ABC Control Rule for Category 4 Stocks Working Group Report

SAFMC SSC Meeting

April 2021

Membership

SSC Members:

- Dr. Genny Nesslage (Chair), UMCES CBL
- Dr. Chris Dumas, University of North Carolina Wilmington
- Dr. Eric Johnson, University of North Florida
- Dr. Wilson Laney, North Carolina State University
- Dr. Amy Schueller, NOAA Fisheries, SEFSC Beaufort Laboratory
- Dr. Alexei Sharov, Maryland Dept. of Natural Resources

SAFMC Staff:

- Dr. Mike Errigo
- Dr. Mike Schmidtke
- Dr. Chip Collier

Background

- Category 4 stocks - no acceptable stock assessment is available
- SAFMC manages 34 Category 4 stocks (organized into 8 complexes)
- SSC's ABC Control Rule includes a decision tree for Category 4 stocks
- Allows for the use of ORCS or another ad-hoc methods for ABC setting (e.g., 3rd highest catch)
- In October 2020, the SSC discussed consideration of new research on the performance of ORCS and other data-limited approaches for setting Category 4 ABCs
- Working group formed to recommend alternative approaches to setting ABCs for Category 4 stocks

Activities

- Reviewed recent literature as a group
  - New methods
  - Revisions to ORCS/adhoc
  - Performance evaluations
- First conclusion: stock- or complex-specific methods needed (Wiedenmann et al. 2013, Sagarese et al. 2019) given differences in
  - Life histories
  - Data quality and quantity
  - Fisheries
- Mike Errigo summarized data availability - **Draft Table 1**
- Mike Schmidtke generated tool for mapping Table 1 to potential methods – **Draft Table 2**
- Recommend new process and ABC Control Rule

Mikes demonstrate Draft Tables

Qualities of recommended process

1. Flexible
   - Wording should be general enough to allow the methods applied to a given stock to be updated as new data and better-performing approaches become available
   - Should not require revision to the Council's Comprehensive ABC Control Rule Amendment
2. Customizable
   - Recent studies demonstrate "one size fits all" data-limited approach does not produce robust advice for management (Wiedenmann et al. 2013, Sagarese et al. 2019)
   - Stock-specific methods should be developed and updated as new data and methods become available

Qualities of recommended process

3. Responsive
   - ABC-setting approaches derived from an OFL estimate should incorporate the Council's stock-specific risk tolerance
4. Adaptable
   - Process must account for inevitable changes in fishery, data availability and quality, and other unforeseen circumstances (Dowling et al. 2015a, Walsh et al. 2018)
   - Recommend Empirical Harvest Strategies (EHS) or Harvest Control Rules (HCR) accompany all Category 4 ABCs

EHS and HCR

- EHS are appropriate for stocks whose ABC is set using monitoring data (e.g., landings-only)
- HCRs are appropriate for stocks to which data-limited models have been applied to estimate stock biomass and exploitation
- Both EHS and HCR should include provisions for deviations from the rule (Dowling et al. 2015a, b) such as:
  - Episodic events
  - Catch estimate outliers (either anomalously high or low)
  - New developments in the fishery

Recommended Category 4 ABC CR

The ABC for Category 4 stocks and complexes will be set based on expert judgment of the SSC using all available fishery-dependent and fishery-independent data.

The exact method recommended by the SSC for determining the ABC will be stock- or complex-specific and depend on the quality and quantity of data available.

A list of potential ABC-setting methods for stocks with varying types and quantities of reliable data will be generated then reviewed, and updated regularly by the SSC as stock-specific data changes and new innovations in data-limited methodologies become available.

For some stocks, adopting a multimodel ensemble or superensemble approach to determining an OFL/ABC may be appropriate.

Recommended Category 4 ABC CR

If a stock has adequate information to adopt a data-limited method for estimating an OFL, the ABC will be set using the Council's Comprehensive ABC Control Rule Amendment (*pending*) that explicitly incorporates the Council's risk tolerance for the stock.

If an OFL cannot be estimated, an ABC will be set directly using a data-limited approach that uses monitoring data only.

If the available data are adequate, methods that estimate an OFL (i.e., involve estimation of MSY or risk of overfishing) are preferred over methods that only provide an ABC (e.g. catch-only).

Category 4 stock ABC recommendations should be accompanied by an Empirical Harvest Strategy (EHS) or Harvest Control Rule (HCR), as appropriate, for consideration by the Council.

All methods and assumptions should be well documented and clearly justified.

Recommended Category 4 ABC CR

All current ABC recommendations for Category 4 stocks will stand until the SSC recommends and the Council adopts new ABCs.

If the species is bycatch in another fishery, the SSC may recommend the Council adjust management of the directed fishery as well as a means to reduce interactions or mortality, if necessary.

The SSC can recommend to the Council that a stock be made an Ecosystem Species and will recommend an ABC using this Control Rule until such time as the relevant FMP is amended accordingly.

Recommended plan

- SSC review this WG Report, revise/edit, finalize ABC CR recommendations
- WG Report and SSC response presented to Council in June. If Council adopts recommendations…
- Solicit regional feedback of Table 1 – data availability
- SSC, in consultation with SEP, recommend prioritization of stocks/complexes
- Council approves prioritization and WG to develop new recommended ABCs
- SSC will regularly review and update Tables 1 and 2
- SEP will comment on all EHS/HCR recommendations
- SSC will review WG ABCs and recommend to Council

Conclusion

- Implementation of this OFL/ABC-setting process for Category 4 stocks will require an investment of time
- Should result in more responsive and robust management advice that is tailored to meet the needs and challenges of each Category 4 stock