SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON METHODOLOGY REVIEW PRELIMINARY TOPIC SELECTION

The Scientific and Statistical Committee (SSC) met with members of the Salmon Technical Team (STT) and Model Evaluation Workgroup (MEW) to discuss potential topics to be reviewed by the SSC Salmon Subcommittee (SSCSS) in October 2022. The SSC discussed a range of topics and identified four as high priority for SSCSS review [responsible entities in brackets]:

1) Summarize and review changes to the two model outputs that determine the southern resident killer whale (SRKW) Chinook salmon forecasted abundance threshold used to trigger SRKW-specific management measures under Amendment 21 to the Salmon Fishery Management Plan (FMP).
    a. Changes to the Fishery Regulation Assessment Model (FRAM) in 2022 to model the abundance of Chinook salmon stocks used in determining the SRKW threshold [MEW, STT].
    b. Updates to Chinook salmon ocean distribution models that derive from two publications (Shelton et al. 2019, 2021) used to apportion the modeled abundance of Chinook salmon stocks among ocean regions, Northwest and Southwest Fisheries Science Centers [NWFSC, SWFSC, respectively].

    As many SSCSS members were involved in the creation of these science products, a substantial fraction of SSCSS members would be recused from reviewing parts of this work and inviting additional reviewers may be necessary for a successful review of this topic.

2) Review new technical documentation for FRAM algorithms [MEW].

3) Review the choice of point estimate (i.e., mean versus median) for forecasts used in salmon management with specific application to the Sacramento River Fall Chinook (SRFC) model, and the potential impacts of this choice [STT, SWFSC].

4) The SSC reiterates its suggestion to establish a process that outlines how and when salmon reference points and conservation objectives are reviewed and updated as appropriate (see Salmon Subcommittee report appended Agenda Item C.10.a, Supplemental SSC Report 1, June 2021). Conservation objectives and reference points (e.g., S_{MSY} and F_{MSY}) for two sets of salmon stocks – SRFC and multiple Washington Coastal Fall Chinook stocks – were derived from publications produced in 1984 and do not incorporate any information on run sizes, productivity, or other available biological parameters from the last 40 years. In addition, the SRFC conservation objective/S_{MSY} is directly targeted by management in most years, while Washington Coastal Chinook exploitation rate estimates have generally been well below their respective F_{MSY} values, although the most recent estimates were larger than usual and above F_{MSY} estimates for some other PFMC Chinook stocks. The SSC notes that for other FMPs (e.g., groundfish, CPS) the values for reference points are routinely updated as a part of the stock assessment process, and populations with assessments that do not incorporate recent data are judged to have increased uncertainty. The SSC and STT agreed that an appropriate initial step toward examining conservation objectives would be to review documentation cited in the FMP

that supports current conservation objectives. Moving to develop any potential updates to conservation objectives could benefit from the involvement of additional entities with salmon expertise.

References

Shelton, A. O., W. H. Satterthwaite, E. J. Ward, B. E. Feist, and B. Burke. 2019. Using hierarchical models to estimate stock-specific and seasonal variation in ocean distribution, survivorship, and aggregate abundance of fall run Chinook salmon. Canadian Journal of Fisheries and Aquatic Sciences 76:95-108.
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