SCIENTIFIC AND STATISTICAL COMMITTEE STATEMENT ON FISHERIES ECOSYSTEM PLAN INITIATIVE SCOPING

The SSC received a report by the SSC Ecosystem Based Management Subcommittee (SSCES) on a September 9th meeting with Drs. Chris Harvey and Toby Garfield (California Current Integrated Assessment team, CCIEA) and Josh Lindsay, Corey Niles, Yvonne deReynier, and Deb Wilson-Vandenberg (Ecosystem Workgroup, EWG). The meeting began with a technical review of human dimension indicators in the CCIEA annual report, including indicators still in development, such as community vulnerability indices and an assessment of the social-ecological vulnerability of forage fish fisheries to climate change. The SSCES will prepare a more complete discussion of the issues raised during this part of the meeting, including recommendations, to be reviewed by the full SSC during the November Council meeting and subsequently forwarded to the CCIEA team.

The SSCES also discussed the EWG report on potential Fishery Ecosystem Plan (FEP) initiatives (agenda item D.1.a), and developed a response to the questions posed by the Council in March 2015 related to the indicators reported in the State of the California Current (SOTCC) Report. The SSCES and CCIEA representatives agreed that the meeting was useful, productive, and worth repeating. However, many of the primary analysts responsible for the work being reviewed were not in attendance, and their participation would have been desirable.

With respect to the EWG report, the SSC agreed that the Coordinated Ecosystem Indicator Review Initiative developed by the EWG would provide the basis for a comprehensive examination of the scope and potential utility of future indicators and other products that would help fulfill FEP or Fishery Management Plan (FMP) needs. This would enable both the continued integration of ecosystem science in the Council process, as well as expand the engagement between the Council and its advisory bodies and the CCIEA team. With respect to the timeline proposed by the EWG, the SSC notes that the proposed spring 2016 meeting among Ecosystem Advisory Subpanel (EAS), EWG, SSCES and CCIEA scientists may not be possible in April 2016 due to previously scheduled NOAA program reviews. An independent May meeting or Council associated June meeting would likely be more feasible. The timeline for meetings and interactions recommended by the EWG in the near term seems ambitious but possible, although the SSC recognized that many of the desired products and indicators that are likely to be identified as a result of this process will take substantial analysis (and therefore time) to both develop and review.

With respect to the Council's questions on indicator use that arose from the presentation of the SOTCC annual report (March 2015), the SSC developed the following responses.

i. What can we reasonably expect to learn from or monitor with the existing indicators in the CCES Report?

The SSCES concluded that the current indicators are useful for understanding the major environmental drivers and current status of the major biological components of ecosystem. Although the human dimensions section of the report does not provide a comprehensive

summary of human impacts on the ecosystem, or of all the human benefits derived from the ecosystem, it is reasonable to expect improvements to this section as new approaches are developed. The community vulnerability indices and other products discussed at the SSCES review might ultimately help to address this need. The current indicators are a step towards the broader consideration of ecosystem factors that might inform Council decision-making, and should continue to be updated. They represent the foundation on which to build future ecosystem research and analysis.

ii. How well do the existing indicators accomplish their intent? Are any redundant?
The SSCES found that the existing indicators are an appropriate way to monitor changes in ecosystem characteristics, and are an aid in understanding how ecosystems function. Several of the biological indicators have a limited geographic scope, but this was recognized to be a largely unavoidable constraint of the data sources that support those indicators. The SSCES suggested that additional indicators related to total bycatch (or total retention rates) within and among a range of fisheries should be considered for inclusion in the report, and that indicators of total economic value would complement the indices of total catch by major fisheries.

iii. Are there alternate indicators (or information or analysis) that may perform better in context? Are there additional indicators that could help inform Council decision-making under each of its fishery management plans (FMPs) and consistent with the purpose of the FEP?
The SSCES and CCIEA representatives discussed the potential for additional analysis to help inform Council decision-making. For example, the CCIEA team has made substantial progress developing tools relevant to assessing trophic flows in the California Current Ecosystem and to inform the FEP and CPS FMP objective of providing adequate forage for dependent species. This work could quantify tradeoffs and possible thresholds that could be associated with management decisions. However, predictions of ecosystem effects into the future need a rigorous basis, and uncertainty should be reflected through a probabilistic, decision analysis, or risk assessment framework.

The SSCES also discussed the utility of involving of CCIEA analysts in the evaluation and discussion of ecosystem considerations in groundfish and CPS stock assessments (e.g. the ecosystem role, trophic interactions, habitat requirements or other relevant information on ecosystem processes). Although this has been included in the Terms of Reference for stock assessments, it would be appropriate to prioritize this aspect of IEA involvement in the next round of stock assessments. The SSC has observed that the 2015 round of groundfish stock assessments included fairly minimal evaluation or discussion of ecosystem considerations.

PFMC
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