

ECOSYSTEM ADVISORY SUBPANEL REPORT ON REVIEW OF FISHERY ECOSYSTEM PLAN INITIATIVES

The Ecosystem Advisory Subpanel (EAS) met via webinar on November 4, 2014 and January 14, 2015 to develop recommendations to the Pacific Fishery Management Council (Council) on future Fishery Ecosystem Plan initiatives. The results of those discussions are summarized here for the purpose of sharing our thinking with the Council and its advisors prior to the March meeting, when the topic of future ecosystem initiatives is on the agenda. It is important that we emphasize this report as preliminary in nature, representing a starting point for our discussion at the March meeting.

Our goal in advising the Council is to help narrow the focus on ecosystem initiatives so that the body of work can continue to advance even with limited resources. We agree that all of the potential future ecosystem initiatives that are contained in Appendix 1 of the Fishery Ecosystem Plan represent good ideas, although some initiatives might be pursued within the scope of individual Fishery Management Plans. Narrowing the focus on specific ecosystem initiatives is important because there is ongoing research in these areas, and a statement of Council's needs would help guide this research. New ideas were also brought forward during our two webinar discussions, and we benefitted from a report on the Science and Statistical Committee's meeting in December 2014.

Table 1, below, provides a preliminary summary of the perceived potential benefits we associate with various initiative ideas and the level of resources that might be required to pursue them. As noted from the analysis, no single initiative has risen to the top for immediate pursuit to the exclusion of other initiatives. Rather, the EAS is going to recommend a targeted portfolio of initiative actions that capitalize on opportunities for informing and improving management. We will be taking this summary up as a draft to support our continuing discussion at the March meeting.

TABLE 1. Preliminary EAS review of the initiatives.

Initiative	Potential Benefits	Resources Required	Rating	Recommendations/Comments
2.1 - Long-Term Effects of Harvest on Age- and Size-Distribution in Managed Stocks	<ul style="list-style-type: none"> • Provides indicator on state of CCLME. • Important population dynamic, (fecundity, survival, productivity). • May address climate shift issues as well. 	<ul style="list-style-type: none"> • Will require considerable scientific support, but a lot of work has been done on the subject. • Sizable body of literature on the topic (harvest induced impacts and life-history trends). 	<ul style="list-style-type: none"> • High benefits • Low resources 	<ul style="list-style-type: none"> • Target an initial review of available literature that could be utilized in stock assessments and Council decisions. • Take into account the effects on fisheries.
2.2 - Bio-Geographic Region Identification	<ul style="list-style-type: none"> • Matches ecosystem scale and management, which has been shown to be especially valuable for nearshore species. • Important to the outputs of the other initiatives that may be better utilized at smaller spatial scales. • Links to 2.8. 	<ul style="list-style-type: none"> • Collaboration on data collection and modeling efforts. • Data poor situations will arise. • Efforts are underway in CA and WA with data collection and data poor models, which provide available resources to leverage. 	<ul style="list-style-type: none"> • High on Benefits • Medium on Resources 	<ul style="list-style-type: none"> • Examine available biogeographic data and model capabilities for moving to a finer scale. See efforts in CA and WA. • Literature review and research recommendations could be solicited first to target further work. • Linked to new Forage Base Indicator Initiative.
2.3 – Cross-FMP Catch and Bycatch Monitoring	<ul style="list-style-type: none"> • Minimizing bycatch is important. 	<ul style="list-style-type: none"> • Improved data sources. • Better understanding of overall (cross-FMP) bycatch and catch impacts. 	<ul style="list-style-type: none"> • Low cross-FMP benefits at this time 	<ul style="list-style-type: none"> • May not be an ecosystem level issue, perhaps better served within an individual fishery or plan. • May have important ESA impacts.

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2.4 - Cross-FMP Essential Fish Habitat	<ul style="list-style-type: none"> Streamlined process that considers broader habitat/species interactions. 	<ul style="list-style-type: none"> Large amount of coordination and oversight. 	<ul style="list-style-type: none"> High Cost Low Benefit at this time. Questions of sequence rather than rating. 3 of 4 FMPs just concluded EFH reviews. 	<ul style="list-style-type: none"> Major conservation issue, but better handled via individual FMPs. Might be treated to some degree under 2.2. May have value in guiding habitat conservation actions beyond Council authority.
2.5 - Cross-FMP Safety	<ul style="list-style-type: none"> Broader understanding and improved safety at sea. 	<ul style="list-style-type: none"> Enforcement entities have valuable information. 	<ul style="list-style-type: none"> High Benefit and Low cost EC provides some information. 	<ul style="list-style-type: none"> Major fishery issue, but better handled in individual FMPs.
2.6 – Human Recruitment to Fisheries	<ul style="list-style-type: none"> Addresses a widespread concern within the fleet as to who will carry on. Adds information that is largely lacking in Council process. Could improve info on communities in fishery management and business decisions. 	<ul style="list-style-type: none"> Not well discussed. Perhaps feasible as a smaller effort built on existing social science projects. 	<ul style="list-style-type: none"> Medium benefit, not sure about cost. 	<ul style="list-style-type: none"> Potential for incorporating into 2.7 or 2.9.

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2.7 – Cross-FMP Socio-Economic Effects	<ul style="list-style-type: none"> • Improves information availability on social/community considerations. • MSA requirement to consider socio-economic factors. 	<ul style="list-style-type: none"> • Fewer Council resources devoted to the question. • Social indicators (qualitative) are under development on East Coast, quality of life indicators being developed on the West Coast. 	<ul style="list-style-type: none"> • See, 2.6 –Could be part of Annual Report on CCLME status. 	<ul style="list-style-type: none"> • Potential for incorporating into 2.9.
2.8 – Cross-FMP Effects of Climate Shift	<ul style="list-style-type: none"> • Brings forward climate shift into decision-making. • Of interest to all fisheries/FMPs. • Broad application to Council decision making. • Application to assessments at finer scales (links to 2.2). 	<ul style="list-style-type: none"> • Considerable IEA assistance. • Rigorous and challenging science hurdles. • Existing oceanographic indicators hold promise as possible predictive mechanism. 	<ul style="list-style-type: none"> • High Benefit • High Resource 	<ul style="list-style-type: none"> • Literature review and research recommendations should be solicited first.
2.9 – Indicators for Analyses of Council Actions	<ul style="list-style-type: none"> • Could focus on socio-economic assessment improvements. • Depending on the indicators considered, could be informative to other initiatives. • Closely tied to new OY initiative below. 	<ul style="list-style-type: none"> • Atlantis model has human component aspects but may not be able to address social issues at this time. 	<ul style="list-style-type: none"> • Very High on Benefit. • Medium on Resources. 	<ul style="list-style-type: none"> • May dovetail with IEA effort to improve indicators in the State of the Ecosystem Report.

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New – Optimum Yield (OY) and Ecological Considerations	<ul style="list-style-type: none"> • OY is a critical part of fishery management. • Ecological indicators (climate, etc.) could greatly assist OY considerations. • Social indicators could be folded in as well to inform OY. • Large potential to improve FMP decision-making. 	<ul style="list-style-type: none"> • All four FMPs have sections regarding the determination of OY. • First exercise could be to consider them as a whole and improve. • Second – develop indicators that tie into criteria for OY considerations (social, ecological, economic, etc.). 	<ul style="list-style-type: none"> • High Benefit • Medium-High Resources 	<ul style="list-style-type: none"> • Review the socio-economic and ecological factors to be considered in each of the FMPs and determine what else is needed. • Then, consider what indicators exist to inform the status of socio-economic and ecological factors (could be less costly in terms of resources).
Using Climate Information for determining closed areas	<ul style="list-style-type: none"> • Could be tied into 2.8 • More informed/effective closed area decisions. 	<ul style="list-style-type: none"> • Considerable task of tying bycatch/migration to climate variables. 	<ul style="list-style-type: none"> • Medium Benefit • Medium to High Cost 	<ul style="list-style-type: none"> • Bycatch reduction is important and a growing issue in fishery management. • May be handled better at this time via individual FMPs.
Develop an indicator of forage base Could be part or all of 2.9	<ul style="list-style-type: none"> • Logical follow up to the forage fish initiative. • Cross-FMP benefits • Potentially informative to OY considerations. 	<ul style="list-style-type: none"> • Lots of data exists for some species, much less for others. • Defining, monitoring, hurdles. 	<ul style="list-style-type: none"> • Medium Benefit • High Cost 	<ul style="list-style-type: none"> • May dovetail with IEA effort to improve indicators in the State of the Ecosystem Report. • Linked to 2.2 and marine “hotspots.”

PFMC
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