August 27, 2018

Mr. Phil Anderson, Chair
Pacific Fishery Management Council
7700 NE Ambassador Place, #101
Portland, OR 97220

RE: Agenda Item G.2: Fishery Ecosystem Plan 5-Year Review - Scoping

Dear Chair Anderson and Council Members:

Ocean Conservancy, the Pew Charitable Trusts, Oceana, Wild Oceans, The Nature Conservancy, Audubon, and Natural Resources Defense Council thank the Pacific Council for its work to develop and implement the Pacific Fishery Ecosystem Plan (FEP). Since 2013, the FEP has served as a valuable platform and guiding document for implementing ecosystem based-fishery management (EBFM). In just a 5-year period, it has advanced two Council selected ecosystem initiatives, with a third initiative currently in progress. Additionally, under the auspices of the FEP the Council receives annual state-of-the-ecosystem reports to inform its management of fisheries. Lastly, through engagement with NOAA Fisheries Integrated Ecosystem Assessment program, and through enhanced discussions with the Council's advisory bodies and the broader public, the FEP has helped foster a greater understanding and promotion of ecosystem considerations in general, whether through the lens of recent oceanographic phenomena such as the Warm Blob, or through increased understanding of the impact of fishery management on community well-being. In short, we appreciate the Council's effort to date and we look forward to the opportunity to improve upon the current FEP to further advance EBFM.

As outlined in the FEP, the Council will deliberate on whether to review and update the FEP in 2017/2018[1]. We recommend that the Council move forward with a review of the FEP, with a concentrated focus on the following:

1. **Add ecosystem-level goals and objectives**
2. **Update with new science and Council actions since 2013**

As discussed above, the FEP has been successful at promoting ecosystem-based thinking at the Council. With adjustments based on new science and best practices, the FEP can better meet its purpose and needs, and help the Council better meet its mandates to manage and protect our West Coast fisheries and the broader marine ecosystem.

[1]Pacific Fishery Management Council, Pacific Coast Fishery Ecosystem Plan (Public Review Draft), February 2013. Page 2

Recommendations

1. Add ecosystem-level goals and objectives

The FEP contains an objectives section;[2] however this section only speaks to FEP *process* objectives in terms of improving the flow of information through the Council process and providing an administrative structure for the incorporation and coordination of ecosystem science. While the FEP process objectives are excellent, and have served an important purpose, they are functionally different than ecosystem objectives that describe the Council's long-term wishes for our fisheries and the ecosystem, inclusive of ecological, economic, and social outcomes. The FEP would be greatly improved by explicitly identifying Council goals and objectives for the ecosystem in terms of the on-the-water outcomes it wishes to achieve. Similar to the goals and objectives stated as part of each FMP, ecosystem goals and objectives can describe what the Council wants as an ideal scenario across fisheries. Strategic and operational objectives are needed to help realize this.

The articulation of goals and objectives for ecosystem health is a foundational step in implementing an ecosystem-based approach to fishery management, and is well-established in the scientific and management literature. The 1999 Report to Congress on EBFM by the Ecosystem Principles Advisory Board,[3] mandated by the 1996 Magnuson-Stevens Fishery Conservation and Management Act (MSA) reauthorization, concluded that FEPs should contain "indices of ecosystem health as targets for management," and that "Inherent in this management strategy would be specific goals for the ecosystem…" As outlined by the NOAA IEA process, also referred to as the IEA "loop," developing goals and objectives is the first step for successful Ecosystem-Based Management.[4,5] Translating this from the theoretical to the applied, The Lenfest Ecosystem Task Force found that a similar loop is a good way to structure and develop FEPs.[6] Starting with goals and objectives, specifically with stakeholder input, increases the chances of management that is successful and responsive. Scientific literature has also called for the use of FEPs to help specify and account for ecological, social and economic factors as required by the MSA, highlighting the need for a clear articulation of ecosystem goals and objectives.[7]

Several policy documents echo the above. The NOAA EBFM Road Map calls for Councils to use the IEA process to implement EBFM, "This Road Map recognizes the need for a framework to integrate and synthesize a wide range of information….NOAA Fisheries will adopt the IEA approach to execute the Guiding Principles for achieving EBFM…"[8] Moreover, the Road Map states under Guiding Principle 1b, "FEPs are policy planning documents that the Councils or NOAA Fisheries may use to describe ecosystem objectives and priorities for fishery science and management…By exploring fishery management options that simultaneously address multiple objectives, they may help Councils, NOAA Fisheries, and other

[2] Pacific Fishery Management Council, Pacific Coast Fishery Ecosystem Plan (Public Review Draft), February 2013. Page 4.
[3] Ecosystem Principles Advisory Panel, "Ecosystem-Based Fishery Management" 1998.
[4] Levin, Fogarty, Murawski, and Fluharty. PLoS Biology, 2009.
[5] https://www.integratedecosystemassessment.noaa.gov/index.html
[6] Building Effective Fishery Management Plans, A Report from the Lenfest Fishery Ecosystem Task Force. November 2016; Levin, P. S., Essington, T. E., Marshall, K. N., Koehn, L. E., Anderson, L. G., Bundy, A., et al. (2018). Building effective fishery ecosystem plans. Mar. Policy 92, 48–57. doi:10.1016/J.MARPOL.2018.01.019
[7] Marshall, K. N., Levin, P. S., Essington, T. E., Koehn, L. E., Anderson, L. G., Bundy, A., et al. (2017). Ecosystem-Based Fisheries Management for Social-Ecological Systems: Renewing the Focus in the United States with Next Generation Fishery Ecosystem Plans. *Conserv. Lett.* doi:10.1111/conl.12367.
[8] National Marine Fisheries Service Policy Directive, *Ecosystem-based Fishery Management Road Map*, Public Comment draft (August 17, 2016). Page 8.

agencies better address the cumulative effects of our actions on the environment."[9] The draft EBFM Roadmap Regional Implementation Plan (Council agenda item G.1) also supports the use of FEPs to implement EBFM policy goals around describing and integrating ecosystem goals and objectives.[10] Directly related to the PFMC, a NMFS technical memo from 2015 noted that the PFMC lacked robust objectives in their FEP.[11]

The North Pacific Fishery Management Council is currently developing an FEP for the Bering Sea. As part of this process, they held a workshop to explore options and elicit stakeholder input. Goals and objectives were articulated as an important component and included in their draft.[12] The workshop report states, "Participants recognized the importance of establishing a shared understanding of the outcomes the Council is trying to achieve—and avoid—under changing environmental conditions. Goals, objectives, and metrics for success provide the guidance needed to consider tradeoffs and evaluate potential management options."[13]

Development of ecosystem-level goals and objectives could be completed by building upon existing Council documents that represent Council, and vis a vis stakeholder, policy and intent over time. The four Fishery Management Plans contain common goals and objectives, as collated in Chapter 3 of the FEP.[14] We recommend this as a starting place to clarify cross-FMP goals and objectives and draw potential ecosystem-level goals and objectives from.

In addition to goals and objectives, indicators that measure progress are critical for understanding if and how they are being met. The Council's second FEP initiative explored this concept in depth,[15] and the IEA's Annual Ecosystem Report continues to compile key indicators for the California Current. For managers of marine ecosystems, it is critical to identify, understand, and predict ocean tipping points because the new ecosystem state may function quite differently from the previous one, respond differently to management interventions, and provide different levels and types of benefits than people are used to or need. As our scientific capacity around identifying tipping points grows, having goals and objectives with corresponding indicators of tipping points is an elegant way to incorporate this information into management.

We have provided in appendix 1 a list of potential ecosystem-level goals and objectives and corresponding proposed indicators. These pull directly from existing FMP goals and objectives, and we recommend these as starting points for development of a full list. The EWG likewise recommended using the existing goals and objectives as a starting point to develop indicators in their September 2015 report to the Council.[16] Goals and objectives could also be drawn from national-level law and policy. For example, the MSA, National Standards, Essential Fish Habitat Final Rule, National Bycatch Strategy, and Marine Mammal Protection Act all provide language that can be used.

---

[9] *Ibid.* page 11.
[10] June 2018 Public Review Draft – NOAA Fisheries EBFM Western Road Map Implementation Plan
[11] E.B. Wilkinson, K. Abrams, Benchmarking the 1999 EPAP recommendations with existing fishery ecosystem plans, NOAA Tech. Memo. NMFS-OSF-5, 2015.
[12] NPFMC Bering Sea FMP < https://www.npfmc.org/bsfep/>
[13] NPFMC Bering Sea FEP Draft for NPFMC Ecosystem Committee. Available at: https://www.npfmc.org/wp-content/PDFdocuments/membership/EcosystemCommittee/Meetings2018/BS_FEP_7_11_18.pdf
[14] Pacific Fishery Management Council, *Pacific Coast Fishery Ecosystem Plan* (Public Review Draft), February 2013. Page 4.
[15] Coordinated Ecosystem Indicator Review Initiative < https://www.pcouncil.org/ecosystem-based-management/fishery-ecosystem-plan-initiatives/coordinated-ecosystem-indicator-review-initiative/>
[16] Pacific Fishery Management Council, *September 2015, EWG Report, Agenda Item D.1.a*.

2. Update the FEP with new science and Council actions since 2013

Since adoption of the FEP in 2013, the Council has taken new and different action on a variety of issues. Additionally, new science and data has emerged and issues have changed in relevancy. To keep the FEP significant as a guiding and educational document, updating existing contents is necessary. Areas that could benefit include:

Update data and science. For example, charts and tables in the fishing communities sections that report income by state, landings data, and/or ESA-listed species should be updated with new data or any other relevant new information. Also sections that outline existing science, such as sections on the *CCE Abiotic Environment and Habitat*, *Addressing the Effects and Uncertainties of Human Activities and Environmental Shifts on the Marine Environment*, and/or *Changes in Fishing Community Involvement in Fisheries and Dependence Upon Fisheries Resources* should be updated to reflect new research and knowledge.

New policies. For example, update information about EFH, include the outcomes of completed FEP initiatives, and/or check with states and tribes that their respective sections are still accurate.

Emerging issues. Add information on issues like whale entanglement, the warm blob, and/or emergency declarations.

Formatting. Update photos and formatting to encourage readership and accessibility.

Conclusion

We greatly appreciate the on-going efforts of the Council to implement EBFM and execute a thoughtful and effective FEP. While there are many actions that could improve the FEP, we hope that above represents a useful proposition of what is most beneficial and usable at this juncture, and look forward to future updates to continue to refine and improve the FEP.

Sincerely,

Corey Ridings
Ocean Conservancy

Anna Weinstein
Audubon California

Theresa Labriola
Wild Oceans

Seth Atkinson
Natural Resources Defense Council

Ben Enticknap
Oceana

Steve Marx
The Pew Charitable Trusts

Appendix - Example Ecosystem-level Goals, Objectives, and Indicators

Example Ecosystem Goal	Example Ecosystem Objective	Example Indicator or Reference Point
1) Prevent overfishing and ecosystem overfishing	a. Maintain target biomass levels for managed species	B/Btarget
	b. Maintain guild biomass above target level(s)	Mean trophic level of catch, Bguild/Btarget
	c. Ensure fishing mortality across FMPs is commensurate with total productivity	Total Removals < OY cap
2) Preserve the structure and function of the marine food web	a. Provide adequate forage for dependent species	F $\leq$ .5(Fmsy), B $\geq$ .75(Bo)
	b. Maintain key predator/prey relationships	Biomass trends of top predators, mean trophic level of catch
	c. Maintain forage assemblage/guild biomass above target level	Bguild/Btarget, Bguild/Bthreshold, mean trophic level of catch
	d. Avoid localized depletion of important forage species	Spatial concentration of fishing removals, regional catch limits/thresholds
4) Minimize and/or avoid impacts to non-target species, including seabirds, marine mammals, and protected species	a. Avoid localized depletion of forage species important to seabirds and marine mammals	Extent to which spatial distribution of fishing effort and removals overlap with known foraging areas
	b. Minimize/avoid the catch and mortality of seabirds and marine mammals	# of seabird and marine mammal interactions
	c. Minimize/avoid the catch and mortality of non-target species	Bycatch rates from observer program, not-target species mortality / directed catch
	d. Minimize risk of crossing ecosystem tipping points caused by fishing activity.	Ecosystem indicator above/below reference point
5) Protect and restore species diversity, richness and age	a. Avoid age and size truncation of managed species	# of stocks with known age truncation

structure	b. Reduce fishing mortality at northern and southern extent of species range where appropriate	Latitudinal distribution of effort
6) Protect and restore marine habitat diversity and integrity	a. Identify and minimize adverse impacts on EFH	% of coral habitat protected, % of benthic EFH protected, % of each representative habitat category protected
	b. Minimize impacts to ecologically sensitive habitat	Amount of coral habitat exposed to demersal fishing gear, coral bycatch data
7) Promote sustained participation of fishing communities	a. Provide for the achievement of optimum yield in terms of the greatest overall benefit to the nation with particular reference to food production, and sustainable opportunities for recreational, subsistence, and commercial fishing participants and fishing communities	Tax revenue derived from fishing related activities, total ex-vessel revenue, economic contribution with multipliers, CCEIEA Personal Use Index
	b. Promote efficiency and profitability in the fishery, including stability of catch.	Total removals, removals per FMP, Optimum Economic Yield/Total Removals, ex-vessel revenue, net revenue
	c. Promote management measures that, while meeting conservation objectives, are also designed to avoid significant disruption of existing social and economic structures	CCEIEA Coastal Community Vulnerability Index, # of latent permits, # of permits not renewed
	d. 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	CCEIEA Fleet Diversity Index, Processor and/or co-op share of market, market power index
	e. Avoid consolidation of fishing and processing capacity	Processor and/or co-op share of market, market power index
	f. Promote increased safety at sea	% of management measures provided to USCG for review in early stages of scoping process

8) Promote equitable use of fishery resources	a. Provide economic and community stability to harvesting and processing sectors through fair allocation of fishery resources	CCEIEA Fleet Diversity Index, Spatial distribution of landings and processing, # of open access vessels, # of permits, # of tribal fishing vessels