

COASTAL PELAGIC SPECIES ADVISORY SUBPANEL REPORT ON NORTHERN ANCHOVY STOCK ASSESSMENT AND MANAGEMENT MEASURES

The Coastal Pelagic Species Advisory Subpanel (CPSAS) joined the meeting of the Scientific and Statistical Committee (SSC) to hear a summary presentation by Dr. Ed Weber regarding the *Egg and Larval Production of the Central Subpopulation of Northern Anchovy in the Southern California Bight (SCB)*. Dr. André Punt also described the SSC CPS Subcommittee's comments on the report. Among issues noted during discussion were that California Cooperative Oceanic Fisheries Investigations (CalCOFI) surveys in January and April miss the peak spawning period of anchovies, which generally occurs in February and March, and there are virtually no recent adult samples to determine fecundity, so accurate conversion to a biomass estimate is not possible. Further, the range of the central subpopulation extends far beyond the CalCOFI survey grid, from Mexico to north of San Francisco, thus any biomass estimate attempted would be negatively biased. Therefore, the Southwest Fishery Science Center (SWFSC) did not provide a point estimate of biomass.

It was also noted during the SSC meeting that the acoustic trawl method (ATM), the second source of information on anchovy abundance, was deemed inappropriate to estimate anchovy biomass in a methods review a few years ago (April 2011 Agenda Item C.3.a, Attachment 1). In discussion after the meeting, CPSAS members commented that the 2006 ATM survey (Zwolinski et al (2011) in US Fish Bull 11) did not "see" the 1.4 million mt outbreak of anchovy estimated in egg-larval analyses in 2005-06 (Lindgren et al. 2013). ATM surveys also do not extend into the near-shore area where fishermen have observed a superabundance of anchovy over the past few years.

CPSAS members have both seen for themselves and have heard many reports from fishermen the length of California who have reported a large biomass of CPS in near-shore waters, much of it inside the areas surveyed by NOAA research ship transects. This abundance has not appeared in recent year CalCOFI and ATM surveys.

These fish are real, as fishermen who are on the water daily will testify. The CPSAS saw a preview including screen shots of electronics and aerial photographs in the presentation that will be presented to the Council under public comment. The abundance of anchovy was impressive.

It is important for the Council to acknowledge that the record anchovy spawning observed in the 2015 and 2016 juvenile rockfish surveys (which don't encompass the full range of anchovy either) has translated into recruitment. The supplemental SWFSC summary of current information available (Agenda Item G.4.a. Supplemental SWFSC Report) now acknowledges the presence of several year classes.

It is also important to understand that the younger fish ALWAYS occupy the nearshore, at both high and low population abundance, but these fish have been largely excluded from surveys. The six Southern California Coastal Ocean Observing System (SCCOOS) stations at 30 meters depth are near the outer edge of the habitat occupied by young anchovy. Both the assessment workshop conducted in May 2016 and the recent egg and larval production report of the central anchovy subpopulation in the Southern California Bight (Agenda Item G.4.a SWFSC Report) pointed out the deficiency in current surveys in part due to the lack of data from the near-shore inside existing

CalCOFI range and ATM survey tracks. Both the SWFSC report and SSC acknowledged that any biomass estimate developed with existing data would be negatively biased.

Current anchovy management is not based on a single stock assessment. Rather, the overfishing limit (OFL) / maximum sustainable yield (MSY) is intended to reflect the largest AVERAGE fishing mortality rate that can be harvested over the long term, accounting for anchovy's variability. The ABC is then reduced from OFL by 75 percent.

The majority of the CPSAS believes that the anchovy population has not "collapsed" and a change in anchovy management is not needed now. Scientists acknowledge that the anchovy population is extremely variable – even without a fishery. Research indicates that anchovy abundance is driven primarily by environmental forcing.

Today's anchovy fishery cannot be compared to the past. There is no reduction fishery in California now. In fact fishery landings have averaged less than 10,000 mt per year for the past two decades – the reason why anchovy is now a monitored stock.

Yet this fishery is still very important to California's wetfish industry, like one leg of a stool. Anchovy keeps the boats afloat and market doors open when other CPS are unavailable, as in 2015. This year, with the reemergence of squid, anchovy landings have declined substantially. But this industry cannot afford to lose the opportunity to fish anchovy.

At the current 25,000 mt harvest limit, the fishery is unlikely to reduce total abundance or have a negative impact on predators, according to the NMFS Final Rule, Multi-Year Specifications for Monitored Stocks, which implements regulations under CPS Fishery Management Plan (FMP) Amendment 13. There is no documented evidence that the current fishing level has impacted predators. To the contrary, both bird and marine mammal populations have increased in spite of anchovy variability, and in the presence of California's small anchovy fishery.

Please keep in mind that anchovy are only one component of a much larger forage pool, and most predators have opportunistic diets.

The majority of the CPSAS support retaining the current management measures for the central stock of anchovy until surveys can assess the full range of the stock effectively, including the nearshore. We believe retaining monitored stock status is appropriate for this small but important fishery, and the current 25,000 mt harvest limit is reasonable and precautionary.

The majority of the CPSAS also ask the Council to acknowledge the abundance of anchovy observed by fishermen coast-wide, and recognize that there is no biological point of concern.

The Conservation Representative of the CPSAS notes that the most recent scientific information on the abundance of the central subpopulation of northern anchovy indicates that the stock is currently at low levels, and may have fallen by an order of magnitude below the stock size upon which the existing MSY proxy and related harvest specifications were modeled. With all available indices showing the stock to be at low abundance, the Conservation Representative believes that the current default monitored stock control rule and associated annual catch limit (ACL) of 25,000

metric tons is not sufficiently precautionary and carries with it a risk of overfishing. The Conservation Representative therefore recommends that the ACL be reduced for the 2017 fishing season in order to avoid the risk of overfishing, ensure adequate forage for dependent predators, and adhere to best available science while providing a level of fishing opportunity commensurate with current catch levels. With respect to longer term management considerations, the conservation representative recommends that the Monitored Stock Category be removed from the CPS FMP to ensure that adequate science and management attention is given to all CPS, and that the Council develop a long-term management framework, including an ecosystem-based harvest control rule and minimum stock size threshold for the central subpopulation that accounts for and protects this stock's crucial role as forage in the California Current Ecosystem.

The entire CPSAS asks the Council to support the critical need to expand surveys into the near-shore areas, as well as upper water column for acoustic surveys, to improve future stock assessments.

PFMC
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