

SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON PACIFIC SARDINE
ASSESSMENT AND COASTAL PELAGIC SPECIES MANAGEMENT MEASURES
FOR 2012

Dr. Kevin Hill presented the 2011 assessment of the northern subpopulation of Pacific sardine and Dr. André Punt reported on the Stock Assessment Review (STAR) Panel that convened on October 4-7, 2011.

The 2011 assessment uses four survey indices: two egg production indices and an aerial index, which have been the primary abundance data series in previous assessments, and an acoustic survey, which had not been previously used. The acoustic survey was reviewed by a methodology review panel earlier this year and endorsed by the Scientific and Statistical Committee (SSC) for use in the assessment model. Additional length data from the Mexican fishery were also included. The current assessment model has many fewer parameters than the 2009 assessment (61 vs. 132). This was accomplished by reducing the number of fisheries modeled, reducing time blocking of fisheries selectivity, and shortening the assessment time period. In addition, during the STAR Panel the initial fishing mortality (F) was set to zero and catchability (q) in the acoustic trawl survey was set to one.

The SSC notes that there are contradictory trends in the three recent survey indices, which introduce substantial uncertainty into sardine biomass estimates. The new model estimated a higher sardine biomass than previous assessments for recent years, and the SSC was advised that this was likely due to increases of varying magnitude in all of the survey indices and recent data suggesting strong recruitment.

The SSC endorses the 2011 assessment as the best available science for management of the northern subpopulation of Pacific sardine in 2012.

Dr. Hill also briefed the SSC on a re-estimation of F_{MSY} in which the Amendment 8 analysis was duplicated with two differences: the Scripps Institute of Oceanography (SIO) Pier temperature index was removed from the stock-recruit relationship, and recent stock and recruitment information was used. The F_{MSY} harvest rate of 0.18 is very similar, but slightly lower than the previous F_{MSY} estimate of 0.1985. The SSC notes that temperature, or another correlated environmental variable, may be important in sardine recruitment, but that the SIO index is not reflective of the temperature in the area of greatest sardine spawning activity and is no longer correlated with sardine productivity.

The SSC recommends that the updated F_{MSY} be used for management in 2012, but that this should be considered strictly an interim measure. The SSC further endorses an overfishing limit (OFL) of 154,781 that arises from this updated F_{MSY} . To set acceptable biological catch (ABC) for sardine, SSC again recommends use of the P^* approach, in which the buffer between OFL and ABC is determined by the value of sigma, representing scientific uncertainty and established by the SSC, and the Council's choice of a P^* to express its policy decision on acceptable risk. The default value of sigma (0.36) for category 1 stocks was considered appropriate for Pacific sardine.

The SSC further recommends that a workshop be convened within the next year to design a simulation analysis similar to Amendment 8 analysis but employs current modeling approaches provide estimates of F_{MSY} and updated parameters for the harvest control rule. The SSC further recommends that a full management strategy evaluation be performed for the northern subpopulation of Pacific sardine as soon as time and resources permit.

PFMC

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