

COASTAL PELAGIC SPECIES ADVISORY SUBPANEL REPORT ON FINAL APPROVAL OF AERIAL SURVEY METHODOLOGY

During a webinar on May 31, the Coastal Pelagic Species Advisory Subpanel (CPSAS) received a report from Dr. Andre Punt on the methodology review of the cooperative aerial survey conducted by the California Department of Fish & Wildlife (CDFW) and California Wetfish Producers Association (CWPA). Prior to the webinar, CPSAS members also read the methods review document (Agenda Item D.2 Attachment 1) and the Department's aerial survey report (Agenda Item D.2.a CDFW Report).

The CPSAS thanks CDFW and CWPA for their perseverance over the past five years to develop a scientific method to quantify the abundance of sardine, anchovy and other CPS in the area inshore of current National Oceanic and Atmospheric Administration (NOAA) CPS surveys. This is an area where fishermen have reported a substantial volume of fish that is now being missed in stock assessments. Both Pacific Northwest and California CPS fishermen strongly support these efforts to improve the accuracy of stock assessments in the future. It should be noted that 70 percent or more of the CPS harvest in California occurs in this near-shore area. The CPSAS is pleased that the nearshore area is now acknowledged as a high priority research and data need.

While CPSAS representatives are disappointed that the methods review did not approve this survey for "prime time" use in stock assessments now, CPSAS members did offer helpful recommendations to improve the aerial survey, and concluded, "*Project 1 is closest to being ready to provide information for use in stock assessments for Pacific sardine (2019-20 or earlier) or northern anchovy.*" (Agenda Item D.2 Attachment 1).

One issue identified during this methodology review was that the California CPS fisheries typically take place at night, unlike the sardine fishery in the Northwest, yet the aerial survey is conducted in daylight. As noted in the CPSAS representative's comments in the methods review report, CPS do surface during daylight in California, and experienced spotter pilots, including the spotter who serves as observer in the CDFW aerial survey, know the conditions when fish are likely to surface. If aerial surveys are used to quantify a minimum (negatively biased) biomass estimate, it will be important to account for the fish that are present below the surface but not observed and quantified in aerial surveys. This requires flexibility to fly when fish are likely to be near the surface.

Another issue discussed during the review was how to validate the spotter pilot's estimates of composition in mixed schools as well as tonnage estimated. CDFW aerial surveys have found a high degree of accuracy in spotter observations of species composition and estimated tonnage in individual schools. Quantifying tonnage of schools in aerial photographs was also based on point sets conducted in 2010 industry-sponsored surveys. But fish behavior in California is different from that in the Northwest, and point sets capturing 100 percent of schools were very difficult to achieve in California, so other methods to quantify school volume will likely be needed. An alternative method suggested was photographing screen shots of the sonar and fathometer of the capture vessel to document school depth and density.

The CPSAS also recommended that the CDFW aerial survey could be improved by increasing survey sample size. Utilizing purse seine vessels to assist in sample collection is one possibility, but the vessels would require exempted fishing permits (EFPs) to capture sardines while the fishery is closed. Live bait fishermen in southern California have volunteered to assist in capturing a portion of schools identified, but NOAA's 2017 summer survey may not extend south of San Francisco, so there will be no offshore survey in central or southern California this summer. CDFW is now exploring the possibility of relocating the nearshore survey to Monterey for the summer survey, but it is unclear whether or not the NOAA survey will reach Monterey.

A related cooperative survey is now in the planning stages for summer 2018, when the Southwest Fisheries Science Center (SWFSC) plans to utilize a skiff with an acoustic array to survey the inshore area now missed in NOAA surveys. The survey plan for this "proof of concept", targeting the Southern California Bight initially, includes an aerial component with transects flown by the spotter pilot who will photograph schools, and an EFP that CWPA plans to request this fall, to enable purse seine fishermen to capture schools observed in the backscatter. Biological and species composition sampling will be conducted onboard the purse seiner, and the processor receiving the fish will also fully sort the loads, validating the species composition of the sets. This work will be conducted in collaboration with the CDFW aerial survey.

The West Coast Pelagic Conservation Group from the Northwest also is planning to coordinate with the NOAA survey in both 2017 and 2018, placing a fisherman onboard the NOAA vessel, and supporting a spotter pilot to fly transects in cooperation with the survey, extending surveillance into the inshore area where the research ship cannot travel.

The CPSAS thanks the SWFSC for acknowledging the problems with current surveys and helping to provide funding for cooperative surveys that will hopefully improve the accuracy of future stock assessments.

The CPSAS is encouraged that progress is being made to develop a usable survey method for the near-shore area, where the majority of the fishery occurs in California.

PFMC
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