Terms of Reference for NOAA Fisheries Southwest Fisheries Science Center
Fiscal Year 2014
Stock Assessment Science Program Review

Purpose of the Review

Reviews of science programs at the National Marine Fisheries Service (NMFS) Science Centers (including associated laboratories) and the Office of Science and Technology (ST) are conducted annually to:

- Evaluate the quality, relevance, and performance of science and research conducted in NMFS Science Centers and associated laboratories
- Strategically position the Science Centers and ST in planning future science and research.

Scope of Review

The objective for this review is to examine and evaluate each Center's fishery stock assessment program that is conducted pursuant to the Magnuson-Stevens Act (2006) and comparable international agreements. Stock assessments are demographic analyses designed to provide particular scientific advice to living resource managers. Fishery, survey and biological data for stock assessments were reviewed in 2013. In 2014, the review focus shifts to the overall program of assessment modeling, approach, review process and communication. This is not intended to be an in-depth review of a particular stock assessment. For the review, the Panel shall consider materials provided by the Center and comment on 7 themes that define the stock assessment program:

1) Does the Center apply a suitable scientific/technical approach to fishery stock assessment modeling?
2) Is the assessment process efficient, effective and clearly described, including terms of reference for assessment reports?
3) Does the Center, in conjunction with other entities such as the Council's Scientific and Statistical Committee (SSC), have an adequate peer review process?
4) Is the Center's program organization effective at accomplishing needed assessments according to a set of assessment priorities? Include program structure, staffing, and funding; include prioritization of stocks for assessment.
5) Does the Center achieve adequate assessment accomplishments relative to mandates particularly with respect to the number of Fishery Management Plan (FMP) species assessed?
6) Does the assessment program adequately communicate their results, needs, and research?
7) Are there opportunities for improving stock assessments and the stock assessment process?

Background

Reviewers are asked to provide advice to the Center Directorate on the direction and quality of the Center's stock assessment program(s). The following background questions are provided to stimulate thinking with respect to the themes, but these specific questions need not be explicitly answered by the review:

1) Scientific/technical approach to fishery stock assessment modeling –
   a) Is the Center using an appropriate suite of analytical methods to meet the regional fishery stock assessment objectives?
   b) Does the suite of assessment models cover considerations from data-poor to data-rich?
   c) Are assessments capable of considering possible ecosystem effects?
   d) Does the Center work on enhancing and testing these analytical methods? Are they keeping with and contributing to the state-of-the-science nationally and internationally?

2) Is the Center's process for conducting stock assessments efficient and effective?
   a) Is there an explicit terms of reference for conducting and reporting assessments?
   b) Do reports provide a complete description of the work and a concise summary?
   c) Do assessments adequately and incrementally build upon past assessments and reviews?
   d) Are there clear protocols for delivering draft assessment products to peer reviews?
   e) Is involvement of assessment scientists in preliminary data preparation and analysis sufficient to utilize their statistical expertise, but not burdensome?
   f) Are there protocols for consistently dealing with technical issues, as appropriate to the stock, for example: calibration of catchability, consideration of dome-shaped and time-varying selectivity, natural mortality, estimation of stock productivity, characterization of uncertainty, etc.?
   g) Are there protocols in the assessment process for conducting sensitivity analyses and evaluation of risk?

3) Peer review process
   a) What is the relative role of the Center and the Council's Scientific and Statistical Committee (SSC) in organizing and conducting the peer review?
   b) Are TORs for assessment reviews clear and well defined prior to the assessment? Are they focused on key issues needing review? Are they appropriately, but not excessively, broad in scope? Do they focus the review on key, answerable questions?
   c) Are major data collection programs and modeling methods reviewed separately from the final review of assessments?

d) Are there clear protocols for considering and including input from scientists not on the agency assessment team?
e) Does the regional peer review process achieve an appropriate balance between transparency, thoroughness, and throughput?

4) Organization and priorities –
   a) Does the Center/Region schedule stock assessments in a manner that meets national standards and regional needs?
      i) What protocols are used to prioritize need, frequency and appropriate level of stock assessments?
      ii) Has the Center reasonably balanced Council, other domestic and international stock assessment needs as well as additional analytical and review demands?
      iii) How well does the Center involve internal and external clients and stakeholders in priority setting and the assessment process?
      iv) Are the Center's scheduling and scale (e.g., benchmark vs. updates) for individual fishery stock assessments balanced with Center resources, and regional, national and international needs?
      v) What steps are the primary bottleneck in the number and timeliness of stock assessments each year: surveys, input data processing and management, assembly of assessment reports, ability to address questions from previous assessment, availability of assessment scientists, and review scheduling? Are any excessively limiting?
   b) Is the Center prioritizing the appropriate initiatives and research areas to address current and anticipated stock assessment needs, including connection of stock assessments to broader ecosystem investigations?

5) Accomplishments relative to mandates
   a) How many FMP and non-FMP stocks are being assessed?
   b) Do current and planned fishery stock assessments meet regional, national, and international expectations in terms of quality, quantity and timeliness?
   c) How well does the Center attain a prioritized portfolio of baseline assessments for all managed stocks (including data-poor) and full assessments for important stocks?
   d) How well does the Center consider ecosystem and environmental factors affecting fish stocks and their assessments?

6) Communication –
   a) Are assessment data needs being communicated to survey scientists, advanced technology experts, and fisheries-dependent data sources; and have improved data resulted from these efforts?
   b) Are assessment process and results adequately communicated to fishery managers, affected public and the scientific community?

7) Opportunities –

a) Is the Center conducting the research necessary to improve stock assessments and produce timely and assessment-relevant scientific research products?
b) Do assessment scientists engage in research published in peer-reviewed journals?
c) Are there areas of expertise that could be added in the future to strengthen the ability of the Center to meet its management and research objectives?
d) Should the Center be taking greater advantage of opportunities for collaboration in conducting fishery stock assessments and related research, including shared approaches with other Centers, regional academic partners, other government agency partners, and stakeholders?