

ECOSYSTEM WORKGROUP SUPPLEMENTAL REPORT ON THE ECOSYSTEM AND CLIMATE INFORMATION INITIATIVE

The Ecosystem Workgroup (EWG) last reported to the Council on the Climate and Ecosystem Information Initiative (Initiative 4) at the Council's March 2023 meeting in Seattle, Washington. In our [advance report](#) for that meeting, we asked for advice from Council advisory bodies on:

- Preferred methods or priorities for grouping Council-managed species together when choosing new species groups for future ecosystem and climate information reports; and,
- Preferred times in FMP-specific management processes when it would be most useful to receive ecosystem and climate information to support harvest-setting, or pre-season or in-season management processes (see Appendix A).

At its March meeting, the Council received detailed and useful feedback from multiple advisory bodies on those questions, although it did not receive comments from technical/management teams or advisory subpanels for salmon or highly migratory species (HMS). The HMS Management Team had commented in its [September 2021 report](#) that fully developed examples would be necessary in order for them to evaluate the application of this initiative to HMS management, and it may be more useful for HMS management to focus on using ecosystem information to develop bycatch mitigation measures. Additionally, members of the Salmon Advisory Subpanel (SAS) joined the EWG in-person discussion on March 6 and noted that for Sacramento River Chinook, stock-specific ecosystem and climate information reporting would be helpful:

- In July/August for winter-run stock(s),
- In August/September for spring-run stock(s),
- In September/October for fall-run stock(s), and
- Before March, for pre-season advising on environmental factors affecting outmigration and rearing.

SAS members also supported reporting on habitat conditions for each cohort and watershed to better support forecasting of the Sacramento Index, and were generally supportive of the user-friendliness of the salmon stoplight tables. The EWG welcomes corrections or additions to our understanding of comments made by the SAS.

The EWG does not have new questions for Council advisory bodies for this June agenda item. If advisory bodies are interested in providing input on the initiative, we refer them back to both our [advance briefing book report](#) from March and the thorough and insightful report of the Scientific and Statistical Committee's Ecosystem Subcommittee (SSC-ES) under [Agenda Item H.1](#), March 2023. That SSC-ES report is particularly useful to this initiative because of its inclusion of a strategic review of the salmon indicator portfolio.

On May 15 and 17, 2023, the EWG met via webinar to further develop initiative materials for September 2023 Council consideration, based on advice received from the Council and its advisory bodies at the March 2023 Council meeting. On May 15, 2023, we received presentations from and discussed:

- Dr. Stephani Zador, Deputy Director of the Alaska Fisheries Science Center’s Resource Ecology and Fisheries Management Division, briefed webinar attendees on the North Pacific Fishery Management Council’s use of ecosystem and climate information in species-specific risk classification and risk evaluation tables (Dorn and Zador, 2020).
- Dr. Correigh Greene of the Northwest Fisheries Science Center’s Fish Ecology Division and Chair of the Pacific Council’s Habitat Committee, briefed webinar attendees on the Pacific Council’s use of salmon habitat indicators in salmon stoplight tables.
- The potential benefits and challenges of using risk tables versus stoplight tables in the Pacific Council process.
- Updating the species/stock selection criteria presented in draft by the EWG in Section 2 of [EWG Report 1, Agenda Item H.2.a](#), March 2023. Advisory body comments from March 2023 were helpful to this discussion and the EWG plans to present a final draft set of species/stock selection criteria for Council review and potential adoption in September 2023.
- Management schedules for groundfish, salmon, and coastal pelagic species (CPS). The EWG had laid out a draft summary of the management schedules of all four of the Council’s fishery management plans in the appendix to EWG Report 1, Agenda Item H.2.a for March 2023. Our discussion on May 15 used the comments received from other advisory bodies in March to better understand where and when ecosystem and climate information might be brought into the different management processes.

The EWG was fortunate to have a variety of stock assessment and ecosystem indicator experts attend and participate in our meeting on May 17, 2023, when we discussed:

- A draft risk classification table, intended to allow the Council, its advisory bodies, and the public to consider and understand the various and combined potential environmental and population dynamics risks to Council-managed stocks. Per Dorn and Zador (2020), this table is about understanding the risks themselves, not about understanding how particular species might be affected by those risks.
- Draft risk evaluation tables for petrale sole and sablefish, as requested by the Council in March 2023. Per Dorn and Zador (2020), risk evaluation tables are about understanding the potential effects of different risks on particular species or species groups.

In March of 2023, the Council had also asked that the EWG consider risk evaluation tables for: petrale sole, sablefish, Pacific sardine, and Chinook salmon before the Council’s September 2023 meeting. The EWG discussed and drafted risk evaluation tables for petrale sole and sablefish at its May 15 and 17 meeting with the aid of stock assessment scientists and other groundfish experts, and will review and update those drafts for the Council’s September 2023 briefing book. The EWG found it useful to have multiple species to evaluate, because it helped to highlight contrasts and similarities in the type of scientific information available for populating risk tables, and to consider associated uncertainty.

Based on the advice the Council received from the [CPS Management Team](#) and [CPS Advisory Subpanel](#) in March 2023, the EWG recommends that the Council review both risk evaluation tables for petrale sole and sablefish and sample salmon stoplight tables in September 2023 before deciding whether risk evaluation tables are appropriate for CPS species. Both CPS advisory bodies commented that, depending on the species, ecosystem and climate information would be most

useful to their processes in the spring and early summer. The EWG intends to ask CPS advisory bodies for further advice at the September 2023 meeting, which should help refine our collective understanding of the appropriate climate and information reporting method for the CPS management process.

With regard to Chinook salmon, we suggest that the Council defer its request for a draft Chinook risk evaluation table until it has had an opportunity to adopt species/stock selection criteria for the future species/stocks to be subject to ecosystem information reporting. In preparation for our May 15 and 17 meeting, the EWG reviewed the SSC-ES's report on its September 16, 2022, meeting on ecosystem indicators, particularly its strategic review of salmon stoplight tables. SSC-ES comments and their summary of advice from experts presenting at their meeting indicated strong support for better understanding the effects of climate change and other environmental factors on individual stocks of Chinook and other salmon species, or at a minimum, on suites of stocks found within individual eco-regions. In other words, ecosystem and climate information reporting for Chinook salmon as a species would not be nearly as useful to the Council as ecosystem and climate information reporting for Chinook salmon from a particular river basin or set of adjacent basins. The EWG also notes that the Habitat Committee March 2023 supplemental report for [Agenda Item H.2.a](#), identifies salmon stocks for which habitat indicators have been developed, which could be good candidates as the next priority stocks or species/stock groups.

Because the Council asked that this June 2023 agenda item consist of a “narrow” update of progress on the initiative, the EWG has no questions or recommendations for the Council. Our report for September would follow the plan that the EWG laid out in March, as modified by the Council to report to the Council on:

- Draft species selection criteria and process for the Council to choose the future species or species groups to receive ecosystem and climate information;
- A draft risk assessment table to be used across all species and species groups;
- Draft risk evaluation tables for sablefish and petrale sole;
- Suggestions for potential workshop topics for fall/winter 2023, should the Council be interested in the request from The Nature Conservancy that the Council participate in or co-sponsor workshops in support of this initiative, but outside of the Council's regular meeting process.

PFMC
06/09/23

Dorn, M. W. and S. G. Zador. 2020. A risk table to address concerns external to stock assessments when developing fisheries harvest recommendations, *Ecosystem Health and Sustainability*, 6:1, 1813634, DOI: 10.1080/20964129.2020.1813634.

Appendix A: Attendee list for May 15 and 17, 2023 EWG meeting

EWG members

Andrew Thompson, EWG/SWFSC
Corey Niles, EWG/WDFW
Elliott Hazen, EWG/SWFSC
Jameal Samhoury EWG/NWFSC
Jessica Watson, EWG/ODFW
Josh Lindsay, EWG/NMFS WCR
Kiva Oken, EWG/NWFSC
Liz Hellmers, EWG/CDFW
Mary Hunsicker, EWG/NWFSC
Tim Copeland, EWG/IDFG
Tommy Moore, EWG/SSC
Yvonne deReynier, EWG/NMFS WCR

Guests (and known affiliations)

Andrew Leising, SWFSC
Barbara Muhling, SWFSC
Brian Burke, NWFSC
Briana Brady, CDFW
Chris Harvey, NWFSC
Corey Ridings, Council Member
Correigh Greene, HC/NWFSC
Dan Waldeck, GAP
Dave Kasheta
Deb Wilson-Vanenberg, EAS
Don Vernon, SAS
Gretchen Hanshew, NMFS WCR

Gway Kirchner, EAS/TNC
Ian Taylor, NWFSC
Jenna Keeton
Jessi Doerpinghaus, Council Staff
John Field, SSC/SWFSC
Kate Richerson, GMT/NWFSC
Katie Pierson, GMT/ODFW
Keeley Kent, NMFS WCR
Kelli Johnson, NWFSC
Kirk Lynn, CPSMT/CDFW
Kit Dahl, Council Staff
Lorna Wargo, GMT/WDFW
Lynn Mattes, ODFW
Melissa Haltuch, AFSC
Michele Conrad, EAS
Mike Okoniewski, CPSAS
Nick Tolimieri, NWFSC
Owen Hamel, SSC/NWFSC
Stephani Zador, AFSC
Taylor Debevec, NMFS WCR
Theresa Labriola, Wild Oceans
Todd Phillips, Council Staff
Trung Nguyen, CPSMT/CDFW
Vlada Gertseva, NWFSC
Whitney Roberts, GMT/WDFW
Will Satterthwaite, SSC/SWFSC