Ocean quahog and Butterfish Assessment

Stock Assessment Review Committee (SARC)

November17-20, 2004

Woods Hole, MA

Review Report

By

Jean-Jacques Maguire

December 2003

Synopsis/summary of the meeting

The system to produce scientific advice for fishery management in the New England (NEFMC) and Mid Atlantic Fishery Management Councils (MAFMC) appears to be under the direct control of the National Marine Fisheries Service (NMFS) to a greater extent than for the Pacific Fishery Management Council (PFMC). While the Council's Scientific and Statistical Committee (SSC) of the PFMC appears to be important in the provision of scientific advice for management, in the Northeast Region, the advice appears to go directly from NMFS to the Councils.

In the North East Region, the work of the relatively formal Stock Assessment Teams (STAT) of the PFMC is done more classically by assessment subcommittees / Working Groups whose composition appears to be flexible. The Ocean quahog assessment has been reviewed regularly, the last time being during SARC 31 in 2000, while the butterfish assessment was in serious need of an update, having last been reviewed during SARC 17 in 1993.

The meeting started on time on the first and each successive day. Participants were cooperative and non confrontational. The facilities for meeting were good, with a local area network provided to facilitate sharing data, reports and information. As a result, the meeting ran very smoothly.

Views on the meeting process and recommendations

The meeting process

The composition of the SARC reflects a compromise between the need to have technical expertise and representation of various bodies that are impacted and / or receive the scientific advice. As a result, the technical experts are generally more vocal, although they are not in majority. Having a smaller panel comprising only technical experts could provide a more in-depth review.

Serious concerns were raised by one of the technical experts on the appropriateness of using the modelling results as a basis for providing advice on butterfish because of large uncertainties in actual catches, high and variable natural mortality, and unstable model results. After some discussion, I asked every panel member in turn to express their view on the issue. We ended up accepting the model results. However, if there had been a higher proportion of technical experts on the panel we may have reached a different conclusion, and a more sensible one in my view. We know that the model that was accepted as the basis to provide advice will most likely not be used in the next assessment of butterfish because it is unstable and does not make use of the age information. It would have been preferable to base the advice exclusively on the survey results, as was done in the previous assessment, until an acceptable and stable model, using age information, has been developed.

The assessments presented were not contentious and the process went very smoothly. However, one of the panel members expressed concerns, after the meeting had ended, that holding the meeting at the North East Fisheries Science Center made it possible for NMFS scientists to sway the meeting by sending more "troops" to take part in the discussions. Having a panel consisting exclusively of vocal technical experts, and relatively strict conduct of the meeting, could mitigate against this.

The outcome(s) of the meeting

The ocean quahog assessment provides a sensible basis for management advice, but of course can be improved. Future research should attempt to understand the spatial dynamics of the resource, particularly in terms of whether minimum spawners' densities are necessary to ensure successful recruitment. For

butterfish, the model was unstable and the input data uncertain. An age-structured model, making better use of the aged survey information should be developed for the next assessment.

At the time of writing my draft report in early December, no formal outcome had been received. The draft advisory report was made available on December 18, 2003. Comments were provided on December 19, 2003 on the same day as this report is being revised. The updated draft of the advisory report, taking into account my comments provided earlier, is therefore not yet available. The SARC Consensus Summary of the Assessments has not been made available as of December 19, 2003.

Material provided for the meeting

The reports were received on Friday November 14 by FEDEX, as a result of a missing "j" in my e-mail address in the address book of the SAW chair. This means that the e-mails sent to SARC participants on Monday November 10, bounced back and that I received them only after the meeting. This did not allow as much time as had been planned for the review, but it was partially compensated by the fact that I was somewhat familiar with the Ocean quahog assessment having participated in two previous SARCs where they had been reviewed.

The documentation on paper is huge. It would be very useful if a way were found to make the information available in an electronic format that would save time and make consultation / analysis of the data easier.

Guidance provided to run the meeting

Steve Murawski leads the group doing the assessments. He has participated in all 38 SARC but one. He normally sits with the SARC chair and provides guidance as needed. This was helpful.

Other observations on the meeting process

There are two main differences between assessments of North Atlantic fish stocks and those reviewed at the STAR meeting are striking: There is considerably more data, particularly indices of stock size, in the North Atlantic, but the modelling is considerably more advanced for the West Coast stocks. There is a specific NMFS survey dedicated to estimating ocean quahog (and surf clam) biomass, and several indices of the butterfish stock size were available from the various NMFS and State surveys. While catches of ocean quahogs are believed to be estimated very precisely, there are considerable uncertainties with those of butterfish and natural mortality is potentially more important than fishing on butterfish population dynamics. The uncertainties in butterfish catches and natural mortality rates translate into substantial uncertainties in the assessment.

There were a considerably larger number of people in the room during the SARC than during the STAR panel review in Seattle in April, 2003. There is no doubt in my mind that the review was better at the SARC than at the STAR Panel, although I would find it difficult to define "better". In addition to the number of people, institutional memory seemed better represented as well as more independent minds, i.e. people familiar with assessment methods but that had not been involved in the subcommittee / Working Group meetings preparing the two assessment that were on the agenda. The institutional memory allowed to consider the assessments in continuity with previous ones, an element that was somewhat lacking in the STAR review because both STAT were almost entirely new. The independent minds helped put the technical details of the assessment in a broader ecosystem perspective.

The KLAMS model used for the ocean quahog and the forward projection analysis (FPA) used for butterfish are very similar. Although less demanding in terms of data than the "traditional" backward virtual population analyses, the approach can nevertheless be considered more "modern" than virtual population analysis (VPA), and it does provide more flexibility than production modelling (e.g. ASPIC).

The important processes for ocean quahog, however, are likely to be spatial and they are not considered in the current modelling approach. With respect to butterfish, considerable information on the age composition in surveys is available, and future modelling should better exploit that source of information.

Junior staff from the North East Fisheries Science Center do attend the SARC meetings which provide them with exposure and training.

The ocean quahog (and surf clam) research is a cooperative effort between NMFS, the fishing industry, State agencies and Academia. It is a rare example where relationships between scientists and the industry appear to be very good and profitable to both parties.

Appendix 1 – Bibliography and material provided

1. Terms of Reference for both stocks
2. Agenda
3. List of working papers
4. Ocean Quahogs Assessment Document by the Invertebrate Subcommittee and Methods Working Group.
5. Description of the delay-difference (KLAMZ) model by Jacobsen.
6. A spatial model to estimate dredge efficiency by Rago, Weinberg and Weidman (submitted).
7. Gulf of Maine Ocean Quahog (*Arctica islandica*) Assessment by Schick and Porter.
8. Evidence of recent recruitment in the ocean quahog Arctica islandica in the Mid-Atlantic Bight by Powell and Mann (draft manuscript to be submitted for publication).
9. KLAMZ Modelling Methods (revised) by Jacobsen.
10. Butterfish Assessment Document by the Coastal/Pelagics Working Group and the Methods Working Group.
11. The KLAMZ (Forward Projection Model) Assessment Model (as applied to butterfish) by Jacobsen.
12. Analyses of survey precision, habitat associations and relationships to catch data for butterfish by Rago.
13. Index method and replacement ratio theory by Rago.

Appendix 2 – Statement of Work

STATEMENT OF TASK

Consulting Agreement between the University of Miami and Dr. Jean-Jacques Maguire

October 17, 2003

General

The Stock Assessment Review Committee meeting (SARC) is a formal, one-week long meeting of a group of stock assessment experts who serve as a peer-review panel for several tabled stock assessments. It is part of the overall Northeast Stock Assessment Workshop (SAW) process, which also includes peer assessment development (SAW Working Groups), public presentations, and document publication within a cycle that lasts six months. The panel is made up of some 12-15 assessment scientists: 4 scientists from the NEFSC; a scientist from the Northeast Regional office, scientists from the staff of the New England and Mid-Atlantic Fishery Management Councils, and Atlantic States Marine Fisheries Commission and additional panelists from state fisheries agencies, academia (US and Canada), and other federal research institutions (US and Canada).

Designee will serve as chairman of the 38th Stock Assessment Review Committee panel. The panel will convene at the Northeast Fisheries Science Center, Aquarium Conference Room, from November 17-20, 2003, to review assessments for Atlantic butterfish (*Peprilus triacanthus*) and ocean quahog (*Arctica islandica*). The panel will also be asked to comment on a working paper discussing approaches to assessing scup (*Stenotomus chrysopsa*), a fishery with a significant recreational component, high discard levels (recreational and commercial), and truncated age structure.

Specific

The Chair's duties will occupy a total of 17 days - several days prior to the meeting for document review; the week long meeting; several days following the meeting to ensure that the final documents are consistent with the SARC's recommendations and advice, and several days to complete the chair report.

(1) Prior to the meeting: become familiar with the working papers produced by the SAW Working Groups (total number not final; there will be at least one per stock);
(2) During the meeting: Act as chairperson where duties include control of the meeting, coordination of presentations and discussion, control of document flow;
(3) After the meeting: Facilitate the preparation and writing of a Draft Advisory Report and Consensus Summary Report by NMFS personnel. Panelists, NEFSC staff and the SAW Chairman will ensure that documents are made available to the SARC chair, revised according to the SARC Chair's directions, compiled, copied and distributed;

(4) Review the final Draft Advisory Report and Consensus Summary Report.
(5) No later than December 5, 2003, submit a written chair report[1] addressed to the "University of Miami Independent System for Peer Review," and sent to Dr. David Sampson, via email to David.Sampson@oregonstate.edu, and to Mr. Manoj Shivlani, via email to mshivlani@rsmas.miami.edu

The SAW Chairman and SAW Coordinator will assist the Chair prior to, during and after the meeting in ensuring that documents are distributed in a timely fashion. The SARC Chair will be solely responsible for the editorial content of the reports.

Contact person: Dr. Gordon T. Waring, NEFSC, Woods Hole, SAW Chairman, 508-495-2311, Gordon.Waring@noaa.gov

[1] The written report will undergo an internal CIE review before it is considered final. After completion, the CIE will create a PDF version of the written report that will be submitted to NMFS and the consultant.

ANNEX I: Contents of Chair Report

1. Synopsis/summary of the meeting – to provide context for the comments rather than to rewrite the summary report, which is a product of the meeting, and is not a CIE product.

2. Views on the meeting process, including recommendations for improvements on:

    The meeting process itself;
    The outcome(s) of the meeting;
    Materials provided for the meeting, including their timeliness, relevance, content, and quality;
    The guidance provided to run the meeting.

3. Other observations on the meeting process.

4. Appendices, including:
    Statement of Work;
    Bibliography of the materials provided for the meeting;
    Summary report (if available at the time of report submission).