

February 22, 2022

To: Dr. Galen Johnson, chair, PFMC Scientific and Statistical Committee (SSC)
Dr. Kristin Marshall, chair, SSC Ecosystem-Based Management Subcommittee (SSC-ES)
Mr. John DeVore, SSC staff officer, Pacific Fishery Management Council (PFMC)

From: Dr. Chris Harvey, NOAA Fisheries / Northwest Fisheries Science Center
Dr. Toby Garfield, NOAA Fisheries / Southwest Fisheries Science Center
Co-leads, California Current Integrated Ecosystem Assessment team (CCIEA)

Re: potential topics for SSC-ES / CCIEA in September 2022 (virtual or in Boise, ID)

Dear Galen, Kristin and John,

Since 2015, the SSC-ES and representatives of the CCIEA team have met at September Council meetings, so that the SSC-ES could review topics intended to improve the indicators and analyses that go into the March ecosystem status report. These meetings have been greatly beneficial to the CCIEA team, and we believe they have resulted in clear improvements to the quality and scope of the report, and the value of information we provide to the Council.

As part of the Council-established process for planning these September SSC-ES / CCIEA meetings, the CCIEA team is asked to provide a proposed list of potential review topics prior to the preceding March Council meeting, with the understanding that the list could be amended during the March meeting of the CCIEA leads and the full SSC. This letter provides three proposed topics for September 2022 (see attached pages for short descriptions). We are open to other ideas that may arise during our meeting with the SSC at the March 2022 Council meeting.

We are not necessarily advocating for all proposed topics to be the subject of a September SSC-ES review: two of them (the salmon portfolio review and the climate change appendix table) may require a broader and longer meeting, possibly with other PFMC advisory bodies, and/or may be affected by the outcome of PFMC discussions on the next FEP initiative. The other (the period of reference for landings and revenue indicators) may be easily resolved in discussions between the SSC and CCIEA team in March 2022.

All topics are pending the availability of the investigators to present on the day of the meeting.

Thank you for your continuing support of the CCIEA team and our products.

Sincerely,

Chris Harvey and Toby Garfield

cc: Kit Dahl, PFMC
1 attachment

Topic: Broad strategic review of the salmon indicator portfolio

Presenters: TBD

Justification: For many years, members of the full SSC and the SSC-ES have expressed concerns with data sources, presentation and/or interpretation of many salmon indicators included in the ecosystem status report, many of which we have addressed through September topic reviews and improvements to the report. Many of the concerns that have been raised have yet to be addressed, however, very often for reasons of workload. Still other concerns have been addressed, but the ways in which we have addressed them likely deserve follow-up discussion (see, for example, the smolt-to-adult survival outlooks in the new 2021-2022 report, Supplementary Materials, Appendix J.1). Some indicators have presented such challenges to us that we wish to discontinue reporting them (for example, adult escapements at the ESU scale) but we do not know if the SSC would regard that decision as appropriate. Finally, the overall suite of salmon indicators seems deserving of a broad strategic discussion on its effectiveness and the value it adds (or fails to add) from an ecosystem perspective.

The CCIEA team requests that the SSC-ES consider whether a strategic review of the salmon indicators is an appropriate topic for the September review. This is a less specific and more open-ended suggestion than we normally offer, and we acknowledge that the request needs refinement between the March 2022 meeting and the relevant deadlines for the September 2022 meeting. Depending on if the SSC wants to take up this topic and how the scope of the topic is refined, we acknowledge that this may take more time than a standard topic review (i.e., more than 1.5 to 2 hours).

Topic: Reference periods for plotting and estimating recent means and trends in fishery landings and revenue data

Presenters: TBD

Justification: In our standard plots of time series, we show a partial or full time series of observations; lines representing a long-term mean and error estimate from a historic reference period; a “recent period” (typically the most recent 5 years of available data), shaded in blue; and symbols to indicate if the recent mean is >1 s.d. above or below the long-term mean, and if the slope in the recent period reflects a change >1 s.d. in magnitude. In compiling this year’s report, we became concerned and uncertain about how to address several points about this approach to plotting and interpreting landings and revenue data. These include: (1) if we should show complete time series vs. abbreviated time series, given that small panels with long time series can be difficult to read, but abbreviated time series may hide data that are within the experience of many who are engaged in the Council process, and thus lead to unintended confusion; (2) if we should estimate the long-term mean and error based on the full time series, or on the most recent 3 complete decades (as is done for climate data), or some other standard; and (3) if the period of historical reference should differ from fishery to fishery, given that different FMPs or target species within FMPs may have very different management histories and generation times. (For example: in the groundfish fishery, it may no longer be relevant to compare recent catch means and trends to data from prior to the effort reductions in the early 2000s.) A proper frame of reference seems relevant for interpreting patterns in landings, revenue, and other fishing

activity indicators as related to environmental variability, management performance relative to Magnuson-Stevens National Standard 8, or other human activities.

The CCIEA team therefore requests that the SSC-ES consider a review of or provide guidance on alternative approaches to estimating status and trends of fishery landings and revenue indicators. If this is an easily resolved topic, we certainly welcome a brief discussion during our meeting with the full SSC in March 2022.

Topic: Development of the climate change appendix

Presenters: TBD

Justification: In this year's new report, we added a pilot version of a "climate change appendix" (Supplementary Material, Appendix E) in response to a recommendation from the EAS in March 2021 (March 2021, Agenda item I.2.b, Supplemental EAS Report 1) and supportive discussion that followed that recommendation. Our goal with this appendix is primarily to start the conversation around what a more fully formed and useful set of climate change indicators and analyses might look like in a Council context. **We expect that the next steps of this conversation would involve multiple advisory bodies and should also align with future FEP initiatives.**

In the meantime, it may be possible for the SSC-ES and the CCIEA team to begin some technical discussion on how to sort and classify different types of climate change indicators, in particular as conceptualized in Appendix E, Table E.1, where we have coarsely described three categories of indices (type I, type II and type III) that have different levels of historic information, time scales for skilled predictability, and degrees of confidence around those predictions.

The CCIEA team thus proposes that the SSC-ES could provide guidance on the content and format of the newly introduced climate change appendix, and how it might best be developed to support management of priority stocks and other Council activities (for example, how it might dovetail, in a scientific sense, with stock assessments, rebuilding plans, EFH considerations, spatial planning, etc.). Particular focus in September 2022 could be on progress toward a more specific version of Table E.1. CCIEA analysts could walk through some examples of physical and ecological metrics that relate to different, Council-relevant facets of climate change in the California Current, and also provide quantitative evaluation of our ability to predict them in the future and a basis for determining our confidence. The purpose of this would not be to produce a "final" list of climate change indicators, as we expect it will be an iterative process involving input from multiple advisory bodies. Rather, our purpose would be to use these examples of physical and ecological indices to begin the technical process of developing quantitative standards and appropriate vocabulary (e.g., IPCC-based expressions of predictions and confidence). This is a critical aspect of climate change indicator implementation in future reports.