

## SSC REPORT ON PACIFIC SARDINE TEMPERATURE PARAMETER REVIEW

Dr. André Punt provided the Scientific and Statistical Committee (SSC) with a presentation on the report entitled “Revised Analyses Related to Pacific Sardine Harvest Parameters” (Agenda Item I.1.b). The report includes updated Management Strategy Evaluation analyses using revised California Cooperative Oceanic Fisheries Investigations (CalCOFI) temperature index data, and incorporates advisory body input regarding performance measures, candidate control rules, and sensitivity tests. The revised oceanographic data appear to have little influence on the results.

The SSC noted that the MSE results pertain to long-term (1000 year) estimates. Since the sardine population is currently in a relatively low portion of its cyclical variation, the next 10-year average harvests could likely be substantially lower than the mean annual harvests presented in the document.

The SSC recommends that overfishing limits (OFLs) for the northern subpopulation of Pacific sardine be based on an  $E_{msy}$  proxy derived from the relationship between estimated  $E_{msy}$  and the 3-year moving average of the CalCOFI temperature index, restricted to an  $E_{msy}$  range of 0-25 percent (Figure 4 of Agenda Item I.1.b – CalCOFI).

The SSC also reviewed the Coastal Pelagic Species Management Team’s (CPSMT’s) “Report on Sardine Harvest Parameters Changes”, presented by Ms. Lorna Wargo, co-chair of the CPSMT. The CPSMT discussed the effects of the new CalCOFI temperature index and the revised temperature productivity relationship on the performance of potential sardine management harvest control rules (HCRs). Scenarios included, among others, evaluating FRACTION ranges of 5-15 percent and 10-20 percent, and consequent effects on HCRs. The SSC noted that, given the SSC’s decision on OFLs (above), options D, E, and O of the CPSMT no longer apply. The SSC recognized that the choice of any particular range of the FRACTION parameter is primarily a matter of policy; however, the CPSMT’s proposals are logical. In particular, the proposed change to a 10-20 percent range is intended to allow the harvest rate at the median observed temperature index to reflect the calculated relationship between the temperature index and  $E_{msy}$ .

Overall, the SSC finds that the revised analyses represent the best available science to guide Council decisions, and the CPSMT’s recommendations provide useful guidance on potential policy changes regarding Pacific sardine harvest management.

The SSC recommends that the ability to change Pacific sardine HCRs should be frame-worked into the CPS Fishery Management Plan, as is currently the case for groundfish, making the process more flexible for future management.