports," it may not include all of the landings for the year.

Port	2016		2017	
	Landings (pounds)	# Vessels	Landings (pounds)	# Vessels
Montauk, NY	519,210 (514,439)	14 (3)	782,604 (775,018)	16 (4)
Barnegat Light/Long Beach, NJ	329,076 (326,815)	9 (7)	431,372 (431,372)	6 (6)
Hampton Bays, NY	210,701 (C)	5 (C)	257,944 (C)	5 (C)
Point Judith, RI	11,541 (0)	48 (0)	37,720 (0)	52 (0)

[a]Values in parenthesis correspond to IFQ vessels.
Note: C = Confidential.

Table 8. Ports that generated 1% or greater of total revenues from golden tilefish, 2013-2017 combined.

Port	State	Ex-vessel revenue all species combined	Ex-vessel revenue golden tilefish	Golden tilefish contribution to total port ex-vessel revenues
East Hampton	NY	338,430	105,709	31%
Montauk	NY	86,842,761	15,023,737	17%
Ocean City	NJ	25,794	4,565	18%
Hampton Bays	NY	31,921,718	3,395,931	11%
Barnegat Light/Long Beach	NJ	127,717,127	6,322,272	5%
Shinnecock	NY	6,446,815	302,681	5%

In 2016 there were 59 federally permitted dealers who bought golden tilefish from 104 vessels that landed this species from Maine through Virginia. In addition, 70 dealers bought golden tilefish from 130 vessels in 2017. These dealers bought approximately $4.2 and $4.6 million of golden tilefish in 2016 and 2017, respectively, and are distributed by state as indicated in Table 9. Table 10 shows relative dealer dependence on golden tilefish.

Table 9. Dealers reporting buying golden tilefish, by state in 2016 - 2017.

Number of dealers	MA		RI		CT		NY		NJ		VA		Other	
	'16	'17	'16	'17	'16	'17	'16	'17	'16	'17	'16	'17	'16	'17
	7	11	10	13	6	9	20	22	13	9	C	4	2	2

Note: C = Confidential.

Table 10. Dealer dependence on golden tilefish, 2013-2017 combined.

Number of dealers	Relative dependence on tilefish
75	<5%
4	5%-10%
4	10% - 25%
2	25% - 50%
1	50% - 75%
2	90%+

According to VTR data, very little (< 0.4%) discarding was reported by longline vessels that targeted golden tilefish for the 2008 through 2017 period (Table 11). In addition, the 2014 golden tilefish stock assessment (NEFSC 2014) and stock assessment update (Nitschke 2017) indicate that golden tilefish discards in the trawl and longline fishery appear to be a minor component of the catch.

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Table 11. Catch disposition for directed golden tilefish trips[a], Maine through Virginia, 2008-2017 combined.

Common name	Kept pounds	% species	% total	Discarded pounds	% species	% total	Total pounds	Disc: Kept ratio
GOLDEN TILEFISH	13,969,451	100.00%	97.87%	0	0.00%	0.00%	13,969,451	0.00
SPINY DOGFISH	218,757	94.38%	1.53%	13,018	5.62%	26.15%	231,775	0.06
BLUELINE TILEFISH	25,433	99.98%	0.18%	5	0.02%	0.01%	25,438	0.00
DOGFISH SMOOTH	17,517	75.64%	0.12%	5,640	24.36%	11.33%	23,157	0.32
CONGER EEL	17,462	94.04%	0.12%	1,107	5.96%	2.22%	18,569	0.06
BLACK BELLIED ROSEFISH	6,871	100.00%	0.05%	0	0.00%	0.00%	6,871	0.00
DOLPHIN FISH	3,106	97.37%	0.02%	84	2.63%	0.17%	3,190	0.03
WRECKFISH	2,499	100.00%	0.02%	0	0.00%	0.00%	2,499	0.00
YELLOWFIN TUNA	2,189	97.99%	0.02%	45	2.01%	0.09%	2,234	0.02
GROUPER	1,353	100.00%	0.01%	0	0.00%	0.00%	1,353	0.00
BARRELFISH	1,615	100.00%	0.01%	0	0.00%	0.00%	1,615	0.00
SILVER HAKE (WHITING)	1,142	98.96%	0.01%	12	1.04%	0.02%	1,154	0.01
MAKO SHORTFIN SHARK	1,077	100.00%	0.01%	0	0.00%	0.00%	1,077	0.00
RED HAKE	951	60.73%	0.01%	615	39.27%	1.24%	1,566	0.65
SAND TILEFISH	804	100.00%	0.01%	0	0.00%	0.00%	804	0.00
BLUEFIN TUNA	691	100.00%	0.00%	0	0.00%	0.00%	691	0.00
MAKO SHARK	450	92.78%	0.00%	35	7.22%	0.07%	485	0.08
BLACK SEA BASS	444	97.80%	0.00%	10	2.20%	0.02%	454	0.02
ANGLER	290	100.00%	0.00%	0	0.00%	0.00%	290	0.00
BLACK WHITING	176	100.00%	0.00%	0	0.00%	0.00%	176	0.00
BIG EYE TUNA	179	100.00%	0.00%	0	0.00%	0.00%	179	0.00
AMERICAN EEL	150	100.00%	0.00%	0	0.00%	0.00%	150	0.00
REDFISH	149	100.00%	0.00%	0	0.00%	0.00%	149	0.00
MIX RED & WHITE HAKE	125	73.53%	0.00%	45	26.47%	0.09%	170	0.36
WHITE HAKE	125	100.00%	0.00%	0	0.00%	0.00%	125	0.00
SWORDFISH	115	100.00%	0.00%	0	0.00%	0.00%	115	0.00
SKATES OTHER	104	100.00%	0.00%	0	0.00%	0.00%	104	0.00
FISH OTHER	100	100.00%	0.00%	0	0.00%	0.00%	100	0.00
CUSK	97	100.00%	0.00%	0	0.00%	0.00%	97	0.00

Table 11 (continued). Catch disposition for directed golden tilefish trips[a], Maine through Virginia, 2008-2017 combined.

Common name	Kept pounds	% species	% total	Discarded pounds	% species	% total	Total pounds	Disc: Kept ratio
ALBACORE TUNA	75	100.00%	0.00%	0	0.00%	0.00%	75	0.00
SUMMER FLOUNDER	50	76.92%	0.00%	15	23.08%	0.03%	65	0.30
BLACK TIP SHARK	50	100.00%	0.00%	0	0.00%	0.00%	50	0.00
PORBEAGLE SHARK	45	100.00%	0.00%	0	0.00%	0.00%	45	0.00
BLUEFISH	37	1.19%	0.00%	3,070	98.81%	6.17%	3,107	82.97
WEAKFISH SQUETEAGUE	16	100.00%	0.00%	0	0.00%	0.00%	16	0.00
HAGFISH	5	100.00%	0.00%	0	0.00%	0.00%	5	0.00
POLLOCK	17	20.73%	0.00%	65	79.27%	0.13%	82	3.82
TIGER SHARK	0	0.00%	0.00%	13,420	100.00%	26.96%	13,420	--
SKATE BARDOOR	0	0.00%	0.00%	4,937	100.00%	9.92%	4,937	--
DOGFISH CHAIN	0	0.00%	0.00%	3,748	100.00%	7.53%	3,748	--
JONAH CRAB	0	0.00%	0.00%	1,850	100.00%	3.72%	1,850	--
LOBSTER	0	0.00%	0.00%	996	100.00%	2.00%	996	--
BLUE SHARK	0	0.00%	0.00%	680	100.00%	1.37%	680	--
BIG SKATE	0	0.00%	0.00%	220	100.00%	0.44%	220	--
HAMMERHEAD SHARK	0	0.00%	0.00%	100	100.00%	0.20%	100	--
SHARK OTHER	0	0.00%	0.00%	60	100.00%	0.12%	60	--
ALL SPECIES	14,273,717	99.65%	100.00%	49,777	0.35%	100.00%	14,323,494	0.00

[a] Directed trips for golden tilefish were defined as trips comprising 75 percent or more by weight of golden tilefish landed. Number of trips = 1,182.

Golden tilefish incidental commercial fishery landings in FY 2018 are slightly ahead of FY 2017 landings (Figure 4; as of the week ending January 31, 2018). Incidental golden tilefish commercial landings for the last five fishing years are shown in Table 12.

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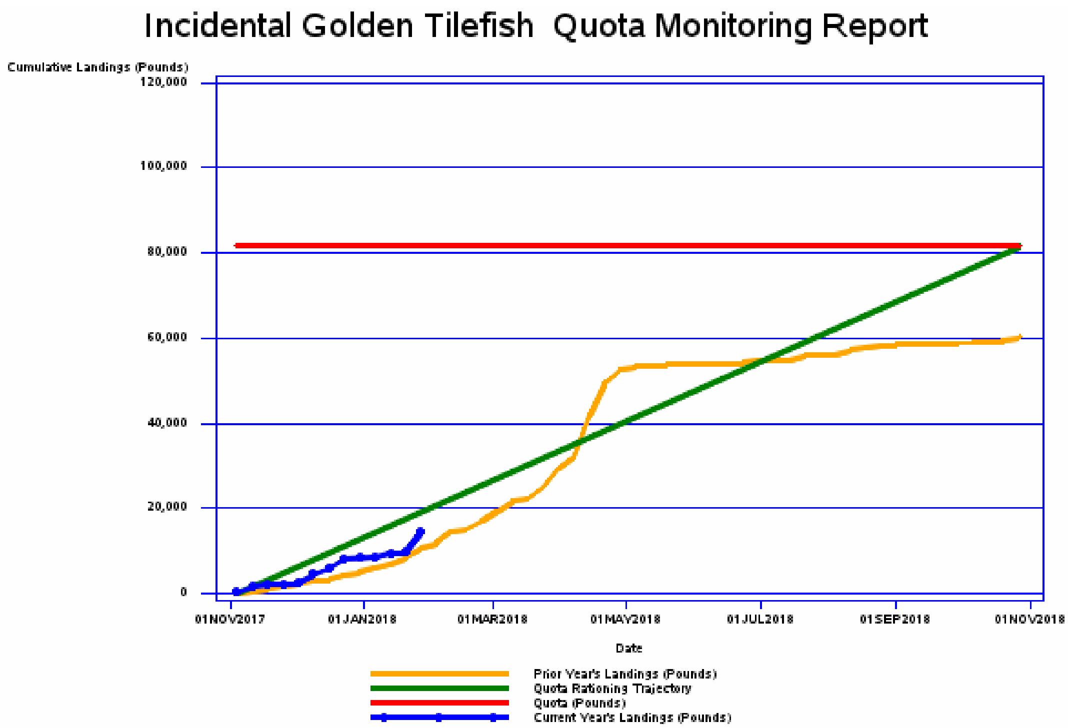

Figure 4. Incidental commercial landings for 2018 FY to date (Through January 31, 2018). Blue Line = FY 2018, Orange Line = FY 2017.
Source: http://www.nero.noaa.gov/ro/fso/reports/reports_frame.htm.

Table 12. Incidental golden tilefish commercial landings for 2013-2017 fishing years.

Fishing year	Landings (pounds)	Incidental quota (pounds)	Percent of quota landed (%)
2013	36,442	99,750	37
2014	44,594	99,750	45
2015	18,839	87,744	21
2016	20,929	94,357	22
2017	60,409	94,357	64

Source: http://www.nero.noaa.gov/ro/fso/reports/reports_frame.htm.

Recreational Fishery

A small recreational fishery briefly occurred during the mid-1970's, with less than 100,000 pounds annually (MAFMC 2001). Subsequent recreational catches have been low for the 1982 - 2016 period, ranging from zero for most years to approximately 30,000 fish in 2010 according to NMFS recreational statistics (Table 13). In 2017, approximately 16,000 fish were landed.

Vessel trip report (VTR) data indicates that the number of golden tilefish kept by party/charter vessels from Maine through Virginia is low, ranging from 81 fish in 1996 to 8,297 fish in 2015 (Table 14). In 2017, party/charter anglers kept 2,334 fish. Mean party/charter effort ranged from less than one fish per angler in 1999 throughout 2002 and 2005 to approximately eight fish per angler in the late 1990s, averaging 2.6 fish for the 1996-2017 period.

According to VTR data, for the 1996 through 2017 period, the largest amount of golden tilefish caught by party/charter vessels were made by New Jersey vessels (36,519), followed by New York (10,446), Virginia (790), Delaware (771), Massachusetts (496), and Maryland (381; Table 15). The number of golden tilefish discarded by recreational anglers is low. According to VTR data, on average, approximately 8 fish per year were discarded by party/charter recreational anglers for the 1996 through 2017 period (165 discarded fish in total). The quantity of golden tilefish discarded by party/charter recreational anglers ranged from zero in most years to 60 in 2015.

Recreational anglers typically fish for golden tilefish when tuna fishing especially during the summer months (Freeman, pers. comm. 2006). However, some for hire vessels from New Jersey and New York are golden tilefish fishing in the winter months (Caputi pers. comm. 2006). In addition, recreational boats in Virginia are also reported to be fishing for golden tilefish (Pride pers. comm. 2006). However, it is not known with certainty how many boats may be targeting golden tilefish. Nevertheless, accounting for information presented in the Fishery Performance Reports (2012-2014) and a brief internet search conducted by Council Staff in 2014 indicates that there have been approximately 10 headboats actively engaged in the tilefish fishery in the Mid-Atlantic canyons in recent years. It is estimated that approximately 4 of these boats conducted direct tilefish fishing trips, while the other 6 boats may have caught tilefish while targeting tuna/swordfish or fishing for assorted deep water species. In addition, it appears that recreational interest onboard headboats for tilefish has increase in the last few years as seen in the FPRs, internet search conducted by Council staff, and recent VTR recreational party/charter statistics (MAFMC 2014).

Anglers are highly unlikely to catch golden tilefish while targeting tuna on tuna fishing trips. However, these boats may fish for golden tilefish at any time during a tuna trip (i.e., when the tuna limit has been reached, on the way out or on the way in from a tuna fishing trip, or at any time when tuna fishing is slow). While fishing for tuna recreational anglers may trawl using rod and reel (including downriggers), handline, and bandit gear.[5] Rod and reel is the typical gear used in the recreational golden tilefish fishery. Because golden tilefish are found in relatively deep waters, electric reels may be used to facilitate landing (Freeman and Turner 1977).

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[5] Bandit gear is a vertical hook and line gear with rods attached to the vessel when in use. Manual, electric, or hydraulic reels may be used to retrieve lines.

Table 13. Recreational golden tilefish data from the NMFS recreational statistics databases, 1982-2017.

Year	Landed no. A and B1				Released no. B2 private	
	Party/charter		Private			
1982	0		984	(72.4)	0	
1983	0		0		0	
1984	0		0		0	
1985	0		0		0	
1986	0		0		0	
1987	0		0		0	
1988	0		0		0	
1989	0		0		0	
1990	0		0		0	
1991	0		0		0	
1992	0		0		0	
1993	0		0		0	
1994	608	(100.0)	0		0	
1995	0		0		0	
1996	6,842	(50.9)	0		0	
1997	0		0		0	
1998	0		0		0	
1999	0		0		0	
2000	0		0		0	
2001	148	(100.0)	0		0	
2002	0		20,068	(59.4)	1,338	(100.0)
2003	722	(69.1)	0		0	
2004	62	(99.3)	0		0	
2005	0		0		0	
2006	541	(100.4)	0		0	
2007	1,330	(78.3)	0		0	
2008	0		0		0	
2009	177	(87.8)	0		0	
2010	2,812	(90.5)	27,514	(77.2)	0	
2011	0		0		0	
2012	0		0		0	
2013	1,248	(100.0)	0		0	
2014	0		0		0	
2015	0		0		0	
2016	0		12,273	(81.0)	0	
2017	0		15,525	(52.1)	0	

Source: Recreational Fisheries Statistics Queries: http://www.st.nmfs.noaa.gov/recreational-fisheries/access-data/run-a-data-query/queries/index. PSE (proportional standard error) expresses the standard error of an estimate as a percentage of the estimate and is a measure of precision. A PSE value greater than 50 indicates a very imprecise estimate. 2017 values are preliminary.

Table 14. Number of golden tilefish kept by party/charter anglers and mean effort from Maine through Virginia, 1996 through 2017.

Year	Number of golden tilefish kept	Mean effort
1996	81	1.4
1997	400	7.5
1998	243	8.1
1999	91	0.4
2000	147	0.5
2001	172	0.7
2002	774	0.9
2003	991	1.6
2004	737	1.2
2005	498	0.9
2006	477	1.2
2007	1,077	1.2
2008	1,100	1.3
2009	1,451	1.3
2010	1,866	2.0
2011	2,938	3.4
2012	6,424	2.8
2013	6,560	3.2
2014	6,958	3.1
2015	8,297	4.2
2016	5,919	4.1
2017	2,334	3.3
All	49,535	2.6

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Table 15. Number of golden tilefish caught by party/charter vessels by state, 1996 through 2017.

Year	NH	MA	RI	CT	NY	NJ	DE	MD	VA	All
1996	0	0	0	0	81	0	0	0	0	81
1997	0	0	0	0	400	0	0	0	0	400
1998	0	0	102	0	141	0	0	0	0	243
1999	0	0	1	0	88	0	0	2	0	91
2000	0	0	0	0	108	39	0	0	0	147
2001	0	0	0	0	122	51	0	0	0	173
2002	0	0	0	0	401	373	0	0	0	774
2003	0	0	3	0	86	902	0	0	0	991
2004	0	0	0	0	12	628	0	0	104	744
2005	0	0	72	0	82	318	14	0	16	502
2006	0	0	0	0	265	65	2	133	12	477
2007	0	0	0	0	447	459	88	5	80	1,079
2008	0	0	3	0	488	545	22	32	10	1,100
2009	0	0	0	0	720	675	18	7	31	1,451
2010	0	0	0	0	595	1,194	19	23	48	1,879
2011	0	496	0	0	720	1,654	60	5	14	2,949
2012	0	0	1	0	1,116	5,146	42	23	98	6,426
2013	0	0	0	0	1,900	4,568	39	12	41	6,599
2014	0	0	0	3	957	5,716	180	40	73	6,866
2015	14	0	0	0	637	7,376	100	56	174	8,357
2016	0	0	0	0	676	5,073	69	43	67	5,787
2017	0	0	0	0	424	1,737	118	0	22	2,301
All	14	496	182	3	10,446	36,519	771	381	790	49,622

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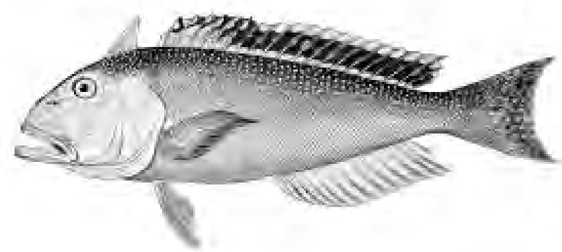
Golden Tilefish, *Lopholatilus chamaeleonticeps,* data update through 2017 in the Middle Atlantic-Southern New England Region



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Introduction

Golden tilefish, *Lopholatilus chamaeleonticeps*, inhabit the outer continental shelf from Nova Scotia to South America, and are relatively abundant in the Southern New England to Mid-Atlantic region at depths of 80 to 440 m. Tilefish have a narrow temperature preference of 9 to 14 C. Their temperature preference limits their range to a narrow band along the upper slope of the continental shelf where temperatures vary by only a few degrees over the year. They are generally found in and around submarine canyons where they occupy burrows in the sedimentary substrate. Tilefish are relatively slow growing and long-lived, with a maximum observed age of 46 years and a maximum length of 110 cm for females and 39 years and 112 cm for males (Turner 1986). At lengths exceeding 70 cm, the predorsal adipose flap, characteristic of this species, is larger in males and can be used to distinguish the sexes. Tilefish of both sexes are mature at ages between 5 and 7 years (Grimes et. al. 1988).

Golden Tilefish was first assessed at SARC 16 in 1992 (NEFSC 1993). The Stock Assessment Review Committee (SARC) accepted a non-equilibrium surplus production model (ASPIC). The ASPIC model estimated biomass-based fishing mortality (F) in 1992 to be 3-times higher than F_{MSY}, and the 1992 total stock biomass to be about 40% of B_{MSY}. The intrinsic rate of increase (r) was estimated at 0.22.

The Science and Statistical Committee reviewed an updated tilefish assessment in 1999. Total biomass in 1998 was estimated to be 2,936 mt, which was 35% of B_{MSY} = 8,448 mt. Fishing mortality was estimated to be 0.45 in 1998, which was about 2-times higher than F_{MSY} = 0.22. The intrinsic rate of increase (r) was estimated to be 0.45. These results were used in the development of the Tilefish Fishery Management Plan (Mid-Atlantic Fishery Management Council 2000). The Mid-Atlantic Fishery Management Council implemented the Tilefish Fishery Management Plan (FMP) in November of 2001. Rebuilding of the tilefish stock to B_{MSY} was based on a ten-year constant harvest quota of 905 mt.

SARC 41 reviewed a benchmark tilefish assessment in 2005. The surplus production model indicated that the tilefish stock biomass in 2005 has improved since the assessment in 1999. Total biomass in 2005 is estimated to be 72% of B_{MSY} and fishing mortality in 2004 is estimated to be 87% of F_{MSY}. Biological reference points did not change greatly from the 1999 assessment. B_{MSY} is estimated to be 9,384 mt and F_{MSY} is estimated to be 0.21. The SARC concluded that the projections are too uncertain to form the basis for evaluating likely biomass recovery schedules relative to B_{MSY}. The total allowable landings (TAL) and reference points were not changed based on the SARC 41 assessment.

Stock status from SARC 48 (2009) was also based on the ASPIC surplus production model which was the basis of the stock assessment for the last three assessments. The model is calibrated with CPUE series, as there are no fishery-independent sources of information on trends in population abundance. While the Working Group expressed concern about the lack of fit of the model to the VTR CPUE index at the end of the time series, they agreed to accept the estimates of current fishing mortality and biomass and associated reference points. The instability of model results in the scenario projections was also a source of concern. It was noted that the bootstrap uncertainty estimates do not capture the true uncertainty in the assessment. The ASPIC model indicates that the stock is rebuilt. However, the working group acknowledges that there is high uncertainty on whether the stock is truly rebuilt.

The golden tilefish stock was last assessed at SARC 58 in 2014 with a terminal year of 2012 (http://nefsc.noaa.gov/publications/crd/crd1403/partb.pdf, http://nefsc.noaa.gov/publications/crd/crd1404/partb.pdf). The Golden Tilefish stock was not overfished and overfishing was not occurring in 2012 relative to the SARC 58 accepted biological reference points. The stock was declared rebuilt in 2014 by NMFS based of SARC 58 results which indicated that SSB was at 101% of the accepted SSB_{MSY}. A new model, ASAP, was used in this assessment to incorporate newly available length and age data. The ASAP model integrates more realistic life history information on size and growth into a single model framework and better characterizes the population dynamics of the tilefish stock.

A golden tilefish model update was done in 2017 with updated commercial fishery landings, landings size distributions, and CPUE indices of abundance through 2016. The Golden tilefish stock was not overfished and overfishing was not occurring in 2016 relative to the newly updated biological reference points.

In this report, commercial landings, longline fishery CPUE, and landings size distributions were updated an additional year of data through 2017. Commercial landings maps from 1998 to 2017 are also summarized in Appendix 1. Updated data is summarized in Tables 1 to 3 and Figures 1, 2, 4-7, 10-11. Figures 3, 8, and 9 are taken from the last data update in 2016 and have not been updated. Evidence of the strong 2013 year class that was predicted in the 2017 model update is evident in the updated 2017 data with an increase in the CPUE and tracking of a mode in the commercial size distribution.

Commercial catch data

Total commercial landings (live weight) increased from less than 125 metric tons (mt) during 1967-1972 to more than 3,900 mt in 1979 and 1980. Annual landings have ranged between 666 and 1,838 mt from 1988 to 1998. Landings from 1999 to 2002 were below 900 mt (ranging from 506 to 874 mt). An annual quota of 905 mt was implemented in November of 2001. Landings in 2003 and 2004 were slightly above the quota at 1,130 mt and 1,215 mt respectively. Landing from 2005 to 2009 have been at or below the quota. Landings in 2010 at 922 mt were slightly above the quota (Table 1, Figure 1). Since 2010 landings have been below the quota. The preliminary landings retrieval for 2017 as of 2/09/18 was 695 mt which was and increase from 2016 but remains below the TAL of 856 mt.

The TAL was reduced for the first time in 2015 to 796 mt from a TAL of 905 mt which was in place from 2001-2014. The TAL in 2016 and 2017 set at 856 mt based on projections from the SARC 58 assessment. The TAL was further reduced to 738 mt for 2018 to 2020 based on the model update in 2017.

During the late 1970s and early 1980s Barnegat, NJ was the principal tilefish port; more recently Montauk, NY has accounted for most of the landings. Most of the commercial landings are taken by the directed longline fishery. Discards in the trawl and longline fishery appear to be a minor component of the catch. Recreational catches have also appeared to be low and were not included as a component of the removals in the assessment model.

Commercial CPUE data

A fishery independent index of abundance does not exist for tilefish. Analyses of catch (landings) and effort data were confined to the longline fishery since directed tilefish effort occurs in this fishery (e.g. the remainder of tilefish landings are taken as bycatch in the trawl fishery). Most longline trips that catch tilefish fall into two categories: (a) trips in which tilefish comprise greater than 90% of the trip catch by weight and (b) trips in which tilefish accounted for less than 10% of the catch. Effort was considered directed for tilefish when at least 75% of the catch from a trip consisted of tilefish.

Three different series of longline effort data were analyzed. The first series was developed by Turner (1986) who used a general linear modeling approach to standardize tilefish effort during 1973-1982 measured in kg per tub (0.9 km of groundline with a hook every 3.7 m) of longline obtained from logbooks of tilefish fishermen. Two additional CPUE series were calculated from the NEFSC weighout (1979-1993) and the VTR (1995-2015) systems. Effort from the weighout data was derived by port agents' interviews with vessel captains whereas effort from the VTR systems comes directly from mandatory logbook data. In the SARC 58 assessment (2014) and in the 2009, 2005 and 1998 tilefish assessments, Days Absent was used as the best available effort metric. In the 1998 assessment an effort metric based on Days Fished (average hours fished per set / 24 * x number of sets in trip) was not used because effort data were missing in many of the logbooks and the effort data were collected on a trip basis as opposed to a haul by haul basis. In the SARC 58 assessment effort was calculated as:

Effort = days absent (time & date landed - time & date sailed) – 1 day per trip.

For some trips, the reported days absent were calculated to be a single day. This was considered unlikely, as a directed tilefish trip requires time for a vessel to steam to near the edge of the continental shelf, time for fishing, and return trip time. Thus, to produce a realistic effort metric based on days absent, a one day steam time for each trip (or the number of trips) was subtracted from days absents and therefore only trips with days absent greater than one day were used.

The number of vessels targeting tilefish has declined since the 1980s (Table 2, Figure 2); during 1994-2003 and 2005-2015, five vessels accounted for more than 70 percent of the total tilefish landings. The number of vessels targeting tilefish has remained fairly constant since the assessment in 2005. The length of a targeted tilefish trip had been generally increasing until the mid 1990s. At the time of the 2005 assessment trip lengths have shorten to about 5 days. Trip length has increased slightly until 2008 and has subsequently declined until 2011. Trip lengths have been increasing slightly since 2011 to about 8.5 days in 2017 (Figure 2). In the weighout data the small number of interviews is a source of concern; very little interview data exists at the beginning of the time series (Table 2, Figure 3). The 5 dominant tilefish vessels make up almost all of the VTR reported landings.

The number of targeted tilefish trips declined in the early 1980s while trip length increased at the time the FMP was being developed in 2000 (Figures 2 and 4). During the 2005 assessment the number of trips became relatively stable as trip length decreased. The interaction between the number of vessels, the length of a trip and the number of trips can be seen in the total days absent trend in Figure 4. Total days absent remained relatively stable in the early 1980s, but then declined at the end of the weighout series (1979-1994). In the beginning of the VTR series (1994-2004) days absent increased through 1998 but declined to 2005. Days absent increased from 2005 to 2008 but subsequential declined until 2010. Again days absent increased from 2010 to 2014 and has subsequently declined. When interpreting total days absent trends, it is important to note with improvements in data collection more recently that the subset of CPUE landings makes up a greater proportion of the total dealer landings (Figure 4).

CPUE trends are very similar for most vessels that targeted tilefish. A sensitivity test of the general linear model (GLM) using different vessel combinations was done in SARC 41. The SARC 41 GLM was found not to be sensitive to different vessels entering the CPUE series. Very little CPUE data exist for New York vessels in the 1979-1994 weighout series despite the shift in landing from New Jersey to New York before the start of the VTR series in 1994. Splitting the weighout and VTR CPUE series can be justified by the differences in the way effort was measured and difference in the tilefish fleet between the series. In breaking up the series we omitted 1994 because there were very little CPUE data. The sparse 1994 data that existed came mostly from the weighout system in the first quarter of the year. Very similar trends exist in the four years of overlap between Turner (1986) CPUE and the weighout series (Figure 5). At SARC 58 additional logbook data for three New York vessels was collected from New York fishermen from 1991-1994 and added to the VTR series. This was done to provide more information (years of overlap) in the modeling between the Weighout and the VTR series.

Since 1979, the tilefish industry has changed from using cotton twine to steel cable for the backbone and from J hooks to circle hooks. The gear change to steel cable and snaps started on New York vessels in 1983. In light of possible changes in catchability associated with these changes in fishing gear, the working group considered that it would be best to use the three available indices separately rather than combined into one or two series. The earliest series (Turner 1986) covered 1973-1982 when gear construction and configuration was thought to be relatively consistent. The Weighout series (1979-1993) overlapped the earlier series for four years and showed similar patterns and is based primarily on catch rates from New Jersey vessels. The VTR (1991-2017) series is based primarily on information from New York vessels using steel cable and snaps.

The NEFSC Weighout and VTR CPUE series were standardized using a GLM incorporating year and individual vessel effects. The CPUE was standardized to an individual longline vessel and the year 1984; the same year used in the last assessment. For the VTR series the year 2000 was used as the standard. Model coefficients were back-transformed to a linear scale after correcting for transformation bias. The updated GLM model that accounted for individual vessel effects appears to show more of an overall increasing trend in CPUE in comparison to the nominal series (Figure 6).

More recently changes in the CPUE can be generally explained with evidence of strong incoming year classes that track through the landings size composition over time (See below). Since the SARC 58 assessment there appear to be increases in CPUE due to one or two new strong year classes. In general, strong year classes appear to persist longer in the fishery after the FMP and after the constant quota management came into effect which is evident in both the CPUE and size composition data. The CPUE has increased in 2017 which is consistent with the growth of a strong 2013 year class.

Commercial market category and size composition data

Seven market categories exist in the database. From smallest to largest they are: extra small, small, kitten, medium, large/medium, large and extra-large as well as an unclassified category. Differences in the naming convention among ports tend to cause some confusion. For example, small and kitten categories reflect similar size fish. Smalls is the naming convention used in New Jersey whereas the kitten market category is used primarily in New York ports. A new code was recently developed for the large-medium category in 2013 and 2014. In 2014 it appears that fish which would have been called unclassified in the past are now being correctly coded as large-mediums.

The proportion of landings in the kittens and small market categories increased in 1996 and 1997. Evidence of several strong recruitment events can be seen tracking through the market category proportions (Table 3, Figures 7). The proportion of the large market category has been relatively low in the 1990s until around 2004. The proportion of larges has increased since 2005. The strong year class tracking through the small kitten and mediums in the late 1990s did not materialize into the large market category.

Evidence of two strong recruitment events can be seen tracking through these market categories. At the time of the 2005 tilefish assessment the proportion of large market category had declined since the early 1980s. However more recently a greater proportion of the landings are coming from the large market category as the last strong year class (1999) has grown (Table 3, Figure 7). Commercial length sampling was inadequate over most of the early time series. However, some commercial length sampling occurred in the mid to late 1990s. More recently there has been a substantial increase in the commercial length sampling from 2003 to 2015.

Commercial length frequencies were expanded for years where sufficient length data exist (1995-1999 and 2002-2015). The large length frequency samples from 1996 to 1998 were used to calculate the 1995 to 1999 expanded numbers at length while the large length samples from 2001 and 2003 were used to calculate the 2002 expanded numbers at length. No lengths for extra small (xs) exist in 2013. In 2013 kittens' lengths were used to characterize the extra small category.

Evidence of strong 1992/1993 and 1998/1999 year classes can be seen in the expanded numbers at length in the years when length data existed (1995-1999, 2002-2008, and 2008-2014) (Figures 8 to 11). The matching of modes in the length frequency with ages was done using Turner's (1986) and Vidal's (2009) growth studies and the 2007-2013 catch at age information. In 2004 and 2005 the 1998/1999 year class can be seen growing into the medium market category and in 2006 and 2007 the year class has entered the large market category (Figure 9). From 2002 to 2007 it appears that most of the landings were comprised of this year class.

A similar pattern occurred with the 2005 year class from 2009-2013. An increase in the landings and CPUE can be seen when the 1992/1993, 1998/1999 and 2005 year classes recruit to the longline fishery. As the year classes gets older the catch rates decline. At this point the catch also gets more widely distributed over multiple year classes. This can be seen in 2007-2008 and 2012-2015 (Figure 9). CPUE appears to decline as the strong year classes get older than about 6 years. From 2013 to 2015 catch appears to be comprised of multiple year classes with a wide distribution of fish sizes being caught as the catch rates have declined in the VTR series (Figure 10).

Concern was expressed at SARC 48 (2009) with little evidence of an incoming year class, catch rates declining and the mismatch between the biomass trends predicted by the surplus production model in comparison to the observed CPUE at the end of the time series. However, since the 2009 assessment there is evidence of a strong year class (2005) tracking through the landings size distributions. In 2012 that year class has entered the large market category and as expected, there is a decline in the CPUE since 2011. However, there is also some evidence of a broader size distribution of the fish being caught from 2011 to 2015 which suggests the fishery is less reliant on a single year class and that larger fish remain in the population.

The updated data in 2017 appears to comport with the 2017 model update with a 2016 terminal year. The model update predicted a strong 2013 year class which began to enter the fishery in 2016. This 2018 data update did show increases in CPUE as the strong year class became more selected by the fishery in 2017. There is also evidence for the 2013 year class with the tracking of the length model in the landings at length. The 2017 model update indicates that this year class was about 50% selected in 2017 and is predicted to be 100% selected in 2018. Therefore, catch rates in 2018 are predicted to continue to increase. However, considerable uncertainty remains with the estimated size of the 2013 year class since the model was not updated in 2018 to reestimate the size of the year class.

Conclusions

Landings have remained between 814 and 845 mt from 2012 to 2014. Landing has declined in 2016 to 494 mt which appears to be the result of a combination of lower catch rates and some inactive vessels. However landing have increase in 2017 to 695 mt. Updated CPUE in 2017 has also increase relative to 2016 which appears to be consistent with a strong 2013 year class that was estimated in the 2017 model update. The commercial size distribution provided further evidence for the strong 2013 year class with the tracking of the length mode into the kitten and small market categories.

Table 1. Landings of tilefish in live metric tons from 1915-2017. Landings in 1915-1972 are from Freeman and Turner (1977), 1973-1989 are from the general canvas data, 1990-1993 are from the weighout system, 1994-2003 are from the dealer reported data, and 2004-2017 is from Dealer electronic reporting. - indicates missing data. * Preliminary data retrieved on 1/17/18.

year	mt	year	mt	year	mt
1915	148	1960	1,064	2005	676
1916	4,501	1961	388	2006	907
1917	1,338	1962	291	2007	749
1918	157	1963	121	2008	737
1919	92	1964	596	2009	864
1920	5	1965	614	2010	922
1921	523	1966	438	2011	864
1922	525	1967	50	2012	834
1923	623	1968	32	2013	846
1924	682	1969	33	2014	814
1925	461	1970	61	2015	593
1926	904	1971	66	2016	494
1927	1,264	1972	122	2017	*695
1928	1,076	1973	394		
1929	2,096	1974	586		
1930	1,858	1975	710		
1931	1,206	1976	1,010		
1932	961	1977	2,082		
1933	688	1978	3,257		
1934	-	1979	3,968		
1935	1,204	1980	3,889		
1936	-	1981	3,499		
1937	1,101	1982	1,990		
1938	533	1983	1,876		
1939	402	1984	2,009		
1940	269	1985	1,961		
1941	-	1986	1,950		
1942	62	1987	3,210		
1943	8	1988	1,361		
1944	22	1989	454		
1945	40	1990	874		
1946	129	1991	1,189		
1947	191	1992	1,653		
1948	465	1993	1,838		
1949	582	1994	786		
1950	1,089	1995	666		
1951	1,031	1996	1,121		
1952	964	1997	1,810		
1953	1,439	1998	1,342		
1954	1,582	1999	525		
1955	1,629	2000	506		
1956	707	2001	874		
1957	252	2002	851		
1958	672	2003	1,130		
1959	380	2004	1,215		

Table 2. Total commercial and vessel trip report (VTR) landings in live mt and the commercial catch-per-unit effort (CPUE) data used for tilefish. Dealer landings before 1990 are from the general canvas data. CPUE data from 1979 to the first half of 1994 are from the NEFSC weighout database, while data in the second half of 1994 to 2017 are from the vtr system (below the dotted line). Effort data are limited to longline trips which targeted tilefish (= or >75% of the landings were tilefish) and where data existed for the days absent. Nominal CPUE series are calculated using landed weight per days absent minus one day steam time per trip. Da represents days absent.

	Weighout		Commerical CPUE data subset								
year	& Dealer landings	vtr landings	interview landings	No. interviews	% interview trips	No. vessels	subset landings	days absent	No. trips	da per trip	nominal cpue
1979	3,968		0.0	0	0.0%	20	1,807	1,187	330	3.6	1.93
1980	3,889		0.8	1	0.3%	18	2,153	1,390	396	3.5	1.99
1981	3,499		35.0	4	1.2%	21	1,971	1,262	333	3.8	1.95
1982	1,990		90.7	13	5.7%	18	1,267	1,282	229	5.6	1.10
1983	1,876		85.8	16	8.9%	21	1,013	1,451	179	8.1	0.73
1984	2,009		140.1	25	18.2%	20	878	1,252	138	9.1	0.72
1985	1,961		297.1	64	30.6%	25	933	1,671	209	8.0	0.59
1986	1,950		120.7	31	16.5%	23	767	1,186	188	6.3	0.71
1987	3,210		198.5	38	18.5%	30	1,014	1,343	206	6.5	0.82
1988	1,361		148.2	30	19.4%	23	422	846	154	5.5	0.56
1989	454		92.8	11	15.7%	11	165	399	70	5.7	0.46
1990	874		32.4	8	11.9%	11	241	556	68	8.2	0.45
1991	1,189		0.8	3	2.8%	7	444	961	107	9.0	0.48
1992	1,653		58.0	9	8.6%	13	587	969	105	9.2	0.62
1993	1,838		71.9	11	10.5%	10	571	959	105	9.1	0.61
1994	-		0	0	0.0%	7	127	385	42	9.2	0.34
1994	786	30				4	53	150	18	8.3	0.37
1995	666	547				5	466	954	99	9.6	0.50
1996	1,121	865				8	822	1,318	134	9.8	0.64
1997	1,810	1,439				6	1,427	1,332	133	10.0	1.09
1998	1,342	1,068				9	1,034	1,517	158	9.6	0.70
1999	525	527				10	516	1,185	133	8.9	0.45
2000	506	446				11	421	932	110	8.5	0.47
2001	874	705				8	691	1,046	116	9.0	0.68
2002	851	724				8	712	951	114	8.3	0.78
2003	1,130	790				7	788	691	101	6.8	1.22
2004	1,215	1,153				12	1,136	811	134	6.1	1.54
2005	676	808				11	802	470	93	5.1	1.95
2006	907	870				12	852	682	105	6.5	1.35
2007	749	710				12	691	727	101	7.2	1.01
2008	737	675				14	672	1,119	124	9.0	0.62
2009	864	812				12	800	1,106	130	8.5	0.75
2010	922	871				11	853	694	108	6.4	1.33
2011	864	822				9	781	517	89	5.8	1.68
2012	834	799				12	795	651	100	6.5	1.32
2013	846	844				11	796	831	112	7.4	1.02
2014	814	790				13	716	961	120	8.0	0.78
2015	593	593				12	515	920	111	8.3	0.58
2016	494	491				11	381	806	98	8.2	0.49
2017	695	635				9	527	725	85	8.5	0.76

Table 3. Landing (metric tons) by market category. A large-medium (lg/med) code was developed in 2013 and 2014. Smalls and Kittens were combined since these categories possess similar size fish. Xs is extra small and xl is extra large.

year	xs	small & kittens	medium	lg/med	large	xl	unclassified	total
1990	0	38	103	-	46	0	687	874
1991	0	59	154	-	85	0	891	1189
1992	0	330	88	-	86	0	1,149	1653
1993	0	368	206	-	66	4	1,193	1838
1994	0	19	89	-	54	7	617	786
1995	0	99	88	-	91	2	386	666
1996	0	592	149	-	156	2	221	1121
1997	0	1,130	260	-	111	2	307	1810
1998	0	475	700	-	103	6	58	1342
1999	0	181	201	-	106	8	29	525
2000	0	210	153	-	115	8	20	506
2001	0	564	161	-	124	6	19	874
2002	0	369	311	-	128	3	40	851
2003	0	776	171	-	144	5	35	1130
2004	20	397	523	-	129	9	137	1215
2005	0	18	335	-	149	1	173	676
2006	1	16	233	-	369	1	287	907
2007	3	96	142	-	397	4	106	749
2008	17	149	195	-	299	17	60	737
2009	35	334	179	-	226	28	61	864
2010	16	269	373	-	166	17	81	922
2011	6	142	339	-	216	10	152	864
2012	8	95	308	-	285	17	121	834
2013	19	138	281	14	290	21	82	846
2014	13	227	195	88	238	47	5	814
2015	12	92	160	84	186	57	2	593
2016	42	93	75	65	172	44	3	494
2017	35	299	132	43	152	26	9	695

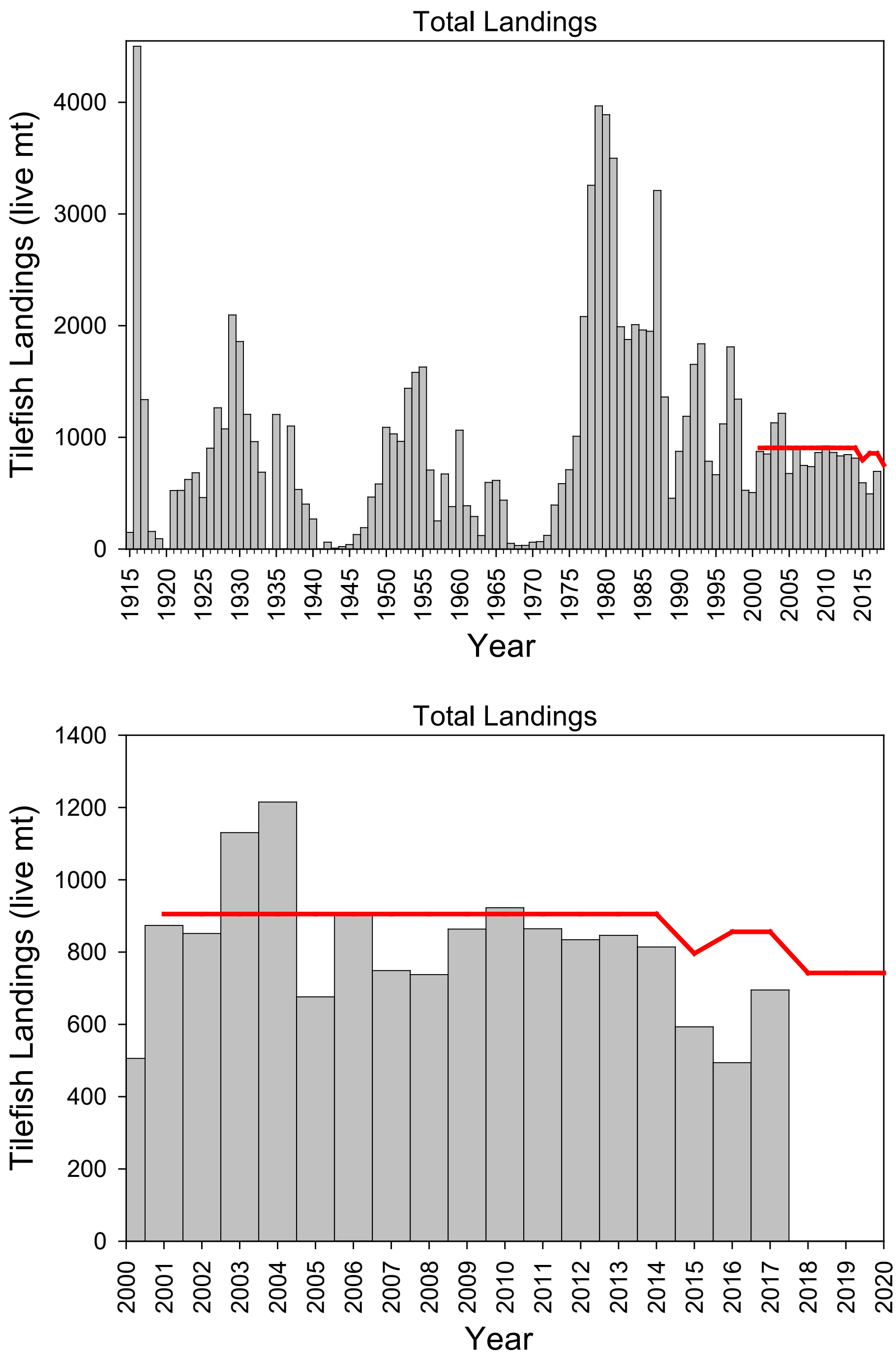


Figure 1. Landings of tilefish in metric tons from 1915-2015 (top) and from 2000-2015 (bottom). Landings in 1915-1972 are from Freeman and Turner (1977), 1973-1989 are from the general canvas data, 1990-1993 are from the weighout system, 1994-2003 are from the dealer reported data, and 2004-2015 is from dealer electronic reporting. Preliminary landings retrieved on 1/17/18. Red line is the TAL from 2001-2020.

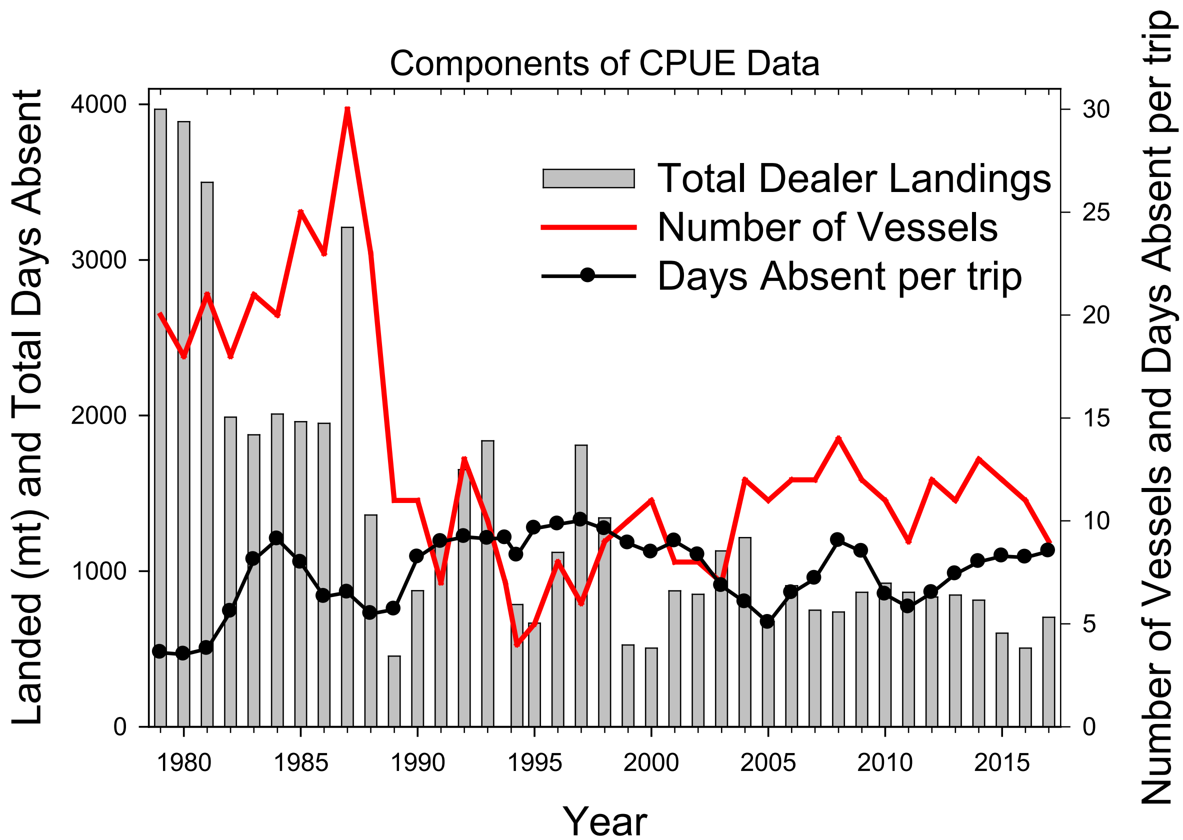


Figure 2. Number of vessels and length of trip (days absent per trip) for trips targeting tilefish (= or >75% tilefish) from 1979-2017. Total Dealer landings are also shown.

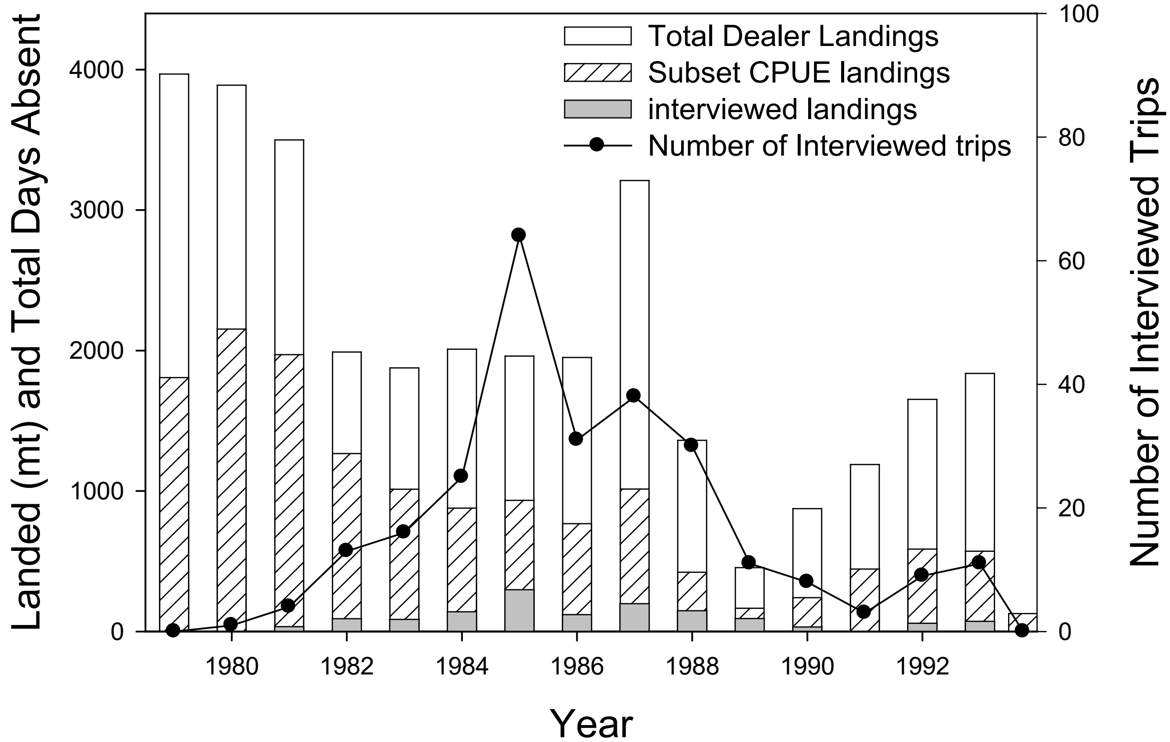


Figure 3. Number of interviewed trips and interviewed landings for trips targeting tilefish (= or >75% tilefish) for the Weighout data from 1979-1994. Total Weighout landings and the subset landings used in CPUE estimate are also shown.

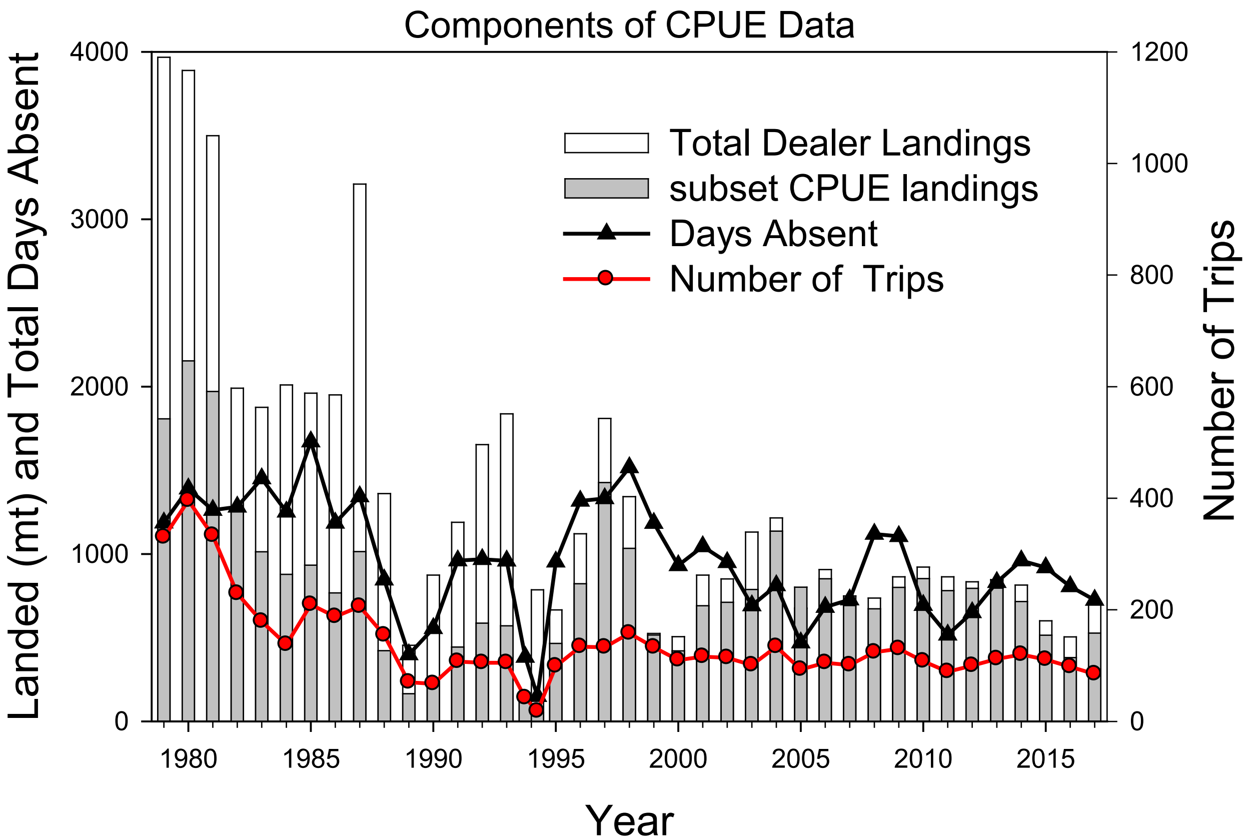


Figure 4. Total number of trips and days absent for trips targeting tilefish (= or >75% tilefish) from 1979-2017. Total Dealer and CPUE subset landings are also shown

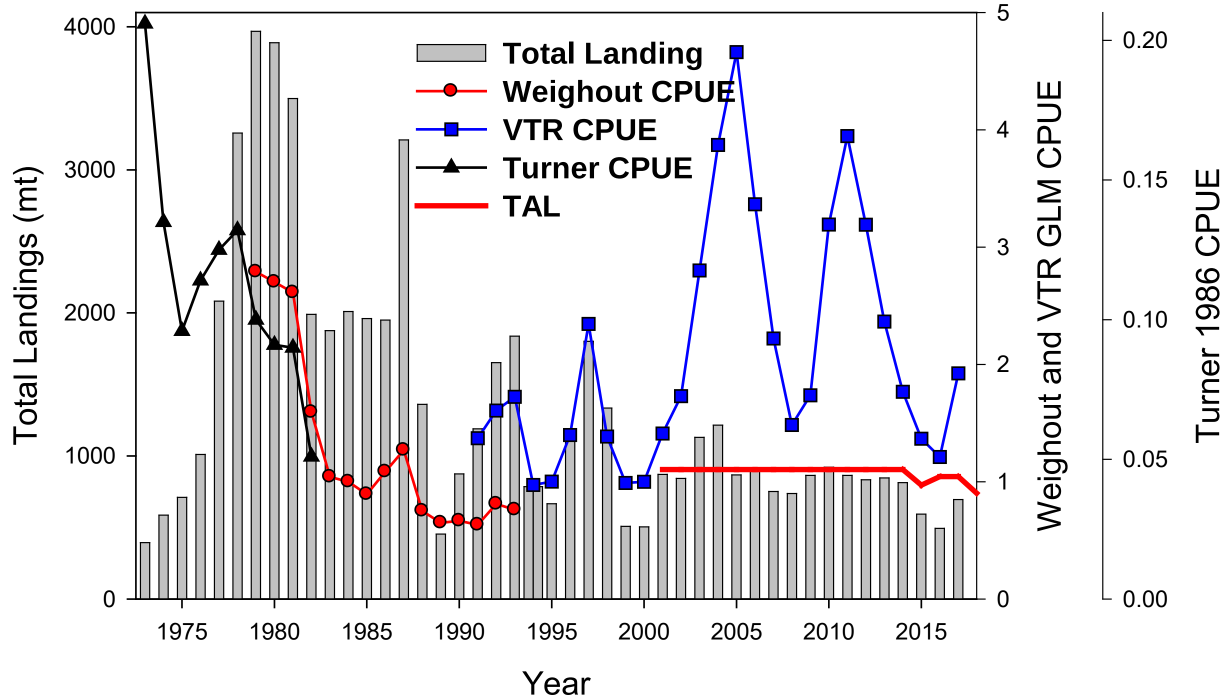


Figure 5. GLM CPUE for the Weighout and VTR data split into two series with additional New York logbook CPUE data from three vessels (1991-1994) added to the VTR series. Four years of overlap between Turner's and the Weighout CPUE series can also be seen. ASAP relative changes in qs amount CPUE series were not incorporated into the plot. Assumed total landings are also shown. Landing in 2005 was taken from the IVR system. Red line is the TAL.

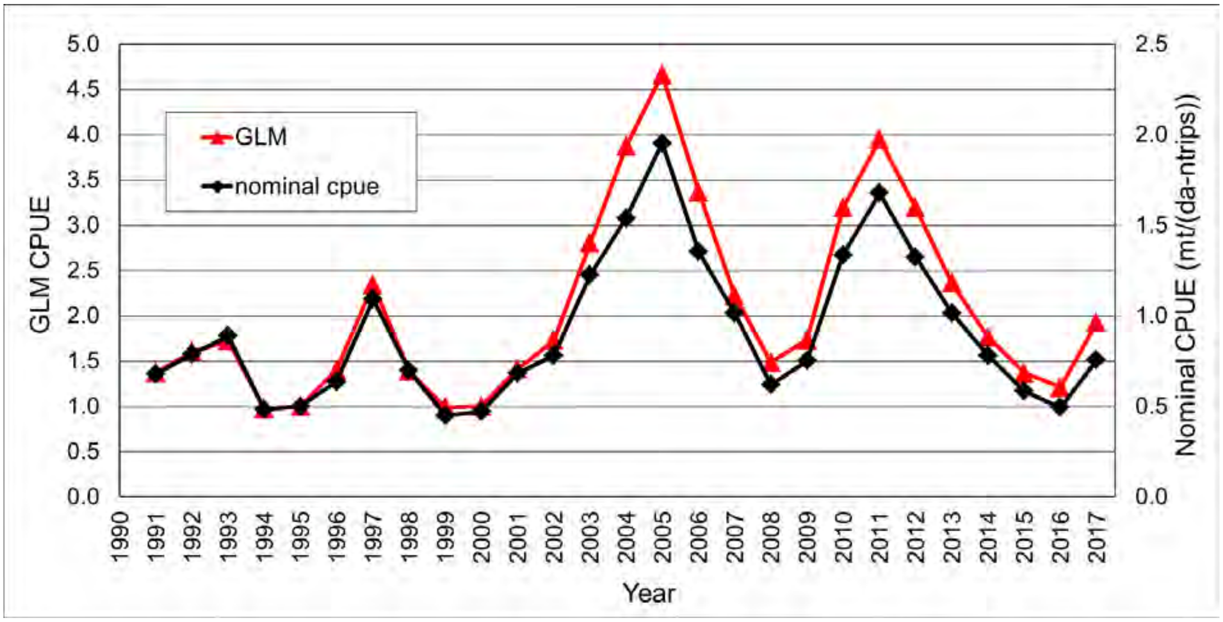


Figure 6. Comparison of the nominal and GLM VTR CPUE indices for golden tilefish with additional New York logbook CPUE data from three vessels (1991-1994) added to the VTR series.

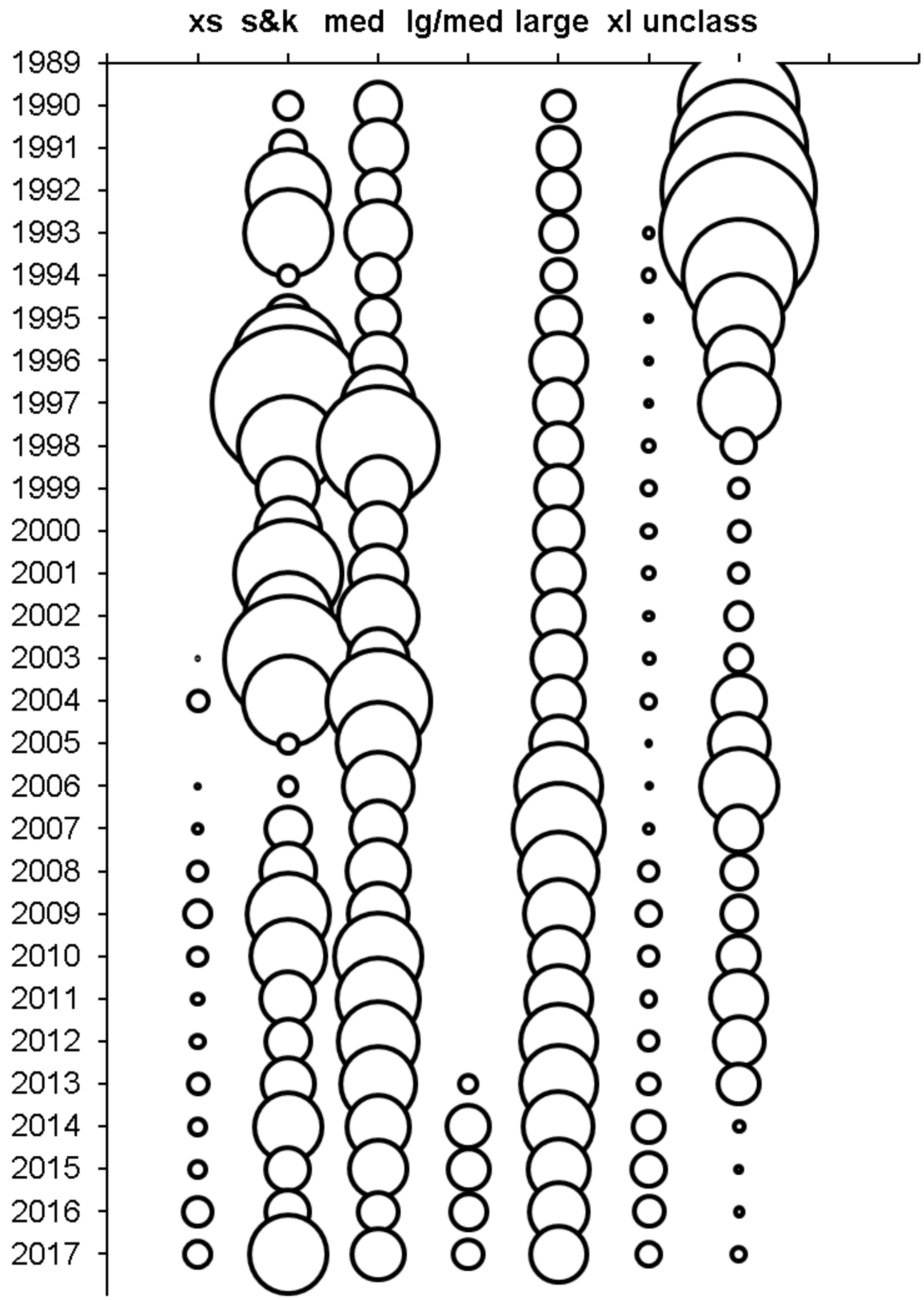


Figure 7. Bubble plot of Golden tilefish landings by market category. Large-medium market category code was added in 2013 and 2015. Smalls and Kittens (s&k) were combined since these categories possess similar size fish.

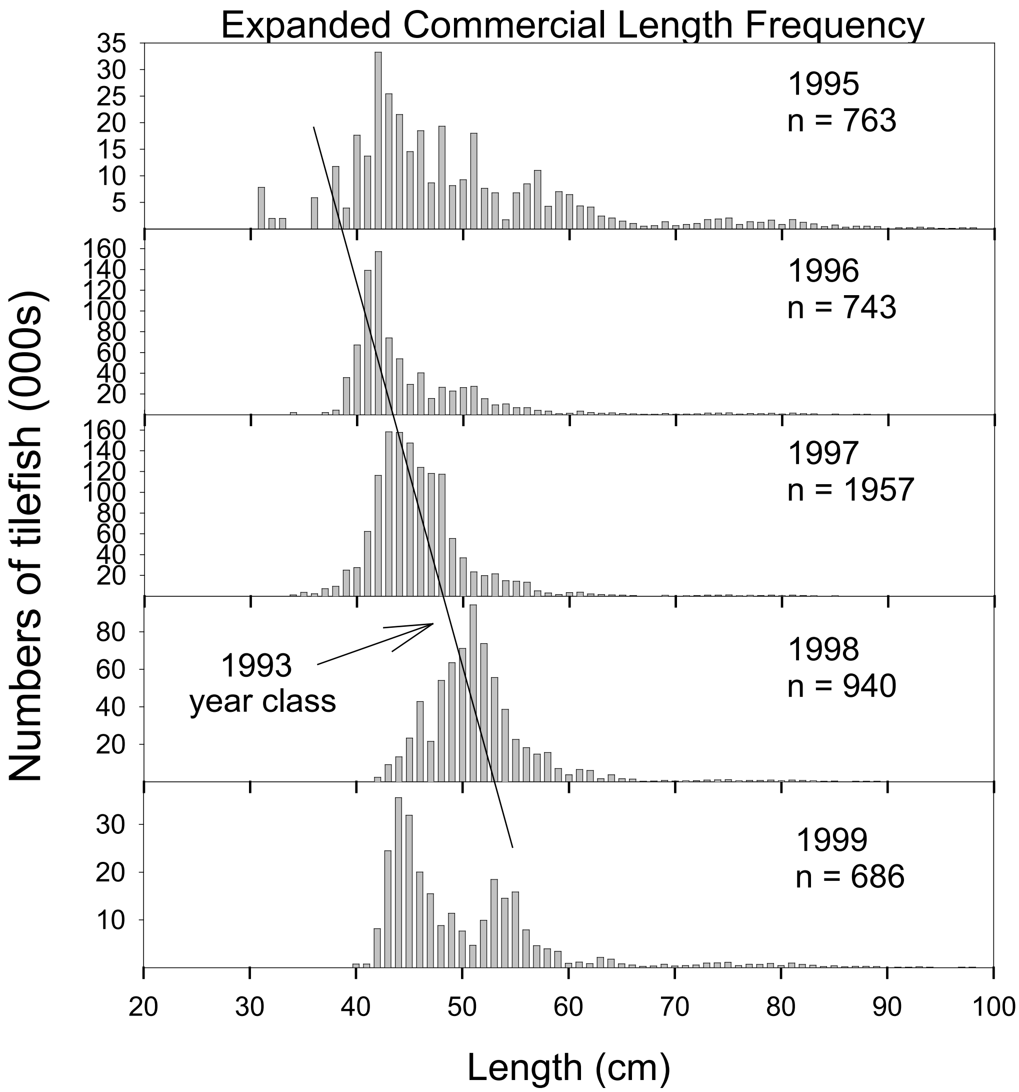


Figure 8. Expanded length frequency distributions by year. Large market category lengths used from 1995 to 1999 were taken from years 1996, 1998, and 1998. Smalls and kittens were combined and large and extra large were also combined.

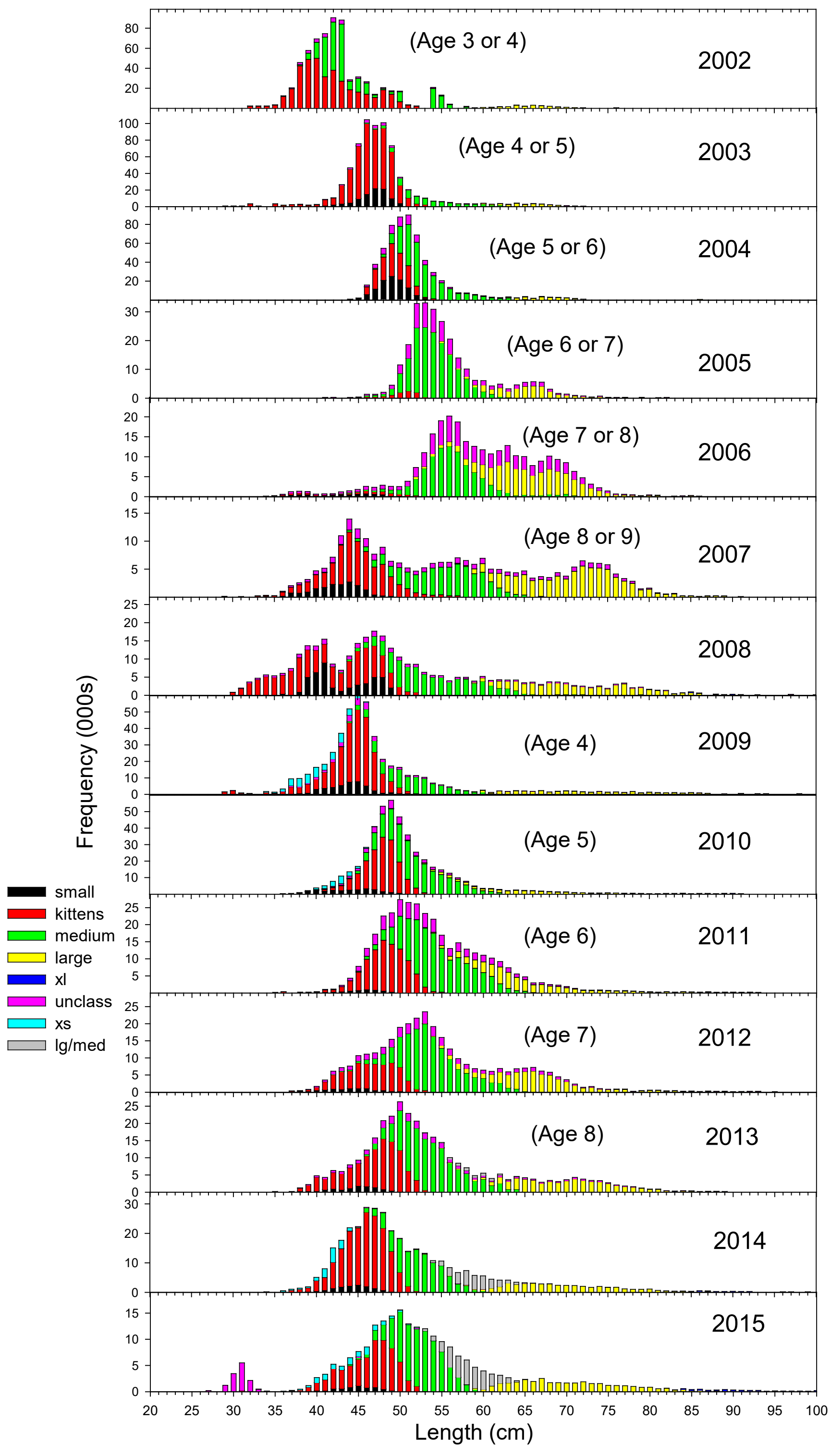


Figure 9. Expanded length frequency distributions from 2002 to 2015. Kittens lengths were used to characterize the extra small category in 2013. Y-axis is allowed to rescale.

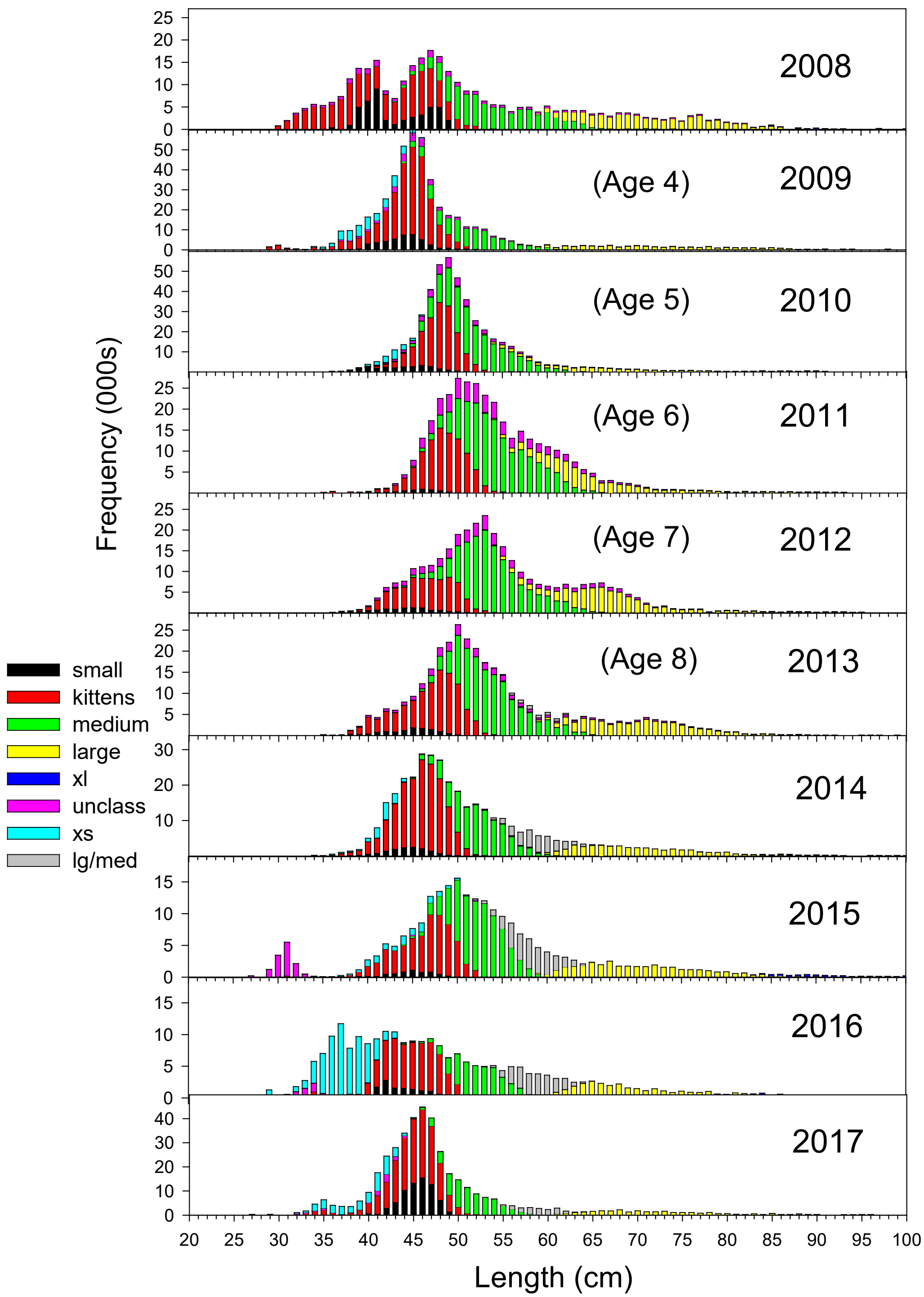


Figure 10. Expanded length frequency distributions from 2007 to 2017. No lengths for extra small (xs) exist in 2013. Kittens lengths were used to characterize the extra small category in 2013. No length samples for unclassified were used from 2007-2014. Unclassifieds in 2015 are based on two samples. Y-axis is allowed to rescale.

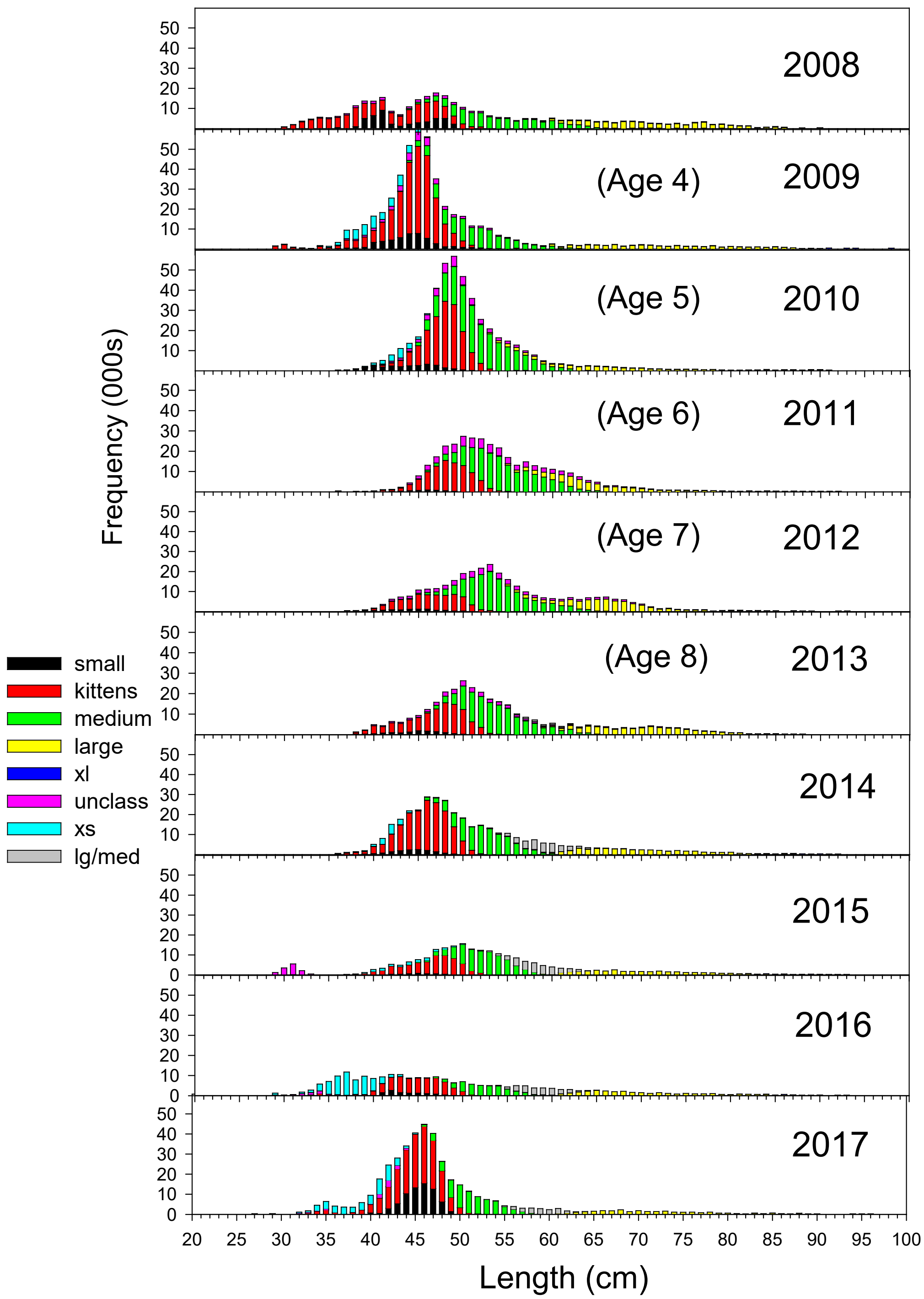
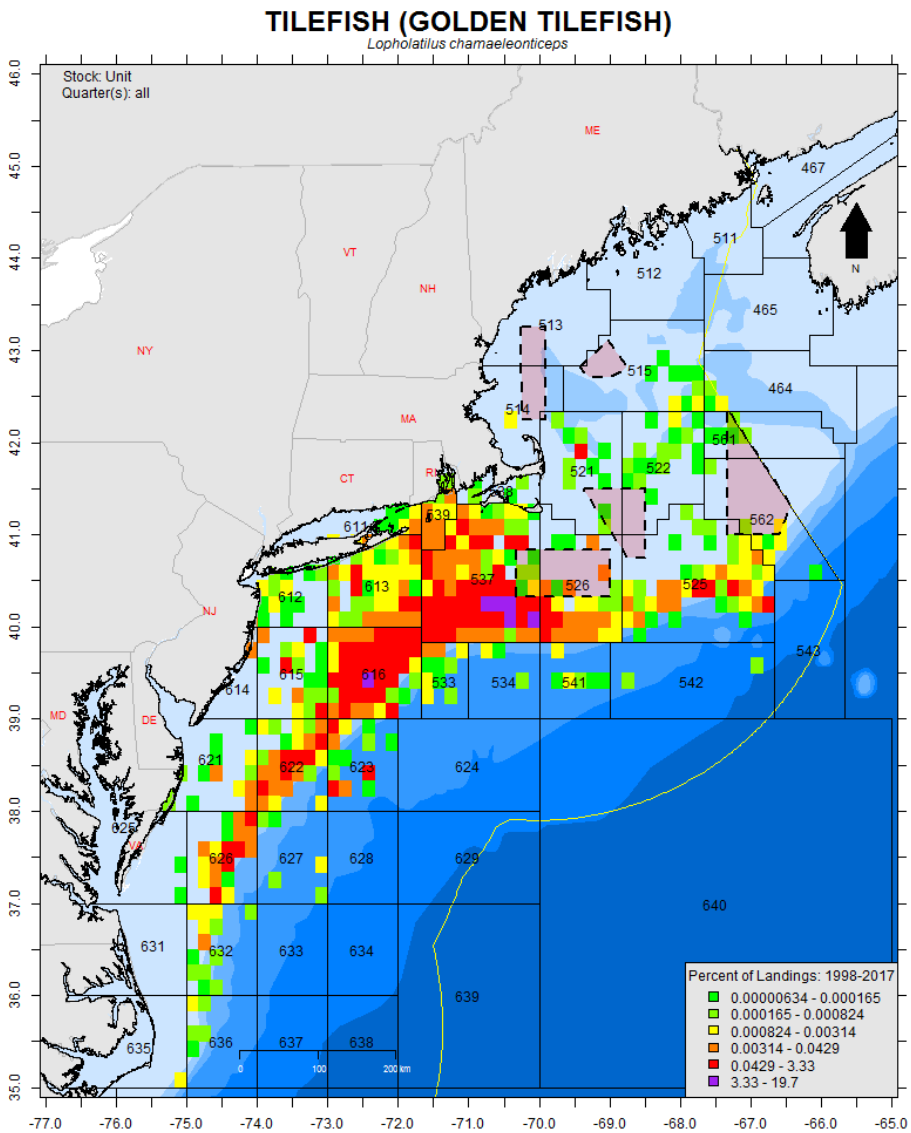
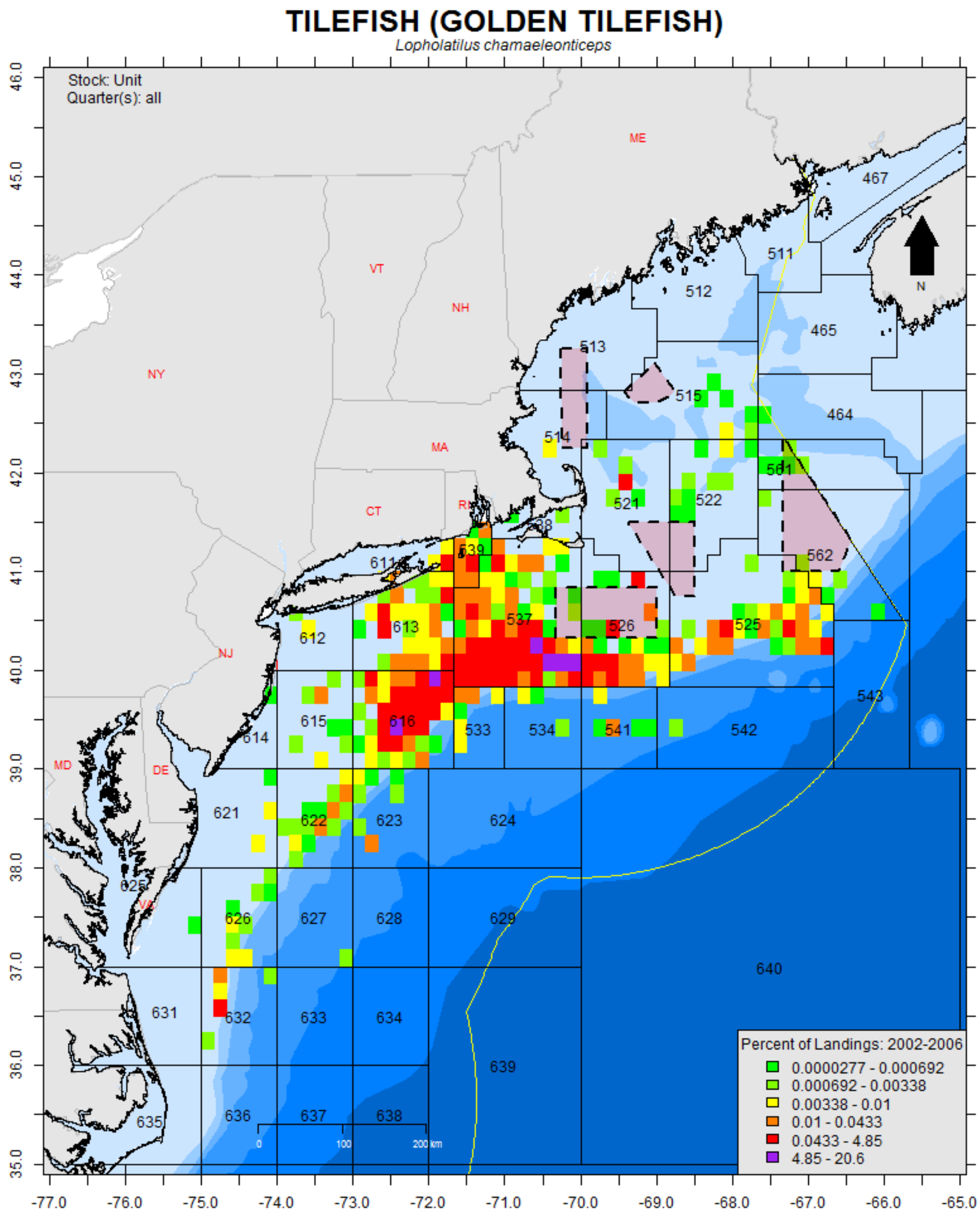
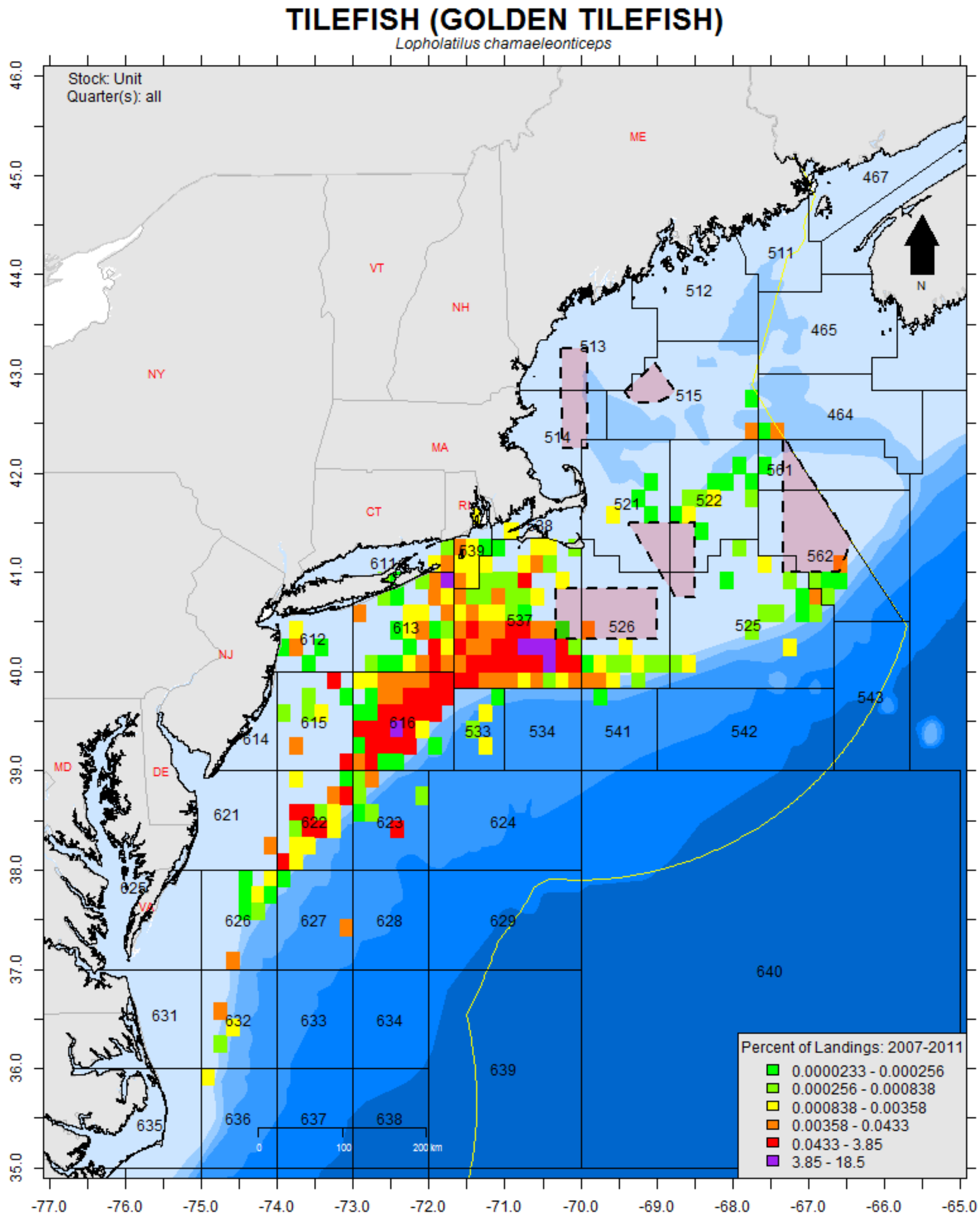


Figure 11. Expanded length frequency distributions from 2002 to 2017. Kittens lengths were used to characterize the extra small category in 2013. No length samples for unclassified were used from 2007-2014. Unclassifieds in 2015 are based on two samples. Y-axis scales is fixed.

Appendix 1. Golden tilefish 1998-2017 commercial landing (vessel trip reports) distributions maps (1998-2017, 2002-2006, 2007-2011, 2012-2016, 2012, 2013, 2014, 2015 & 2016). See map legend for specified years. Northeast Fisheries Science Center statistical areas are represented by numbered polygons and bathymetry is depicted in blue shading. Groundfish closed areas (dashed borders), and the Exclusive Economic Zone (yellow line) have been overlaid for your reference. Special thanks to Chris Kholke for providing these maps.

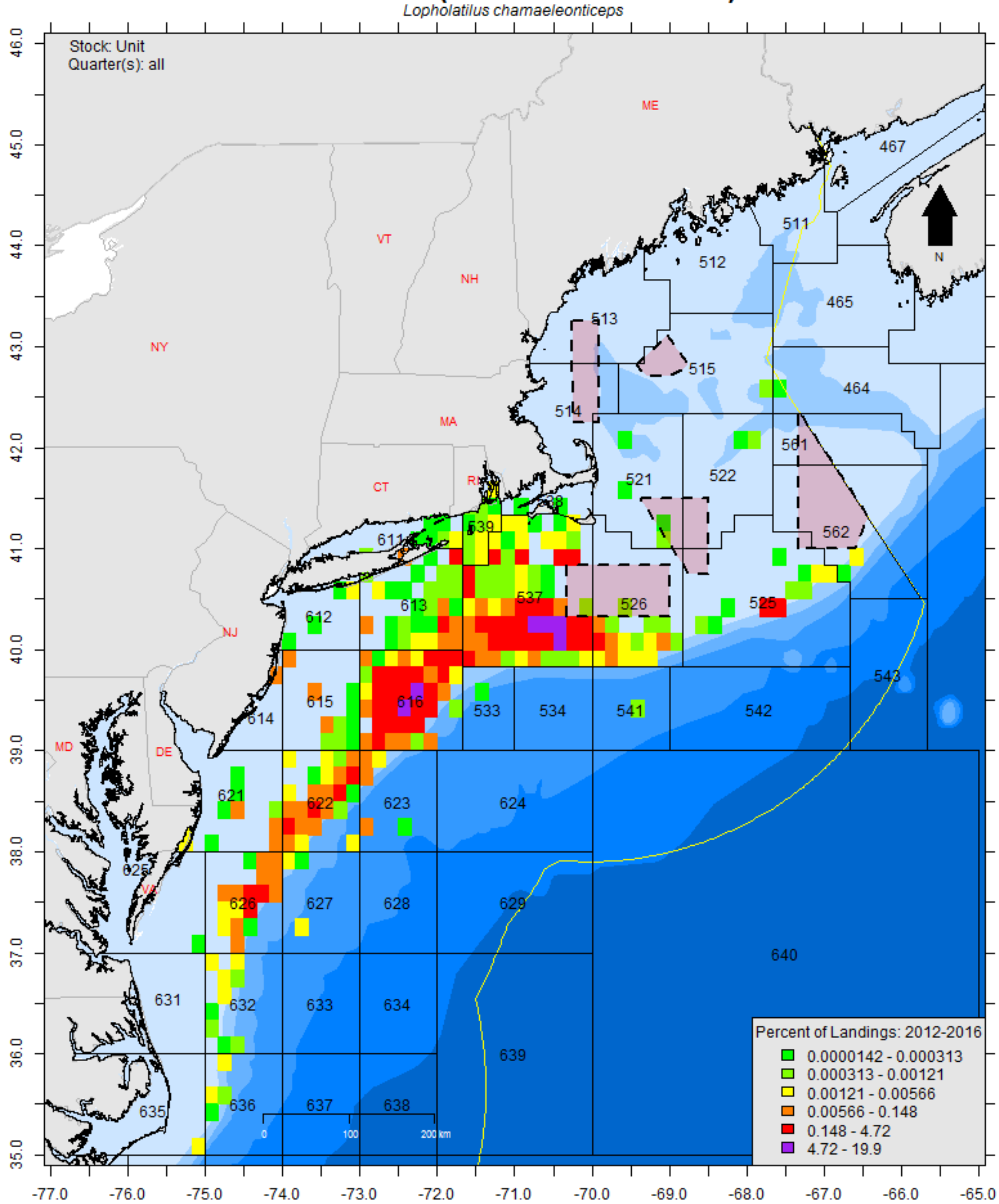


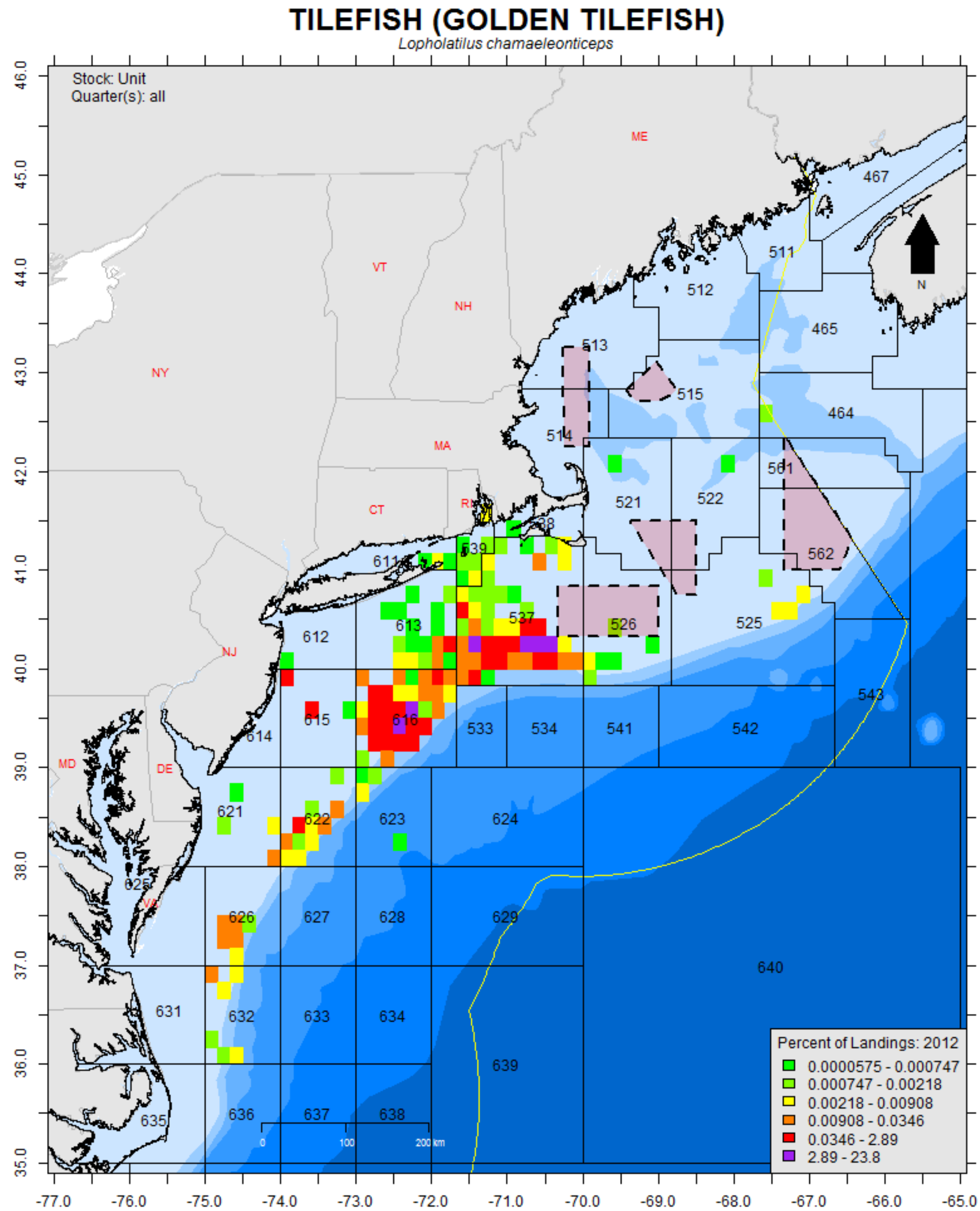

TILEFISH (GOLDEN TILEFISH)
Lopholatilus chamaeleonticeps
Stock: Unit
Quarter(s): all
Percent of Landings: 2002-2006
0.0000277 - 0.000692
0.000692 - 0.00338
0.00338 - 0.01
0.01 - 0.0433
0.0433 - 4.85
4.85 - 20.6


TILEFISH (GOLDEN TILEFISH)
Lopholatilus chamaeleonticeps
Stock: Unit
Quarter(s): all
Percent of Landings: 2007-2011
0.0000233 - 0.000256
0.000256 - 0.000838
0.000838 - 0.00358
0.00358 - 0.0433
0.0433 - 3.85
3.85 - 18.5
ME
VT
NH
NY
MA
CT
RI
NJ
DE
MD
VA
N
0
100
200 km
467
511
512
465
513
515
464
514
561
521
522
562
611
539
537
526
525
612
613
615
616
614
533
534
541
542
543
621
622
623
624
625
626
627
628
629
640
631
632
633
634
639
635
636
637
638
46.0
45.0
44.0
43.0
42.0
41.0
40.0
39.0
38.0
37.0
36.0
35.0
-77.0
-76.0
-75.0
-74.0
-73.0
-72.0
-71.0
-70.0
-69.0
-68.0
-67.0
-66.0
-65.0

TILEFISH (GOLDEN TILEFISH)

Lopholatilus chamaeleonticeps

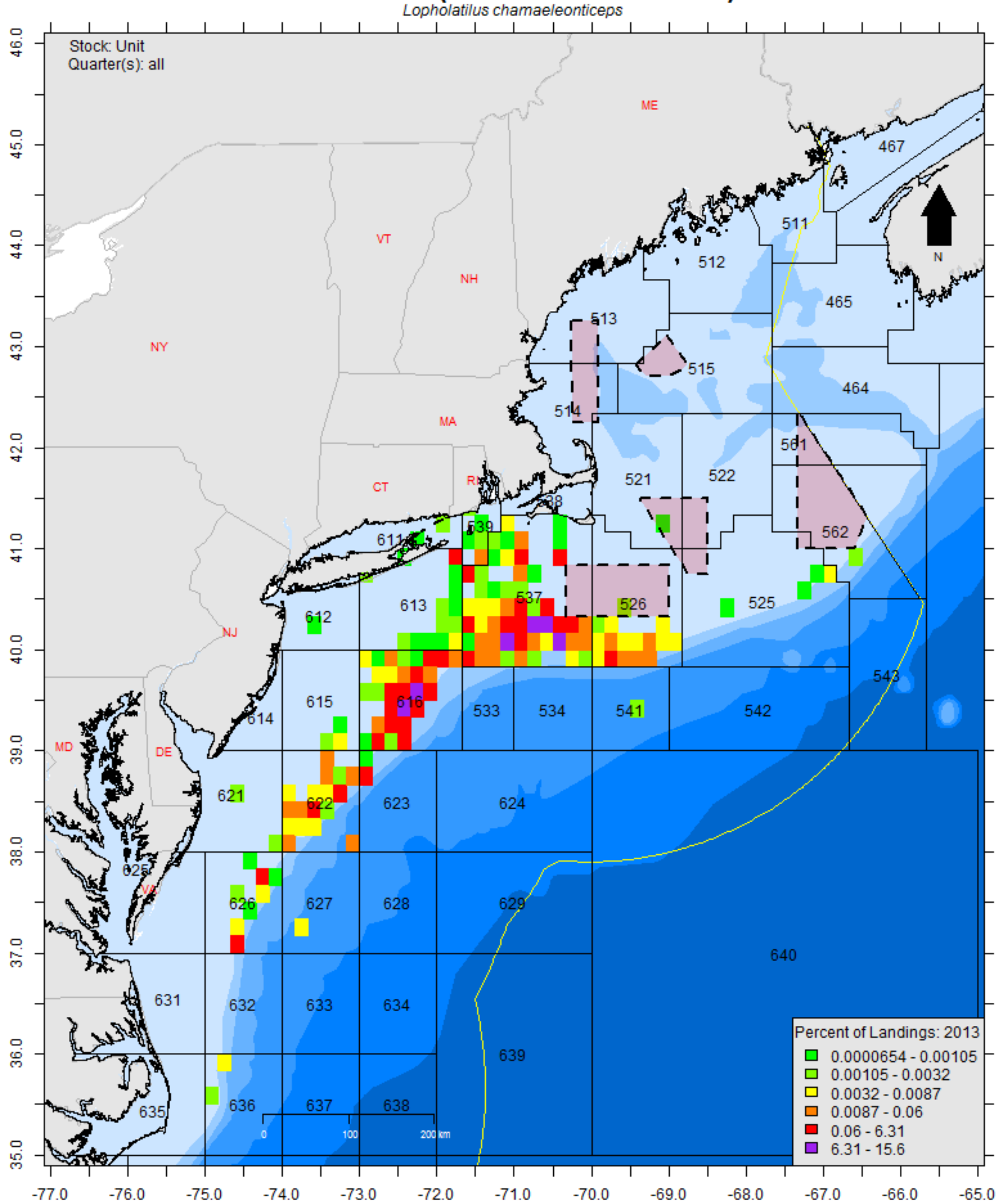


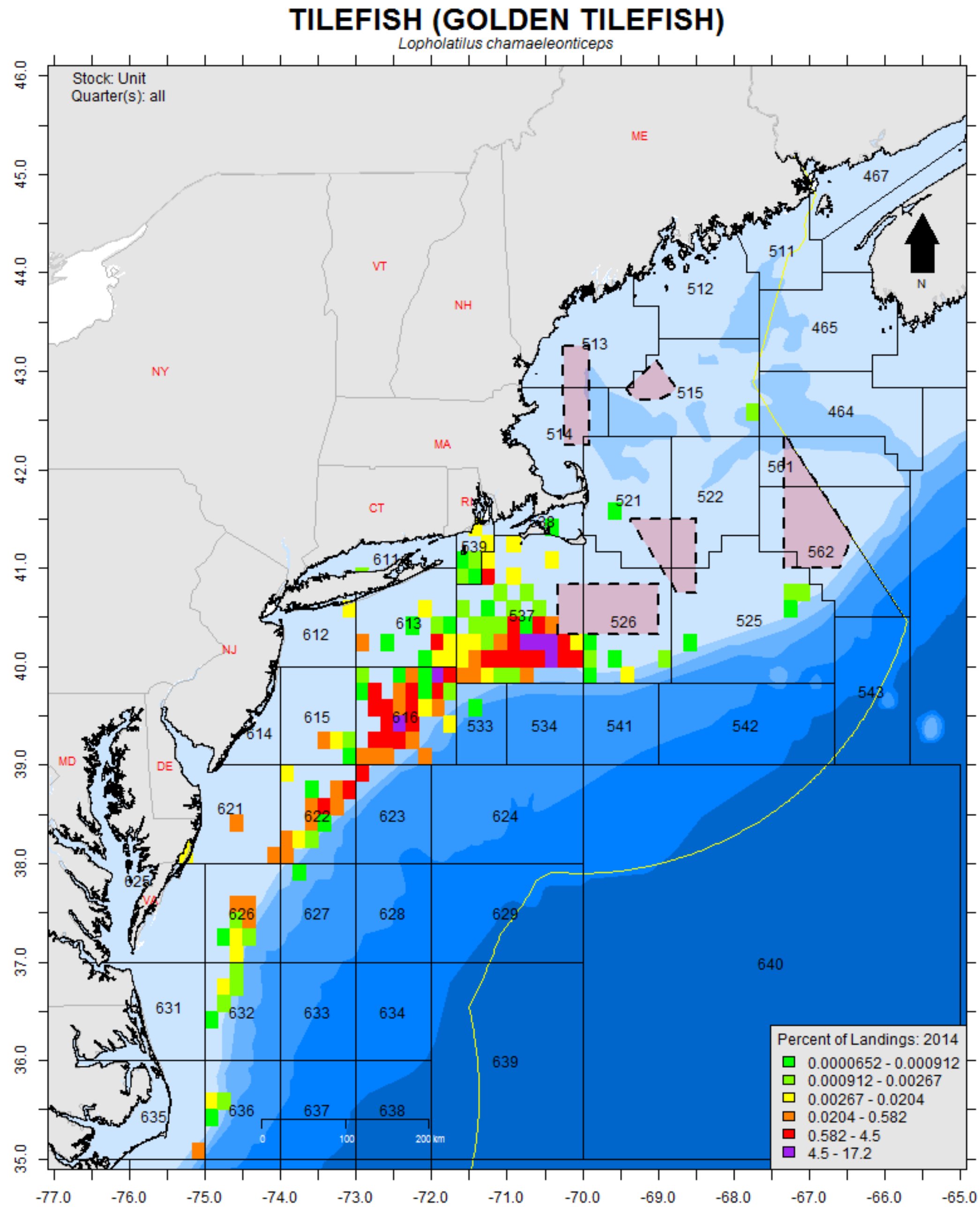


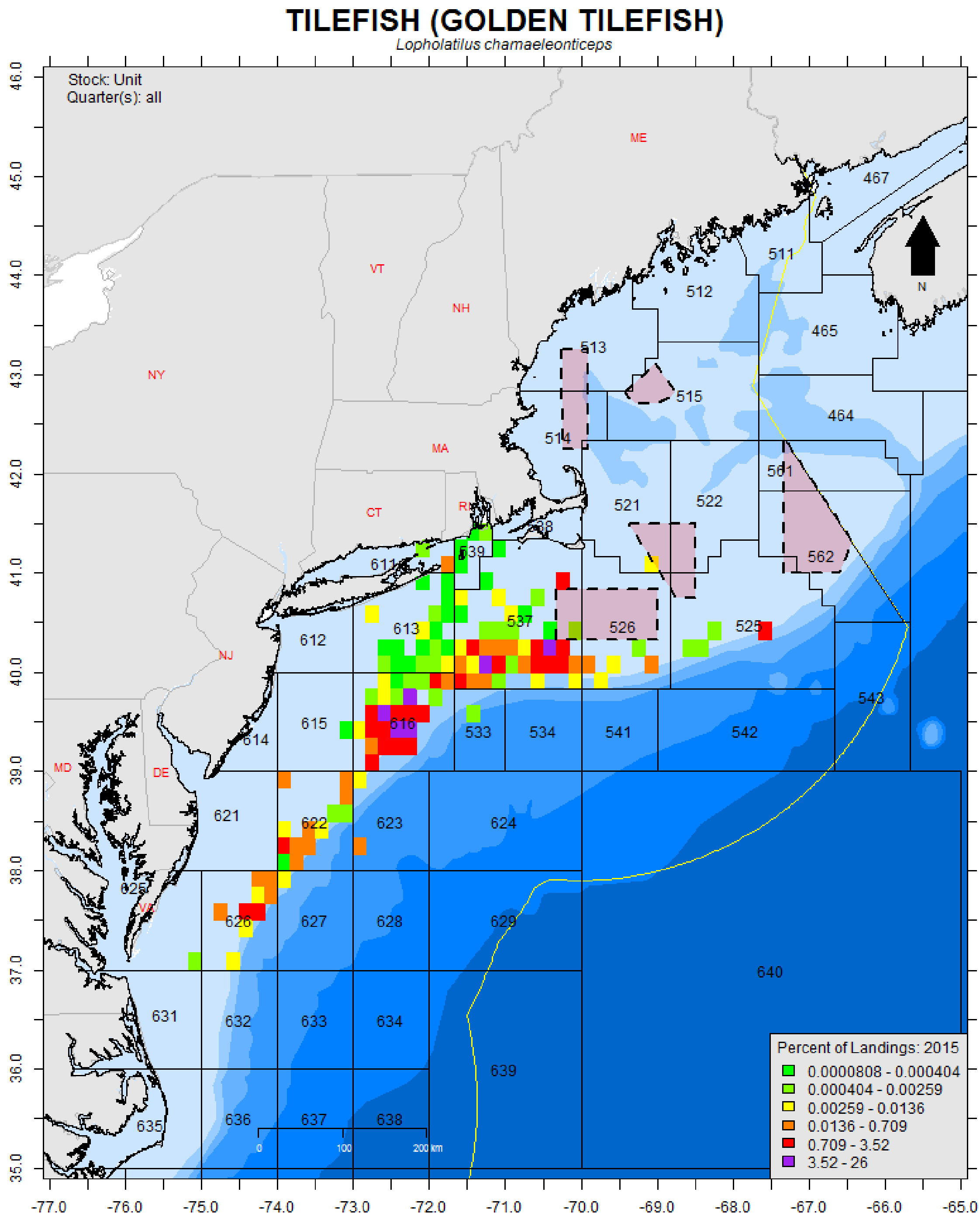
TILEFISH (GOLDEN TILEFISH)
Lopholatilus chamaeleonticeps
Stock: Unit
Quarter(s): all
Percent of Landings: 2012
0.0000575 - 0.000747
0.000747 - 0.00218
0.00218 - 0.00908
0.00908 - 0.0346
0.0346 - 2.89
2.89 - 23.8

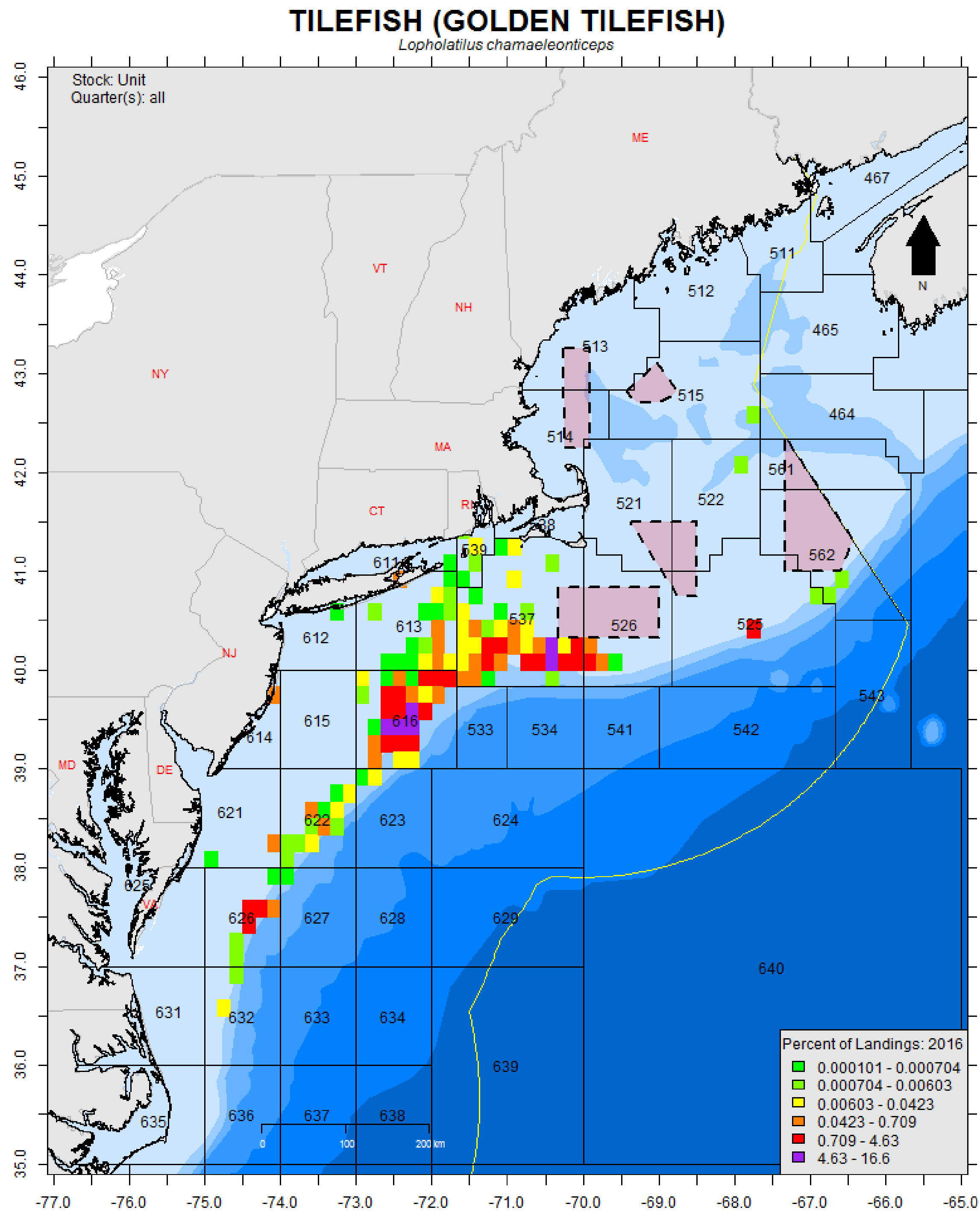
TILEFISH (GOLDEN TILEFISH)

Lopholatilus chamaeleonticeps




TILEFISH (GOLDEN TILEFISH)
Lopholatilus chamaeleonticeps
Stock: Unit
Quarter(s): all
Percent of Landings: 2014
0.0000652 - 0.000912
0.000912 - 0.00267
0.00267 - 0.0204
0.0204 - 0.582
0.582 - 4.5
4.5 - 17.2


TILEFISH (GOLDEN TILEFISH)
Lopholatilus chamaeleonticeps
Stock: Unit
Quarter(s): all
Percent of Landings: 2015
0.0000808 - 0.000404
0.000404 - 0.00259
0.00259 - 0.0136
0.0136 - 0.709
0.709 - 3.52
3.52 - 26
ME
VT
NH
NY
MA
CT
RI
NJ
MD
DE
VA
N
0
100
200 km



TILEFISH (GOLDEN TILEFISH)
Lopholatilus chamaeleonticeps
Stock: Unit
Quarter(s): all
Percent of Landings: 2016
0.000101 - 0.000704
0.000704 - 0.00603
0.00603 - 0.0423
0.0423 - 0.709
0.709 - 4.63
4.63 - 16.6

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

MEMORANDUM

Date: 21 February 2018

To: Chris Moore, Executive Director

From: José Montañez, Staff

Subject: Golden Tilefish Specifications Review for 2019 Fishing Year

As part of the 2018-2020 multi-year specification process for golden tilefish, the Scientific and Statistical Committee (SSC), Tilefish Monitoring Committee (MC), and Council will review the most recent information to determine whether modifications to the current 2019 specifications are warranted.

The NMFS Northeast Fisheries Science Center provided a data update for golden tilefish to support this review, which includes data on commercial landings, catch-per-unit-effort, market category, and size composition through 2017. From 2012 to 2015, commercial landings ranged from 1.4 to 1.9 million pounds. Landings declined in 2016 to 1.1 million pounds which appears to be the result of a combination of lower catch rates and some vessel inactivity. However, in 2017 landings increased to 1.5 million pounds. CPUE in 2017 increased when compared to 2016. The increase in CPUE appears to be consistent with the strong year class that was estimated last year in the 2017 model update. Commercial size distribution provides further evidence for the 2013 strong year class which is tracking the length mode into the kitten and small market categories. Historic patterns of year class effects on CPUE continue to be evident. The catch distribution of fish landed is wide and is comprised of all market categories. Large fish remain an important component of the catch. In addition, there has been an increase in the small/kittens and medium market categories.

Based on a review of this information, staff recommend no change to the 2019 fishing year specifications. In 2019, the SSC, MC, and Council will review the 2019 data update for golden tilefish, the Advisory Panel Information Document, the 2019 Fishery Performance Report, and other relevant information to support the specifications review for 2020 fishing year.

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: 28 March 2018

To: Council

From: José Montañez, Staff

Subject: Golden Tilefish Incidental Landings

When the Tilefish FMP was implemented in 2001, the commercial quota was divided into full-time (with two different tiers), part-time, and incidental fishing categories. Each fishing category had an associated fishing permit. The incidental category was developed to accommodate landings from “incidental” vessels (mostly otter trawls and a few gillnet vessels) that would encounter golden tilefish while fishing for other species.

When the IFQ system was implemented in 2009, the different permit categories were eliminated and replaced with a single commercial vessel permit. Commercial vessels are restricted to the incidental possession limit unless fishing under an IFQ allocation. The incidental fishery is allocated 5% of the quota and trip limits are used to achieve the incidental target quota. Current regulations stipulate that incidental landings cannot exceed 500 pounds live weight of golden tilefish per trip.

In past year, industry members have indicated that non-IFQ tilefish vessels are targeting golden tilefish and this does not qualify as incidental landings. They have argued that this goes against the intent of the incidental fishery as presented in the original FMP.

The Council developed Framework 2 (FW2) to the Tilefish FMP to address the issues and concerns raised by industry. FW2 implemented landings ratios/qualifiers for the incidental fishery. More specifically, FW2 requires that vessels fishing under the golden tilefish incidental fishery regulations do not possess golden tilefish at the time of landings in excess of 50%, by weight, of the total of all combined species landed. The effective date of this action is April 12, 2018.

Industry has requested that additional work be done to better understand available tilefish permit information. At this meeting, staff will review background information regarding golden tilefish incidental landings and tilefish permit data to determine next steps.

Determining Selectivity and Optimum Mesh Size to Harvest Three Commercially Important Mid-Atlantic Species

A Report to the Mid-Atlantic Fishery Management Council and the Atlantic States Marine Fisheries Commission

FINAL REPORT

Submitted By:

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March 1, 2018

ABSTRACT

In order to update selectivity parameters for three important Mid-Atlantic species, a collaborative at-sea research project was conducted. The selectivity for *Paralichthys dentatus* (summer flounder) and *Centropristis striata* (black sea bass) and *Stenotomus chrysops* (scup) was determined for a range of mesh sizes, shapes, and configurations. This study compared the catch composition, retention efficiency, and size selectivity parameters of five different codends in the commercial bottom trawl fishery within the Mid-Atlantic region. This project evaluated the selectivity of *P. dentatus, C. striata*, and *S. chrysops* using a trouser trawl outfitted with removable codends configured with 4.5" diamond, 5" diamond, 5.5" diamond, 6" diamond, 6" square mesh, and a 2.125" mesh control codend. A SELECT model was employed for determination of selectivity parameters. All tested codend mesh sizes are effective at releasing at least 75% of scup at or below the length at 50% maturity, and at least 50% of scup which are 100% mature. For scup, the 5" diamond regulation mesh is very effective in releasing fish that are at or less than the minimum size. All codends release at least 75% of black sea bass that are at or below the length at 50% maturity, and the 5.5" diamond, 6" diamond, and 6" square meshes were effective at releasing at least 50% of black sea bass which are 100% mature. For black sea bass, the 4.5" diamond regulation mesh is effective at releasing fish that are at or less than the minimum size. Either a 4.5" or 5" diamond codend could be considered as a common regulation mesh codend for both scup and black sea bass. Input would be needed from industry to determine how this might affect catch, market and market price for these species. The 5" diamond, 5.5" diamond, 6" diamond and 6" square mesh are effective in releasing at least 75% of summer flounder that are at the length of 50% maturity. None of the tested codends are effective at releasing summer flounder that are 100% mature. For summer flounder, the 5.5" diamond regulation codend is effective at releasing fish that are at or less than the commercial minimum size. The 6" square regulation mesh codend is less effective at releasing fish that are at minimum size.

INTRODUCTION

The Cornell University Cooperative Extension Marine Program (CCE), in collaboration with the Cornell University Department of Natural Resources, Jonathan Knight of Superior Trawl and members of the commercial fishing industry of the Mid-Atlantic region, conducted an at-sea research project aboard a commercial fishing vessel involved in the directed summer flounder (*Paralichthys dentatus*), black sea bass (*Centropristis striata*), and scup (*Stenotomus chrysops*) fisheries of the Mid-Atlantic to determine the selectivity of five different codends for three commercially important species. The project was conducted pursuant to the Mid-Atlantic Fishery Management Council (MAFMC) request for proposals for Mid-Atlantic Collaborative Fisheries Research, specifically Priority 5: to determine mesh selectivity for summer flounder and/or black sea bass and to quantify selectivity at a range of mesh sizes, shapes, and configurations. CCE included an additional species, scup, in our assessment since it is also a commercially important species to the MAFMC and managed under the same Fishery Management Plan (FMP) with summer flounder and black sea bass. All three of these species are managed with different minimum mesh sizes.

This priority was selected by CCE based on feedback received from the commercial fishing industry and our own review of the history that formed the basis of the minimum mesh size requirements for these species. Upon review it was found that there were few selectivity studies leading to the formation of the mesh size requirements for these valuable commercial species. Those selectivity studies that were conducted for these species are more than 20 years old and utilized various gears and methods. Through the many years of amendments to the FMP, the correlation between the species' minimum size and corresponding mesh size requirements are no longer clear. (See Appendix A for a detailed review of these studies and the development of mesh size and minimum fish size management measures.) Consequently, the goal of this project was to determine the selectivity of multiple codend mesh sizes, and configurations, relative to summer flounder, black sea bass, and scup retention. This goal is associated with six objectives:

- Effectively determine the selectivity of 4.5" diamond, 5" diamond, 5.5" diamond, 6" diamond and 6" square mesh codends for all 3 species
- To determine if one or more of these mesh sizes effectively reduces the catch of juvenile summer flounder, black sea bass and scup
- To evaluate the current mesh size regulations relative to current minimum retention size of each of these 3 species
- To demonstrate what the potential is for a possible successful common mesh size to reduce discards in the Mid-Atlantic fisheries
- To complete an applied experiment across a wide range of strata and conditions including: areas, depths and bottom types, which are reflective of the summer flounder, black sea bass and scup fisheries
- Validate these results for fishery managers and fishermen

The study described below fully addressed the stated project goal and objectives. All objectives were met as described in the Data Analysis, Results and Conclusions sections of this report.

Summer flounder, black sea bass, and scup are managed under the same Fishery Management Plan. The original FMP was developed in 1988 and focused on summer flounder. Scup and black sea bass were added in 1996. A significant component to fisheries management is the designation of a minimum mesh size. Currently the minimum fish size for summer flounder, black sea bass, and scup are 14", 11", and 9" respectively. The minimum codend mesh size requirements for trawls are: 5.5" diamond or 6" square mesh for summer flounder; 4.5" diamond mesh for black sea bass; and 5" diamond mesh for scup. As mentioned above, the selectivity research used to inform regulatory mesh size was inconsistent and performed many years ago. A current study was needed and requested to comprehensively re-examine mesh selectivity for these three species. Additionally, the results of such a study could supply a basis for one or two common mesh sizes that would provide the required size selectivity for these species rather than requiring four different mesh sizes. Standardizing the mesh size for these three species has been suggested but it has never been researched.

The study that was used to determine the summer flounder selectivity, (Anderson et al., 1983) was performed over 20 years ago and the mesh sizes of the experimental codends were different per vessel due to material type. The mesh selectivity studies used to inform scup management were conducted by DeAlteris and Riefsteck (1992) and were simulations of commercial fishing activity in flume tanks using rod and reel caught fish. The net in the tank was attached to a towing sled and was constructed with a covered codend which may have affected the simulated results. In developing the black sea bass mesh regulations there was a lack of mesh selectivity information, so data was used from a lobster trap study that determined a mesh size estimate based on a relationship between body depth and length (Weber and Briggs, 1983). The studies that have quantified the codend selectivity for these three species are further described in much greater detail in Appendix A.

MATERIALS AND METHODS

Vessel

The project was conducted onboard a commercial fishing vessel targeting summer flounder, black sea bass, and scup. The vessel to be used in this project was originally scheduled to be the F/V Caitlin & Mairead, a trawl vessel homeported in Montauk, New York. Shortly after the funding for this project was received it was realized that the use of this vessel as a research platform would not be possible. The project design was amended and the F/V Prevail based out of Point Judith, RI was recruited as the project's industry partner. The F/V Prevail is a 77.9 foot, 140 gross tonnage, steel stern trawler built in 1980. The vessel has 755 H.P., two hydraulic net reels, and an ITI Trawl Monitoring System (door mounted sensors that report net spread). The ITI system allowed for real time monitoring of the net geometry ensuring consistency throughout the duration of research fishing.

Gear

This study compared the catch composition, retention efficiency and size selectivity parameters of five different codends in the commercial, bottom trawl fishery in the Mid-Atlantic region. These methods were used to evaluate the selectivity of summer flounder, black sea bass, and scup with the following codends: 4.5" diamond, 5" diamond, 5.5" diamond, 6" diamond, and 6" square mesh. All codends were tested against a $2^{1}/_{8}$ inch control codend. All experimental codend measurements are inside-stretched mesh between the knots. The small mesh codend was designed to retain all fish of all sizes for our three target species.

Tows were conducted using a trouser trawl adapted for use in this study. The trouser trawl design is a single trawl net with two separate trouser leg sections and two individual codends. The configuration of this type of trawl net allows a control codend to be compared with an experimental codend on the exact same course during each tow and interacting with the same assemblage of fish. Therefore, each individual tow made by one vessel will be, in of itself, a replicate tow due to the inherent nature of the trouser trawl net design. Using a single net capable of delivering replicate tows provided this study with a comparison of sequentially exact tows using the control and experimental gear effectively.

The net used for this project was a 420 X 16 cm, 4 seam trawl with a bottom hanging line of 38 meters. 92-inch Type 4 Tyberon doors were used. This trawl is typical of a trawl used along the East Coast of the U.S. The sweep of the trawl consisted of 2 3/8" and 3" rubber discs on wire rope. The sweep was 124 feet long. It was mounted to the bottom hanging line with the use of a traveler. The sweep hung to the traveler by 3 links of chain (approx. 5" long). To construct the trouser trawl, a standard 420 X 16cm, 4 seam trawl was cut off 2.5 meshes behind the fishing circle for the entire circle of the trawl. The removed back end was replaced with a two-legged back end creating a trouser. The trouser itself was constructed from 16 cm, 12 cm, and 6 cm webbing. The legs of the trouser were then completed with a control codend constructed using 3mm polyethylene twine 60 meshes around of 6.5" diamond mesh with a 6cm liner. The control cod end was 32' long. The other side or leg of the trouser was outfitted with the experimental codends that this study evaluated;

- 6.0" diamond mesh - 60 meshes around of double 6mm polyethylene twine, 32 feet long
- 6.0" square mesh - 60 bars of double 6mm polyethylene twine, 32 feet long
- 5.5" diamond mesh - 65 meshes around of double 5mm polyethylene twine, 32 feet long
- 5.0" diamond mesh - 72 meshes around of double 4mm polyethylene twine, 32 feet long
- 4.5" diamond mesh - 80 meshes around of double 4mm polyethylene twine. 32 feet long

All codends were outfitted with a 6.5" double 6mm polyethylene chaffing mat attached along the bottom of the codend for 25 feet. The forward end of the experimental codends, as well as the control codend, are ringed as is each of the singular leg portions of the trawl. This method of incorporating strong, plastic rings into the separable parts of the net is done to facilitate the process of switching the codends between the legs and switching experimental codends. Appendix B details the schematic of the net used during this project. Project partner Jon Knight (Superior Trawl) made the trouser trawl and donated it for use in this project. Jon Knight constructed all codends used in this project.

This net design has proven to be functional and effective in the scientific realm of at-sea research. Since the trouser - split occurs in the front end of the net, fish that are herded into the fishing circle or mouth of the net are separated there and cannot move from one leg to the other in response to different back pressures that may be caused by different codend mesh sizes. CCE in coordination with the Commercial Fisheries Research Foundation (CFRF), Sea Freeze Ltd., and the Northeast Cooperative Research Program (NCRP) have previously used this trouser trawl to successfully complete a study that evaluated butterfish codend selectivity (Hasbrouck et al., 2015a).

Experimental Design

To assist in project development and implementation CCE established a Program Advisory Committee (PAC). The PAC was formed to define the specific and final methods for the design of the at-sea research project. The PAC had input on tow locations, monitored project activities and results, and provided real-time adaptive recommendations. PAC members included: Henry Milliken (NOAA-NEFSC); Kiley Dancy (MAFMC); Kirby Rootes-Murdy (ASMFC); Pat Sullivan (Cornell University); Mark Terceiro (NOAA-NEFSC); Rich Seagraves (MAFMC); Jon Knight (Superior Trawl Inc.); John Maniscalco (NYSDEC); Dave Aripotch (F/V Caitlin Mairead) and Bonnie Brady (LICFA); Phil Ruhle (F/V Prevail). See Appendix C for PAC meeting summary.

The evaluation of the five different meshes was to occur when conditions were optimal in the field, allowing us to locate co-occurrences of summer flounder, black sea bass, and scup. The specific time frame for this occurrence was left to be decided by our project partners in the commercial fishing industry. Research trips were therefore planned depending on reported concentrations of the three species of concern gathered by our commercial fishing partner. Trip dates and times as well as sampling stations were selected by the captain with the goal of simultaneously catching scup, black sea bass and summer flounder during each tow.

Depths, locations, and gear deployment methodologies were standard for the fishery. Starting and hauling depths, positions, times, and tow warp lengths were recorded for each tow. Tow speeds, tow cable scope, and tow cable length were maintained consistently across all tows. Net spread was recorded for each tow and remained consistent among tows. Experimental codend mesh size measurements were taken during each day of research fishing. The mesh of each experimental codend was measured prior to and after its use. Ten consecutive meshes beginning no fewer than five meshes from the terminus of the codend were measured using stainless steel Vernier calipers. The meshes were measured inside stretch knot-to-knot in the direction they were hung. This procedure follows the Northeast Fisheries Science Center (NEFSC) Observer Operations Manual protocol. This was done to monitor and ensure the integrity and consistency of the mesh sizes being evaluated. Mesh measurements can be found in Appendix D.

The project design alternated the trawl leg on which the control and experimental codends were placed as well as switching experimental codends every two tows. This randomized any possible "side" effect (port and starboard leg) that might have occurred if the control and experimental codends had remained on the same leg for the entirety of the project. This was achieved through the creation of a net switching plan. A five-variable random number generator was used to assign codend sequence and leg of the trawl. This served to randomize across the entire project the use of each experimental codend as well as leg of the trawl containing the experimental codend. The codends were further randomized in blocks of 5 with two consecutive tows for each codend before the next randomly assigned pair was swapped in. See Appendix E for details and sequence of the net switching plan. This random net switching plan insured that each mesh size received equal treatment while reducing any bias that can be associated with the numerous variables that exist when attempting this type of research. Utilizing this net switching plan we were able to complete a total of 118 tows. Each experimental codend except for 6" square was fished for 24 tows. The 6" square codend was fished for 22 tows. See Table 1 for a summary of codend use.

After the 45-minute research tow duration the net was hauled back. Codends were hauled in as quickly as possible with minimal time in water to avoid sifting. The catch of each codend (experimental vs. control) was kept separated during haul-back and release on-deck. The experimental codend was always brought aboard the vessel first and released in the forward checker on deck. The control codend was brought in immediately following and released in the aft checker on deck. The onboard catch processing followed standard NMFS survey methods. Random samples of summer flounder, scup and black sea bass were removed from each codend and kept separated. To quantify differences in retention and size distribution between the control and the experimental codends, the total catch by species of summer flounder, black sea bass, and scup for each tow and each codend was accurately weighed. Summer flounder, black sea bass, and scup were also sampled for length frequency. The goal was minimally 200 random length measurements of each species per tow per codend. If fewer than 200 individuals were caught, all were measured. The total weight of all species combined, the total catch weight for each tow and from each codend, was also obtained. Total catch weight was determined either by directly weighing the total catch, or for large catches, the entire catch was placed in baskets and a sub-sample of the baskets weighed. Sub-sampling procedures for catch estimations based on basket or tote counts followed the NMFS At Sea Monitoring Program and the Observer Program Biological Sampling protocols as outlined in the NEFSC sampling manuals. Please see Sampling Day Procedure included as Appendix F.

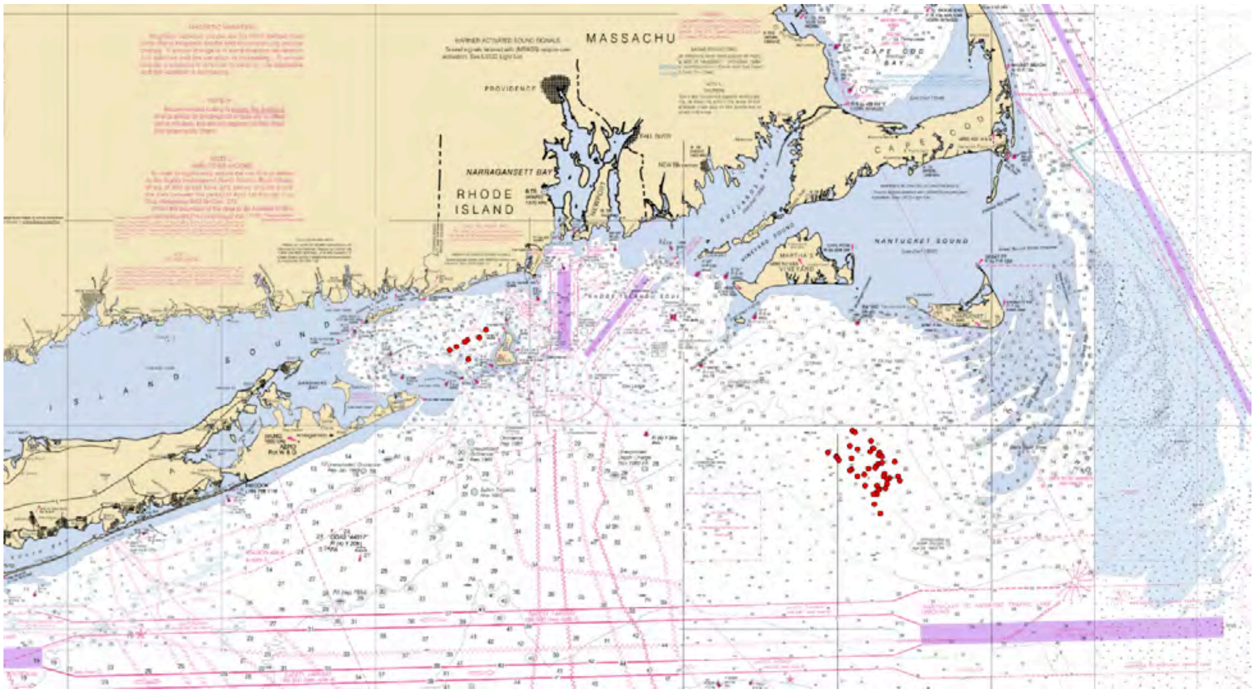
A total of four research trips were completed over the course of this project for a total of 118 research tows successfully completed during 15 total days at sea. CCE exceeded the proposed goal of 100 experimental tows by 18 tows. CCE accomplished the project goal of completing an applied experiment across a wide range of strata and conditions. Experimental fishing was completed in a range of depths and in different locations. It was determined that CCE would set in/haul back within 10-15 minutes of either side of sun up or sun down.

Table 1. Number of Tows Per Treatment

	Treatment (118 tows)					
Treatment	4.5" Diamond	5" Diamond	5.5" Diamond	6" Diamond	6" Square	Control
# on Port	12	12	12	12	12	58
# on Starboard	12	12	12	12	10	60
Total Tows	24	24	24	24	22	118

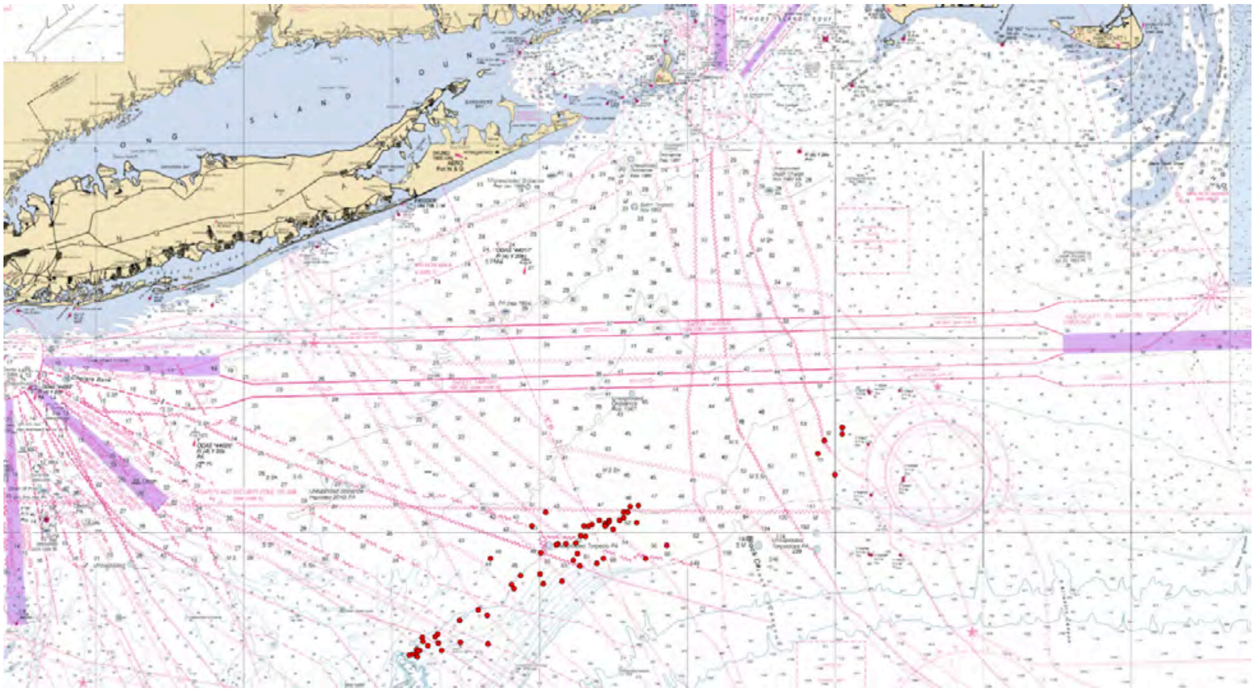
Trip 1 was completed between October 2nd and October 4th during which we conducted 24 tows. Beginning on October 2nd, two days were spent fishing approximately 30 miles south of Martha's Vineyard at an average depth of 21 fathoms. Seventeen research tows were completed during this two-day period. On the third day, in order to escape high winds, the fishing effort moved west to the protected Block Island Sound where seven additional tows were completed at an average depth of 18 fathoms. Trip 2 was completed between October 6th and October 8th. Beginning on October 6th, three days were spent fishing approximately 30 miles south of Martha's Vineyard at an average depth of 24 fathoms. Twenty-six research tows were completed during this three-day period. Each of the five experimental codends were deployed ten times over the course of the 50 totals tows for trips 1 and 2. See Figure 1 for a map of the fall research areas.

Figure 1. Fall 2016 Research Tows



Research fishing during trip 3 was completed between April 9th and April 12th, 2017. The first day, April 9th, was spent fishing approximately 60 miles south-southeast of Block Island, RI. Six research tows were completed at an average depth of 65 fathoms. A rather significant move to the west was initiated after the first day in order to find a better mix of scup, black sea bass and summer flounder and the remaining three days of trip 3 were conducted in an area between approximately 60 miles due south of Montauk, NY and the east side of Hudson Canyon. Twenty-two additional tows were completed in this area over the three-day period at an average depth of 56 fathoms. Trip 3 concluded with a total of 28 research tows over four days. Trip 4 was completed between April 18th and April 22nd, 2017. Beginning on April 18th, five days were spent fishing between approximately 60 miles due south of Montauk, NY and the east side of Hudson Canyon. Forty tows were completed at an average depth of 50 fathoms over the course of five days during trip 4. Each of the five experimental codends were deployed 14 times, except for the 6” square mesh. The 6” square mesh was deployed 12 times. See Figure 2 for a map of the spring research areas.

Figure 2. Spring 2017 Research Tows



DATA ANALYSIS

Expanding and Converting Catch Data

Prior to data analysis and in order to get an accurate estimation of the species-specific catch numbers at length for each tow/codend, subsample length frequency data was “scaled up” to determine the number of fish at each length following the protocol used by Hendrickson (2011). For each tow and codend combination, the number of fish (by species) caught at each length interval was calculated as the number of fish (by species) at each length in the subsample multiplied by the ratio of total catch weight by species to subsample catch weight by species. This was computed separately for the control codend and each experimental codend.

It is important to note that the scup lengths that were collected for this project were fork lengths as per basic scientific protocol for this species. However, the commercial legal minimum size for scup is 9 inches (22.86 cm) measured in total length. Therefore, the following conversion was used to convert all of our lengths in fork length (FL) to total length (TL) so that the selectivity parameters can be used to evaluate codend mesh sizes by total length for scup. All scup lengths were converted to total length prior to statistical analysis. The Hamer (1979) conversion is consistent with FL/TL conversions used in the scup assessment. (Terceiro, NEFSC, personal communication)

Total Length (cm) = 1.14 x Fork length (cm) – 0.44 (Hamer, 1979)

SELECT Model

We followed the statistical methods recommended in the ICES Manual of Methods of Measuring the Selectivity of Towed Fishing Gears (ICES, 1996). To estimate the selectivity parameters of the experimental codends, the SELECT model (Share Each LEngth's Catch Total) was used. SELECT was developed by Millar (1992), Millar and Walsh (1992), Millar and Fryer (1999) and is further defined in ICES (1996). SELECT is also described by Hendrickson (2011) where the model was recently used to estimate selectivity parameters in the small mesh longfin squid fishery. As described in these references, the model uses a logistic approach to produce a maximum likelihood fit of selectivity and associated selectivity parameters. SELECT also calculates a relative fishing intensity or fishing power factor (also called the "split" parameter) to account for the fact that fish of each size may not separate into each leg of the trouser trawl on a .5 basis (ICES, 1996; Millar, 1992; Millar and Walsh, 1992).

As defined in Millar (1992), Millar and Walsh (1992), ICES (1996) and Hendrickson (2011), the SELECT model uses a maximum likelihood estimation approach where the expected proportion of the total catch (in both codends), for length class l, that was caught in the experimental codend, $\phi(l)$, is modeled as a function of the parameters (calculated by the model) a, b, δ, and the relative fishing efficiency (p) of the gear such that:

$$\phi(l) = [\frac{\mathrm{p}\exp(a+bl)}{(1-p)+\exp(a+bl)}]$$

Selectivity parameter estimates were obtained by fitting the SELECT model to the combined codends (control and experimental) catch-at-length data binned by each centimeter interval, for each of five experimental codends. The model was fit using the "ttfit" and "Rep.ttfit" functions in the "Trawlfunctions" programs for R (developed by Millar, 1998). As suggested by ICES (1996) model fits were assessed using model deviances, degrees of freedom and examination of the deviance residuals plotted by length class. The Rep.ttfit p-value, generated from the deviance and degrees of freedom, is used to determine the statistical significance of the model fit. The Rep.ttfit function uses a combined hauls approach to account for between haul variability and to account for any estimated overdispersion. The function estimates the standard errors of the selectivity parameters corrected for any between haul variability and overdispersion (Millar et al., 2004).

SELECT logistic model runs provided the best fits to the data. The model was run in most instances using length classes with expected catches greater than three individuals in each codend. However, as described below, this created some issues in determining selectivity parameters for lengths containing few individuals. After discussion with Millar (University of Auckland, personal communication.) for some model runs we lowered the expected catch in SELECT to less than 3.

RESULTS

We ran the SELECT model for each experimental codend for scup, black sea bass and summer flounder. Model output is presented in several formats for each species. First we provide a table of the maximum likelihood fits of the logistic selectivity curve parameters and model goodness-of-fit measures. We have also included the model-output (with standard error) for fishing efficiency (p), L_{25}, L_{50}, L_{75} and Selection Range. We have also calculated the coefficient of variation for L_{25}, L_{50} and L_{75}. Note that there are two p factors in the table. One is the fishing efficiency or split-factor calculated by the model. The other is the "Rep.ttfit" generated p-value as described above. Selection factor was calculated as the length at 50% retention (L_{50}) divided by the mean codend mesh size (in inches).

We then plot for each codend: the observed and expected proportions of the catch in the experimental codend; the deviance residuals from the fit; the corresponding logistic selection curve with L_{25}, L_{50} and L_{75} indicated; the number of fish at each length interval for the control codend and for the experimental codend. We also provide length frequency plots for the control and experimental codends for each codend/species combination. For each species we generate a combined plot of the five logistic selectivity curves fitted for each experimental codend. Then for each experimental codend we generate a combined plot for each species by codend.

As mentioned above, the model runs using length classes with expected catches greater than three individuals in each codend. However, with the 6.0" diamond and 6.0" square for black sea bass there were often tows with three or fewer individuals in either the control or experimental codends. Likewise with summer flounder across all experimental mesh sizes there were often tows with three or fewer individuals in either the control or experimental codends. Thus the model was not using several length bins/tows. We discussed this issue with Millar (pers. comm., 2017). He mentioned that the variable that sets the minimum number of individuals per length bin that the model will use can be user-defined and was set at 3 in the "Trawlfunctions" code. He suggested that we set this variable to a value less than 3. So for the above-stated codends for black sea bass and summer flounder the model was run with the variable set to 1 to utilize more of the data.

SCUP

Table 2. Maximum likelihood fit of logistic selectivity curve parameters for 5 codend mesh sizes and SELECT model goodness-of-fit measures for scup
Standard error is shown in parentheses. Coefficient of variation is shown in double parentheses. All scup lengths are total lengths. 5" Diamond is the current regulation minimum mesh.

	4.5" Diamond	**5" Diamond**	**5.5" Diamond**	**6" Diamond**	**6" Square**
N tows (paired)	24	24	24	24	22
N length classes	40	35	34	36	36
Length class range (cm)	6.4-50.86	6.4-45.16	7.54-45.16	6.4-46.3	8.68-48.58
a	-8.64	-9.14	-10.04	-10.99	-16.12
b	0.31	0.32	0.32	0.31	0.50
p - relative fishing efficiency	0.60 (0.02)	0.58 (0.03)	0.46 (0.03)	0.50 (0.07)	0.45 (0.04)
L_{25} (total length in cm)	24.48 (0.54) ((0.022))	25.50 (0.58) ((0.023))	27.9 (0.69) ((0.025))	31.93 (1.22) ((0.038))	29.79 (0.54) ((0.018))
L_{50} (total length in cm)	28.05 (0.73) ((0.026))	28.99 (0.75) ((0.026))	31.33 (0.86) ((0.027))	35.48 (1.39) ((0.039))	31.97 (0.64) ((0.020))
L_{75} (total length in cm)	31.61 (0.95) ((0.030))	32.47 (0.93) ((0.029))	34.75 (1.04) ((0.030))	39.02 (1.57) ((0.040))	34.14 (0.74) ((0.022))
Selection range	7.13 (0.50)	6.97 (0.43)	6.85 (0.41)	7.09 (0.42)	4.36 (0.25)
Selection factor	6.24	5.77	5.7	5.91	5.33
Model deviance	6882.426	3542.094	2786.878	1033.891	889.506
df	331	255	251	176	136
p-value	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001

Figure 3. Proportion of catch in treatment codend, deviance residuals, and selectivity curve for scup in the 4.5" diamond codend. Vertical lines on the selectivity curve represent L_{25}, L_{50} and L_{75}. All scup lengths are total lengths.

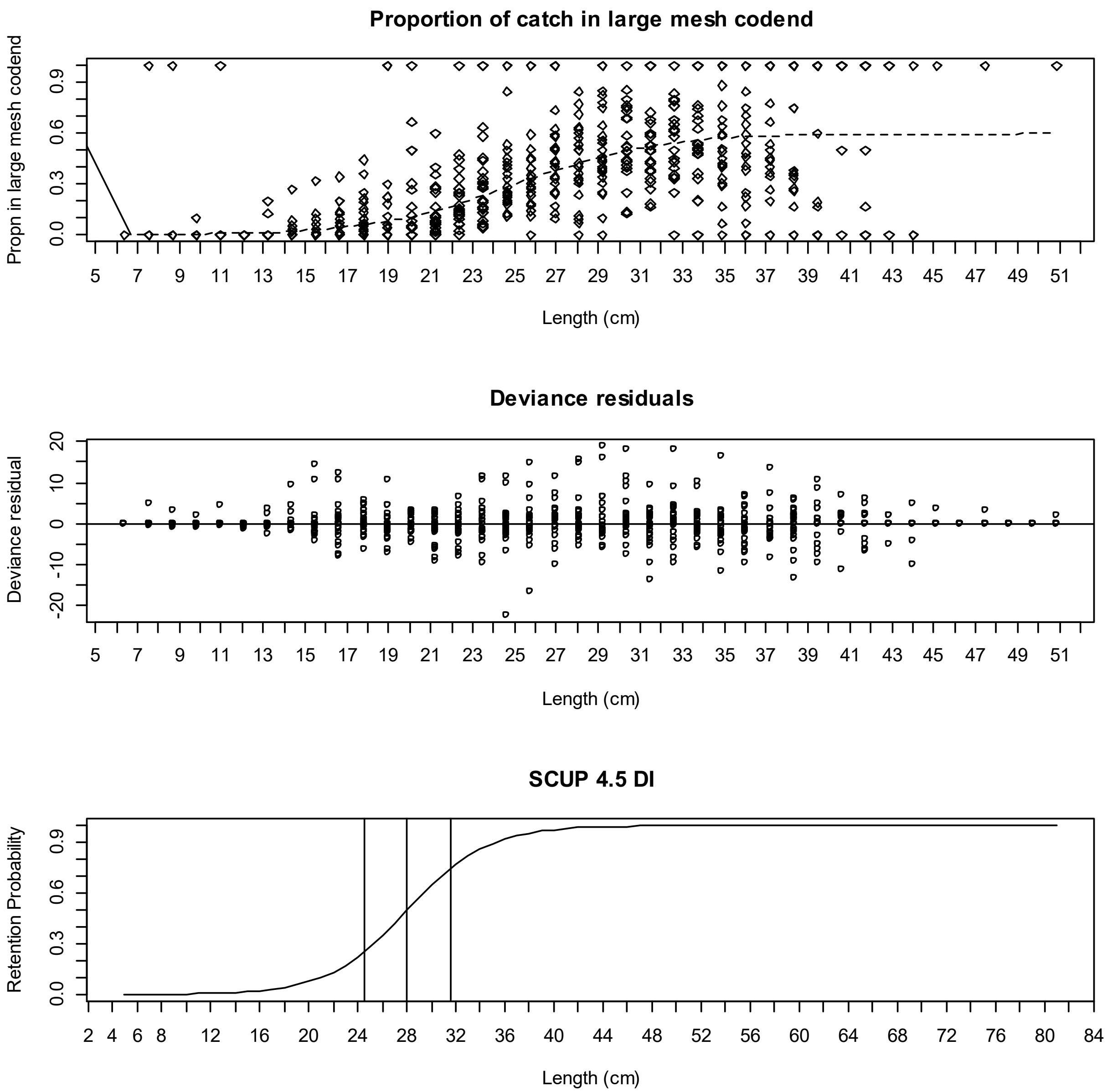


Figure 4. Length frequency distributions in the treatment (4.5" Diamond) and control codends for scup. (All scup lengths are total lengths.)

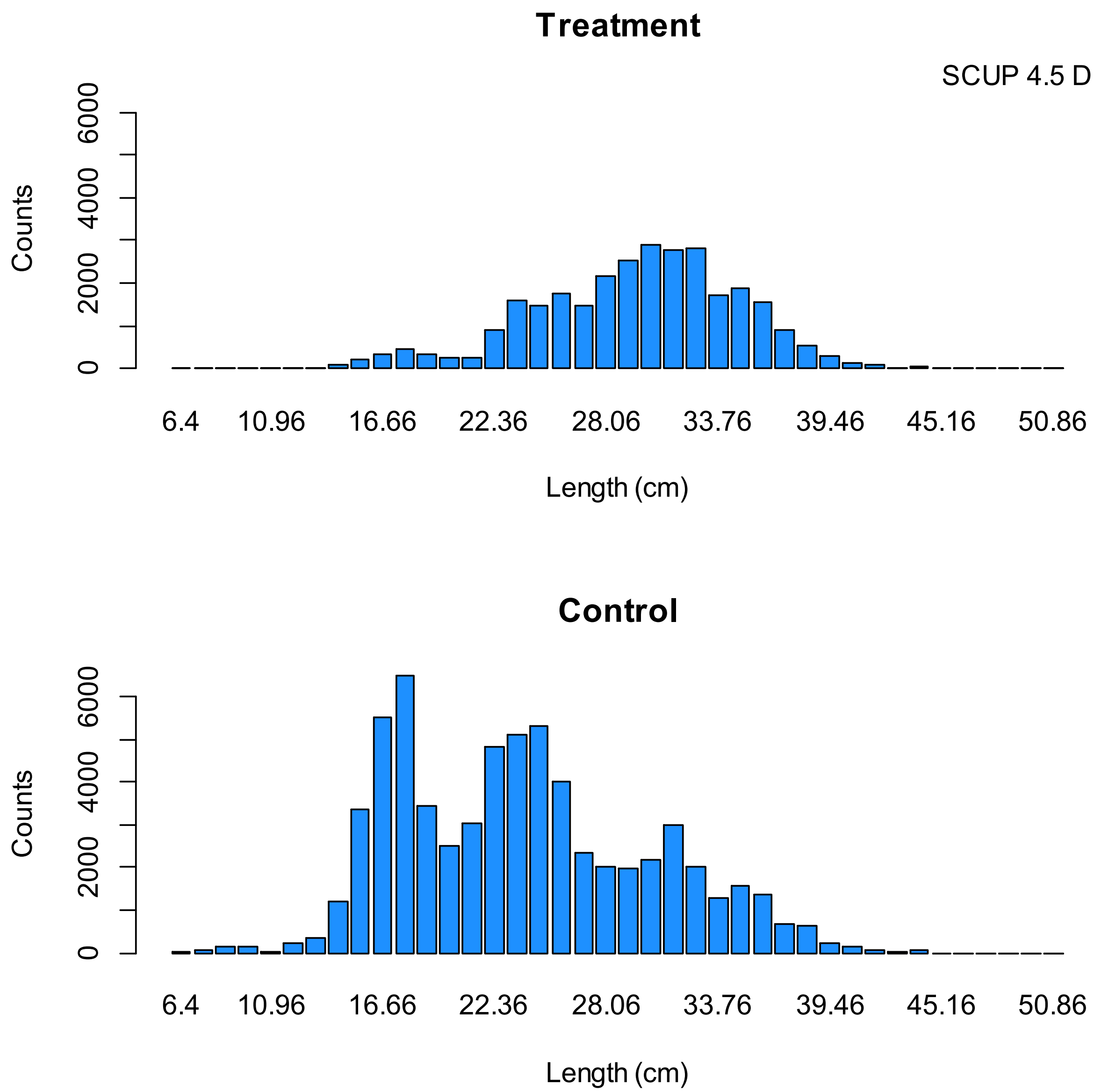


Figure 5. Length frequency distribution of scup in the 4.5” diamond codend.
(All scup lengths are total lengths.)

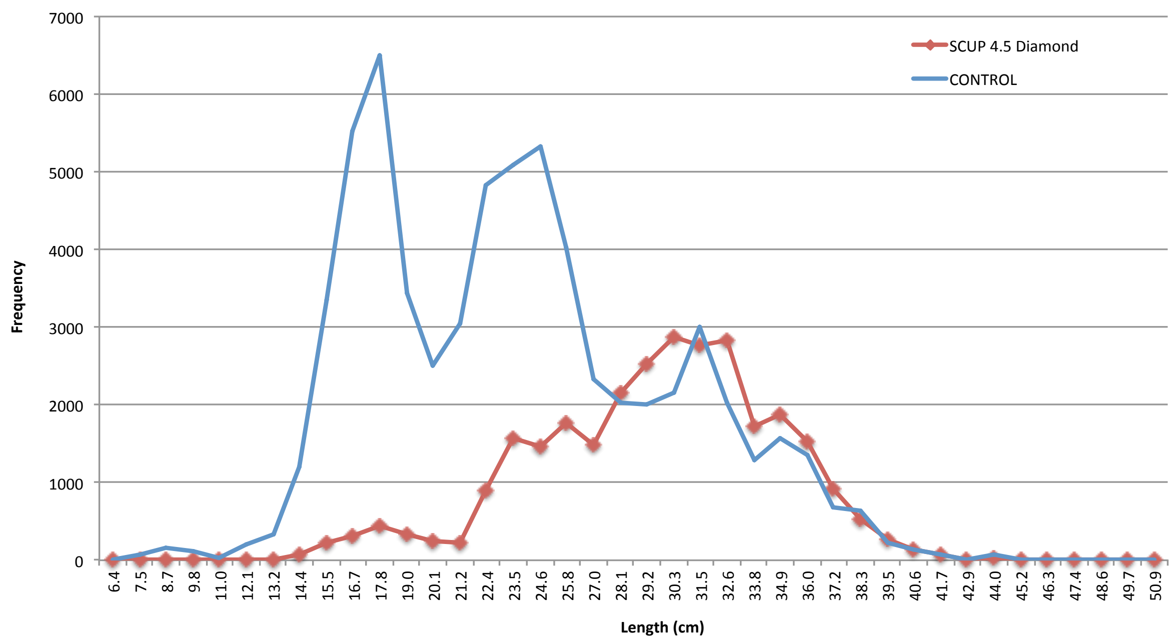


Figure 6. Proportion of catch in treatment codend, deviance residuals, and selectivity curve for scup in the 5" diamond codend. Vertical lines on the selectivity curve represent L_{25}, L_{50} and L_{75}. (All scup lengths are total lengths.)

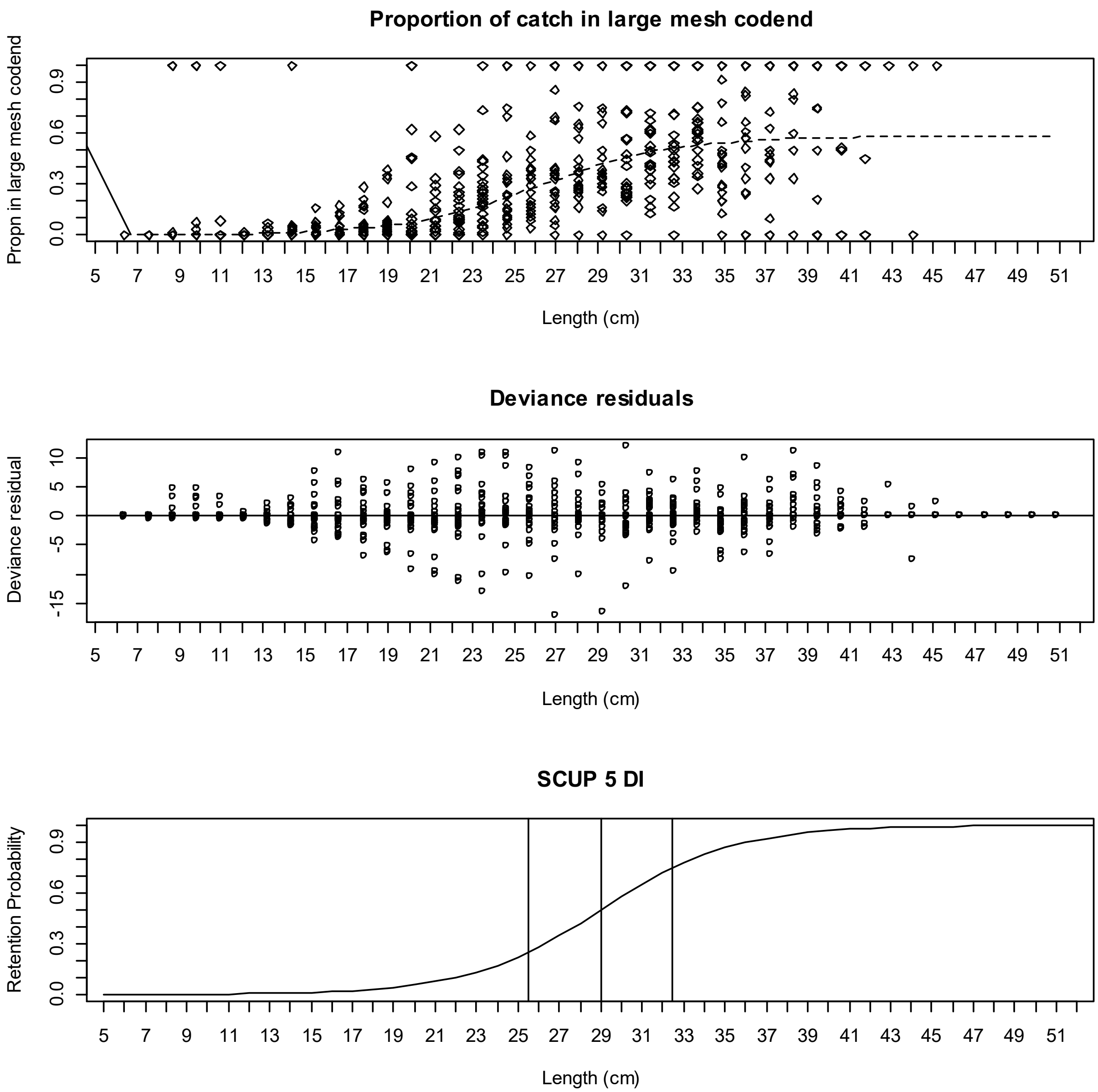


Figure 7. Length frequency distributions in the treatment (5" Diamond) and control codends for scup. (All scup lengths are total lengths.)

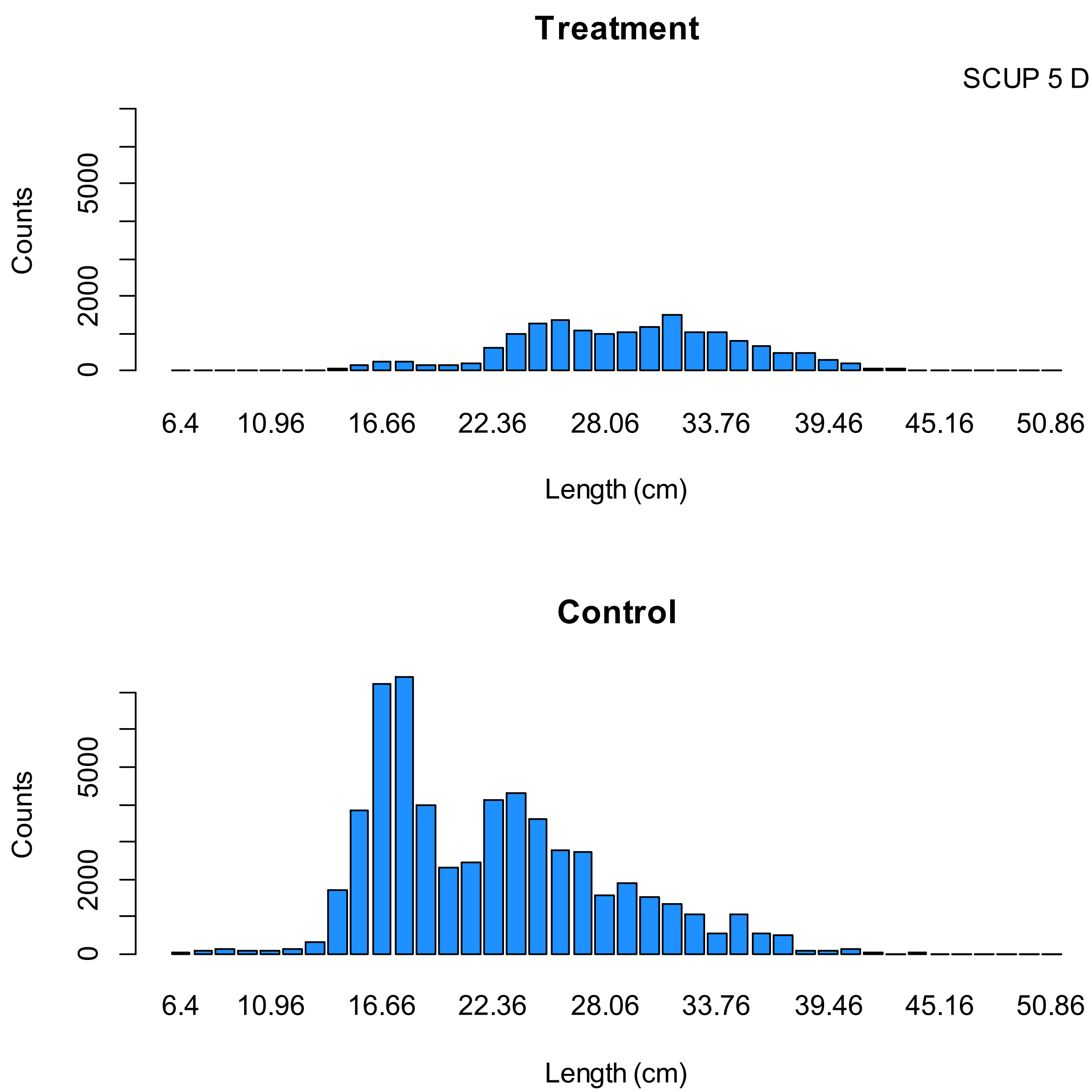


Figure 8. Length frequency distribution of scup in the 5” diamond codend. (All scup lengths are total lengths.)

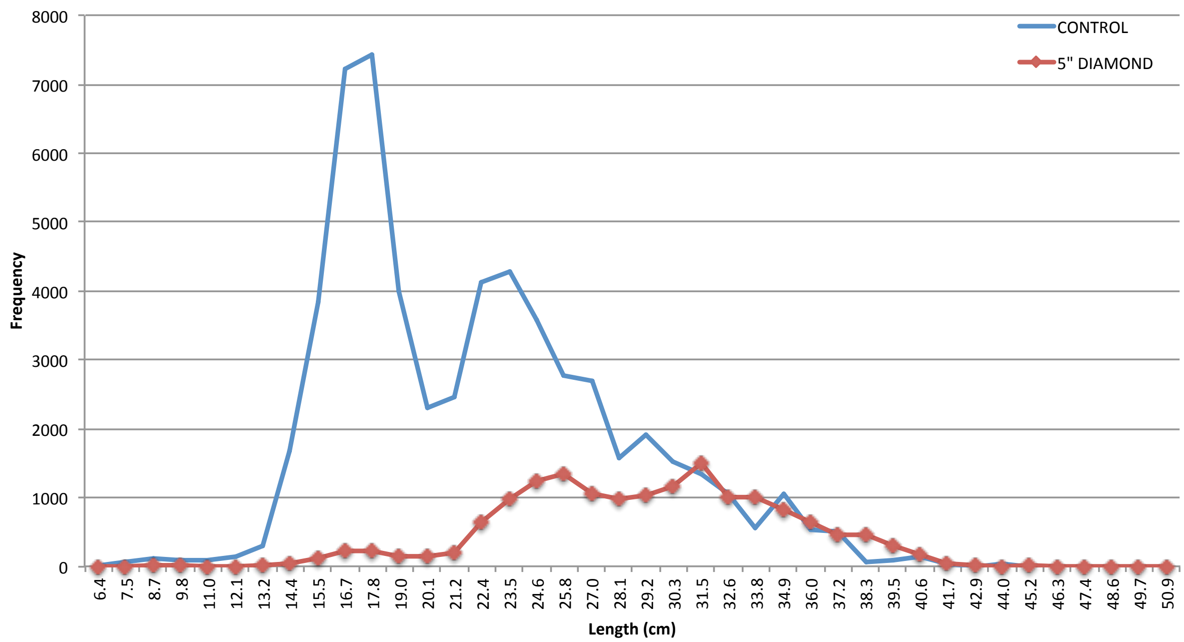


Figure 9. Proportion of catch in treatment codend, deviance residuals, and selectivity curve for scup in the 5.5" diamond codend. Vertical lines on the selectivity curve represent L_{25}, L_{50} and L_{75}. (All scup lengths are total lengths.)

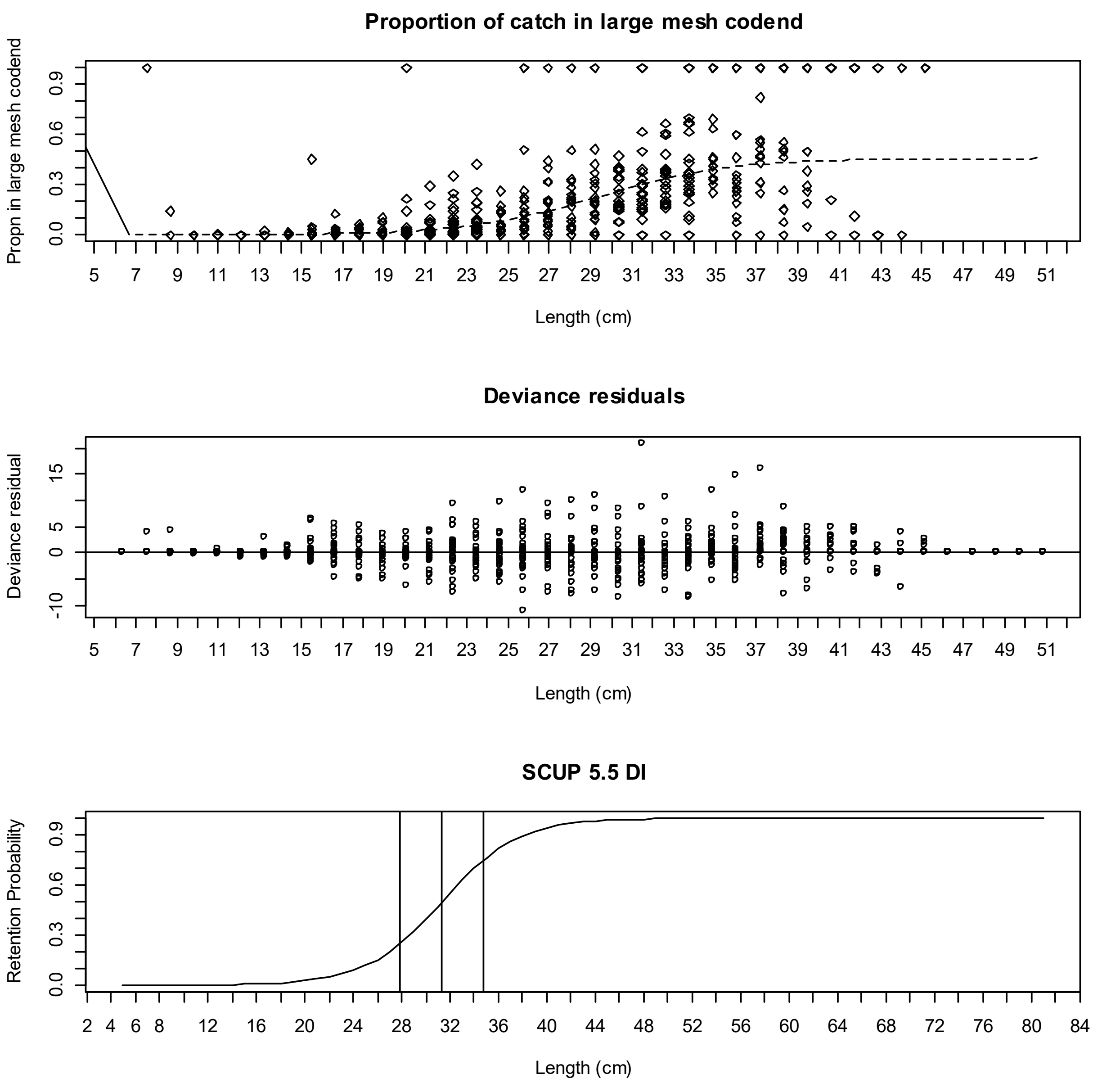


Figure 10. Length frequency distributions in the treatment (5.5" Diamond) and control codends for scup. (All scup lengths are total lengths.)

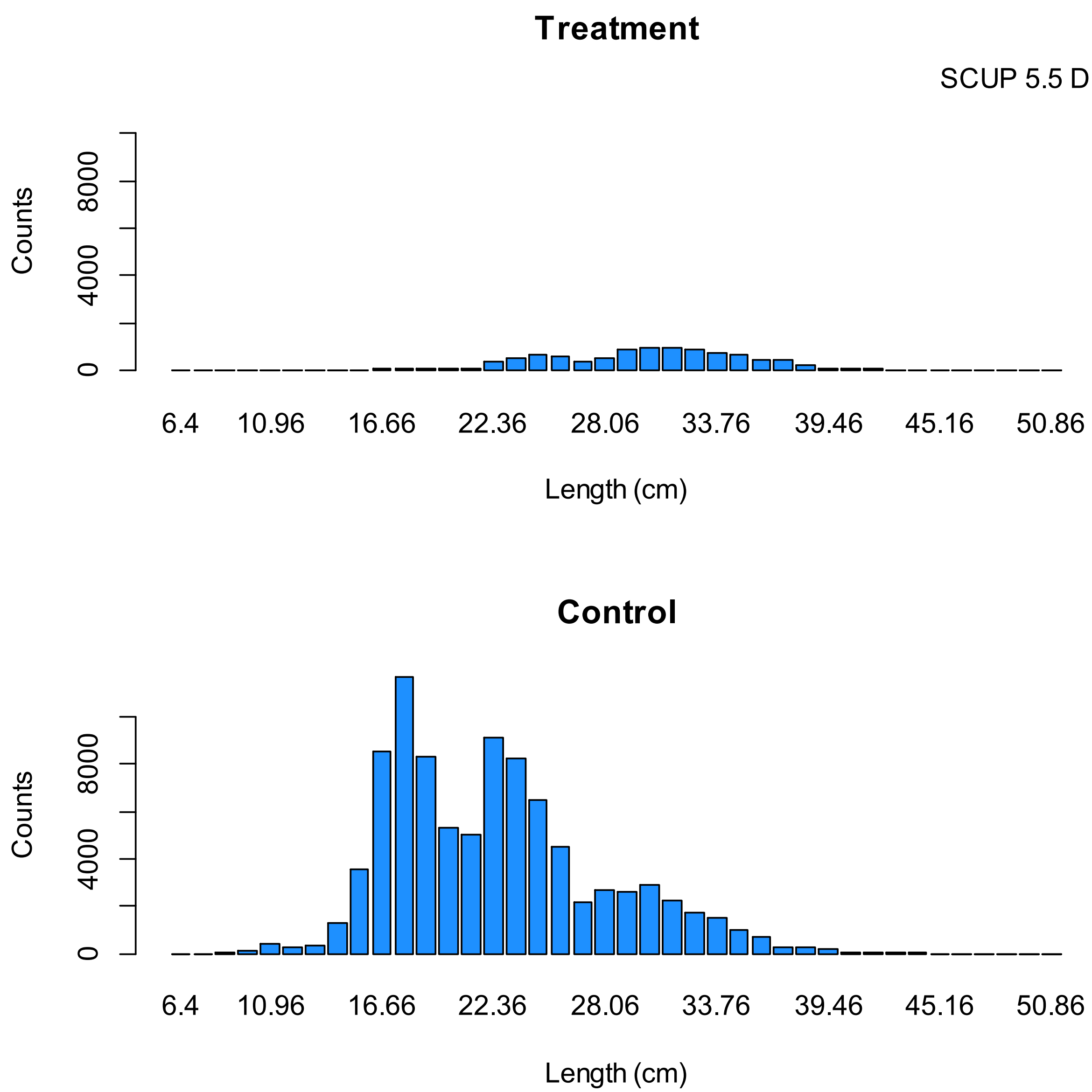


Figure 11. Length frequency distribution of scup in the 5.5” diamond codend. (All scup lengths are total lengths.)

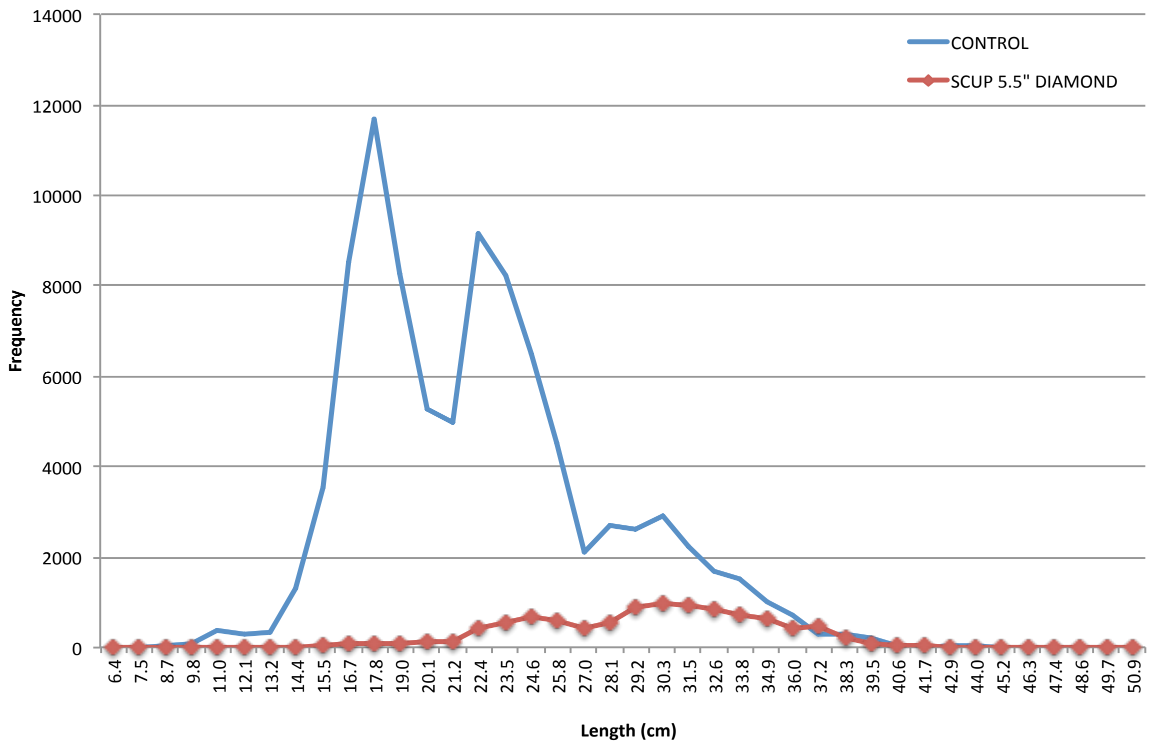


Figure 12. Proportion of catch in treatment codend, deviance residuals, and selectivity curve for scup in the 6" diamond codend. Vertical lines on the selectivity curve represent L_{25}, L_{50} and L_{75}. (All scup lengths are total lengths.)

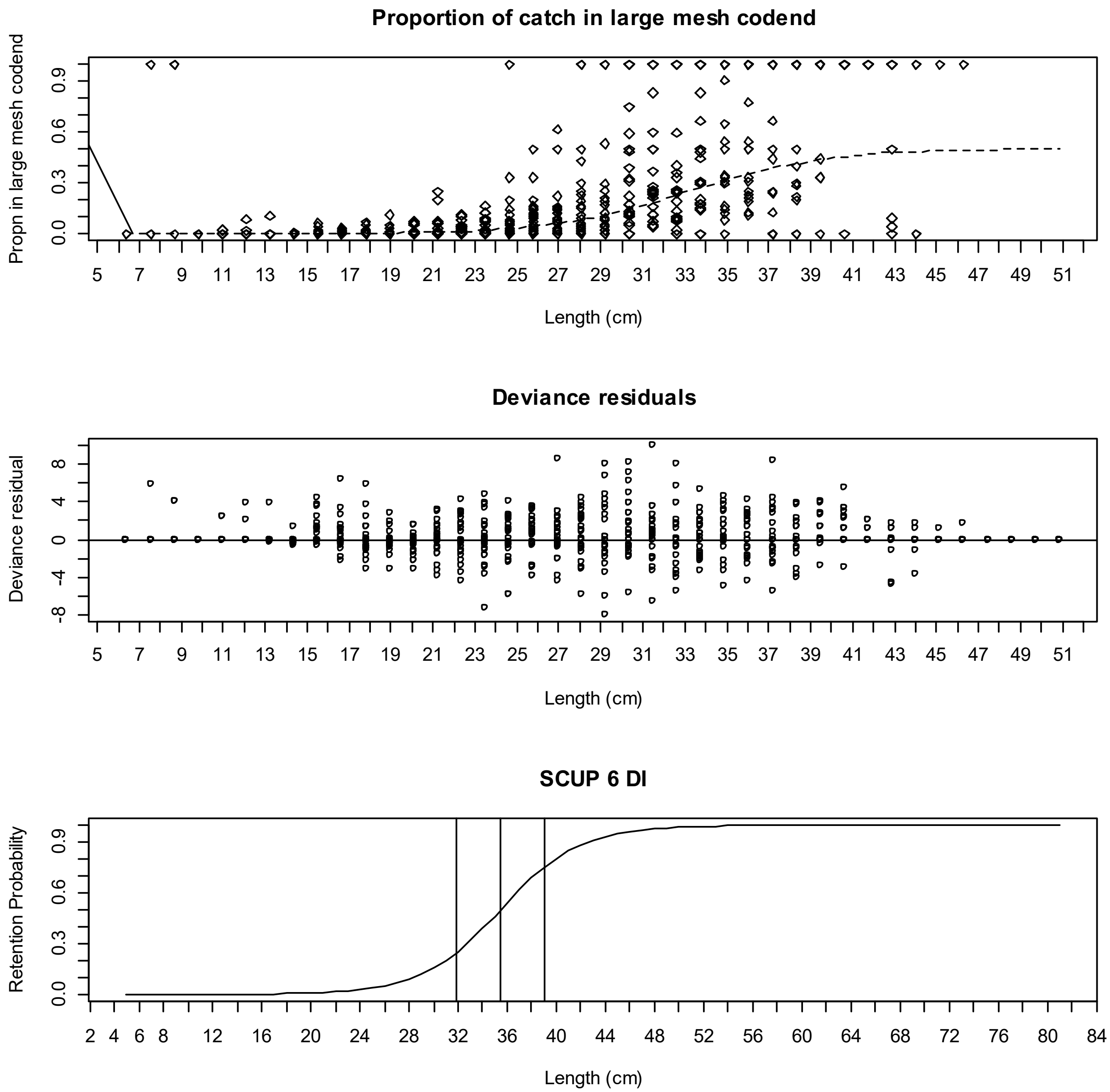


Figure 13. Length frequency distributions in the treatment (6” Diamond) and control codends for scup. (All scup lengths are total lengths.)

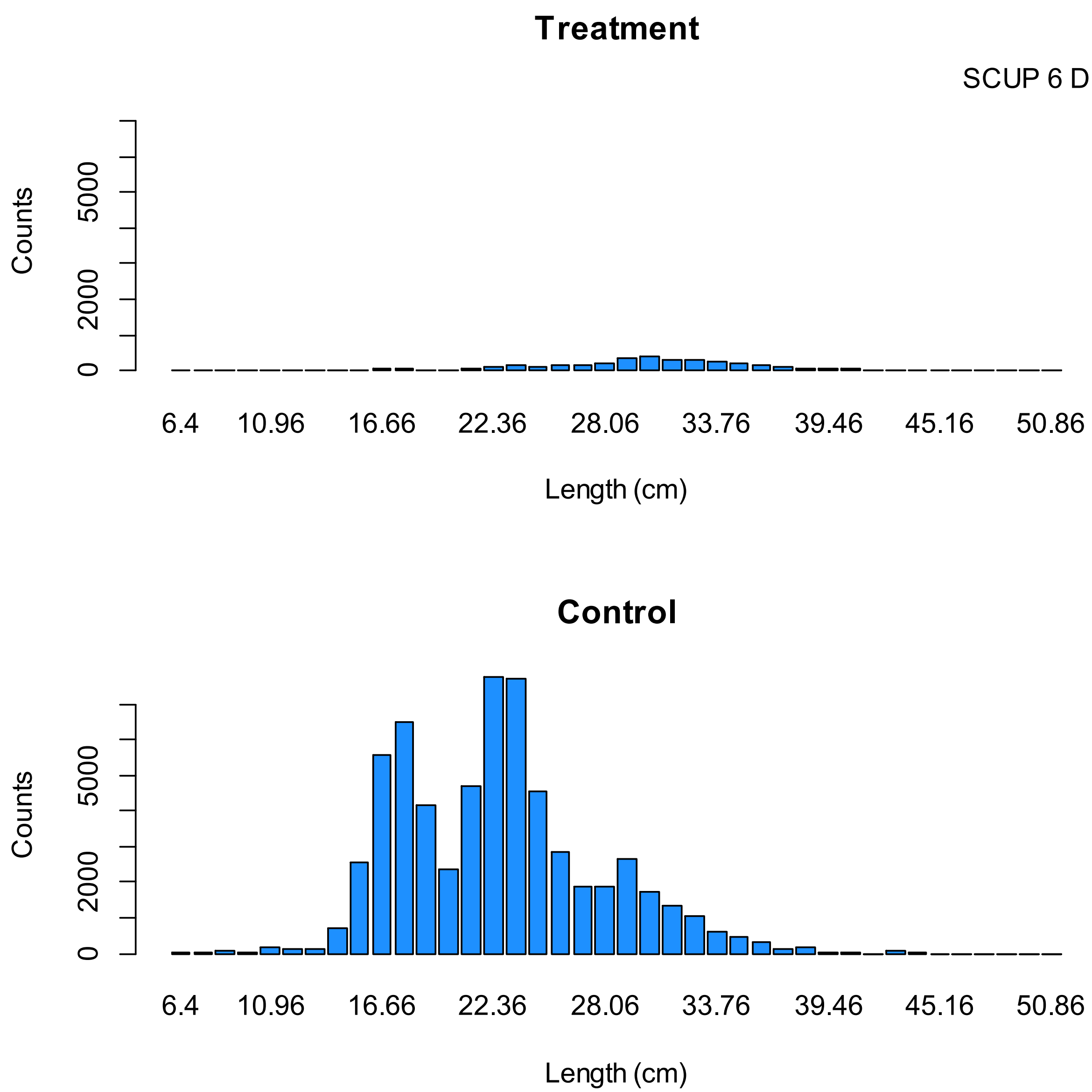


Figure 14. Length frequency distribution of scup in the 6” diamond codend. (All scup lengths are total lengths.)

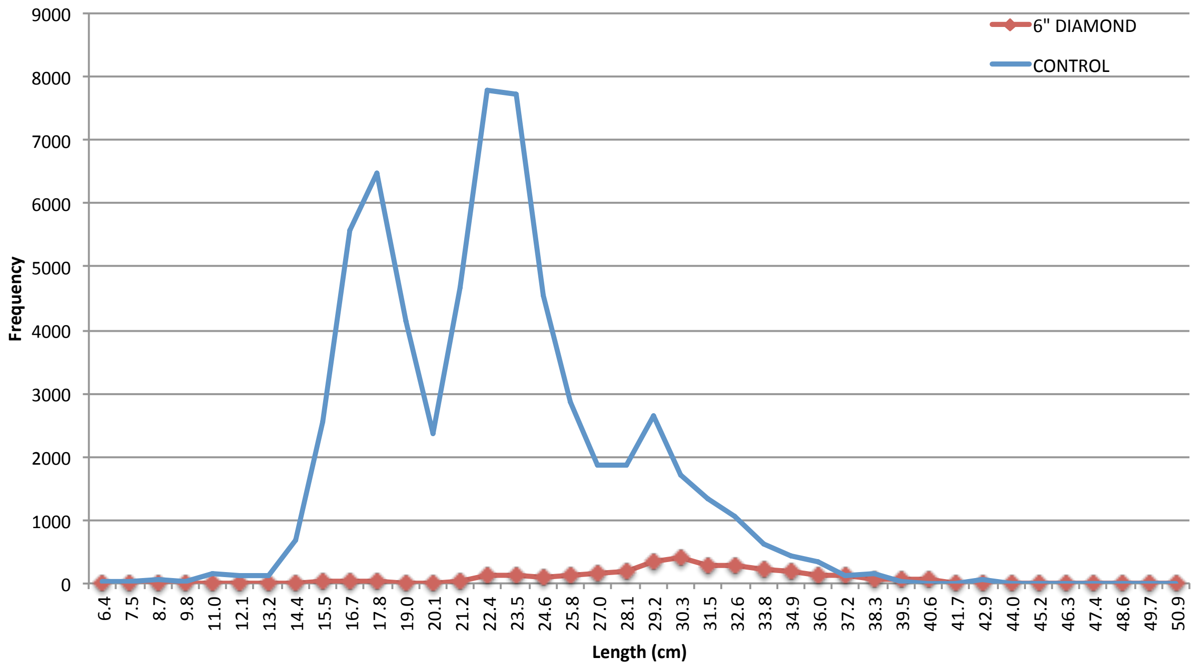


Figure 15. Proportion of catch in treatment codend, deviance residuals, and selectivity curve for scup in the 6" square codend. Vertical lines on the selectivity curve represent L_{25}, L_{50} and L_{75}. (All scup lengths are total lengths.)

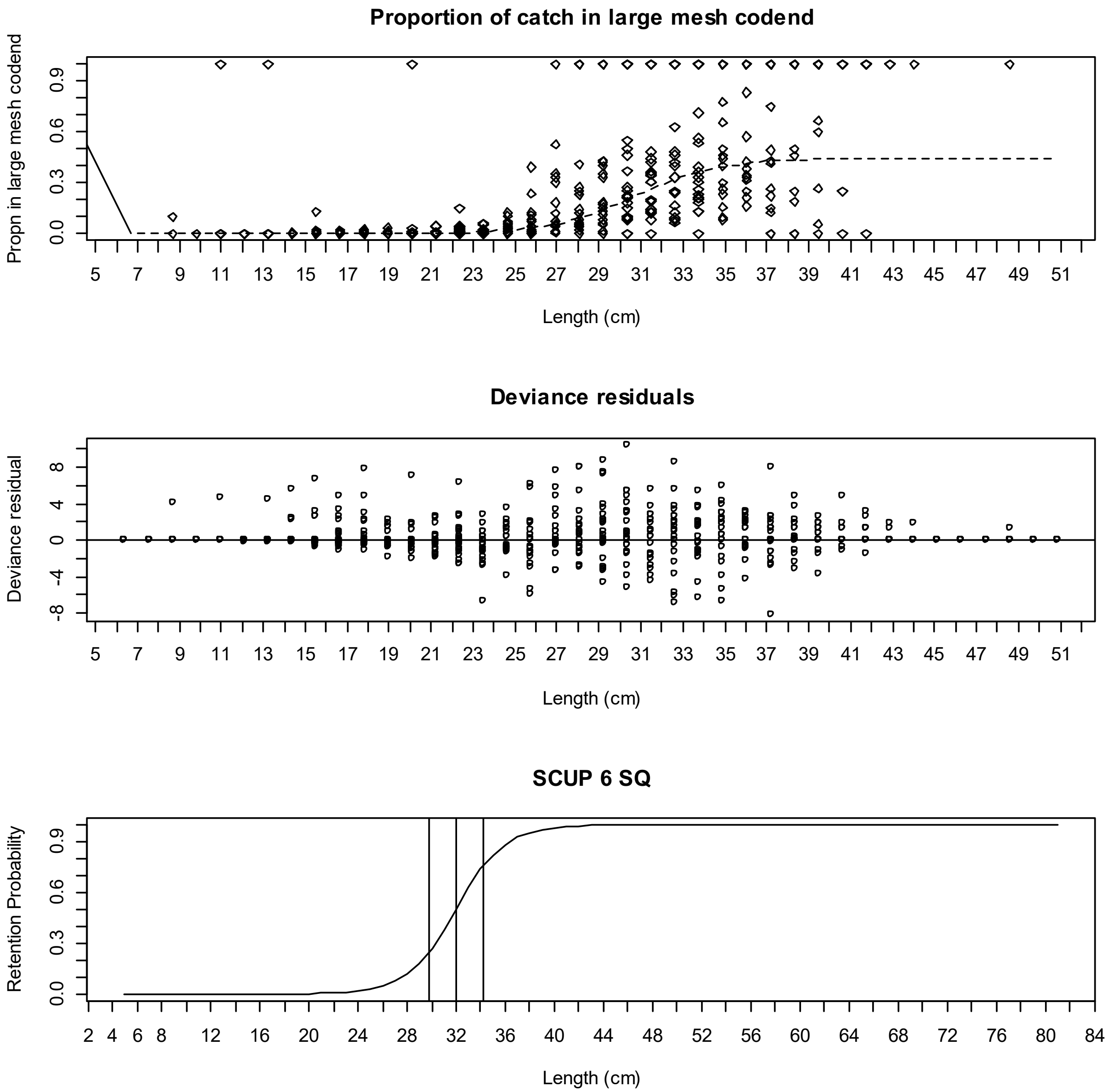


Figure 16. Length frequency distributions in the treatment (6" Square) and control codends for scup. (All scup lengths are total lengths.)

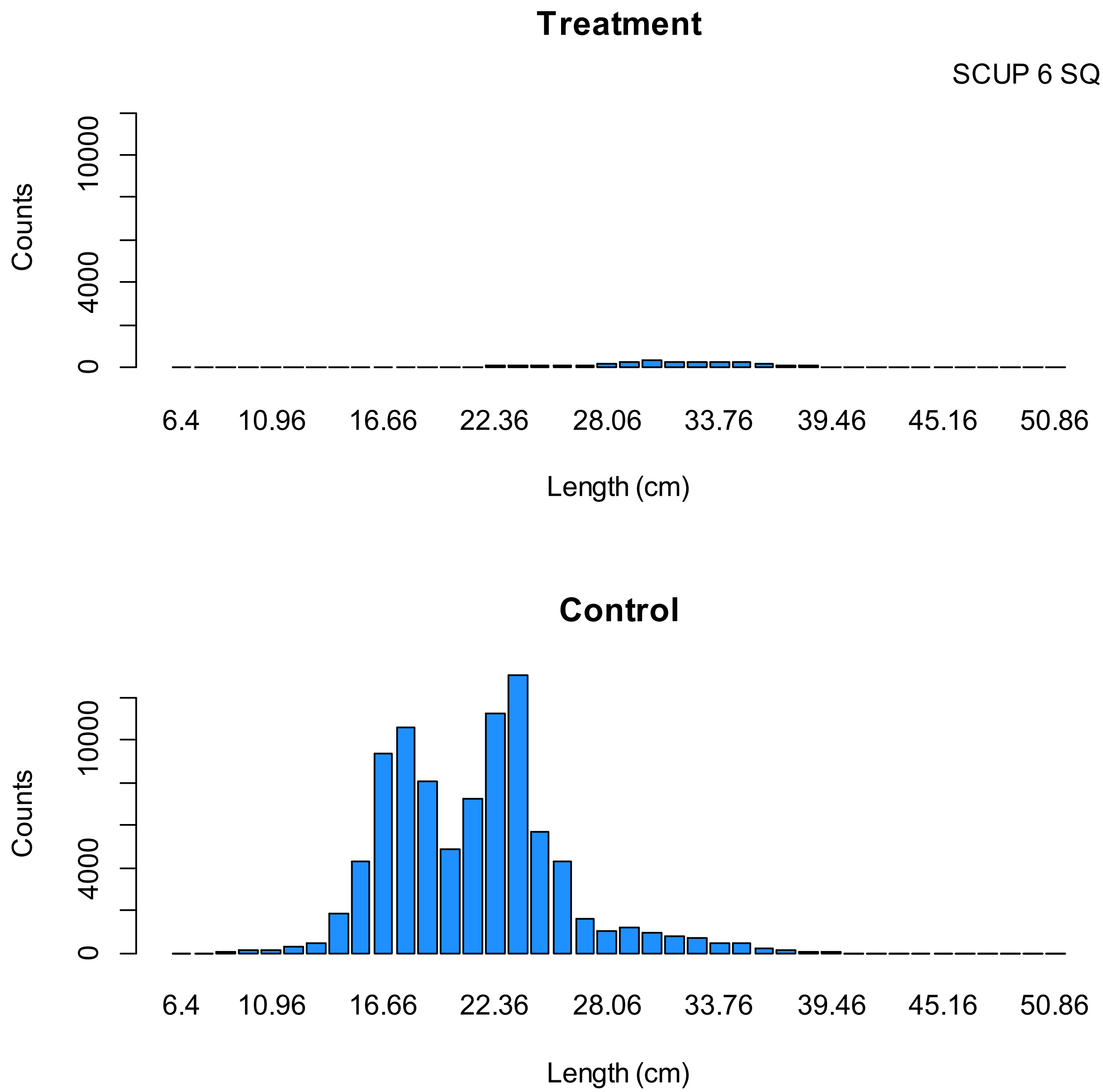


Figure 17. Length frequency distribution of scup in the 6” square codend. (All scup lengths are total lengths.)

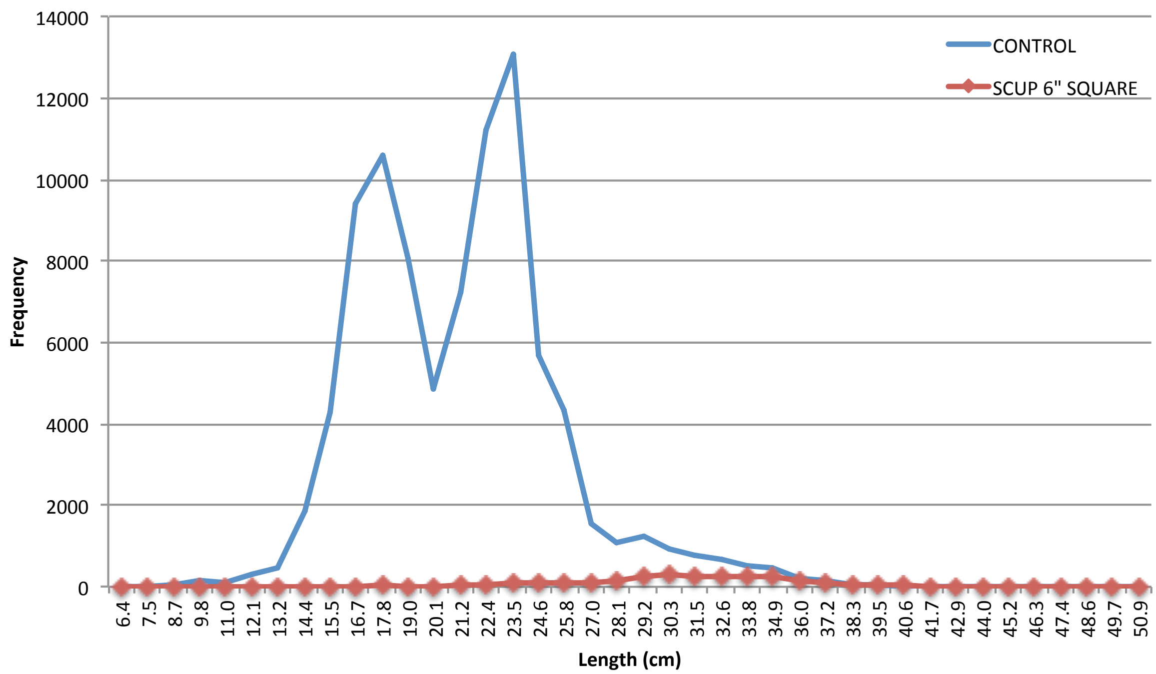
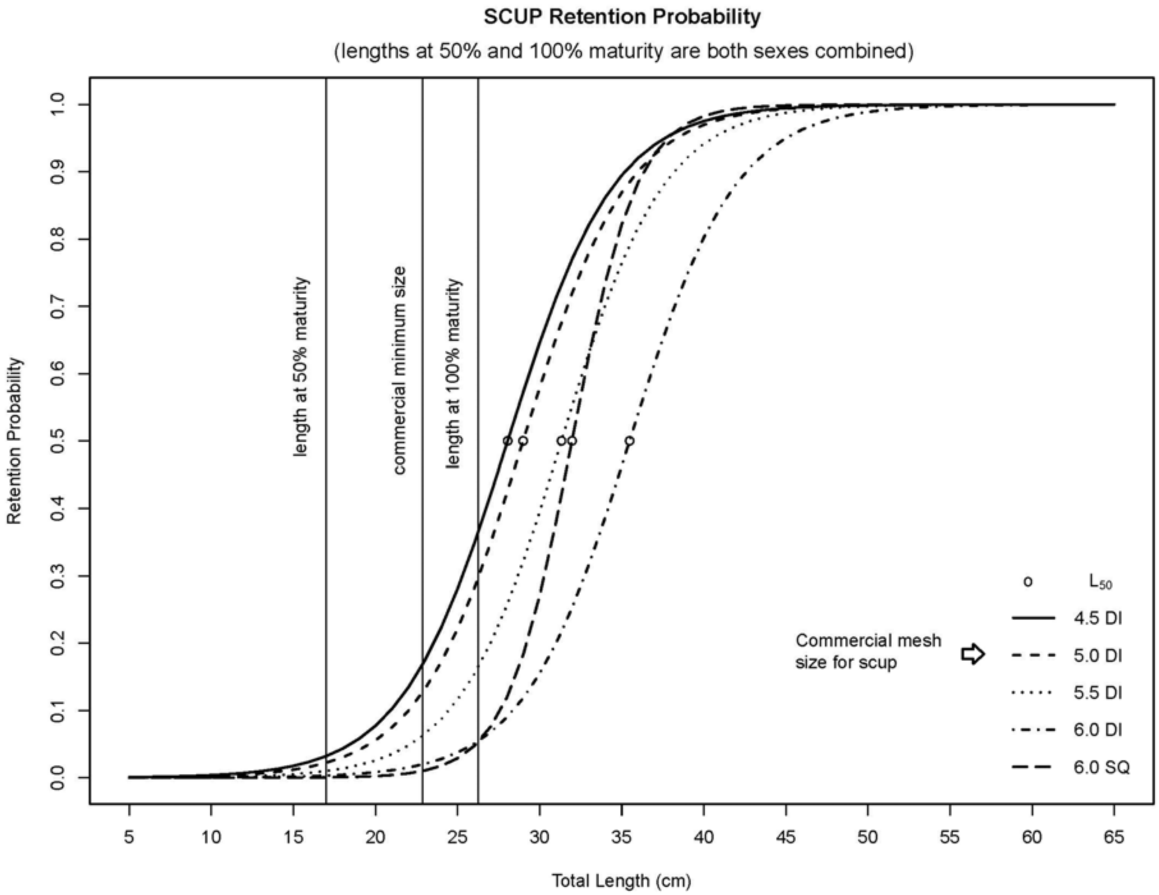


Figure 18. Logistic selectivity curve for scup catches with 5 codends (4.5” diamond, 5” diamond, 5.5” diamond, 6” diamond and 6” square). (All scup lengths are total lengths.)



Black Sea Bass

Table 3. Maximum likelihood fit of logistic selectivity curve parameters for 5 codend mesh sizes and SELECT model goodness-of-fit measures for black sea bass
Standard error is shown in parentheses. Coefficient of variation is shown in double parentheses. 4.5" Diamond is the current regulation minimum mesh.

	4.5" Diamond	5" Diamond	5.5" Diamond	6" Diamond	6" Square
N tows (paired)	24	24	24	24	22
N length classes	49	47	45	49	46
Length class range (cm)	13-61	14-60	14-58	10-48	13-58
a	-10.46	-14.59	-12.70	-11.08	-14.43
b	0.36	0.45	0.31	0.29	0.30
p - relative fishing efficiency	0.47 (0.03)	0.50 (0.04)	0.57 (0.08)	0.39 (0.05)	0.52 (0.13)
L_{25} (cm)	25.77 (0.82) ((0.032))	29.85 (1.05) ((0.035))	37.53 (1.88) ((0.050))	34.12 (1.55) ((0.045))	44.07 (2.69) ((0.061))
L_{50} (cm)	28.8 (1.21) ((0.042))	32.28 (1.31) ((0.041))	41.08 (2.16) ((0.053))	37.87 (1.87) ((0.049))	47.70 (3.08) ((0.065))
L_{75} (cm)	31.82 (1.65) ((0.052))	34.71 (1.60) ((0.0046))	44.63 (2.47) ((0.055))	41.63 (2.23) ((0.054))	51.33 (3.51) ((0.068))
Selection range	6.05 (0.96)	4.86 (0.68)	7.1 (0.82)	7.51 (0.83)	7.26 (1.08)
Selection factor	6.4	6.43	7.47	6.31	7.96
Model deviance	73.394	41.128	71.609	168.412	24.552
df	38	16	17	73	13
p-value	0.0005	0.0005	<0.0001	<0.0001	0.0264

Figure 19. Proportion of catch in treatment codend, deviance residuals, and selectivity curve for black sea bass in the 4.5" diamond codend. Vertical lines on the selectivity curve represent L_{25}, L_{50} and L_{75}.

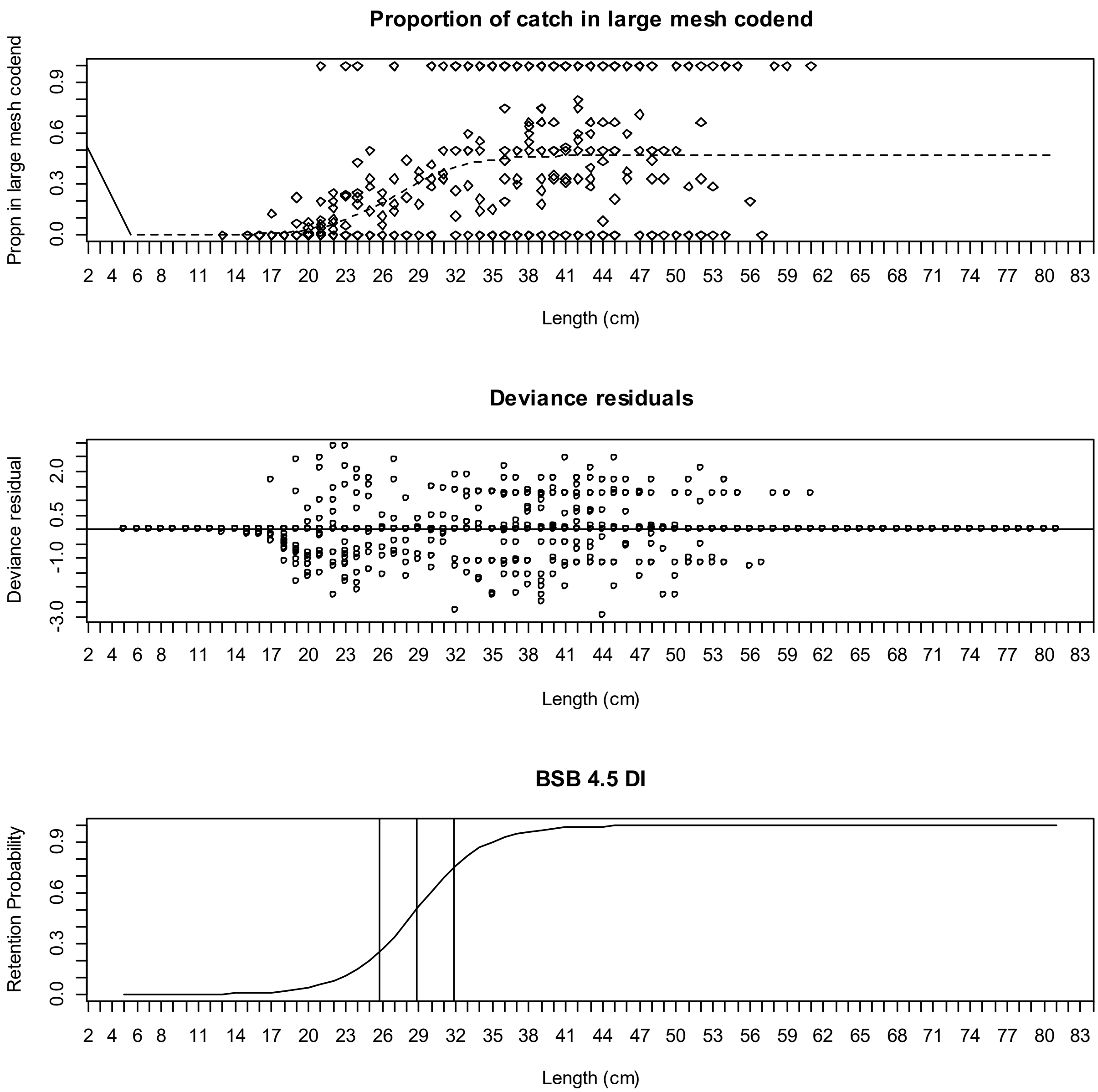


Figure 20. Length frequency distributions in the treatment (4.5" Diamond) and control codends for black sea bass

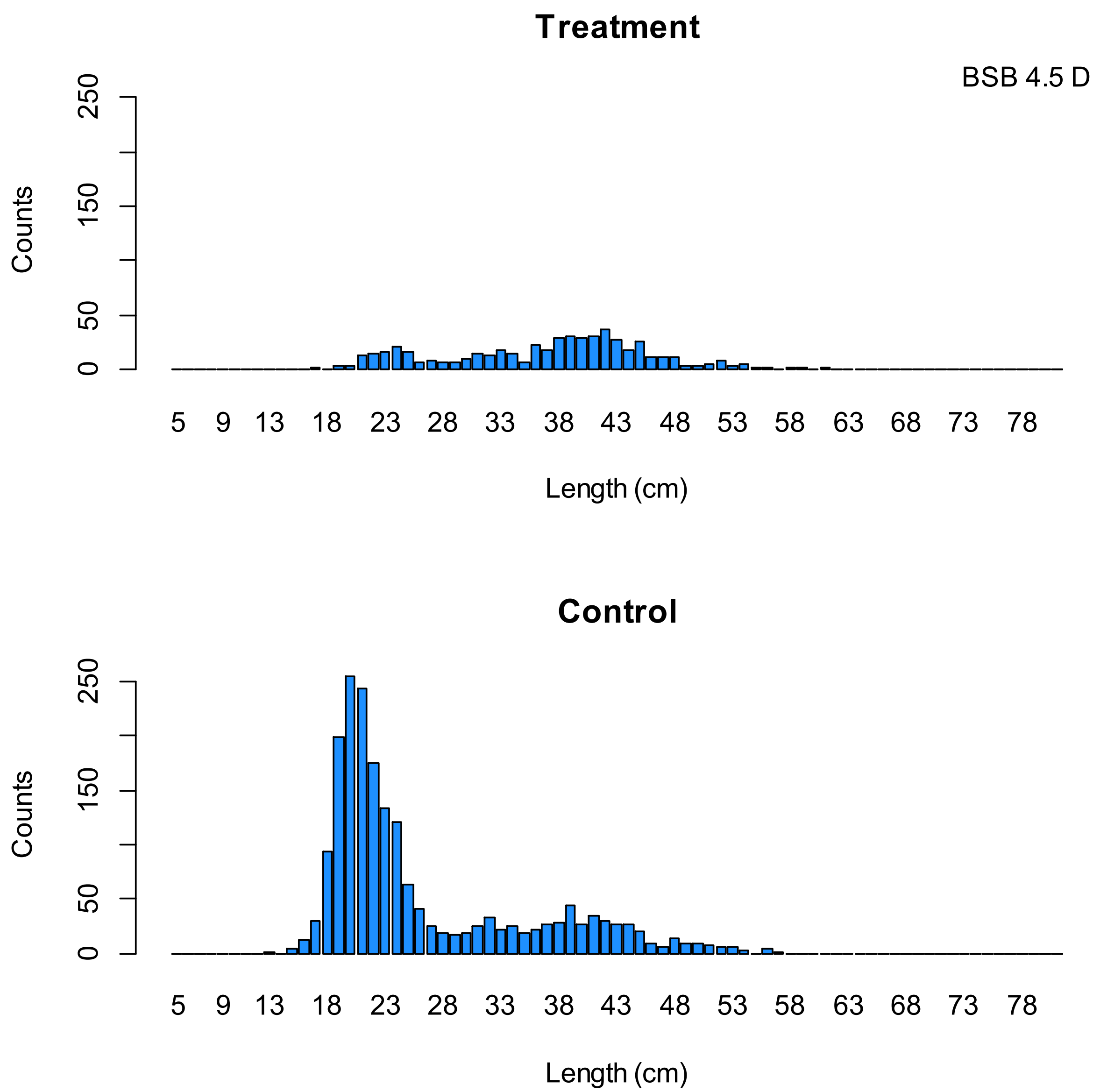


Figure 21. Length frequency distribution of black sea bass in the 4.5" diamond codend

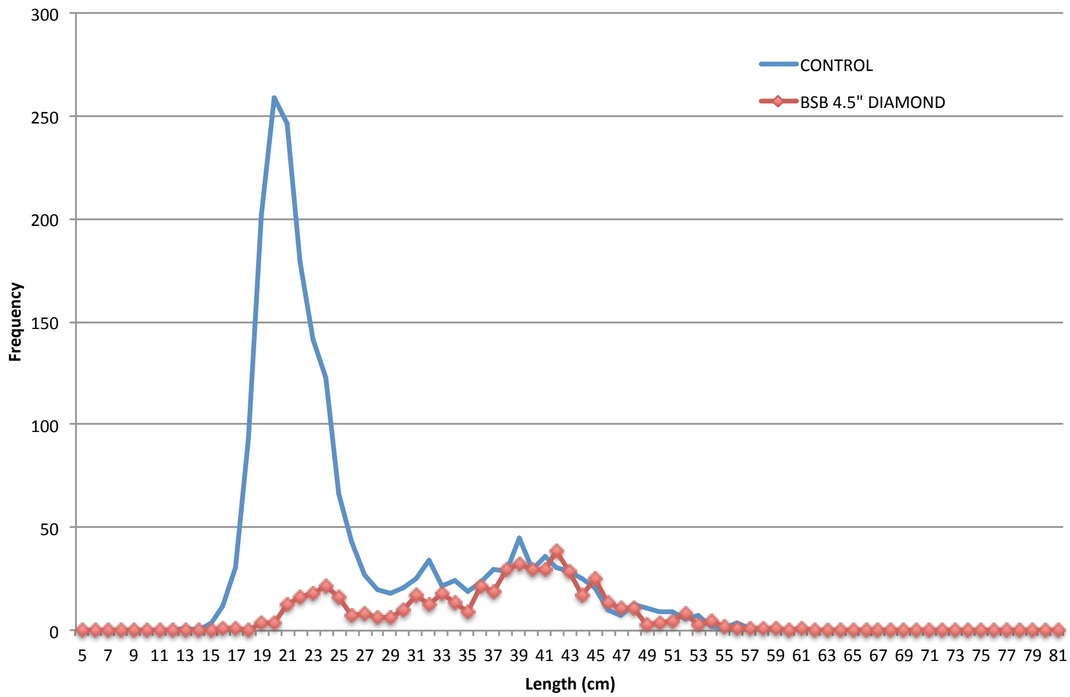


Figure 22. Proportion of catch in treatment codend, deviance residuals, and selectivity curve for black sea bass in the 5” diamond codend. Vertical lines on the selectivity curve represent L_{25}, L_{50} and L_{75}.

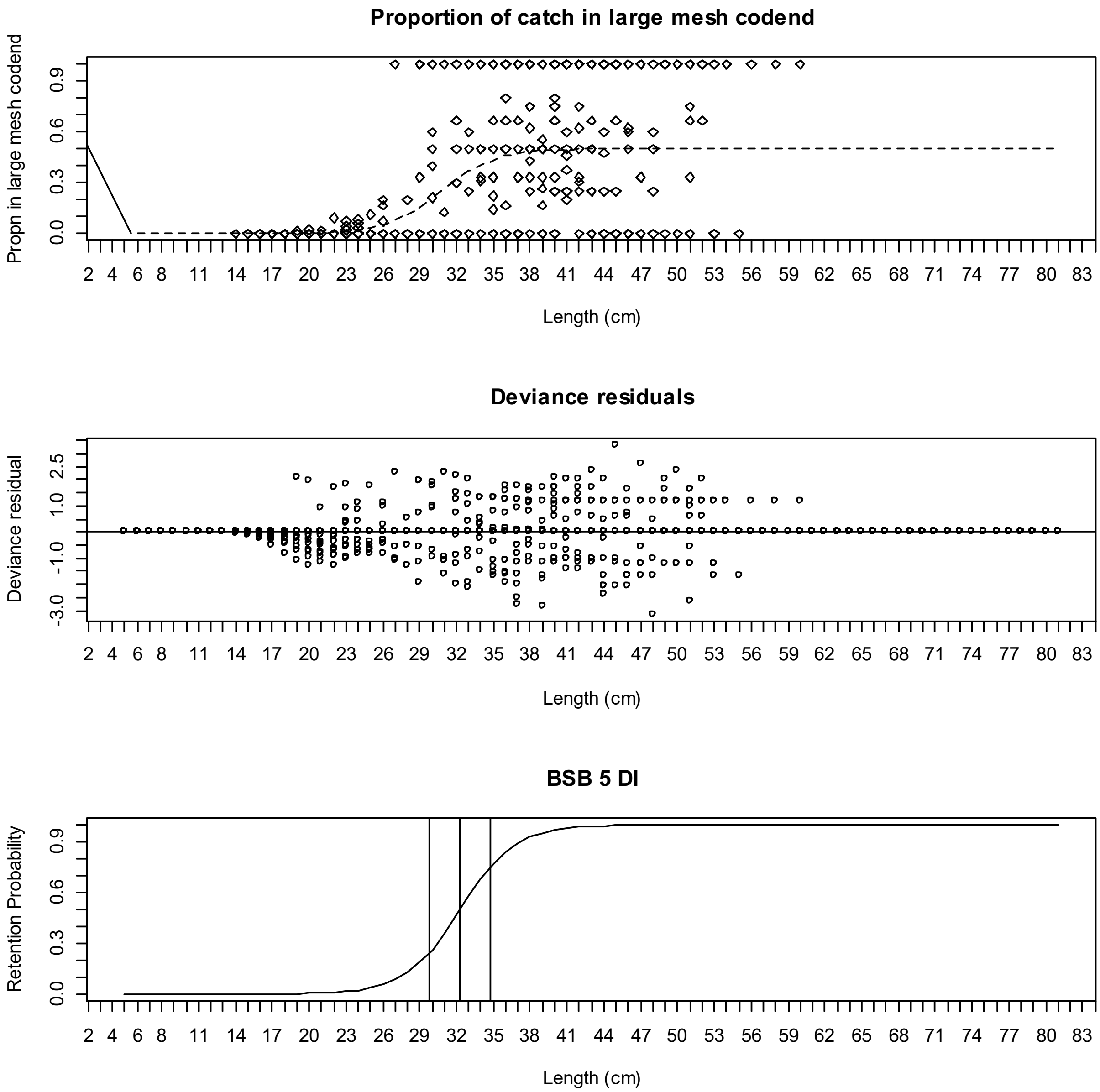


Figure 23. Length frequency distributions in the treatment (5" Diamond) and control codends for black sea bass

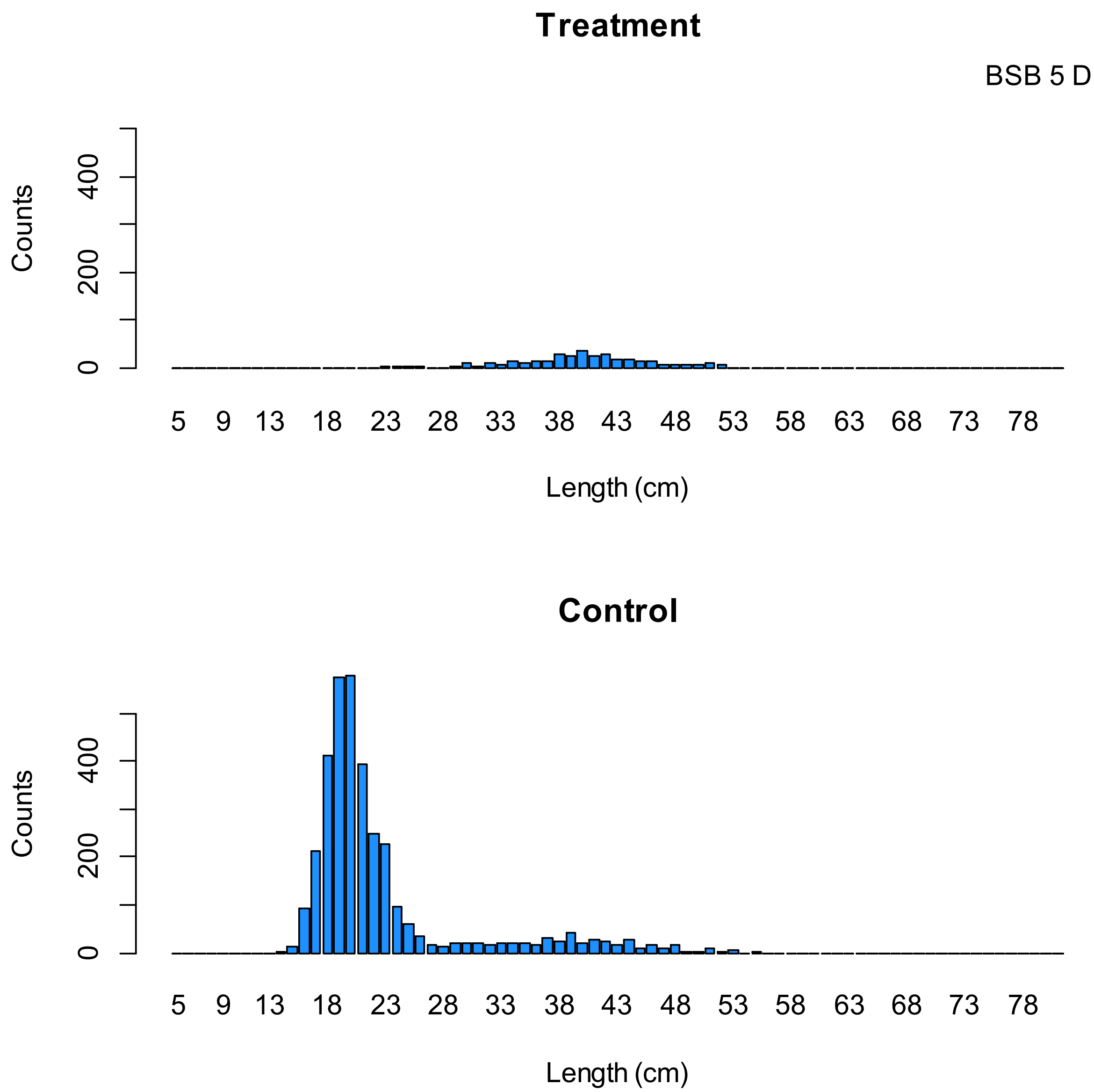


Figure 24. Length frequency distribution of black sea bass in the 5" diamond codend

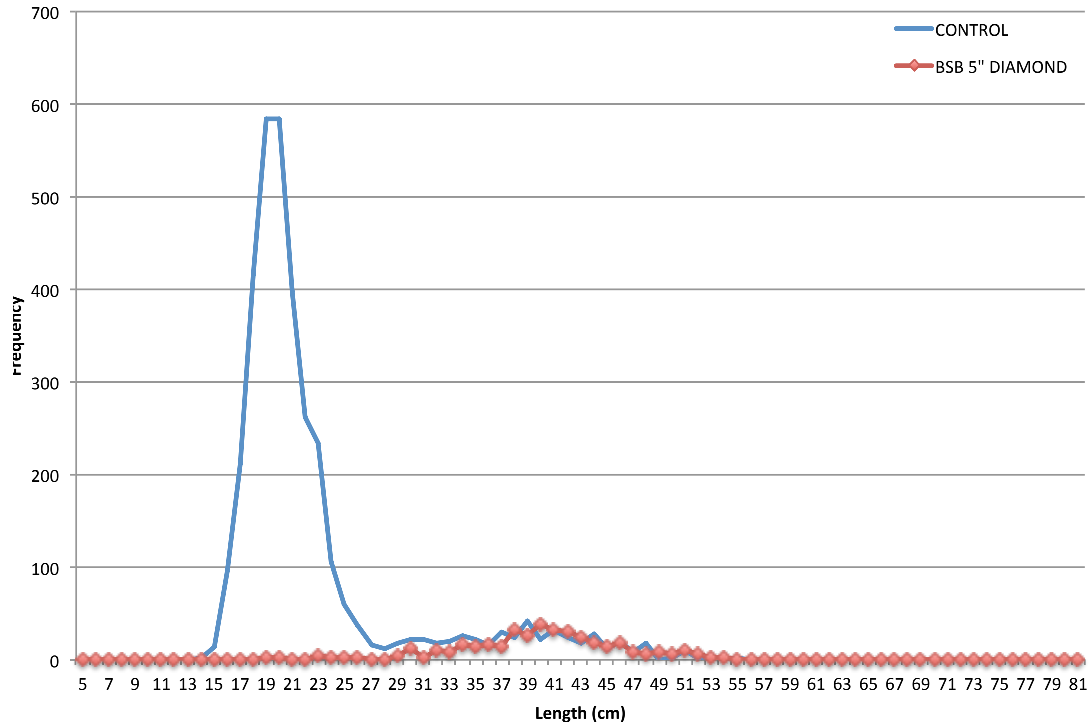


Figure 25. Proportion of catch in treatment codend, deviance residuals, and selectivity curve for black sea bass in the 5.5" diamond codend. Vertical lines on the selectivity curve represent L_{25}, L_{50} and L_{75}.

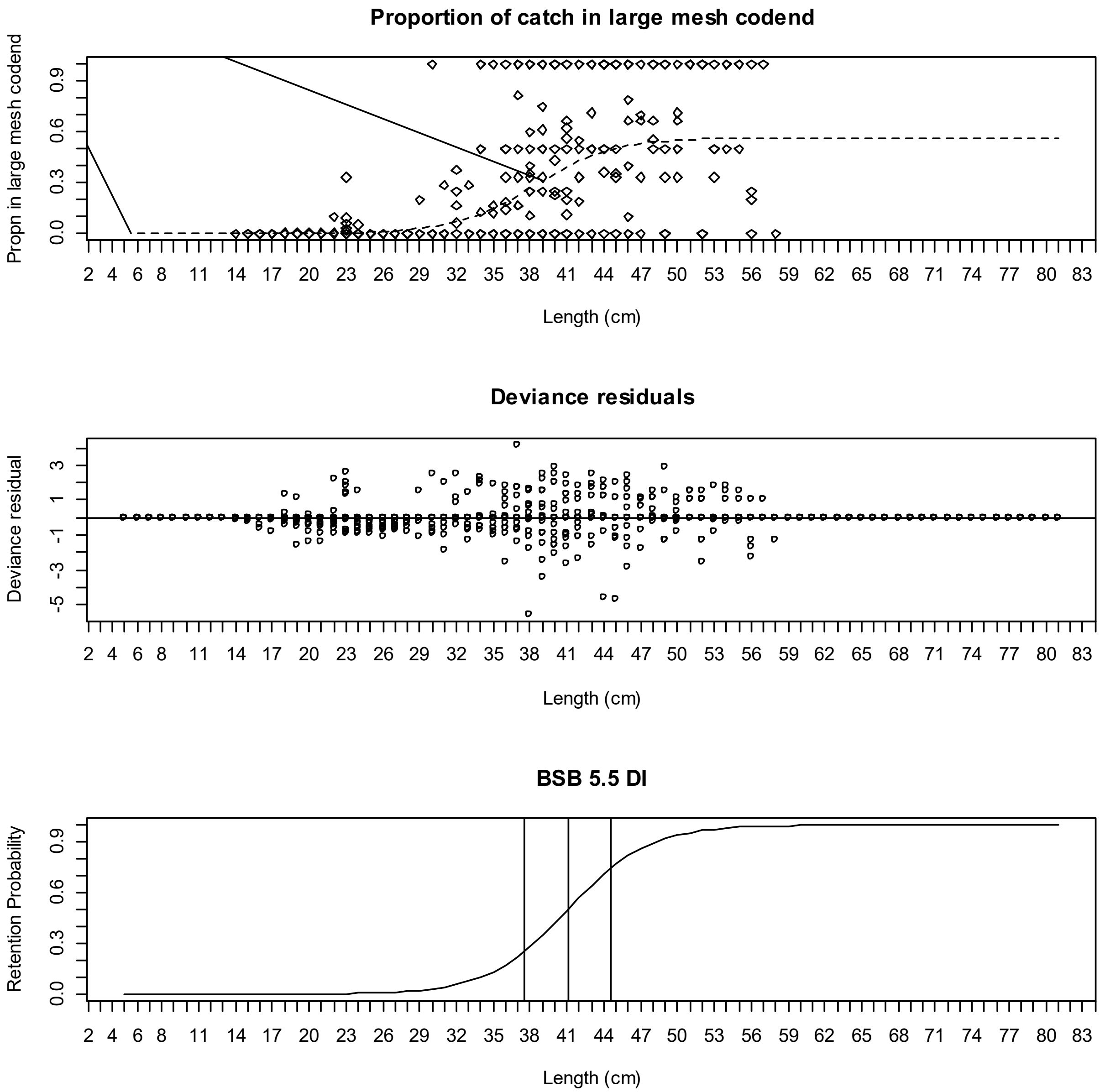


Figure 26. Length frequency distributions in the treatment (5.5" Diamond) and control codends for black sea bass

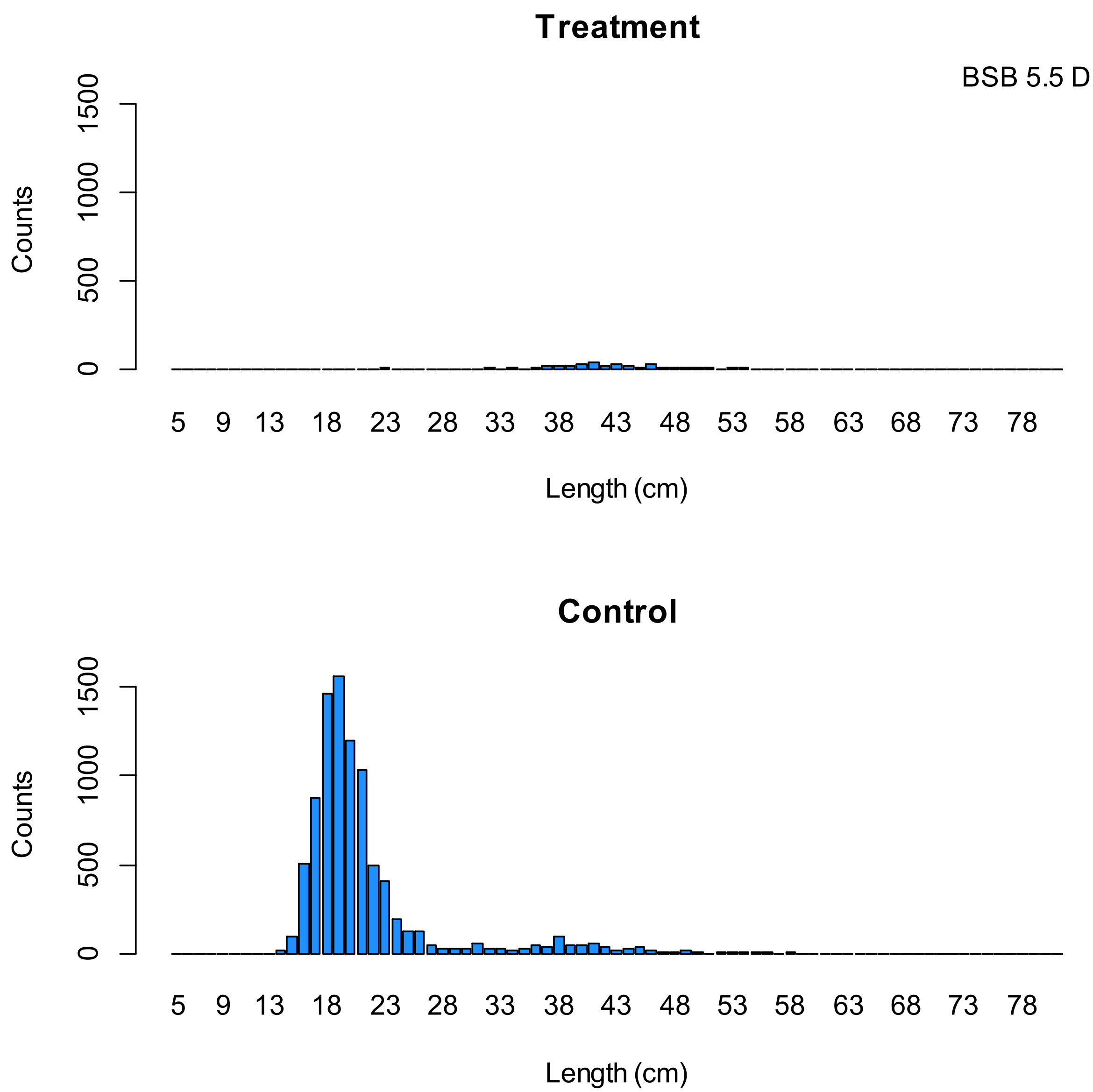


Figure 27. Length frequency distribution of black sea bass in the 5.5" diamond codend

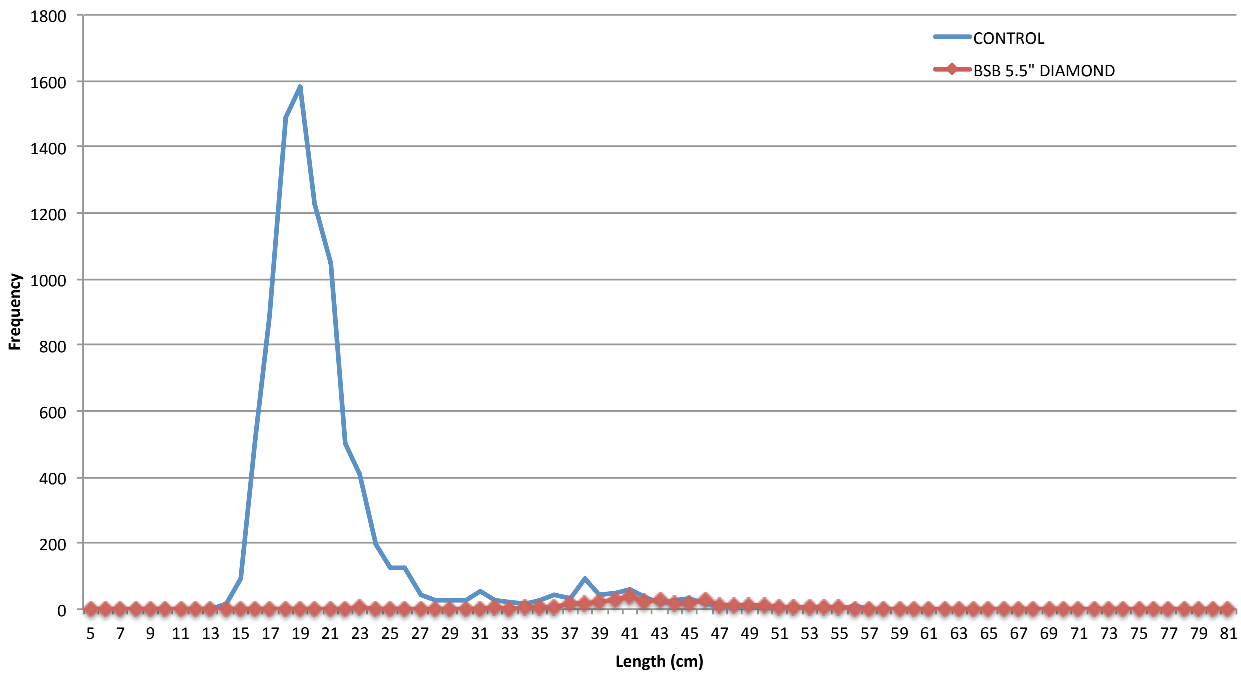


Figure 28. Proportion of catch in treatment codend, deviance residuals, and selectivity curve for black sea bass in the 6" diamond codend. Vertical lines on the selectivity curve represent L_{25}, L_{50} and L_{75}.

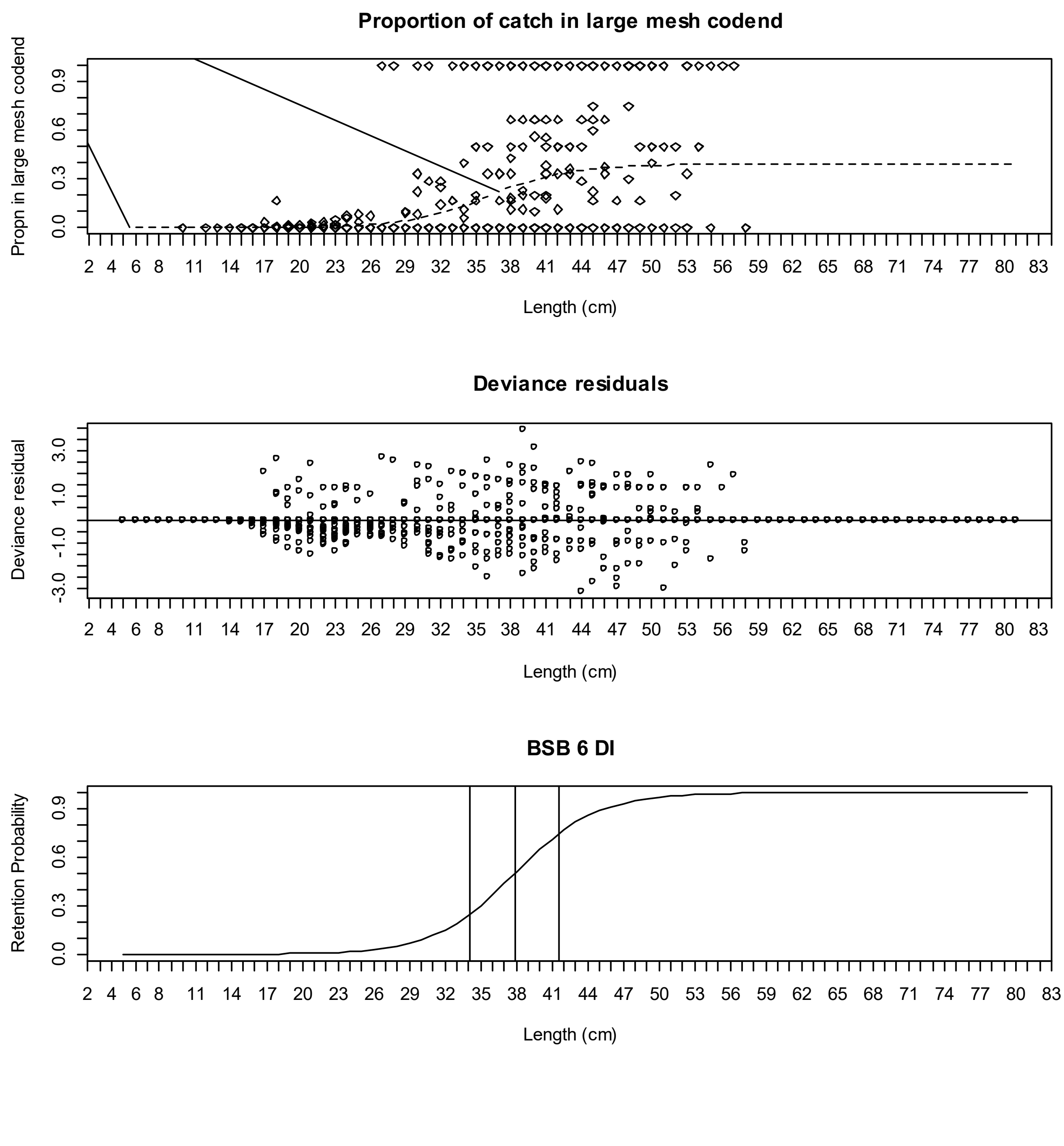


Figure 29. Length frequency distributions in the treatment (6" Diamond) and control codends for black sea bass

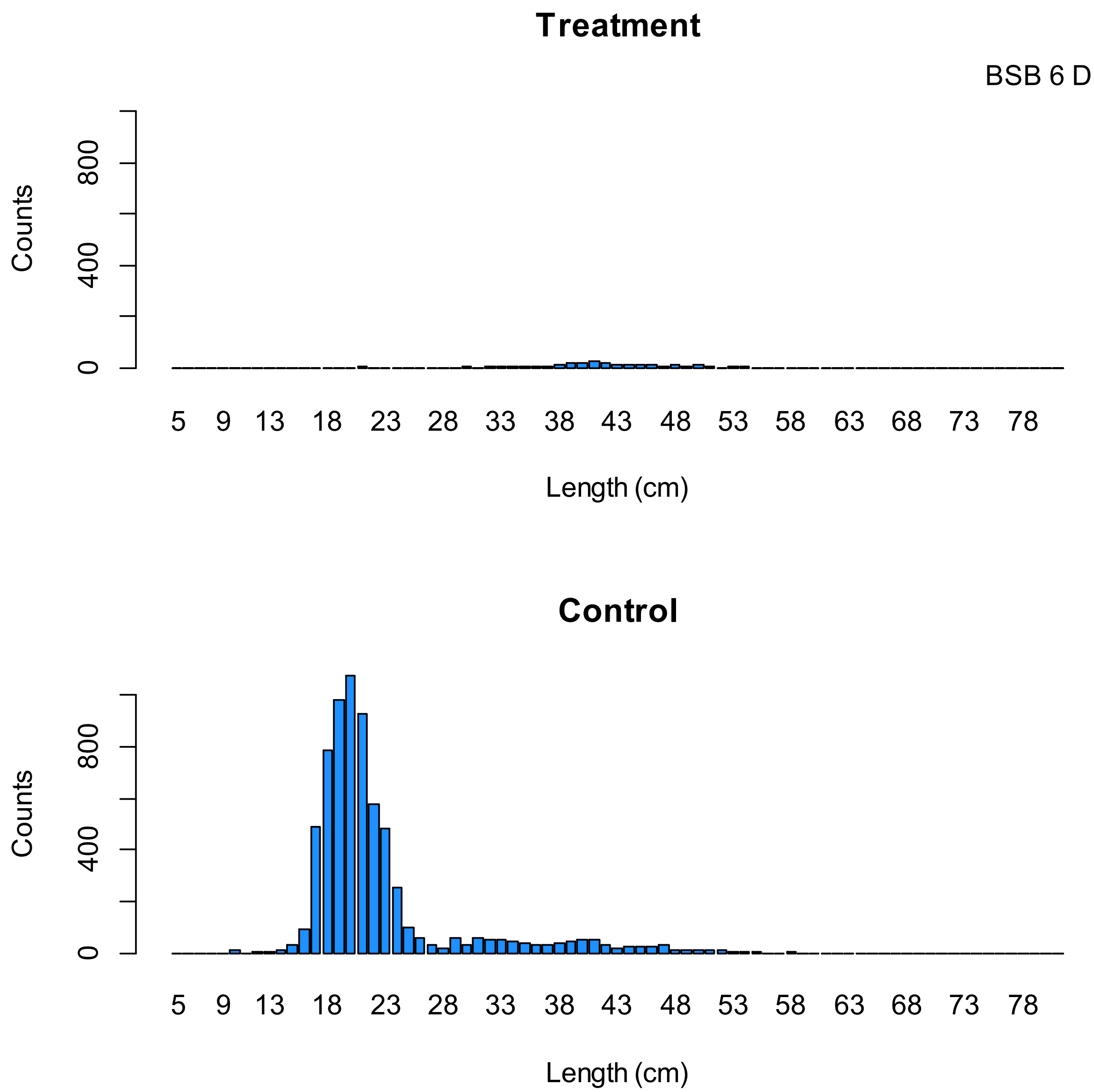


Figure 30. Length frequency distribution of black sea bass in the 6” diamond codend

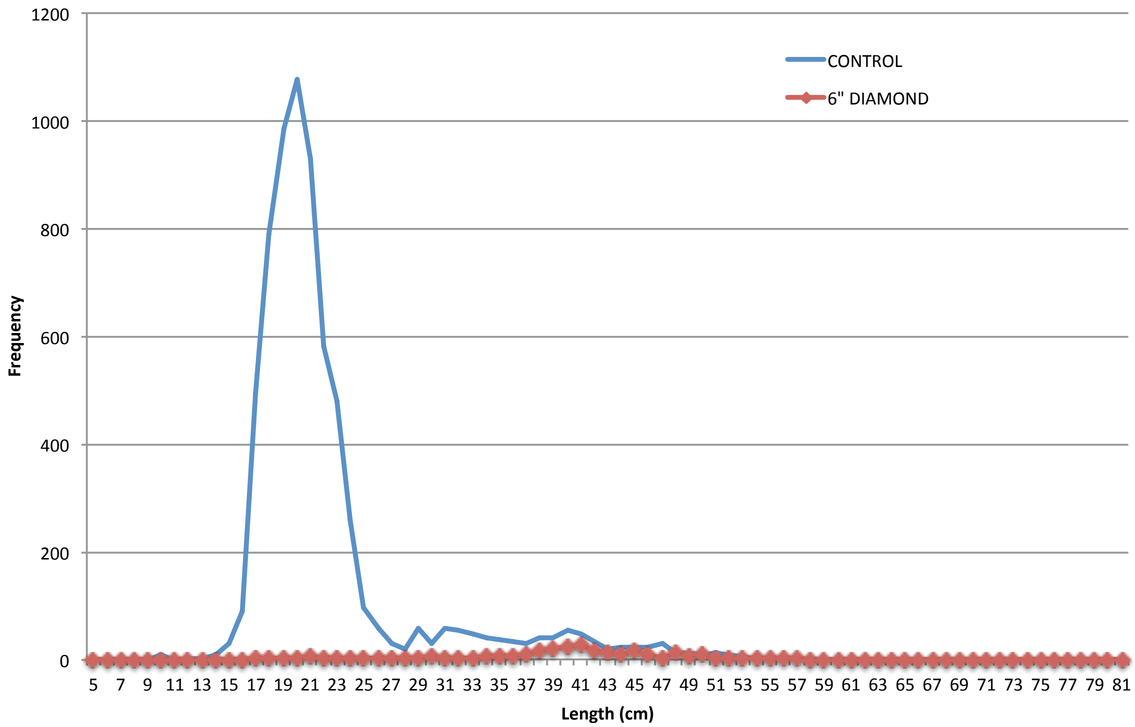


Figure 31. Proportion of catch in treatment codend, deviance residuals, and selectivity curve for black sea bass in the 6” square codend. Vertical lines on the selectivity curve represent L_{25}, L_{50} and L_{75}.

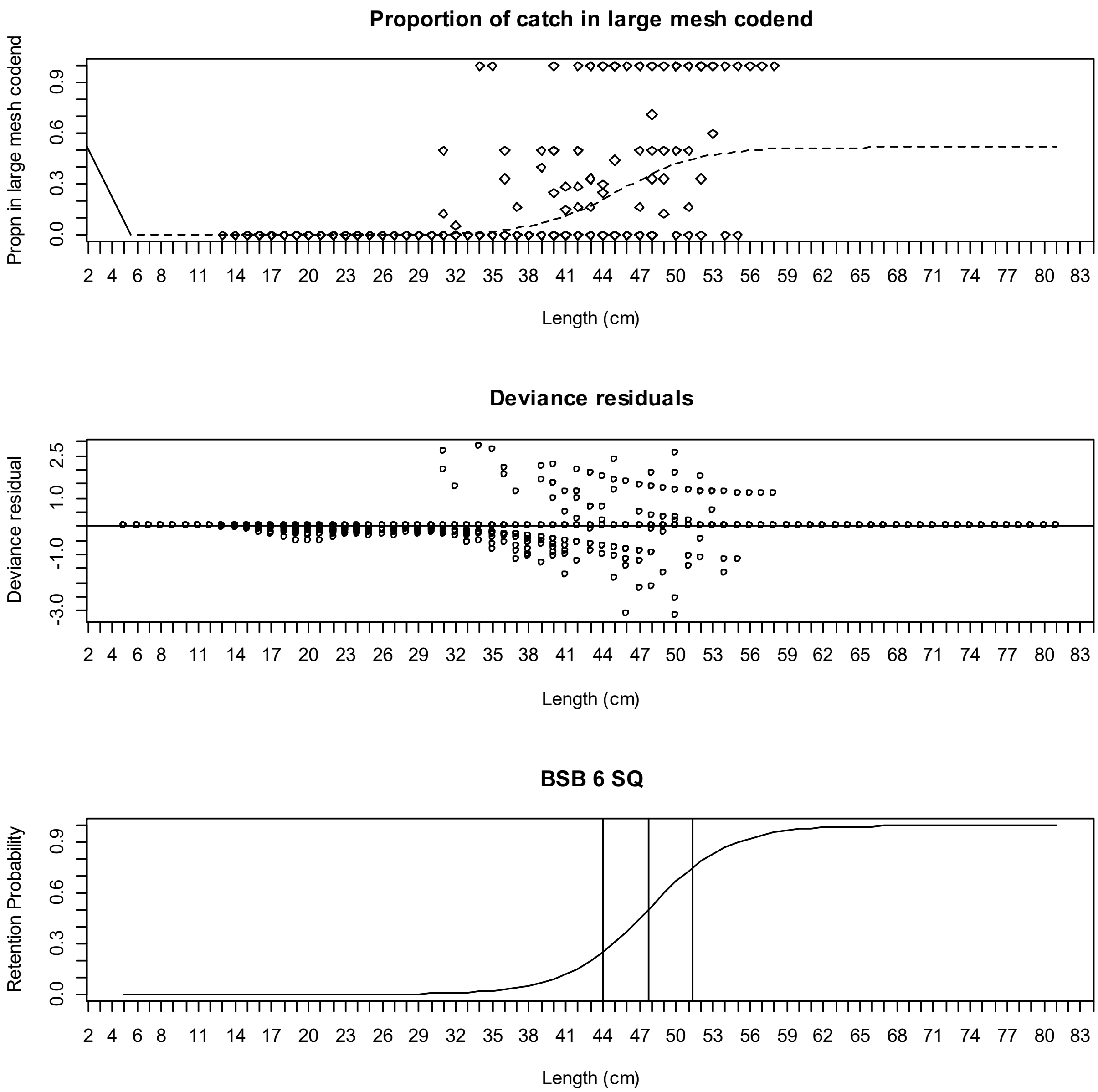


Figure 32. Length frequency distributions in the treatment (6" Square) and control codends for black sea bass

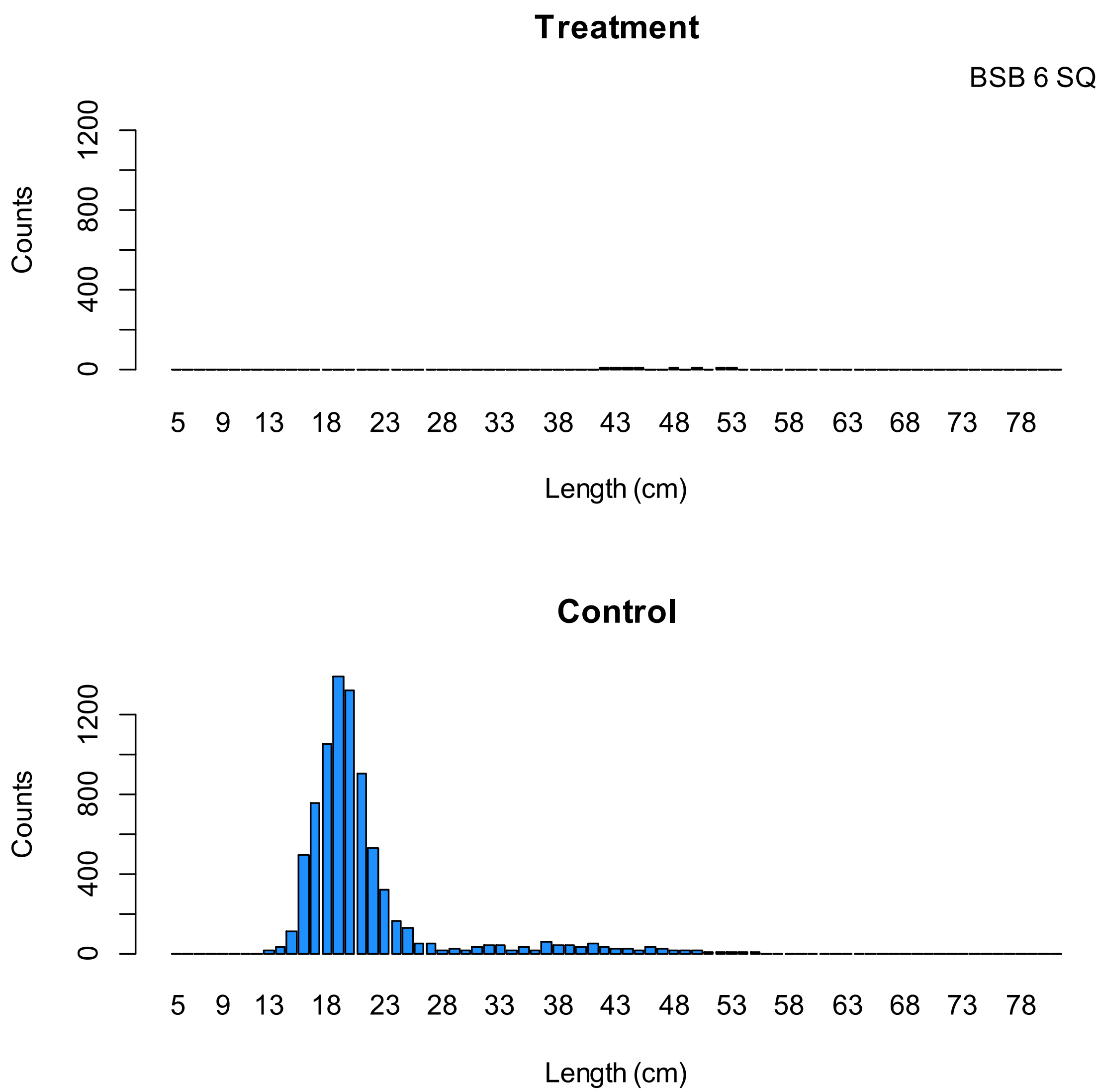


Figure 33. Length frequency distribution of black sea bass in the 6" square codend

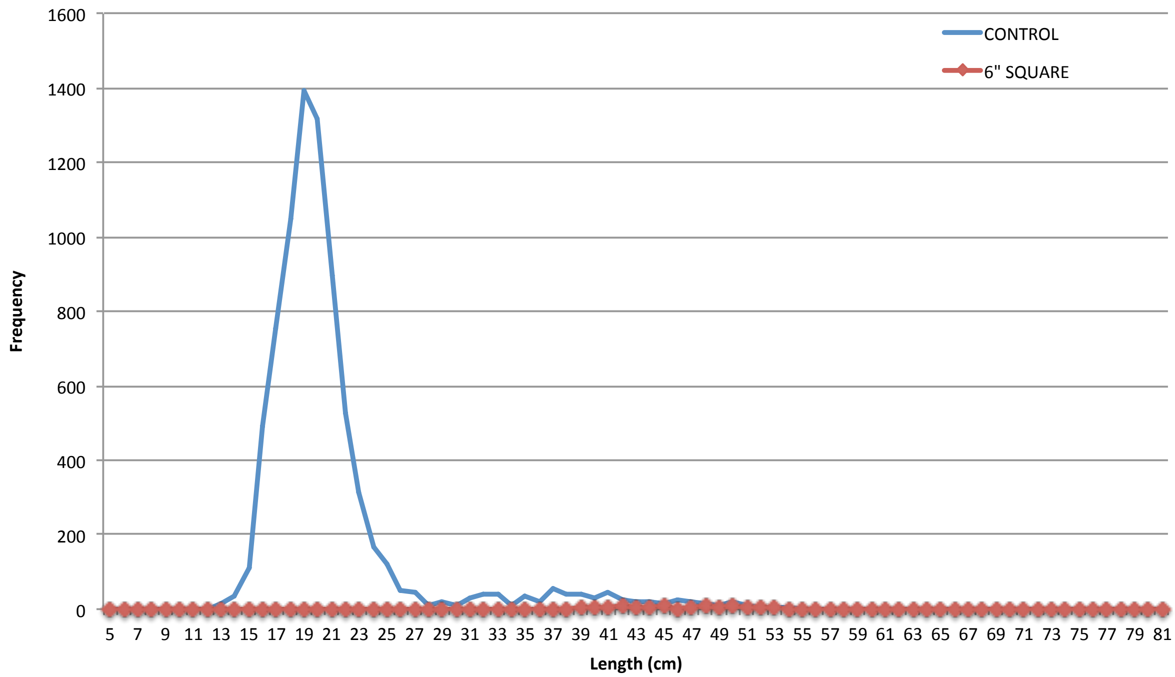
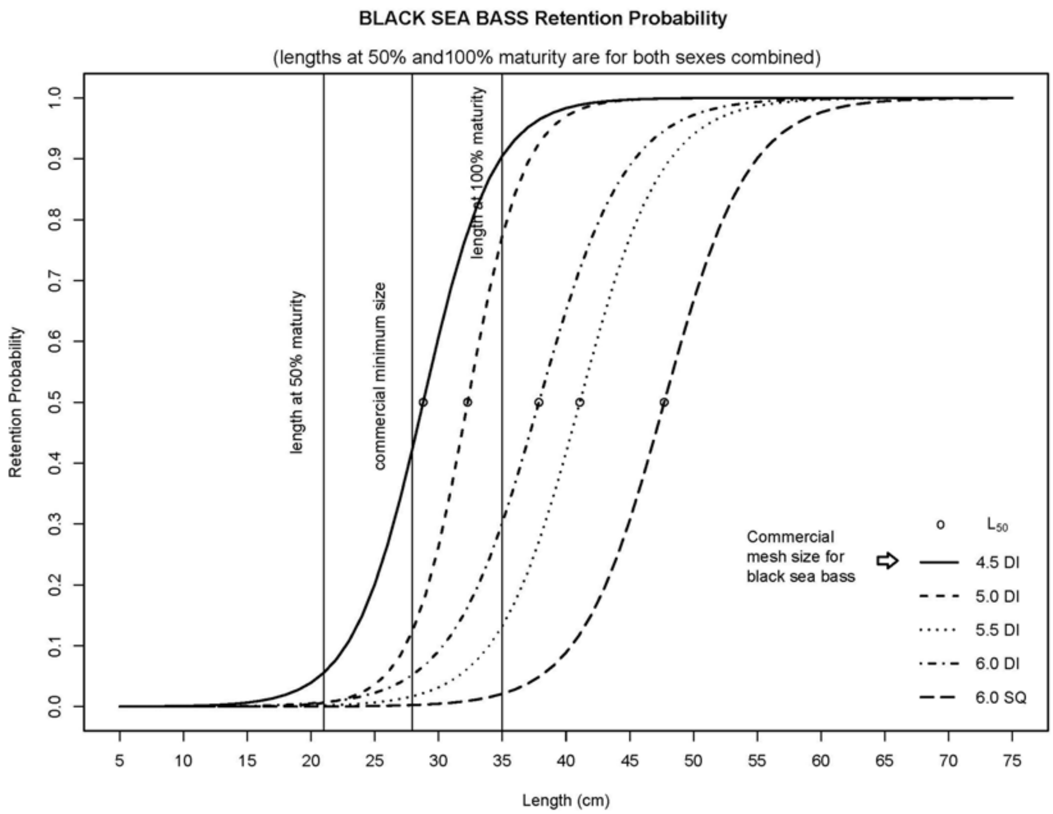


Figure 34. Logistic selectivity curve for black sea bass catches with 5 codends (4.5" diamond, 5" diamond, 5.5" diamond, 6" diamond and 6" square)



Summer Flounder

Table 4. Maximum likelihood fit of logistic selectivity curve parameters for 5 codend mesh sizes and SELECT model goodness-of-fit measures for summer flounder
Standard error is shown in parentheses. Coefficient of variation is shown in double parentheses. 5.5” Diamond and 6” Square are the current regulation minimum mesh sizes.

	4.5" Diamond	5" Diamond	5.5" Diamond	6" Diamond	6" Square
N tows (paired)	24	24	24	24	22
N length classes	55	50	51	47	57
Length class range (cm)	21-75	27-76	28-78	32-78	25-81
a	N/A	-47.78	-16.30	-14.42	-27.72
b	N/A	1.37	0.43	0.35	0.80
p - relative fishing efficiency	N/A	0.49 (0.02)	0.55 (0.02)	0.55 (0.03)	0.50 (0.02)
L_{25} (cm)	N/A	34.07 (0.72) ((0.021))	35.03 (1.19) ((0.034))	38.09 (1.05) ((0.028))	33.29 (1.51) ((0.045))
L_{50} (cm)	N/A	34.87 (0.67) ((0.019))	37.56 (0.87) ((0.023))	41.23 (1.22) ((0.030))	34.67 (1.16) ((0.034))
L_{75} (cm)	N/A	35.67 (1.04) ((0.029))	40.1 (1.39) ((0.035))	44.37 (2.00) ((0.045))	36.04 (1.66) ((0.046))
Selection range	N/A	1.6 (1.17)	5.06 (1.92)	6.28 (2.07)	2.75 (2.18)
Selection factor	N/A	6.94	6.83	6.87	5.78
Model deviance	N/A	144.45	230.77	133.48	92.49
df	N/A	113	178	93	73
p-value	N/A	0.0245	0.0047	.0038	0.0615

The SELECT model can not fit a selectivity curve for summer flounder with the 4.5” diamond codend. As mentioned above, we ran the model with the minimum number of individuals per length bin set at 3 and 1 and in both cases the model can not fit a selectivity curve. As can be seen in Figure 36, the length frequency distribution for the 4.5” diamond codend is nearly identical to the length frequency distribution of the control codend. There is no difference in selectivity for summer flounder in the 4.5” diamond codend.

In the tows using the 4.5” diamond codend we did not catch many small summer flounder in either the control or experimental codends. There were many tows with zero or very few individual summer flounder in the small size length bins. This was also the case for summer flounder in the tows for the other mesh sizes as well.

Other recent studies have also experienced reduced catches of summer flounder at smaller sizes. Length frequency distribution from the NEAMAP survey shows decreasing numbers of small fish in the fall survey from 2012 to 2016 (VIMS, 2017). Likewise, the NMFS trawl survey shows decreasing numbers of small fish during the 2016 spring and 2017 spring surveys (NEFSC, 2018). The NMFS 2017 Sweep Efficiency Survey for Summer Flounder also caught very few smaller fish (Manderson, NEFSC, personal communication).

Figure 35. Length frequency distributions in the treatment (4.5" Diamond) and control codends for summer flounder

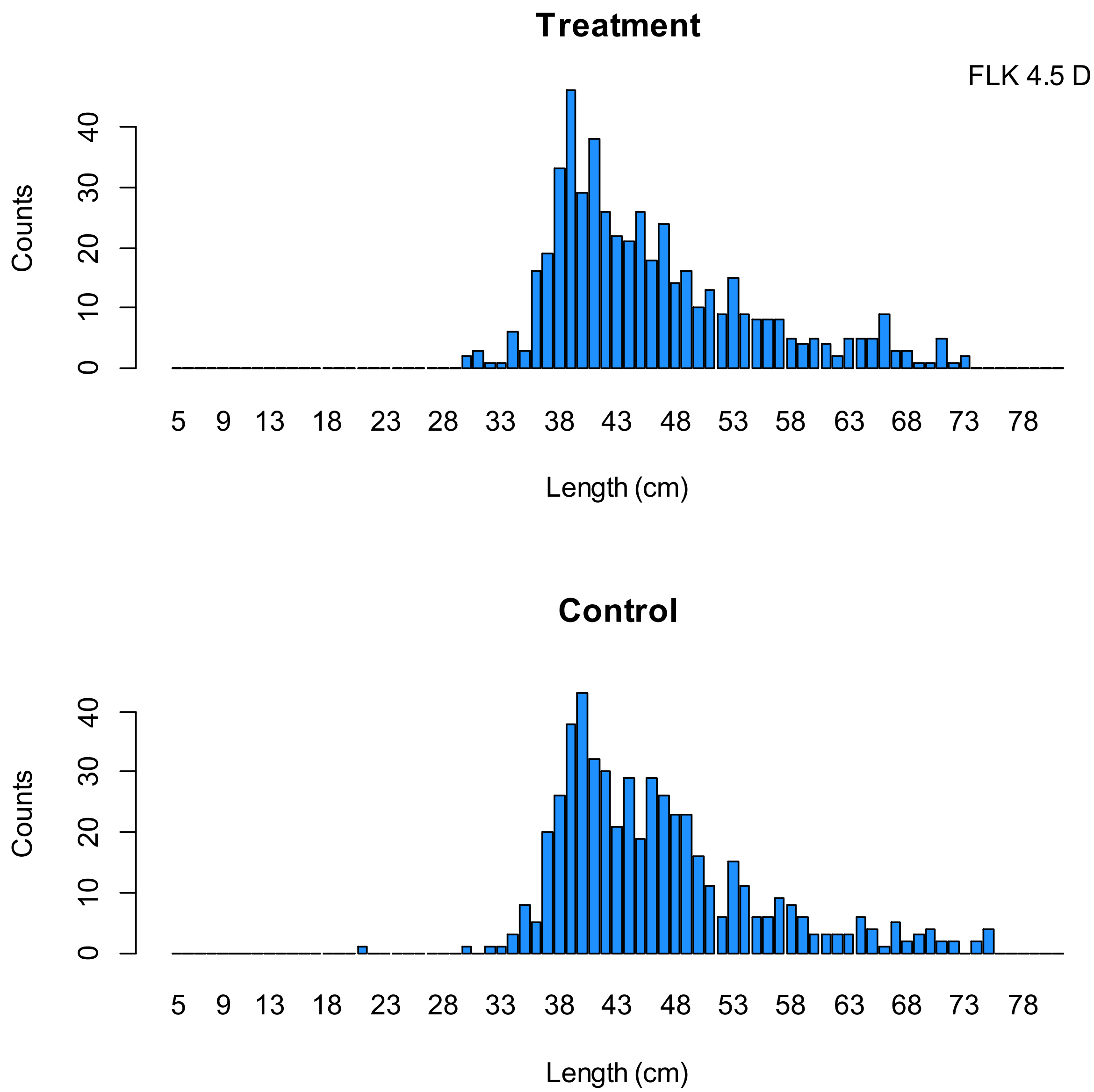


Figure 36. Length frequency distribution of summer flounder in the 4.5" diamond codend

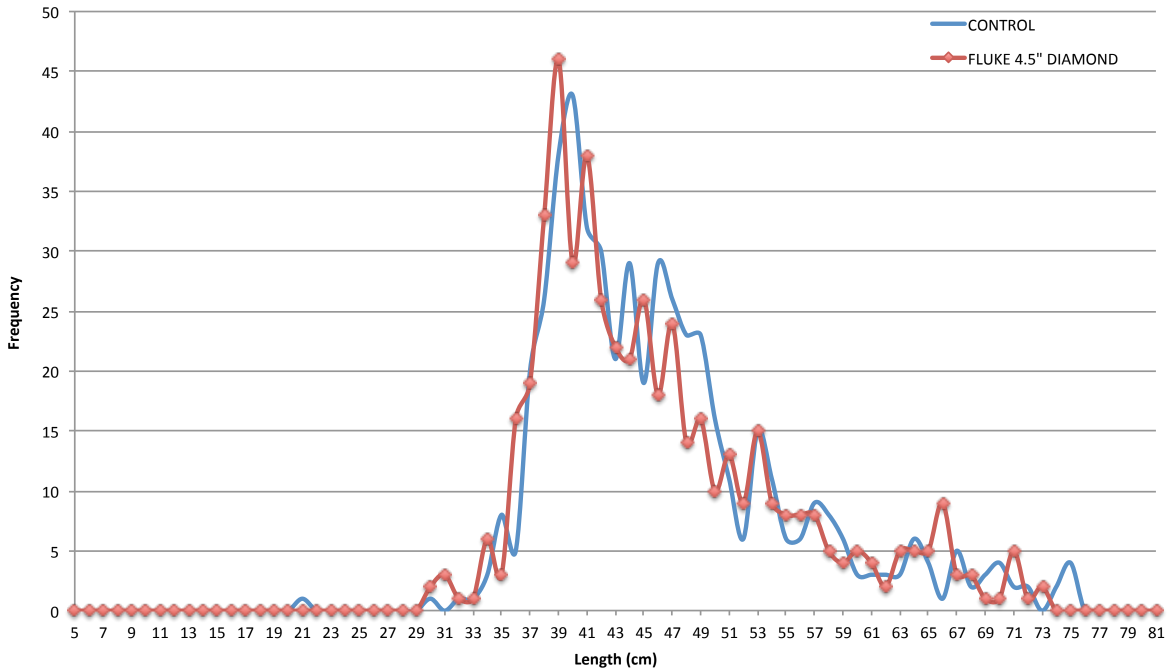


Figure 37. Proportion of catch in treatment codend, deviance residuals, and selectivity curve for summer flounder in the 5” diamond codend. Vertical lines on the selectivity curve represent L_{25}, L_{50} and L_{75}.

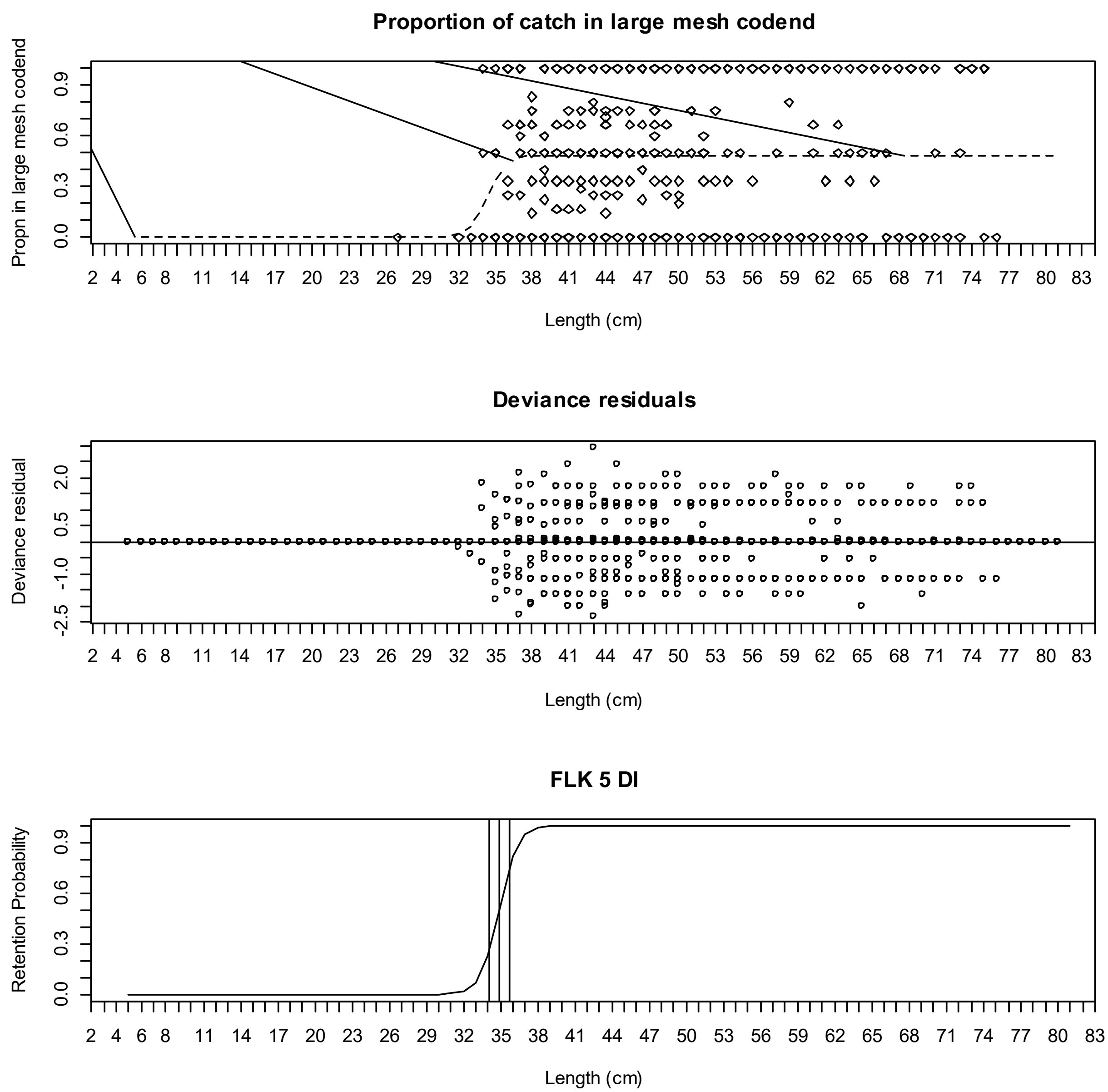


Figure 38. Length frequency distributions in the treatment (5" Diamond) and control codends for summer flounder

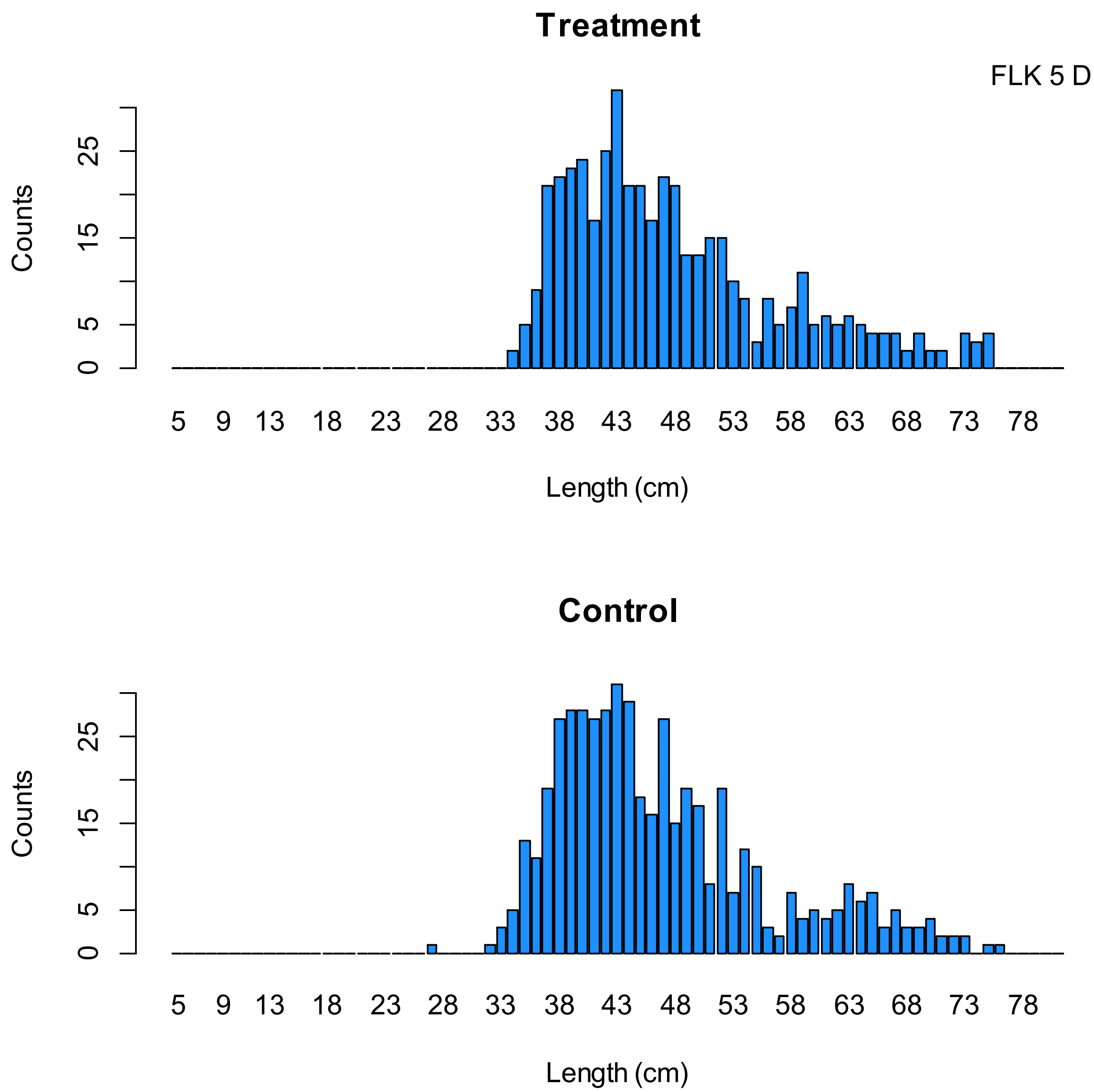


Figure 39. Length frequency distribution of summer flounder in the 5" diamond codend

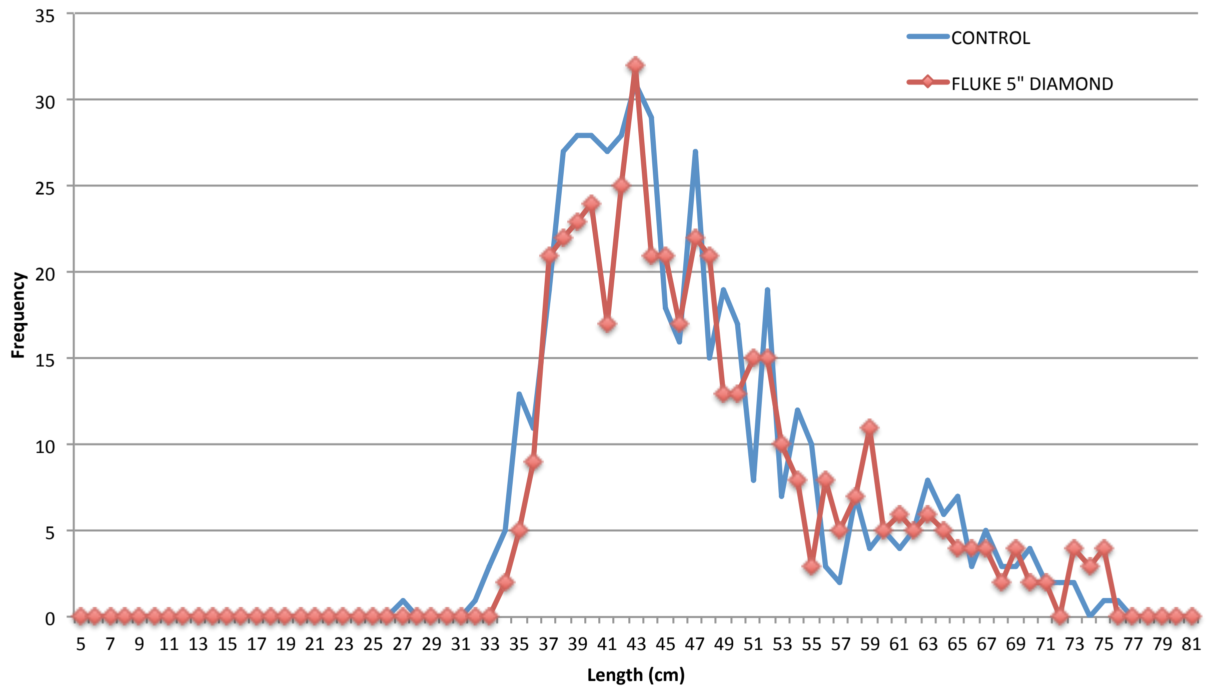


Figure 40. Proportion of catch in treatment codend, deviance residuals, and selectivity curve for summer flounder in the 5.5" diamond codend. Vertical lines on the selectivity curve represent L_{25}, L_{50} and L_{75}.

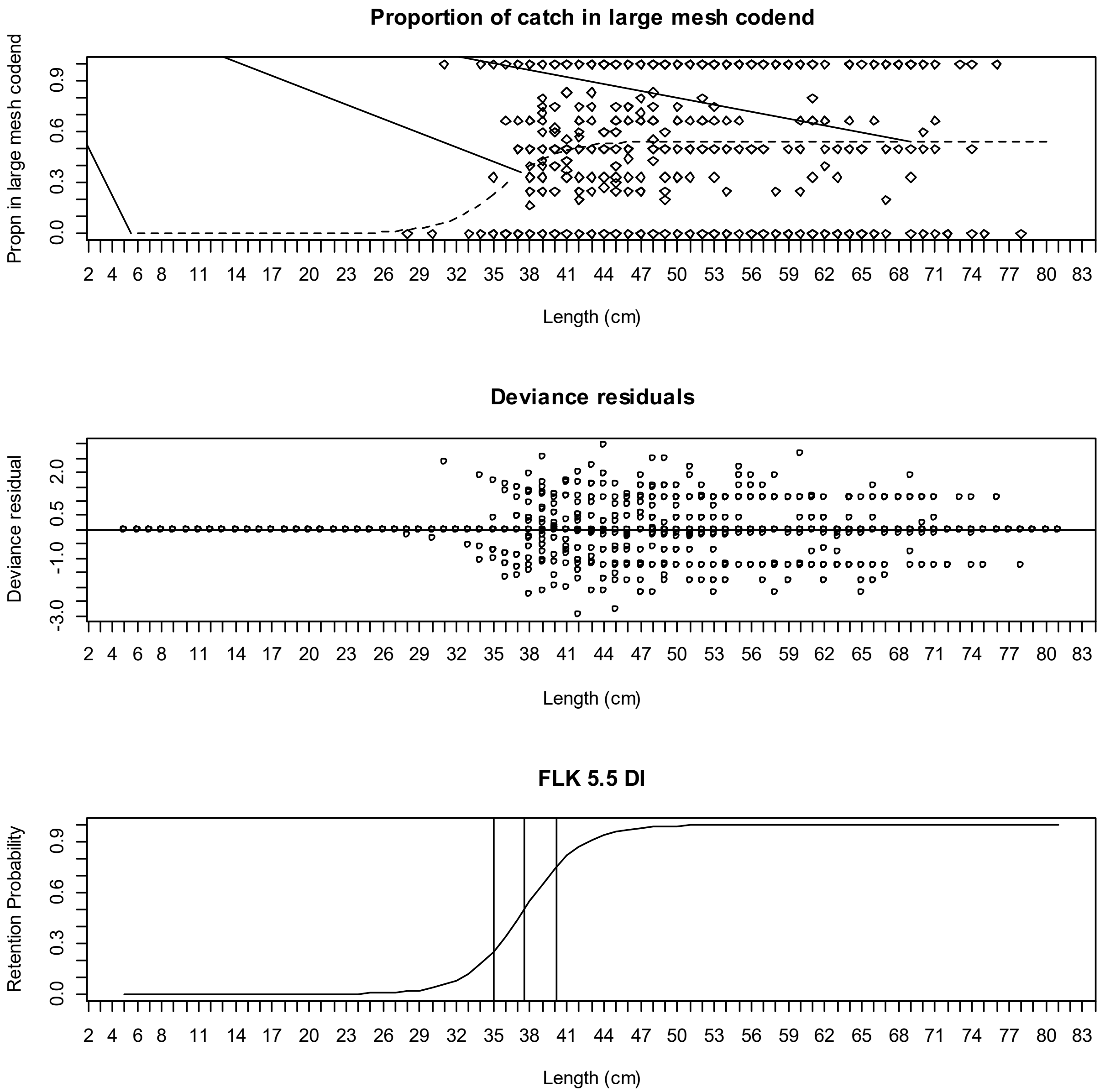
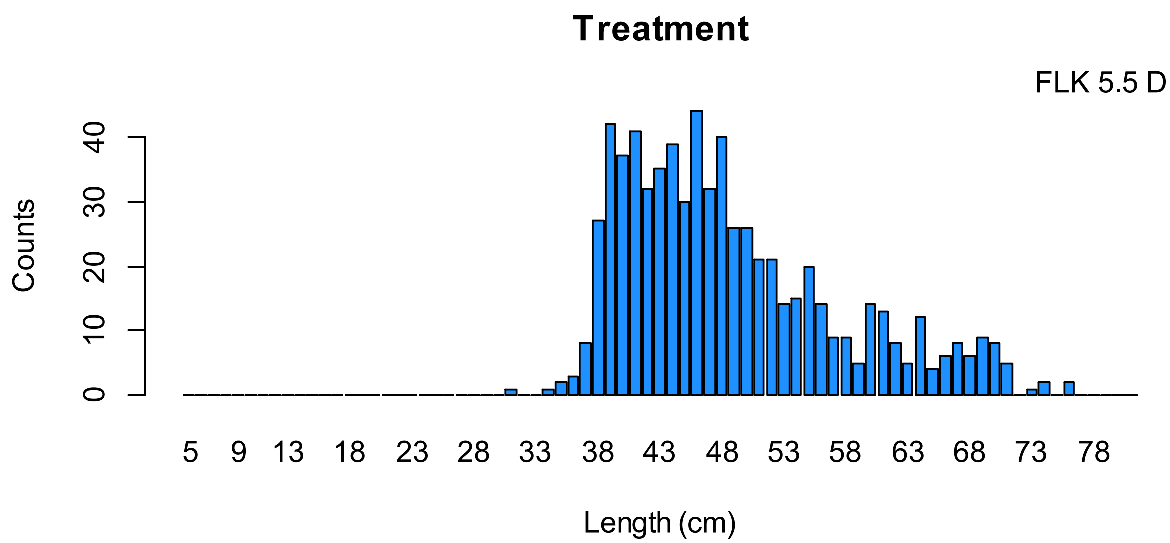


Figure 41. Length frequency distributions in the treatment (5.5” Diamond) and control codends for summer flounder



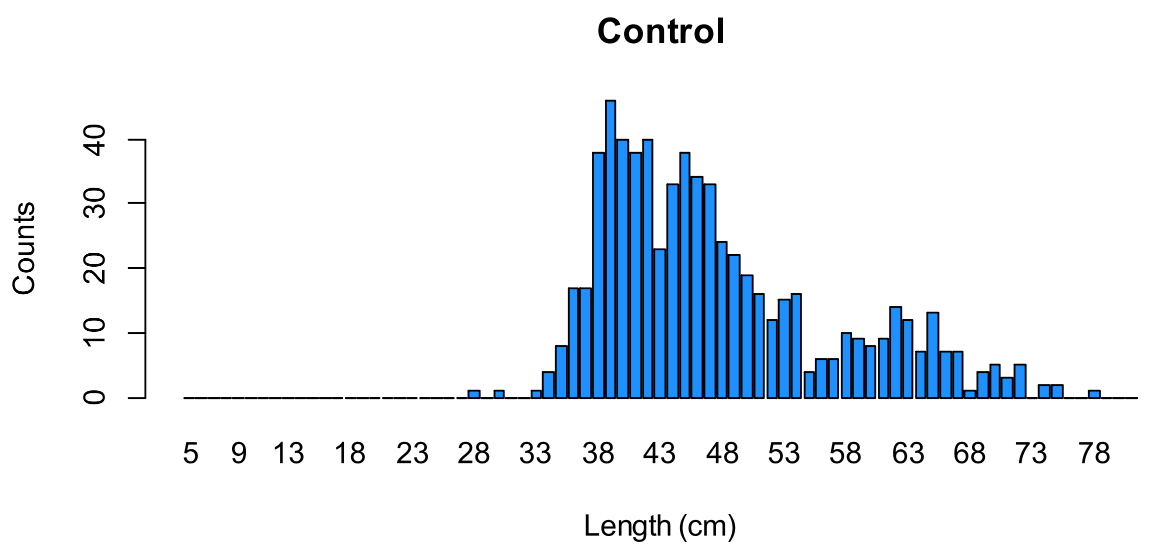


Figure 42. Length frequency distribution of summer flounder in the 5.5" diamond codend

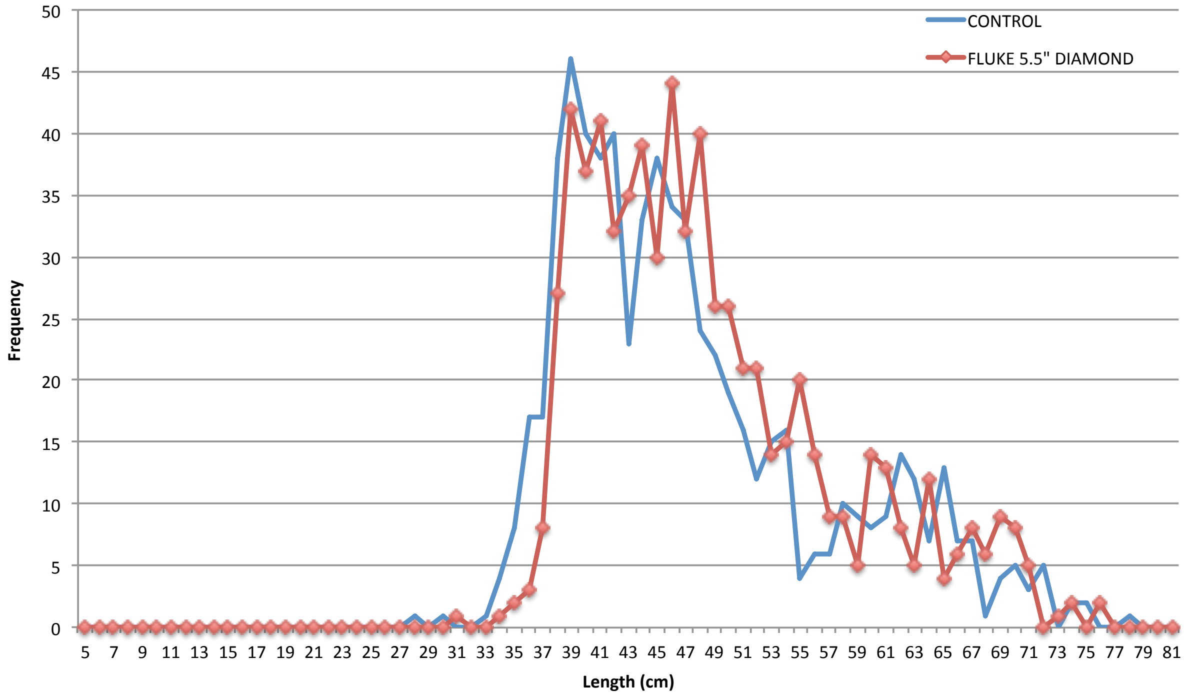


Figure 43. Proportion of catch in treatment codend, deviance residuals, and selectivity curve for summer flounder in the 6" diamond codend. Vertical lines on the selectivity curve represent L_{25}, L_{50} and L_{75}.

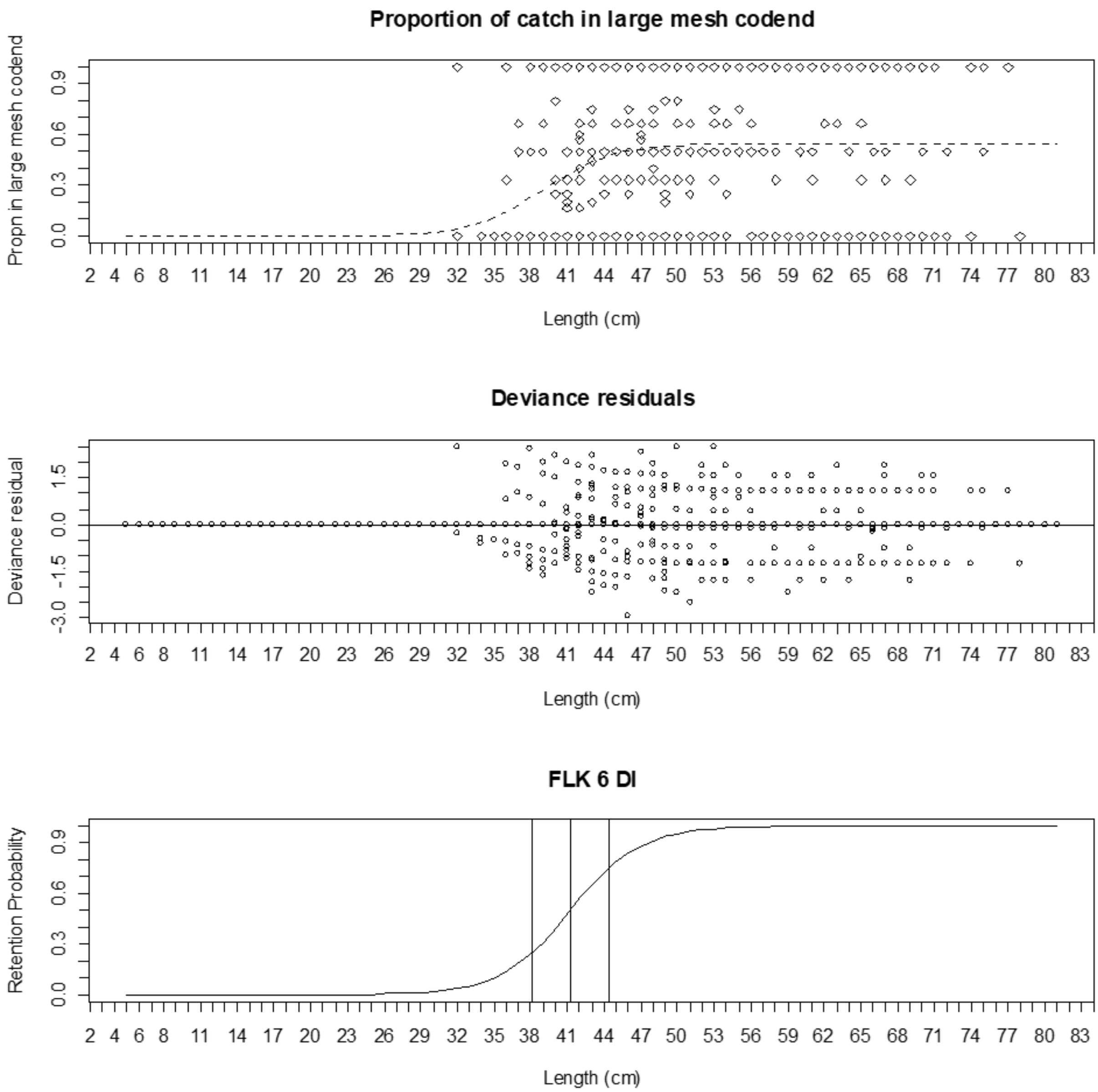


Figure 44. Length frequency distributions in the treatment (6" Diamond) and control codends for summer flounder

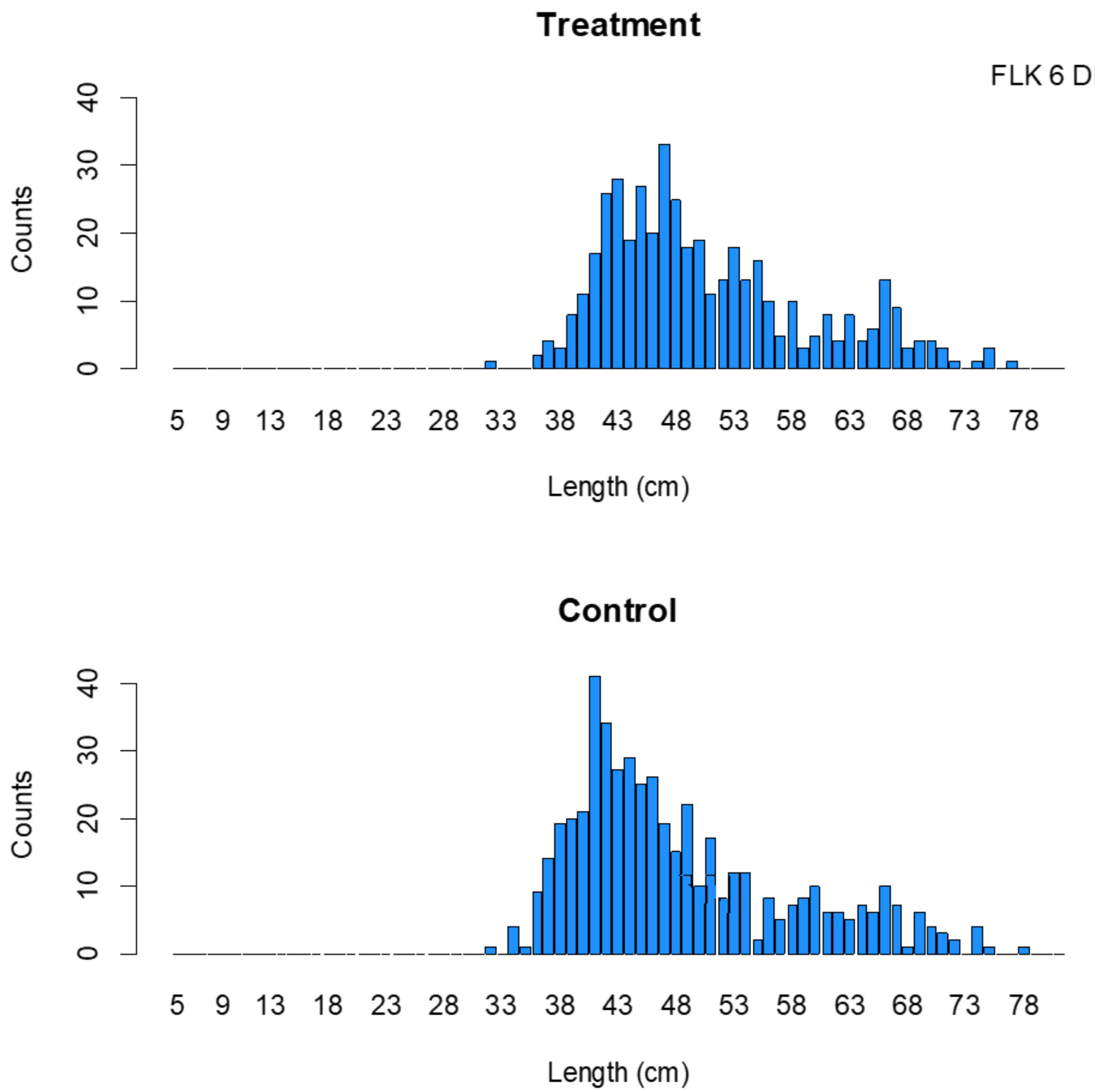


Figure 45. Length frequency distribution of summer flounder in the 6” diamond codend

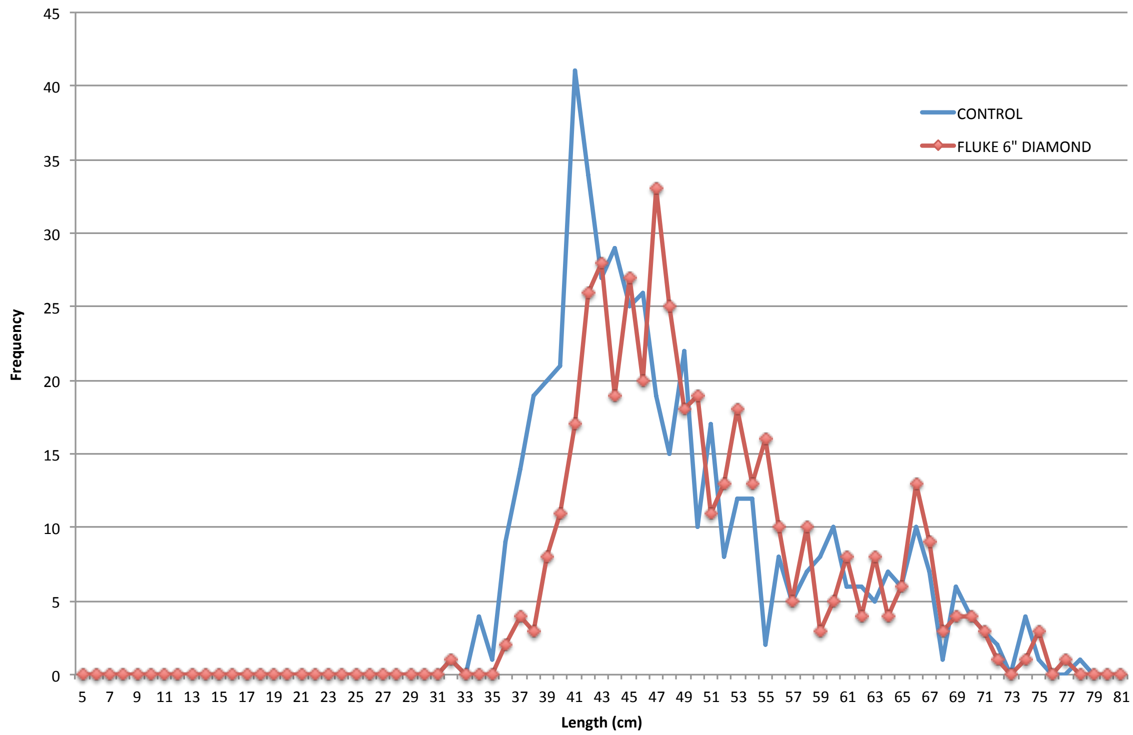


Figure 46. Proportion of catch in treatment codend, deviance residuals, and selectivity curve for summer flounder in the 6" square codend. Vertical lines on the selectivity curve represent L_{25}, L_{50} and L_{75}.

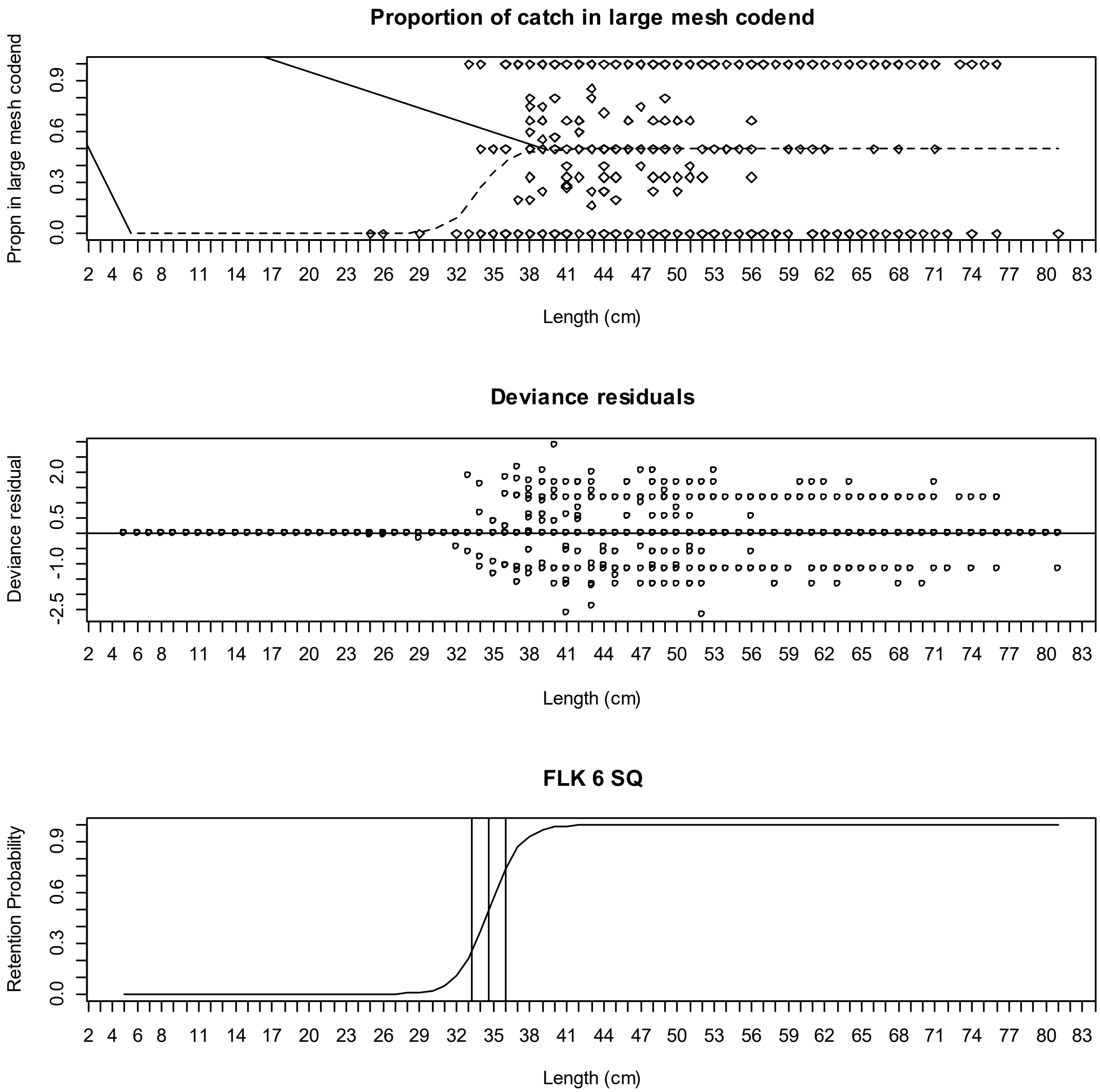


Figure 47. Length frequency distributions in the treatment (6" Square) and control codends for summer flounder

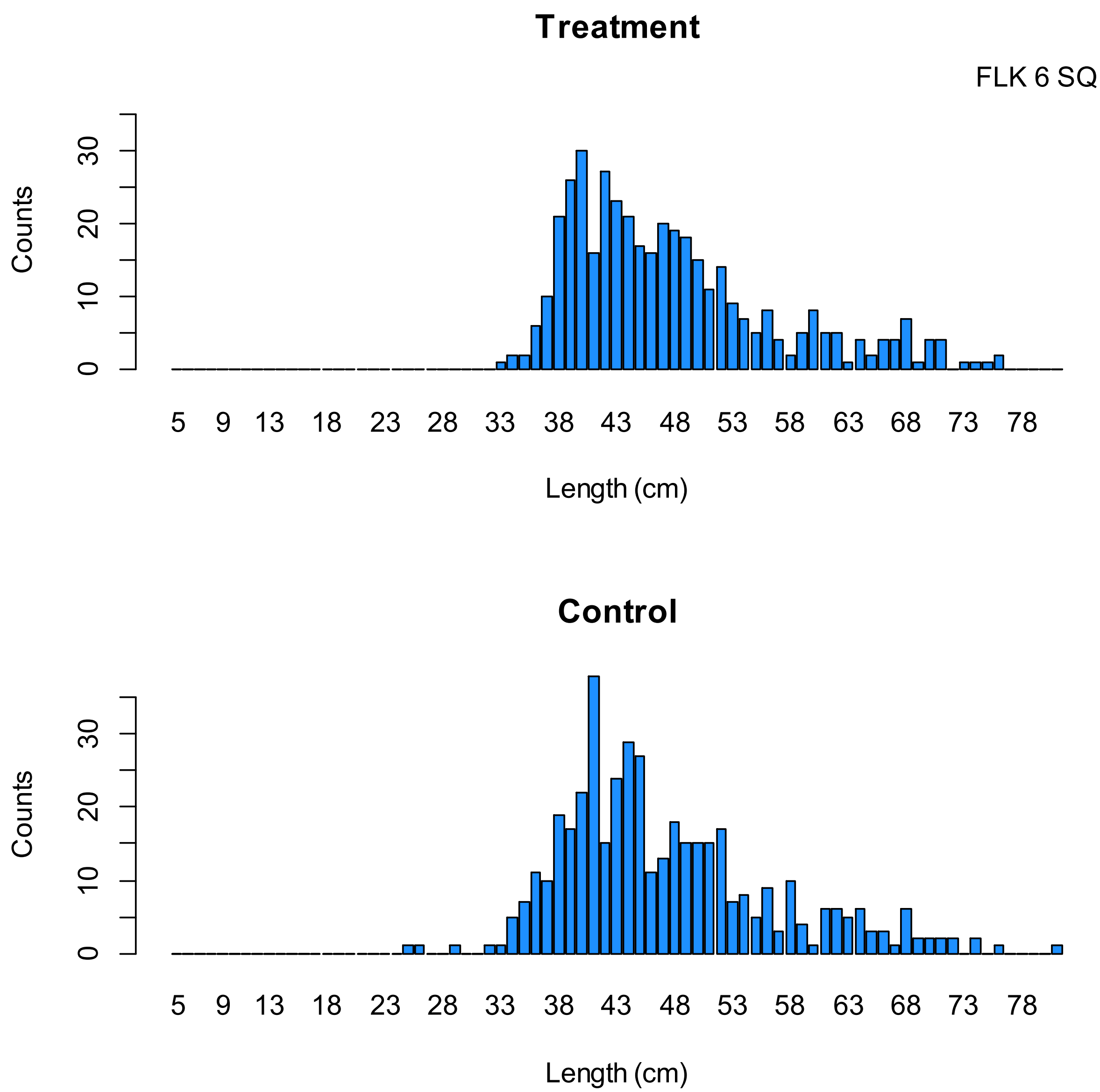


Figure 48. Length frequency distribution of summer flounder in the 6” square codend

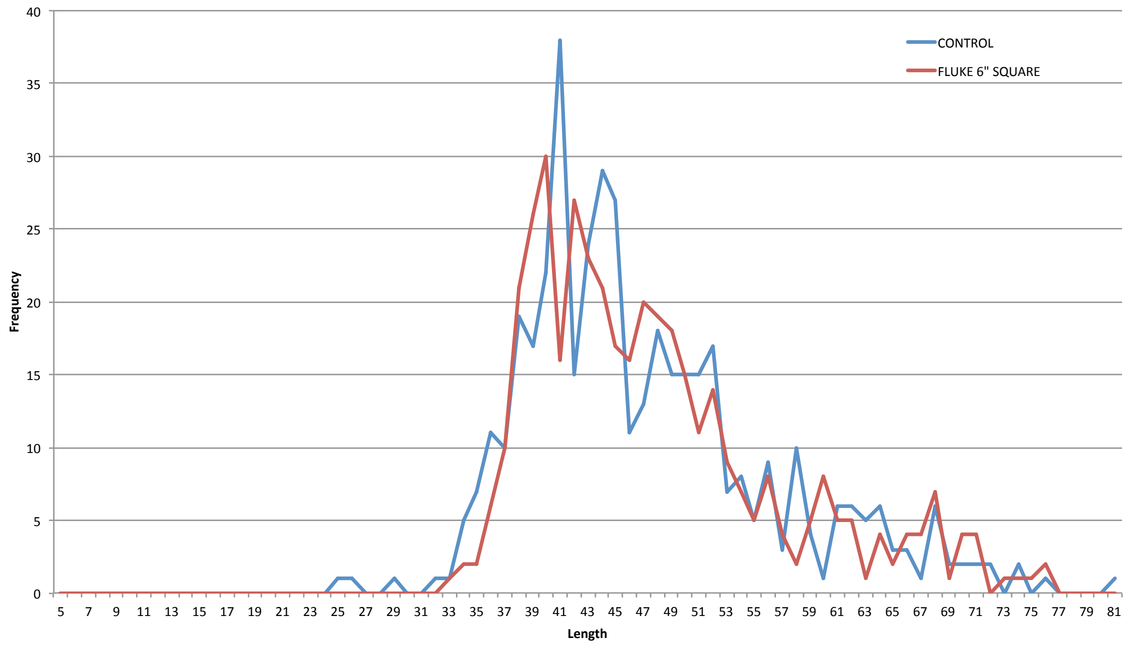
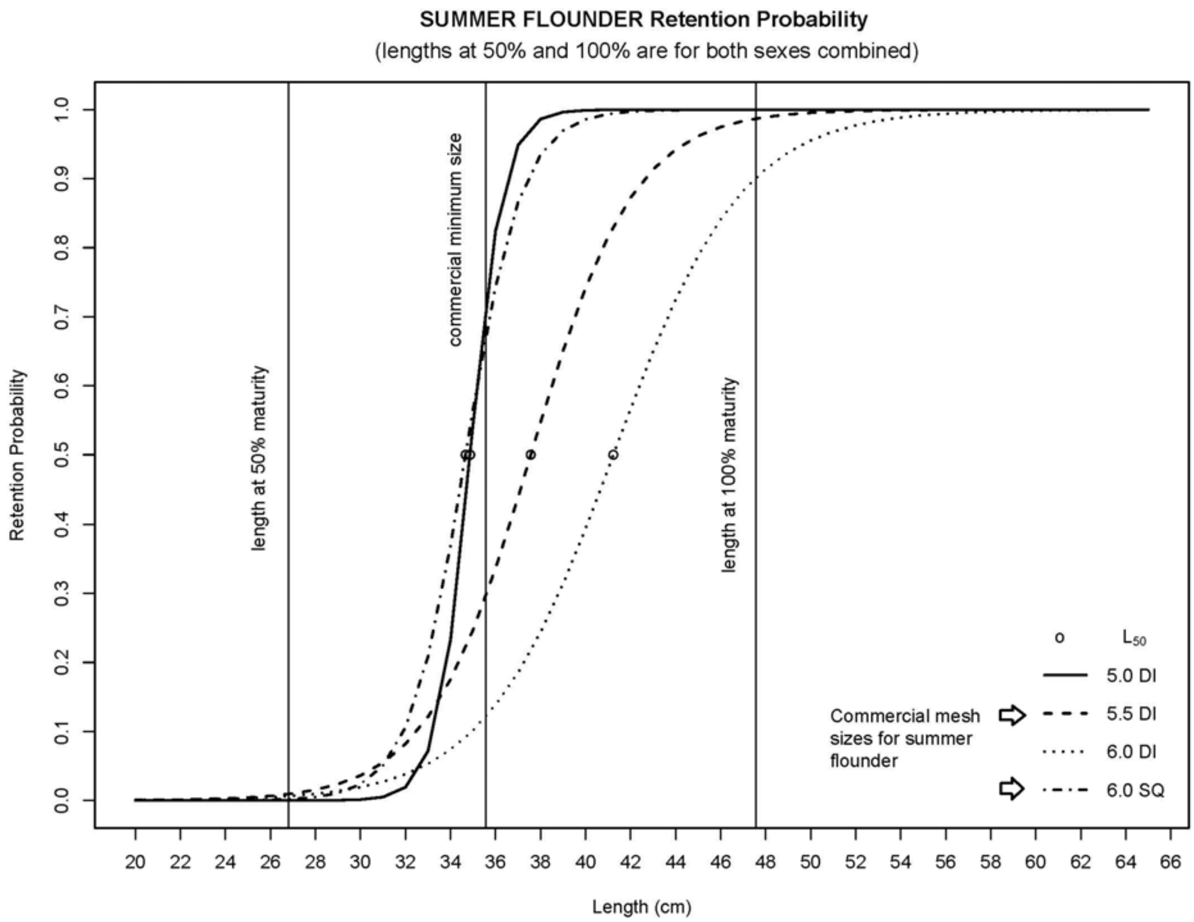


Figure 49. Logistic selectivity curve for summer flounder catches with 5 codends (4.5" diamond, 5" diamond, 5.5" diamond, 6" diamond and 6" square)



The selectivity curves were also plotted by codend mesh size with all species on each plot.

Figure 50. Logistic selectivity curves for 4.5" diamond mesh codend for black sea bass and scup. (Note: No selectivity was observed for summer flounder)

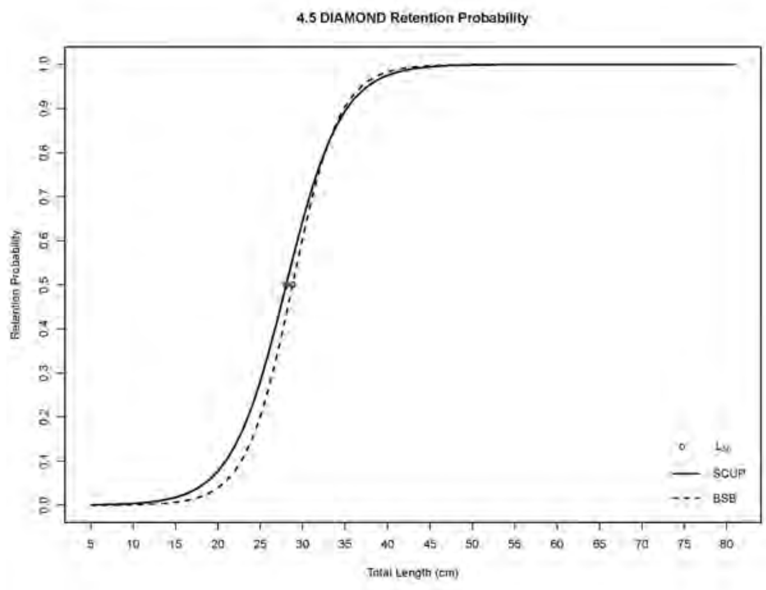


Figure 51. Logistic selectivity curves for 5" diamond mesh codend for black sea bass, summer flounder and scup

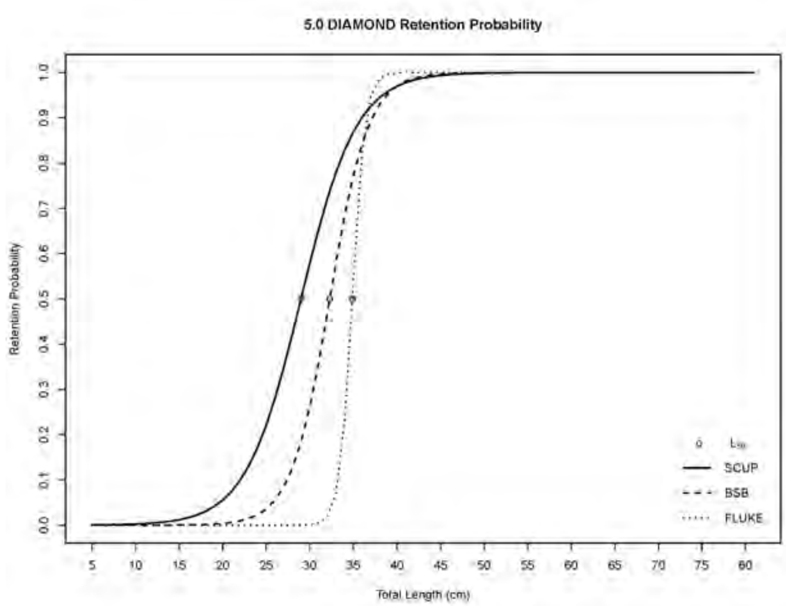


Figure 52. Logistic selectivity curves for 5.5" diamond mesh codend for black sea bass, summer flounder and scup

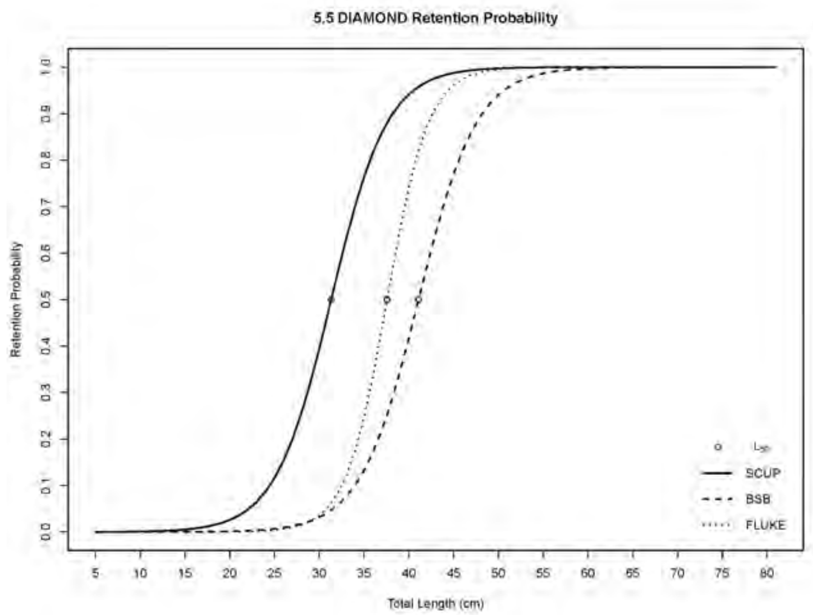


Figure 53. Logistic selectivity curves for 6" diamond mesh codend for black sea bass, summer flounder and scup

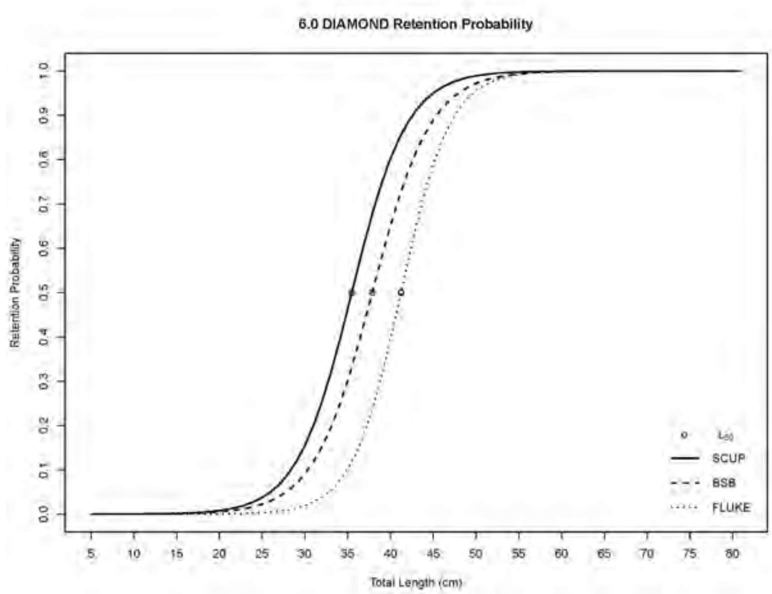
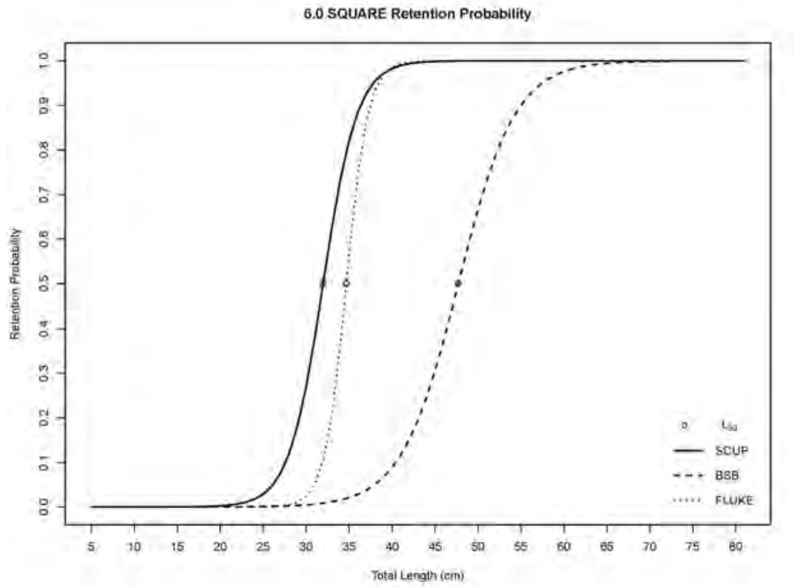


Figure 54. Logistic selectivity curves for 6" square mesh codend for black sea bass, summer flounder and scup



DISCUSSION

In Table 5 we provide the commercial minimum size, the length at 50% maturity (sexes combined) and length at 100% maturity (sexes combined) for scup, black sea bass and summer flounder. Using these values and the selectivity parameters generated for each species/codend combination we can evaluate the effectiveness of each codend mesh size to help meet management goals.

Table 5. Commercial Minimum Size and Length at Maturity For Scup, Black Sea Bass, and Summer Flounder

	Commercial Minimum Size (cm)	Length at 50% maturity (cm) for both sexes combined	Length at 100% maturity (cm) for both sexes combined
Scup (Total Length)	22.86[1]	17.0[2]	26.24[2]
Black Sea Bass	27.94[1]	21.0[3]	35.0[3]
Summer Flounder	35.56[1]	26.8[4]	47.57[4]

[1]New York State Department of Environmental Conservation (NYSDEC, 2018) [2] 60th Stock Assessment Workshop Report, Scup (Northeast Fisheries Science Center, 2015) [3] 62nd Stock Assessment Report, Black Sea Bass (NEFSC, 2017) [4] 57th Stock Assessment Workshop, Summer Flounder (NEFSC, 2013)

Scup

For scup, the current regulation mesh size is 5.0” diamond. The commercial minimum fish size (22.86 cm TL) is less than the L_{25} for all the experimental codend mesh sizes of this study. All tested codend sizes are effective at releasing at least 75% of scup that are at or less than the minimum size. All experimental codend mesh sizes release a large proportion of all legal sized fish, particularly with the 5.5” diamond, the 6” diamond and the 6” square. The size of scup at 50% maturity (sexes combined) is 17.0 cm TL (NEFSC, 2015). This is considerably less than the L_{25} for all the experimental codend mesh sizes. All tested codend mesh sizes are effective at releasing at least 75%, and likely at least 95%, of scup at or less than the length at 50% maturity. The size of scup at 100% maturity (sexes combined) is 26.24 cm (NEFSC, 2015). This is less than the L_{50} for all the experimental codend mesh sizes and is less than the L_{25} for 5.5” diamond, 6” diamond and 6” square. All tested codend mesh sizes are effective at releasing at least 50% of scup which are 100% mature. Further, the 5.5” diamond, 6” diamond and 6” square codends release at least 75% of scup that are 100% mature.

It is also interesting to note that the L_{25}, L_{50} and L_{75} parameters for the 6” square codend are less than these parameters in the 6” diamond codend. Given the same size mesh, scup escape more effectively through diamond meshes than through square meshes.

Black Sea Bass

For black sea bass, the current regulation mesh size is 4.5” diamond. The minimum commercial fish size (27.94 cm TL) is less than the L_{50} for all the experimental codend mesh sizes and is less than the L_{25} for all the experimental codend mesh sizes except for the 4.5” diamond. All codends release at least 50% of black sea bass that are at or less than the minimum fish size, and 4 of the 5 codends release at least 75% of black sea bass that are at or below the minimum size. The size of black sea bass at 50% maturity (sexes combined) is 21.0cm TL (NEFSC, 2017). This is considerably less than the L_{25} for all the experimental codend mesh sizes. All tested codends are effective at releasing at least 75%, and likely at least 90%, of black sea bass that are at or below the length at 50% maturity. The size of black sea bass that are at 100% maturity (sexes combined) is 35.0cm (NEFSC, 2017). This is less than the L_{50} for 5.5" diamond, 6" diamond and 6" square. Those three codends are effective at releasing at least 50% of black sea bass which are 100% mature. The other two codends release less than 50% of black sea bass that are 100% mature.

Summer Flounder

As mentioned above, there are no selectivity parameters for the 4.5" diamond codend as there are no differences in the length frequency distribution in the control codend and in the 4.5" diamond experimental codend.

For summer flounder, the current regulation mesh is 5.5" diamond or 6" square. The minimum commercial size is 35.56 cm. This is less than the L_{50} for the 5.5" diamond and the 6" diamond codends. These two codends are effective in releasing at least 50% of the fish that are at or below the minimum size. For the other two codends, the L_{50} is less than the minimum size so they release less than 50% of minimum size fish. The 6" diamond is the only codend where the minimum size is less than the L_{25}. The size of summer flounder at 50% maturity (sexes combined) is 26.8 cm (NEFSC, 2013). This is considerably less than the L_{25} for all 4 experimental codend mesh sizes. All 4 codends are effective at releasing at least 75% or more of summer flounder that are at the length of 50% maturity. The size of summer flounder at 100% maturity (sexes combined) is 47.57 cm (NEFSC, 2013). This is above the L_{75} for all experimental codends. None of our tested codends are effective at releasing summer flounder that are 100% mature. It should also be noted that for the 6" square codend the L_{25} and L_{50} are less than these parameters for the other three codends. The L_{75} for the 6" square is less than for the 6" diamond and the 5.5" diamond. The selectivity curves for the 5" diamond and the 6" square are very similar. However, as mentioned above, we did not catch a lot of smaller size fish.

CONCLUSIONS

The mesh selectivity study as proposed was successfully developed and implemented. Maximum likelihood fit of selectivity parameters and selectivity curves were developed for scup, black sea bass and summer flounder for the following experimental codend mesh sizes: 4.5" diamond (except for summer flounder); 5" diamond; 5.5" diamond; 6" diamond; 6" square.

For scup, the 5" diamond regulation mesh is very effective in releasing fish that are at or less than the minimum size as well fish that are at 50% maturity and 100% maturity. In fact, all tested codends are effective at releasing scup at minimum length, 50% maturity and 100% maturity. For the 4.5" diamond codend, minimum size and size at 50% maturity are less than the L_{25}. The size at 100% maturity is less than the L_{50} and only slightly greater than the L_{25}. For these reasons a 4.5" diamond codend could be considered as a common regulation mesh codend for both scup and black sea bass. Figure 50, Logistic selectivity curves for 4.5” diamond mesh codend for black sea bass and scup shows that for the 4.5” codend the selectivity curves for scup and black sea bass are nearly identical. Input would be needed from industry to determine how this might affect catch, market and market price for scup. Since the 5.5” diamond, the 6” diamond and the 6” square allow many large fish to escape, these meshes would likely be impractical in the fishery.

For black sea bass, the 4.5” diamond regulation mesh is effective at releasing fish that are at or less than the minimum size and is very effective at releasing fish that are at 50% maturity. All tested codends are effective at releasing black sea bass at the minimum size and at 50% maturity. The regulation mesh is less effective at releasing fish of the size at 100% maturity than the 5.5” diamond, the 6” diamond and the 6” square. A 5” diamond mesh could be considered as a common regulation mesh codend for both black sea bass and scup. Input would be needed from industry to determine how this might affect catch, market and market price for black sea bass. Since the 5.5” diamond, the 6” diamond and the 6” square allow many large fish to escape, these meshes would likely be impractical in the fishery.

For summer flounder, the 5.5” diamond regulation codend is effective at releasing fish that are at or less than the commercial minimum size and fish that are at 50% maturity. The 6” square regulation mesh codend is less effective at releasing fish that are at minimum size. The minimum size is slightly greater than the L_{50} for this codend. The 6” square codend is effective at releasing fish at 50% maturity. None of the mesh sizes tested are effective at releasing summer flounder at 100% maturity.

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Appendices

Appendix A. Background Information

Summer Flounder

In 1988 the summer flounder Fishery Management Plan (FMP) was developed. The original FMP required a 13-inch total length (TL) commercial minimum fish size. Under the FMP the mesh size for otter trawl nets was not regulated (MAFMC, 1988). Amendment 2 further designated a 5.5-inch diamond and 6-inch square mesh to be the minimum mesh requirements for the cod end only (MAFMC, 1992). A 5.5-inch diamond mesh was found to retain about 70% of the 14-inch summer flounder that encounter the net (Anderson et al., 1983). Anderson et al. experienced many obstacles and the results of this study leave lessons to learn from. Multiple mesh size cod ends were used because each boat used a different twine type. Also, the data collected and analyzed used outdated statistical methods (Anderson et al., 1983). The MAFMC review of Commercial Management Measures reports

> At the time the Council and Commission recognized that 5.5-inch diamond mesh would also retain some 13-inch summer flounder, and believing that fishermen would target 14-inch and larger summer flounder, implemented a 13-inch size limit to minimize discards of 13 to 14-inch fish. [MAFMC, 2015, p. 2]

In efforts to make regulations more consistent between commercial and recreational the minimum size for summer flounder was revised to 14 inches in 1997 (MAFMC, 2015). As stated in Amendment 2, square mesh selectivity data was "limited" when developing the summer flounder FMP (MAFMC, 1992). The equivalency of a 5.5" diamond mesh net selectivity to a 6.0" square mesh net for summer flounder reported in Amendment 2 was based on the following sources:

> First, Amendment 4 to the Northeast Multispecies FMP from NEFMC in 1990 states: "The use of square mesh codends is known to significantly increase the retention of small flounders. Preliminary information indicates that a 5.5" square mesh codend may have roughly the same flatfish selectivity characteristics as a 5" diamond mesh codend." Second, in a selectivity study for nets for winter flounder in Connecticut, Simpson in 1989 states: "Diamond mesh was found to have a length at 50% retention about 1 cm longer (L60 = 22.6 cm), and a selection range (3.4 cm) about 1 cm narrower, than square mesh in 1.02 mm codends." (conversion from metric is 1 cm = 0.39") The third source is from Canadian researchers in Nova Scotia, Cooper and Hickey, in 1989 who, while exploring selectivity behavior mainly for cod and haddock, observed: "For flounder, the diamond mesh codends always have higher 50% retention lengths and selection factors." [cited by MAFMC, 1992, p. 43]

The ASMFC Report of the Fishing Gear Technology Work Group (FGTWG) to the Management and Science Committee (2008) provided further identification and evaluation of studies relative to fishing gear selectivity. The FGTWG report states

> Using data collected by Anderson et al. off Long Island, NY, Lange in 1984 determined a 14.0 cm (5.5 in) diamond mesh has an L_{50} of 34.3 cm (13.5 in) TL for summer flounder, meaning

> 50% of 34.3 cm (13.5 in) TL flounder encountering 14.0 cm (5.5 in) diamond mesh are retained. Similar results were reported from a study of the North Carolina winter trawl fishery performed by Gillikin et al. in 1981. [cited by ASMFC, 2008, p. 8]

For later research the FGTWG reports

> DeAlteris et al. in 1999 calculated L_{50} values for summer flounder of 41.2 cm (16.2 in) TL for both 15.2 cm (6.0 in) diamond and 16.5 cm (6.5 in) square codend mesh and Beutel et al. in 2004 investigated four codend mesh sizes 16.5 cm (6.5 in) diamond, 17.8 cm (7.0 in) square, 17.8 cm (7.0 in) diamond, and 20.3 cm (8.0 in) square. Only slight variations in L_{50} values for the 16.5 cm (6.5 in) diamond (L_{50}= 43.9 cm (17.3 in)), 17.8 cm (7.0 in) square (L_{50} = 43.4 cm (17.1 in)), and 17.8 cm (7.0 in) diamond (L_{50} = 45.0 cm (17.7 in)) meshes were observed. The 20.3 cm (8.0 in) square mesh had an L_{50} value of 51.9 cm (20.4 in) for summer flounder. While length at retention values were greater than the legal minimum size for each of these experimental mesh sizes, the 20.3 cm (8.0 in) square mesh significantly reduced the catch of legal-size summer flounder. [cited by ASMFC, 2008, p. 8-9]

The studies performed by DeAlteris et al. and Beutel et al. were useful in evaluating mesh size increases but they never re-evaluated the regulation 5.5" diamond mesh that is currently in use. This needs to be addressed and analyzed with current statistical methods.

Table 6. Summer Flounder Trawl Selectivity Results (Source: ASMFC, 2008.)

Mesh size (in.)	Mesh shape	L50 (TL in.)	Reference
5.5	diamond	13.5	Lange (1984); Gilliken *et al.* (1981)
6.0	diamond	16.2	DeAlteris *et al.* (1999)
6.5	square	16.2	DeAlteris *et al.* (1999)
6.5	diamond	17.3	Beutel *et al.* (2004)
7.0	square	17.1	Beutel *et al.* (2004)
7.0	diamond	17.7	Beutel *et al.* (2004)
8.0	square	20.4	Beutel *et al.* (2004)

Scup

Amendment 8 to the summer flounder FMP added scup management requirements (MAFMC, 1996a). Owners or operators of otter trawl vessels possessing 4,000 lbs. or more of scup would only be allowed to fish with nets that have a minimum mesh size of 4.0" in the codend (MAFMC, 1996a). The Regulatory Impact Review performed in development of Amendment 8 states

> The Council and Commission were presented with data that indicated that the L_{50} is 8.3 inches for this mesh size. Retention lengths for scup were calculated by Mayo in 1982 and are based on the relationship between length and body depth as derived by Smith and Norcross in 1968. These retention lengths were derived using body measurements and the results agree very well with selectivity experiments conducted by personnel at the University of Rhode Island. [cited by MAFMC, 1996a, p. RIR-26]

The ASMFC Report of the Fishing Gear Technology Work Group (FGTWG) to the Management and Science Committee (2008) evaluated mesh size selectivity studies relative to scup. The FGTWG evaluation resulted in the following measure

The size selectivity of 12.0 cm (4.7 in) square and diamond mesh codends investigated by DeAlteris and Riefsteck in 1992 revealed L50s of the square and diamond mesh codends were found to be 21.3 and 21.0 cm (8.4 and 8.3 in) respectively, based on total length, and the selection curves had steepness values of 0.74 and 0.71. Based on a mean selection factor (SF) of 1.76 for the 12.0 cm (4.7 cm) codends, and assuming the girth to length ratio remains constant for fish in the 17.8-22.9 (7-9 in) size range, the L_{50}s of 11.4, 12.7, 14.0 cm (4.5, 5.0, 5.5 in) codends were estimated by DeAlteris and Lazar in 2004 to be 20.1, 22.4, 24.6 cm (7.9, 8.8 and 9.7 in) TL, respectively. [as cited in ASMFC, 2008, p. 12]

The FGTWG recommended

given the current minimum mesh in the fisheries targeting scup in either the codend or the extension section is 12.7 cm (5.0 in) and the L50 of this mesh is 22.4 (8.8 in) TL, there is strong agreement between the minimum mesh size and the minimum fish size, balancing the discarding of retained sub-legal scup with the escape of legal size scup from the codend. The 11.4 cm (4.5 in) codend retains 90% of the 22.9 cm (9 in) TL scup, resulting in excessive discards of sub-legal size fish. [ASMFC, 2008 p. 12]

These studies are outdated and use estimates and methods that are questionably deficient in statistical strength. The 1992 study simulated commercial fishing practices in a flume tank and used a covered codend method (DeAlteris and Riefsteck, 1992).

In the Final Environmental Impact Statement (FEIS) of Amendment 8, reports from public comments include remarks from fishermen supporting a 4" mesh regulation. The FEIS states

They suggested that the results of the URI study were flawed because researchers had used a covered cod end technique to estimate selectivity and, in fact, based on their personal experience at sea, a significant portion of the 9" TL fish that would encounter a 4.0" mesh would escape. Furthermore, these fishermen suggested that because most fishermen knew that this mesh was the appropriate size, compliance would be higher with the 4.0" mesh than it would be with a larger mesh size. As such, a greater reduction in the discard of small scup would occur with this mesh size then it would with a larger mesh. [MAFMC, 1996a, p. EIS-8]

MAFMC Review of Commercial Fishing Measures document summarized the following:

Scup minimum mesh size was increased to 4.5 inches in 1997 and modified in 2002 to require that no more than 25 meshes of 4.5-inch mesh be used in the codend with at least 100 meshes of 5.0-inch mesh forward of the 4.5-inch mesh. The minimum mesh size was increased to 5.0 inches throughout the codend in 2005, in response to increasing abundance and corresponding increasing discards of smaller scup. [MAFMC, 2015, p. 4]

The ASMFC Report of the Fishing Gear Technology Work Group (FGTWG) to the Management and Science Committee (2008) assessed mesh size and discard rates in relation to time and area activity for scup. The FGTWG found studies performed by Bochenek et al. in 2001, Bochenek et al. in 2005 and Kennelly et al. in 1997 reported scup discard rates between July 1990 and June 1994 indicated roughly 44.5% (by weight) of scup were discarded due to small size (cited by ASMFC, 2008, p.12). The FGTWG states that these studies were used to pin point spatial and temporal discarding and assisted the ASMFC in creating time-area closures to reduce discard of small scup (ASMFC, 2008). The FGTWG investigated studies performed by Powell et al. in 2003 revealing observer data discards surpassed landings in multiple years (cited by ASMFC, 2008). Bochenek et al. in 2005 studied various codend mesh sizes and configurations and states, “Overall, discards of scup remained high regardless of the type of gear (nets) and codends used” (Bochenek et al., 2005, p. 12).

Research assessing gear modifications were summarized by the FGTWG in 2008. The FGTWG concluded

> By placing a 45 mesh section of 14.0 cm (5.5 in) square mesh webbing ahead of the codend, Glass et al. in 1999 was able to reduce the bycatch and discarding of small scup with little effect of the catch of Loligo squid. While this modification appeared to work well in this experimental setting, its performance was less consistent when applied to the commercial fishery according to Powell et al. 2004. [cited by ASMFC, 2008, p. 13]

Multiple studies were investigated by the FGTWG but none were successful enough to be used in commercial fishing practices (ASMFC, 2008).

Scup caught during the NEFSC bottom trawl survey from 1981- 2013 suggest that 97% of scup are mature when reaching 9 inches in length (Mark Terceiro, personal communication, cited by MAFMC, 2015). “These data also support the fact over the past 15 years the amount of scup mature at age 2 has decreased by about 30%” (NEFSC 2015, cited by MAFMC, 2015, p. 9). Mark Terceiro supports the information, “Though scup maturity at age has changed, length at age has not” (Terceiro, 2015, cited by MAFMC, 2015, p.9). Scup are reported to be about 3 years old at the 9” commercial minimum size. One hundred percent of scup are mature at 3 years of age. (NEFSC 2015; Terceiro 2015, cited by MAFMC, 2015).

The MAFMC’s Monitoring Committed and ASMFC’s Technical Committee (MC/TC) review detailed suggested commercial measures for summer flounder, scup and black sea bass in 2015. The MC/TC recommended, “No change to the minimum mesh size for scup be made due to the fact that they examined no new information on mesh selectivity” (MAFMC, 2015, p.15). This proposed research by CCE in collaboration with the commercial fishing industry would enhance management decisions in this respect.

Black Sea Bass

In 1996, black sea bass was added to the summer flounder and scup FMP in Amendment 9 (MAFMC, 1996b). The minimum mesh size for vessels possessing more than 100 pounds of black sea bass was 4.0-inch diamond or 3.5-inch square (MAFMC, 1996b). In the 2015 Commercial Management Measures Review, MAFMC states

> In 1998 the incidental possession limit was increased to 1,000 pounds. In 2002 the Council and Commission increased the minimum mesh size to 4.5-inch diamond mesh, required for a minimum of 75 meshes from the codend. This requirement was intended to be consistent with the simultaneous increase in the commercial minimum fish size to 11 inches. [MAFMC, 2015, p.19.]

During Amendment 9 development mesh selectivity studies had not been conducted for black sea bass. Amendment 9 states, "The relationship between body depth and total length as derived by Weber and Briggs in 1983 was used to calculate the retention lengths for black sea bass (Table 2). A mesh size of 4.5" was found to retain 25% of black sea bass at 10.6" (MAFMC, 1996b, p. App 1-8). This was a study evaluating retention of black sea bass in vented and unvented lobster traps (Weber and Briggs, 1983). Research on black sea bass has focused more on the trap fishery than the trawl fishery over the years.

In 2015, The MC/TC recommended

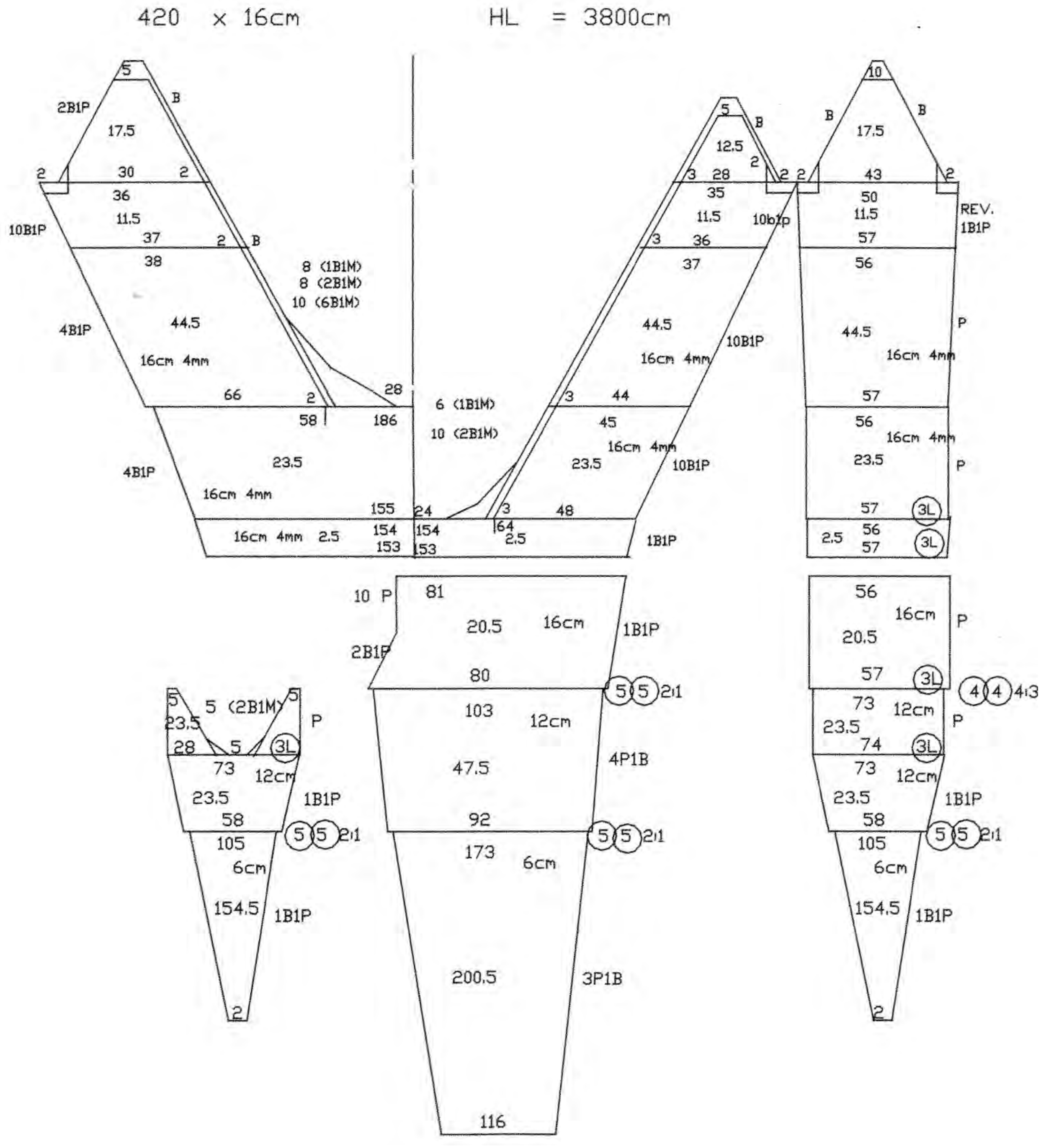
> no changes to the minimum mesh size and incidental possession limits for black sea bass; however, they acknowledged that further analysis could be done to determine if changes are warranted. They agreed that gear studies would be the best way to determine if changes in mesh size are warranted. [MAFMC, 2015, p. 19]

Advisor comments included, "Four respondents recommended a 5-inch minimum mesh size for black sea bass" (MAFMC, 2015, p.19). One AP member stated, "a 5-inch minimum mesh size for all three species could be beneficial to fishermen who target all three species" (MAFMC, 2015, p. 25). Another AP member mentioned, "Many fishermen are already using five-inch mesh for black sea bass (consistent with the scup regulations, but larger than required for black sea bass)" (MAFMC, 2015, p.25). These concerns based on insufficient information can be resolved with the proposed research to re-evaluate the current mesh sizes relative to current fish minimum retention size and contribute to the body of information on which management decisions are made.

Table 7. The length at which 25% of the black sea bass would be retained by a particular mesh size. Estimates represent L_{25}'s and are based on retention lengths as calculated from the body depth/total length relationship for black sea bass derived by Weber and Briggs in 1983. (Source: MAFMC, 1996b.)

Mesh size	Total Length
2.0	4.0
2.5	5.3
3.0	6.6
3.5	7.9
4.0	9.3
4.5	10.6
5.0	11.9

Appendix B. Trouser Trawl Net Plan



Appendix C. PAC Meeting Notes

A Program Advisory Committee (PAC) meeting was held via Webinar on 8/30/16

- PAC members in attendance included: Henry Milliken (NOAA-NEFSC); Kiley Dancy (MAFMC); Kirby Rootes-Murdy (ASMFC); Pat Sullivan (Cornell University); Mark Terceiro (NOAA-NEFSC); Rich Seagraves (MAFMC); Jon Knight (Superior Trawl Inc.); John Maniscalco (NYSDEC); Dave Aripotch (F/V Caitlin Mairead) and Bonnie Brady (LICFA)
- CCE discussed project goals and objectives and work plan with the PAC and all were approved
- The following specific issues needing further clarification were examined and the PAC made recommendations to resolve these issues
    - Tow duration in regard to large catches or day & night tows
        - The PAC recommended the project should begin with 1-hour tows. The PAC also suggested decreasing tow duration to 30 minutes if needed or establish a cutting off point
            - CCE decided to use a net sensor alarm in the control as a cutoff point (See discussion in problems encountered section about switching vessels. This eventually directed tow duration.)
        - The PAC questioned if there was a specific interest in day vs. night fishing. The group decided that there was not a specific interest in day vs. night. The PAC suggested the project should fish when fishermen fish. It was agreed that the project would perform research fishing during standard fishing hours for the 3 species and that we would fish during daytime hours. It was determined that we would set in/haul back within 10-15 minutes of either side of sun up or sun down.
    - Random codend rotation procedure and measurement frequency
        - The PAC recommended the order of the treatments should be randomized within the 5 treatment blocks using a random sequence generator. The PAC suggested the port and starboard placement of the experimental and control be switched after two tows. To reduce side effect port and starboard should be represented equally for all codends.
            - CCE worked with Pat Sullivan after webinar to develop random net plan. See attached.
        - Committee agreed with proposed codend measurement protocol of measuring the experimental codend mesh when first installing it before the two tow block of testing and measuring it again before removing it and switching to another experimental codend. Stretched mesh measurement was taken using calipers.
    - Data Analysis
        - The PAC agreed to only calculate selectivity of each codend.
        - The PAC agreed that we cannot compare experimental codends to each other
    - Species Priority-What if all species are not present in the tow
        - The PAC decided that all 3 species are of equal high priority. If we find we are not catching all 3 then go after the missing species. A similar recommendation was made relative to size. The PAC recommended that CCE find a random distribution of sizes.
    - Length Frequency- Fork or total length for scup (Regulations are based on total length)
        - The PAC recommended measuring fork length and converting to total length.
            - After the meeting a committee member provided CCE with a scientifically accepted conversion from fork length to total length for scup.
    - Timing- weather or other issues including fish migration may delay completion until

spring

- o The PAC agreed we should do as much as we can in the fall. If the project cannot be completed this fall it can be finished up in the spring.

Appendix D. Mesh Measurements

Date	Codend Mesh (Treatment #)	Start or End	Mesh measurements										
			1	2	3	4	5	6	7	8	9	10	AVG.
10/2/16	4.5 (1)	Start	4.4	4.5	4.4	4.6	4.3	4.4	4.4	4.5	4.4	4.4	4.43
10/2/16	4.5 (1)	End	4.6	4.6	4.9	4.5	4.6	4.5	4.4	4.4	4.3	4.4	4.52
10/2/16	5 (2)	Start	4.8	4.9	4.8	5	4.9	5.1	4.9	4.9	4.8	5	4.91
10/2/16	5 (2)	End	4.9	4.6	5	4.8	4.7	4.7	4.9	5.1	4.9	4.7	4.83
10/2/16	6 sq (5)	Start	5.5	5.9	5.9	5.7	5.8	5.9	6	5.8	5.7	5.6	5.78
10/2/16	6 sq (5)	End	6	6.2	6	6.1	6.4	6.4	6	6.2	6	6.5	6.18
10/2/16	5.5 (3)	Start	5.4	5.5	5.5	5.4	5.6	5.6	5.5	5.5	5.6	5.5	5.51
10/2/16	5.5 (3)	End	5.4	5.4	5.1	5.3	5.4	5.4	5.5	5.2	5.4	5.5	5.36
10/2/16	6 (4)	Start	5.9	5.9	6	6	5.9	5.9	5.8	5.8	6	5.9	5.91
10/3/16	6 (4)	End	6.1	6.1	5.7	6	6	6.1	6.2	5.8	5.9	6	5.99
10/3/16	4.5 (1)	Start	4.4	4.4	4.6	4.3	4.4	4.4	4.4	4.4	4.4	4.5	4.42
10/3/16	4.5 (1)	End	4.4	4.5	4.4	4.5	4.3	4.5	4.5	4.5	4.5	4.5	4.46
10/3/16	5 (2)	Start	4.9	4.8	4.8	5.1	5	4.9	5	4.9	4.8	4.9	4.91
10/3/16	5 (2)	End	4.9	5.1	5	5.1	5.1	5.1	5	5	5.1	4.9	5.03
10/3/16	6 (4)	Start	6.1	6	6.1	6	5.9	6.1	6	6.1	6	5.9	6.02
10/3/16	6 (4)	End	5.9	6	6	6	6	6	5.8	5.9	6.1	5.8	5.95
10/3/16	5.5 (3)	Start	5.5	5.4	5.3	5.4	5.4	5.5	5.5	5.4	5.4	5.6	5.44
10/4/16	5.5 (3)	End	5.5	5.6	5.5	5.6	5.4	5.5	5.5	5.4	5.4	5.4	5.48
10/4/16	6 sq (5)	Start	5.9	6	6	5.9	5.9	5.8	5.9	5.8	5.8	6	5.9
10/4/16	6 sq (5)	End	6.1	6.1	5.9	6	6.1	6	6	6.1	5.9	6	6.02
10/4/16	5 (2)	Start	5	5.1	5.2	5	5.3	5.2	5.1	5.1	5.1	5.1	5.12
10/4/16	5 (2)	End	4.9	5.2	5	5.1	5.1	5.1	5.1	5.1	5	5	5.06
10/4/16	4.5 (1)	Start	4.4	4.5	4.5	4.6	4.5	4.4	4.5	4.6	4.6	4.5	4.51
10/4/16	4.5 (1)	End	4.4	4.7	4.5	4.5	4.5	4.5	4.4	4.6	4.5	4.4	4.5
10/6/16	5.5 (3)	Start	5.6	5.5	5.6	5.5	5.5	5.7	5.6	5.4	5.4	5.5	5.53
10/6/16	5.5 (3)	End	5.6	5.6	5.8	5.6	5.7	5.5	5.5	5.6	5.6	5.7	5.62
10/6/16	6 sq (5)	Start	5.8	6	6.2	6.2	6.1	5.8	6.1	6.1	6.2	6.1	6.06
10/6/16	6 sq (5)	End	6.1	5.8	6.1	5.7	6.1	6	6.1	6.3	6	5.7	5.99
10/6/16	6 (4)	Start	6	5.9	6	5.8	5.8	6	6.1	6	6	6	5.96
10/6/16	6 (4)	End	6	6	6	6	5.9	6.1	5.9	6	5.9	6	5.98
10/6/16	4.5 (1)	Start	4.5	4.5	4.7	4.6	4.5	4.6	4.5	4.5	4.4	4.7	4.55
10/6/16	4.5 (1)	End	4.4	4.5	4.6	4.6	4.5	4.5	4.5	4.4	4.5	4.4	4.49
10/6/16	6 (4)	Start	6.1	6.2	6.1	6.2	6.2	6.2	6.1	6	6.1	6	6.12
10/7/16	6 (4)	End	6.1	6	6.1	6	6	5.9	6	6	6	5.9	6
10/7/16	5.5 (3)	Start	5.5	5.4	5.4	5.5	5.6	5.7	5.8	5.6	5.8	5.6	5.59
10/7/16	5.5 (3)	End	5.5	5.7	5.5	5.7	5.5	5.5	5.5	5.4	5.6	5.6	5.55
10/7/16	5 (2)	Start	5.1	5.1	5.3	5.2	5.2	5.1	5.2	5.1	5.2	5.1	5.16
10/7/16	5 (2)	End	5	5.2	5	5	5	5.1	5.1	5	5.1	5.1	5.06
10/7/16	6 sq (5)	Start	6	6	6.1	5.9	6	6	6	6	6.2	5.9	6.01
10/7/16	6 sq (5)	End	6	6	5.9	6.1	6.1	6.2	6.1	6	6.1	6	6.05
10/7/16	6 (4)	Start	6	6	5.9	6.1	6	6.2	6.1	6	6.1	6	6.04
10/7/16	6 (4)	End	6.1	6	6.1	6	5.9	6	6	6.2	6.1	6.2	6.06
10/8/16	5.5 (3)	Start	5.5	5.4	5.6	5.5	5.5	5.6	5.4	5.5	5.6	5.5	5.51
10/8/16	5.5 (3)	End	5.5	5.6	5.5	5.5	5.5	5.6	5.5	5.6	5.5	5.5	5.53
10/8/16	4.5 (1)	Start	4.7	4.6	4.6	4.5	4.6	4.5	4.5	4.6	4.5	4.6	4.57
10/8/16	4.5 (1)	End	4.4	4.5	4.5	4.5	4.6	4.5	4.3	4.5	4.5	4.6	4.49
10/8/16	6 sq (5)	Start	5.9	6	6	6	6.2	6	6.2	6	6.1	6.2	6.06
10/8/16	6 sq (5)	End	6.1	6	6	6.1	6	6.2	6.1	5.9	5.9	6.1	6.04
10/8/16	5 (2)	Start	4.9	5.2	5	5	5	5	5.1	5.2	5.1	5	5.05
10/8/16	5 (2)	End	5	5	5	5.1	5	5	4.8	5	5.1	5.2	5.02
4/9/17	5.5 (3)	Start	5.4	5.3	5.5	5.4	5.3	5.3	5.4	5.5	5.5	5.5	5.41
4/9/17	5.5 (3)	End	5.3	5.5	5.4	5.5	5.4	5.5	5.6	5.3	5.5	5.3	5.43
4/9/17	4.5 (1)	Start	4.3	4.5	4.4	4.4	4.3	4.4	4.3	4.5	4.5	4.4	4.4
4/9/17	4.5 (1)	End	4.4	4.6	4.6	4.4	4.2	4.5	4.5	4.4	4.6	4.4	4.46
4/9/17	5 (2)	Start	4.9	5.1	5	5.1	5.1	4.9	5	5	5.1	4.9	5.01
4/9/17	5 (2)	End	4.9	4.9	4.9	5.1	5	5	4.9	5.1	5	4.9	4.97
4/9/17	6 (4)	Start	5.9	5.9	5.9	5.8	5.9	5.9	6	6	5.9	6.1	5.93
4/10/17	6 (4)	End	5.9	5.8	6	6	5.9	6	5.8	5.8	6.1	5.9	5.92
4/10/17	6 sq (5)	Start	5.9	6	6	5.9	5.9	6	5.8	6.1	5.9	6.1	5.96
4/10/17	6 sq (5)	End	5.8	5.8	5.8	6.1	6.1	6	6.1	6.1	6	6.1	5.99
4/10/17	4.5 (1)	Start	4.4	4.6	4.5	4.4	4.6	4.4	4.4	4.6	4.5	4.6	4.5
4/10/17	4.5 (1)	End	4.4	4.5	4.5	4.6	4.5	4.5	4.5	4.4	4.4	4.5	4.48
4/10/17	5 (2)	Start	5	5	4.9	5	5	4.9	4.8	5	4.9	4.9	4.94
4/10/17	5 (2)	End	5	5	4.8	5	4.9	4.8	5.1	5	5.1	5	4.97

4/11/17	5.5 (3)	Start	5.5	5.4	5.6	5.6	5.4	5.4	5.4	5.4	5.5	5.4	5.46
4/11/17	5.5 (3)	End	5.4	5.5	5.3	5.5	5.5	5.4	5.5	5.6	5.4	5.5	5.46
4/11/17	6 (4)	Start	6	6	5.9	5.8	5.9	6	6	5.9	6	5.9	5.94
4/11/17	6 (4)	End	6	6	6	6.1	5.9	6	6	5.9	6.1	6	6
4/11/17	6 sq (5)	Start	5.9	6	6	5.8	5.9	6.1	6	5.8	5.9	6	5.94
4/11/17	6 sq (5)	End	5.9	6	6	5.9	5.9	5.8	5.9	6.1	6.2	6	5.97
4/11/17	6 sq (5)	Start	5.9	6	6	5.9	5.9	5.8	5.9	6.1	6.2	6	5.97
4/12/17	6 sq (5)	End	5.9	5.9	5.9	6	6	6	5.9	5.9	6	6.1	5.96
4/12/17	6 (4)	Start	6.1	6	6	6.2	6.1	5.9	6.1	5.9	5.9	6	6.02
4/12/17	6 (4)	End	6	6.1	6	6	5.9	6	6.1	6	5.9	5.9	5.99
4/12/17	5.5 (3)	Start	5.5	5.6	5.4	5.4	5.5	5.6	5.6	5.4	5.4	5.5	5.49
4/12/17	5.5 (3)	End	5.5	5.4	5.5	5.5	5.6	5.5	5.5	5.4	5.5	5.5	5.49
4/12/17	5 (2)	Start	4.9	4.9	5	5.1	4.9	5	5	5.1	4.9	5.1	4.99
4/12/17	5 (2)	End	5.1	5.1	4.5	5	5.1	5.1	5.1	5.1	5.1	5	5.02
4/18/17	4.5 (1)	Start	4.4	4.6	4.5	4.6	4.4	4.4	4.6	4.5	4.5	4.4	4.49
4/18/17	4.5 (1)	End	4.5	4.6	4.7	4.6	4.5	4.4	4.5	4.4	4.4	4.5	4.51
4/18/17	4.5 (1)	Start	4.6	4.6	4.3	4.6	4.6	4.6	4.7	4.5	4.5	4.5	4.55
4/18/17	4.5 (1)	End	4.5	4.5	4.4	4.5	4.4	4.6	4.6	4.4	4.4	4.5	4.48
4/18/17	5 (2)	Start	5	5	5	4.9	4.9	5.1	5.1	5	5.1	5.1	5.02
4/18/17	5 (2)	End	4.9	5.2	5.2	5.1	5	5.1	5.1	5.1	5.2	5.2	5.11
4/18/17	6 sq (5)	Start	5.9	6.1	5.9	6	5.8	6	5.8	5.9	6	5.9	5.93
4/18/17	6 sq (5)	End	6.1	6.2	6	6.1	6.2	6.1	6.1	6.2	5.9	6	6.09
4/18/17	6 (4)	Start	5.9	5.9	5.9	6	5.9	6	6	6	6.1	5.9	5.96
4/18/17	6 (4)	End	6	6	6.1	6	6.2	6	6	6	6.2	6.1	6.06
4/19/17	5.5 (3)	Start	5.4	5.3	5.5	5.5	5.6	5.5	5.5	5.7	5.5	5.5	5.5
4/19/17	5.5 (3)	End	5.3	5.6	5.7	5.8	5.6	5.7	5.7	5.8	5.5	5.5	5.62
4/19/17	6 sq (5)	Start	5.8	6	6	5.8	5.9	6	6	6.1	5.9	6	5.95
4/19/17	6 sq (5)	End	6	5.9	6	6	6.1	6	6.1	6	6	6.1	6.02
4/19/17	4.5 (1)	Start	4.6	4.5	4.5	4.6	4.8	4.5	4.5	4.5	4.4	4.5	4.54
4/19/17	4.5 (1)	End	4.6	4.6	4.7	4.5	4.5	4.6	4.5	4.4	4.4	4.5	4.53
4/19/17	6 (4)	Start	6	6.1	6	6	6	6	6	5.9	6.2	6	6.02
4/19/17	6 (4)	End	6.1	6	5.9	6.2	6.1	6	6	6.1	6	6.2	6.06
4/19/17	5 (2)	Start	4.9	5.1	5	4.9	4.9	4.9	5	4.9	5.1	5.2	4.99
4/20/17	5 (2)	End	5	5	5	5	4.9	4.9	5	5.2	5.1	5.1	5.02
4/20/17	5.5 (3)	Start	5.4	5.6	5.5	5.4	5.5	5.5	5.4	5.4	5.4	5.7	5.48
4/20/17	5.5 (3)	End	5.5	5.5	5.6	5.5	5.7	5.6	5.5	5.4	5.4	5.6	5.53
4/20/17	6 (4)	Start	5.9	6.1	6	6	6	5.9	6	6.2	5.9	5.9	5.99
4/20/17	6 (4)	End	5.9	6	6.1	6	6.1	6.2	6	6	6	6.1	6.04
4/20/17	5.5 (3)	Start	5.6	5.6	5.4	5.5	5.5	5.5	5.5	5.5	5.4	5.5	5.5
4/20/17	5.5 (3)	End	5.5	5.7	5.6	5.5	5.4	5.5	5.5	5.5	5.4	5.6	5.52
4/20/17	4.5 (1)	Start	4.5	4.5	4.6	4.6	4.4	4.5	4.5	4.5	4.4	4.5	4.5
4/21/17	4.5 (1)	End	4.6	4.6	4.6	4.4	4.5	4.4	4.4	4.5	4.5	4.5	4.5
4/21/17	5 (2)	Start	5	5.1	4.9	5.1	4.9	5.1	5.1	5.1	5.1	4.9	5.03
4/21/17	5 (20	End	5.2	5.1	5.1	5.2	5.3	5.2	5.2	5.1	5.2	5.1	5.17
4/21/17	6 sq (5)	Start	5.9	5.9	5.9	5.9	6	6	6	5.8	6	5.9	5.93
4/21/17	6 sq (5)	End	6	6.1	6	6.1	6.1	6.2	6	6.1	6	6	6.06
4/21/17	6 (4)	Start	6	6.1	6.1	6	6	6	5.9	5.9	6	6	6
4/21/17	6 (4)	End	5.9	6.2	6	6.1	6	5.9	6	6.1	6	6	6.02
4/21/17	5 (2)	Start	4.9	5.1	5.1	5.2	5.1	5	5.1	5.1	5.3	4.9	5.08
4/21/17	5 (2)	End	5	5	5.1	5.3	5	5.2	5.1	5.2	5	5	5.09
4/21/17	4.5 (1)	Start	4.6	4.6	4.6	4.6	4.7	4.5	4.5	4.5	4.5	4.5	4.56
4/22/17	4.5 (1)	End	4.3	4.6	4.4	4.5	4.6	4.7	4.5	4.6	4.5	4.4	4.51
4/22/17	5.5 (3)	Start	5.4	5.4	5.5	5.4	5.4	5.4	5.5	5.5	5.4	5.5	5.44
4/22/17	5.5 (3)	End	5.5	5.5	5.5	5.6	5.4	5.6	5.5	5.7	5.6	5.5	5.54

Appendix E. Net Switching Plan

Mesh Selectivity Project Net Switching Plan

		Port	Starboard
Day 1	Tow 1	1	Control
	Tow 2	1	Control
	Tow 3	Control	2
	Tow 4	Control	2
	Tow 5	5	Control
	Tow 6	5	Control
Day 2	Tow 7	Control	3
	Tow 8	Control	3
	Tow 9	4	Control
	Tow 10	4	Control
	Tow 11	Control	1
	Tow 12	Control	1
Day 3	Tow 13	2	Control
	Tow 14	2	Control
	Tow 15	Control	4
	Tow 16	Control	4
	Tow 17	3	Control
	Tow 18	3	Control
Day 4	Tow 19	Control	5
	Tow 20	Control	5
	Tow 21	2	Control
	Tow 22	2	Control
	Tow 23	Control	1
	Tow 24	Control	1
Day 5	Tow 25	3	Control
	Tow 26	3	Control
	Tow 27	5	Control
	Tow 28	5	Control
	Tow 29	4	Control
	Tow 30	4	Control
Day 6	Tow 31	Control	1
	Tow 32	Control	1
	Tow 33	4	Control
	Tow 34	4	Control
	Tow 35	Control	3
	Tow 36	Control	3
Day 7	Tow 37	2	Control
	Tow 38	2	Control
	Tow 39	Control	5
	Tow 40	Control	5
	Tow 41	4	Control
	Tow 42	4	Control
Day 8	Tow 43	Control	3
	Tow 44	Control	3
	Tow 45	Control	1
	Tow 46	Control	1
	Tow 47	5	Control
	Tow 48	5	Control
Day 9	Tow 49	2	Control
	Tow 50	2	Control
	Tow 51	Control	3
	Tow 52	Control	3
	Tow 53	1	Control
	Tow 54	1	Control
Day 10	Tow 55	Control	2
	Tow 56	Control	2
	Tow 57	4	Control
	Tow 58	4	Control
	Tow 59	Control	5
	Tow 60	Control	5
Day 11	Tow 61	1	Control
	Tow 62	1	Control
	Tow 63	Control	2
	Tow 64	Control	2
	Tow 65	3	Control
	Tow 66	3	Control
Day 12	Tow 67	Control	4
	Tow 68	Control	4
	Tow 69	5	Control
	Tow 70	5	Control
	Tow 71	Control	5
	Tow 72	Control	5
Day 13	Tow 73	4	Control
	Tow 74	4	Control
	Tow 75	Control	3
	Tow 76	Control	3
	Tow 77	2	Control
	Tow 78	2	Control
Day 14	Tow 79	Control	1
	Tow 80	Control	1
	Tow 81	1	Control
	Tow 82	1	Control
	Tow 83	Control	2
	Tow 84	Control	2
Day 15	Tow 85	5	Control
	Tow 86	5	Control
	Tow 87	Control	4
	Tow 88	Control	4
	Tow 89	3	Control
	Tow 90	3	Control
Day 16	Tow 91	Control	5
	Tow 92	Control	5
	Tow 93	1	Control
	Tow 94	1	Control
	Tow 95	Control	4
	Tow 96	Control	4
Day 17	Tow 97	Control	2
	Tow 98	Control	2
	Tow 99	3	Control
	Tow 100	3	Control
	Tow 101	Control	4
	Tow 102	Control	4
Day 18	Tow 103	Control	3
	Tow 104	Control	3
	Tow 105	1	Control
	Tow 106	1	Control
	Tow 107	Control	2
	Tow 108	Control	2
Day 19	Tow 109	5	Control
	Tow 110	5	Control
	Tow 111	Control	4
	Tow 112	Control	4
	Tow 113	2	Control
	Tow 114	2	Control
Day 20	Tow 115	Control	1
	Tow 116	Control	1
	Tow 117	3	Control
	Tow 118	3	Control

Treatment	
4.5" Diamond	1
5" Diamond	2
5.5" Diamond	3
6" Diamond	4
6" Square	5

Treatment (118 tows)						
	1	2	3	4	5	Control
# on Port	12	12	12	12	12	60
# on Starboard	12	12	12	12	10	58
Total Tows	24	24	24	24	22	118

Thick black line indicates end of 5 treatment "block"

Appendix F. Sampling Day Procedure

MESH SELECTIVITY STUDY
SAMPLING DAY PROCEDURE

DAY BEFORE TRIP
- Bench check Marel scales in the office
- Establish a float plan

ONBOARD BEFORE DEPARTURE:
- Checklist complete
- All equipment, staff, paperwork and permits on boat
- If necessary, call into NOAA Interactive Voice Response (IVR) system for start of trip. Use the vessel VMS system (McMurdo Fleet Management formerly Boatracs) to report the start of a research trip. Instructions for this procedure are in included in the project binder.
-

PRIOR TO THE **FIRST DAY** OF RESEARCH FISHING
- Experimental codends need to be marked so easily identifiable by CCE staff

WHILE STEAMING OUT AND/OR PRIOR TO EACH DAY OF FISHING
- Conduct safety drills.
- Fill out vessel info data sheet
- Set up scales and calibrate
- Mesh must be measured in **each** of the experimental codends used during the day's research fishing (codends determined by the **Net Switching Plan**).
- Be aware that there are 6 cod ends in use; a **control**, a **4.5" diamond** (treatment A), and **5" diamond** (treatment B), **5.5" diamond** (treatment C), **6" diamond** (treatment D), **6" square** (treatment E). There is no higher priority experimental cod end and as such each codend will be compared to the control following the project's randomly generated **Net Switching Plan.** This plan is to be followed for the duration of the project.
- Be aware that we are attempting to make a minimum of 7/8 tows per day that will include only **day** fishing. Tows may began before sunrise and extend past sunset (tows that fall in this category must include the time of sunrise or sunset on the appropriate data sheet). Each tow is scheduled to be **45** minutes in length. Tow duration may be adjusted if necessary due to factors in the field or catch sensors (determined by captain) are triggered.
- Be aware if a tow is shortened, the following tow should be continued at **45** minutes. If this tow also needs to be shortened, succeeding tows may then be shortened to less than 45 minutes. Tows should be returned to 45 minutes in length at the start of a new day of research fishing.
- Be aware that control and experimental net location relative to port/starboard will be switched during experimental fishing following the project **Net Switching Plan.**
- Use cameras as often as possible to document the project.

IMMEDIATELY PRIOR TO EACH TRAWL

- Locate the GPS outside and turn it on so that it can record our track. **CHECK BATTERY LEVEL** – be sure the batteries will last the tow – be sure to mark a waypoint and record lat/long at the beginning and end of each tow.

DURING TRAWL

- Make sure that all the info related to the tow is obtained from the captain or from the FLOUNDERS program (if possible) and properly recorded. This info should include:

1. Tow speed
2. Tow direction
3. Tow cable length
4. Ground gear length
5. Door spread
6. Water depth
7. Statistical area

POST TRAWL – The following procedure occurs after all tows and for both the control and experimental nets:

- The experimental codend should always be brought aboard the vessel first. The control codend should follow as quickly as possible to minimize any sifting that may occur if the codend remains in the water.
- Release fish on deck – be sure catch from each codend is separated (does not mix).
- If possible immediately remove random samples of **Black Sea Bass, Scup, and Fluke** from both the control and experimental codends for use in length frequencies. Each species will require a 200 count random sample collected from different locations in the pile (200 lengths if possible otherwise all individuals should be measured).
- Measure (length frequencies) and weigh sub-samples as quickly as possible and return to pile or if unable to return to pile make sure weights are included in **Total Catch.**
- Sort catch from each codend – **Black Sea Bass, Scup, and Fluke** are the only species that need to be separated completely to individual species. A **Total Weight** for each of these three species from each codend must be obtained. **Total Weight** must include both kept and discards and should be obtained by weighing directly (large catches may require basket/tote sub-sampling methods).
- **Total Catch Weight** from each codend must also be recorded. **Total Catch Weight** includes everything retained in the codend. Species other than **Black Sea Bass, Scup, and Fluke** do not need to be separated or sorted. They can be identified as miscellaneous discards, misc. kept, skates, etc. (for large catches, a sub-sample of basket/tote weight will be used to extrapolate the weight of the total catch).
- Be sure the data sheets are filled out correctly with all the gathered data including the new **Catch Description** sheet.
- Completed data sheets are to be stored in the cabin, off the open deck to avoid the possibility of loss.
- **All NON-LEGAL FISH OVERBOARD.**

- Review **Net Switching Plan** before successive tow begins to be certain the correct experimental codend is being set out and that codends are located correctly relative to port/starboard.

AT THE CONCLUSION OF EACH DAY OF RESEARCH FISHING

- Mesh must be measured again from **each** of the experimental codends used during the day (mesh should be measured twice each day – start and end).

WHILE STEAMING HOME

- Be sure ALL data sheets are filled out properly.
- Clean all sampling and scientific equipment.
- Pack up equipment and review checklist making sure everything is accounted for.
- Report the end of research fishing trip through the vessel's VMS system. Instructions for this procedure are included in the project binder.
- If returning to Montauk to unload CCE staff and equipment before vessel travels to New Jersey to offload catch be sure **NY DEC** is notified. Instructions for this procedure are included in the project binder.

BACK ON THE DOCK

- Unload boat.
- Go over checklist again and make sure everything is accounted for.
- Pack up truck and return to office.

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: 21 March 2018

To: Michael P. Luisi, Chairman, MAFMC

From: John Boreman, Ph.D., Chair, MAFMC Scientific and Statistical Committee

Subject: Report of the March 2018 SSC Meeting

The SSC met in Baltimore on the 13th and 14th of March 2018. The main objectives of the meeting were to develop new ABC specifications for Blueline Tilefish in light of the results of the recent SEDAR benchmark assessment and affirm (or develop new) ABC specifications for Golden Tilefish based on a data update (Attachment 1). Other topics discussed at the meeting included a presentation and discussion of the new design developed by the Northeast Fisheries Science Center (NEFSC) for the Surfclam and Ocean Quahog survey, the state of the ecosystem report and associated risk assessment, and continuing development of criteria for setting coefficients of variation (CVs) for overfishing limits (OFLs) by the SSC.

A total of 14 SSC members were in attendance either in person or via webinar (Attachment 2), which constituted a quorum. Also attending were MAFMC staff, staff from the NEFSC (via webinar), and representatives from the South Atlantic Fishery Management Council staff and SSC, ASMFC, Rutgers, and the Garden State Seafood Association. Documents referenced in the report and associated meeting presentations can be accessed via the SSC's meeting website (http://www.mafmc.org/ssc-meetings/2018/march-13-14).

New Design for Surfclam and Ocean Quahog Survey

Larry Jacobson and Dan Hennen (NEFSC) presented an overview of proposed changes to the design of the NEFSC's Surfclam and Ocean Quahog Survey that were developed by a working group of NEFSC and MAFMC staff, academic partners, and other interested parties. The goals of the proposed changes are to improve the precision and utility of survey data used in stock assessments and to use survey resources more efficiently. Preliminary ideas were discussed with the SSC at its May 2017 meeting. Recommendations from the working group for the new sampling design include: (1) targeting one species at a time and avoiding very poor habitat to increase sample density on good habitat; (2) achieving optimal allocation to the extent possible; (3) using species-specific stratification schemes based on current strata, avoiding sampling areas with no/low density target species; (4) reducing the number of new strata by combining old ones to improve allocation and variance estimates; (5) using historical catch (carefully), in addition to location and depth to identify strata; (6) being at sea every year (i.e., eliminate the gear testing year), alternating the Georges Bank region with the Southern region; (7) maintaining the current survey periodicity for Surfclams (every three years) and reducing the frequency for Ocean Quahogs to once every six years; and (7) staying off rocky ground to avoid gear damage.

The opinion of the working group is that the proposed new design for the survey seems unlikely to hurt either the Surfclam or Ocean Quahog assessment; will increase the precision with no reduction in sampling frequency for Surfclams, and increases in precision will outweigh the reduction in sampling frequency for Ocean Quahogs; require less travel time during the survey; and lead to better spatial resolution for understanding characteristics like patch density, spatial correlation in size and age structure, and recruitment.

SSC members questioned the basis for stratification in the new design, pointing out that, ideally, stratification should be based on densities of Surfclams and Quahogs. Discussion also focused on what should constitute the ideal number of strata, and the ability to use information collected during the "off years" of the survey to enhance understanding of the biological characteristics and habitat requirements of the target species.

An SSC special review panel, chaired by Ed Houde, along with Mike Wilberg, Rob Latour, and Olaf Jensen, will undertake a greater in-depth review of the proposed design and report back to the full SSC at the May 2018 meeting.

State of the Ecosystem Report

Sarah Gaichas presented the draft 2018 Mid-Atlantic State of the Ecosystem Report produced by the Northeast Fisheries Science Center. The presentation reviewed the purpose of the report, changes for 2018, and main messages. The aim of the report is to inform fishery managers on an annual basis regarding ecosystem status and trends that are relevant to fishery management decision making. The report is designed to be short (~20 pages) and to use non-technical language. As in 2017, the report is organized to align indicators with overarching management objectives. The 2018 report was further revised to emphasize synthesis across indicators rather than reporting of individual indicators, and to include a wider range of expertise in the planning, synthesis, and reporting through a series of workshops. MAFMC staff (Rich Seagraves) attended the organizational workshop in July 2017, and his suggestions were implemented in the 2018 report, including adding indicators for protected species-fishery interactions (new section), and for species entering the MAFMC region from the south. In addition, the SSC had requested indicators for harmful algal blooms in Chesapeake Bay and for regional mariculture production. Other changes for 2018 included consolidation of report sections to integrate habitat indicators into the resource species section, and to link lower trophic levels and fish productivity in an ecosystem conditions and productivity section. Further, aggregate species categories were consolidated and simplified, and trend analysis was updated to reflect recent simulation analysis evaluating trend detection in time series with varying levels of autocorrelation.

The SSC requested a clearer definition of "Mid Atlantic" be included in the report (such as a map). Further, some important ecosystem dynamics happen at larger scales than the Mid Atlantic, so the SSC requested more rationale for the scale of indicators, and that indicators specific to the Mid-Atlantic region be clearly delineated from indicators representing a larger region. The SSC noted that some work had been done between the US and Canada to assemble survey information on species throughout the continental shelf across the international border and suggested that this information be examined and included if available and relevant.

The SSC commented that the indicators presented in the report generally align with the overall objectives, that the objectives are the right ones to look at, and that this is a good starting point; however, there may be better indicators than the ones presented. For example, gross revenue is just a proxy for economic performance, which could be refined. Similarly, recreational participation is driven by both management and other influences well outside MAFMC management, such as availability of leisure time and competing recreational opportunities. As such, the SSC encourages more in-depth analysis of the social and economic indicators in the report.

The ecosystem indicators in the 2017 Mid-Atlantic State of the Ecosystem report formed the basis for a risk assessment designed to support EAFM for the Mid-Atlantic Fishery Management Council in 2017. This risk assessment was developed as a Council product with NEFSC support. Risk assessment is the initial step in the Council's defined process for integrating ecosystem interactions into fishery management. Through a series of workshops with Council committees and stakeholders, the risk assessment was defined to encompass risks of concern to the Council (Risk Elements), why they are of concern (Risk Definitions), and what indicators are available to evaluate risk. A total of 33 Risk Elements were considered across five categories (Ecological, Economic, Social, Food Production, and Management), and 25 were carried forward for analysis after review by the Council. Risk Rankings (low, low-moderate, moderate-high, high) were defined based on iterative discussions with the Council committee and stakeholders over the course of several months. In most cases, risk rankings were tied to trends in indicator time series, with higher risk assigned to declining trends. The risk assessment report was accepted by the Council in December 2017 as a basis for moving forward with EAFM in the region and is considered a living document that can be updated with ecosystem indicators from the State of the Ecosystem reporting.

The SSC commented that risk rankings based on trends may be problematic if there is a threshold where a trend may not be capable of being reversed. Although trend-based risk rankings were discussed by the MAFMC Ecosystems and Ocean Planning Committee as an acceptable first pass for risk elements where thresholds are unspecified or unknown, the SSC commented that more clearly specified performance measures would be useful to better evaluate risks to meeting Council objectives in future EAFM risk assessments.

Criteria for Setting CVs for OFLs

The SSC continued discussions from the SSC's September 2017 meeting and considered a revised draft of a framework for setting the Coefficient of Variation (CV) for the Overfishing Limit (OFL). The Acceptable Biological Catch (ABC) for any stock is a function of the Council's risk policy for overfishing, the control rule for reducing fishing mortality in response to stock abundance, and the uncertainty of the estimated catch when the threshold fishing mortality rate is applied. The uncertainty of the OFL is quantified as its relative precision or CV.

The SSC has consistently applied the principle that variation of the OFL is underestimated by the variability estimated within the assessment model. This arises because such variability is conditional on a single model without explicit consideration of less plausible, but viable alternative models.

Following the September meeting, the OFL CV Working Group met with scientists at the Northeast Fisheries Science Center (NEFSC) and separately had a conference call prior to this meeting. The SSC's focus in this meeting was to discuss recommendations from the OFL CV Working Group and to finalize the framework for setting the CV of the OFL. Recommendations from the Working Group included:

- Provide further justification for the CV levels currently applied to OFLs for MAFMC stocks and assign three levels that should encompass most stock assessment results.
- Include a new criterion, "Data Quality," for evaluating uncertainty.
- Consider an option of allowing an SSC-defined CV apart from the three levels.
- Consider two hypothetical applications of the framework to MAFMC stocks.

After much discussion, the SSC agreed that the appropriate CVs for OFL estimates would be 60%, 100%, and 150%. Results of MSE simulations provided by Dr. John Wiedenmann for Summer Flounder, Scup, and Butterfish suggested that control rules based on 60% and 100% typically performed well with respect to conservation objectives and long-term yield. Average negative impacts for short-term yields were typically less than 10%. Dr. Wiedenmann did not consider highest level of CV (i.e., 150%), but it would be expected that achievement of the conservation objectives would be enhanced and reductions in short-term yields would be greater.

The SSC agreed to include a ninth criterion in the framework, labeled as Data Quality. Inclusion of this criterion recognizes that the types and quality of available data are primary determinants of the utility of any assessment model. Important fishery-independent data considerations include survey design, survey coverage, and efficiency of survey gear. For fishery-dependent data, the accuracy and precision of landings and discards are critical considerations. Finally, stock assessments are, in general, greatly improved when natural mortality rates are known, by the inclusion of age data for surveys and removals, and when stock definition has a biological, rather than strictly an operational, basis.

Several suggestions for modifying the framework criterion were suggested. The SSC did not explicitly discuss the two example applications (Summer Flounder and Black Sea Bass) apart from noting that they supported the previous decisions to use the lowest CV of 60% for both species.

The SSC elected to exclude an SSC-defined option for setting the OFL CV. This option was considered inconsistent with previously accepted principles underlying the use of three bins. In particular, it was noted that a continuously varying CV that might be derived from a scoring function would likely be an exercise in false quantification. Such a scoring function would undoubtedly involve arbitrary weightings of various metrics and could be misleading. The final selection of an appropriate CV for the OFL would be informed by the consideration of the nine criteria, but ultimately would be based on the expert judgment of the SSC. It was noted that the current MAFMC policy does allow the acceptance of a specific recommendation for an alternative CV, should one arise from a given stock assessment. It is anticipated that this would be a rare event.

The SSC suggested that the draft framework report be finalized to include the above recommendations and to incorporate a more general description of why these considerations are important for setting catch limits. The target audience for the report should include all Council stakeholders as well as the general public. The SSC discussed adding a section to the report that reviews how other SSCs are using CVs for OFLs in their ABC-setting processes (or not) but decided that this important issue should be addressed in a stand-alone document.

Blueline Tilefish

The status of the Blueline Tilefish stock along the Atlantic Coast was assessed in 2017 as part of the Southeast Data, Assessment, and Review (SEDAR) process. Due to the paucity of data north of Cape Hatteras, the SSC for the South Atlantic Fishery Management Council (SAFMC) recommended an ABC for only the portion of the stock south of Cape Hatteras. Through an agreement with the MAFMC, a joint SSC working group was formed essentially to: (1) develop an ABC recommendation to the two SSCs for the portion of the stock north of Cape Hatteras; and (2) recommend a method by which that ABC can be split between the subarea from Cape Hatteras to the VA/NC border, which is under SAFMC jurisdiction, and the subarea north of the NC/VA border, which is under MAFMC jurisdiction. The working group was able to recommend an ABC by using the DLMTool, run by Mike Schmidtke (under contract with the MAFMC) with assistance from Nikolai Klibansky (SEFSC Beaufort).

In the absence of reliable fishery dependent indices, the joint working group considered the use of the SUNY-Stony Brook fishery-independent sampling of Blueline Tilefish and Golden Tilefish in the MAFMC area, including the area north of Cape Hatteras under SAFMC jurisdiction (Frisk et al 2018), as a means to scientifically apportion the ABC based on resource distribution. After several adjustments recommended by the joint working group, stratified proportional estimates of Blueline Tilefish caught in the survey north and south of the VA/NC border result in an allocation of 56% of the north of Cape Hatteras ABC to the MAFMC and 44% to the SAFMC.

Mike Schmidtke presented his DLMTool analysis to the SSC, followed by a summary of the joint working group recommendations by Scott Crosson, chair of the group. Matt Seeley (MAFMC staff) then presented an overview of the specifications process, the stock status based on the most recent SEDAR assessment, recent fishery performance, and staff's recommendation for setting an ABC for the subarea north of the VA/NC border.

The SSC was generally concerned about the relatively high level of scientific uncertainty in many aspects of the DLMTool analysis; however, the SSC ultimately agreed that it represented the best science information available and was an improvement over the previous DLMTool analysis used by the SSC in 2016 to set ABC specifications. The SSC also concluded that the MSY estimate based on the DLMTool analysis is an estimate of the OFL, not the ABC (as recommended by the joint working group), which enabled the SSC to use the P* approach and the Council's risk policy in setting ABC specifications. It is worth noting that in early May 2018 the SAFMC SSC will be using the same information and joint working group recommendations to develop an ABC for Blueline Tilefish in the subarea between Cape Hatteras and the VA/NC border.

The SSC's responses to the Terms of Reference provided by the MAFMC (*in italics*) are as follows:

For Blueline Tilefish (north of the Virginia-North Carolina border), the SSC will provide a written report that identifies the following for fishing years 2019-2021:

1) The level of uncertainty that the SSC deems most appropriate for the information content of the most recent stock assessment, based on criteria listed in the Omnibus Amendment.

The SSC determined that the approach to estimating the ABC for Blueline Tilefish qualifies it as a stock for which there is an OFL estimate, based on the DLMTool analysis. The SSC will derive an OFL CV to determine the ABC.

2) If possible, the level of catch (in weight) associated with the overfishing limit (OFL) based on the maximum fishing mortality rate threshold or, if appropriate, an OFL proxy.

Based on the DLMTool analysis, the OFL estimate for this stock north of Cape Hatteras is **107.2 mt (236,329 pounds**). The SSC treats this value as an OFL because it is an MSY proxy that comes out of the methods employed in the analysis.

3) The level of catch (in weight) and the probability of overfishing associated with the acceptable biological catch (ABC) for the stock, the number of fishing years for which the ABC specification applies and, if possible, interim metrics that can be examined to determine if multi-year specifications need reconsideration prior to their expiration.

The SSC applied its OFL CV draft protocol to determine the OFL CV bin for this stock. Data quality is most characteristic of the highest OFL CV bin (150%), with no reliable abundance indices. Catch estimates are unreliable and natural mortality rates are unknown. The set of all plausible models gave highly divergent results, and no retrospective analysis was performed. There is no independent estimate of scale, and no ecosystem factors were accounted for in the assessment. There is no estimate of recruitment, no estimate of prediction error, and the assessment accuracy under different fishing pressures is unknown because the level of fishing pressure is unknown. The DLMTool management strategy evaluation (MSE) was not performed. Based on this information the SSC selected the highest OFL CV bin (150% CV).

Since the SSC lacked information on the estimate of stock biomass relative to B_{MSY}, a ratio of $B/B_{MSY} = 1$ was applied as a default value for the P* (i.e., P* = 0.4 under the MAFMC's risk policy). The SSC also assumed a typical life history (similar to Golden Tilefish). The resultant ABC estimate is **81.42 mt (179,500 pounds)** for the stock north of Cape Hatteras.

The SSC was asked to provide an ABC recommendation for the subarea north of the NC/VA border (subarea that is under the management purview of the MAFMC) and decided to use a

56% allocation for that subarea based on the recommendation of the joint working group. This allocation recommendation was based on a fishery independent survey (Frisk et al. 2018) due to the lack of reliable fishery-dependent (catch) data. The joint working group decided that landings histories were not indicative of stock distribution, primarily due to the recent and rapid rise of landings in the MAFMC jurisdiction while the fishery was largely unregulated, and to the constant shift of regulations by both Councils as they reacted to documented (SAFMC) and potential (MAFMC) overfishing in their respective jurisdictions. Landings histories exhibit wide fluctuations from year to year in both subareas, and the working group could not separate which were due to regulatory histories and which were due to underlying changes in the abundance and distribution of stock. This was the same conclusion reached by the Review Panel of SEDAR 50.

The SSC notes that the survey upon which the allocation recommendation is based represents only one year of study, and certainty in the allocation value based on information from this survey will undoubtedly improve if additional years of survey data are collected. The SSC also recognizes that other allocation methods may be developed by using information in addition to biological data. Based on the allocation method recommended by the joint working group, the ABC for the MAFMC-managed portion of the stock is therefore **45.6 mt (100,520 pounds)**. This ABC specification is for fishing years 2019, 2020, and 2021.

The SSC will review the following information in 2019 and 2020 to determine whether the ABC specifications should change: (1) any regulatory changes and how they may have altered fishery performance; (2) total catch by fishery sector; (3) size distribution in the catch; (4) spatially explicit catch, including recreational; and (5) CPUE and size distributions from fishery independent surveys.

4) The most significant sources of scientific uncertainty associated with determination of OFL and ABC.

- The model used by the SSC to set the ABC assumes that the Blueline Tilefish stock is a single stock, but the stock in the subarea north of Cape Hatteras could not be assessed with the portion of the stock to the south due to data limitations.

- The DLMTool implies a great deal of uncertainty with input data and the underlying population model. For example, growth parameters used in modeling were not directly estimated for Blueline Tilefish, but from other species. The DLMTool may have limited accuracy even if the assumptions are met.

- The catch time series was developed from a Delphi method and remains uncertain. Decisions about which portion of the time series to use in modeling affects the CV input substantially.

- The steepness parameter for the stock recruitment relationship was based on estimates from the SEDAR 32 assessment and the Shertzer and Conn (2012) paper, but it remains highly uncertain.

- The DLMTool assumes that the carrying capacity and productivity of Blueline Tilefish in waters north of Cape Hatteras is constant. It is unclear whether the spatial expansion of the fishery since its inception represents increasing awareness of the fish as a target or increasing spatial range of its population as result of climate change (and hence increasing productivity).

5) Ecosystem considerations accounted for in the stock assessment, and any additional ecosystem considerations that the SSC took into account in selecting the ABC, including the basis for those additional considerations.

No data were available to allow the SSC to include specific ecosystem considerations in determining ABC.

6) Prioritized research or monitoring recommendations that would reduce the scientific uncertainty in the ABC recommendation and/or improve the assessment level.

1. Improvements in the accuracy of the catch time series with improved spatial resolution would be an important enhancement to estimating ABCs in the future.

2. Implementation of additional fishery-independent sampling will enhance understanding of the dynamics and biological characteristics of the stock and the range of management procedures that can be applied in estimating ABC.

3. The most recent information on stock structure of Blueline Tilefish indicates a single population along the Atlantic seaboard. The level of genetic exchange estimated suggests a high degree of connectivity in the population, but it is uncertain whether this occurs through early life stage distribution or movement of adults within the population. Consequently, the potential for localized depletion of fish in specific areas is unknown and worthy of study. There is a potential to leverage work on this species with similar research on Golden Tilefish.

4. The selectivity of the commercial fishery in the northern part of the range needs to be determined.

5. No age data are used in the current assessment because of uncertainty in age determination. Research into the reliability of aging and determination of growth parameters would provide additional approaches to assessing the stock and should be a high research priority **well in advance** of future assessments.

6. There are dynamic non-equilibrium methods that are not yet in DLMTool that may be more appropriate and should be investigated.

7) The materials considered in reaching its recommendations.

- 2018 Blueline Tilefish Fishery Performance Report

- 2018 Blueline Tilefish Advisory Panel Information Document

- Staff Memo on 2019-2021 Blueline Tilefish Specifications

- MAFMC/SAFMC Blueline Tilefish ABC Working Group Information
    - Joint Mid- and South Atlantic Blueline Tilefish Subcommittee TORs
    - Schmidtke Memo: Blueline Tilefish ABC Recommendation for north of Cape Hatteras, NC
    - Blueline Tilefish DLMTool Final Report (Schmidtke and MAFMC/SAFMC Working Group)
    - Blueline Tilefish Working Group Report
    - Blueline Tilefish Working Group Presentation
    - Fisheries-independent pilot survey for Golden & Blueline Tilefish throughout the range from Georges Bank to Cape Hatteras (Frisk et al. 2018)
    - SEDAR 50 Report

All documents listed above are available on the SSC meeting website: http://www.mafmc.org/council-events/2018/march-2018-ssc-meeting

8) A certification that the recommendations provided by the SSC represent the best scientific information available.

To the best of the SSC's knowledge, these recommendations are based on the best available scientific information.

Golden Tilefish

José Montañez (MAFMC staff) briefed the SSC on the stock status, regulations, recent fishery performance, and the data update provided by the Northeast Fisheries Science Center (NEFSC) for Golden Tilefish. Last year, based on an assessment update undertaken by the NEFSC, the SSC recommended a three-year average ABC of **742 mt (1.636 million pounds)** for fishing years 2018, 2019, and 2020. The average ABC over the three-year period was calculated based on the F_{MSY} proxy, an assumed lognormal coefficient of variability around OFL of 100%, the assumption that the ABC is taken each year, and applying the Council's risk policy for a typical life history. The SSC recommended that these ABCs be re-examined annually in light of substantial changes in the size distribution in the catch or in the spatial distribution of the fishery, which will be particularly important as the 2013 year class fully recruits to the fishery.

The data update provided by the NEFSC is consistent with the expectations of the SSC as the 2013 year class moves through the fishery. Therefore, the SSC recommends **no change** to ABC specifications for the 2019 fishing year. The only concern raised by the SSC relates to the influence of the IFQ system on landings and how this may affect the longer use of CPUE data given the timing and size selectivity of the fishery is changing.

c: SSC Members, Warren Elliott, Chris Moore, Brandon Muffley, Matt Seeley, Jessica Coakley, José Montañez, Mike Schmidtke, Paul Nitschke, Dan Hennen, Larry Jacobson, John Wiedenmann, Scott Crosson, Mike Errigo, Marcel Reichert, Jan Saunders

Attachment 1

Mid-Atlantic Fishery Management Council
Scientific and Statistical Committee Meeting

13-14 March 2018
Baltimore, MD

Agenda

Tuesday, 13 March 2018

1:00 NEFSC clam dredge survey redesign: SSC review and recommendations (Hennen/Jacobson)

3:00 NEFSC Mid-Atlantic State of the Ecosystem Report (Gaichas)

- Overview of Council's Risk Assessment and alignment with SOE report

4:00 Review and approve OFL CV discussion document

5:00 Other topics: National SCS meeting, SSC Species and Topic leads

5:30 Adjourn

Wednesday, 14 March 2018

8:30 Develop Blueline Tilefish 2019-2021 ABC specifications (Schmidtke/Seeley)

- Review of joint MAFMC and SAFMC Blueline Tilefish working group deliberations and recommendations
- Review of updated DLMTool results

11:00 Golden Tilefish data and fishery update; review of implemented 2019 ABC (Montañez)

12:30 Adjourn

Attachment 2

MAFMC Scientific and Statistical Committee
13-14 March 2018
Baltimore, Maryland

Meeting Attendance

Name	Affiliation
SSC Members in Attendance:	
John Boreman (SSC Chairman)	NC State University
Mark Holliday	NMFS (Retired)
Sarah Gaichas	NMFS Northeast Fisheries Science Center
Ed Houde	University of Maryland – CBL (retired)
Lee Anderson	University of Delaware (retired)
Mike Wilberg	University of Maryland - CBL
Brian Rothschild	UMass Dartmouth (retired)
Rob Latour	VIMS
Olaf Jensen	Rutgers
SSC Members participating via webinar:	
Dave Secor	University of Maryland - CBL
Paul Rago	NMFS (retired)
Yan Jiao	Virginia Tech
Cynthia Jones	Old Dominion University
Mike Frisk	SUNY Stony Brook
Others in attendance:	
Jessica Coakley (3/13 only)	MAFMC staff
Brandon Muffley	MAFMC staff
José Montañez	MAFMC staff
Matt Seeley (3/14 only)	MAFMC staff
Mike Luisi (3/14 only)	MAFMC Chair
Paul Nitschke (via webinar, 3/14 only)	NMFS Northeast Fisheries Science Center
Larry Jacobson (via webinar, 3/13 only)	NMFS Northeast Fisheries Science Center
Dan Hennen (via webinar, 3/13 only)	NMFS Northeast Fisheries Science Center
Mike Schmidtke (3/14 only)	ASMFC
Marcel Reichert	SAFMC SSC Chair
Mike Errigo (3/14 only)	SAFMC staff
Scott Crosson (3/14 only)	SAFMC SSC
George Sedberry (via webinar)	SAFMC SSC
Greg DiDomenico (3/13 only)	Garden State Seafood Association
John Wiedenmann (via webinar, 3/13 only)	Rutgers

2018 Planned Council Meeting Topics

as of 3/30/2018

April 10-12, 2018 – Montauk, NY

- Golden Tilefish 2019 Specifications – *Review*
- Golden Tilefish Permit Issue
- Blueline Tilefish Specifications (2019-2021) - *Develop and approve*
- Atlantic Mackerel Rebuilding Framework With 2019-2021 Specifications and RH/S Cap – *Framework meeting 1*
- Mid-Atlantic State of the Ecosystem report

April 30, 2018 – Atlantic States Marine Fisheries Commission Spring Meeting, Arlington, VA

Joint meeting of the Council and the Commission's Bluefish Management Board

- Bluefish Allocation Amendment – *Review scoping plan and approve document*

Joint meeting of the Council and the Commission's Summer Flounder, Scup, and Black Sea Bass Management Board

- Summer Flounder Amendment: Commercial Issues/Goals and Objectives – *Approve public hearing document ~~and Draft Environmental Impact Statement~~*
- Summer Flounder, Scup, and Black Sea Bass Recreational Management Framework – *Review and approve draft alternatives*
- Approve Black Sea Bass LOA Draft Addendum for Public Comment (ASMFC action)

June 5-7, 2018 – Philadelphia, PA

- Atlantic Surfclam and Ocean Quahog 2019 Specifications – *Review*
- Atlantic Surfclam and Ocean Quahog Excessive Shares Amendment – *Review and approve refined range of alternatives*
- Recommend regulatory streamlining options
- ~~Risk Policy Framework – *Final action*~~ *(moved to October)*
- Strategic Planning – *Update and discussion*
- Collaborative research program review
- NMFS Climate Science Strategy – Update and overview of recent research

August 14-16, 2018 – Virginia Beach, VA

- Swearing-in of new and reappointed Council members
- Election of officers
- Bluefish 2019 Specifications – *Develop and approve*
- Bluefish Allocation Amendment – *Review scoping comments and present potential range of alternatives*
- Atlantic Mackerel Rebuilding Framework With 2019-2021 Specifications and RH/S Cap and Progress Update – *Framework meeting 2 (final action)*

- Summer Flounder 2019 Specifications – *Develop and approve*
- Scup 2019 Specifications – *Review*
- Black Sea Bass 2019 Specifications – *Develop and approve*
- Summer Flounder, Scup, and Black Sea Bass Recreational Management Framework – *Review alternatives and impact analysis; approve ASMFC public hearing document*
- Black Sea Bass 2019 Wave 1 fishery – *Review and approve* ~~Letter of Authorization (LOA) Framework – *Framework meeting 2 (final action)*~~
- Draft 2019-2023 Strategic Plan – *Review*

October 2-4, 2018 – Cape May, NJ

- 2019-2021 Spiny Dogfish Specifications – *Develop and approve*
- 2019 Specifications for Squids and Butterfish - *Review*
- Commercial Fisheries eVTR Framework – *Framework meeting 1*
- 2019-2023 Strategic Plan – *Approve*
- Chub Mackerel Amendment – *Approve public hearing document*
- Industry-Funded Monitoring Amendment update – *Decide whether to proceed*
- Revised MSB goals and objectives – *Adopt*
- Risk Policy Framework (moved from June)

December 11-13, 2018 – Annapolis, MD

- Atlantic Surfclam and Ocean Quahog Excessive Shares Amendment – *Approve public hearing document*
- Bluefish Allocation Amendment – *Approve range of alternatives for public hearings*
- Commercial Fisheries eVTR Framework – *Framework meeting 2 (final action)*
- Summer Flounder, Scup, and Black Sea Bass 2019 Recreational Management Measures - *Adopt*
- Summer Flounder Amendment: Commercial Issues/Goals and Objectives – *Final action*
- Summer Flounder, Scup, and Black Sea Bass Recreational Management Framework – *Final action*
- Black Sea Bass Amendment – *Review initiation and identify issues for consideration*
- Chub Mackerel Amendment – *Final action*
- 2019 Implementation Plan - *Approve*

NORTH CAROLINA MARINE FISHERIES COMMISSION
DEPARTMENT OF ENVIRONMENTAL QUALITY

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Governor

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Secretary

SAMMY CORBETT
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Moyock
RICK SMITH
Greenville
ALISON WILLIS
Harkers Island

March 28, 2018

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

Dear Dr. Moore:

I am writing on behalf of the N.C. Marine Fisheries Commission regarding the amendment to the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan that primarily addresses the commercial summer flounder fishery. The summer flounder fishery has been a very important component of the state's commercial fishing industry for the last several decades. In 2016, North Carolina's commercial fishery landed 2,071,089 pounds of summer flounder with a dockside value of $8,238,703. The summer flounder trawl fishery accounts for nearly all of the commercial summer flounder landings in North Carolina, and a total of 266 flounder trawl trips from 97 vessels landed summer flounder in our state in 2016.

The commercial allocations issue in this amendment is of utmost concern to the commission. North Carolina has the largest allocation of the commercial summer flounder quota based on its historic landings, and shore-based infrastructure and businesses were developed to support the state's commercial summer flounder fishery. We understand that the amendment is still under development, so we ask that proposed management measures concerning allocation include a broad range of options that considers the historic fisheries of the affected states.

Thank you for keeping this request in mind as the amendment to this plan is being developed and please know how much we appreciate the work you do on behalf of our Atlantic Coast fisheries.

Sincerely,

Sammy Corbett

Sammy Corbett, Chairman
N.C. Marine Fisheries Commission

cc: Steve Murphey, Director, N.C. Division of Marine Fisheries
N.C. Marine Fisheries Commission

STATE OF NEW YORK
OFFICE OF THE ATTORNEY GENERAL

ERIC T. SCHNEIDERMAN
ATTORNEY GENERAL

DIVISION OF SOCIAL JUSTICE
ENVIRONMENTAL PROTECTION BUREAU

March 23, 2018

Secretary of Commerce Wilbur Ross
Office of the Secretary
U.S. Department of Commerce
1401 Constitution Ave NW
Washington, DC 20230

Chairman Mike Luisi
c/o Christopher Moore, Executive Director
Mid-Atlantic Fishery Management Council
800 North State Street, Suite 201
Dover, DE 19901

Re: Petition for rulemaking

Dear Secretary Ross and Chairman Luisi:

Enclosed is a rulemaking petition submitted by the State of New York and the New York State Department of Environmental Conservation ("New York") to the U.S. Department of Commerce, through its sub-agencies the National Oceanic and Atmospheric Administration and the National Marine Fisheries Service, and to the Mid-Atlantic Fishery Management Council (the "Agencies"). With this petition, New York requests the Agencies to amend the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan and its implementing regulations to comply with the Magnuson-Stevens Fishery Conservation and Management Act. Specifically, the Agencies' fixed, decades-old state-by-state allocations of the annual commercial quota for the summer flounder fishery violate the Act as outdated, discriminatory, inefficient, costly, and unsafe, and they must be replaced. New York also proposes that the Agencies revise the allocations in a two-phase process, by first dispensing with state-by-state allocations and implementing coastwide management of the commercial quota for an interim period while the Agencies collect information that allows them to revise the allocations so that they are fair to New York and otherwise consistent with the Magnuson-Stevens Act, and then issuing new state-by-state allocations.

Please do not hesitate to contact this office with any questions.

Respectfully submitted,

Channing Jones
Assistant Attorney General

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NOTICE OF PETITION

U.S. Department of Commerce
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Basil Seggos, Commissioner
625 Broadway
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BEFORE THE

U.S. DEPARTMENT OF COMMERCE,
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION,
NATIONAL MARINE FISHERIES SERVICE,
and MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

In re:

Petition for Rulemaking to Repeal and Replace the 1993 Commercial Quota Allocations Under the Fishery Management Plan and Implementing Regulations for Summer Flounder

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STATE OF NEW YORK
and the
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

PETITION FOR RULEMAKING

Dated: March 23, 2018

INTRODUCTION

The State of New York and the New York State Department of Environmental Conservation (together, "New York") submit this petition for rulemaking to repeal and replace the state-by-state allocation of the annual commercial quota for summer flounder adopted in 1993 (the "1993 Allocations"). Even though both the summer flounder stock and commercial fishing activity have shifted northeast toward the waters off New York since 1993, the 1993 Allocations continue to allot New York 7.65% of the total coastwide commercial quota for commercial landings of summer flounder—landings at ports[1]—while allotting almost 50% of the quota to North Carolina and Virginia.

As a result, the 1993 Allocations require summer flounder to be disproportionately landed in southern ports hundreds of miles from the center of the species' biomass and from the center of commercial fishing activity. This is neither fair, rational, nor efficient. Indeed, in many cases, vessels weather significant time and distance at sea traveling from the northern fishery to southern ports, only to have their summer flounder catch shipped back to northern markets for sale. For New York-based fishermen, the options are bleak: to land summer flounder in New York subject to highly restrictive limits or to purchase costly licenses to land summer flounder in out-of-state ports potentially hundreds of miles further from the center of the fishery. For many, neither option is economically viable, and the impact on New York's commercial summer flounder fishermen has been devastating.

Under the Magnuson-Stevens Act, the allocation of commercial fishing quotas must comply with national standards for fishery conservation and management codified at 16 U.S.C. § 1851(a) (the "National Standards"). Among other things, the National Standards require that fishery rules be based upon the best scientific information available, not discriminate between residents of different states, consider efficiency in the utilization of fishery resources, minimize costs, and promote the safety of human life at sea.[2] After decades of change in the summer flounder fishery, the 1993 Allocations violate the National Standards because they are outdated, discriminatory, inefficient, costly, and unsafe.

The 1993 Allocations were prepared by the Mid-Atlantic Fishery Management Council and approved by the Department of Commerce, acting through the National Oceanic and Atmospheric Administration, which in turn acts through the National Marine Fisheries Service (together, the "Agencies"). New York requests that the Agencies replace the 1993 Allocations with allocations that are consistent with the National Standards. New York also proposes that the Agencies revise the allocations in a two-phase process, by first dispensing with state-by-state allocations and implementing coastwide management of the commercial quota for an interim period while the Agencies collect information that allows them to revise the allocations so that

[1] To "land" fish is to "begin offloading fish, to offload fish, or to enter port with fish." To "offload" is to move fish from a vessel. 50 C.F.R. § 648.2. "Landings" refers to the amount of fish landed, measured by weight.

[2] 16 U.S.C. § 1851(a)(2), (4), (5), (7), (10).

they are fair to New York and otherwise consistent with the Magnuson-Stevens Act, and then issuing new state-by-state allocations.

NEW YORK'S INTEREST IN RULEMAKING

This petition is brought by the State of New York as a body politic, sovereign entity, and representative of the people of New York; and by the New York State Department of Environmental Conservation as an executive department of the State of New York responsible for the protection, propagation, and management of fish and fisheries in the state. New York brings this petition on behalf of itself, as owner of the fish within the state, and as *parens patriae*, trustee, guardian, and representative of the people of New York, particularly those individuals and businesses who fish commercially for summer flounder, in addition to other participants in the summer flounder market, including dealers, processers, retailers, and end consumers. With this petition, New York seeks to advance the conservation and management of the summer flounder fishery in a manner that is scientifically informed, fair to New York, efficient, safe, and otherwise consistent with the requirements of the Magnuson-Stevens Act.

STATUTORY AND REGULATORY FRAMEWORK

A. Management of the Summer Flounder Fishery

The Magnuson-Stevens Act, 16 U.S.C. §§ 1801 *et seq.*, is designed to conserve and manage fishery resources in United States waters and coastal areas.[3] In general, the Act manages fisheries in the waters between three miles and two hundred miles off the coast of the United States, known as the Exclusive Economic Zone or "federal waters," while states retain regulatory authority over inland marine waters and ocean waters up to three miles offshore of their respective coastlines, traditionally known as "state waters."[4] To regulate fisheries within its jurisdiction, the Magnuson-Stevens Act establishes eight regional fishery management councils subject to Department of Commerce ("Commerce") oversight through the National Oceanic and Atmospheric Administration's National Marine Fisheries Service ("NMFS").[5]

The regional council that manages fisheries in the mid-Atlantic region, including the summer flounder fishery, is the Mid-Atlantic Fishery Management Council, which is composed of voting representatives from the states of New York, New Jersey, Delaware, Pennsylvania, Maryland, Virginia, and North Carolina, and from NMFS.[6] The Mid-Atlantic Council manages

[3] *Id.* § 1801(b). A "fishery" is "(A) one or more stocks of fish which can be treated as a unit for purposes of conservation and management and which are identified on the basis of geographical, scientific, technical, recreation, and economic characteristics; and (B) any fishing for such stocks." *Id.* § 1802(13).

[4] *See id.* § 1856(a).

[5] See generally *id.* §§ 1852–54.

[6] *See id.* § 1852(a)(1)(B). Among these states, Pennsylvania does not participate in the summer flounder fishery. The Council also has non-voting representatives from the U.S. Fish

the summer flounder fishery in consultation with the New England and South Atlantic Fishery Management Councils, which include representatives from other states that participate in the fishery, namely Massachusetts, Rhode Island, and Connecticut (New England) and North Carolina (South Atlantic).[7]

Meanwhile, the Atlantic States Marine Fisheries Commission regulates fisheries in state waters off the Atlantic coast, including the summer flounder fishery, pursuant to an interstate compact formed between the Atlantic states and approved by Congress.[8] Due to the migratory nature of summer flounder between state and federal waters, the Mid-Atlantic Council and the Atlantic Fisheries Commission coordinate joint regulatory oversight of the summer flounder fishery in both state and federal waters pursuant to the Atlantic Coastal Fisheries Cooperative Management Act, 16 U.S.C. §§ 5101 *et seq.*[9]

B. Regulatory Process Under the Magnuson-Stevens Act

Under the Magnuson-Stevens Act, each regional council is responsible for management of the fisheries within the federal waters seaward of the states comprising that council, principally through developing and updating fishery management plans ("FMPs") that establish the rules for each fishery and by proposing regulations to implement such plans.[10] FMPs consist primarily of "conservation and management measures" that are "necessary and appropriate for the conservation and management of the fishery, to prevent overfishing and rebuild overfished stocks, and to protect, restore, and promote the long-term health and stability of the fishery."[11] Such measures may include quotas, size limits, and gear restrictions, among others.

A regional council submits any new FMP or FMP amendment to NMFS to review for consistency with applicable law, in particular with the Magnuson-Stevens Act's National

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and Wildlife Service, the U.S. Coast Guard, the U.S. Department of State, and the Atlantic States Marine Fisheries Commission.

[7] *See id.* § 1852(a)(1)(A), (C). North Carolina is represented on both the Mid-Atlantic and South Atlantic Councils. Maine and New Hampshire, represented on the New England Council, also have limited participation in the summer flounder fishery.

[8] Pub. L. No. 77-539 (1942), *as amended by* Pub. L. No. 81-721 (1950). Each member state under the Compact is represented on the Commission. The Commission operates through species-specific management boards, including the Summer Flounder, Scup, and Black Sea Bass Management Board, which develops, proposes, and implements fishery management plans for summer flounder, including the commercial fishery. The Commission then oversees the states within the fishery with respect to the management measures they must develop and implement.

[9] States that are party to the Atlantic Fisheries Compact but which are not part of the summer flounder fishery do not participate in the management of summer flounder.

[10] 16 U.S.C. §§ 1852(h), 1853.

[11] *Id.* § 1853(a)(1).

Standards.[12] As necessary or appropriate to implement an FMP or amendment, a regional council may also submit proposed regulations to NMFS for review.[13]

NMFS must approve an FMP or amendment if it is consistent with the National Standards and other applicable law, and disapprove it if not.[14] Similarly, NMFS must promulgate regulations submitted by a regional council if the regulations are consistent with the National Standards, other applicable law, and the corresponding FMP or amendment, and return them to the council for revision if not.[15] If a regional council fails to develop an FMP or any necessary FMP amendment, NMFS may prepare an FMP or amendment, as appropriate, along with implementing regulations. NMFS may then adopt the FMP or amendment, and promulgate any implementing regulations after a notice and comment process.[16]

All FMPs, amendments, and regulations must be consistent with the National Standards.[17] The National Standards include:

- National Standard 2, which provides that "[c]onservation and management measures shall be based upon the best scientific information available."[18]

- National Standard 4, which provides that

  > [c]onservation and management measures shall not discriminate between residents of different States. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (A) fair and equitable to all such fishermen; (B) reasonably calculated to promote conservation; and (C) carried out in such manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.[19]

- National Standard 5, which provides that "[c]onservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources[.]"[20]

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[12] *Id.* §§ 1853(a), 1854(a).
[13] *Id.* §§ 1853(c), 1854(b).
[14] *Id.* § 1854(a).
[15] *Id.* § 1854(b). The Service may make necessary technical changes in the course of promulgating regulations submitted by a regional council.
[16] *Id.* § 1854(c).
[17] *Id.* § 1851.
[18] *Id.* § 1851(a)(2).
[19] *Id.* § 1851(a)(4).
[20] *Id.* § 1851(a)(5).

- National Standard 7, which provides that "[c]onservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication."[21]

- National Standard 10, which provides that "[c]onservation and management measures shall, to the extent practicable, promote the safety of human life at sea."[22]

The Magnuson-Stevens Act directs NMFS to establish guidelines based on the National Standards to "assist in the development of fishery management plans."[23] These guidelines (the "National Standards Guidelines") are codified at 50 C.F.R. §§ 600.305 *et seq.*

C. The Summer Flounder FMP and the 1993 Allocations

The summer flounder fishery is governed by the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan (the "Summer Flounder FMP") and its implementing regulations.[24] Among other management measures, the Mid-Atlantic Council develops an annual fishery-wide catch limit for summer flounder and then formulates a commercial landings quota based on that limit. The commercial quota is allocated among the states based on the 1993 Allocations.

To start, the Mid-Atlantic Council's Scientific and Statistical Committee recommends an "acceptable biological catch" representing the total amount of summer flounder that may be caught each year as necessary to prevent overfishing and sustain the fishery. The Council's Summer Flounder Monitoring Committee then recommends "annual catch limits" that divide the acceptable catch between the commercial and recreational sectors. This process of setting acceptable catches and catch limits may occur annually, or for up to three years at a time subject to annual adjustment.[25]

Specifically for the commercial sector, the Monitoring Committee recommends an "annual landings quota" (among other measures) designed to achieve the commercial catch limit, accounting for a research set-aside and discards.[26] The Council's Demersal Species Committee reviews the Monitoring Committee's recommended commercial landings quota and in turn makes a recommendation to the Council, which in turn makes a recommendation to NMFS.

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[21] *Id.* § 1851(a)(7).

[22] *Id.* § 1851(a)(10).

[23] *Id.* § 1851(b).

[24] Among the amendments to the Summer Flounder FMP has been its expansion to cover two other demersal species, scup and black sea bass, under distinct management measures. The regulations implementing the Summer Flounder FMP are codified in relevant part at 50 C.F.R. §§ 648.100–648.110.

[25] *See* 50 C.F.R. § 648.100.

[26] Discards are fish that are caught but not landed.

NMFS then proposes and finalizes the annual commercial landings quota through a notice-and-comment rulemaking process.[27] In each final rule implementing an annual commercial quota, the total landings are distributed between the states on the eastern seaboard pursuant to the 1993 Allocations. The 1993 Allocations are in Amendments 2 and 4 of the Summer Flounder FMP and 50 C.F.R. § 648.102(c)(1)(i). The 1993 Allocations distribute the commercial landings quota for summer flounder each year as follows:

- 27.44585% to North Carolina;
- 21.31676% to Virginia;
- 2.03910% to Maryland;
- 16.72499% to New Jersey;
- 7.64699% to New York;
- 2.25708% to Connecticut;
- 15.68298% to Rhode Island; and
- 6.82046% to Massachusetts.[28]

Each state implements management measures (on top of generally applicable measures under the Summer Flounder FMP and regulations) designed so that commercial summer flounder landings in the ports of that state do not exceed the state's assigned allocation of the annual commercial quota.[29] These measures commonly include permitting or licensing requirements, periodic or seasonal landings quotas, and/or landings limits for individual vessels.[30]

D. Rulemaking Petitions

Section 553(e) of the Administrative Procedure Act ("APA") requires "[e]ach agency" to "give an interested person the right to petition for the issuance, amendment, or repeal of a rule."[31] Commerce, NOAA, NMFS, and the Mid-Atlantic Council are agencies under the APA, as entities created by federal law and holding authority delegated by Congress to, among other things, manage the summer flounder fishery pursuant to the Magnuson-Stevens Act. The Summer Flounder FMP and its implementing regulations, including the 1993 Allocations, are rules under the APA. Accordingly, the APA gives New York the right to petition the Agencies to repeal or amend the 1993 Allocations and to issue new allocations.

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[27] *See* 50 C.F.R. § 648.102.

[28] *Id.* § 648.102(c)(1). Delaware, New Hampshire, and Maine are also allocated de minimis shares of 0.01779%, 0.00046%, and 0.04756%, respectively.

[29] *See* Mid-Atlantic Fishery Management Council Demersal Committee and Atlantic States Marine Fisheries Commission Board Subcommittee, *Summer Flounder Amendment—Draft Commercial Alternatives Discussion Document*, at 13 (July 2017) [hereinafter *Draft Alternatives*] (Exhibit A) (summarizing state-level management measures).

[30] *See, e.g.*, 6 New York Codes, Rules and Regulations § 40.1.

[31] 5 U.S.C. § 553(e).

RELEVANT FACTS

A. Summer Flounder

Summer flounder (*Paralichthys dentatus*), also known as fluke, is a demersal (bottom-dwelling) flatfish distributed from the Gulf of Maine through the waters off North Carolina. As an excellent food fish, summer flounder is a valuable species to the commercial fishing industry along the Atlantic coast. The species is also highly sought after by recreational anglers. Important commercial and recreational fisheries exist from Cape Cod to Cape Hatteras.

Summer flounder are concentrated in bays and estuaries from late spring through early autumn, when the fish migrate to the outer continental shelf for the colder months. Spawning occurs during autumn and early winter, with the larvae carried by ocean currents toward coastal areas, where the development of post larvae and juveniles occurs.[32] Because summer flounder move northeast up the Atlantic coast as they age and grow, the summer flounder population is spatially distributed with larger individuals more abundant toward northern latitudes.[33] Commercial fishing for summer flounder occurs year-round, with the greatest activity between November and April, primarily in federal waters.[34]

B. Historic Overfishing and Southwesterly Distribution

By the 1980s, the summer flounder stock had been overfished and was severely depleted, reaching a low point in approximately 1989.[35] This overfishing also truncated the average age and size of summer flounder.[36] Because younger fish are more heavily distributed toward the southwest of the species' range, researchers believe that overfishing had a southwest-shifting effect on the center of biomass of the stock.[37] Indeed, trawl survey data indicate that in the 1980s, summer flounder were concentrated between the southern mid-Atlantic waters east of

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[32] *See generally* Mid-Atlantic Fishery Management Council, *Summer Flounder Fishery Information Document* (June 2017), *available at* http://www.mafmc.org/sf-s-bsb (under "Fishery Information Documents").

[33] Richard J. Bell et al., *Disentangling the Effects of Climate, Abundance, and Size on the Distribution of Marine Fish: An Example Based on Four Stocks from the Northeast US Shelf*, 72 ICES J. MARINE SCI. 1311, 1318, 1320 (2015) (Exhibit B).

[34] *Draft Alternatives*, *supra* note 29, at 20–25.

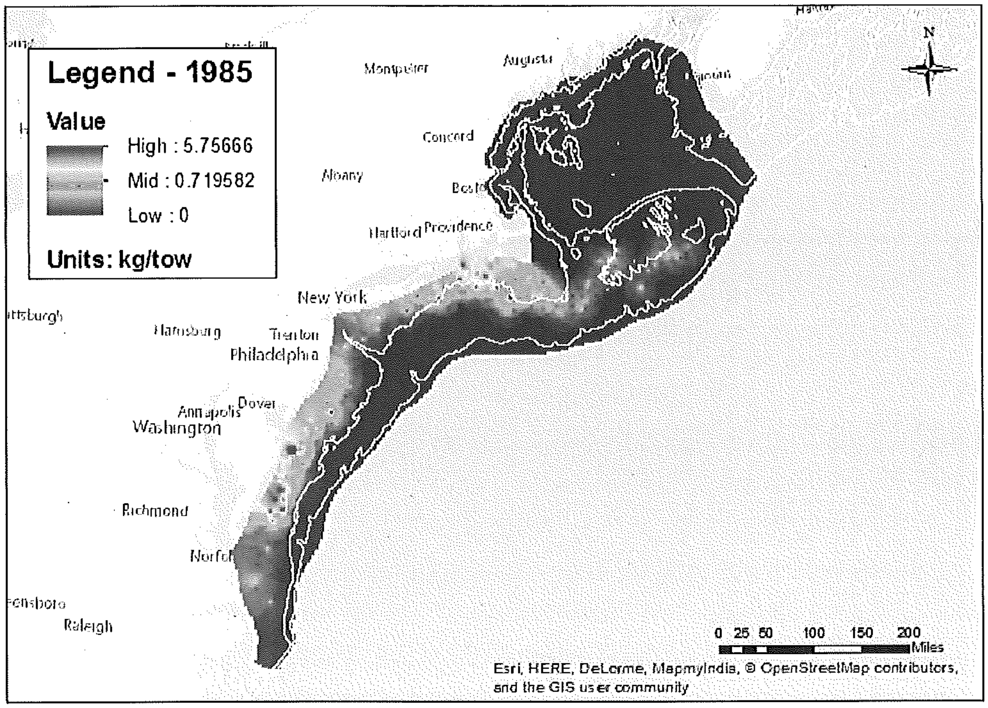
[35] Mark Terceiro, Northeast Fisheries Science Center, National Marine Fisheries Service, Ref. Doc. 15-13, *Stock Assessment Update of Summer Flounder for 2015*, at 5, 10 (2015) [hereinafter *NMFS Stock Assessment 2015*], *available at* https://www.nefsc.noaa.gov/publications/crd/crd1513/crd1513.pdf.

[36] Mark Terceiro, Northeast Fisheries Science Center, National Marine Fisheries Service, Ref. Doc. 16-15, *Stock Assessment of Summer Flounder for 2016*, at 55–58, 87 (2016) [hereinafter *NMFS Stock Assessment 2016*], *available at* https://www.nefsc.noaa.gov/publications/crd/crd1615/crd1615.pdf.

[37] Bell at al., *supra* note 33, at 1318 (Exhibit B).

Delaware, Maryland, and Virginia, and the waters east of Long Island and south of Rhode Island (see Figure 1).[38]

Figure 1: Summer Flounder Stock Distribution in 1985[39]



Unsurprisingly, the geographic distribution of commercial fishing for summer flounder in the 1980s roughly corresponded to the distribution of the stock at that time. In 1983–1989, 46% or more of commercial summer flounder landings were caught in the southern mid-Atlantic—that is, in waters south of the southern tip of New Jersey.[40] Meanwhile, 41% or less were caught

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[38] OceanAdapt, Rutgers School of Environmental and Biological Sciences, Northeast US fall regional data for summer flounder, *available at* http://oceanadapt.rutgers.edu/regional_data/northeast-us-fall/summer-flounder.

[39] *Id.*

[40] Mid-Atlantic Fishery Management Council, *Amendment 2 to the Fishery Management Plan for the Summer Flounder Fishery*, at 107 (Oct. 1991, adopted) (Apr. 1993, approved by NOAA) [hereinafter *Amendment 2*], *available at* http://www.mafmc.org/sf-s-bsb (under "Fishery Management Plan and Amendments"). For the purposes of this petition, the "southern mid-Atlantic waters" are comprised of NMFS statistical areas numbered 621–634. *See* Exhibit D (map of NMFS statistical areas), *available at* https://www.nefsc.noaa.gov/sos/spsyn/fldrs/summer. Forty-six percent is an underestimate of the percentage of landings caught in this region from 1983–1989 because this figure does not include data for landings made in North Carolina, Delaware, or Connecticut. *See Amendment 2* at 107. During 1983–1989, North Carolina landings represented the largest share of any state, while Connecticut landings were

in the northern mid-Atlantic and southern New England waters proximate to Long Island—that is, in waters east of New Jersey and New York, and south of Connecticut, Rhode Island, and Massachusetts.[41] The remaining approximately 13% were caught further to the east or north of these waters.[42]

C. The Summer Flounder FMP and the 1993 Allocations

As of 1988, management measures in the summer flounder fishery were largely limited to state-enforced fish size limits: 14-inch minimums in New York, Connecticut, Rhode Island, and Massachusetts; a 13-inch minimum in New Jersey; 12-inch minimums in Maryland and Virginia; and an 11-inch minimum in North Carolina.[43] These measures proved inadequate to address overfishing and in 1988 the Mid-Atlantic Council adopted the Summer Flounder FMP, which NMFS approved.[44] Since then the Mid-Atlantic Council and NFMS have managed the fishery cooperatively with the Atlantic Fisheries Commission (which oversees fisheries in state waters) and in consultation with the New England and South Atlantic Fishery Management Councils.

The Summer Flounder FMP has been amended numerous times.[45] In 1993, the Agencies adopted Amendments 2 and 4 to the FMP, which established the 1993 Allocations to distribute the annual coastwide commercial landings quota for summer flounder among the states. When they were adopted, the 1993 Allocations were calculated based on commercial landings of summer flounder reported for the respective states between 1980 and 1989.[46] Those landings

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among the smallest and Delaware landings were de minimis. *Id.* at 98. Had catch location data been available for landings made in these three states, the likely result would have been to reflect an even greater share of catch in southern mid-Atlantic waters, where more North Carolina fishing activity would have occurred.

[41] *Amendment* 2, *supra* note 40, at 107. For the purposes of this petition, the "northern mid-Atlantic waters" are comprised of NMFS statistical areas numbered 611–616, and the "southern New England waters" are comprised of NMFS statistical areas numbered 533–534 and 537–539. *See* Exhibit D (map of NMFS statistical areas), *available at* https://www.nefsc.noaa.gov/sos/spsyn/fldrs/summer. Forty-one percent is likely an overestimate of the percentage of landings caught in these regions for the reasons discussed in note 40, *supra.*

[42] *Amendment* 2, *supra* note 40, at 107.

[43] Mid-Atlantic Fishery Management Council, *Fishery Management Plan for the Summer Flounder Fishery*, at 64 (Apr. 1988, adopted) (Sept. 1988, approved by NOAA) (the original Summer Flounder FMP), *available at* http://www.mafmc.org/sf-s-bsb (under "Fishery Management Plan and Amendments"). Some states, including New York, also had gear restrictions in the form of mesh size limits.

[44] *See id.*

[45] *See* Mid-Atlantic Fishery Management Council, *Fishery Management Plans and Amendments—Summer Flounder, Scup, Black Sea Bass*, http://www.mafmc.org/fisheries/fmp/sf-s-bsb (last visited Feb. 28, 2018).

[46] *Amendment 2*, *supra* note 40, at 58–59, 129; Mid-Atlantic Fishery Management Council, *Amendment 4 to the Fishery Management Plan for the Summer Flounder Fishery*, at 12–13, 29

reflected the geographic distribution of summer flounder in the 1980s, as well as other factors. In New York, landings may have been underreported as result of the business structure of the state's fishing industry, which has subsequently been restructured.

The Mid-Atlantic Council acknowledged that data collection methods used to establish the 1993 Allocations were not uniform between the states, and that in the future, "data collection should be improved" in order to "allow the Council to more finely tune the management system to the needs of the fishery."[47] Accordingly, the FMP was amended to establish a standardized reporting system to allow NMFS to reliably track catch and landings locations for summer flounder, among other data.[48] These "vessel trip report" data have been compiled ever since.

D. Recovery and Northeasterly Shift of the Fishery

The vessel trip report data collected by NMFS—which are corroborated by independent research studies—show that the fishery has materially changed since the 1980s as the summer flounder stock has rebounded: the geographic distribution of both the summer flounder stock and commercial fishing activity have shifted northeast toward the waters off New York. Yet the Agencies have yet to "finely tune" the 1993 Allocations, and each annual commercial quota continues to be allocated among the states according to the 1993 Allocations.[49]

The summer flounder stock has recovered from its former depleted condition as a result of the Summer Flounder FMP and other management measures, reaching peaks in 2003 and 2010.[50] The stock remains "not overfished," and although there have been decreases in stock since 2010, the most recent stock assessment indicates that the biomass of the summer flounder stock remains multiple times greater than its average level in the 1980s.[51] This recovery has also led to an increased proportion of older and larger fish among the summer flounder population since the 1980s.[52] This is reflected in NMFS catch data that show an increase in the age and size of fish among commercial summer flounder landings: the percentage of fish in the total summer

(Apr. 1993, adopted) (Sept. 1993, approved by NOAA), *available at* http://www.mafmc.org/sf-s-bsb (under "Fishery Management Plan and Amendments"). Specifically, Amendment 2 implemented state-by-state allocations based upon the collected data. Just after the approval of Amendment 2, Amendment 4 was adopted to increase Connecticut's share to account for data collection gaps; the other states' shares were reduced incrementally to compensate.

[47] *Amendment 2, supra* note 40, at 13.

[48] *Id.* at 63.

[49] *See, e.g.*, 80 Fed. Reg. 80,689, 80,690–91 (Dec. 28, 2015) (establishing and distributing the annual commercial quotas for 2016 through 2018).

[50] *NMFS Stock Assessment 2015*, *supra* note 35, at 5, 10.

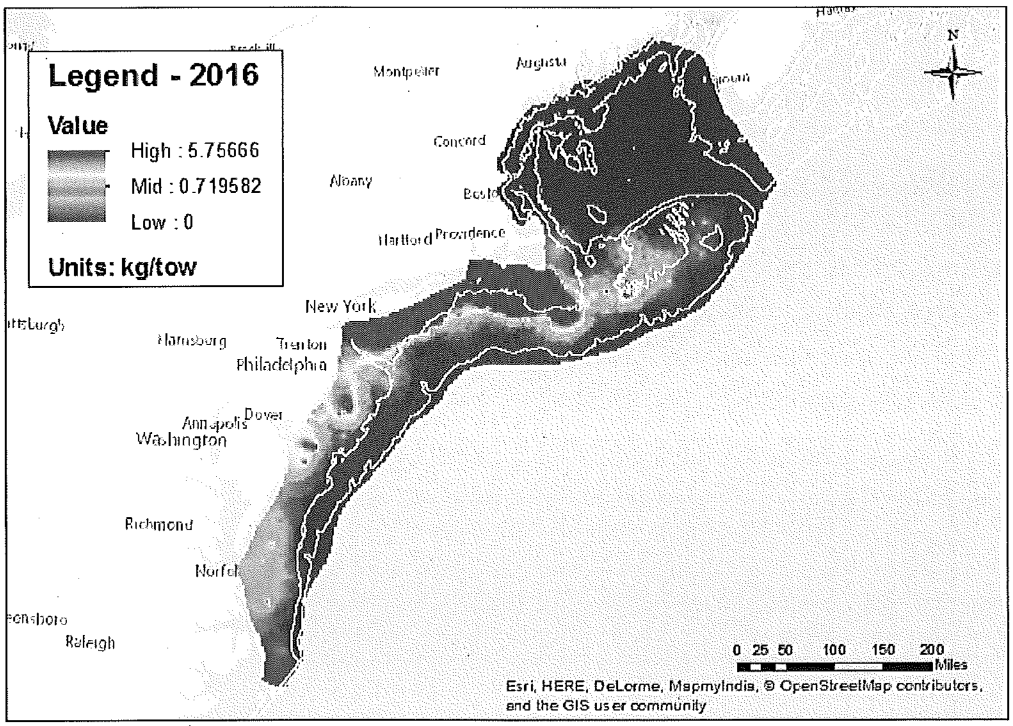
[51] *NMFS Stock Assessment 2016*, *supra* note 36, at 12, 107.

[52] *Id.* at 55–58, 87.

flounder catch aged three years and older has increased between 1993 and 2015 from approximately 4% to 75%.[53]

Because older and larger summer flounder are distributed further northeast in the summer flounder's range, and possibly due to other factors, the center of biomass of the summer flounder stock has shifted northeast since the 1980s.[54] Trawl survey data indicate that the stock is now concentrated in the northern mid-Atlantic waters east of New Jersey and south of Long Island, and in the southern New England waters east of Long Island and south of Rhode Island and Massachusetts (see Figure 2).[55]

Figure 2: Summer Flounder Stock Distribution in 2016[56]



The northeast shift in the center of biomass of the summer flounder stock toward the waters proximate to Long Island has in turn driven geographic changes in commercial fishing activity. In particular, the increase in summer flounder abundance and size in waters offshore of New York has been accompanied by an increase in commercial fishing for summer flounder in these waters, as reflected in catch data collected by NMFS. As discussed above, in 1983–1989, when the stock was becoming depleted, 46% or more of commercial summer flounder landings

[53] *Id.* at 6, 19–23.

[54] Bell at al., *supra* note 33, at 1315, 1318 (Exhibit B).

[55] OceanAdapt, *supra* note 38.

[56] *Id.*

were caught in the southern mid-Atlantic, while 41% or less were caught in the northern mid-Atlantic and southern New England waters proximate to Long Island.[57] Now, NMFS data show that in 2015–2016, approximately 12% of the commercial summer flounder catch was taken from southern mid-Atlantic waters, while more than 80% was taken from northern mid-Atlantic and southern New England waters.[58] This 80% of the commercial catch is caught in waters within approximately 150 miles of Long Island. These same waters are no closer than 200 miles, and as far as 400 miles or more, from Virginia and North Carolina.[59]

A presentation at the February 2018 meeting of the Mid-Atlantic Council supports this northeast shift in commercial fishing for summer flounder. At the council meeting, researchers presented their findings that the average commercial catch location for summer flounder, as determined based on NMFS vessel trip report data, has been shifting from the southern mid-Atlantic waters offshore of Delaware, Maryland, and Virginia in the mid-late 1990s to the northern mid-Atlantic waters south of eastern Long Island in the early-mid 2010s.[60] In 2014, the average commercial catch location was approximately 90 miles from Montauk, New York, approximately 300 miles from Hampton, Virginia, and approximately 450 miles from Beaufort, North Carolina (the largest summer flounder ports in these three states). According to the research findings presented to the Council, this shift in commercial fishing has been driven largely by vessels catching summer flounder in northern mid-Atlantic waters and then landing them in North Carolina and Virginia (and to a lesser extent, Maryland). Between 1996 and 2014, the average catch locations for summer flounder that was landed in Delaware, New Jersey, New York, Connecticut, Rhode Island, and Massachusetts remained roughly consistent and in each case have been situated in the waters proximate to their respective states of landing. In contrast, the average catch locations for landings in North Carolina and Virginia have shifted over that

[57] RELEVANT FACTS § B. The actual distribution of catch locations was likely even further skewed toward the southern mid-Atlantic, because these data did not include North Carolina landings. *See* notes 40–41, *supra*.

[58] *Draft Alternatives*, *supra* note 29, at 34–35 (Exhibit A); *see also* notes 40–41, *supra* (specifying the NMFS statistical areas comprising each of these regions). These percentages may represent slight underestimates because they do not include catch from statistical areas with less than 1% of total catch. *See Draft Alternatives* at 34.

[59] Note that the 2015–2016 data report share of catch, while the 1983–1989 data report share of landings (which does not include discards). Petitioners have no basis to believe that the striking contrast between the two data periods would be materially different if the same metric were used for both.

[60] Bradford Dubik et al., National Socio-Environmental Synthesis Center, *Spatial Shifts in the Summer Flounder Fishery*, at 23–42 (Feb. 13, 2018) (presentation to the Mid-Atlantic Fishery Management Council) (Exhibit C), *available at* http://www.mafmc.org/briefing/february-2018. It should be noted that while the authors of this presentation are preparing their findings for peer review and publication, that has not yet occurred.

same period from the waters offshore to those states to the waters east of New Jersey and south of Long Island and Rhode Island.[61]

E. New York's Summer Flounder Industry

Historically, fishing for summer flounder has been part of the "bread and butter" of New York's commercial fishermen: summer flounder's high value and widespread popularity made it a reliable source of revenue for area fishing.[62] At present, available data report 416 active permits from 2012–2016 to land summer flounder in New York and 214 known commercial fishermen in New York making summer flounder landings on average for the years 2012–2016.[63]

Yet with a high number of active commercial fishermen and licensed vessels, New York must now impose stringent management measures in the summer flounder fishery in order to comply with its small share under the 1993 Allocations. In 2016, New York had daily trip limits of 70 to 100 pounds for summer flounder depending upon the time of year, and an alternative 800-pound weekly limit between January and March.[64] In contrast, North Carolina did not have daily or weekly trip limits, but instead enforced summer flounder possession limits between 9,000 and 12,500 pounds.[65] The Commonwealth of Virginia had landings limits of 7,500 (allowable once within five days) at certain times of year.[66] These possession and landings limits in North Carolina and Virginia are equivalent to one thousand or more pounds of summer flounder per day for a typical trip.

The stringent limits on commercial landings of summer flounder in New York ports have made summer flounder fishing no longer an economically viable choice for many fishermen based in New York: the limited revenue generated by a trip often cannot offset the costs, including fuel, time, and vessel wear-and-tear. For many fishermen, this has foreclosed or severely restricted participation in the fishery and New York's commercial summer flounder industry has suffered considerably. In colder months, when fluke are further offshore, it makes little economic sense to travel round trip to and from port under the daily or weekly limits that New York imposes to meet its landings quota. This effectively limits many fishermen to making small day trips in the warmer months—rarely worth the cost or effort for larger vessels—or to

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[61] *Id.* at 45–54. In these presentation slides, lighter dots represent earlier years in the time range, and darker dots represent later years. The dots for each state are connected sequentially from 1996 (lightest) to 2014 (darkest).

[62] Affidavit of Capt. Bruce Beckwith (Exhibit F); Affidavit of Capt. John Berglin (Exhibit I).

[63] *Draft Alternatives*, *supra* note 29, at 9 (Exhibit A) (rounding to the nearest whole number).

[64] New York State Department of Environmental Conservation, *2016 Compliance Report to the ASMFC for Summer Flounder* (Exhibit E). Current regulations are even more stringent.

[65] North Carolina Division of Marine Fisheries, *2016 North Carolina Summer Flounder Compliance Report* (Exhibit E).

[66] Virginia Marine Resources Commission, *Virginia's 2016 Compliance Report for Summer Flounder* (Exhibit E).

landing summer flounder as a secondary catch or bycatch on trips for other fish species.[67] For those who continue to fish for summer flounder, they must often do so in direct sight of vessels licensed to land summer flounder in Virginia or North Carolina—pursuing the same fish at the same time—who may land those same fish in far greater quantities.[68]

While New York fishermen may purchase licenses to land summer flounder in states with larger quota allocations like North Carolina and Virginia, the price of such licenses—often in the range of multiple tens of thousands of dollars—has been prohibitive for many, especially for those operating smaller vessels.[69] Some operators of larger New York-based boats have made the business decision to purchase out-of-state licenses. These fishermen catch flounder in the waters near Long Island—the center of the fishery—and then travel to out-of-state ports to land their catch, only to return to their home ports in New York. In favorable weather conditions, it takes a seventy-foot vessel approximately eight hours to travel from prime summer flounder fishing waters to Montauk, New York. In contrast, it takes thirty or more hours to travel to port in Virginia, and forty-eight or more hours to travel to port in North Carolina—with commensurate increases in fuel use and vessel wear-and-tear.[70] If these New York fishermen were able to land more of their summer flounder catch in their home ports, the time and cost savings would be substantial. The fishermen would also be able to support more downstream industries in their port communities, such as pack houses that pack landed fish to be shipped to market.[71]

Meanwhile, summer flounder that is landed in New York is highly sought after by dealers in New York.[72] Indeed, within the seafood industry, New York has among the largest wholesale/distribution and retail sectors of any state in the fluke fishery, together with New Jersey and Massachusetts.[73] Much of the seafood supplied to the New York City metropolitan area passes through the New Fulton Fish Market in the Bronx, New York. Yet as one seller at the market estimates, no more than 5% of summer flounder he handles at Fulton has been landed in New York, while a majority has been landed in Virginia, North Carolina, or New Jersey.[74]

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[67] *See* Affidavit of Capt. Bruce Beckwith (Exhibit F); Affidavit of Capt. David Aripotch (Exhibit H); Affidavit of Capt. John Berglin (Exhibit I).

[68] *See* Affidavit of Capt. Bruce Beckwith (Exhibit F).

[69] *See id.*

[70] *See* Affidavit of Capt. David Aripotch (Exhibit H); Affidavit of Capt. John Berglin (Exhibit I).

[71] *See* Affidavit of Capt. David Aripotch (Exhibit H).

[72] *See* Affidavit of Warren D. Kremin (Exhibit G).

[73] National Marine Fisheries Service, NOAA Technical Memorandum NMFS-F/SPO-170, *Fisheries Economics of the United States 2015*, at 122 (May 2017), *available at* https://www.st.nmfs.noaa.gov/economics/publications/feus/fisheries_economics_2015.

[74] *See* Affidavit of Warren D. Kremin (Exhibit G).

ARGUMENT

The Magnuson-Stevens Act requires that FMPs and implementing regulations be consistent with all ten National Standards.[75] The 1993 Allocations in Amendments 2 and 4 to the Summer Flounder FMP and 50 C.F.R. § 648.102(c)(1)(i) violate National Standards 2, 4, 5, 7, and 10.

A. The 1993 Allocations Are Inconsistent with National Standard 2 Because They Are not Based Upon the Best Available Scientific Information

National Standard 2 provides that "[c]onservation and management measures shall be based upon the best scientific information available."[76] The 1993 Allocations are not based upon the best scientific information available because they are not based on current information about the summer flounder fishery. More recent information about the fishery—information that is available to, and in most cases compiled by, or based upon data collected by, the Agencies—shows that the geographic distribution of the fishery has changed significantly since 1993 in ways that must inform the geographic distribution of fishing privileges.

The National Standards Guidelines established by NMFS explain that "relevance" and "timeliness" are among the "[c]riteria to consider when evaluating best scientific information" under National Standard 2. As to relevance, the Guidelines state that "[s]cientific information should be pertinent to the current questions or issues under consideration and should be representative of the fishery being managed." As to timeliness, the Guidelines explain that "the temporal gap between information collection and management implementation should be as short as possible," and "[h]istorical information should be evaluated for its relevance to inform the current situation."[77] The 1993 Allocations are based upon commercial landings reports from 1980 to 1989—which are neither relevant nor timely data about the summer flounder fishery.

In 1993, available data from the mid-1980s indicated that approximately 46% or more of summer flounder landings were caught in the southern mid-Atlantic waters proximate to Virginia and North Carolina, while approximately 41% or less were caught in the northern mid-Atlantic and southern New England waters proximate to New York. Yet information that has become available to the Agencies since 1993 shows that the commercial summer flounder fishery has moved northeast, with fishing activity now centered in the waters proximate to Long Island. Indeed, as the summer flounder stock has recovered in recent decades, the population has shifted northward to become increasingly distributed at higher latitudes: summer flounder migrate north as they age, and more fish are living to older ages as a result of effective fishery management. Current NMFS data show that only approximately 12% of commercially caught summer flounder now come from the southern mid-Atlantic waters proximate to North Carolina and Virginia, while over 80% come from the northern mid-Atlantic and southern New England

[75] 16 U.S.C. § 1851.

[76] *Id.* § 1851(a)(2).

[77] 50 C.F.R. § 600.315(a)(6).

waters in the area east of New Jersey and mainland New York and south of Connecticut, Rhode Island, and Massachusetts—the waters in which Long Island is situated. Indeed, the average commercial catch location in 2014 was approximately 90 miles from Montauk, New York; approximately 300 miles from Hampton, Virginia; and approximately 450 miles from Beaufort, North Carolina.[78]

This more recently available information comes from better—and in particular, more timely and relevant—data on the geographic distribution of the fish stock and fishing activity, than does the information available in 1993, and collected in 1980–1989. The Summer Flounder FMP itself acknowledged that the 1980–1989 data were flawed and inconsistent between states, and implemented a standardized reporting system specifically to collect more accurate information that could inform future adjustments to the 1993 Allocations.[79] By not relying on timely and current data regarding the fishery, the Agencies have failed to ensure that the temporal gap between information collection and management implementation is as short as possible—even when more recently collected information is, in fact, available. Moreover, because the summer flounder fishery has changed over the decades, the historical 1980–1989 data are simply not representative of the current fishery. For these reasons, the 1993 Allocations violate National Standard 2 by failing to base their annual state allocations of the commercial summer flounder quota on the best scientific information available.[80]

B. The 1993 Allocations Are Inconsistent with National Standard 4 Because They Are not Fair to the Commercial Fishing Industry in New York

National Standard 4 requires that:

> Conservation and management measures shall not discriminate between residents of different States. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (A) fair and equitable to all such fishermen; (B) reasonably calculated to promote conservation; and (C) carried out in such manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.[81]

In the commercial summer flounder fishery, the 1993 Allocations allocate fishing privileges between the states in a manner that is neither fair and equitable, reasonably calculated to promote conservation, nor carried out in a manner to prevent any entity from acquiring an excessive share. Rather, the 1993 Allocations are unfair to fishermen and other market participants in New York, to the benefit of fishermen and other market participants in North Carolina and Virginia, without any rational conservation basis. The 1993 Allocations are therefore inconsistent with National Standard 4, in violation of the Magnuson-Stevens Act.

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[78] *See* RELEVANT FACTS §§ B–D.

[79] *See* RELEVANT FACTS § C.

[80] *See Guindon v. Pritzker*, 31 F. Supp. 3d 169, 195–97 (D.D.C. 2014) (holding that fishery rules may not ignore "superior or contrary data" where it is available).

[81] 16 U.S.C. § 1851(a)(4).

First, the 1993 Allocations are not fair and equitable to New York fishermen. As discussed in Section A above, information collected through 2016 shows that the summer flounder fishery is now concentrated in the waters south and east of Long Island, representing a significant shift from the distribution of the fishery according to information available in 1993. Yet still, as in 1993, New York receives only approximately 7.6% of the commercial allocation of summer flounder, compared with approximately 21.3% for Virginia and 27.4% for North Carolina. These allocations affect not just commercial fishermen in New York, but the rest of the summer flounder supply chain, including port-side businesses such as pack houses. As Amendment 2 recognized in 1993, the landings data upon which the 1993 Allocations were based were inconsistent and flawed.[82] With the subsequent institution of standardized vessel trip reporting, the best information available now shows that the summer flounder fishery has become centered much closer to New York than to North Carolina and Virginia.[83] Fishermen and other market participants in New York are fairly entitled to a share of the annual quota that is more proportional to the geographic distribution of the fish stock, and the continued reliance on the inequitable and outdated 1993 Allocations is inconsistent with National Standard 4.[84]

Nor do fairness and equity require that state allocations remain static. The National Standards Guidelines explain that "[a]n 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."[85] The unfairness of the 1993 Allocations to New York militate against preserving the allocations simply in order to preserve the status quo for North Carolina and Virginia interests.

Second, the 1993 Allocations are not reasonably calculated to promote conservation. The Guidelines explain that "[a]n allocation scheme may promote conservation by encouraging a rational, more easily managed use of the resource," or by "optimizing the yield in terms of size, value, market mix, price, or economic or social benefit of the product."[86] To distribute more fishing privileges to states further away from the fish, as the 1993 Allocations do, is not a rational or easily managed use of the summer flounder resource, nor does it optimize the economic or social benefit of the resource. A reasonably calculated distribution of privileges would more closely track the geographic distribution of the fishery in order to optimize benefits while conserving the summer flounder resource. For this reason as well, the 1993 Allocations are inconsistent with National Standard 4.

Third, the 1993 Allocations provide fishermen and the fishing industry in North Carolina and Virginia an excessive share of fishing privileges. The National Standards Guidelines

[82] *See* RELEVANT FACTS § C.

[83] *See* RELEVANT FACTS § D.

[84] *See Mass. by Div. of Marine Fisheries v. Daley*, 10 F. Supp. 2d 74, 78 (D. Mass. 1998) (holding that fishery rules cannot rely upon data that is known to be flawed, and that "[t]his is particularly true when doing so will have a discriminatory effect").

[85] 50 C.F.R. § 600.325(c)(3)(i)(B).

[86] *Id.* § 600.325(c)(3)(ii).

elaborate that "[a]n allocation scheme must be designed to . . . avoid creating conditions fostering inordinate control, by buyers or sellers, that would not otherwise exist."[87] The Guidelines also explain that such considerations are not limited to just fishermen: allocation schemes "should consider other factors relevant to the FMP's objectives," including "economic and social consequences of the scheme, food production, [and] consumer interest."[88] Yet the 1993 Allocations unfairly and artificially skew fishing privileges—and thus market control—to fishermen and downstream market participants based in North Carolina and Virginia, to the detriment of fishermen and the seafood industry in New York. Given the northern geographic distribution of the fishery, this gives North Carolina and Virginia interests an excessive share of privileges in the summer flounder fishery, and inordinate control over the fishery.

Furthermore—and fundamentally—the perennial reliance on fixed allocations for approximately two and half decades has had the effect of entrenching control of and access to the fishery by those interests who benefit under the status quo, while relegating those who do not benefit to a perpetually disadvantaged status. Because the allocations have been fixed, commercial fishermen in states like New York have been afforded no opportunity to demonstrate their unrealized interest to participate in the fishery. This places some fishermen at a permanent disadvantage by affording no mechanism through which the allocations may be adjusted as underlying fishery conditions change. For the Summer Flounder FMP and 50 C.F.R. § 648.102(c)(1)(i) to set fixed state-by-state allocations, without any mechanism or practice to update those allocations based upon conditions in the fishery, is inherently unfair in violation of National Standard 4.[89]

C. The 1993 Allocations Are Inconsistent with National Standards 5 and 7 Because They Are Inefficient and Costly

National Standard 5 requires that "[c]onservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources[.]"[90] Relatedly, National Standard 7 requires that "[c]onservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication."[91] The 1993 Allocations are inconsistent with National Standards 5 and 7 because they do not foster efficiency in utilization of the summer flounder fishery and there are practicable means to minimize costs.

The National Standards Guidelines explain that the "efficiency" of a fishery under National Standard 5 encompasses the minimization of "economic inputs such as labor, capital, interest, and fuel" for a given yield, and that the "utilization" of a fishery includes "harvesting, processing, marketing, and non-consumptive uses of the resource."[92] The Guidelines further

[87] *Id.* § 600.325(c)(3)(iii).

[88] *Id.* § 600.325(c)(3)(iv).

[89] *See Guindon v. Pritzker*, 240 F. Supp. 3d 181, 194–95 (D.D.C. 2017).

[90] 16 U.S.C. § 1851(a)(5).

[91] *Id.* § 1851(a)(7).

[92] 50 C.F.R. § 600.330(b).

explain that, to comply with National Standard 7, "[m]anagement measures should not impose unnecessary burdens on the economy[or] on individuals."[93]

As discussed in Sections A and B above, the 1993 Allocations artificially skew the state-by-state quotas inconsistent with the geographic distribution of both the summer flounder stock and actual commercial fishing activity. In particular, North Carolina and Virginia together receive nearly half of the commercial summer flounder quota each year, even though the fishery is concentrated in the waters nearer to Long Island. As a result, boats landing summer flounder in North Carolina and Virginia must, on average, travel further from where they have caught summer flounder to their port of landing, than if those same flounder were landed in New York ports.[94] Besides greater inputs of travel time, this longer round trip also requires greater use of fuel and results in greater wear-and-tear on vessels. Moreover, in many cases, fishermen with boats licensed to land summer flounder in North Carolina and Virginia do not even reside in those states, but sail out of northern states such as New York.[95] Indeed, there are fisherman who sail out of ports like Montauk, New York to catch summer flounder in the waters off Long Island, only to travel to and from southern ports in order to land their catch—under a license that may have cost tens of thousands of dollars—when they would prefer to save time and expense by landing that catch at home in Montauk, if only New York's quota allocation allowed for less stringent landings limits.[96] In some cases these inefficiencies are even further compounded: to the extent that market demand for summer flounder in the New York region is not satisfied by locally landed fish, there are additional shipping costs associated with the transport of summer flounder from southern ports to northern markets.[97]

The 1993 Allocations are therefore inconsistent with National Standard 5 by failing to consider more efficient alternatives that minimize labor, capital, and fuel inputs for a given yield of fish than is currently wasted by sending fishermen between southern ports and northern waters, when those same fish could be caught and landed with trips between northern ports and those same waters. For similar reasons, the 1993 Allocations are inconsistent with National Standard 7 by failing to minimize costs. The excessive costs created by the 1993 Allocations burden the fishing industry and are passed onto consumers in the form of higher prices.

In addition, it is eminently practicable for the annual commercial quota for summer flounder to be allocated in a way that considers efficiency and minimizes costs by no longer skewing the distribution of fishing privileges toward North Carolina and Virginia, and away from New York. The state-by-state allocations could simply be readjusted to more accurately track the geographic distribution of the fishery, based upon the best scientific information currently available. Yet in spite of the availability of practicable alternatives, the Agencies continue to use the 1993 Allocations, at the expense of efficiency and cost considerations.

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[93] *Id.* § 600.340(b).

[94] *See* RELEVANT FACTS § D.

[95] *See* RELEVANT FACTS § E.

[96] *See* Affidavit of Capt. David Aripotch (Exhibit H).

[97] *See* RELEVANT FACTS § E.

Because the 1993 Allocations are inconsistent with National Standards 5 and 7, they further violate the Magnuson-Stevens Act.

D. The 1993 Allocations Are Inconsistent with National Standard 10 Because They Do not Promote Safety

National Standard 10 requires that "[c]onservation and management measures shall, to the extent practicable, promote the safety of human life at sea."[98] The 1993 Allocations fail to do so because they cause fishermen to spend longer at sea than necessary for a given yield of summer flounder.

As the National Standards Guidelines note, "[f]ishing is an inherently dangerous occupation."[99] The longer a fishing vessel spends at sea, the greater the risk to its crew. Recognizing this, the Guidelines advise that "[a]n FMP should try to avoid creating situations that result in vessels going out farther[or] fishing longer . . . than they generally would have in the absence of management measures."[100]

As discussed in Sections A through C above, the 1993 Allocations distribute disproportionate fishing privileges to Virginia and North Carolina, despite the summer flounder concentration in the waters close to New York. The result is that fishermen travel great distances between southern ports and northern waters to catch and land summer flounder that could otherwise be landed by fishermen traveling shorter distances from New York ports, if New York were afforded a greater allocation of fishing privileges. The 1993 Allocations are thus inconsistent with National Standard 10 by failing to promote the safety of human life at sea where practicable.

Indeed, because the 1993 Allocations were established prior to the addition of National Standard 10 to the National Standards, the Agencies necessarily did not originally evaluate the 1993 Allocations for compliance with that standard.[101] Because the 1993 Allocations are inconsistent with National Standard 10, they further violate the Magnuson-Stevens Act.

PROPOSED RULEMAKING

For the reasons stated above, the 1993 Allocations as set forth in Amendments 2 and 4 of the Summer Flounder FMP and 50 C.F.R. § 648.102(c)(1)(i) violate the Magnuson-Stevens Act. New York hereby petitions the Agencies to replace the 1993 Allocations with allocations that are consistent with the National Standards. Various alternative measures are available to update the 1993 Allocations. The most straightforward option is a simple redistribution of the state shares

[98] 16 U.S.C. § 1851(a)(10).

[99] 50 C.F.R. § 600.355(b).

[100] *Id.* § 600.355(c)(1).

[101] *See Fairweather Fish, Inc. v. Pritzker*, 155 F. Supp. 3d 1136, 1141–42 (W.D. Wash. 2016).

of the commercial quota: to use the best scientific information available to reallocate fishing privileges between the eastern seaboard states in a way that is fair and equitable to New York, that considers efficiency and achieves cost minimization, that promotes the safety of human life at sea, and that is otherwise consistent with the National Standards.

To proceed with this necessary amendment of the 1993 Allocations, New York proposes that the Mid-Atlantic Council submit to NMFS an amendment to the Summer Flounder FMP and its implementing regulations. NMFS would then review and approve the FMP amendment and would review and promulgate the amendment's implementing regulations. Alternatively, if the Council does not act to develop and submit the necessary amendment to the Summer Flounder FMP, NMFS and the other Agencies would act on their own to prepare and adopt such an amendment and propose and promulgate implementing regulations.[102]

New York also proposes that the Agencies revise the 1993 Allocations in a two-phase process: (1) in the first phase, the Agencies would dispense with state-by-state allocations of the commercial landings quota and implement coastwide management of the commercial quota for an interim period while the Agencies collect information that allows them to revise the allocations so that they are fair to New York and otherwise comply with the National Standards; and (2) in the second phase, the Agencies would establish new state-by-state allocations that are consistent with the National Standards.

Specifically, New York proposes that the Agencies act as soon as practicable to establish a period of approximately three to five years (the "Coastwide Period") during which the annual commercial quota for summer flounder is not allocated between states and implemented by state-specific management, but instead is implemented with coastwide management measures developed and adopted by the Agencies. Seasonal quotas, trip limits, and other measures would allow the Agencies to enforce the annual commercial quota during the Coastwide Period while achieving balance within the fishery between different participants—e.g., between offshore winter fishermen and inshore summer fishermen. Critically, the Agencies' management measures during the Coastwide Period would apply to all commercial landings of summer flounder regardless of state of landing and commercial fishermen would be permitted to land summer flounder in any state in which they are licensed to do so. This would allow commercial fishermen to land summer flounder in whatever ports present the best opportunities for them, considering factors such as catch location, home port location, market price differentials, available packing and processing infrastructure, safety risk exposure, and other relevant concerns.

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[102] *See* 16 U.S.C. §§ 1852(h), 1853(a), (c), 1854(a)–(c). In the event that the Mid-Atlantic Council takes the position that it is not an agency subject to the rulemaking petition provision at 5 U.S.C. § 553(e), New York nevertheless requests that the Council submit amendments to the Summer Flounder FMP and the implementing regulations to NMFS, as set forth in this petition. If the Council fails to do so, New York petitions NMFS, NOAA, and Commerce under 5 U.S.C. § 553(e) to act on their own pursuant to 16 U.S.C. § 1854(a)–(c) to amend the Summer Flounder FMP and its implementing regulations as set forth in this proposed rulemaking.

After the Coastwide Period, the amended FMP and regulations would then establish new state-by-state allocations (the "New Allocations") based on the data collected during the Coastwide Period. Consistent with National Standard 2, the data collected during the Coastwide Period would allow the Agencies to base the New Allocations upon actual, current landings data that reflect present conditions in the fishery. Consistent with National Standard 4, the New Allocations would fairly and equitably distribute fishing privileges between states because they would be based on new landings data from the Coastwide Period. Consistent with National Standards 5 and 7, the New Allocations would consider efficiency and minimize costs by allowing commercial fishermen to land summer flounder in one port or another based upon economic considerations. Because both the summer flounder stock and summer flounder fishing activity are centered around the waters proximate to New York, the likely outcome during the Coastwide Period would be that more commercial fishermen would opt to land summer flounder in New York. Because the Coastwide Period would allow commercial fishermen to make market-based economic decisions about where to land summer flounder, the New Allocations would improve economic efficiency and achieve cost minimization going forward. Finally, consistent with National Standard 10, the New Allocations would promote greater safety of human life at sea by decreasing the collective time and distance spent at sea by commercial fishermen.

New York also submits that, whether through its proposed two-phase process or otherwise, any reallocation of fishing privileges need not—and should not—represent a permanent decision on the matter. Instead, future changes in the fishery should lead to new allocations of the annual commercial quota among states according to the best available information and other requirements of the Magnuson-Stevens Act.

CONCLUSION

For the reasons stated above, New York petitions the Agencies to replace the 1993 Allocations in Amendments 2 and 4 of the Summer Flounder FMP and 50 C.F.R. § 648.102(c)(1)(i) with allocations that are fair to New York and otherwise consistent with the National Standards.

Dated: New York, New York
March 23, 2018

BASIL SEGGOS
Commissioner of the New York State
Department of Environmental Conservation

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

MEMORANDUM

Date: March 27, 2018

To: Chris Moore

From: Jason Didden

Subject: South Atlantic Party/Charter Electronic Reporting

A Notice of Availability (NOA) with a comment deadline of May 13, 2018 has published regarding the South and Gulf Councils' submission of their For-hire Reporting Amendment.

The South Atlantic Amendment proposes mandatory weekly electronic reporting for charter vessel operators with a federal for-hire permit in the snapper grouper, dolphin wahoo, or coastal migratory pelagic fisheries; reduces the time allowed for headboat operators to complete their electronic reports; and proposes requiring location reporting by charter vessels with the same detail now required for headboat vessels.

The proposed Gulf for-hire electronic reporting program would require trip-level reporting, a pre-trip notification to NMFS, and location information monitored by a vessel monitoring system, among other requirements.

Staff suggests that the Mid-Atlantic Fishery Management Council submit a comment letter recommending that any reporting implemented in this action utilize technologies that eliminate duplicate reporting. Specifically, we recommend one questionnaire that addresses all relevant federal and state reporting requirements and allows the data to be sent to the relevant agencies. It is staff's understanding that the reporting applications from the Atlantic Coastal Cooperative Statistics Program (ACCSP) have this capability.

ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

STEPHEN W. MURPHEY
Director

Feb. 9, 2018

RECEIVED
FEB 16 2018
Mid-Atlantic Fishery
Management Council

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

Dear Director Moore:

The North Carolina Division of Marine Fisheries supports and administers the leasing of public trust waters for the culture and harvest of shellfish. In addition, the division permits non-shellfish land based aquaculture operations for marine and estuarine species. However, until recently the use of public trust waters for aquaculture purposes was limited to shellfish species.

During the 2017 session, the North Carolina General Assembly introduced a bill to expand aquaculture of non-shellfish species in the estuarine and state ocean waters of the state. Senate Bill 410 or the Marine Aquaculture Act, (attached) was signed into law by Governor Roy Cooper on July 27, 2017. To allow for the development and expansion of deep water aquaculture opportunities, the law tasked the division to request that the Mid-Atlantic and South Atlantic Fishery Management Councils develop a Fishery Management Plan for regulating offshore aquaculture in federal waters off the North Carolina coast.

Additionally, the law requires that the division also petition the National Oceanic and Atmospheric Administration to initiate rule making proceedings to implement a comprehensive regulatory program for managing the development of an environmentally sound and economically sustainable aquaculture fishery in federal waters offshore from the North Carolina coast.

Under this law, the North Carolina General Assembly declared it is the policy of the State to encourage the development of private, commercial marine aquaculture in ways that are compatible with other public uses of marine and estuarine resources such as navigation, fishing, and recreation.

In fulfilling the requirements of the law, I would like to respectfully request that the Mid-Atlantic Fishery Management Council provide the division with criteria needed to begin the process outlined in the bill along with estimated timelines for implementation of development of a fishery management plan for regulating offshore aquaculture. The division will submit a preliminary report in early 2018 to the North Carolina General Assembly and a final report in April, 2018.

The new Marine Aquaculture Program will be administered under the division's Habitat Enhancement Section. If you need additional information, please contact me at 252-808-8013.

Sincerely,

Stephen W. Murphey, Director
N.C. Division of Marine Fisheries

Enclosure

Nothing Compares

State of North Carolina | Division of Marine Fisheries
3441 Arendell Street | P.O. Box 769 | Morehead City, North Carolina 28557
252-726-7021

Saunders, Jan

From: Moore, Christopher
Sent: Friday, March 23, 2018 5:31 PM
To: Saunders, Jan
Subject: FW: Request for support of an Ecosystem Working Group
Attachments: Draft Plan and Agenda for a Ecosystem Working group for squids mackerels 2017.docx

FYA

From: Greg DiDomenico <gregdi@voicenet.com>
Sent: Friday, March 23, 2018 5:28 PM
To: Moore, Christopher <cmoore@mafmc.org>
Subject: Request for support of an Ecosystem Working Group

FYI please use this version.

Dear Chris,
Attached you will find a draft document that outlines an approach to prepare for the challenges of EBM and future fishery issues.

We feel that the formation of a "Ecosystem Working Group" can be structured in such a way that experienced stakeholders can provide input and recommendations, academia can provide technical expertise and Agency and Council staff can participate in a meaningful way that produces potential solutions to mutual management and science challenges.

I respectfully request your consideration of this working group, support from the Council and participation from your staff.

Thank you.

Greg DiDomenico
Executive Director
Garden State Seafood Association

Draft Rationale & Objectives for an expert scientific working group supporting Ecosystem Based Fishery Assessment & Management of fisheries in the MAFMC Squid, Mackerel and Butterfish FMP

Rational: Calls for the implementation of Ecosystem Based Fishery Management (EBFM) arise from the recognition that fisheries emerge from complex interactions between "wild" components of marine ecosystems and human socio-economic components including human food requirements. In the face of complexity, EBFM requires application of transdisciplinary approaches integrating expertise in fisheries, oceanography, ecology, natural resource economics and other social sciences. Natural and human processes driving marine fisheries are also changing rapidly. Distributions and productivities of marine species are shifting in response to changing ocean dynamics due to changing weather and climate. Fishing effort and landings are changing as a result, but in the context of regional fishing regulations and seafood supply and demand chains that are also changing. When so many dimensions are changing simultaneously fishery systems cannot be forecast with certainty. Most fishery problems and solutions are therefore provisional and transdiciplinary approaches need to define problems and solutions based on an awareness of current ecological states. Fishing industry experts have practical, fine grained, real time understanding of the changing socio-ecological systems in which their fisheries operate. In contrast, fishery scientists have perspectives that are relatively coarse grained. The perspectives of industry experts and fisheries scientists are therefore complementary and industry experts must be included as partners in expert working groups tasked with the timely identification of problems and development of practical technical solutions for Ecosystem Based Fisheries Assessment & Management (EBFA&M) in rapidly changing ecosystems.

We will establish a transdisciplinary working group of experts focused on the identification of problems and development of solutions for effective EBFA&M of fisheries in the Mid-Atlantic Fisheries Management Councils Squid, Mackerel, Butterfish Fisheries Management Plan (FMP). We will focus on the FMP because the species included are pelagic, highly productive, responsive to environmental change, and play important roles in the Northeast US continental shelf food web including providing food for humans. The fleets fishing for the stocks are also closely related. Our expert working group builds on work and relationships developed in earlier working groups that successfully delivered products for benchmark and update stock assessments of two species in the FMP (Atlantic Mackerel, 2017, Atlantic Butterfish 2014). The working group will be sustained in a research mode over the long term to provide practical technical information and products for population assessment working groups, Fisheries Management Action Teams, the Scientific and Statistical Committee, and MAFMC staff working in the FMP. However, there is no guarantee the groups work will be considered in, or impact assessments or other forms of applied science. Sustained engagement with the fisheries should allow the group to identify emerging problems and practical evidence based solutions much more rapidly than is currently possible. We believe solutions should support more coherent and proactive management that better sustains fish populations and the fisheries that rely upon them.

Administrative Issues:
Timing of first Working Group meeting: Late April-Early May fishery transition period
Location: Rhode Island
Duration: 3 consecutive days.
Size of WG: No larger than 30-35 max.
Funding: Individual workgroup members will be responsible for the costs of their participation.

Potential Membership
Industry: Goodwins, Roebucks, Axelssons, Ruhle, Lackner others?
Shoreside: Lunds, Town Dock, Seafreeze, Cape Seafood.
Industry Representatives:
Conservation Representatives:
Government: NEFSC; Sara Gaiches, Curti (Mackerel), Adams (Butterfish), Hendrickson (Squids), David Richardson, Coop Research /Manderson. Patricia DeSilva NEFSC-Social Science Branch, GARFO: Doug Christel, Josh O'Connor
Academia/ Non-Governmental Scientific Expertise Including Economist and Oceanographer
Council staff: Jason Didden, Julia Beattie
SSC: David Secor, Rob Latour, Others?
MAFMC Council: Peter Hughes (MAFMC SMB Committee chair

Science:

1) Butterfish
    a) Recruitment issues and survey considerations
    b) Are there availability issues? Empirical data vs model based approaches.
    c) How does life history affect risk policy?
    d) Regulations drive effort and patterns of catch?
    e) Global and Domestic economic effects on markets and price and therefor perhaps effort and landings
2) Atlantic Mackerel
    a) Outcome of 2017 assessment
    b) Effects of the change in dominance of US and Canadian Contingents
    c) What are the drivers of interactions/overlap with herring
    d) Effects of EM/PS sampling costs in herring fishery that affect mackerel fishery

Management:

1) What is the goal of EFBM?

a) Is human food security a primary ecosystem service?
b) How are and should the various ecosystem components and services be weighted
c) Are forage buffers redundant with estimates of M
d) Socio-economic drivers: Economics?
e) Socio-economic drivers: Regulations?

2) Survey/fishery Catchability issues
    a) Net efficiency
3) What is the optimal yield?
4) What is the risk that we overfishing stocks?
5) What is the risk if we overfish these stocks?

From:	Moore, Christopher
To:	Saunders, Jan; Mary Clark Sabo
Subject:	FW: Regional Habitat Steering Committee
Date:	Friday, March 30, 2018 11:37:32 AM
Attachments:	MAFMC Habitat Steering.doc

Email and attachment for BB

From: Guy Simmons <guy@seaclam.com>
Sent: Wednesday, March 21, 2018 2:17 PM
To: Moore, Christopher <cmoore@mafmc.org>
Cc: Rubin Shen, Leah (Coons) <Leah_RubinShen@coons.senate.gov>
Subject: Regional Habitat Steering Committee

Dear Mr. Moore,
I have attached a letter addressed to you from me as the Chairman of the Industry Advisory Board for SCeMFiS pertaining to the Regional Habitat Steering Committee. I have copied Senator Coons on the letter as he has always been very supportive of and shown great interest in the cooperative science that we are involved in.
I will not be able to attend the next MAFMC meeting in April as I will speaking at Mississippi State University that week but I can make myself available to discuss this request with you via telephone most any time.
Thank you for your consideration of this request.

Guy B Simmons
Sea Watch International, Ltd
Senior VP Marketing and Product Development
8978 Glebe Park Dr.
Easton, MD 21601
Direct Line: 410-819-8521
Cell Phone: 410-726-1995
Email: guy@seaclam.com

Science & Industry
Working Together for
Sustainable Fisheries

- A National Science Foundation Industry/University Cooperative Research Center (I/UCRC)

March 16, 2018

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

Dear Mr. Moore,

I am writing to you in regards to the Regional Habitat Steering Committee that was discussed at the last MAFMC meeting held in North Carolina. I was not in attendance at the meeting but I was made aware of the formation of the committee and the discussion of the recommendation as a result of a Webinar held on January 11, 2018.

As you are aware the National Science Foundation approved a charter for the Science Center for Marine Fisheries in 2013. The membership of SCeMFiS is comprised of companies based in the Mid-Atlantic and New England states. Our member companies have over 100 fishing vessels operating in federal waters referred to as the Mid-Atlantic Bight harvesting many species managed under the Magnuson-Stevens Act. The recommendations of the Regional Habitat Steering Committee will have a direct effect on the future of the membership's ability to maintain and grow our industry providing thousands of jobs within the region.

Over the past 3 years the Atlantic Surclam and Ocean Quahog fishery has done extensive work on Habitat issues in conjunction with the New England Fishery Management Councils Planning and Development Team. We believe that SCeMFiS can bring great value to the Regional Habitat Steering Committee at no cost to the Federal Government.

I am asking that you to provide an appointment to the Regional Habitat Steering Committee for one of our scientists or members from SCeMFiS. I believe that the knowledge of the fishing community and the science from SCeMFiS can be of great benefit to the committee.

Thank you for your leadership and consideration of this request.

Best Regards,
Guy B Simmons
Sea Watch International, ltd.
Chairman
SCeMFiS Industry Advisory Board

CC: Senator Christopher A. Coons
127-A Russell Senate Building
Washington, DC 20510

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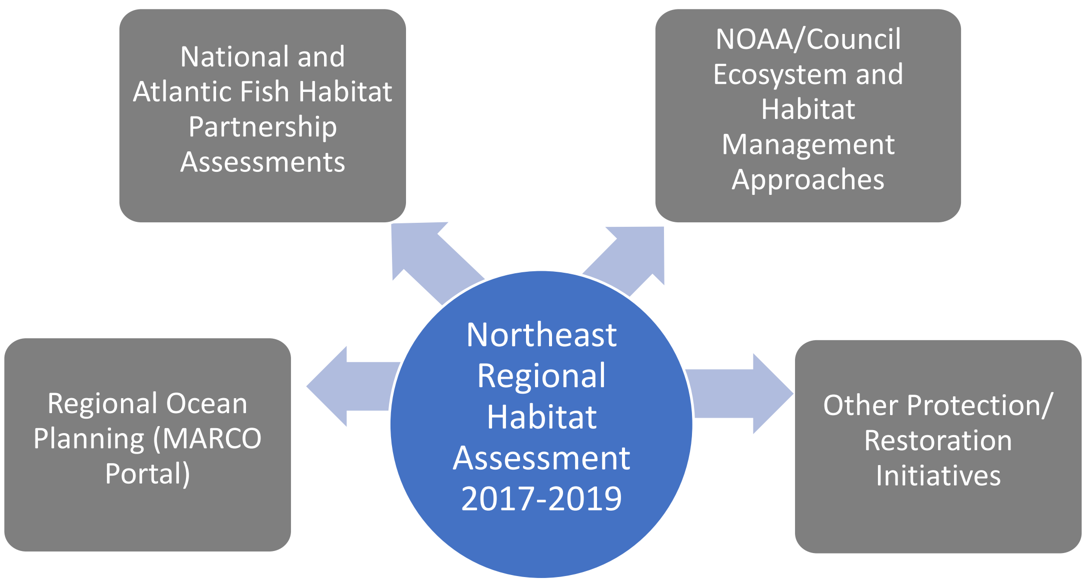
Regional Habitat Assessment 2017-2019

Purpose: To describe and characterize estuarine, coastal, and offshore fish habitat in the Northeast using a partnership driven approach.

Expected Outcome: This partner driven initiative will develop information and tools to support the National Fish Habitat Assessment[1], provide spatial products that describe fish habitat for the Mid-Atlantic Regional Planning Body data portals (MARCO), support the National Oceanic and Atmospheric Administration (NOAA) Fisheries and the Mid-Atlantic Fishery Management Council's (Council) essential fish habitat (EFH) and habitat area of particular concern (HAPC) descriptions as well as other ecosystem related management outcomes, and provide tools and information to the region to support other state or regional habitat protection and restoration initiatives.



Geographic scope: The scope will include Northeast US estuarine and marine waters, north of Cape Hatteras, NC. The full scope of the project will be refined by the project steering committee.

Background: As amended in 1997, the Magnuson-Stevens Act states that the purpose of the EFH mandate is to protect and conserve "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." NOAA Fisheries and the regional fishery management councils work together to update EFH designations for the fish stocks in federal fishery management plans to support the EFH consultation process, an important procedural tool which requires other federal agencies to consult with NOAA Fisheries on projects that may impact fish habitat. More detailed habitat information is also needed to identify Habitat Areas of Particular Concern (HAPCs), which are specific areas that can be targeted for habitat conservation, protection, or research. The Council has a

[1] National Fish Habitat Partnership, http://www.fishhabitat.org/

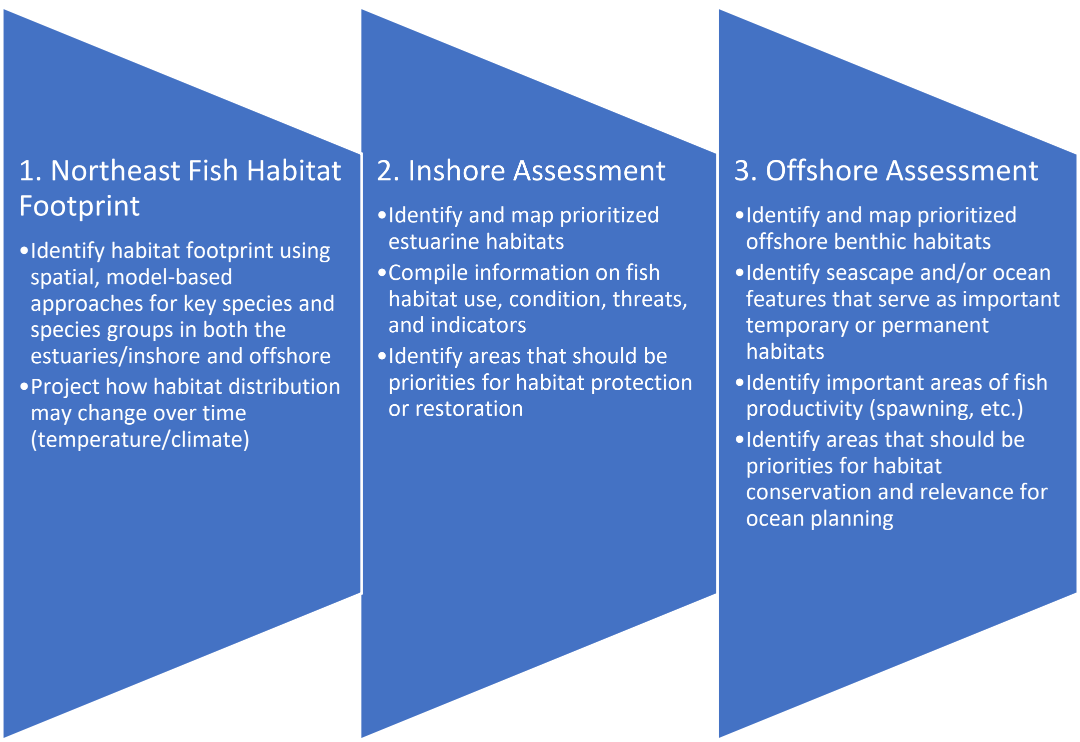
need to meet its regulatory requirements for EFH review while advancing policies set forward in its new Ecosystem Approach to Fisheries Management (EAFM) Guidance Document.[2]

In addition, the National Fish Habitat Assessment (2010 and 2015), has had limited success providing information on coastal fish habitat at the scale needed to support its regional partners such as Atlantic Coastal Fish Habitat Partnership (ACFHP). Both state agencies and ACFHP, while not subject to the EFH mandate, address coastal zone development impacts on fish habitat and would benefit from consolidated, spatial information on fish habitats within state waters.

There is also a growing commitment to ecosystem-based fisheries management on the part of the Council and NOAA Fisheries. Fish habitat information at appropriate scales is needed to support and advance these activities.

Clearly, new and innovative approaches are needed to integrate information available from a variety of sources throughout the region and develop improved, spatially informative descriptions of habitat to support decisions made by fisheries and habitat managers, as well as decisions related to ecosystem and ocean planning within this region.

Deliverables: An integrative, evaluation of fish habitat in the Northeast.



[2] The Council's EAFM Guidance Document (http://www.mafmc.org/eafm/) states that EFH should be strengthened by considering essential habitat from a multispecies/ecosystem perspective, emphasizing the connectivity between species and life history stages, and inshore and offshore habitats. In addition, it was noted that approaches should be developed that recognize and account for climate change.

1.Identify the footprint of fish habitat and how it is changing.

Using the best available information on fish life history and habitat use in the marine and estuarine environments, model-based approaches[3] will be developed to describe the footprint of fish habitat for key species and species groups that are state and federal fisheries management priorities. Model based approaches will allow the development of longer-term projections into how that habitat may change over time – and allow managers to more directly consider these climate/temperature driven impacts and their implications to habitat and fish in the region.

This tool will specifically support the designation of EFH for the Council, and provide the broad map products and tools needed to trigger EFH consultations with NOAA Fisheries in the region.

2. Conduct an inshore assessment.

This project will compile/review/and inventory information, including maps and spatial data, on important estuarine habitats (e.g., submerged-aquatic vegetation, marine shellfish beds, etc.) based on ACFHP species-habitat matrix[4] for state/federal managed species. Depending on the needs identified by partners, these data products could include physical or biological habitat characteristics, stressors, fish survey data, or other factors as identified by the work plans. Based on knowledge of data resources and need in their region, the steering committee will identify and prioritize the kinds of information to be included in this inshore assessment.

This information will support the identification of HAPCs for the Council, as well as support the work of ACFHP and other state and regional groups focused on nearshore habitat protection and restoration. In addition, this information will be used to support the National Fish Habitat Assessment in 2020.

3. Conduct an offshore assessment.

This project will compile/review/and inventory information, including maps and spatial data, on prioritized benthic habitats for state/federally managed species. In addition, this project will identify areas in the offshore environment that are important to fish productivity, such as spawning areas, seascapes, or other permanent or temporary habitat types that play an important role for state and federally managed species. Additional model-based approaches may be developed as needed. This assessment should also examine the relationship between inshore nursery habitat use and pathways/timing of movements to offshore habitats for important fisheries. Based on knowledge of data resources and need in their region, the steering committee will identify and prioritize the kinds of information to be included in this offshore assessment.

This information will support the identification of HAPCs for the Council, as well as support the need for spatially explicit information for marine spatial planning in the region to identify and prioritize areas that are important to fish and the ecology of the offshore marine environment.

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[3] These could include approaches such as generalized additive modeling, habitat suitability modeling, or other spatially explicit approaches as appropriate.

[4] The matrix summary and publication of the results in the journal BioScience can be found here:
http://www.atlanticfishhabitat.org/Documents/Species%20Habitat%20Matrix%20Summary%20Report.pdf
https://academic.oup.com/bioscience/article/66/4/274/2464081/The-Importance-of-Benthic-Habitats-for-Coastal

Steering Committee: The steering committee will be comprised of experts from the major habitat conservation, restoration, and science partners in the region, and its coordination will be supported by staff from the Council. Members[5] should include:

Mid-Atlantic Fishery Management Council (Chair)
Atlantic States Marine Fisheries Commission
Atlantic Coast Fish Habitat Partnership
Monmouth University
National Fish Habitat Partnership
New England Fishery Management Council
NOAA Fisheries Offices of Habitat Conservation (Headquarters and Region)
NOAA Fisheries Offices of Science and Technology (Ecosystems and Monitoring)
NOAA Northeast Fisheries Science Center
NOAA NCCOS Marine Spatial Ecology Division
The Nature Conservancy
Other needed membership as identified by the steering committee

The steering committee will provide oversight for the regional habitat assessment. The committee will identify project team(s) that will develop a detailed regional work plan to be reviewed and approved by the steering committee. This plan will identify specific products and delivery dates, any financial commitments, and participant responsibilities in completing the regional assessment.

The project team(s) will carry out the work plan, providing updates and delivering the products to the steering committee, as well as all the involved partners.

[5] Suggested membership – will depend on identification of member by agencies/entities.

MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

Mid-Atlantic Fishery Management Council
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: March 30, 2018

To: Chris Moore

From: Mary Sabo

Subject: Magnuson-Stevens Reauthorization Update

On December 13, 2017, the House Natural Resources Committee marked up and ordered to be reported H.R. 200 (as amended), the "Strengthening Fishing Communities and Increasing Flexibility in Fisheries Management Act." H.R. 200 is the main House bill that would amend the Magnuson-Stevens Act (MSA). Behind this memo is a section-by-section analysis of the amended bill prepared by Dave Whaley, legislative consultant to the Council Coordination Committee (CCC). The amended version of H.R. 200 (not including minor Committee amendments) is available at https://naturalresources.house.gov/uploadedfiles/hr_200_ans_young_002.pdf.

On February 28, 2018 the U.S. Senate Committee on Commerce, Science, and Transportation Committee met during an Executive Session and voted to advance S. 1520, "The Modernizing Recreational Fisheries Management Act," to the Senate floor. The full text of S. 1520 is available at https://www.congress.gov/115/bills/s1520/BILLS-115s1520is.pdf.

The CCC has been asked by Congressman Don Young to provide comments on H.R. 200 as amended. The CCC's legislative working group is developing a draft letter for consideration at the May 2018 CCC meeting.

Additional information and resources related to MSA reauthorization are available on the joint fishery management council website at http://www.fisherycouncils.org/msa-reauthorization/.

H.R. 200 - The "Strengthening Fishing Communities

and Increasing Flexibility in Fisheries Management Act"

Sponsor – Congressman Young (R-Alaska)

Introduced on January 3, 2017

(Section-by-section of the bill as amended and ordered reported by the

House Natural Resources Committee on December 13, 2017)

Section 1 – Short Title.

Section 2 – Table of Contents.

Section 3 – Definitions. This section clarifies that terms used in the bill have the same meaning as those terms are defined in the Magnuson-Stevens Fishery Conservation and Management Act.

Section 4 – References. This section clarifies that unless otherwise specified, the amendments made by the bill are made to the Magnuson-Stevens Fishery Conservation and Management Act.

Section 101 – References. This section clarifies that unless otherwise specified, the amendments made by the bill are made to the Magnuson-Stevens Fishery Conservation and Management Act.

Section 102 – Amendments to Findings. This section would amend two findings to insert "cultural well-being" to finding #1, and to add "traditional way of life" to finding #10.

Section 103 – Amendments to Definitions. This section would amend the definition of "bycatch" to remove the words "management program" at the end of the definition. This section would add a definition of "depleted" and would modify the existing definitions (34) of "overfishing" and "overfished" to clarify that the definition for the term "overfishing" means "a rate or level of fishing mortality that jeopardizes the capacity of a fishery to produce maximum sustainable yield on a continuing basis."

This section defines "subsistence fishing", "family", and "barter".

This section would replace the term "overfished" with the term "depleted" throughout the Act.

This section would require the Secretary when issuing the annual report on the status of fisheries note if a stock was "depleted" as a result of something other than fishing.

This section would also require that the report state, for each fishery identified as depleted, whether the fishery is a target of directed fishing.

Section 104 – Authorization of Appropriations. This section would reauthorize the Act for five years beginning in Fiscal Year 2018 at the currently authorized level.

Section 201 – Definitions. This section would define "appropriate committees of Congress" to mean the Senate Commerce, Science, and Transportation Committee and the House Natural Resources Committee.

This section would define “limited access privilege program” and “mixed-use fishery”.

Section 202 – Process for Allocation Review for South Atlantic and Gulf of Mexico Mixed-Use Fisheries. This section would require the Secretary, within 60 days of the date of the enactment of this legislation, to contract with the National Academy of Sciences (NAS) to conduct a study of the mixed-use fisheries of the South Atlantic and Gulf of Mexico: to provide guidance to each of the applicable Councils (South Atlantic and Gulf of Mexico) on criteria that could be used for allocating fishing privileges (including the consideration of the conservation and socioeconomic benefits of each sector of the fishery) in a fishery management plan; to identify sources of information that could support the use of such criteria in allocation decisions; to develop procedures for allocation reviews and potential adjustments in allocations; and require that the NAS to consider the ecological, economic and social factors relevant to each sector of the mixed-use fishery including – fairness and equitability of current allocations, percent utilization of available allocations by each sector, consumer and public access to the resource, and the application of economic models for estimating the direct and indirect value-added contributions of commercial and recreational fishing industry market sectors throughout the chain of custody.

This section would require the NAS to report back to the Secretary within one year of the contract being awarded.

This section would require the applicable Councils (South Atlantic and Gulf of Mexico Councils) to perform – within 2 years – a review of allocations among the commercial and recreational sectors in all mixed-use fisheries within their jurisdiction and perform a similar review every 5 years thereafter. This section would require the Councils, in conducting the reviews, to consider in each allocation decision the conservation and socioeconomic benefits the commercial fishing sector and the recreational fishing sector.

Section 203 – Alternative Fishery Management Measures. This section would allow Councils to use alternative fishery management measures in a recreational fishery or for the recreational component of a mixed-use fishery including the use of extraction rates, fishing mortality targets, and harvest control rules in developing fishery management plans, plan amendments, or proposed regulations.

Section 204 – Modifications to the Annual Catch Limit Requirement. This section would allow a Council, after notifying the Secretary, to maintain the current annual catch limit for a stock of fish until a peer-reviewed stock survey and stock assessment are conducted and the results are considered by the Council and its SSC for fisheries for which: the total allowable catch limit is 25 percent or more below the overfishing limit; a peer-reviewed stock survey and stock assessment have not been performed during the preceding 5 years; and the stock is not subject to overfishing. (*Note: This appears to be the new criteria for a “data-poor” fishery.*)

This section would allow Councils to consider changes in the ecosystem and the economic needs of the fishing communities when setting Annual Catch Limits (ACLs). This allows flexibility but does not allow Councils to set an ACL at a level that allows overfishing.

This section would provide an exception to the requirement that Councils set an ACL for “ecosystem component species” or for those stocks of fish with a life cycle of approximately 1 year as long as the Secretary has determine the fishery is not subject to overfishing. This section would also provide an exemption to the ACL requirement for a stock for which more than half of a single year class will complete their life cycle in less than 18 months and for which fishing mortality will have little impact on the stock.

This section would allow Councils, when setting ACLs, take into account management measures under international agreements in which the U.S. participates and, in the case of an annual catch limit developed by a Council for a species, may take into account fishing activities for that species outside the U.S. EEZ and the life-history characteristics of the species that are not subject to the jurisdiction of the Council.

This section would provide an exemption to the ACL requirement if fishery management activities by another country outside the US EEZ may hinder conservation efforts by US fishermen for a fish species for which recruitment, distribution, life history, of fishing activities are transboundary and for which no informal transboundary agreements are in effect. In this case, if an annual catch limit is developed by a Council for the species, the ACL shall take into account fishing for the species outside the U.S. EEZ that is not subject to the jurisdiction of the Council.

This section would allow Councils to establish ACLs for multi-species stock complexes and allow Councils to set ACLs for up to a three year period.

This section would define the term “ecosystem component species” to mean those stocks of fish that are not targeted and are caught incidentally in a fishery as long as that stock of fish is not subject to overfishing, is not approaching a condition of being depleted, and is not likely to become subject to overfishing or depleted in the absence of conservation and management measures.

This section would clarify that noting in this subsection is to be construed to provide an exemption from the National Standards in the Act.

This section would amend section 304 to require the Secretary, within 2 years of a notification from a Council of a data-poor stock, complete a peer-reviewed stock survey and stock assessment of the applicable stock and transmit the results of the survey and assessment to the Council.

Section 205 – Limitation on Future Catch Share Programs. This section would define the term “catch share” and create a pilot program for four Councils - the New England, Mid-Atlantic, South Atlantic, and Gulf of Mexico Councils - which would prohibit those Councils from submitting and prohibit the Secretary from approving or implementing any new catch share program from those Councils or under a secretarial plan or amendment unless the final program has been approved in a referendum by a majority of the permit holders eligible to participate in the fishery.

This section would clarify that for multispecies permits in the Gulf of Mexico, any permit holder with landings within the last five years from within the sector being considered for the catch share program and who is still active in the fishery shall be eligible to participate in the referendum.

This section would clarify that if a referendum fails, it may be revised and submitted in a subsequent referendum.

This section would allow the Secretary, at the request of the New England Council, to include crew members who derive a significant portion of their livelihood from fishing to participate in a referendum for any fishery within that Council’s jurisdiction.

This section would also require that prior to the referendum, the Secretary must provide all eligible permit holders with a copy of the proposed program, an estimate of the costs of the program (including the costs to participants), an estimate of the amount of fish or percentage of the quota each permit holder would be allocated, and information on the schedule, procedures and eligibility criteria for the referendum.

This section defines “permit holder eligible to participate” in a referendum as a permit holder who has fished in at least 3 of the 5 years preceding the referendum unless sickness, injury or other unavoidable hardship prevented the permit holder from fishing.

This section would clarify that the Secretary may not implement any catch share program for any fishery managed exclusively by the Secretary unless first petitioned by a majority of the permit holders eligible to participate in the fishery.

This section clarifies that the requirement for the referendum does not apply to any catch share program that is submitted to or proposed by the Secretary before the date of enactment of the bill.

This section would require the Secretary to issue regulations and provide for public comment on the referendum prior to conducting any referendum.

Section 206- Study of Limited Access Privilege Programs for Mixed-Use Fisheries. This section would require the Secretary to enter into an agreement with the Ocean Studies Board of the National Academies of Sciences, Engineering, and Medicine to study the use of limited access privilege programs in mixed-use fisheries. The study would: identify any inequities caused by a limited access privilege program; recommend policies to address any identified inequities; identify and recommend different factors and information to mitigate any identified inequities that should be considered when designing, establishing or maintaining a limited access privilege program in a mixed-use fishery; and submit the report including recommendations to the appropriate committees of Congress.

This section would place a moratorium on the submission and approval of a limited access privilege program for a mixed-use fishery until the report is submitted. This moratorium does not restrict a Council from submitting and does not prevent the Secretary from approving a limited access system or limited access privilege program if the program was part of a pending fishery management plan or plan amendment prior to the enactment of this legislation.

This section would require that if a Council submits a limited access privilege program under the exemption to the moratorium described above, the Council must, upon the issuance of the report, review and, to the extent practicable, revise the program to be consistent with the recommendations of the report or any subsequent statutory or regulatory requirements designed to implement the recommendations of the report.

This section clarifies that nothing in this section may be construed to affect a limited access privilege program approved by the Secretary prior to the date of enactment of this legislation.

Section 207 – Cooperative Data Collection. This section would require the Secretary – within 1 year – to develop, in consultation with the Councils and the Marine Fisheries Commissions a report to Congress on facilitating greater incorporation of data, analysis, stock assessments and surveys from State agencies and non-governmental sources into fishery management decisions. This section also includes a list of entities considered to be non-governmental sources to include fishermen, fishing communities, universities, and research and philanthropic institutions.

In developing the report, the Secretary would be required to identify types of data and analysis, especially concerning recreational fishing, that could be reliably be used for the purposes of the Act as a basis for conservation and management measures. The Secretary would also be required to provide specific recommendations for collecting data and performing analyses identified as necessary to reduce uncertainty and improve the accuracy of future stock assessments and including whether such data and analyses could be provided by non-governmental sources.

The Secretary is also required to develop and publish guidelines for improving data collection and analysis within one year of the date of the enactment of this legislation.

The Secretary would also be required to take into consideration and, to the extent feasible, implement the recommendations of the NAS report titled "Review of the Marine Recreational Information Program (2017). The Secretary would be required to prioritize the evaluation of electronic data collection, including smartphone applications, electronic diaries for prospective data collection and internet website options.

The Secretary would be required to evaluate whether the design of MRIP for the purposes of stock assessments and determination of stock management reference points is compatible with the needs of in-season management of annual catch limits.

The Secretary would be required, if MRIP is incompatible with the needs of in-season management of annual catch limits, determine an alternative method for in-season management.

Section 208 – Recreational Fishing Data. This section would require the Secretary to establish partnerships with States to develop best practices for implementing State recreational fisheries programs.

This section would require the Secretary to develop guidance, in cooperation with the States, that detail best practices for administering State programs and to provide the guidance to the States.

Section 209 – Miscellaneous Amendments Relating to Fishery Management Councils. This section would add one voting seat to the New England Council to provide a liaison – and require that this additional seat be a current member of the Mid-Atlantic Council - to represent the interests of fisheries under the jurisdiction of the Mid-Atlantic Council and add one voting seat to the Mid-Atlantic Council to provide a liaison – and require that this additional seat be a current member of the New England Council - to represent the interests of fisheries under the jurisdiction of the New England Council.

In addition, this section would add subsistence fishing as a qualification that could be required of Council appointees (to be individuals who are knowledgeable regarding the conservation and management of commercial, recreational, or subsistence fisheries). In addition, the amendment would amend the purposes section of the Act to add the promotion of subsistence fishing as a purpose of the Act (it is a purpose of the Act "to promote domestic commercial, recreational, and subsistence fishing under sound conservation and management principles, including the promotion of catch and release programs in recreational fishing").

This section would prohibit the Secretary of Commerce from counting red snapper mortality that is a result of the removal of offshore oil rigs against the total allowable catch and prohibits the Secretary from counting those fish toward the quota for U.S. fishermen for the purposes of closing the fishery when the quota has been reached.

This section would prohibit the Secretary of Commerce from counting any fish seized from a foreign vessel engaging in illegal fishing in the U.S. EEZ against the total allowable catch for U.S. fishermen.

Section 301 – Healthy Fisheries Through Better Science. This section would add a definition of "stock assessment" to the Act.

This section would require the Secretary to develop and publish in the Federal Register a plan to conduct stock assessments for all stocks of fish under a fishery management plan and use the same schedule as is already required for the strategic plan.

The plan must establish a schedule for updating stock assessments – for each stock of fish for which a stock assessment has already been conducted - that is reasonable based on the biology and characteristics of the stock. Subject to the availability of appropriations, these new stock assessments or update of the most recent stock assessment must be completed every five years or within a time period specified and justified by the Secretary.

For each stock of fish for which a stock assessment has not been conducted, the plan must establish a schedule for conducting an initial stock assessment that is reasonable given the biology and characteristics of the stock and, subject to the availability of appropriations, the Secretary would be required to complete the initial stock assessment within 3 years after the plan is published unless a different time period is specified and justified by the Secretary.

The plan must also identify data and analysis, especially concerning recreational fishing, that if available would reduce uncertainty and improve the accuracy of future stock assessments and whether such data could be provided by non-governmental sources to the extent that the use of such data would be consistent with the requirements of the National Standards to base conservation and management measures on the best scientific information available.

If the Secretary determines that a stock assessment is not required for a stock of fish, the Secretary must justify that determination in the Federal Register.

The Secretary would be required to issue the first stock assessment under the plan within 2 years of the date of the enactment of this legislation.

Section 302 – Transparency and Public Process. This section would require Scientific and Statistical Committees (SSCs) of the Councils to develop the scientific advice that they provide to the Councils in a transparent manner and to allow for public involvement in the process.

This section would also require that each Council, to the extent practicable, provide a Webcast, an audio recording or a live broadcast of each Council meeting and for the Council Coordination Committee meetings. In addition, the bill would require audio, video, searchable audio or written transcript for each Council and SSC meeting on the Council's website not more than 30 days after the conclusion of the meeting. The bill would require that the Secretary maintain these audios, videos and transcripts and make them available to the public.

This section would require that each fishery management plan, plan amendment, or proposed regulation contain a fishery impact statement which are required to assess, specify, and analyze the likely effects and impacts of the proposed action on the quality of the human environment.

This section would require that each fishery impact statement describe: the purpose of the proposed action; the environmental impact of the proposed action; any adverse environmental effects which cannot be avoided should the proposed action be implemented; a reasonable range of alternatives to the proposed action; the relationship between short-term use of the fishery resources and the enhancement of long-term productivity; the cumulative conservation and management effects; and the economic and social impacts of the proposed action on participants in the fisheries affected by the proposed action, on fishing communities affected by the proposed action, on participants in fisheries conducted in adjacent areas, and on the safety of human life at sea.

This section would require that a "substantially complete" fishery impact statement be available not less than 14 days before the beginning of the meeting at which the Council makes its final decision on the proposal. The bill would require that the availability of this fishery impact statement be announced by the same methods currently used by Councils to disseminate public information and that relevant government agencies and the public be invited to comment on the fishery impact statement.

This section would require that a completed fishery impact statement accompany the transmittal of a fishery plan or plan amendment as well as the transmittal of proposed regulations.

This section would require Councils, subject to approval by the Secretary, to establish criteria to determine actions or classes of actions of minor significance for which the preparation of a fishery impact statement is unnecessary and for which a categorical exception to the fishery impact statement may allow an exclusion from this requirement.

This section would require the Councils, subject to the approval of the Secretary, prepare procedures for compliance with the fishery impact statement requirement that provide for timely, clear, and concise analysis that will be useful to decision makers and the public as well as reducing extraneous paperwork. These procedures may include using Council meetings to determine the scope of issues to be addressed, may include the integration of the fishery impact statement development process with preliminary and final Council decisonmaking, and may include providing scientific, technical, and legal advice at an early stage of development of the fishery impact statement.

This section would require the Secretary of Commerce, when reviewing plans or plan amendments, to evaluate the adequacy of the accompanying fishery impact statement for fully considering the environmental impacts of implementing the plan or plan amendment.

This section would require the Secretary, upon the transmittal of proposed regulations by a Council, to immediately initiate an evaluation of the proposed regulations to determine whether they are consistent with the fishery management plan or plan amendment and an evaluation as to whether the accompanying fishery impact statement is a basis for fully considering the environmental impacts of implementing the proposed regulations. The Secretary would be required to make a determination within 15 days of initiating any such evaluation.

Section 303 – Flexibility in Rebuilding Fish Stocks. This section would remove the term "possible" and replace it with "practicable" in the requirement in section 304 of the Act that a rebuilding period "be as short as possible". This section would remove the language requiring a 10-year time frame for rebuilding overfished/depleted fisheries and replace it with a requirement that the rebuilding timeframe be the time it would take for the fishery to rebuild without any fishing occurring plus one mean generation time except in the case that: the biology of the stock, other environmental conditions, or management measures under an international agreement dictate otherwise; the Secretary determines that the cause of the stock being overfished/depleted is outside the jurisdiction of the Council or the rebuilding program cannot be effective only by limiting fishing activities; the Secretary determines that one or more components of a mixed-stock fishery is depleted is depleted but cannot be rebuilt within the timeframe without significant economic harm to the fishery or cannot be rebuilt without causing another component of the mixed-stock fishery to approach a depleted status; the Secretary determines that recruitment, distribution, or life history of or fishing activities for are affected by informal transboundary agreements under which management activities outside the EEZ by another country may hinder conservation and management efforts by the US; and the Secretary determines that the stock has been affected by unusual events that make rebuilding within the specified time period improbable without significant economic harm to fishing communities.

This section would allow Councils to take into account environmental conditions and predator/prey relationships when developing rebuilding plans.

This section would also require that the fishery management plan for any fishery that is considered overfished/depleted must specify a schedule for reviewing the rebuilding targets, evaluating environmental impacts on rebuilding progress, and evaluating the progress that is being made toward reaching the rebuilding targets.

This section would allow a fishery management plan for any fishery that is considered overfished/depleted to use alternative rebuilding strategies including harvest control rules and fishing mortality rate targets.

This section would allow a Council to terminate any rebuilding plan for a fishery that was initially determined to be overfished/depleted and then found not to be overfished/depleted within two years or within 90 days after the completion of the next stock assessment.

Finally, current law allows the Secretary to implement emergency interim measures for fisheries in which overfishing is taking place. If the action is taken for a fishery that is under a fishery management plan, the interim measure may only remain in place for 180 days; however, the measures may then be extended for an additional 186 days (with the extension, this allows the Secretary to implement interim measures for a year and a day). This section would modify this authority to allow the Secretary to implement the interim measures for one year with the ability to extend for a second year. Current law allows a Council to take up to two years to prepare and implement a fishery management plan or plan amendment to address a fishery that is overfished yet current law only allows interim measure to be implemented for one year (assuming the extension is granted). This provision would allow the interim measure authority to be consistent with the time period allowed for a Council to prepare and implement a rebuilding plan for a fishery identified overfished.

Section 304 – Exempted Fishing Permits. This section would require the Secretary, prior to an exempted fishing permit to be approved or issued, to: direct a joint peer review of the EFP application by the appropriate regional fisheries science center and State marine fisheries commission; certify that the Council or federal agency has determined that the fishing activity to be conducted under the EFP will not negatively impact any conservation or management objectives in existing FMPs; certify the Council or federal agency has determined that the social and economic impacts and loss of fishing opportunities on all participants in each sector of the fishery will be minimal; certify the Council or federal agency has determined that the information collected under the EFP will have a positive and direct impact on conservation and management; and certify that the Council or federal agency has determined the Governor of each coastal state potentially impacted by the EFP has been consulted on the fishing activity to be conducted under the EFP.

This section would prohibit the Secretary from issuing an EFP if the EFP establishes a limited access system or establishes a catch share program; however, this prohibition would not apply to EFPs approved prior to the date of the enactment of this legislation.

Section 305 – Cooperative Research and Management Program. This section would amend Section 318 of the Act to require the Secretary, within one year of the enactment of this Act and after consulting with the Councils, to publish a plan for implementing and conducting a cooperative research and management program. This section would require that the plan identify and describe critical regional fishery management and research needs, possible projects to address the identified needs, and the estimated costs for such projects.

This section would require that the plan be updated every five years and each update must include a description of projects that were funded during the previous five years and which management and research needs were addressed by those projects.

This section would add would also amend current language to give priority to projects that use fishing vessels or acoustic or other marine technology, expand the use of electronic catch reporting programs and technology, and improve monitoring and observer coverage through the expanded use of electronic monitoring devices.

Section 306 – Gulf of Mexico Fisheries Cooperative Research and Red Snapper Management. This section would strike section 407 of the Act.

This section would require the Secretary to include Gulf State recreational surveys that are certified by the Secretary and include other data related to red snapper gathered by the Gulf States Marine Fisheries Commission, non-governmental organizations and other non-governmental sources (such as universities and research institutions) in establishing the acceptable biological catch and total allowable catch for Gulf of Mexico red snapper.

This section would allow a Gulf State that conducts a recreational fisheries survey to submit the survey to the Secretary for certification. The Secretary would be required to make a certification or a denial of the certification for any submitted survey within six month of the survey being submitted. If the Secretary does not make a certification or a denial, the survey will be deemed to be certified.

If the Secretary denies the certification of a survey, the Secretary would be required – within 60 days - to provide the Gulf State a proposal for modifications to the survey. The proposed modifications must: be specific to the survey and may not be construed to apply to any other submitted survey; require revisions to the fewest possible provisions of the survey; and may not unduly burden the ability of the Gulf State to revise the survey.

This section would allow a Gulf State which had a survey denied certification to modify the survey and submit the modified survey for certification. This section would require the Secretary to certify or deny certification of the modified survey within 30 days of the modified survey being submitted. If the Secretary does not act on the modified survey within the 30 days, the survey will be deemed certified.

This section would define "Gulf State" and "red snapper".

This section would require the Secretary, acting through the NMFS Regional Administrator of the Southeast Region to develop a schedule of stock surveys and stock assessments for the Gulf of Mexico region and the Southeast region for the 5-year period beginning on the date of enactment and for every 5-year period thereafter giving priority to those stocks that are commercially or recreationally important and ensuring that each important stock is surveyed at least once every five years. The Secretary is required to direct the Science Center Director of the Southeast region to implement the schedule of stock surveys and stock assessments.

This section also would require that the Science Center Director of the Southeast region ensure that the information gathered as a result of research funded through the RESTORE Act be incorporated as soon as possible into any stock assessments conducted after the date of enactment.

This section would extend state management out to 9 nautical miles for the Gulf of Mexico red snapper recreational sector of the fishery.

Section 307 – Ensuring Consistent Management for Fisheries Throughout Their Range. This section would clarify that the Magnuson-Stevens Fishery Conservation and Management Act would be the controlling fishery management authority in the case of any conflict within a national marine sanctuary or an area designated under the Antiquities Act of 1906.

This section would require that if any restrictions on the management of fish in the exclusive economic zone are required to implement a recovery plan under the Endangered Species Act, the restrictions would be implemented under the authorities, processes, and timelines of the Magnuson-Stevens Fishery Conservation and Management Act.

Section 401 – Estimation of Cost of Recovery from Fishery Resource Disaster. This section would require the Secretary to publish the estimated cost of recovery from a fishery resource disaster within 30 days from the time the Secretary makes the disaster determination.

Section 402 – Deadline for Action on Request by Governor for Determination Regarding Fishery Resource Disaster. This section would require the Secretary of Commerce to make a decision regarding a disaster assistance request - submitted under the provisions of section 312(a) of the Magnuson-Stevens Act - within 90 days of receiving an estimate of the economic impact of the fishery resource disaster from the entity seeking the disaster declaration.

Section 403 – North Pacific Fishery Management Clarification. This section would remove a specific date that is currently in the Act regarding State management of vessels in the North Pacific region.

Section 404 – Limitation on Harvest in North Pacific Directed Pollock Fishery. This section would allow the North Pacific Council to change the harvest limitation under the American Fisheries Act for entities engaged in the directed pollock fishery as long as that percentage does not exceed 24 percent.

Section 405 – Arctic Community Development Quota. This section would amend section 313 of the Act to require the North Pacific Fishery Management Council, if the Council issues a fishery management plan for the EEZ in the Arctic Ocean or an amendment to the Fishery Management Plan for Fish Resources of the Arctic Management Area that makes fish available to commercial fishing and establishes a sustainable harvest level for any part of that zone, to set aside no less than 10 percent of the total allowable catch for a community development quota for coastal villages located north and east of the Bering Strait.

Section 406 – Reallocation of Certain Unused Harvest Allocation. This section would require the Regional Administrator, beginning on January 1, 2018 and annually thereafter, to provide the allocation provided in section 803 of the Consolidated Appropriations Act (P.L. 108-199) to the Aleut Corporation for the purposes of economic development in Adak, Alaska under certain circumstances.

Prior to making this allocation, the Regional Director must receive written notification that the allocation holder specified in P.L. 108-199 will not harvest some or all of the Aleutian Islands directed pollock quota.

In allocating this quota to the Aleut Corporation, the Regional Administrator must reallocate the projected unused quota if the allocation does not exceed the total allowable catch for the Bering Sea subarea or if the allocation exceeds the total allowable catch for the Bering Sea subarea, reallocate a portion of the allocation up to the total allowable catch.

This section would mandate that the allocation holder specified in P.L. 108-199 retain control of the allocation including such portions of the allocation that may be reallocated pursuant to this section and that the allocations made under section 206(b) of the American Fisheries Act apply to the Bering Sea portion of the directed pollock fishery and not to the allocation holder specified in P.L. 108-199.

This section would require the Aleut Corporation to provide written consent for other vessels to take or process the allocation and the written consent must be on the vessel.

This section would require the North Pacific Fishery Management Council, in consultation with the National Marine Fisheries Service (NMFS), to modify all applicable regulations and management plans so that the allocation holder specified in P.L. 108-199 may harvest the reallocated Aleutian Islands directed pollock fishery in the Bering Sea subarea as soon as possible.

This section would require NMFS, in consultation with the North Pacific Fishery Management Council, to manage the Aleutian Islands directed pollock fishery to ensure compliance with the implemented statute and with the annual harvest specifications.

This section would clarify that the taking or processing of any part of the allocation made by section 803 of P.L. 108-199 and reallocated under this section shall be considered violations of section 307 of the Magnuson-Stevens Fishery Conservation and Management Act and subject to the penalties and sanctions under section 308 of that Act. In addition, any fish harvested or processed under such taking or possessing shall be subject to forfeiture.

Section 407 – Prohibition on Shark Feeding Off Coast of Florida. This section would amend section 307 of the Act to make it unlawful for any diver to engage in shark feeding in covered waters and for any person to operate a vessel for hire for the purpose of carrying a passenger to a site if the person knew or should have known the passenger intended to be a diver who engaged in shark feeding in covered waters or engaged in observing shark feeding in covered waters.

This section defines “covered waters”, “diver”, and “shark feeding”.

This section would clarify that this provision does not apply to shark feeding conducted by a research institution, university, or government agency for research purposes or for the purpose of harvesting sharks.

Section 408 – Restoration of Historically Freshwater Environment. This section would amend the definition of “essential fish habitat” so that it would now read “The term ‘essential fish habitat’ means those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity, *except that such term shall not include any area previously covered by land or a fresh water environment in a State where the average annual land loss of such State during the 20 years before the date of enactment of the Strengthening Fishing Communities and Increasing Flexibility in Fisheries Management Act exceeds 10 square miles*.”

MID-ATLANTIC | FISHERY MANAGEMENT COUNCIL

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

March 19, 2018

The Honorable Wilbur Ross
Secretary
U.S. Department of Commerce
1401 Constitution Ave NW
Washington, DC 20230

Dear Secretary Ross,

Please accept these comments from the Mid-Atlantic Fishery Management Council on wind energy development in the Northeast region. The Council manages more than 64 marine species with 7 fishery management plans (FMPs)[1] in federal waters and is composed of members from the coastal states of New York to North Carolina (including Pennsylvania). Marine fisheries are profoundly important to the social and economic well-being of Mid-Atlantic communities and provide numerous benefits to the nation, including domestic food security. In 2015, the commercial seafood industry in the Mid-Atlantic region supported 100,954 jobs, \$13.9 billion in sales, \$3.2 billion in income, and \$5.1 billion in value added impacts across the Mid-Atlantic.[2] Commercial fishermen landed 648 million pounds of finfish and shellfish, earning \$512 million in landings revenue, while 2.0 million recreational anglers took 12.4 million fishing trips and spent nearly \$3.5 billion on trip and equipment expenditures.[2]

At its February meeting, the Council passed the following motion:

"Move to submit a letter to the Secretaries of Interior and Commerce requesting that: (1) no new wind energy areas be sited, nor project designs finalized, until the study is complete and fisheries impacts can be properly evaluated and (2) request that NOAA [National Oceanic and Atmospheric Administration] adopt a more active role in working with BOEM [Bureau of Ocean Energy Management] to effectively site future wind energy projects."

The study noted in the motion refers to the work that the Council staff are doing with the NOAA Fisheries "Wind Team" to spatially document the fisheries value of the Northeast US continental shelf

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[1] Fourteen species are directly managed with specific FMPs. These include summer flounder, scup, black sea bass, Atlantic bluefish, Atlantic mackerel, *Illex* and longfin squids, butterfish, Atlantic surfclams, ocean quahogs, golden and blueline tilefish, spiny dogfish (joint with the New England Council), and monkfish (joint with the New England Council). In addition, more than 50 forage species are managed as "ecosystem components" in all seven FMPs. The Council sets possession and landing limits to prevent the expansion of directed fisheries on these forage species in the Mid-Atlantic.

[2] National Marine Fisheries Service. 2017. Fisheries Economics of the United States, 2015. U.S. Dept. Commerce, NOAA Tech. Memo. NMFS-F/SPO-170, 247p. Available at: http://www.st.nmfs.noaa.gov/Assets/economics/publications/FEUS/FEUS-2015/Report-Chapters/FEUS%202015-AllChapters_Final.pdf.

and identify key biological/ecological resources in our region. This information is being developed during 2018 with the intent of allowing NOAA Fisheries and the Council and its stakeholders to more effectively engage with BOEM on wind energy planning discussions in the Northeast region.

The Council supports policies for US energy development including wind energy development and operations that will sustain the health of marine ecosystems and fisheries resources while minimizing the risks to the marine environment and fisheries. It is critical that the best information be used to identify areas for wind leasing within our region.

The Council's Policy on Wind Energy (attached) should be considered with these comments and can also be found at: http://www.mafmc.org/habitat/.

Please feel free to contact me if you have any questions.

Sincerely,

CMMoore

Christopher M. Moore, Ph.D.
Executive Director, Mid-Atlantic Fishery Management Council

cc: J. Coakley, W. Elliott, M. Luisi, C. Oliver

Unmanaged Species Report
March 19, 2018
Unmanaged Species Annual Landings, 2013-2017
Report Run on: 2018-03-19
For data reported through 2018-03-18

Top 25 Unmanaged Species Annual Landings, 2013-2017

Species Common Name	Species Code	2013	2014	2015	2016	2017	Total Live Pounds
OYSTERS	789	73,730,925	94,010,451	105,658,036	85,690,801	14,099,913	373,190,126
CRAB,BLUE	700	58,285,162	56,933,141	72,059,795	77,968,809	2,628,506	267,875,413
QUAHOG	748	46,424,618	49,692,624	49,522,605	54,255,529	9,309,385	209,204,761
MUSSELS	781	20,136,360	19,950,166	29,448,019	21,793,939	19,139,171	110,467,655
ROCKWEED	832	17,795,971	16,282,440	14,981,702	17,367,229	14,196,076	80,623,418
CLAM,SOFT	763	15,247,314	13,098,139	12,649,956	12,474,052	8,282,094	61,751,555
WHELK,CHANNELED	776	4,245,770	3,251,980	3,886,693	3,402,590	2,052,674	16,839,707
WHELK,KNOBBED	777	2,864,046	3,962,267	3,187,184	2,117,671	2,307,290	14,438,458
CRUSTACEANS NK	834	0	0	0	5,889,358	7,309,621	13,198,979
SHRIMP,BROWN	731	1,509,839	2,004,847	3,520,272	2,757,174	2,607,270	12,399,402
OTHER FISH	526	4,116,515	4,740,194	1,995,532	1,363,152	125,878	12,341,271
CATFISH,BLUE	67	1,631,677	2,250,414	3,697,016	4,123,309	484,976	12,187,392
CRAB,ROCK	712	1,607,132	2,289,959	2,349,179	2,232,705	2,858,927	11,337,902
HAGFISH	150	2,746,932	2,052,071	2,204,603	1,871,105	1,558,251	10,432,962
SEA URCHINS	805	2,031,716	2,018,628	1,824,626	2,114,258	1,990,407	9,979,635
CONCHS	775	1,679,183	2,039,656	2,667,430	1,066,432	927,322	8,380,023
GIZZARD SHAD	134	1,978,431	2,268,080	2,539,009	1,587,993	2,496	8,376,009
CATFISH,CHANNEL	68	1,871,645	2,103,905	2,171,979	1,954,140	9,319	8,110,988
PERCH,WHITE	506	1,454,268	1,673,490	1,834,892	1,990,355	54,205	7,007,210
SCALLOP,BAY	799	1,755,761	1,408,486	809,305	784,321	1,275,032	6,032,905
WHELK,WAVED	779	3,465,276	561,644	47,660	33,829	11,817	4,120,226
OTHER SHELLFISH	899	1,587,060	753,305	1,761,125	0	0	4,101,490
PERIWINKLES	798	969,650	830,554	751,980	624,514	599,366	3,776,064
STRIPED MULLET	235	828,752	1,039,491	612,729	461,745	778,882	3,721,599
FLOUNDER,SOUTHERN	130	848,916	785,777	467,980	342,087	554,303	2,999,063

Unmanaged Finfish Top 25
March 19, 2018
Unmanaged Finfish Species Annual Landings, 2013-2017
Report Run on: 2018-03-19
For data reported through 2018-03-18

Top 25 Unmanaged Finfish Species Annual Landings, 2013-2017

Species Common Name	Species Code	2013	2014	2015	2016	2017	Total Live Pounds
OTHER FISH	526	4,116,515	4,740,194	1,995,532	1,363,152	125,878	12,341,271
CATFISH,BLUE	67	1,631,677	2,250,414	3,697,016	4,123,309	484,976	12,187,392
HAGFISH	150	2,746,932	2,052,071	2,204,603	1,871,105	1,558,251	10,432,962
GIZZARD SHAD	134	1,978,431	2,268,080	2,539,009	1,587,993	2,496	8,376,009
CATFISH,CHANNEL	68	1,871,645	2,103,905	2,171,979	1,954,140	9,319	8,110,988
PERCH,WHITE	506	1,454,268	1,673,490	1,834,892	1,990,355	54,205	7,007,210
STRIPED MULLET	235	828,752	1,039,491	612,729	461,745	778,882	3,721,599
FLOUNDER,SOUTHERN	130	848,916	785,777	467,980	342,087	554,303	2,999,063
WHITING,KING	197	348,368	661,874	564,373	582,919	735,529	2,893,063
DOLPHINFISH	105	357,029	749,601	484,444	496,362	316,634	2,404,070
CATFISH(SEA)	69	1,108,967	726,510	122,786	94,736	0	2,052,999
MACKEREL,KING	194	268,771	455,634	298,239	335,530	505,156	1,863,330
TUNA,LITTLE	468	181,004	320,706	212,072	220,244	278,696	1,212,722
HARVEST FISH	165	304,877	242,690	237,082	209,841	96,452	1,090,942
JOHN DORY	188	145,539	70,139	206,857	209,695	246,233	878,463
WEAKFISH,SPOTTED	345	233,767	202,119	64,649	123,040	170,426	794,001
SEA ROBINS	341	174,120	149,450	122,319	206,341	139,938	792,168
CARP	63	175,632	131,255	190,669	193,763	9,298	700,617
SNAPPER,VERMILLION	374	123,524	134,946	122,258	140,594	159,464	680,786
CUTLASSFISH,ATLANTIC	99	116,457	169,687	183,313	61,042	50,840	581,339
TRIGGERFISH	456	111,684	73,356	78,920	82,072	121,440	467,472
CUSK	96	87,661	112,937	100,751	85,478	72,080	458,907
SHEEPSHEAD	356	104,160	88,320	85,831	57,415	77,799	413,525
CATFISH (FRESHWATER)	66	80,148	41,973	82,276	158,796	0	363,193
EEL,CONGER	116	109,218	103,083	44,874	47,459	55,574	360,208

Atlantic States Marine Fisheries Commission

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James J. Gilmore, Jr., (NY), Chair *Patrick C. Keliher., (ME), Vice-Chair* *Robert E. Beal, Executive Director*

Vision: Sustainably Managing Atlantic Coastal Fisheries

MEMORANDUM

March 23, 2018

TO: Commissioners; Proxies; American Lobster Management Board; Atlantic Coastal Cooperative Statistics Program Coordinating Council; Atlantic Herring Section; Atlantic Menhaden Management Board; Atlantic Striped Bass Management Board; Atlantic Sturgeon Management Board; Bluefish Management Board; Coastal Sharks Management Board; Executive Committee; ISFMP Policy Board; Law Enforcement Committee; Shad and River Herring Management Board; South Atlantic State/Federal Fisheries Management Board; Summer Flounder, Scup, and Black Sea Bass Management Board; Winter Flounder Management Board

FROM: Robert E. Beal REB
Executive Director

RE: ASMFC Spring Meeting: April 30 – May 3, 2018 (TA 18-081)

The Atlantic States Marine Fisheries Commission's Spring Meeting will be held April 30-May 3, 2018 at **The Westin Crystal City**. A brief, preliminary agenda and directions to the hotel are included with this memorandum. Transportation options are included in the hotel directions. Materials will be available on April 18, 2018 on the Commission website at http://www.asmfc.org/home/2018-spring-meeting.

Please note: Commission leadership is reviewing an appeal submitted regarding the Black Sea Bass Addendum XXX decision. Depending on the outcome of this review, a Summer Flounder, Scup, and Black Sea Bass Management Board meeting may be added to the agenda on Thursday, May 3.

A block of rooms is being held at The Westin Crystal City, 1800 S. Eads Street, Arlington, VA 22202. Cindy Robertson will make Commissioner/Proxy reservations and will contact you regarding the details of your accommodations. **Please notify Cindy of any changes to your travel plans that will impact your hotel reservations, otherwise you will incur no-show penalties**. We greatly appreciate your cooperation.

For all other attendees, please reserve online via Star Group Website at http://www.starwoodhotels.com/ or call The Westin Crystal City at 888.627.8209 as soon as possible and mention the Atlantic States Marine Fisheries Commission to obtain the group room rate of $253.00 plus tax single/dbl. Please be aware you must guarantee your room reservation with a major credit card or one night's advance payment. **Hotel reservations must be made by Thursday, April 5, 2018. Room availability will not be guaranteed beyond this date.** If you are being reimbursed by ASMFC for your travel, please make your reservation directly with the hotel. Reservations made through travel websites do not apply toward our minimum number of required reservations with the hotel. **Please note, cancellations at The Westin must be made by 4:00 p.m. two days prior to arrival to avoid penalty and an early departure fee of $100 will apply when checking out prior to the confirmed date.** If you have any problems at all regarding accommodations please contact Cindy at 703.842.0740 or at crobertson@asmfc.org. We look forward to seeing you at the Spring Meeting. If the staff or I can provide any further assistance to you, please call us at 703.842.0740.

Encl: Preliminary Agenda, Hotel Directions, TA 18-081, Travel Reimbursement Guidelines

Atlantic States Marine Fisheries Commission

Spring Meeting

April 30 – May 3, 2018

The Westin Crystal City

Arlington, Virginia

Public Comment Guidelines

With the intent of developing policies in the Commission's procedures for public participation that result in a fair opportunity for public input, the ISFMP Policy Board has approved the following guidelines for use at management board meetings:

For issues that are not on the agenda, management boards will continue to provide opportunity to the public to bring matters of concern to the board's attention at the start of each board meeting. Board chairs will use a speaker sign-up list in deciding how to allocate the available time on the agenda (typically 10 minutes) to the number of people who want to speak.

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

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

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

1. Comments received 3 weeks prior to the start of a meeting week will be included in the briefing materials.
2. Comments received by 5:00 PM on the Tuesday immediately preceding the scheduled ASMFC Meeting (in this case, the Tuesday deadline will be ***April 24, 2018***) will be distributed electronically to Commissioners/Board members prior to the meeting and a limited number of copies will be provided at the meeting.
3. Following the Tuesday, ***April 24, 2018 5:00 PM deadline***, the commenter will be responsible for distributing the information to the management board prior to the board meeting or providing enough copies for the management board consideration at the meeting (a minimum of 50 copies).

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

Preliminary Agenda

The agenda is subject to change. Bulleted items represent the anticipated major issues to be discussed or acted upon at the meeting. The final agenda will include additional items and may revise the bulleted items provided below. 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.

Please note: Commission leadership is reviewing an appeal submitted regarding the Black Sea Bass Addendum XXX decision. Depending on the outcome of this review, a Summer Flounder, Scup, and Black Sea Bass Management Board meeting may be added to the agenda on Thursday, May 3.

Monday, April 30

10:00 a.m. – Noon & 1:00 – 3:00 p.m. **Summer Flounder, Scup and Black Sea Bass Management Board Jointly with the Mid-Atlantic Fishery Management Council**

- Consider Approval of Summer Flounder Draft Amendment for Public Comment
- Review Alternatives for Black Sea Bass Framework/Addendum on Recreational Issues
- Review Black Sea Bass February Recreational Fishery Harvest

3:15 – 4:45 p.m. **Bluefish Management Board Jointly with the Mid-Atlantic Fishery Management Council**

- Review and Consider Approval of Public Information Document/Scoping Document for Allocation Amendment

Tuesday, May 1

9:00 – 11:00 a.m. **Coastal Sharks Management Board**

- Review Results of North Atlantic Shortfin Mako Stock Assessment
  - Discuss Potential Management Response
- Review Results of Sandbar Shark Stock Assessment
- Update on Endangered Species Act Listing Status for Oceanic Whitetip Shark
- Review and Consider 2016 Fishery Management Plan Review and State Compliance Reports

9:00 a.m. – 5:00 p.m. **Law Enforcement Committee**

(A portion of this meeting may be a closed session for Committee members only)

- Review and Comment on Ropeless Fishing Technologies
- Review of 2018 Action Plan Items
- ASMFC Species Management Issues
- Federal Agency Reports
- State Agency Reports

11:15 a.m. – Noon **Shad & River Herring Management Board**

- Consider Approval of Shad and River Herring Sustainable Fishery Management Plans
    - Technical Committee Report
        - Massachusetts (Merrimack River)
- Report on the Funded Research Proposal on Blueback Herring
- Review and Consider 2018 Fishery Management Plan Review and State Compliance Reports

Noon – 1:15 p.m. **Legislators and Governors' Appointees Luncheon**

- Introductions
- General Comments/Discussion
- Discuss Non-compliance

1:15 – 2:45 p.m. **Atlantic Striped Bass Management Board**

- Provide Guidance to Stock Assessment Subcommittee Regarding Biological Reference Point Development for the 2018 Benchmark Stock Assessment

3:00 – 3:45 p.m. **Atlantic Herring Section**

- Discuss Potential Impact of River Herring/Shad Caps and Mackerel Fishery Possession Limits on Atlantic Herring Fishery
- Review Technical Committee Report on Scaling Up of Spawning Fish Samples Involving Less than One Hundred Fish

4:00 – 5:00 p.m. **Atlantic Coastal Cooperative Statistics Program (ACCSP) Coordinating Council**

- ACCSP Status Report
    - Program Status and Committee Updates
- Review and Consider Approval of FY19 Request for Proposals Package
- Accountability Standards

6:00 – 8:00 p.m. **Annual Awards of Excellence Reception**

Wednesday, May 2

8:30 – 10:30 a.m. **Executive Committee**

(A portion of this meeting may be a closed session for Committee members and Commissioners only)

- Report of the Administrative Oversight Committee
    - Presentation of FY19 Budget
- Discuss Appeals Process
- Discuss Conservation Equivalency Process
- Discuss Commissioner Conflict of Interest
- Future Annual Meetings Updates
- CLOSED SESSION: Executive Director Performance Review

10:45 a.m. – Noon **Atlantic Menhaden Management Board**

- Review and Consider Approval of Terms of Reference for the 2019 Atlantic Menhaden-Specific and Ecosystem-Based Benchmark Stock Assessments and Peer Reviews
- Review and Consider Approval of Stock Assessment Subcommittee Membership
- Review and Consider 2018 Fishery Management Plan Review and State Compliance Reports
  - Review Final 2018 Commercial Quotas

12:45 – 1:30 p.m. **Atlantic Sturgeon Management Board**

- Review and Consider 2018 Fishery Management Plan Review and State Compliance Reports

1:45 – 3:45 p.m. **American Lobster Management Board**

- Review Lobster Conservation Management Teams Proposals to Reduce Latent Effort
- Law Enforcement Committee Report on Enforceability of Ropeless Fishing
- Plan Development Team Update on Development and Timeline of American Lobster Draft Addendum XXVII

4:00 – 4:45 p.m. **Winter Flounder Management Board**

- Review and Consider Rhode Island's Conservation Equivalency Proposal
  - Technical Committee Report

Thursday, May 3

8:00 – 10:00 a.m. **Interstate Fisheries Management Program Policy Board**

- Committee Reports
  - Law Enforcement Committee
  - Artificial Reef Committee
- Horseshoe Crab
  - Update on 2018 Benchmark Stock Assessment and Timeline
  - Consider Approval of Non-traditional Stakeholder Nominations

10:00 – 10:15 a.m. **Business Session**

- Consider Noncompliance Recommendations (If Necessary)

10:30 a.m. – 12:30 p.m. **South Atlantic State/Federal Fisheries Management Board**

- Review Public Comment on Draft Addendum I to the Black Drum Fishery Management Plan
  - Consider Draft Addendum I to the Fishery Management Plan for Final Approval
- Consider Management Action Based on Technical Committee/Plan Review Team Recommended Updates to the Annual Traffic Light Analyses for Atlantic Croaker and Spot

- Updates on SEDAR 58 Cobia Stock Identification Workshop and Board Tasking of Cobia Technical Committee from February 2018 Meeting
- Discuss Request to the Secretary of Commerce to Implement Cobia Regulations in Federal Waters in the Absence of a Federal Fishery Management Plan
- Elect Vice-Chair

New England Fishery Management Council Meeting Agenda
Tuesday - Thursday, April 17-19, 2018
Hilton Hotel, 20 Coogan Boulevard, Mystic, CT 06355
tel: (860) 572-0731 | Hilton Mystic

Sending comments? Written comments must be received at the NEFMC office no later than 5 p.m., Wednesday, April 11, 2018 to be considered at this meeting. Please address comments 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, April 17, 2018

9:00 a.m. **Introductions and Announcements** (Chairman Dr. John Quinn)

9:05 **Reports on Recent Activities**
Council Chairman, Council Executive Director, Greater Atlantic Regional Fisheries Office (GARFO) Regional Administrator, National Oceanic and Atmospheric Administration (NOAA) General Counsel, Northeast Fisheries Science Center (NEFSC), Mid-Atlantic Fishery Management Council, Atlantic States Marine Fisheries Commission (ASMFC), U.S. Coast Guard, NOAA Enforcement, Northeast Trawl Advisory Panel

10:30 **Bureau of Ocean Energy Management (BOEM)** (Brian Hooker, BOEM)
Introduction to BOEM open house in neighboring room to collect comments and answer questions on offshore wind leasing activities

10:45 **Habitat Report** (Doug Grout)
Offshore energy: update on ongoing activities in the Northeast; Clam Dredge Framework: progress report on action to consider surfclam dredge fishery access to Great South Channel Habitat Management Area, discuss whether to consider a mussel dredge exemption in the framework

11:45 **Skate Committee Report** (Dr. Matt McKenzie)
Framework Adjustment 6: possible final action on alternatives for prolonging the skate wing fishery

12:30 p.m. **Lunch Break**

1:45 **Open Period for Public Comment**
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)

2:00 **Scallop Committee Report** (Vincent Balzano)
Committee progress report on 2018 priorities, including adjustments to General Category Individual Fishing Quota trip limits and monitoring/catch accounting provisions, as well as possible adjustments to priorities to allow consideration of standard default measures in Framework Adjustment 30

3:00 **Council Program Review** (Review Panel Chairman Dan Hull, North Pacific Fishery Management Council)
Summary of independent review to assess Council operations, performance, and areas for improvement

Wednesday, April 18, 2018

8:30 a.m. **Draft Procedural Directive for Electronic Monitoring (EM) Cost Allocation** (Brett Alger, NOAA Fisheries)
Discuss National Marine Fisheries Service (NMFS) draft policy directive for allocating costs in EM programs

9:30 **Groundfish Committee Report** (Terry Stockwell)
Monitoring Amendment 23: progress report on potential range of alternatives

11:30 **Northeast Fishery Sector (NEFS) IX** (Liz Sullivan, GARFO)
Receive GARFO overview on: (a) Sector IX steps to address shortcomings; and (b) proposed Sector IX operations plan as submitted to GARFO; Council discussion: because of recent information received from the industry, NMFS's consultation with the Council on Sector IX likely will include: (a) discussion of the proposed Sector VII operations plan amendments that relate to Sector IX, (b) other sectors as they relate to Sector IX, and (c) effects on the sector system generally; the Council may provide recommendations to NMFS on any topics discussed

12:30 p.m. **Lunch Break**

1:45 **Saltwater Recreational Fisheries Summit** (Rick Bellavance, Mark Godfroy)
Report on March 28-29, 2018 meeting highlights

2:15 **Best Scientific Information Available (BSIA)** (Executive Director Tom Nies; SSC Chair Jason McNamee)
Overview of NOAA Fisheries draft document on use of "best scientific information available," followed by Scientific and Statistical Committee comments on report; Council discussion and recommendations on BSIA

3:15 **Atlantic Large Whale Take Reduction Team** (Mike Asaro, GARFO; Terry Alexander)
Report on recent Atlantic Large Whale Take Reduction Team meetings and upcoming activities

4:15 **North Atlantic Shortfin Mako Sharks** (Tobey Curtis, NOAA Fisheries)
Review NOAA Fisheries proposals to address overfishing and rebuild North Atlantic shortfin mako sharks

4:45 **Highly Migratory Species (HMS) Advisory Panel (AP), ICCAT Advisory Committee Report** (Rick Bellavance)
Overview of HMS AP meeting, including comments on proposed shortfin mako shark measures; report on International Commission for the Conservation of Atlantic Tunas (ICCAT) Advisory Committee meeting

Thursday, April 19, 2018

8:30 a.m. **Atlantic Herring Report** (Peter Kendall)
Stocks in the Atlantic Herring Fishery White Paper: receive presentation on updated river herring/shad discussion document, possible Council action; discuss implications of river herring/shad bycatch accountability measures recently triggered in Atlantic mackerel and Atlantic herring fisheries

10:30 **Industry-Funded Monitoring (IFM)** (Libby Etrie; Carrie Nordeen, GARFO)
Omnibus IFM Amendment: receive final electronic monitoring project report from GARFO; discuss whether EM, coupled with portside sampling, is a sufficient alternative to at-sea monitoring in the Atlantic herring midwater trawl fishery; possible Council action

12:30 p.m. **Lunch Break**

1:30 **Ecosystem Status Report** (Sean Hardison, NEFSC)
Update on status of the Northeast Continental Shelf ecosystem

2:30 **Regulatory Reform Initiative** (Deputy Director Chris Kellogg)
Update on Council proposals to the National Marine Fisheries Service on regulatory reform mandated by Executive Orders 13777, 13771, and 13565

3:00 **Other Business**

Times listed next to the agenda items are estimates and are subject to change.
This 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.
This meeting will be recorded. Consistent with 16 USC 1852, a copy of the recording is available upon request.

New England Fishery Management Council

Three Meeting Outlook – April through September 2018

(Last updated March 26, 2018 and subject to change pending new information)

April 17-19, 2018 Mystic, CT	June 12-14, 2018 Portland, ME	September 25-27, 2018 Plymouth, MA
Atlantic Herring • Stocks in the Atlantic Herring Fishery: review updated river herring/shad discussion document; possibly take related action • Atlantic herring/mackerel: discuss implications of recently triggered accountability measures in both fisheries	• Amendment 8: review public comments on acceptable biological catch (ABC) control rule and potential localized depletion/user conflict alternatives; take final action • 2019-2021 Specifications: initiate action	• 2019-2021 Specifications: receive Scientific and Statistical Committee (SSC) overfishing limit (OFL) and ABC recommendations
Habitat • Clam Dredge Framework: progress report on action to consider surfclam fishery access to Great South Channel Habitat Management Area, discuss mussel dredges • Offshore Energy: update on activities and consultations	• Clam Dredge Framework: update on alternatives • Offshore Energy: update on activities and consultations if needed	• Clam Dredge Framework: final action • Offshore Energy: update on activities and consultations if needed
Groundfish • Monitoring Amendment 23: progress report on potential range of alternatives • Northeast Fishery Sector IX: GARFO overview on: (a) Sector IX steps to address shortcomings; and (b) proposed Sector IX operations plan as submitted to GARFO; Council discussion/consideration of recommendations to NMFS	• Framework Adjustment 58: initiate action to include (1) 2019 total allowable catches (TACs) for US/Canada stocks of Eastern Georges Bank (GB) cod, Eastern GB haddock, and GB yellowtail flounder, (2) rebuilding plans for several stocks, and (3) other measures • Monitoring Amendment 23: progress report • Fishery Dependent Data Working Group: update	• Framework Adjustment 58: (1) receive framework update; (2) receive TMGC's TAC recommendations for US/Canada stocks; (3) receive SSC's 2019-2020 Georges Bank yellowtail flounder OFL and ABC recommendations • Monitoring Amendment 23: update
Sea Scallops • Committee progress report on 2018 priorities, including adjustments to General Category Individual Fishing Quota (IFQ) trip limits and monitoring/catch accounting provisions plus possible modifications to 2018 priorities	• Scallop Research Set-Aside (RSA) Program: approve 2019-2020 RSA priorities • Framework Adjustment 30: initiate action, which includes 2019 fishery specifications, 2020 default specs, plus other measures	• Framework Adjustment 30: receive progress report, including overview of 2018 scallop surveys
	Ecosystem-Based Fishery Management (EBFM) • Georges Bank example Fishery Ecosystem Plan (eFEP): progress report on overfishing and rebuilding, fishery dependent data support, maximum retention implications, model hindcasting, and role of consumption of pre-recruits on system productivity	• Georges Bank eFEP: receive completed eFEP; receive initial overview of Management Strategy Evaluation (MSE) planning to solicit stakeholder input on operating models, goals, objectives, performance metrics, tradeoffs, and optimal outcomes for an example Fishery Ecosystem Plan
	Small-Mesh Multispecies (Whiting) • Amendment 22: review public comments, take final action on limited access and related measures	• Annual Monitoring Report: fishing year 2017 • Initiate framework or amendment to rebuild southern red hake
Skates • Framework Adjustment 6: update, possible final action on alternatives for prolonging the skate wing fishery	• Framework Adjustment 6: final action if delayed from April • Northeast Skate Complex Amendment 5: progress report on development of limited access program	• Northeast Skate Complex Amendment 5: progress report • Annual Monitoring Report: fishing year 2017
Observer Policy/Industry-Funded Monitoring • Final Midwater Trawl EM Project Report: GARFO • Omnibus IFM Amendment: discussion and potential decision on whether electronic monitoring (EM) and/or portside sampling provide the same level of monitoring as at-sea monitoring for the Atlantic herring midwater trawl fishery	• Policy and strategic approach to monitoring commercial fisheries: committee update	• Policy and strategic approach to monitoring commercial fisheries: committee update
Other • Council Program Review: Review Panel findings • Ecosystem Status Report: NEFSC presentation • 2018 Saltwater Recreational Fisheries Summit: report on March 28-29 meeting • Regulatory Reform: update on Council proposals • Atlantic Large Whale Take Reduction Team: update on recent meetings • North Atlantic shortfin mako sharks: NMFS Highly Migratory Species (HMS) report • HMS Advisory Panel/ICCAT Advisory Committee: report • BOEM Offshore Energy: open house introduction • Best Scientific Information Available – update • NMFS Procedural Directive for EM Cost Allocation	• Standardized Bycatch Reporting Methodology (SBRM): report on three-year review • Fishery Dependent Data Visioning Project: GARFO update • Council Member Recusals: proposed rule discussion • Council Program Review: follow-up	• SAW/SARC 65, Benchmark Assessments for Atlantic Herring and Atlantic Sea Scallops: Northeast Fisheries Science Center (NEFSC) report • Research Set-Aside Program Review: overview and possible action on RSA review panel report compiled by Council/GARFO/NEFSC

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

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Charlie Phillips, Chair | Captain Mark Brown, Vice Chair
Gregg T. Waugh, Executive Director

REVISED*
MARCH 5-9, 2018 COUNCIL MEETING REPORT
JEKYLL ISLAND, GEORGIA

The following summary highlights the major issues discussed and actions taken at the South Atlantic Fishery Management Council's March 2018 meeting in Jekyll Island, Georgia.

Briefing materials, presentations, and public comments are available on the Council's website at: http://safmc.net/safmc-meetings/council-meetings/

Final Committee Reports contain more details of what was accomplished for each committee and are located on the March 2018 briefing book page. In addition, the Summary of Motions on the Council's website includes all motions from the meeting. Read further details and see images and other links at the March 2018 Council Meeting Round-up Story Map: https://arcg.is/0H55O1. The Meeting News Release is available at: http://safmc.net/news-releases/03-09-18-safmc-news-release-council-delays-changes-to-atlantic-cobia-management-at-march-council-meeting/
*Revised to correct timing on visioning amendments to show final approval in September not December.

Issue:	Action Taken:	Schedule:
Red Snapper	Amendment 43 is currently under review by NMFS. The amendment was sent to NMFS on November 20, 2017.	If approved, the recreational season would begin on July 13, 2018 (2nd Friday) and the commercial season on July 9, 2018. Recreational bag = 1 with no size limit. Commercial trip limit = 75 pounds gutted weight with no size limit.
	The Council provided guidance on actions to include in Amendment 46: • Private Recreational Permit • Private Recreational Electronic Reporting	Review actions in Amendment 46 at the June 2018 meeting.
	The following items were split into a framework amendment to move faster: • Require use of Best Fishing Practices (e.g., descending devices, venting, hook type) • Adjust Powerhead Prohibitions in the South Atlantic (allow in the EEZ off SC or prohibit use of powerheads in entire EEZ)	Review actions at the June 2018 meeting. The Framework Amendment would move faster than Amendment 46 during 2018.

Issue:	Action Taken:	Schedule:
Recreational Visioning Amendment	Regulatory Amendment 26: Provided guidance and revised Actions & Alternatives. Alternatives include options for modifications to bag limits, seasons for deep-water species and shallow-water groupers, and size limits for deep-water species and triggerfish that would help streamline the regulations for anglers, law enforcement, and managers. Approved for public hearings.	Public hearings in Spring. Review public comments, modify document, and approve all actions in June 2018. Review and approve for formal review in September 2018.
Commercial Visioning Amendment	Regulatory Amendment 27: Provided guidance and revised Actions & Alternatives for trip limits, size limits, split seasons, seasons, and other measures. Approved for public hearings.	Public hearings in Spring. Review public comments, modify document, and approve all actions in June 2018. Review and approve for formal review in September 2018.
For-Hire Moratorium Amendment	The Council provided guidance on what to include in the scoping document.	Review draft scoping document and consider approving for scoping at the June 2018 meeting.
Golden Tilefish	The Council provided guidance on alternatives to include in the amendment. The Council requested the SSC to revisit the ABC recommendation indicating the Council is willing to accept the risk of overfishing associated with an ABC of 362,000 pounds whole weight for 2019 and 2020. The Council's rationale is included in the Snapper Grouper Committee Report.	Conduct a public hearing at the June 2018 meeting. The Council will then review and approve the amendment for formal review with the intent to have regulations in place prior to January 1, 2019 when the season opens.
Red Grouper	The Council directed staff to begin an amendment to revise the rebuilding plan for red grouper.	Review the draft amendment in June 2018.
Yellowtail Snapper	The Council directed staff to work on an amendment to revise the accountability measures to remove in-season closures for either sector until the total ACL is met.	Review the draft amendment and provide guidance to staff in June 2018. The intent is to have changes in place for the 2019 season.
Modifications to Sea Turtle Release Gear	The Council directed staff to continue working on the framework amendment and conduct scoping.	Review scoping comments, provide guidance, and approve actions/alternatives in June 2018.

Issue:	**Action Taken:**	**Schedule:**
Mackerel Cobia	State implementation plans, under the approved ASMFC Cobia Plan, are scheduled to become effective April 1, 2018. The Council revised the Actions and Alternatives in CMP Amendment 31 (Atlantic Cobia) and retained Alternative 2 as preferred: Remove Atlantic cobia from the CMP Fishery Management Plan. The Council directed staff to make the requested revisions, address the NOAA GC concerns, and bring the document back to the Council in June 2018 for final action. The Council selected Preferred Alternative 3 in the framework amendment to change the Atlantic king mackerel commercial trip limit.	State regulations effective April 1, 2018. The Council will help get the word out to the public. The Council will review the revised amendment and take final action at the June 2018 meeting. Council staff will work on this framework and bring it back at a future meeting.
Spiny Lobster	The Council reviewed scoping comments and provided guidance on Actions & Alternatives to be analyzed in Spiny Lobster Amendment 13 (Modifications to Gear Requirements & Cooperative Management Procedure).	This is a joint Amendment with the Gulf Council. Review the amendment and approve for public hearings at the June 2018 meeting. Public hearings are expected in July with final approval by the Gulf in August and the South Atlantic in September.
Habitat and Ecosystem Based Management	The Council approved the Fishery Ecosystem Plan II, the FEP II Dashboard, the Implementation Plan, and the 2-Year Roadmap.	Prepare materials for posting to the Council's website and begin work on the items identified.
Citizen Science Program	The Council received recommendations from the five Action Teams busy developing the program.	The Council agreed that the recommendations were on track and that they would now be put into motion by the Action Teams for the scamp pilot project during 2018.
For-Hire Recreational Reporting	The Council received an update on the amendment: the Notice of Availability of the Amendment and the Proposed Rule are under review in headquarters and are expected to publish soon. Council staff briefed the Council on the For-Hire Outreach efforts.	The proposed rule and notice of availability of the amendment are expected to publish in the federal register soon. The goal is to have regulations effective this summer. For-Hire reporting training and outreach will continue in 2018.

Issue:	Action Taken:	Schedule:
SEDAR	Dr. Cisco Werner, acting SEFSC Director, outlined approaches to get more assessments sooner. This includes a Research/Operational Assessment framework and providing interim analyses of assessed stocks.	The Council supported the efforts to get more stock assessments.
	The Council provided the following guidance for the SEDAR Steering Committee: 1. Requested red grouper as the first MRIP revision assessment. 2. Recommend the next king mackerel assessment be a standard assessment. 3. Requested the SEFSC provide guidance on stocks to consider for a 1st benchmark assessment in 2023 and 2024, considering the prioritization tool and the need for a wreckfish assessment.	The South Atlantic Council representatives will raise these issues at the next SEDAR Steering Committee meeting.
ABC Control Rule	Directed staff to work on an amendment to the Snapper Grouper, Dolphin Wahoo, Golden Crab, Sargassum, and Coral FMPs to make changes to the ABC control rule.	Review a revised options paper at the June 2018 meeting.
	Directed staff to work on an amendment to change the in-season closure for the recreational sector.	Review an options paper at the June 2018 meeting.