

## SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON OFF-YEAR SCIENCE IMPROVEMENTS

The Scientific and Statistical Committee (SSC) reviewed possible topics for off-year science workshops related to improving groundfish science informing Council decision-making. The SSC considered the recommendations from recent Stock Assessment Review (STAR) panels (Agenda Item E.8, Attachments 1-12) and previous workshops. Successful workshops require a volunteer to take the lead in organizing the workshop, the commitment of resources to conduct dedicated research, and post-meeting work to prepare scientific reports, all of which come at a cost of time and resources. There is a trade-off between the number of workshops that are held and the amount of progress that can be made on other projects to improve data inputs and stock assessments.

Rather than making a final recommendation at this meeting, the SSC would prefer to revisit this agenda item at the November meeting. The assessment cycle for this year is not yet complete, and by November the mop-up review and the Center for the Advancement of Population Assessment Methodology workshop on recruitment will have occurred, so the SSC may have a better perspective on priorities. The SSC also sees considerable benefit to making the selection of off-year science workshops a two meeting process in which an initial list is developed at the September meeting, and a final decision is made at the November meeting.

The SSC identified three high priority topics for off-year science workshops, and one topic that was regarded as important but can be better addressed through the methodology review process:

- **Follow-up workshop on catch reconstruction.**

A catch reconstruction workshop was held in November 2016. While the workshop made important progress, additional work is needed to improve historical catch estimates. The Washington catch reconstruction may be completed by next year, and should be reviewed. Work to separate aggregated skate catches into catch by species will be available to review by next year. Finally, a review has been proposed for an approach involving Bayesian hierarchical statistical models and model averaging to estimate catches and catch uncertainty in sparsely sampled mixed stock fisheries (See [Agenda Item E.3, Attachment 1, September 2017](#)). The proposed workshop could also review this analytical approach.

- **Workshop on transboundary issues in groundfish stock assessments.**

Several assessments in this assessment cycle and in previous cycles have made recommendations that transboundary assessments be developed for stocks that extend across international boundaries. This workshop would use Canadian catch and assessment data provided this year to explore sensitivity of assessments restricted to solely U.S. waters to alternative assumptions regarding stock distribution. Simulation modeling should also be used to evaluate model sensitivity. Canadian scientists would be invited to participate in the workshop. This workshop would be focused exclusively on assessment issues, and would be intended as a step towards fostering cooperation between U.S. and Canadian scientists on stock assessment issues.

- **Workshop on conditional age-at-length data.**

Many West Coast stock assessments use conditional age-at-length data in stock assessments, which inform growth, recruitment strength, and natural mortality. The ability to use this type of input data is a relatively recent feature of the stock synthesis model. A number of important issues were raised during this assessment cycle concerning how these data are collected and prepared for use in stock assessments. Conditional catch-at-age data are robust to length-based processes, but they can be influenced by age-based processes, such as age-dependent movement to deeper water. The goal of this workshop would be to provide guidelines on best practices for using conditional age-at-length data in stock assessments.

- **Research topic on the characterization and propagation of stock assessment uncertainty for use in acceptable biological catch (ABC) calculations.**

The SSC discussed this topic under this agenda item, but eventually concluded that it would be better dealt with as a methodology review rather than a full workshop. Two projects were reviewed at the August 29 Groundfish Subcommittee meeting: a project to update the sigmas for the ABC buffer using uncertainty in overfishing limits (OFLs) rather than in ending biomass, and a project to propagate uncertainty using the low and base scenarios in decision tables. This research is ongoing and should be reviewed next year as part of the methodology review process. In addition, the SSC intends to develop additional guidelines for developing decision tables for inclusion in the revised stock assessment terms of reference. This year a variety of methods were used to develop decision tables and it is unclear whether some methods are better than others.

Other potential workshops were discussed but given lower priority. These were:

- Workshop on recreational catch per unit effort (CPUE) standardization.

Nearshore stock assessments, such as the California scorpionfish and blue/deacon rockfish assessments this year, depend upon CPUE standardization using several techniques, such as that of Stephens and MacCall (2004). A review of alternative methods of standardizing recreational CPUE would be useful to provide advice for future assessments.

- Workshop on spatial models in stock assessments.

This workshop would review alternative methods to incorporate spatial structure in assessments and provide guidance for future stock assessments.

- Workshop on differential mortality by sex and/or availability in West Coast rockfish.

Several West Coast rockfish assessments have to contend with a situation where one sex (usually females but not always) is much less common than the other sex at older ages. Most often this is dealt with by assuming (or estimating) a higher natural mortality for the less common sex. However other hypotheses, such as low selectivity or availability, may be impossible to rule out based on available data. This workshop would use different approaches, such as life history theory, data analysis, and simulation modeling to explore this situation and develop guidelines for future assessments.

- Follow-up productivity workshop to address issues that remain from the December 2016 productivity workshop.

Some of the issues that were addressed but not resolved at the productivity workshop include the use of three-parameter stock recruit curves in stock assessments, and the consistency of the fishing mortality and biomass reference points in the Council's harvest policy.

- Workshop on the carry-over provisions of the revised National Standard 1 (NS1) guidelines.

The revised NS1 guidelines include provisions for carrying over the unused portion of the annual catch limit, but require that a comprehensive analysis be done to demonstrate that the ABC control rule with carry-over provisions still prevents overfishing. To hold this workshop, an analytical framework would have to be developed that would meet the criteria established in the NS1 guidelines, and resources would be needed to conduct the analysis. The Council and advisory bodies would have to propose or agree to a set of alternative carry-over provisions for analysis.

PFMC  
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