

COASTAL PELAGIC SPECIES ADVISORY SUBPANEL REPORT ON FISHERY  
ECOSYSTEM PLAN FIVE-YEAR REVIEW – SCOPING

The Coastal Pelagic Species Advisory Subpanel reviewed the Ecosystem Workgroup (EWG) Report on Updating the Ecosystem Plan (Agenda Item G.2.a. Ecosystem Workgroup Report 1) and related questions. The CPSAS also read the Briefing Book comments of Dr. Richard Parrish, *Perspectives on Forage Fishes and Protected Species Ecosystem-based Management Prepared for the FEP Scoping Process* (Agenda Item G.2.b, Public Comment 1).

The CPSAS thanks the EWG for their thoughtful approach to this five-year review, and we thank the Council for initiating the five-year review process. We also appreciated reading the comments of Dr. Parrish, and thank him for his abiding interest in California Current fisheries and oceanography. A majority of the CPSAS appreciates the Council's consideration of the following comments.

As Dr. Parrish pointed out in his extensively detailed statement, the lower and middle trophic levels of the pelagic habitat in the California Current are well-known to have extreme climatic-dependent variations associated with annual and decadal-scale changes in oceanic circulation. Present ecosystem models are incapable of predicting or accounting for these fluctuations.

Sardine and anchovy are not the only important forage species, Dr. Parrish commented. The classic forage fishes are essentially small, pelagic schooling species. The 'key' forage species in the California Current include sardine, anchovy, herring, saury, osmerid smelts, antherinid smelts, short-belly rockfish, market squid, the young of two medium-sized pelagic species (Pacific mackerel and jack mackerel) and pelagic juveniles of a wide range of benthic fishes.

To date, no one has provided a time series of the combined biomass of the species that dominate the food habits of predators on small pelagic fishes. Present models cannot predict long strings of unusually poor or good recruitment years; that is, they cannot predict regime shifts.

Recent highly complicated ecosystem models have addressed the relationship between forage fishes and the population abundance of protected predator species. However, these analyses do not consider the ecosystem effects – the top-down effects -- of predator species on forage fishes. To date none of the recent California Current ecosystem models have been focused on a top-down analysis.

Food habit studies taken in one era will not accurately describe food habits in another, Dr. Parrish stated. The expected wide variation in food habits is both a problem in the determination of the relative importance of sardine or anchovy to a predator and in evaluation of ecosystem function. "Prey switching appears to be much easier for the predators than for modelers and fishermen," he said.

Dr. Parrish suggested that both bottom-up and top-down ecosystem analyses need to be carried out before any ecosystem-based management is attempted. He reiterated his Western Roadmap

Implementation Plan comments that during the present environmental regime, competition between protected species is far more important than competition between protected species and the U.S. fishery for forage fishes. He recommended, “Information documenting this competition, and analyses calculating the trade-offs between competing predators and fisheries, which are needed to achieve true ecosystem-based management, should be included in the Fishery Ecosystem Plan.”

A majority of the CPSAS agrees, and again asks the Council to consider and act on Dr. Parrish’s recommendations when discussing additions to the Fishery Ecosystem Plan (FEP). The full CPSAS also supports the inclusion of new and updated science, as well as relevant Council actions taken since the FEP’s adoption, to help ensure that the FEP remains as current as possible.

**Minority Statement:** A minority of the CPSAS differs from the majority of the Subpanel by supporting the ongoing implementation of ecosystem-based fishery management (EBFM) on the West Coast even if some of the analyses described above may be in various stages of development. The minority further recommends that the five-year review concentrate as a main focal area on the addition of ecosystem-level goals and objectives to the FEP as a way to articulate desired on-the-water outcomes and to better implement EBFM across the Council’s four Fishery Management Plans.

Thank you for your consideration of these comments.

PFMC  
09/08/18