

COASTAL PELAGIC SPECIES ADVISORY SUBPANEL REPORT ON CENTRAL SUBPOPULATION OF NORTHERN ANCHOVY MANAGEMENT UPDATE

The Coastal Pelagic Species Advisory Subpanel (CPSAS) reviewed the Scientific and Statistical Committee (SSC) reports related to estimating the nearshore component of the anchovy stock not sampled by Acoustic Trawl (AT) surveys, and the timeline and process required to develop an OFL for the central subpopulation of anchovy in the near term.

Estimating the Nearshore Component

Both the SSC and Center of Independent Experts (CIE) scientists at the AT Methods Review acknowledged that direct sampling of the nearshore area missed by AT surveys is preferable to extrapolation, but that extrapolation could be used if direct sampling is not an option. The CPSAS is concerned that extrapolation from the nearshore edge of AT surveys could underestimate the abundance of anchovy present in the nearshore, including age 0-2 recruits. We suggest that the Southwest Fisheries Science Center (SWFSC) work closely with industry to develop effective collaborative nearshore survey methods, e.g., aerial surveys coupled with nearshore sampling. We also recommend that the issues with AT survey assumptions identified in the Methods Review and in the recent SSC review of the sardine biomass estimate be corrected promptly to increase the accuracy of the offshore survey component.

Timeline and Process to Develop an OFL

The SSC has endorsed the use of the AT survey as a relative index of biomass and for setting reference points, after a nearshore correction factor has been applied. In its April 2018 Supplemental Report 1 under Agenda Item C.4.a., the SSC states a “near-term” value for the overfishing limit (OFL) could be calculated by multiplying an estimate of current biomass (either spawning biomass, from Daily-Egg Production Method (DEPM) or 1+ biomass, from the acoustic-trawl method) by the exploitation rate corresponding to MSY , E_{MSY} .

However, the CPSAS points out both survey methods are incomplete: DEPM surveys miss peak spawning in Southern California and summer-fall spawning on the central coast, while AT surveys do not capture the presence of fish in the upper water column and nearshore. Further, we are concerned about the long-term affordability/feasibility of annual AT surveys or assessments.

It is also important to consider the socio-economic needs of the anchovy fishery, especially in Monterey, where fishermen and processors rely on consistent anchovy supply and need stable and sustainable harvest limits to develop business plans and markets.

The White Paper on Frequency of Assessments and Updates to OFLs (Agenda Item E.4, Attachment 2) points out that the values for MSY , F_{MSY} and B_{MSY} can only be updated if there is a new model-based stock assessment. It also notes trade-offs between increased risk, average catch and stability of reference point estimates associated with the frequency of assessments and updates to OFLs. These can be evaluated in a Management Strategy Evaluation. MSE-lite, an approach proposed by the Scientific and Statistical Committee (SSC) to estimate F_{MSY} , B_{MSY} and CNSA (Punt, 2019) could be extended to evaluate the trade-off between assessment frequency and risk

of overfishing. This would require about six months of analyst time as well as time for review. A full MSE would take about a year of analysis plus review.

Another aspect noted in the white paper: variation in the OFL can be reduced or average catch increased (likely at the cost of a small increase in risk of overfishing) given a pre-specified level of risk by basing the OFL on the average biomass over several years. The trade-offs associated with various choices for the period over which biomass estimates are averaged could be evaluated with an MSE-lite or a full MSE.

Recent evidence of increased anchovy abundance should provide more time to continue the Council's current stepwise process, working toward an integrated stock assessment and potential updates to central subpopulation of northern anchovy management. In the meantime, the CPSAS supports a MSE process, and particularly to explore a pre-specified level of risk by basing the OFL on the average biomass over several years and options associated with annual management. If an MSE cannot be completed within a reasonable time, we recommend the Council review existing reference points for possible revision.

Thank you for your consideration of these comments.

PFMC
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