MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

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M E M O R A N D U M

DATE: 30 July 2012

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

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

Subject: Report of July 2012 Meeting of the MAFMC Scientific and Statistical Committee

The Scientific and Statistical Committee (SSC) of the Mid-Atlantic Fishery Management Council (MAFMC) met on 25-25 July 2012 to review stock assessment information and develop acceptable biological catch (ABC) recommendations for four species under the management purview of the MAFMC: black sea bass, summer flounder, scup, and bluefish (Attachment 1). The SSC also discussed the 2012 RSA project selection process.

A total of 15 SSC members were in attendance on July 25th and 14 SSC members on July 26th, which represented a quorum for each day as defined by the SSC standard operating procedures (Attachment 2). Also in attendance were representatives of the MAFMC, MAFMC staff, state biologists, and the public.

For each of the four species, MAFMC staff described the assessment history, the most recent survey and landings information, and comments from the Advisory Panel and Monitoring Committee. Scientists from the NEFSC were then asked to comment, followed by the SSC species lead on biology, the SSC species lead on socioeconomics, and members of the MAFMC/ASMFC Monitoring Committee. The public was then invited to comment. The SSC species lead for biology led the SSC discussion on selection of an ABC for the 2013 fishing year and beyond. Once the discussion was completed, the SSC provided the following consensus statements in response to the terms of reference provided by the MAFMC. All supporting materials are posted on the SSC's website.

Black Sea Bass

1) The materials considered in reaching its recommendations:

- Shepherd, Gary R. 2012. Black sea bass assessment summary for 2012 . Northeast Fisheries Science Center. 24pp.
- MAFMC Staff Report: Black sea bass AP information document, dated June 2012 15pp.
- Mid-Atlantic Fishery Management Council. 2012. Summer flounder, scup, and black sea bass fishery performance reports. 9pp.
- MAFMC staff memorandum from Jessica Coakley to Chris Moore, "Black sea bass management measures for 2013, 2014, 2015" dated July 23, 2012. 8pp.

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 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.

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.

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

The SSC did not accept the OFL in the assessment. Rather, the SSC recommends a level of catch associated with the ABC of **2,041 mt** based on the application of a constant catch approach adopted for the 2010-2012 specifications.

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 three-year specification to be in place through the 2015 fishing year, subject to SSC annual review of fishery-independent surveys and catch information, and in anticipation of a new benchmark assessment, which is currently scheduled for Spring 2014.

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.

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.

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.

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 (Workshop to be held in late August 2012 in Raleigh, NC to address reference points);
- (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.

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.

Summer Flounder

1) The materials considered in reaching its recommendations:

- Terceiro, M. 2012. Stock assessment of summer flounder for 2012. Northeast Fisheries Science Center. 2pp.
- MAFMC Staff Report: Summer flounder AP information document, dated June 2012 15pp.

- Terceiro, M. 2012. Stock assessment of summer flounder (*Paralichthys dentatus*). Northeast Fisheries Science Center. Slide presentation. 49 slides.
- Mid-Atlantic Fishery Management Council. 2012. Summer flounder, scup, and black sea bass fishery performance reports. 9pp.
- MAFMC staff memorandum from Jessica Coakley to Chris Moore, "Summer flounder management measures for 2013, 2014, 2015" dated July 20, 2012. 9pp.
- Memorandum from Chris Batsavidge, NCDMF, to Jessica Coakley, MAFMC, "Species composition and landings from the 2011 North Carolina flynet fishery" dated June 26, 2012. 1p.

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:

Level 3.

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 OFL is **13,523 mt** based on a threshold F = 0.31 ($F_{0.35}$) and 2012 projected biomass.

4) The level of catch (in weight) associated with the acceptable biological catch (ABC) for the stock. The ABC will be selected based on the overfishing definition contained in the FMP and to reflect the level of scientific uncertainty inherent in the stock assessment such that the recommended ABC is less than or equal to the overfishing limit in line with the Act and the National Standard 1 Guidelines to the Act:

The SSC determined the 2013 ABC to be **10,133 mt** based on an OFL of 13,523 mt, 2012 projected B/Bmsy = 92%, P* = 0.364, and a lognormal distribution with of CV = 100%. Applying an F = 0.224 specifies a 2014 ABC of **10,088 mt**.

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 of a constant F = 0.224 derived from the F that achieves the ABC for 2013. This two-year specification was made in anticipation of the SSC being responsive to the anticipated Spring 2013 benchmark stock assessment.

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

Based on the method applied, the probability of overfishing associated with ABC is 36%, conditional on the assumed lognormal distribution of OFL with and associated CV = 100%.

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

- A strong annual retrospective pattern in recruitment evident for recent year-classes;
- Uncertainty in stock status because of lack of uncertainty estimation for the biological reference points (proxy used for F_{MSY});
- Uncertainty that exists with respect to the estimate of M;

- Uncertainties resulting from the application of aggregate trawl calibration coefficients (ALBATROSS IV vs. BIGELOW) and their influence on the results of the assessment;
- Projections used to calculate ABC being based on an assumption that the quota would be landed in 2012 and 2013; and
- The assumption of constant distribution (based on 1982-2011 period) in recruitment used in the 2013 and 2014 stock projections.

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.

9) List high priority research or monitoring recommendations that would reduce the scientific uncertainty in the ABC recommendation:

- Evaluate uncertainties in biomass to determine potential modifications to default OFL CV;
- Evaluate the size distribution of landed and discarded fish, by sex, in the summer flounder fisheries;
- Evaluate past and possible future changes to size regulations on retention and selectivity in stock assessments and projections;
- Incorporate sex-specific differences in size at age into the stock assessment; and
- Evaluate range expansion and change in distribution and their implications for stock assessment and management.

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.

Scup

1) The materials considered in reaching its recommendations:

- Terceiro, M. 2012. Stock assessment of scup for 2012. Northeast Fisheries Science Center. 2pp.
- MAFMC Staff Report: Scup AP information document, dated June 2012 18pp.
- Terceiro, M. 2012. Scup (*Stenotomus chrysops*): 2012 Update. Northeast Fisheries Science Center. PowerPoint presentation, 46 slides.
- Mid-Atlantic Fishery Management Council. 2012. Summer Flounder, Scup, and Black Sea Bass Fishery Performance Reports. 9pp.
- MAFMC staff memorandum from Jessica Coakley to Chris Moore, "Scup management measures for 2013, 2014, 2015" dated July 20, 2012. 9pp.
- MAFMC staff memorandum from Jessica Coakley to Chris Moore, "Scup minimum fish and mesh size - commercial" dated July 19, 2012. 6pp.

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 designated the assessment as **Level 3**, because the structure of the assessment was unchanged from the previous specification. There were no new estimates of uncertainties associated with maximum fishing mortality rate (OFL).

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:

According to the projections in the Terceiro (2012), the level in catch is **21,680 mt**, based on an OFL F_{msy} proxy = F40% = 0.177.

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

The SSC recommended an ABC of **17,557 mt** based on the Level 3 control rule. The SSC used an assumed CV of the OFL with a lognormal distribution of 100%, noted that the ratio of B/BMSY > 1, and that scup exhibit a typical life history. The SSC applied the Council's risk policy of P* = 0.4. The recommended ABC is 81% of the catch at OFL.

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 three-year specification of ABC for scup, based on a constant fishing mortality rate. The fishing mortality rate associated with the 17,557-mt removal in 2013 = 0.142. This rate, applied in 2014 and 2015, results in ABCs of **16,325 mt** and **15,320 mt**, respectively. An assessment update, no later than July 2014, will be used to evaluate stock status.

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

Based on the method applied, the probability of overfishing associated with the ABC is 40%, conditional on the assumed lognormal distribution of OFL with an associated CV = 100%.

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

- While older age scup (age 3+) are represented in the catch used in the assessment model, most indices used in the model do not include ages 3+. As a result, the dynamics of the older ages of scup are driven principally by catches and inferences regarding year class strength;
- Uncertainty exists with respect to the estimate of natural mortality (M) used in the assessment;
- Uncertainty in the stock status results from uncertainties in the estimates of both the stock's biomass and the biological reference point proxy used for F_{MSY};
- The SSC assumed that OFL has a lognormal distribution with a CV = 100%, based on a meta-analysis of survey and SCA accuracies;
- Recruitment appears high in recent years, but it is unclear how these recent high levels would compare to historical levels of recruitment;
- Survey indices are particularly sensitive to scup availability, which results in high inter-annual variability;

- Uncertainties resulting from the application of trawl calibration coefficients (ALBATROSS IV vs BIGELOW) and their influence on the selectivity pattern and results of the assessment; and
- The projection on which the ABC was determined was based on an assumption that the quota would be landed in 2012, 2013, and 2014.

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:

As scup is not currently defined as a forage species, no additional ecosystem considerations were taken into account. Scup do not appear to have strong habitat associations or unique environmental requirements, thus no additional ecosystem considerations were considered.

9) List high priority research or monitoring recommendations that would reduce the scientific uncertainty in the ABC recommendation:

In order of priority:

- (1) Improve estimates of discards and discard mortality for commercial and recreational fisheries;
- (2) Evaluate indices of stock abundance from new surveys;
- (3) Quantify the pattern of predation on scup;
- (3) Conduct biological studies to investigate maturity schedules and factors affecting annual availability of scup to research surveys;
- (5) Explore the utility of incorporating ecological relationships, predation, and oceanic events that influence scup population size on the continental shelf and its availability to resource surveys into the stock assessment model; and
- (6) Evaluate alternate forms of survey selectivity in the assessment to inform indices of abundance at higher ages.

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.

Bluefish

1) The materials considered in reaching its recommendations:

- MAFMC Staff Report: Bluefish AP information document, dated June 2012. 14pp.
- Coastal Pelagic Working Group. 2012. Bluefish 2012 stock assessment update. Northeast Fisheries Science Center. 36pp.
- MAFMC staff memorandum from Jim Armstrong to Chris Moore, "Bluefish ABC and Management Measures for 2013," dated July 18, 2012. 9pp.
- MAFMC Staff. 2012. 2012 Bluefish fishery performance report. 3pp.
- Coastal Pelagic Working Group. 2012. 2012 bluefish stock assessment update. Northeast fisheries Science Center. Slide presentation. 25 slides.

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 designated the assessment as **Level 3**, because the structure of the assessment was unchanged from previous specification. There were no new estimates of uncertainties associated with maximum fishing mortality rate (OFL).

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 OFL is 17,521 mt based on an F_{msy} of 0.19.

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

The SSC recommends an ABC of **12,461 mt** (27.5 million lb) based on the control rule for Level 3 assessments. The SSC used an assumed CV of the OFL with a lognormal distribution of 100%, noting that the ratio of B/BMSY, based on mid-year estimates from 2012, is 0.8676, and that bluefish exhibit a typical life history. The SSC applied the Council's policy of P* = 0.341. The projection is 71.1% of the catch at OFL.

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 of the ABC based on a constant fishing mortality rate, subject to review of an updated assessment in 2013. The SSC concerns are based on an estimated biomass currently below B_{msy}, and that recruitment for the past three years has been the lowest in the time series. The fishing mortality rate (F = 0.132), applied in 2013 and 2014, results in ABCs of **12,461 mt** (27.5 million pounds) and **12,273 mt** (27.1 million pounds), respectively.

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

Based on the method applied, the probability of overfishing associated with the ABC is 34.1% in 2013, conditional on the assumed lognormal distribution of OFL with an associated CV = 100%.

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

- There is a significant level of missing data involved in the age-length keys (ALKs), which are critical for development of the catch-at-age matrix;
- Concern exists about the application of aggregate trawl calibration coefficients (ALBATROSS IV vs BIGELOW), and their influence on the selectivity pattern and results of the assessment. Also, some near shore areas previously sampled by the ALBATROSS IV are unavailable for sampling by the BIGELOW;
- Commercial discards are assumed to be insignificant, which may not be the case;
- Much of population biomass (~40%) is in the aggregated 6+ age group for which there is relatively little information;
- Questions have been raised about the uncertainty in the historical MRFSS estimates in general, and are particularly relevant here given the highly episodic nature of bluefish catches in the recreational fisheries coast wide; and

- The basis for the unusual bimodal selectivity curve used in the ASAP model is not well understood.

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 additional information pertinent to ecosystem considerations was explicitly included in selecting the ABC.

9) List high priority research or monitoring recommendations that would reduce the scientific uncertainty in the ABC recommendation:

- Evaluate amount and length frequency of discards from the commercial and recreational fisheries;
- Collect data on size and age composition of the fisheries by gear type and statistical area;
- Initiate fishery-dependent and fishery-independent sampling of offshore populations of bluefish during the winter months (consider migration, seasonal fisheries, and unique selectivity patterns resulting in the bimodal partial recruitment pattern; consider if the migratory pattern results in several recruitment events); and
- Develop bluefish index surveys (proof of concept), including abundance/biomass trend estimates for the offshore populations in winter.

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.

RSA Project Selection Process

The SSC discussed the results of a recent exercise undertaken by several of the SSC members that ranked the topics for the upcoming solicitation of RSA proposals. Kara Runsten and Mark Holliday developed the spreadsheet tool used to do the ranking. SSC members who did not rank the RSA topics rankings were encouraged to do so by August 3rd and submit them to Mark Holliday (with copies to Kara Runsten), as per instructions in the original request. The aggregate rankings will then be distributed to the SSC for one final review (to see if they make sense) before being sent on to the MAFMC RSA Committee for consideration. Any comments SSC members have relative to the final aggregate rankings should be sent to Rich Seagraves.

Attachments

cc: MAFMC SSC members, R. Seagraves, L. Anderson, J. Coakley, J. Armstrong, K. Dancy, J. Saunders

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AGENDA

Scientific and Statistical Committee Meeting

Wednesday, July 25, 2012

10:00am	Black sea bass ABC
	Summer flounder ABC
5:00pm	Meeting Adjourns

Thursday, July 26, 2012

8:00am	Scup ABC
	Bluefish ABC
	Other SSC Business
1:00pm	Meeting Adjourns (nlt 3:00pm if run late)

Summer Flounder, Scup, Black Sea Bass, and Bluefish Monitoring Committee's Meeting

Friday, July 27, 2012

8:30am	Bluefish, summer flounder, scup, and black sea bass (taken in that order) ACLs and ACTs
5:00pm	Meeting Adjourns

Lunch breaks around 12:00pm – 1:00pm

Attachment 2

MAFMC Scientific and Statistical Committee Meeting
Baltimore, MD

July 25-26, 2012

SSC Members in Attendance

Name	Affiliation
John Boreman (SSC Chairman)	North Carolina State University
Tom Miller (SSC Vice-Chair) (July 25 only)	University of Maryland – CBL
Mike Wilberg	University of Maryland - CBL
Brian Rothschild	University of Massachusetts
David Tomberlin	NMFS/S&T
Dave Secor	University of Maryland - CBL
Doug Lipton	University of Maryland - College Park
Cynthia Jones	Old Dominion University
Wendy Gabriel	NMFS/NEFSC
Ed Houde	University of Maryland - CBL
Doug Vaughan	North Carolina
Mark Holliday	NMFS/HQ
Jason Link	NMFS/NEFSC
Mike Frisk	SUNY Stony Brook
Yan Jiao	Virginia Tech

Others in attendance

Rich Seagraves	MAFMC staff
Jessica Coakley	MAFMC staff
Jim Armstrong (July 26 only)	MAFMC staff
Kiley Dancy	MAFMC staff
Rick Robins	MAFMC Chair
Lee Anderson	MAFMC Vice-chair
Fred Serchuk	NMFS/NEFSC
Tony Wood (July 26 only)	NMFS/NEFSC
Kara Runsten (July 26 only)	NMFS/HQ
Jeff Kaelin	Lunds Fisheries
Gary Shepherd	NMFS/NEFSC
Mark Terceiro	NMFS/NEFSC
Toni Kerns	ASMFC staff
Paul Caruso	MA DMF
Jason McNamee	RI DFW
Greg Wojcik	CT DMF
Desmond Kahn (July 26 only)	DE DMF