

Addendum to Catch-Only Projection of the Pacific Sardine Resource in 2021 for U.S. Management in 2021-2022

Below are two corrected tables to replace Tables 1 and 2 in Agenda Item E.4 Attachment 1. The columns “Calendar Y-S” contained incorrect values in the versions associated with the briefing book. The typos do not affect the results of the catch-only projection. Also below is an updated harvest control rule table (Table 3) from the 2020 benchmark assessment, updated to include acceptable biological catch (ABC) values associated with a Tier 3 sigma designation.

Table 1: Finalized catch values for fleet by model year-semester (bolded columns). Preliminary values used in the 2020 benchmark assessment are adjacent to the bolded columns. The values in bolded columns show updated and finalized catch values for model year 2019, and new finalized catch values for model-year semester 2020-1. These values are data and not assumed values based on previous fishing activity.

Calendar Y-S	Model Y-S	MexCal S1	MexCal S1	MexCal S2	MexCal S2	PNW	PNW
2019-2	2019-1	130.86	223.61	0	0	7.73	8.198
2020-1	2019-2	0	0	11819.4	33070.23	2.51	0.06
2020-2	2020-1	--	764.00	--	0	--	0.418

Table 2: Catch values and associated F values used in the forecast file for the 2021 catch-only projection. The values for model year-semester 2020-1 were data (indicated by bolding), and the values for 2020-2, 2021-1, and 2021-2 assumed F values estimated from the most recent years of observation. For model year-semesters 2020-2 and 2021-2 the most recent observations were from 2019-2. For model year-semester 2021-1, the most recent observations were from 2020-1.

Calendar Y-S	Model Y-S	<u>MexCal S1</u>		<u>MexCal S2</u>		<u>PNW</u>	
		Catch	F (yr ⁻¹)	Catch	F (yr ⁻¹)	Catch	F (yr ⁻¹)
2020-2	2020-1	764	0.345	0	0	0.42	0
2021-1	2020-2	--	0	--	4	--	0
2021-2	2021-1	--	0.345	--	0	--	0
2022-1	2021-2	--	0	--	4	--	0

Table 3: Harvest control rules from the 2020 benchmark assessment updated to include ABC values associated with Tier 3 designation.

Harvest Control Rule Formulas										
OFL = BIOMASS * E_{MSY} * DISTRIBUTION; where E_{MSY} is bounded 0.00 to 0.25										
ABC _{P-star} = BIOMASS * BUFFER _{P-star} * E_{MSY} * DISTRIBUTION; where E_{MSY} is bounded 0.00 to 0.25										
HG = (BIOMASS - CUTOFF) * FRACTION * DISTRIBUTION; where FRACTION is E_{MSY} bounded 0.05 to 0.20										
Harvest Formula Parameters										
BIOMASS (ages 1+, mt)	28,276									
P-star	0.45	0.40	0.35	0.30	0.25	0.20	0.15	0.10	0.05	
ABC Buffer _(Sigma 0.607)	0.93228	0.86817	0.80653	0.74631	0.68635	0.62523	0.56083	0.48914	0.39938	
ABC Buffer _{Tier 2}	0.88191	0.77620	0.68023	0.59191	0.50942	0.43101	0.35472	0.27761	0.19304	
ABC Buffer _{Tier 3}	0.77777	0.60248	0.46272	0.35036	0.25950	0.18577	0.12582	0.07707	0.03726	
CalCOFI SST (2018-2020)	15.9965									
E_{MSY}	0.224584									
FRACTION	0.200000									
CUTOFF (mt)	150,000									
DISTRIBUTION (U.S.)	0.87									
Harvest Control Rule Values (MT)										
OFL =	5,525									
ABC _(Sigma 0.607) =	5,151	4,796	4,456	4,123	3,792	3,454	3,098	2,702	2,206	
ABC _{Tier 2} =	4,872	4,288	3,758	3,270	2,814	2,381	1,960	1,534	1,067	
ABC _{Tier 3} =	4,297	3,329	2,556	1,936	1,434	1,026	695	426	206	
HG =	0									

PFMC
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