

COASTAL PELAGIC SPECIES MANAGEMENT TEAM REPORT ON PACIFIC SARDINE REBUILDING PLAN – FINAL ACTION

The Coastal Pelagic Species Management Team (CPSMT) is responsible for and began developing a rebuilding plan for the northern subpopulation of Pacific sardine at its February 2020 meeting in La Jolla, California, and continued developing key components at the April and June 2020 Pacific Fishery Management Council (Council) meetings. However, substantive work could not take place until the completion of the 2020 Pacific sardine stock assessment in April 2020. At the June 2020 Council meeting, the Scientific and Statistical Committee (SSC) considered an approach for using the Rebuilder tool (Punt 2020) modified for a small pelagic species. The SSC Coastal Pelagic Species (CPS) subcommittee reviewed the model at a July 15-16th meeting and provided feedback to the analysts.

At its June 2020 meeting, the Council adopted three alternatives for public review and further analysis, leading up to final action at the September 2020 Council meeting. These alternatives (status quo, zero US harvest, and five percent harvest rate) are described in the accompanying Pacific Sardine Rebuilding Plan Preliminary Environmental Analysis (Agenda Item G.1, Attachment 1), along with a largely qualitative evaluation of the alternatives. 2020 has been a uniquely challenging year, and the Southwest Fisheries Science Center (SWFSC) analysts have done a tremendous job adapting the Rebuilder tool (originally built for groundfish stocks) to a small pelagic species while incorporating SSC CPS subcommittee suggestions in a severely compressed timeframe. The CPSMT would like to thank those analysts for their excellent work and communication with the CPSMT on their results.

The final Rebuilder analysis document (Agenda Item G.1.a, NMFS Report 1) was available only recently, providing little time for its nuances to be fully absorbed before the rebuilding plan was due for the advance briefing book. The CPSMT has found it challenging to put forth a quantitative analysis of the alternatives because sardine biology is characterized by wide fluctuations in productivity and associated vast swings in population. The CPSMT notes that some results of the model runs are somewhat counterintuitive, and the level of detail needed to fully understand those results can only be found in the final Rebuilder model report.

To provide context, the Rebuilder model (Hill et al, 2020) includes results from two different productivity regimes that could be characterized as low and moderate, based on historical productivities. A reasonable hypothesis might be that the higher productivity scenario would result in faster rebuilding, yet the results show the opposite, where the lower productivity scenario shows rebuilding in just a few years. This result is produced because a lower productivity scenario also produces a substantially lower rebuilt target. Thus, achieving the lower rebuilding threshold, even with relatively low productivity, happens faster than in the more productive scenario. In general, however, the stock appears to be able to increase more quickly by using the higher productivity scenario.

The CPSMT has submitted a rebuilding plan preliminary analysis (Agenda Item G.1, Attachment 1) that includes background on the process, fishery, environment, a description of the alternatives,

and a qualitative evaluation of the alternatives. The Rebuilder tool results are also included in the advance briefing book materials. The CPSMT is continuing to evaluate the degree to which those results can be applied to rebuilding reference points and the three alternatives under consideration. The CPSMT anticipates the opportunity to consider a pending supplemental economic analysis, as well as a supplemental CPSMT report that will include additional evaluation of the alternatives and recommendations for Council consideration, to assist in Council decision making.

References

Hill, K.T., P.T. Kuriyama, and P. R. Crone. 2020. Pacific sardine rebuilding analysis based on the 2020 stock assessment. La Jolla, California: National Marine Fisheries Service Southwest Fisheries Science Center.

Punt, A.E. 2020. Science and Statistical Committee default rebuilding analysis: Technical specifications and user manual, (Version 3.12g), June 2020. Pp. 29. Portland, Oregon: Pacific Fishery Management Council.

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