

SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON THE  
PACIFIC SARDINE STOCK ASSESSMENT AND MANAGEMENT FOR 2013, INCLUDING  
PRELIMINARY EFP PROPOSALS AND TRIBAL SET-ASIDE

The Scientific and Statistical Committee (SSC) reviewed the 2012 update assessment of the northern subpopulation of Pacific sardine. Dr. Kevin Hill from the Southwest Fisheries Science Center (SWFSC) presented an overview of the assessment and discussed new data in the assessment, including the 2012 acoustic trawl (ATM), egg production (DEPM) and aerial surveys. The aerial survey used a slightly different methodology than used previously, with biomass estimates in the model derived from point sets pooled across years, with length data from 2012. The SWFSC conducted a spring DEPM survey and both spring (in California) and summer (from San Diego into Canada) ATM surveys. The estimate of spawning stock biomass in 2012 from the update assessment was 50 percent lower than the previous estimate for 2011, but higher than those for years 2008-10.

Several issues regarding the surveys were raised. The summer ATM survey found that trawls in the northern area had highly mixed species composition. There was a discrepancy between the biomass estimate in the northern (WA/OR) portion of the ATM survey area and the fishery landings (as well as the aerial survey estimate). Vessel avoidance and the acoustic transducer on the survey vessel missing fish on the surface were raised as possible explanations for this discrepancy. The aerial survey used the one complete set of transects (Set B) for school number and surface area estimates, while the point sets were taken after completion of the transects rather than concurrently. More problematically, only 14 acceptable point sets were conducted, and they were not spatially representative of the sardine schools photographed during the transects. Given this lack of spatial coverage of the point sets, and the highly mixed Coastal Pelagic Species found in the ATM trawls in the same area as many of the photographed schools, there are potential species composition problems with the estimates derived from the aerial photographs. However, the composition of photographed schools and ATM trawls are not directly relatable, as the former are taken during the day and the latter at night when CPS are dispersed.

Dr. Owen Hamel of the SSC presented a report of the review panel that was convened to review the update assessment. The panel endorsed a change to the model that involved the use of recruitment deviations estimated through end year-1 and rather than end year-2, as it provided better fit to the data, and recommended that a base model (X6e) that incorporated this change be used for management in 2013.

The SSC notes that the current Harvest Control Rule uses the biomass estimate on July 1, 2012 to determine an overfishing limit and harvest guideline for the 2013 calendar year, thereby ignoring any change in biomass from July 1 to December 31, 2012. This could be consequential for this assessment, given the declining trend in abundance. The SSC suggests that future evaluations of the harvest control rule consider basing the OFL and HG on the biomass at the start of the fishing year, as is the case for other Council-managed fisheries. The SSC again emphasizes that there is little time between when data are provided to the Stock Assessment

Team (STAT) and the deadline for assessment completion, which raises multiple challenges for completing the assessment and conducting a review. This problem could be addressed by changing the start of the fishing year.

The SSC endorses the update assessment (model x6E) as the best available science for management in 2013 and further endorses the  $OFL=103,284$  mt, and the sigma value of 0.36. The SSC notes that the relationship between temperature and stock productivity has not yet been clarified; using a constant  $F_{MSY}$  proxy was recommended in November 2011 as an interim measure only. Re-evaluation of the science used in the Harvest Control Rule parameters should be of highest priority for next year's assessment (see SSC statement F.4).

Dr. André Punt of the SSC provided an overview of the Methodology Review Panel that reviewed possible use of the Vancouver Island swept area trawl survey in management. This trawl survey has been conducted by the Department of Fisheries and Oceans (Canada) since 2002, but there have been serious issues of consistency in and adequacy of survey methodology. The 2010 survey was the first that was sufficiently close to the recommendations of the Methodology Review Panel to be appropriate for use in management. When several additional years of standardized data collection have occurred, the survey should be evaluated by the STAT and a STAR panel for use in assessment and management. The SSC further noted that coordination with US surveys could potentially increase the value of the Canadian survey. The SSC endorses the report and emphasizes that a time series derived from several more years of standardized survey methodology is necessary before the survey may be useful for management.

The SSC noted that a letter of intent to apply for an exempted fishing permit to continue the Northwest aerial sardine survey in 2013 was submitted. The survey has consistently failed to achieve adequate point sets to meet objectives specified in the sampling plan. While this might be partially addressed by scheduling changes, the SSC recommends a formal review of the survey methodology, following up on the issues raised in the 2007 STAR panel.

PFMC  
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