

HABITAT COMMITTEE REPORT ON COASTAL PELAGIC SPECIES ESSENTIAL FISH HABITAT AMENDMENT

The Habitat Committee (HC) discussed the essential fish habitat (EFH) information and proposed range of alternatives prepared for the Coastal Pelagic Species (CPS) EFH Review in [Agenda Item H.5, Attachment 1](#) and [Attachment 2](#). The HC commends Dr. Emmanis Dorval and the Coastal Pelagic Species Management Team (CPSMT) for its work updating and synthesizing life history and habitat information for CPS species and identifying a potential habitat area of particular concern (HAPC). This body of information will inform future conservation efforts in support of sustainable CPS fisheries. The HC provides the following comments and recommendations.

Alternative 1b: Adopt a new EFH Appendix with updates to several CPS EFH components

The HC agrees with separate EFH descriptions for market squid and the finfish assemblage given the narrower depth range for market squid, and their dependence on benthic habitat for spawning, egg incubation and development. Separate EFH descriptions will also help tailor EFH consultations and habitat conservation measures for non-fishing impacts. *The HC supports including Alternative 1b as a Preliminary Preferred Alternative (PPA).*

Market Squid and krill EFH in the Salish Sea

The HC recommends that maps and descriptions depicting the distribution of market squid and krill be extended into the Salish Sea. Pelagic and benthic areas similar to the areas in the proposed EFH description for squid and krill (such as *Euphausia pacifica*) exist within the Salish Sea, and both groups are common there. Market squid are a common pelagic species, and subject to a year-round recreational fishery which peaks in mid-late fall (<https://wdfw.wa.gov/species-habitats/species/loligo-opalescens#regs-seasons>). Krill also commonly occur in the Salish Sea, and *E. pacifica* has been extensively sampled in zooplankton monitoring efforts (Heath, 1977, Haro-Garay and Soberanis 2008, Mackas et al. 2013, and McLaskey et al. 2016).

As noted in the EFH regulations and guidance documents, EFH should be defined carefully, keeping in mind that EFH means the habitat required to support (1) a sustainable fishery and (2) the managed species' contribution to a healthy ecosystem. While the exclusion of the Salish Sea for squid and krill might be acceptable relative to number 1 above, the HC notes that these species are important to commercially managed salmon stocks in Puget Sound as prey in the case of krill (Weil et al. 2020), and as an alternative food source for predators of salmon in the case of market squid (Lance and Jeffries 2009, Lance et al. 2012). Hence, from an ecosystem function standpoint, the existing literature supports extending the distribution of market squid and *E. pacifica* into the Salish Sea.

Alternative 2b: Adopt HAPC designation for market squid spawning habitat

Based on the best available science and input from subject matter experts, evidence exists for market squid spawning habitat in coastal, soft bottom substrates of the Southern California Bight (SCB), including the Channel Islands, and in Monterey Bay. The HC notes that spawning areas delineated in the HAPC map for SCB (Figure 7) appear to accurately mirror the spatial areas identified in published in Zeidberg, et al. (2012). The recurrence of spawning activity at these locations and dependence on substrate for spawning supports a HAPC designation. As described

in the [draft CPS FMP EFH Appendix](#), adult squid concentrate in dense schools at these spawning grounds where females deposit high numbers of fertilized egg capsules and individually attach each capsule to the substrate. Aggregated egg clusters can occupy up to 3,000 m² within a single communal site and can persist for more than a month as eggs develop. Although spawning is known to occur elsewhere on the west coast, there is sufficient information to delineate spawning habitat HAPC in the areas proposed. Spatial delineation of spawning habitat for both SCB and Monterey Bay may benefit from evaluating additional sand/mud substrate classifications in the Coastal and Marine Ecological Classification Standard (CMECS) hierarchy.

Spawning habitat meets the HAPC consideration of important ecological function defined in EFH regulation (50 CFR 600.815(8)) and could be possibly stressed by development activities. In accordance with EFH guidance (National Marine Fisheries Service Procedure 03-201-15) the HC believes an appropriate purpose for this HAPC designation would be as an important conservation tool for Federal and state evaluations of non-fishing impacts, such as aquaculture opportunity areas located near market squid spawning habitat in the SCB, and offshore wind leases.

The HC supports the HAPC designation for market squid spawning habitat in the SCB and Monterey Bay presented in Alternative 2b (Figures 6 and 7) for inclusion as a PPA. The HC recommends evaluating additional CMECS classifications to delineate the HAPC in the SCB and Monterey Bay.

The HC notes that temperature is an important driver of spawning for market squid. Zeidberg et al (2012) found spawning occurred directly on benthic substrates in temperatures ranging from 10° to 14.4°C off California. ***The HC recommends that temperature parameters be included in the HAPC description.***

HAPC designation for other CPS species

The HC discussed whether there was sufficient information to designate HAPC for jack mackerel and the two krill species, *E. pacifica* and *T. spinifera*, given the information on habitat associations provided in the draft CPS EFH Appendix. As discussed, the consensus among CPS subject matter experts is that there is insufficient information at this time to recommend HAPC designation for these species. The HC suggests additional research would be needed to inform the next CPS review.

Research and Data Needs

The HC agrees with the Research and Data Needs items noted in H.5 Attachment 1. The HC notes additional habitat-specific information gaps, some of which are also identified in the Research and Data Needs document.

The HC recommends including the following CPS EFH research needs:

- Evaluate the effects of fishing on habitat.
- Determine whether climate change and ocean acidification pose differential risk to invertebrates (squid and krill) compared to finfish in the CPS group.
- Determine further research necessary to describe, identify, and map EFH of CPS.
- Further investigate habitat features as potential HAPC for *E. pacifica* and *T. spinifera*.

- Evaluate the importance of krill habitat compression to restricted geographic areas during environmentally stressful conditions and whether a HAPC designation should be considered, especially where subject to human-induced environmental degradation.
- Determine the optimal range of carbon chemistry for krill life stages as a component of EFH.

Citations

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