

COASTAL PELAGIC SPECIES ADVISORY SUBPANEL REPORT ON THE FINAL
ACTION ON SARDINE STOCK ASSESSMENT, SPECIFICATIONS,
AND MANAGEMENT MEASURES

The Coastal Pelagic Species Advisory Subpanel (CPSAS) and Coastal Pelagic Species Management Team (CPSMT) jointly heard a presentation of the update sardine stock assessment to the SSC presented by Dale Sweetnam of the Southwest Fishery Science Center (SWFSC). The CPSAS and CPSMT also listened to Scientific and Statistical Committee (SSC) comments and deliberations on the model and related uncertainty in light of the recruitment event observed in 2015. In addition, the CPSAS reviewed Agenda Item H.1.a, Pacific Sardine Stock Assessment Report for USA Management in 2016-17.

The CPSAS thanks the stock assessment team for their efforts and also appreciates the SSC Subcommittee acknowledgement that the multiple lines of evidence supporting a large recruitment event should be accounted for in the model in some way. The SSC stopped short of endorsing a strict update, which would have included the length comps from the small fish captured in the summer ATM survey, resulting in a biomass estimate exceeding 1 million tons. But the SSC did endorse using the stock-recruitment curve in the model, which produces a biomass estimate of 106,137 mt and an OFL of 23,085 mt, and the STAT concurred.

Due to the uncertainties inherent in this update assessment and apparent increasing lack of fit of data to the model, the SSC classified this assessment as Category 2, which results in a lower range of ABC values and more precaution in management. The uncertainty in this instance is driven by a large recruitment event documented by multiple lines of evidence that could not be incorporated into the model due to the strict Terms of Reference in an update year.

Adaptive management should work both ways. The Council's current policies make it easy to reduce fishing opportunity, but not to increase it. There is no parallel policy allowing for new data to be incorporated into assessments in update years – or for a fishery to be reopened -- until the next full assessment. The current policy has the real socio-economic effect of curtailing fisheries, and by extension harms the industry and dependent coastal communities. Requiring fishermen and industry to tie up the boats and close the doors for two or three years, or longer, does not achieve Optimum Yield.

The CPSAS appreciates the Council's consideration of the following points in deliberating management measures for the 2016-17 sardine fishery. Most of these points are carried over from our statement in 2015:

1. Industry remains concerned about the ability of current acoustic trawl surveys to measure the full extent of the biomass. Even in times of known high biomass, the SS model platform has had difficulty mirroring the reality in the ocean. The CPSAS strongly supports the SSC and CPSMT recommendations made in 2015 to conduct a methodology review of the ATM survey as soon as possible.

2. Again, this update assessment does not factor in small sardines that have been observed since last summer, both in California and the Pacific Northwest. In fact, the STAT excluded
3. Evidence of small sardines captured in the ATM survey in 2015. The spring 2016 sardine survey has observed spawning activity off southern Oregon. This evidence was presented in the SWFSC presentation to the SSC, but this information cannot be used in this update year's assessment.
4. The size of sardine stocks is largely driven by environmental conditions. There was a very poor year-class in 2010, followed by three years of poor recruitment. **With low recruitment, biomass drops very quickly absent any fishing.** This directly contradicts arguments that sardines declined due to overfishing.

In fact, the 2015 El Niño has produced conditions that led to substantial documented recruitment. This recruitment parallels the large recruitment event following the 2003 El Niño, which resulted in peak sardine abundance in 2006-07.

5. **The sardine control rule is designed to shut down the directed fishery when biomass falls below CUTOFF. Industry supports the current cutoff of 150,000 mt.** The current sardine harvest control rule is a highly precautionary management policy.

The CPSAS further offers these recommendations to improve adaptive sardine management:

6. The May assessment workshop should re-evaluate assumptions in the sardine model, specifically
 - catchability quotient (q) in ATM surveys and
 - natural Mortality, in light of the exponential increase in marine mammal populations since Amendment 8 model assumptions were developed in the 1990s.
7. The Terms of Reference for stock assessments should be revised to provide flexibility, particularly in update years, to incorporate new findings and data into assessments that more accurately reflect conditions in the ocean.

The Council should use the point of concern provisions in the FMP to reopen a fishery based on new lines of evidence as soon as possible, rather than the current requirement to wait for the next full assessment. Without flexibility to adaptively manage dynamic CPS stocks, industry is forced to sit idle for the better part of one or two years, or even longer, which may be beyond its economic tipping point.

8. Please consider that achieving Optimum Yield requires balancing fishery opportunity, economic stability and ecosystem needs. This means allowing incidental catch of sardine to support other fisheries. Sardines frequently school with other CPS species, and are now showing up in other CPS catches. An allowance of sardine caught incidentally in other CPS fisheries will be necessary to keep boats fishing and processors' doors open.
9. Management not only needs to maintain a sustainable resource, but also a sustainable.

Management Measures

The CPSAS recommends the following sardine management measures for July 1, 2016 – June 30, 2017, based on a Tier 2 Acceptable Biological Catch at P* 0.4 of 19,236 metric tons (mt), as outlined in the CPSMT Report (Agenda Item H.1.a. Table a).

The CPSAS notes the following rationale for our recommendation:

[1] Although industry did not capture the full set aside in 2015 that was due to the fact that in many instances sardines appeared to be above the 40 percent limit and fishermen released their catch, exercising extreme caution. If squid rebounds in 2016, industry will require additional incidental catch of sardine.

[2] The CPSAS is asking for an increase in the set aside in 2016 due to the possibility that the Pacific Northwest will target Pacific mackerel in 2016, thus increasing the need for additional incidental set aside to avoid curtailing fishing for both mackerel and anchovy, and possibly also squid, in California.

The CPSAS acknowledges that the management team is recommending basically status quo, but in light of the potential for increased catches in mackerel, anchovy and hopefully squid, and the sheer abundance of sardine now observed by fishermen in both the Northwest and California, we feel an increase is not only justified but essential to allow for fishing opportunity. Added precaution is encompassed in the lower Category 2 ABC values, the basis for our recommendation.

We feel it is better to have the incidental set aside and not use it, than to not have it and curtail the fisheries. Without a reasonable incidental catch of sardines, the CPS fleet could be preempted from fishing in 2016, particularly in California.

We recommend the following framework, which is based on the 2015 rationale:

Table 1

ACL	57.9 % of ABC at P* 0.4	11,138 mt
ACT	Set aside for incidental catch in other fisheries after accounting for tribal allocation and live bait	7,838 mt
ACT ≈	Allocated as follows:	
	40 % of Annual Catch Target	1,500 mt
	30% of Annual Catch Target	3,000 mt
	20% of Annual Catch Target	3,338 mt

If the ACT is reached, the CPSAS recommends a set aside of 10% incidental sardine by weight to allow for the squid fishery to continue if squid reappear in the fall.

The CPSAS also stresses the importance of the CPS FMP provision allowing the live bait fishery to continue. While this is considered take, an estimated 90 percent of the live bait catch is returned to the ocean alive.

Conservation Representative Statement:

The conservation member of the CPSAS recommends setting incidental catch at a more precautionary level that both protects the spawning stock while not unduly constraining other fisheries, including other CPS fisheries. Of a 7,000 mt ACL for the current season, less than 175

mt in sardine landings have been recorded so far (not including live bait), and there are few signals at this time that mackerel and/or squid fishing effort in California will be substantially greater in the coming year. Even taking into consideration the new directed mackerel fishery in Washington State and the slightly higher biomass projection for Pacific sardine, it appears likely that the current incidental catch allowance/Annual Catch Target does not need to be increased for the 2016-2017 season. While there are several lines of evidence showing high numbers of juvenile sardine, the conservation member suggests that the Council should exercise precaution in setting incidental catch until the juvenile sardine currently being observed recruit to the spawning stock.

PFMC
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