Mid-Atlantic Fishery Management Council
Scientific and Statistical Committee Meeting
March 9, 2010
Baltimore, MD
Summary Minutes

Chairman John Boreman called the meeting to order at 9:00 a.m. and welcomed new members in attendance. SSC members in attendance included Cynthia Jones, Doug Lipton, Michael Frisk, Chris Moore, Tom Miller, Mike Wilberg, Yan Jiao, Scott Crosson, and Wendy Gabriel. Also in attendance were Rick Robins, Lee Anderson, Fred Serchuk, Jessica Coakley, and Rich Seagraves.

J. Boreman reviewed the outcome of the January 6 webinar where the SSC reconsidered its ABC recommendation for black sea bass for fishing year 2010. The feedback received from the Council and industry was generally positive, especially with respect to the deliberate nature of the discussions. One of the take-home messages was that future ABC deliberations for all MAFMC managed species will need to be at a level similar to the black sea bass deliberations. Each SSC lead should plan on coming into the meeting with talking points to lead SSC discussion during ABC deliberations. In addition, SSC and Council leadership need to work together with staff to sketch out some generic terms of reference for ABC specifications. Discussion of the effectiveness of the webinar format ensued. The general consensus was that in-person meetings are preferred over the webinar format except for special situations the webinar format is acceptable. In the case of the black sea bass remand, the webinar format was the only mechanism that would have worked, given the time constraints.

A concern was raised relative to the webinar format proposed for the next joint SSC/Monitoring Committee meeting. There was concern that some momentum would be lost between the webinar and the subsequent SSC meeting. The webinar is intended to act as a pre-decisional briefing and to allow for dialogue between the SSC and the Monitoring Committees. It will also give the SSC members an opportunity to become familiar with the stock assessments and issues for a given species in advance of the decisional meeting, which will occur two weeks after the briefing. The SSC would prefer to have lead NEFSC stock assessment scientists available at the ABC specification meetings (either in-person or via telephone) to answer questions or to provide clarification. It was also noted that the MAFMC and NEFSC staff leads should work with the SSC lead early in the process of ABC recommendation development to examine alternative runs/analyses (sooner rather than later in the process).

F. Serchuk raised concerns about the increased workload which might result if SSC members request additional analyses at the briefing. This will be handled on a case-by-case basis, but in general no new analyses will be conducted between the two meetings (although updated runs might be made within the same analytical framework using alternative inputs or assumptions). The timeline for the process, including Center involvement, needs to be spelled out clearly.

J. Boreman gave a brief update on the outcome of the recent benchmark stock assessment for butterfish (R. Latour is the lead on butterfish, but was unable to attend the SSC meeting). Estimates of fishing mortality and total biomass were highly uncertain (CV(F2008) = 0.63, CV(B2008)= 0.60). The population has been declining over time, but fishing mortality does not appear to be a major cause. Although F0.1 (= 1.04) was proposed as an FMSY proxy, this proxy may not be appropriate because the assumed natural mortality rate (M=0.8) on which it is based may be too low, considering inconsistencies among multiple estimation methods. Butterfish are relatively short-lived and have a high natural mortality rate which results in the spawning biomass being strongly dependent on recruitment. The current fishing mortality rate (F2008 = 0.02) was well below all candidate overfishing threshold reference points (F30%=0.72, F40%=0.52, and F0.1=1.04 in the current assessment). Neither BMSY nor a proxy for BMSY could be determined in the current assessment, given the assessment uncertainties. Therefore, overfished status is unknown based on the current assessment. Although predation is likely an important component of butterfish total mortality, estimates of consumption by the top six finfish predators of butterfish within the NEFSC food habits database appear to be very low and similar in magnitude to historic fishing mortality. Without identification of an underlying cause(s) for the population decline, the SARC concluded that it was inappropriate to apply biomass reference points which assume that the population biomass can reach an equilibrium state at a fixed value of F. Given this situation (partial acceptance of the butterfish stock assessment, but rejection of the biological reference points with respect to biomass), the upcoming ABC specification for butterfish is likely be challenging for the SSC. Staff will work closely with the SSC lead (R. Latour) and lead NEFSC scientist (Tim Miller) to develop ABC recommendations for 2010 for butterfish.

F. Serchuk noted that the updates for many of the MAFMC species will include the new calibration coefficient between the Albatross and Bigelow survey indices. The calibration coefficients for many species may not be particularly well behaved, and this raises the issue of the potential need for additional peer review of the annual updates that incorporate this information into an annual update for the first time.

T. Miller gave an update on the recent TRAC assessment for spiny dogfish (see attachment 1). The TRAC rejected both models put forward because neither was sufficiently well developed, and the TRAC was unable to come to agreement on the biological reference points for this stock which is shared between the US and Canada (although no formal sharing agreement currently exists), particularly in reference to the appropriate B_{msy} target. Paul Rago (NEFSC lead on dogfish) is conducting additional analyses based on yield per recruit, but the TRAC reviewers must be reconvened to review these analyses and any proposed or revised biomass reference points. The current plan is to reconvene the TRAC reviewers to evaluate updated runs of the previous model, taking into account some new biological assumptions and yield per recruit considerations to update the *values* of the current BRPs. It was noted that closer coordination between the US and Canadian modelers would have been useful.

R. Seagraves and F. Serchuk gave a brief update on the recent TRAC assessment for Atlantic mackerel, which was held last week in Woods Hole, MA. The TRAC could not come to agreement on current stock status or biological reference points. Unless the final TRAC summary report changes, Atlantic mackerel stock status will be designated as unknown. The TRAC tentatively agreed by consensus to recommend constraining catch to the last three-year average level of catch for the entire NW Atlantic stock (about 80,000 mt for both countries). This information (assuming it is unchanged in final TRAC report) will form the basis for the development of ABC recommendations for mackerel for 2011.

R. Seagraves gave an overview of the proposed changes to the SOPPs for the SSC. These changes are necessary to formalize the operating procedures for the SSC in light of the new requirements for SSCs contained in the MSRA. The edited version of the SSC SOPPs is given in attachment 2. The SSC Chair and Council leadership agreed to work together with staff to develop terms of reference for the SSC to follow when developing ABC recommendations. The proposed SSC schedule for 2010 was also discussed and adopted (see attachment 3).

J. Coakley gave an overview of the draft risk policy currently under development by the Council (the draft policy was discussed at the most recent Council meeting). The SSC has focused on describing the process to be followed in specification of ABC control rules. W. Gabriel asked if the CIE reviewers would be involved in the evaluation of *ad hoc* ABC control rules (i.e., when the pdf of the OFL is not available or can't be reliably estimated). It was agreed that, while CIE reviewers might make critical suggestions relative to *ad hoc* ABC specifications, the final responsibility for making ABC recommendations rests with the SSC.

L. Anderson then presented an alternative approach to describing risk analysis for Council presentations (see attachment 4). Lee demonstrated how the information displayed in PDFs can be expanded to provide additional policy-relevant information and do so in a clear, direct manner. This involved making use of the cumulative probability function and also a function he referred to as the Buffer Trade-Off Curve. The size of the buffer and the relevant probabilities are two of the critical elements of a risk policy. The relationship between them should be made clear in order to see the full implications of an ABC control rule in general, and specifically in the setting of any particular ABC. An example including two curves - the PDF curve (the one normally used in risk policy analysis), and the cumulative distribution function was presented.

When using these graphs, it is very important that the definitions of probability be given explicitly. The probability under consideration here is the *probability that a given catch level on the horizontal axis will equal the MFMT catch level for the given stock.* It is the probability represented by areas under this curve that we are interested in. Most stakeholders will find this concept difficult to understand. The cumulative probability distribution associated with the PDF was also described (the precise operational definition is the *probability that a given catch level on the horizontal axis will be less than or equal to the MFMT catch level).* Lee maintained that the information necessary

to understand the full implications of a risk policy could be provided in a more accessible manner by using the cumulative distribution function (he argued that it is easier for the average person to read a number off of a curve than to think in terms of areas under a curve).

Council members and fishery participants should understand that the range of these distributions is a critical factor in representing the degree of uncertainty. This suggests that it would be wise to have a standardized way of presenting the information. To be specific, Lee suggested that the cumulative distribution in terms of catch should be used in combination with the traditionally-used PDF. The simple notion behind a risk policy is that councils are to place a buffer between the OFL catch level and the ACL so as to reduce the risk of overfishing to an *acceptable level.* But the question that remains unanswered is 'what is an acceptable level'? Since the purpose of setting the buffer is to affect the probability of overfishing, it seems prudent to be very specific about the relationship between the two. Further, if we want to look at this in a way that allows for comparisons across different fisheries, it will be useful to consider the size of the buffer as a percentage of the OFL catch, rather than in terms of the actual level of potential harvest. It is a simple matter to create the equations to calculate the percentage of the buffer relative to the OFL for any given probability of overfishing. The relationship between the probability of overfishing and the size of the buffer ('buffer trade-off curve) in percentage terms was presented. With a zero buffer, the probability of overfishing will be 50% because the ACL will equal the OFL, which is defined as the level of catch where the probability of overfishing equals 50%. The slope of the curve determines how fast the probability of overfishing decreases with an equal increases in the ratio of the buffer and OFL. It is cheaper to "buy" reductions in the probability of overfishing in those cases where the slope of the Buffer Trade Off curve is relatively steep.

M. Wilberg presented the latest version of the tiered ABC control rule proposal. The SSC agreed to eliminate the names and go with a numbering system for tiers (Tier 1 best, Tier 4 worst). The gold standard for F_{limit} is generally assumed to be F_{msy}; however, in the case of butterfish, the stock assessment review team did not think that F_{msy} was an appropriate specification for F_{limit}. The SSC recommended that the definition of F_{limit} in tiers 1and 2 be expanded to include Fmsy *or an appropriate proxy*. This would take into account cases like butterfish, where the fishery appears to be recruitment-driven and Fmsy is not considered an appropriate BRP. The overall goal is to move assessments for all MAFMC managed species into the Tier 1 category. The question was raised as to whether or not a surplus production model would qualify for Tier 1? The strict answer would be "no" based on current tier classification rules. There is a need for more specificity because, theoretically, a surplus production model could qualify for Tier 1. There was some discussion about combining tiers 2 and 3, but the Committee decided to leave them separate based on whether or not the SSC determines that the pdf for the OFL represents best available science. There was additional discussion as to the need for the Council risk policy to assign different P* s for each of the assessment tiers. It is implicit in the binning of each assessment into a tier based on assessment quality that the SSC would choose a different CV for each tier (that is, a greater CV or SD for each successive level to reflect increased scientific uncertainty as one advance through the tiers). As

such, applying a differential P* for each tier could result in a form of double-counting with respect to accounting for uncertainty. This issue will require additional discussion as the Council moves forward in the development of its risk policy. The most difficult problem will be how to come up with a risk policy for situations where there is no quantitative basis for risk calculation (i.e., Tier 4 stocks). The proposed ABC control rule framework to be included in the Omnibus Amendment is given in attachment 5.

M. Wilberg gave a brief update on the status of the Management Strategy Evaluation Study, which was awarded one-year funding from the Council. The purpose of the study is to examine different forms of ABC control rules and to evaluate their performance given varying levels of data/information. One of the questions to be addressed will be what sort of buffers are appropriate for Tier 4 stocks. He was optimistic that a Post Doc would be recruited and in place by May.

W. Gabriel gave a brief overview of the outcome of SARC 51 with respect to Atlantic surfclams. The stock is not undergoing overfishing and is not overfished with respect to total stock biomass (including Georges Bank). There are some concerns, however, with respect to the removals relative to the exploitable stock biomass (i.e., not including GB biomass).

The meeting adjourned at 4:10 p.m.

List of Attachments:

1 - Miller Report on Dogfish TRAC
2 - Revised SSC SOPPs
3 - 2010 SSC Schedule
4 - Anderson -PPT on Risk
5 - Wilberg - ABC Control Rule Framework