## MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

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# MEMORANDUM

**DATE:** January 30, 2013

**TO:** Richard B. Robins, Jr., Chairman, Mid-Atlantic Fishery Management Council

**FROM:** Thomas Miller, Ph.D., Vice Chairman, MAFMC Scientific and Statistical Committee

**Subject:** Report of January 23, 2013 Meeting of the MAFMC Scientific and Statistical Committee

The Scientific and Statistical Committee (SSC) of the Mid-Atlantic Fishery Management Council (MAFMC) met on January 23, to address the request of the Council to reconsider SSCs 2013 ABC recommendation for black sea bass. This request was based on the following motion passed by the Council at its December 2012 meeting:

> *"Move that the SSC develop a 2014 black sea bass ABC recommendation for consideration by the Council at its February meeting. Also move to request that the SSC reconsider the 2013 black sea bass ABC recommendation with respect to the assessment level and Monitoring Committee recommendations for additional data to be considered."*

A total of 12 SSC members were in attendance at the SSC meeting. Two attended via a webinar but were able to hear and participate fully in discussion. One SSC member had to leave shortly after lunch, and thus only 11 members were present for the afternoon session during with we considered the ABC for black sea bass. This represents a quorum as defined by the SSC standard operating procedures (Attachment 2). Also in attendance were representatives of the MAFMC, MAFMC staff, ASMFC staff and state biologists.

Dr. John Boreman sent regrets for not being able to chair the SSC. This was an emergency meeting of the SSC and it was determined that most could attend on this day - regrettably it was one of the few days on which Dr. Boreman could not attend.

Before dealing with the Council motion, the SSC briefly discussed the need to replace Dr. Jason Link (NOAA/NEFSC) who has recently resigned from the SSC owing to his appointment at NOAA's Senior Scientist for Ecosystem Management. The SSC members present made a strong recommendation that Dr. Link's expertise should be replaced on the SSC. Specifically, it would be beneficial if a new member could be appointed with experience working with forage fish or on ecosystem processes. Recommendations will be forwarded to Dr. Boreman and Chairman Robins for consideration by the Council.

**Black Sea Bass Reconsideration**

The SSC discussed the foundation for the Council motion relative to its remand policy, believing that the Council's motion was effectively a remand request. The SSC found no evidence that (a) the SSC had failed to follow the Council's terms of reference, (b) there had been an error or omission in the material provided to the SSC, (c) there was an error in fact in the SSC's calculations of the recommended ABC or (d) that the SSC failed to follow its own standard operating procedures. Thus the SSC confirmed that the Council's motion was not a remand, but was rather a case of the Council seeking clarification of the foundation of the SSC's previous ABC determination.

The SSC then considered the three terms of reference provided to it by the Council.

*ToR 1. Review and evaluate any new information available relative to black sea bass stock abundance and recruitment (i.e., state survey data) and relative to fishery performance (including recent catch data).*

The SSC received a briefing from Council staff on the performance of the black sea bass fisheries in 2012. It is clear that the commercial fishery was well managed resulting in its full quota of 1.7 M lbs being landed (Fig 1). Council staff noted that the fishery was opened for only short periods (days) in several waves in order to ensure the quota was not exceeded.

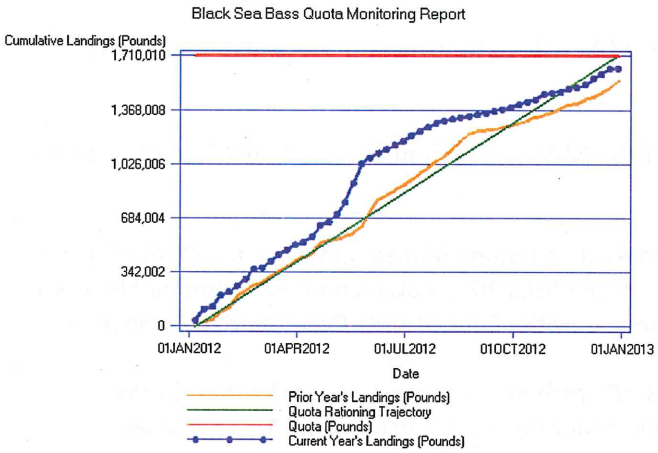


Figure 1. Cumulative commercial catch of black sea bass in the Mid-Atlantic in 2012.

In contrast, the recreational quota was exceeded significantly. The Council enacted a recreational ACT of 1.86 M lbs. After removing the RSA and discards, the recreational black sea bass quota in 2012 was 1.32 M lbs. Data on recreational landings from MRIP presented by MAMFC staff indicate that in waves 1-5, recreational anglers had taken 2.95 M lbs of black sea bass with Massachusetts, New York and New Jersey accounting for approximately 80% of the landings. This provisional figure suggests a recreational overage of 1.63 M lbs – or 123% of the recreational quota.

Insufficient recreational harvest and effort data were available to the SSC at the meeting for the SSC to fully understand or evaluate the excess catch. The SSC evaluated recreational management measures and it is clear that these were liberalized following 2011 when the recreational sector did not meet its full quota. The extent to which this liberalization is responsible for the recreational overage remains unclear: all that is clear is that the management measures in place in 2012 were inadequate to constrain catch to the quota allotted to the recreational fishery.

The SSC did not have access to all of the data it would have liked to evaluate the full range of explanations of the overage. In the time available, the SSC did review recreational data for Massachusetts. These data indicated that recreational black sea bass trips had increased five-fold in 2012 during which time recreational catch per trip increased only modestly from approximately 4.5 - 5.5 fish per trip. However, there remained key concerns in the minds of SSC members of how to interpret recreational effort and catch data that prevented the SSC from reaching a conclusion about black sea bass population status based on the recreational catch data alone.

The SSC also considered fishery-independent survey data collected by state agencies from Virginia to

Massachusetts. These survey data had not previously been examined by the SSC, but components of these data were used in the age-based assessment model that was considered but rejected during the last benchmark assessment. Jason McNamee (RI DFW) presented analyses conducted by the black sea bass technical committee. The goal of these analyses was to present standardized indices of black sea bass. These data and the methods used to analyze them have not undergone formal external review. For all surveys, black sea bass abundances in survey catches were subject to general linear modeling. As is common, survey data exhibited a high incidence of stations with zero catches. To account for this, data were first reviewed to identify stations at which black sea bass were consistently caught over the entire time series and only these stations were retained for further analysis. A general linear model with a negative binomial error structure was fit to catch and environmental data for 7 surveys: the VIMS trawl survey, the New Jersey trawl survey, the NEAMAP survey, the Peconic Bay small mesh trawl survey, the Long Island Sound trawl survey, the Rhode Island trawl survey, and the Massachusetts inshore trawl survey (Fig 2).

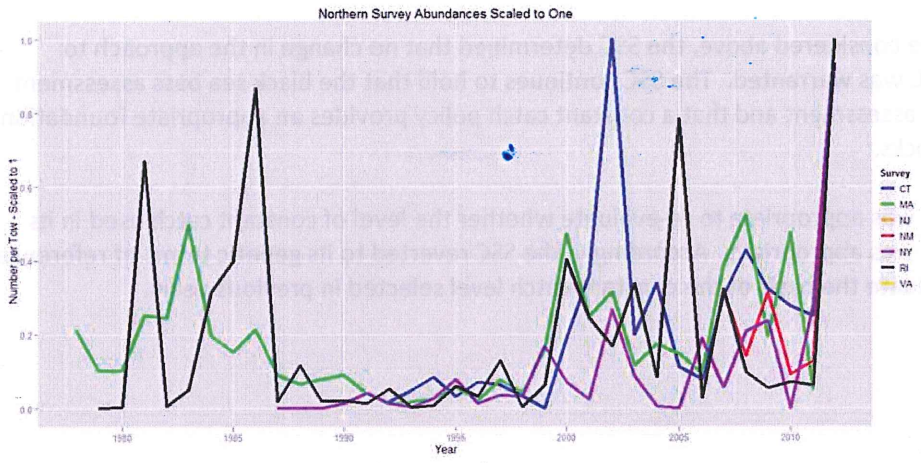


Figure 2. Time series of 7 regional fishery-independent surveys for black sea bass. Note all are scaled such that their peak catch = 1. Indices for 2012 are obscured. The following surveys were at or close to time series highs in 2012: NY, CT and RI. Surveys for other states did not show anomalous increases in 2012.

The SSC welcomed the effort to introduce new data into the consideration of black sea bass stock structure. However, the SSC was uncertain what conclusions could be drawn from these analyses for the following reasons: non-standard analytical methods were used, surveys were mixed in the age-classes indexed, and surveys were conducted at different times of year. Despite this, the SSC was able to conclude that black sea bass populations exhibited a period of relatively low abundance from the late 1980s – the late 1990's. Subsequently abundances have been more variable. Some surveys – e.g., Peconic Bay, Long Island Sound and Rhode Island show signs of large increases in 2012. Two of these surveys (Peconic Bay and Rhode Island) are believed to index juvenile black sea bass – the other (Long Island Sound) may reflect a broader age structure. The increase observed in these surveys was not observed consistently in other surveys nor did there appear to be any latitudinal pattern in the most recent years that might explain the high recreational catches in the northern states (NJ – MA). The SSC also noted that much of these data would not become available until the year after collection.

In summary, the SSC reviewed and evaluated new information available relative to black sea bass stock abundance and recruitment (i.e., state survey data) and relative to fishery performance (including recent catch data). The SSC concluded that there is little information in these data that would lead us to change the 2013 ABC recommendation.

*ToR 2. Given the assessment level determinations for other MAFMC-managed species, review and reevaluate the SSC's previous determination that the black sea bass stock assessment qualifies as a level 4 assessment.*

In its July meeting, the SSC assigned the black sea bass assessment to a Level 4 tier. In making its recommendation to the Council the SSC noted the following important factors: (i) the absence of important

biological information in the assessment (e.g., potential for incomplete mixing in the stock area); (ii) whether reference points are appropriate given the life history; and (iii) that, although point estimates of reference points were provided, the reliability of the OFL point estimate was uncertain.

The SSC was not presented with any new information relative to the three areas of concern noted above at this meeting that would cause us to reconsider our July determination.

The SSC is sensitive to concerns that it has been perceived to be inconsistent in its determination of levels for assessments and commits to undertaking a thorough evaluation of all of its decisions moving forward.

*ToR 3. If a revision to the ABC is warranted based on the terms of reference above, provide an updated 2013-2014 ABC recommendation for black sea bass that reflects the current condition of the stock using the generic terms of reference.*

Based on the terms of reference considered above, the SSC determined that no change in the approach to determining the 2013-2014 ABC was warranted. The SSC continues to hold that the black sea bass assessment should be classified as a level 4 assessment and that a constant catch policy provides an appropriate foundation for determining ABC in such stocks.

However, the SSC did believe it was appropriate to re-evaluate whether the level of constant catch used in its ABC determinations since 2010 was appropriate. Accordingly, the SSC reverted to its generic terms of reference for determining ABCs to re-evaluate the basis of the constant catch level selected in previous years.

## Re-Evaluation of 2013-2014 ABC for Black Sea Bass

*Generic ToR 1. The materials considered in reaching its recommendations:*

- Shepherd, Gary R. 2012. Black sea bass assessment summary for 2012 . Northeast Fisheries Science Center. 24pp.
- Report of the July 2012 Meeting of the MAFMC Scientific and Statistical Committee, dated July 30, 2012, 12pp.
- Report of the July 2010 Meeting of the MAFMC Scientific and Statistical Committee, dated August 2, 2010, 12 pp.
- Miller, T. J., E. Bell, K. Patterson, and K. Trzcinski. 2011. SARC 53 Summary Report. Dated December 16, 2011, 36 p.

*Generic ToR 2. The level (1-4) that the SSC deems most appropriate for the information content of the most recent stock assessment, based on criteria listed in the version of the proposed Omnibus Amendment submitted to the Secretary of Commerce:*

The SSC determined again that the black sea bass assessment qualified as a **Level 4**. The determination of Level 4 status involves concerns regarding: (i) the absence of important biological information in the assessment (e.g., potential for incomplete mixing in the stock area); (ii) whether reference points are appropriate given the life history; and (iii) that, although point estimates of reference points were provided, the reliability of the OFL point estimate was uncertain.

The SSC notes that the three concerns above are not trivial to overcome. However, it does not follow that the only way to address them is to bring forward a spatially-specific assessment that includes new reference points. The SSC notes and believes that there are considerable historical data and newly emerging data to enable assessment scientists to address these concerns in a way that may permit a re-designation of the assessment. For example, analyses of the age-structure in surveys, advanced over that included in the assessment rejected at SARC 53 would be useful. Additionally, operational simulation models showing that the assessment model is not sensitive to the spatial structure suggested by tagging data would be helpful. Advances in both areas may help allay concerns regarding the extent of incomplete stock mixing.

*Generic ToR 3. 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:*

The assessment indicates that the catch associated with OFL is **3 175 mt** based on an $F_{msy}$ proxy = $F_{40\%}$ = 0.44. However, the SSC did not endorse these estimates because of concerns about the unresolved uncertainty in the OFL related to stock mixing, life history, and natural mortality that remain unresolved in the assessment.

*Generic ToR 4. The level of catch (in weight) associated with the acceptable biological catch (ABC) for the stock:*

In its 2010 report, the SSC put forward a constant catch quota as the foundation for determining the ABC for black sea bass. The SSC endorsed this approach again at this meeting (January 23, 2013).

Its original ABC determination in 2010 was based on the 2009 catch. However, this ABC determination was remanded by the Council based on concerns raised by the Monitoring Committee over the impact of conservation measures that were in force in 2009. Accordingly the SSC revised the level of constant catch used for ABC determination based on the 2008 catch. This value, 2 041 metric tonnes (mt, equivalent to 4.5 M lbs) has served as the foundation for its ABC determination since.

The SSC reconsidered the 2008 catch as the foundation for ABC. The SSC noted the following:

- The current constant catch policy has been in place for three years and has led to a relatively constant or potential increasing abundance of black sea bass, such that the 2012 update to the assessment indicated that the black sea bass stock is slightly above $B_{MSY}$.
- The 2 041 mt catch represents approximately the 16$^{th}$ percentile of cumulative catch distribution and is thus extremely conservative (Fig. 3).

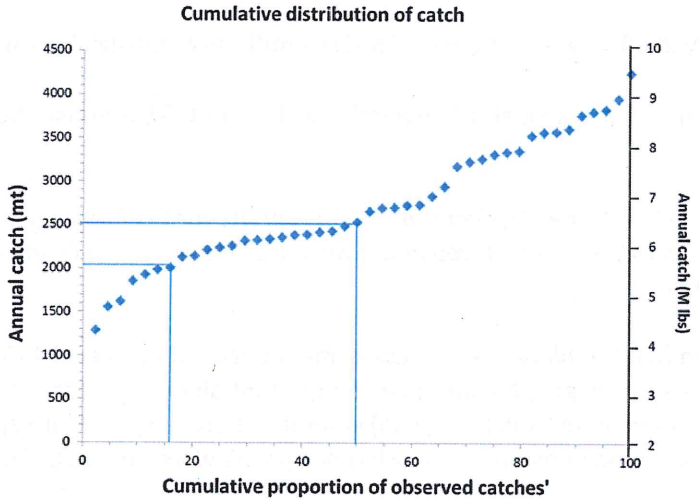


Figure 3. The distribution of observed black sea bass catches (1968 - 2011)

- Other stocks managed by MAFMC that are at or above $B_{MSY}$ are managed with an ABC of approximately 75% of OFL.
- During the period of rebuilding (2000-2009), the black sea bass stock supported catches of 2 721 mt (=6 M lbs).

Based on these observations, **the SSC recommends the 2013-2014 ABC should be based on a constant catch policy of 2 494 mt (=5.5 M lbs).** This revised constant catch level remains less than the 6 M lbs that was taken during rebuilding, is approximately the 50$^{th}$ percentile of the observed cumulative catch distribution, and likely represents approximately 75% of $F_{MSY}$

The SSC notes in its advice to the Council, that this is a short term, empirical measure. The SSC strongly recommends the Council works to ensure that a revised assessment is completed as soon as possible that may permit the SSC to use a more reliable foundation for ABC determination.

*Generic ToR 5. Specify the number of fishing years for which the OFL and/or ABC specification applies and, if possible, identify interim metrics which can be examined to determine if multi-year specifications need adjustment prior to their expiration:*

The SSC recommends a two-year specification to be in place through the 2014 fishing year, subject to SSC annual review of fishery-independent surveys and catch information, and in anticipation of a new operational assessment that will be conducted in summer 2013 and a new benchmark assessment, currently scheduled for Spring 2014.

*Generic ToR 6. If possible, the probability of overfishing associated with the OFL and ABC catch level recommendations (if not possible, provide a qualitative evaluation):*

It is not possible to provide an estimate of the probability of overfishing as the SSC did not endorse the estimate

of OFL in the assessment.

*Generic ToR 7. The most significant sources of scientific uncertainty associated with determination of OFL and ABC:*

- Atypical life history strategy (protogynous hermaphrodite) means that determination of appropriate reference points is difficult;
- Assessment assumes a completely mixed stock, while tagging analyses suggest otherwise;
- Uncertainty exists with respect to M because of the unusual life history strategy the current assumption of a constant M in the model for both sexes may not adequately capture the dynamics in M; and
- Concern about the application of trawl calibration coefficients (ALBATROSS IV vs BIGELOW) and their influence on the selectivity pattern and results of the assessment. There was concern that the pattern of the calibration coefficient across lengths was difficult to justify biologically.

*Generic ToR 8. 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 explicit or specific ecosystem considerations (for example, trophic interactions or habitat) were included in the assessment. No additional information pertinent to ecosystem considerations was included in selecting the ABC.

*Generic ToR 9. List high priority research or monitoring recommendations that would reduce the scientific uncertainty in the ABC recommendation:*

In order of priority:

- (1) Develop a first principles foundation for establishing reference points and assessment methods to account for black sea bass' life history;
- (2) Explore the utility of a spatially-structured assessment model for black sea bass to address the incomplete mixing in the stock;
- (3) Consider a directed study of the genetic structure in the population north of Cape Hatteras; and
- (4) Evaluate and, if appropriate, continue a fixed gear survey of black sea bass similar to the one used for scup.

*Generic ToR 10. 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.

Attachment 1

Mid-Atlantic Fishery Management Council
Scientific and Statistical Committee Meeting
January 23, 2013
Draft Agenda

0900 Welcome and Introductions (Boreman)

0915 Review of SSC ABC recommendation for 2013-2014 and December 2012 Council motion on black sea bass ABC (Seagraves)

0930 Summary of black sea bass assessment/fishery information provided in July 2012 (Dancy/Shepherd)

1000 Address Special TOR relative to reconsideration of 2013-2014 ABC recommendations for black sea bass (Miller)

1200 Lunch

1300 Special BSB TOR cont.

1700 Adjourn

Attachment 2

MAFMC Scientific and Statistical Committee Meeting
Baltimore, MD

January 23, 2013

SSC Members in Attendance

| Name | Affiliation |
|---|---|
| Tom Miller (SSC Vice-Chair) | University of Maryland Center for Environmental Science – CBL |
| Brian Rothschild | University of Massachusetts |
| David Tomberlin | NMFS/S&T |
| Dave Secor | University of Maryland Center for Environmental Science - CBL |
| Doug Lipton (pm only) | University of Maryland - College Park |
| Wendy Gabriel | NMFS/NEFSC |
| Ed Houde | University of Maryland Center for Environmental Science - CBL |
| Doug Vaughan (left at 2pm) | North Carolina |
| Mark Holliday | NMFS/HQ |
| Mike Frisk (via Webinar) | SUNY Stony Brook |
| Yan Jiao (via Webinar) | Virginia Tech |

Others in attendance

| | |
|---|---|
| Rich Seagraves | MAFMC staff |
| Kiley Dancy | MAFMC staff |
| Rick Robins | MAFMC Chair |
| Toni Kerns | ASMFC staff |
| Jason McNamee | RI DFW |
| Jonathan Rountree | NMFS Intern |