

COASTAL PELAGIC SPECIES MANAGEMENT TEAM REPORT ON FINAL ACTION ON SARDINE ASSESSMENT, SPECIFICATIONS, AND MANAGEMENT MEASURES

The Coastal Pelagic Species Management Team (CPSMT), Coastal Pelagic Species Advisory Subpanel (CPSAS) and Scientific and Statistical Committee (SSC) jointly received a presentation from Mr. Dale Sweetnam concerning the Pacific sardine stock update assessment conducted in 2016. The CPSMT recommends that the Pacific Fishery Management Council (Council) adopt the update assessment for management of the 2016-2017 sardine fishery (Agenda Item H.1.a, Stock Assessment Report). The age 1+ biomass estimated from this assessment is 106,137 metric tons (mt).

Similar to the 2015-2016 biomass estimate of 96,688 mt, the 2016-2017 biomass estimate of 106,137 mt is below the CUTOFF value of 150,000 mt. Accordingly, the Fishery Management Plan dictates a closure of the primary directed fishery for Pacific sardine for the upcoming fishing year (July 1, 2016 - June 15, 2017). This closure, however, does not preclude the allowance for incidental catch in other CPS and non-CPS fisheries as well as directed live bait, recreational and tribal harvest fisheries.

Harvest Specifications for 2016-2017

Table 1 (below) contains the overfishing limit (OFL) and a range of acceptable biological catch (ABC) values based on various P* (probability of overfishing) values. Considering the results of the most recent full stock assessment conducted in 2014 and the update in 2015, the Council chose a P* of 0.40 for the 2014-2015 and 2015-2016 fisheries. The SSC designated this year's assessment as a tier 2. The P* value of 0.40 applied to the 2016-2017 OFL of 23,085 mt, using a Tier 2 sigma of 0.72 produces an acceptable biological catch (ABC) of 19,236 mt. The CPSMT recommends the use of this P* recognizing that the uncertainty in the assessment has been addressed by selecting a more precautionary sigma value.

For the 2015-2016 fishing season, the CPSMT evaluated the potential needs for incidental allowances for other CPS fisheries (Agenda item G.1.b, Supplemental CPSMT Report, April 2015). Given the similarity between the 2015-2016 and 2016-2017 biomass estimates, the CPSMT recommends the same annual catch limit (ACL) of 8,000 mt (Table 2) that we recommended in 2015 to enable the conservation of sardines while allowing other fisheries to proceed. The CPSMT believes these allowances could accommodate the fishery for the coming year, but recognizes that the dynamics of the other CPS may change as there is uncertainty around species mixing rates and the distribution along the coast. The CPSMT also recommends an annual catch target (ACT) of 5,000 mt for CPS fishery incidental catch, and the accountability measures presented below.

Consistent with 2015-2016 management and the CPS fishery management plan (FMP), tribal, live bait, and other minimal sources of mortality, such as recreational take, will be accounted for against the ACL.

Table 1. Pacific sardine harvest formula parameters for 2016-2017.

Harvest Control Rule Formulas										
OFL = BIOMASS * <i>E</i> MSY * DISTRIBUTION; where <i>E</i> MSY is bounded 0.00 to 0.25										
ABCP-star = BIOMASS * BUFFERP-star * <i>E</i> MSY * DISTRIBUTION; where <i>E</i> MSY is bounded 0.00 to 0.25										
HG = (BIOMASS - CUTOFF) * FRACTION * DISTRIBUTION; where FRACTION is <i>E</i> MSY bounded 0.05 to 0.20										
Harvest Formula Parameters										
BIOMASS (ages 1+, mt)	106,137									
P-star	0.45	0.40	0.35	0.30	0.25	0.20	0.15	0.10	0.05	
ABC Buffer _{Tier 2}	0.9135	0.8333	0.7577	0.6855	0.6153	0.5455	0.4741	0.3974	0.3059	
CalCOFI SST (2013-2015)	16.3891									
<i>E</i> _{MSY}	0.25									
FRACTION	0.20									
CUTOFF (mt)	150,000									
DISTRIBUTION (U.S.)	0.87									
Harvest Control Rule Values (MT)										
OFL =	23,085									
ABC _{Tier 2} =	21,088	19,236	17,492	15,825	14,204	12,594	10,946	9,175	7,063	
ACL =	8,000									
HG =	0									

Table 2. 2016-17 Calculated OFL and ABC and CPSMT Recommended ACL and ACT Values.

Biomass	106,137mt
OFL	23,085mt
P* buffer	0.4
ABC _{0.4}	19,236mt
ACL	8,000mt
ACT	5,000mt

List of CPSMT-Recommended Accountability Measures

The following would be automatic inseason actions for CPS fisheries:

- An incidental per landing allowance of 40 percent Pacific sardine in non-treaty CPS fisheries until a total of 2,500 mt of Pacific sardine are landed.
- When the 2,500 mt is achieved the incidental per landing allowance would be reduced to 30 percent until a total of 5,000 mt of Pacific sardine have been landed.
- When 5,000 mt have been landed, the incidental per landing allowance would be reduced to 10 percent for the remainder of the 2016-2017 fishing year.

A 2 mt incidental per landing allowance in non-CPS fisheries.

Beyond the 2016-2017 fishing season

During the 2015-2016 fishing season the CPSMT became aware that the closure of directed fishing for sardine was impacting the fishing operations of a small number of mixed-used commercial fishermen who land limited amounts (10s-100s of pounds) of sardine that do not meet the existing incidental landing exemption in the FMP even though their total landings are very small. Because the amount of take by these individuals would not pose a conservation concern during situations like those both in 2015-2016 and 2016-2017 fishing years (i.e., biomass below CUTOFF and above the overfished threshold), the CPSMT recommends exploring options for allowing this small artisanal take to occur in future years. To ensure such an exemption could be in place for the 2017-2018 fishing year, this may require the Council taking action during 2016. However, the CPSMT is still reviewing what implementaiton of this action would entail.

Methodology Review

Finally, the CPSMT reiterates its support of a methodology review for the Southwest Fisheries Science Center (SWFSC) Acoustic-Trawl (A-T) survey. This survey has provided an index of abundance in the sardine stock assessment model since 2011, and has not been reviewed since February 2011. In addition, with a new vessel conducting the A-T and Daily Egg Production Method surveys, the CPSMT sees a need for a comprehensive review of both surveys, especially to address vessel selectivity differences.

PFMC
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