

COASTAL PELAGIC SPECIES SUBPANEL REPORT ON THE FISHERY ECOSYSTEM PLAN FIVE-YEAR REVIEW

The Coastal Pelagic Species Subpanel (CPSAS) reviewed Briefing Book materials under Agenda Item F.2 and listened to a webinar presented by the Ecosystem Workgroup (EWG). We commend the ongoing thoughtful work of the EWG in revising and updating the Fishery Ecosystem Plan (FEP). We would appreciate the EWG's and Council's consideration of the following comments and suggestions regarding Chapter 3.

3.3.5 Importance of trophic interactions in the CCE

We appreciate the inclusion of a discussion of the dynamics of predator-prey relationships, as the CPSAS suggested in 2019 (Agenda Item E.1.a, Supplemental CPSAS Report 1, September 2019).

As noted in this section, “food-web-modeling studies have shown that none of the forage fish species in the California Current Ecosystem (CCE) act as a keystone prey species, but instead most predators can switch among the various forage fish as their abundances vary.” Also, “higher trophic level mammals, birds, and reptiles represent important sources of predation mortality and energy flow in the CCE.”

Chapter 3 also referenced the findings of Smith et al. (2011). More recent references that support these findings also include R. Hilborn et al. / *Fisheries Research* 191 (2017) 211–221 and Olsen E, et al (2018) *Ocean Futures Under Ocean Acidification, Marine Protection, and Changing Fishing Pressures Explored Using a Worldwide Suite of Ecosystem Models*. *Front. Mar. Sci.* 5:64. doi:10.3389/fmars.2018.00064.

Additional references representing a diversity of findings and perspectives include:

- Works cited in Public comment on Agenda Item B.1 by the Pacific Seabird Group;
- Works cited in Public Comment on Agenda Item F.2 by Ocean Conservancy, The Nature Conservancy, Audubon, and Wild Oceans
- Essington et al. 2015 Fishing amplifies forage fish population collapses. *PNAS*: 112 (21) 6648-6652.
- Szoboszlai et al. 2015. Forage species in predator diets: Synthesis of data from the California Current. *Ecological Informatics* 29(1)45-56..
- Koehn et al. 2017. Trade-offs between forage fish fisheries and their predators in the California Current. *ICES Journal of Marine Science* 74(9):2448-2458.
- Sydeman et al. 2017. Best practices for assessing forage fish fisheries-seabird resource competition. *Fisheries Research* 194:209-221.

A table illustrating the relative consumption of various predators vs. the fishery would be informative, such as the table included in the comments of Richard Parrish to the Council (Agenda Item G.2.b, Public Comment 1, September 2018).

Table 1. Annual consumption (mt) of forage by major faunal groups and average (2000-14) U. S. landings. (Calculated from Koehn et al. 2016: Table 1 and supplemental data).

Key Forage Species	TOTAL	Fishes	Mammals	Birds	Fishery	Fishery %
Sardine	918,256	379,032	530,061	9,163	76,754	8.4%
Anchovy	1,318,094	633,862	429,545	254,687	8,095	0.6%
Herring	913,513	709,657	136,559	67,297	1,829	0.2%
Other for. fish	1,322,808	906,608	220,288	195,911	16	0.0%
Juvenile fishes	2,887,172	1,691,576	842,913	352,682	0	0.0%
Market squid	1,309,632	406,604	650,128	252,901	80,460	6.1%
Pacific mackerel	100,146	23,915	75,512	718	5,860	5.9%
Total	8,769,620	4,751,254	2,885,006	1,133,360	173,014	2.0%
Euphausiids	52,478,145	49,085,682	3,132,986	259,478	0	0.0%

The CPSAS also offers detailed comments on specific sections in Attachment 1.

Attachment 1

Table 3.3

Percentage of landings and ex-vessel revenue derived from “target fishery” is an interesting way to view participation in fisheries and the degree of “cross-participation”.

The table splits coastal pelagic species (CPS) Seine and market squid fisheries as if they operated independently, and the results appear misleading, at least for the Federal Limited Entry (LE) CPS fishery. For the Federal CPS LE fishery, both CPS finfish and market squid are usually fished as part of the CPS, or “wetfish,” complex. For many vessels, fishing is often conducted by the same vessels who have both CPS and squid permits. CPS seine and market squid fishermen fish each part of the complex in its appropriate season. This dichotomy is not explained in the narrative, and we suggest that the linkage of CPS seine and Market Squid fisheries be noted, at least for the CPS Federal Limited Entry fishery.

3.4.2.2 Descriptions of Major Commercial Fisheries in the CCE

Pelagic Net Gear

The narrative juxtaposes vessels targeting sardine off the mouth of the Columbia River with the next sentence: Vessels must have a Federal limited entry permit. This is misleading.

All vessels targeting sardine off the Columbia River must have state permits, not Federal permits.

We suggest rewording the following paragraph for accuracy:

...These vessels mainly fish off Central and Southern California and must have a federal limited entry permit to target sardine, anchovy, and mackerel, while a California state permit limits the number of vessels that may target squid. With the mid-2000s growth in the Pacific sardine stock, vessels also targeted sardine off the mouth of the Columbia River. These vessels must have state permits issued by ODFW or WDFW. A single vessel may hold state and federal permits.....

The narrative states, “*Squid landings are higher in winter months, peaking in November, while sardine landings are concentrated between July and September (see Figure 3-7).*”

As a point of clarification we suggest clarifying that the volume and frequency of squid and other CPS landings influenced by environmental forcing and prevailing market conditions. Both the environment and markets are fluid, which can affect the timing, volume, and location of landings.

Referring to the live bait fisher, the draft narrative states: *Catch also may be delivered to restaurants or small producers of specialty products for human consumption.*

It should be noted that a fisherman cannot sell catch directly to restaurants or others unless the fisherman also obtains a receiver’s license. A Fisherman Retail license enables fishermen to sell their catch directly to the consuming public, but not to restaurants or wholesale businesses.

Also, the narrative provides a link (<https://californiawetfish.org/pdf/SEfile.pdf>) and it should be noted that the linked reference – Pomeroy et al *Socio-Economic Profile of the California Wetfish Industry* – described the commercial wetfish industry, i.e. “the fishermen, receivers and processors who catch, handle, process and pack four coastal pelagic finfish species.” This study did not include the live bait fishery and the link is inappropriate for use in this section, although it does provide valuable information to describe the historic and modern-day industry in California (as of 2001).

Table 3-6. a.

In this table, it should be noted that the number of CPS seine, squid seine, and highly migratory species seine vessels are actually duplicated because a single vessel may have all three permits onboard.

3-6 b. and c.

It should be noted that limiting the metrics to the past 10 years misses sardine landings when the fishery was fully open and seasons have been constrained every year from 2008 onward. This down-weights the relative importance of California sardine landings, which peaked at 80,000+ mt in 2007, and also down-weights the importance of CPS to California fishing communities in Monterey and San Pedro.

Sec. 3.5.2 Ecosystem-based management measures within FMPs

We suggest adding to this section the provision for prohibition on targeted fishing for CEBA 1 species, and a limit on incidental catch allowance.

PFMC
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