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New England Fishery Management Council

50 WATER STREET | NEWBURYPORT, MASSACHUSETTS 01950 | PHONE 978 465 0492 | FAX 978 465 3116

John Quinn, J.D., Ph.D., *Chairman* | Thomas A. Nies, *Executive Director*

**To:** Tom Nies, Executive Director

**From:** Scientific and Statistical Committee

**Date:** June 21, 2021

**Subject:** Feedback on the project “Evaluation of Alternative Harvest Control Rules for New England Groundfish”

The Scientific and Statistical Committee (SSC) met on May 11, 2021 via webinar to address the following discussion points:

1. Provide feedback on the approach and technical aspects of modeling harvest control rule (HCR) performance;
2. Provide feedback on the scenarios that have been simulated and identify any key gaps;
3. Develop suggestions on visualization and framing of results to support decision making on HCRs;
4. Discuss relevant results for the Council to consider when it develops ABC control rule options.

To address this topic, the SSC considered the following information:

- a. Evaluation of Alternative Harvest Control Rules for New England Groundfish - Draft Report
- b. Presentation on Evaluation of Alternative Harvest Control Rules for New England Groundfish Draft report

**SSC Attendance**

Dr. Birkenbach, Mr. Carroll, Dr. Chen, Dr. Collie, Dr. Friedland, Dr. Jordaan, Dr. Kerr, Mr. Maguire, Dr. McManus, Dr. McNamee, Dr. Merrick, Dr. O’Keefe, Dr. St. Martin, Dr. Serchuk, Mr. Stockwell, Dr. Uchida, Dr. Wiedenmann and Dr. Williams

**SSC Response**

Following a presentation to the SSC by researchers from the Gulf of Maine Research Institute (GMRI) on their work relating to the evaluation of the New England Fishery Management Council’s (hereafter “Council”) harvest control rule for groundfish, the SSC offered the following comments:

- The SSC noted that the GMRI HRC modeling work did not include an evaluation of a fixed exploitation rate. The GMRI researchers responded that a “step control rule” had been developed, and since conceptually this performed similar to a fixed exploitation rule, they only developed and evaluated the step control rule.
- Regarding the thresholds for the ramp control rule, the SSC indicated that the breakpoint where the “ramp” might start could be  $SSB_{msy}$  (or some proxy of this threshold). The researchers noted that they had concentrated on the functional form of the rule rather than specifics of the threshold level and stated that the classification of an optimal control rule would depend on the definition and prioritization of management objectives for the groundfish fishery, which was beyond the scope of the project. They offered that the SSC’s suggestion could subsequently be incorporated into their evaluations.

- There was a lengthy SSC discussion on uncertainty. Some SSC members felt that the error in the outcomes seemed constrained relative to what had actually been experienced in the management of groundfish and had been observed in the scale of retrospective errors. The SSC suggested that including some management uncertainty in the simulations might add value. Additionally, the researchers could then focus on the worst outcomes of the simulations as a more realistic subset of the simulated outcomes of the control rules.
- The SSC commented that the productivity regime of the Northeast ecosystem is currently changing with characteristics that remain largely unknown, introducing additional uncertainty in the expected outcomes from the application of the various HCRs. This uncertainty is very important for the Council to understand, particularly regarding any management risks associated with implementation of the HCRs.
- The SSC noted that density dependent growth (which has previously been documented for haddock) was not considered in the HCR evaluations. The SSC therefore suggested that this dynamic be included in subsequent haddock HCR analyses.

Regarding discussion point three, the SSC noted that:

- Showing the performance of the new control rules in the context of the existing control rule would be valuable for the Council.
- Showing how various factors or metrics change relative to the various scenarios examined would be very informative. For instance, indicating which scenarios produced the lowest biomasses would place the other scenarios in context. This information should also be quantified and tabulated.
- Showing and separating the different types of errors in the report, such as directional errors versus random errors, would help the Council better understand the effects of these errors on the simulation outcomes.
- Finally, the SSC offered that a clear summary of the HCR findings is essential to facilitate the synthesis of this information into the Council's management processes. To this end, the SSC recommended that:
  - Guidance from the PDT be sought (potentially even branching out beyond the Groundfish PDT) to help create a summary that was relevant for the Council given that the PDTs are intimately familiar with the Council's needs.
  - Creating tabulated information would help convey information that can be easily conveyed and compared. Using key metrics and presenting the simulation outcomes in a table would facilitate quick cross referencing.
  - Examining and referencing the Atlantic herring MSE would be valuable as a model on how to present the groundfish HCR findings beyond those approaches already developed by the GMRI researchers.
  - Showing outcomes of various metrics in the context of short term, medium term, and long-term aspects will help the Council more fully understand various trade-offs and how these may - or may not - change over time.

Regarding discussion point four, the SSC offered little comment. It was felt that when the HCR report was finalized, the SSC would be in a better position to provide more direct guidance to the Council.