

**ECOSYSTEM ADVISORY SUBPANEL REPORT ON
 FISHERY ECOSYSTEM PLAN FIVE-YEAR REVIEW**

The Ecosystem Advisory Subpanel (EAS) received a presentation from the Ecosystem Workgroup (EWG) on the schedule for further Fishery Ecosystem Plan (FEP) revisions. They laid out a chapter by chapter schedule. Although the EWG has not yet published their supplemental report for this agenda item (at the time of writing this statement), we agree that revisions to Chapter 3 are needed and support the addition of personnel and scientific expertise (including social and economic) to the EWG to aide in this process. We also support moving the information in Chapter 3 to an appendix, allowing for simpler and more routine updating of the ecosystem description without a full FEP revision.

The EAS reviewed Agenda Item G.2 Attachment 1 *Proposed revisions to Chapters 1 and 2 as part of the five-year review, Draft for Public Review (September 2019)* and public comment submitted by the Ocean Conservancy, et al. We reviewed the proposed revisions in Chapters 1 and 2 included in Attachment 1, and generally support the changes to Chapter 1, with some minor revisions detailed below. We fully support Chapter 2 as outlined in the *Draft for Public Review*.

We focused our discussion on revisions to the Goals and Objectives. We felt some of the goals and objectives in Attachment 1 were not as aspirational or action-oriented as they should be. We also felt some goals could be clarified and simplified, while still honoring the original intent of each goal. Our recommendations are a mix of original language from the Public Review Draft (noted as PD), full language from the public comment letter (noted as OC), and minor modifications and new language of our own (noted as EAS). We offer the following recommendations:

		Public Review Draft	EAS Recommendation
GOAL	1.	The FEP should provide a framework and public forum to improve and integrate ecosystem information for use in Council decision-making.	No change

OBJECTIVES	1a.	Provide annual and regular opportunities for the Council and its advisory bodies to consider physical, biological, social, and economic information on the CCE with an emphasis on environmental and climate conditions, climate change, habitat conditions ecosystem interactions, and changing socio-economic drivers.	No change
	1b.	Identify research and monitoring priorities to address knowledge gaps including indicators and reference points to monitor trends and drivers in key ecosystem features.	No change
	1c.	Provide a nexus to regional, national, and international ecosystem-based management endeavors.	No change
	1new.	<i>No objective proposed.</i>	Regularly revisit and refine goals and objectives for the ecosystem and track their consideration in Council decision-making. (OC/EAS)
	1new.	<i>No objective proposed.</i>	Develop measures to evaluate progress towards achieving objectives under Goals 2-6, <i>where possible using existing data.</i> (OC/EAS)
GOAL	2.	Conserve and manage species' populations to achieve the greatest long-term benefits from marine fisheries and consider the tradeoffs needed to realize those benefits by taking into account the CCE's long-term historical fluctuations in species composition, predator-prey relations, and availability of harvestable surplus of targeted species.	No change
OBJECTIVES	2a.	Continue to rebuild individual overfished stocks and minimize overfishing and bycatch in Council-managed species under the authority of the FMPs, taking into account the CCE's known fluctuations in environmental conditions and productivity.	Rebuild overfished stocks and prevent overfishing in Council-managed species under the authority of the FMPs, taking into account environmental conditions, ecosystem productivity, <i>and projected changes in ocean conditions.</i> (OC/EAS)

	2b.	Map trophic energy flows and other ecological interactions within the CCE to better understand trophic relationships and the potential ecosystem effects of fishing, and to understand the effects of trends in marine mammal, seabird, and other protected species' populations and diets on fish stock abundance.	No change
	2c.	Assess and monitor species diversity and trophic levels of catch over appropriate timescales to understand the effects of climate variability and change on fisheries' harvest and variability.	Assess and maintain adequate species and trophic diversity in the ecosystem over appropriate timescales. (OC)
	2d.	Assess variability in fisheries income and vessel participation rates for whether CCE fishing rates have affected long-term stability and wellbeing for fishing communities.	Move to objective 3h. under goal 3. (OC)
	2e.	Characterize the cultural, social, and economic benefits that fish and other marine organisms generate through their interactions in the ecosystem.	Merge with objective 3b and remove from this goal. (OC)
	2new.	<i>No objective proposed.</i>	Avoid and minimize the catch and mortality of non-target species and the ecosystem impacts of bycatch. (OC)
GOAL	3.	Promote fisheries management that ensures continued ecosystem services for the wellbeing of West Coast communities and the nation.	<i>Implement</i> fisheries management that ensures continued ecosystem services for the wellbeing of West Coast communities and the nation. (PD/EAS)
OBJECTIVES	3a.	Continue to provide for commercial, recreational, ceremonial, subsistence, and non-consumptive uses of the marine environment.	Continue to provide for commercial, recreational, ceremonial, subsistence, and non-use <i>benefits</i> of the marine environment. (PD/EAS)
	3b.	Assess whether Council management programs and measures support ecosystem services essential to the ongoing engagement of fishing communities in West Coast fisheries.	Characterize the cultural, social, and economic benefits that fish and other marine organisms generate through their interactions in the ecosystem. (OC/EAS)
	3c.	Continue to monitor the effects of non-fishing activities on the ecosystem and, to the extent possible, ensure that conservation benefits derived from closing areas to fishing are not	Continue to monitor and engage in opportunities to minimize and mitigate the effects of non-fishing activities on the ecosystem to better ensure that conservation benefits are not undermined

		undermined by negative effects of non-fishing activities.	by negative impacts of these activities. (OC/EAS)
	3d.	Support education efforts to promote understanding of: CCE biophysical processes, how the ecosystem affects human well-being, and of the potential risks and benefits to ecosystem services from climate variability and change.	No change
	3e.	Promote fair and equitable allocation of resources in a manner such that no particular sector, group, or entity acquires an excessive share of the privileges.	No change
	3new.	<i>No objective proposed.</i>	Increase safety at sea. (OC)
	3new.	Assess variability in fisheries income and vessel participation rates for whether CCE fishing rates have affected long-term stability and wellbeing for fishing communities.	Moved from Goal 2- original objective 2d. Use PD language.
GOAL	4.	Minimize the cumulative adverse effects of human activities on marine habitats to the extent practicable.	Protect and restore marine habitat diversity and integrity. (OC)
OBJECTIVES	4a.	Assess whether changes in ocean chemistry or other environmental factors affect managed species' functional habitat such that species' historical habitat becomes smaller or unusable.	Moved to objective 6e. under goal 6. (OC)
	4b.	When developing or modifying habitat protection and other fisheries closed areas within the CCE, consider protections for diverse types of marine habitat, ensuring that closed areas are appropriate in size and location to the needs of managed species and fishing communities.	Maintain a diverse portfolio of protected habitat types in a way that meets the needs of the ecosystem and fishing communities. (OC)

	4c.	Promote awareness of and encourage lost fishing gear recovery projects, the development of fishing gear recovery technology, and fishing gear recycling programs as a means of protecting habitat from derelict fishing gear and ghost fishing.	Reduce <i>loss of</i> fishing gear and increase recovery and recycling of <i>derelict gear</i> as well as the development of improved recovery technology. (OC/EAS)
	4new.	<i>No objective proposed.</i>	Minimize the cumulative adverse effects of human activities on fish and marine habitats to the extent practicable. (OC)
	4new.	<i>No objective proposed.</i>	Mitigate human impacts on habitats that are rare, particularly ecologically important or critical for target species, and/or are vulnerable to degradation or changing environmental conditions. (OC)
GOAL	5.	Manage fisheries to support goals for protected species' recovery.	Conserve, recover, and rebuild protected species. (OC)
OBJECTIVES	5a.	Assess the status of protected species' populations to understand trophic energy flows and other ecological interactions, including predator-prey interactions, especially as populations reach carrying capacity.	Assess the status and trends of protected species' populations and understand their role in the ecosystem within and across FMPs. (OC/EAS)
	5b.	Identify cross-FMP work that can conserve protected species essential to the flow of trophic energy within the CCE.	Remove entirely
	5c.	While continuing to manage and minimize bycatch of protected species under the FMPs, ensure that cross-FMP bycatch of protected species is sufficiently minimized so that those species' populations may recover to sustainable levels.	Manage and minimize bycatch and bycatch mortality of protected species within and across FMPs. (OC)
GOAL	6.	Plan for the effects of climate variability and change on ecosystem services and consider long-term adaptation strategies.	Address the effects of climate variability and change on the ecosystem and implement appropriate long-term adaptation strategies to improve ecosystem and fisheries resilience. (OC)
OBJECTIVE	6a.	Improve monitoring capacity and include climate variability and change considerations into stock assessments and forecasts.	Identify research and data needs to inform management under changing ocean conditions. (EAS)

6b.	Assess the effects of climate variability and change on the ecosystem's long-term stability and recommend research needed to understand the effects of potential shifts in species' abundance and distribution.	Assess the effects of climate variability and change on the ecosystem's long-term <i>productivity</i> . (EAS)
6c.	Develop management measures to improve fisheries stability and adaptability to the effects of climate variability and change, ocean acidification, marine heat waves, and hypoxia.	Ensure that fishery management is sufficiently adaptive to account for the effects of climate variability and change, ocean acidification, marine heat waves, <i>harmful algal blooms</i> , and hypoxia. (OC/EAS)
6new.	<i>No objective proposed.</i>	Incorporate climate and ecosystem data into stock assessments and forecasts when applicable. (OC)
6new.	Assess whether changes in ocean chemistry or other environmental factors affect managed species' functional habitat such that species' historical habitat becomes smaller or unusable.	Moved from Goal 4- original objective 4a. Use PD language.
6new.	<i>No objective proposed.</i>	Minimize emissions of greenhouse gases, particularly of carbon dioxide, associated with fisheries. (OC) <i>Note: We thought this was a good objective; however, we are concerned that there may be unintended consequences that could negatively impact fishing communities.</i>
6new.	<i>No objective proposed.</i>	Adapt management of species at the northern and southern extents of their ranges, especially as distributions shift, and develop an emergent fishery strategy. (OC/EAS)
6new.	<i>No objective proposed.</i>	Prioritize more frequent assessments and more adaptive and precautionary management for stocks that are highly vulnerable to climate change. (OC)