

SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON  
THE REPORT OF THE COASTAL PELAGIC SPECIES ASSESSMENT WORKSHOP

Dr. André Punt presented the report of the coastal pelagic species (CPS) assessment workshop held at the Southwest Fisheries Science Center (SWFSC) May 2-5, 2016 (Agenda Item E.2.a, Stock Assessment Workshop Report). The main objective of the workshop was to evaluate assessment approaches for CPS in other parts of the world for potential application to the central subpopulation of northern anchovy (CSNA) and other CPS stocks. Assessments and management procedures from the U.S. Atlantic, Europe, South Africa, South America, and Australia were considered. Many of the assessment methods used in other parts of the world are similar to those used for West Coast CPS. The workshop made a number of longer term recommendations that will be helpful for improving the assessment of CPS. The SSC endorses these long-term recommendations.

Improvements to CPS assessments are likely to depend primarily on improving assessment surveys for CPS, which include the acoustic trawl survey as well as ichthyoplankton surveys that form the basis for the Daily Egg Production Method (DEPM). Recommended improvements to the DEPM surveys include improved collection of biological data from adults, increased inshore sampling, and use of geostatistical methods to estimate abundance. Recommended improvements to the acoustic trawl survey include quantification of the proportion of the stock that is not surveyed, including the proportion of the stock nearshore of survey transects, the proportion of the stock too close to the surface to be effectively surveyed using acoustic technology, and the proportion of the stock outside the geographic boundaries of the survey.

The immediate issue dealt with by the workshop was the best way to move forward with an evaluation of abundance trends of CSNA. CSNA is a monitored stock in the CPS FMP. The management approach for monitored stocks does not include periodic assessments, but rather obtains an initial estimate of MSY, considered as a constant quantity that represents the average catch that can be taken from the stock, and to set the ABC far below the MSY level, which takes into account the unchanging nature of the estimate and its associated uncertainty. The CPSMT evaluates information on monitored stocks such as annual catches and survey trends if available to determine if there are concerns regarding stock status. Periodic stock assessments, or periodic adjustments to target harvest levels are not done for monitored stocks.

The report describes two options for evaluating abundance trends for CSNA. The SSC agrees with the workshop report that the best long-term option for assessment of CSNA would be to develop an integrated stock assessment model, which would use abundance indices based on historical DEPM estimates, ichthyoplankton indices, recent acoustic trawl surveys, and other information. However, the SSC cautions that the development of an integrated assessment may not be as straightforward as implied by the workshop report. CPS have highly variable population dynamics and biological characteristics that present difficulties for assessment. Assessment models may need to be developed specifically for northern anchovy rather than relying on standard assessment software such as Stock Synthesis. This assessment would need to be reviewed by a STAR Panel, and there may also need to be a methodology review if data from the acoustic trawl survey are used in the assessment. Overall the SSC viewed this option as

a worthwhile long-term objective for CSNA, but something that may not be available for several years.

The second option for evaluating trends is the so-called “DEPM-light” approach, which would use the long-term CALCOFI time series of egg and larvae to develop a relative abundance trend. The SSC supports the workshop recommendations to refine this abundance index, such as comparing unadjusted estimates with estimates corrected for various biases in the estimation of egg and larval density, followed by back calculation to age zero, and the use of geostatistical approaches to construct the index. A further step in the analysis would be to confirm that the historical DEPM estimates were calculated using approved methods, and then to calibrate the egg and larvae density estimates to provide an absolute biomass time series. These estimates would have additional uncertainty due to variance in the calibration factor, and thus would be subject to additional caveats compared to relative abundance estimates. In addition the absolute biomass time series would have a negative bias because the ichthyoplankton survey does not cover the full range of CSNA.

The advantages to the “DEPM-light” approach are that it is a simple and intuitive approach that should be possible to complete by November 2016. The SSC anticipates that both relative and absolute results from the “DEPM-light” approach would be used by CPSMT as additional information to evaluate the monitored status of CSNA. If the decision is to move forward with a “DEPM-light” analysis, the SSC recommends that the methodology and results be reviewed at a meeting of the CPS SSC subcommittee at a one-day meeting prior to the November Council meeting.

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