



Mid-Atlantic Fishery Management Council

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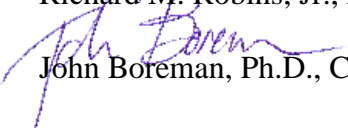
Richard B. Robins, Jr., Chairman | Lee G. Anderson, Vice Chairman

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

MEMORANDUM

DATE: 21 May 2015

TO: Richard M. Robins, Jr., MAFMC Chairman

FROM:  John Boreman, Ph.D., Chair, MAFMC Scientific and Statistical Committee

SUBJECT: Report of the May 2015 Meeting of the MAFMC SSC

The SSC met in Baltimore, MD, on 13-14 May 2015 for the main purpose of reviewing the ABC recommendations made previously for Longfin Squid, *Illex* squid, Butterfish, Surfclams, and Ocean Quahogs, and developing a new ABC recommendation for Atlantic Mackerel. The SSC also reviewed the bycatch cap for Butterfish in the squid fishery, and discussed the development of a bycatch cap for river herring and shad, actions taken by the South Atlantic Fishery Management Council and its SSC with regard to Blueline Tilefish, and progress in development of a universal research plan for species managed by the Council. The meeting agenda is attached (Attachment 1).

A total of 15 SSC members were in attendance on May 13th and 12 in attendance on May 14th, both of which constituted a quorum (Attachment 2). Also in attendance were staff from the NMFS Northeast Fisheries Science Center (in person and by phone), Council members and staff, and representatives from the fishing industry and general public. Discussion of ABC recommendations for each species began with a review of supporting information by the MAFMC staff lead and/or NEFSC assessment lead, then the SSC species leads (Attachment 3) and any members of the public attending the meeting were given an opportunity to comment, followed by SSC deliberations.

Documents cited in this report are attached or can be accessed via the MAFMC SSC website (<http://www.mafmc.org/ssc-meetings/2015/may-13-14>).

General Comment

During the course of discussion at the meeting, the SSC members expressed concern several times that data and information requests made during development of ABC recommendations and contained in meeting reports are not being addressed. For example, in last year's report to the Council, the SSC specifically recommended "that the projections used in subsequent years to calculate the ABCs for Butterfish in 2016 and 2017 be repeated using observed 2015 and 2016 catches." This did not happen. The SSC species leads (Attachment 3) need to be playing a stronger role in interacting with the Council and Center staff in decisions regarding what to include in data and assessments updates, as well as in development of terms of reference for benchmark assessments.

The SSC would like to work with Council and Center staff to develop a list of assessment update products for each species, such as spatial distribution profiles (survey and catch). Keeping in mind the goal of multi-year specifications is to add stability and reduce unnecessary workloads, the products would contain the key parameters that could raise a flag for the SSC indicating changes to multi-year specifications may be warranted. One suggestion is for the SSC's Scientific Uncertainty (SUN) Subcommittee to meet in Dover with Council staff, and maybe with key Center staff as well, to review the types of information the SSC is seeking (perhaps in the form of a template) in development and review of ABCs for each species managed by the MAFMC.

Longfin Squid

Jason Didden (MAFMC) and Lisa Hendrickson (NEFSC) reviewed the data update for Longfin Squid provided by Center staff and the relevant section of the 2015 SMB Advisory Panel Report. Stock indices and fishery performance were within the range of expected variability, and the SSC saw no compelling evidence to change their three-year ABC recommendation from last year of **23,400 mt** for 2016. This catch level is the same as was previously recommended for 2012-2015 by the SSC, which occurred during a period of apparent relatively light exploitation (1976-2009) according to the 2010 Longfin Squid assessment.

In addition to the usual information provided by the Center in data updates, the SSC would like to see how the fishery performed relative to the quota, since the quota has not been achieved in recent years. Also, the SSC would like to see the trend in mean size of Longfin Squid in the bottom trawl survey, which could be an indicator of overfishing or changes in environmental conditions.

***Illex* Squid**

As they did for Longfin Squid, Jason Didden and Lisa Hendrickson reviewed the data update for *Illex* squid provided by Center staff and the relevant section of the 2015 SMB Advisory Panel Report. Stock indices and fishery performance were within the range of expected variability, and the SSC saw no compelling evidence to change their three-year ABC recommendation from last year of **24,000 mt** (the same as was previously recommended for 2012-2015 by the SSC). This ABC is based on the observation that landings of 24,000 - 26,000 mt do not appear to have caused harm to the *Illex* stock, based on indices and landings in years following when landings were in the range of 24,000 mt - 26,000 mt. As with Longfin Squid, next year the SSC would like to see trend in average size of *Illex* in the bottom trawl survey, in addition to the usual information provided by the Center in the data update.

The SSC notes that the last "attempted" assessment of *Illex* squid was undertaken in 2006; a new assessment is overdue. The SSC still supports the recommendation made last year "that a benchmark assessment or a research track examining the effects of environmental variables on survey trends in *Illex* be undertaken by 2017, which would be 11 years [now 12 years] since the last benchmark assessment was conducted."

Butterfish

Jason Didden and Chuck Adams (NEFSC) reviewed the catch and survey indices and the fishery performance report for Butterfish. Discard estimates for 2014 derived by using the SBRM were not

available in time for the SSC meeting, so a proxy estimate developed by GARFO was used to determine if combined landings plus discards of Butterfish exceeded the 2014 ABC or ACL, which it did not. Although the 2014 abundance value derived from the NEFSC autumn bottom trawl survey increased relative to the 2013 value, it was still below the time series average. Based on the evidence on hand, the SSC saw no compelling reason to change the ABC recommendation developed last year of **ABC = 31,412 mt** for 2016.

Last year, the SSC recommended that projections used in subsequent years to calculate the ABCs for 2016 and 2017 be repeated using observed 2015 and 2016 catches because historical performance of the fishery indicates it has rarely caught in excess of 30,000 mt, and there is little empirical evidence of stock performance at the catch levels associated with the ABC. Adding to this, the combined catch plus discard estimate for 2014 was much less than what was presumed in the assessment to be caught in 2014. Such projections were not done in preparation for this year's SSC deliberations, and the SSC again recommends that they be re-run for use in developing an ABC recommendation for 2017, if doing so will not require re-running the entire Butterfish assessment.

Jason Didden also reviewed the 2014 catch statistics related to the Butterfish mortality cap in the Longfin Squid fishery. The cap was not exceeded in 2014 and he also expects it not to be exceeded in 2015.

Blueline Tilefish

A working group was established by the SSC at the March 2015 SSC meeting in response to the Council's request for advice on research and monitoring priorities that would help the Council manage Blueline Tilefish in waters north of North Carolina. Doug Vaughan, chair of the working group, reported to the SSC at this meeting on recent actions taken by the SAFMC SSC at its most recent meeting; a summary of those actions is documented on the SSC meeting website. Doug then led a discussion on research and monitoring of Blueline Tilefish north of NC. The SSC agreed that, in the short term, information is needed that would be sufficient to set an ABC; Council Chairman Robins stated that a request for an ABC might come from the Council within the coming year. The SSC decided to continue the constitution of the working group, but with a slightly refined charge: review data-poor approaches that can (or cannot) be used for developing an ABC for Blueline Tilefish north of NC. Based on the review, the SSC will then determine what data-poor method is most suitable to use.

The SSC agreed to focus longer-term research and monitoring priorities on collecting information that would fulfill the needs of an analytical assessment. SSC members made several comments and suggestions related to the longer-term needs. The NEFSC and SEFSC may be initiating a joint deepwater survey along the Atlantic coast, which would provide fishery-independent abundance, distribution, and biological data that could eventually be used in an analytical assessment. Suggestions were also made to use mean size in the fishery catch to calculate mortality rates, and perhaps initiate a program coastwide similar to Virginia's current carcass collection program – a fishery-dependent sampling program that provides information on lengths, sex, and age-at-length. Because MRIP data for blueline tilefish is problematic because of infrequent intercept sampling in the recreational fishery, mandatory reporting in the for-hire fleet may be a preferred option for gathering fishery-dependent catch information.

Atlantic Mackerel

John Wiedenmann (Rutgers University) presented his management strategy evaluation of Atlantic Mackerel, which was undertaken in response to a recommendation made by the SSC during last year's ABC deliberations. Following Dr. Wiedenmann's presentation, Jason Didden and Kiersten Curti (NEFSC) reviewed the most recent catch data and survey indices and the fishery performance report for Atlantic Mackerel.

Last year, the SSC recommended a one-year ABC for Atlantic Mackerel. As such, the generic terms of reference were used to develop an ABC recommendation for 2016.

1) *The materials considered in reaching its recommendations:*

- MSB Staff Memo: Acceptable Biological Catch (ABC) Recommendations
- MSB Advisory Panel (AP) Fishery Performance Reports
- Mackerel Staff AP Fishery Information Document
- Mackerel NEFSC Biological Update
- Wiedenmann, J. 2015. Application of data-poor harvest control rules to Atlantic mackerel. Report to the Mid Atlantic Fishery Management Council. 52pp.
- 2014 Canadian Assessment Update
- 2014 Canadian Assessment Regional Review
- TRAC Assessment Documents
- Evaluating methods for setting catch limits in data-limited fisheries (T.R. Carruthers et al. 2014)
- A biomass limit reference point for NAFO subareas 3 and 4 Atlantic mackerel (*Scomber scombus*) (D. Duplisea and F. Grégoire 2014)
- Updated age-specific indices through 2013 (NEFSC bottom trawl spring survey)
- Wiedenmann, J., M. J. Wilberg, and T. J. Miller. 2013. An evaluation of harvest control rules for data-poor fisheries. North American Journal of Fisheries Management 33(4): 845-860.

2) *Characterize 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:*

No new US assessment was presented to the SSC. A Canadian assessment was conducted in 2014. There are no accepted reference points for US Atlantic mackerel at this time; the last were developed for the Transboundary Resources Assessment Committee (TRAC) in 2010. The SSC continues to judge assessments for Atlantic mackerel as those for which the overfishing limit (OFL) cannot be specified given the current state of knowledge.

3) *If possible, the level of catch (in weight) and the probability of overfishing associated with the overfishing limit (OFL) based on the maximum fishing mortality rate threshold or, if appropriate, an OFL proxy:*

N/A

4) *The level of catch (in weight) and (if possible) 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 adjustment prior to their expiration:*

The SSC considered the following evidence regarding current stock status, and concluded that the stock is in a depleted state relative to historical levels of abundance:

- The recent fishery independent survey indices have dropped below the median for the time series.
- Recent recruitment indices are no longer high (2012-3 have dropped back to the long term average).
- The size and age structures from fishery independent sampling are truncated:
 - Pre-1990 proportion of age 4+ over 40%;
 - From 2000 on the proportion of age 4+ is less than 10%.
- Recent strong year classes are not progressing.
- The Canadian surveys indicate a 90%+ loss of egg production.
- Total mortality rate (Z) has apparently increased three-fold since 2000-2008, based on catch curve analysis.
- The northern portion of the stock is estimated to be 2.5-8% of B_{limit} in 2014.
- Fishery performance was considered less representative of stock status, but recent catch has been consistently below quota as well.
- There is also some evidence of increased predation pressure since 2000.

The SSC concluded that the foundation used previously to establish ABC, which assumed a sustainable catch in the period (1978-2013), was no longer valid given these factors. The SSC used a data-limited approach in setting the ABC because of the lack of an OFL estimate from an approved stock assessment. Wiedenmann et al. (2013) published the results of a management strategy evaluation of the performance of data-limited approaches in setting the ABC for a mackerel-like species. Based on an evaluation of the performance of these approaches, the SSC used 50% median catch to calculate the ABC because the management strategy evaluation results suggest this method came closest to meeting, while not exceeding, the acceptable probability of overfishing from the MAFMC risk policy. The median value of the long term mackerel catch series (1978-2014) for mackerel is 39,797 mt. Accordingly, the SSC recommends an **ABC of 19,898 mt for 2016**. Further, the SSC recommends using this ABC for the 2016-2018 fishing years.

The SSC will use the reported US landings, reported US discards, recreational US catch, reported Canadian landings, reported Canadian discards, spring and fall indices from the NEFSC bottom trawl surveys, and maps of the distribution of survey catches in evaluating whether to maintain the same ABC in 2017 and 2018. The SSC recommends that recent age composition of catch in the fishery should be used to update catch curve analyses presented by Wiedenmann (2015). Additional MSE runs examining the 50% median catch control rule for mackerel should also be undertaken.

5) *The most significant sources of scientific uncertainty associated with determination of OFL and ABC:*

- No current stock assessment or reference points;
- Conflicting long-term signals between NEFSC trawl survey and the commercial landings together with Canadian egg survey data;
- Lack of quantification of the linkage between US and Canadian catches;
- Surveys cover an unknown portion of entire range (variable availability);
- Canadian catch imprecision (no discard or bait fishery information) and poor precision of U.S. discard and recreational estimates (though likely low);
- Using a bottom trawl survey gear for a semi-pelagic species may induce variation in the indices of abundance and obscure the signal;
- Lack of progression of age classes in recent years; and
- Predation is possibly increasing.

6) *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 additional ecosystem considerations were included.

7) *Prioritized research or monitoring recommendations that would reduce the scientific uncertainty in the ABC recommendation and/or improve the assessment level:*

1. Develop an assessment and reference points for the full stock complex (US and Canada).
2. Consider approaches to evaluate the potential for stock structure and movement throughout the species range.
3. Evaluate egg production data from existing fishery independent surveys (e.g., MARMAP & EcoMon) to evaluate patterns in reproduction of the stock in the US portion of its range and to evaluate correlations in recruitment between US and Canadian reproduction.
4. Give high priority to analyses and collection of fishery-dependent information (CPUE, age structure, etc.)
5. Improve analyses of fishery-independent survey data to evaluate the spatial distribution of trawl survey CPUE, and relate to potential environmental covariates/forcing.
6. Explore patterns in consumption as an additional index of abundance.
7. Collaborate with industry to explore the spatial and temporal pattern and variability in catch to evaluate issues of abundance and availability.
8. Examine covariation among survey and fishery-dependent indices.
9. Examine growth trajectories from different areas of the stock to evaluate possible stock structure.
10. Explore management complementarities among small pelagic fisheries (e.g., mackerel, herring, and river herring).

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.

Shad/River Herring Cap in the Mackerel Fishery

Jason Didden reviewed the terms of reference for the Council's River Herring and Shad (RH/S) Committee, one of which includes moving from a catch-history based RH/S Cap on the mackerel fishery to one which is grounded in the inherent productivity of RH/S stocks. As part of this review, Jason described the current methodology for setting the RH/S Cap. Based on the complex issues involved, volunteers from the SSC were solicited for a working group to further consider the question. The charge of the working group would be to develop and/or review methods for setting a RH/S cap that are based on the biology, abundance, and/or productivity of RH/S stocks. John Boreman will follow-up with Council staff regarding the feasibility of such a workgroup.

Surfclams and Ocean Quahogs

Jessica Coakley (MAFMC) presented updated catch data and survey indices, as well as the 2015 fishery performance reports for Surfclams and Ocean Quahogs. Based on the information presented, the SSC saw no compelling reason to alter their 2016 ABC recommendation for either species (**Surfclam ABC = 48,197 mt; Ocean Quahog ABC = 26,100 mt**). The justifications for these ABC recommendations are found in the May 2013 SSC meeting report.

The SSC found the maps of average landings by ten-minute squares over time very informative for both species and encouraged Center staff to continue including them in the data and assessment updates. Future mapping efforts should use the same scale for all maps, which will make it easier to draw comparisons across years.

Research Plan Update

Rich Seagraves (MAFMC) gave a brief update on the status of development of the Council's research priority plan. The Council agreed at its April 2015 meeting to the staff proposal to consolidate research needs across species and FMPs by using a bottom-up approach, which engages stakeholders and the Council and SSC members. However, there is considerable Council interest in re-instituting the Research Set-Aside Program that was put on hold pending remediation of implementation and enforcement issues identified in a recent review of the program. Council staff is currently developing alternative research set-aside program models based on cooperative research programs conducted in other regions (to be discussed at the upcoming Council meeting). To expedite this process, it will be necessary to "fast track" the identification of the Council's top research priorities by the August Council meeting, so staff will be presenting this information to the SSC at its July meeting. The development of a comprehensive research priority plan will continue as planned, expected to be completed later in 2015.

Summary of Species Information Requests

The following is a summary of the information requests made at the meeting by the SSC for next year's round of ABC deliberations. Questions about specifics can be directed to the SSC species leads (Attachment 3).

Longfin Squid: In addition to the usual information provided by the Center in data updates, the SSC would like to see how the fishery performed relative to the quota, since the quota has not been achieved in recent years. Also, the SSC would like to see the trend in mean size of Longfin Squid in the bottom trawl survey, which could be an indicator of overfishing or changes in environmental conditions.

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cc: SSC Members, Lee Anderson, Chris Moore, Rich Seagraves, Jason Didden, Jessica Coakley, Lisa Hendrickson, Chuck Adams, John Wiedenmann, Kiersten Curti, Dan Hennen

Mid-Atlantic Fishery Management Council
Scientific and Statistical Committee Meeting
13-14 March 2015
Final Agenda

Wednesday May 13, 2015

- 0900 Review Data Update and Fishery Performance Report for Longfin and *Illex* Squid (Didden/Hendrickson)
- 1030 Review Data Update and Fishery Performance Report for Butterfish; Butterfish Mortality cap in the Longfin Squid Fishery (Didden/Adams)
- 1115 Science Needs for Blueline Tilefish (Vaughan)
- 1215 Lunch
- 1315 Atlantic Mackerel ABC Specification (Didden/Wiedenmann/Curti)
- 1600 Review Shad/River Herring Cap in Mackerel Fishery (Didden/Curti)
- 1700 Adjourn

Thursday May 14, 2015

- 0830 Review Data Update and Fishery Performance Report for Surfclams (Coakley)
- 0930 Review Data Update and Fishery Performance Report for Ocean Quahog (Coakley)
- 1030 Research Plan Update (Seagraves)
- 1100 Adjourn

MAFMC Scientific and Statistical Committee
13-14 May Meeting
Baltimore, MD

<u>Name</u>	<u>Affiliation</u>
<i>SSC Members in Attendance:</i>	
John Boreman (SSC Chairman)	North Carolina State University
Tom Miller (SSC Vice-Chair)	University of Maryland - CBL
Mike Wilberg	University of Maryland - CBL
Doug Lipton (5/13 only)	NMFS
David Secor	University of Maryland – CBL
Rob Latour	VIMS
David Tomberlin	NMFS Office of Science and Technology
Mark Holliday	NMFS (Retired)
Doug Vaughan	NMFS (Retired)
Cynthia Jones (5/13 only)	Old Dominion University
Sarah Gaichas	NMFS Northeast Fisheries Science Center
Sunny Jardine (5/13 only)	University of Delaware
Mike Frisk	Stony Brook University
Yan Jiao	Virginia Tech
Wendy Gabriel	NMFS Northeast Fisheries Science Center
 <i>Others in attendance:</i>	
Rich Seagraves	MAFMC staff
Jason Didden (5/13 only)	MAFMC staff
Jessica Coakley (5/14 only)	MAFMC staff
John Wiedenmann (by phone, 5/13 only)	Rutgers University
Lisa Hendrickson (by phone, 5/13 only)	NMFS Northeast Fisheries Science Center
Chuck Adams (by phone, 5/13 only)	NMFS Northeast Fisheries Science Center
Kiersten Curti	NMFS Northeast Fisheries Science Center
Rick Robins	MAFMC Chair
Greg DiDomenico	GSSA
Jeff Kaelin	Lunds Fisheries, Council member
Tom Alspach (5/14 only)	SCOQ Advisory Panel member
Dave Wallace (5/14 only)	Wallace and Associates
Gray Redding (5/13 only)	University of Maryland - CBL
Aaron Kornbluth (5/13 only)	Pew Charitable Trust
Purcie Bennett-Nickerson (5/13 only)	Pew Charitable Trust

Species and Topic Leads for MAFMC SSC Members

Species/Topic	Biology/Assessment Lead	Socio-economics Lead
Atlantic Mackerel	Dave Secor	Mark Holliday
Atlantic Surfclam	Wendy Gabriel	Bonnie McCay
Ocean Quahog	Ed Houde	Bonnie McCay
Spiny Dogfish	Yan Jiao	David Tomberlin
Bluefish	Cynthia Jones	Doug Lipton
Butterfish	Rob Latour	Mark Holliday
Black Sea Bass	Tom Miller/Olaf Jensen	Marty Smith
Golden Tilefish	Doug Vaughan	Marty Smith
Scup	Wendy Gabriel	Mark Holliday
Summer Flounder	Mike Wilberg	Doug Lipton
Long-finned Squid	Mike Frisk	Sunny Jardine
Short-finned Squid	Tom Miller	Sunny Jardine
Ecosystems	Ed Houde	Doug Lipton
Deep Sea Corals	John Boreman	Bonnie McCay
Blueline Tilefish	Sarah Gaichas	David Tomberlin