

SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON REBUILDING REVISION RULES

Scientists at the Northwest Fisheries Science Center (NWFSC) and the University of Washington (UW) have been working on a management strategy evaluation (MSE) to compare different strategies to rebuild overfished groundfish stocks. This research evaluates how to monitor progress towards achieving rebuilding goals and how often (if at all) to adjust the parameters of the rebuilding plans as new information and stock assessments become available (rebuilding revision rules). Ms. Chantel Wetzel (NWFSC and UW) presented initial results of an MSE she had been conducting with Dr. André Punt (UW) at the April 2015 meeting of the Scientific and Statistical Committee (SSC). The report “Evaluating alternative rebuilding strategies to meet management goals for rebuilding overfished U.S. West Coast groundfish stocks” (Agenda Item D.10, Attachment 1) presents revised results from the MSE, which is structured to compare strategies across different groundfish life history types, ranging from a productive flatfish species to a much less productive rockfish species. The MSE is designed to evaluate performance with respect to the following management objectives:

1. Rebuilding revision rules are robust to statistical uncertainty.
2. The stock is rebuilt quickly while taking into account socioeconomic impacts.
3. Changes in harvest rates are limited during rebuilding (predictability).

Although the MSE does not include any direct analysis of socioeconomic impacts, many of these impacts are indirect because stocks being rebuilt constrain opportunities to harvest healthy stocks. Results from the MSE can be used in subsequent analyses to quantify socioeconomic impacts.

The SSC reviewed the revised MSE report, endorses the structure of the MSE, and supports its use for informing a Council decision on revisions to groundfish rebuilding rules.

The SSC suggests the MSE would benefit from the following additional options:

- An alternative rule that maintains a constant probability of 50 percent for rebuilding by the target year (or other fixed probability greater than 50 percent). Such an option is likely to have poorer performance due to its tendency to follow assessment noise.
- An alternative rule (Alternative 2b) that sets the initial probability to 75 percent for rebuilding by the target year (or any other value higher than 60 percent).
- An alternative rule implementing a mid-course correction at halfway to the target year for rebuilding.
- An alternative rule that decouples the timing for stock assessments and revising rebuilding plans. One possibility for stocks with long rebuilding times (e.g., greater than 10 years) is a fixed, but infrequent, schedule for application of the rebuilding revision rules (an example is 16 years or halfway to the target year for rebuilding, whichever is smaller) along with more frequent assessments. The SSC identified this alternative in April; however, the analysts did not have time to complete the work.

The revisions to the National Standard 1 guidelines include an option of setting the maximum time to rebuild (T_{MAX}) as two times the minimum time to rebuild (T_{MIN}), rather than what is currently $T_{MIN} +$ one mean generation time. Exploring the relative performance of the rebuilding strategies when $T_{MAX} = 2 * T_{MIN}$ would require major changes to the MSE code and is not feasible at this time. However, the SSC suggests that the MSE software report the estimates of $2 * T_{MIN}$ and ($T_{MIN} +$ one mean generation) when T_{MAX} is first estimated so that these different rebuilding timelines can be compared.

Lastly, the SSC recommends that the Council consider the use of different revision rules for different taxa. The rules for adjusting the rebuilding of flatfish stocks do not need to be the same as the rules for rockfish stocks.

PFMC
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