SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON METHODOLOGY REVIEW – FINAL FISHERY IMPACT MODEL TOPICS AND FINAL ASSESSMENT METHODOLOGIES

Dr. John Budrick (CDFW) briefed the Scientific and Statistical Committee (SSC) on Groundfish Subcommittee reports from two Subcommittee meetings conducted during summer 2022 for ageing coordination and for the methodology review of the Oregon Department of Fish and Wildlife (ODFW) video-hydroacoustic survey for semi-pelagic rockfish. Dr. Owen Hamel (NWFSC) spoke to the Groundfish Subcommittee report on the Washington Department of Fish and Wildlife (WDFW) hook-and-line surveys. Dr. Chantel Wetzel (NWFSC) briefed the SSC on the updated analysis for estimating discard mortality when descending devices are used and the Groundfish Management Team's (GMT's) associated responses to the SSC's requests from the September meeting.

Ageing coordination

To inform 2023 groundfish stock assessments, the SSC Groundfish Subcommittee met to coordinate ageing tasks and identify data sources among the state and federal agencies that conduct biological sampling along the U.S. West Coast. The SSC finds the meeting productive and commends the collaborative efforts.

ODFW video-hydroacoustic survey review

ODFW's video-hydroacoustic survey has three components – a hydroacoustic survey, a stereo camera video survey, and a hook-and-line survey. The video survey component provides information on species composition and length frequency distributions. The ODFW hook-and-line survey complements these efforts by collecting biological samples for length-weight relationships and growth curves. Biomass estimates were derived by combining information collected from the three components. Oceanographic data were also collected during the survey and were used as covariates in the model-based estimation method.

The SSC agrees with the issues identified by the review panel and supports the research and data needs highlighted in the Groundfish Subcommittee Report. The two main concerns raised during the review were the relationship between acoustic target strength and fish density, and the large discrepancy between the design- and the model-based estimates of biomass. The target strength models used in the ODFW report were from studies conducted in other regions and on various rockfish species. More research is needed to estimate species-specific target strengths for rockfish and other species of interest. There is a need for in-situ calibration of acoustic systems in deep, semi-protected waters, such as Puget Sound or Monterey Bay.

Large discrepancies in the biomass estimates between the design- and model-based approaches were observed. The design-based estimates of population size in numbers and biomass were derived using acoustic data on schools and single targets along with video counts and length estimates by species. Model-based biomass estimates were derived for each species by fitting spatiotemporal hurdle models. Model-based estimates were almost double the design-based estimates for black and blue/deacon rockfish, but the CVs were substantially lower. Further

exploration is needed to understand these differences before the model-based estimates can be used in assessments.

Despite the unresolved issues and further development needed, the SSC commends the ODFW staff for their hard work and finds the first-year survey a good start. The design-based biomass estimate can be used in the 2023 black rockfish assessment with caution, for example, by providing a prior on stock size or as an absolute biomass estimate in a sensitivity analysis. This survey can be valuable in generating an index of relative abundance in the future regardless of its uncertainty as an absolute abundance estimate.

WDFW hook-and-line survey workshop

WDFW conducts two types of hook-and-line surveys: the rod-and-reel survey for nearshore groundfish species and the setline survey for yelloweye rockfish. The rod-and-reel survey is conducted in spring for semi-pelagic species and in fall for demersal species. The yelloweye setline survey expands the IPHC setline survey by adding eight fixed stations in high yelloweye catch locations. The goal of the setline survey was to construct a Washington-specific yelloweye abundance index. The SSC agrees with the subcommittee's recommendation to reduce the number of drifts per site and eliminate the two sites in Marine Area 1 in the rod-and-reel nearshore survey and to increase the number of sites elsewhere as feasible. The SSC also agrees that the WDFW yelloweye stations to supplement the IPHC setline survey are not informative for yelloweye rockfish abundance given their high CV. An exploration of other ways to obtain information for yelloweye rockfish, such as exploring deeper depths (> 40 fathoms) in the demersal rod-and-reel survey may be warranted.

Generalized discard mortality rates reflecting the use of descending devices for rockfishes

Revisions were made in the updated report in response to SSC feedback in September. The SSC endorses the updated analysis for developing discard mortality rates reflecting the use of descending devices. The SSC recommends using species-specific estimates when there are adequate sample sizes and using guild-specific estimates when observations are lacking or sparse. The SSC notes that selection of upper quantiles of mortality estimates is a policy decision.

The SSC thanks the methodology review panels and workshop participants for their time and thoughtful input. The SSC thanks the GMT for their work on the discard mortality rate analysis. The SSC also endorses a methodology review of the revised sablefish trip limit model in 2023.

PFMC
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