



# **Agenda Item F.1. Ecosystem & Climate Information Initiative**

**September 10, 2023**

## ECOSYSTEM WORKGROUP REPORT ON THE ECOSYSTEM AND CLIMATE INFORMATION INITIATIVE

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### 1. New Materials, Guidance Needed, and Recommendations

This report updates Initiative 4 materials with:

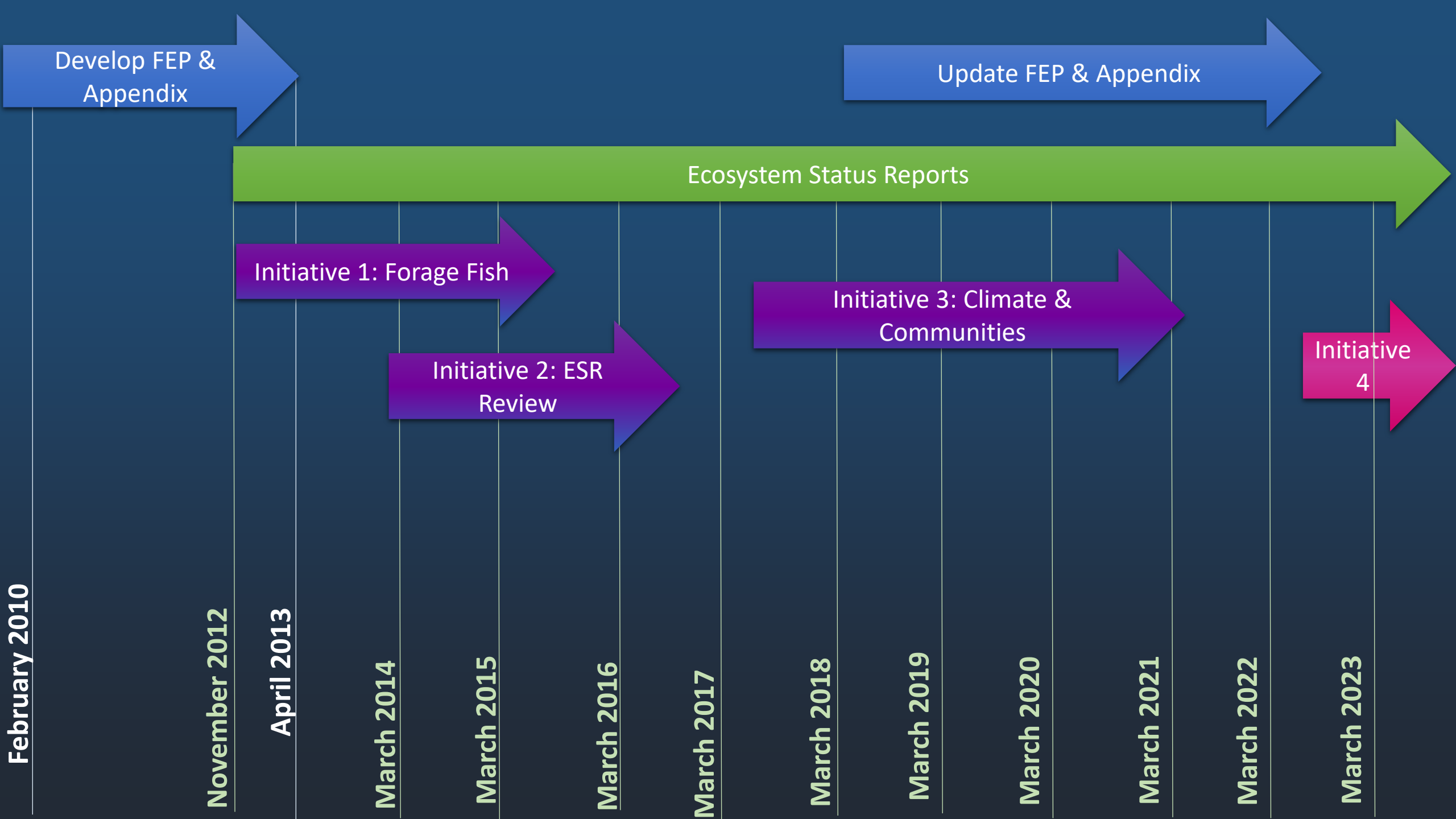
- Draft selection criteria and process for the Council to choose the future species/stocks/groups with management processes that should receive ecosystem and climate information;
- Example application of the selection criteria to seven species;
- Evaluation of timing and pathways where ecosystem and climate information can be incorporated into harvest setting processes under the coastal pelagic species (CPS), groundfish, and salmon fishery management plans (FMPs);
- A draft risk evaluation rubric to be used across all species, stocks, and species groups;

## RISK EVALUATION TABLES FOR PETRALE SOLE AND SABLEFISH

This supplemental report contains the draft risk assessment tables for petrale sole (Table C-2) and sablefish (Table C-3). As discussed in [Agenda Item F.1.a, EWG Report 1](#), these tables represent a pilot application of a risk assessment methodology adapted from the methods in use by the North Pacific Fishery Management Council. The purpose of these risk assessment tables is to provide climate and ecosystem information to the Pacific Fishery Management Council (Council) to supplement results of stock assessments (or if a stock assessment is not available) to help establish harvest reference points or other management measures.

The application of this risk assessment methodology revealed a variety of considerations that need to be further explored to develop a robust tool that can be effectively used in management decision making. Overall, the methodology should contribute to an understanding of how stock dynamics, not explicitly considered in a stock assessment, may inform various management related considerations. The Ad Hoc Ecosystem Workgroup (EWG) expects that these risk assessments would encompass a time frame tied to the fishery management decision processes (which can occur as often as every year) with longer term considerations (e.g., tied to stock management boundaries) taken up elsewhere. In such a risk assessment a wide variety of ecological factors could be considered including oceanographic drivers, changes in physical habitat, predators/prey/competitor dynamics, direct and indirect non-fishing effects (e.g., offshore wind facility development, construction-related habitat modification), and range shifts. These current risk tables only include environmental drivers, but future risk tables could consider incorporating other ecosystem drivers like those listed above as they become available and as methods for determining risk associated with such factors are developed. Furthermore, an overall risk level assignment requires a weighting scheme to account for the relative magnitude of the effect of these factors on stock characteristics of concern. This weighting scheme is likely to be stock-specific and could be qualitative or quantitative. In addition, we are seeking guidance on what additional information should be included in the population dynamics and stock assessment columns.

While developing the risk assessment tables for petrale sole and sablefish, the EWG noted the need for dedicated time and effort and a structured process to complete a risk assessment that provides actionable information for decision making. Such a process should entail convening multi-disciplinary teams — composed of ecologists, survey scientists, ecosystem modelers, stock assessors, and physiologists, among others — to populate the risk assessment table and complete the risk assessment process. Such teams are needed because of the diversity of ecosystem and climate-related factors enumerated above, which demand the provision of comprehensive information relevant to the species being evaluated. These teams would be responsible for weighting the different types of information within and across the four categories delineated in the risk evaluation framework (see Table C-1 in [EWG Report 1](#)) and achieving consensus on risk classification for each category as well as the overall risk classification for the particular species/stock/fishery management plan. As part of such a process, the teams would document how a particular conclusion was reached (e.g., scoring according to the risk classification scheme), the underlying rationale, and other considerations related to their consensus (or lack thereof) on risk classifications. Terms of reference could be developed to guide such an effort and could build from



## Ecosystem and Climate Information Initiative (4):

- (i) review the incorporation of ecosystem and climate information into the Council's harvest-setting and fisheries management processes,
- (ii) determine the need and appropriate timing for additional fisheries management plan (FMP)-specific ecosystem and climate information, and
- (iii) where there is a need for additional ecosystem and climate information, develop clear pathways for it to be used in the setting of scientific uncertainty and harvest policy.

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### 1. New Materials, Guidance Needed, and Recommendations

To support updates Initiative 4 materials with:

- Draft selection criteria and process for the Council to choose the species/stocks/groups with management processes that should receive ecosystem and climate information;
- Example application of the selection criteria to seven species;
- Evaluation of timing and pathways where ecosystem and climate information can be incorporated into harvest setting processes under the coastal pelagic species (CPS), groundfish, and salmon fishery management plans (FMPs);
- A draft risk evaluation rubric to be used across all species, stocks, and species groups;

- Draft selection criteria and process for the Council to choose the future species/stocks/groups that should receive ecosystem and climate information.
- Example application of the selection criteria to seven species.



Appendix A:  
Selection Criteria for Choosing  
Species/Stocks/Groups to  
Receive Ecosystem and Climate  
Information

- Draft selection criteria and process for the Council to choose the future species/stocks/groups that should receive ecosystem and climate information.

- Example application of the selection criteria to 7 species.

Appendix B:  
Applying Selection Criteria to  
Sample Species/Stocks/Groups



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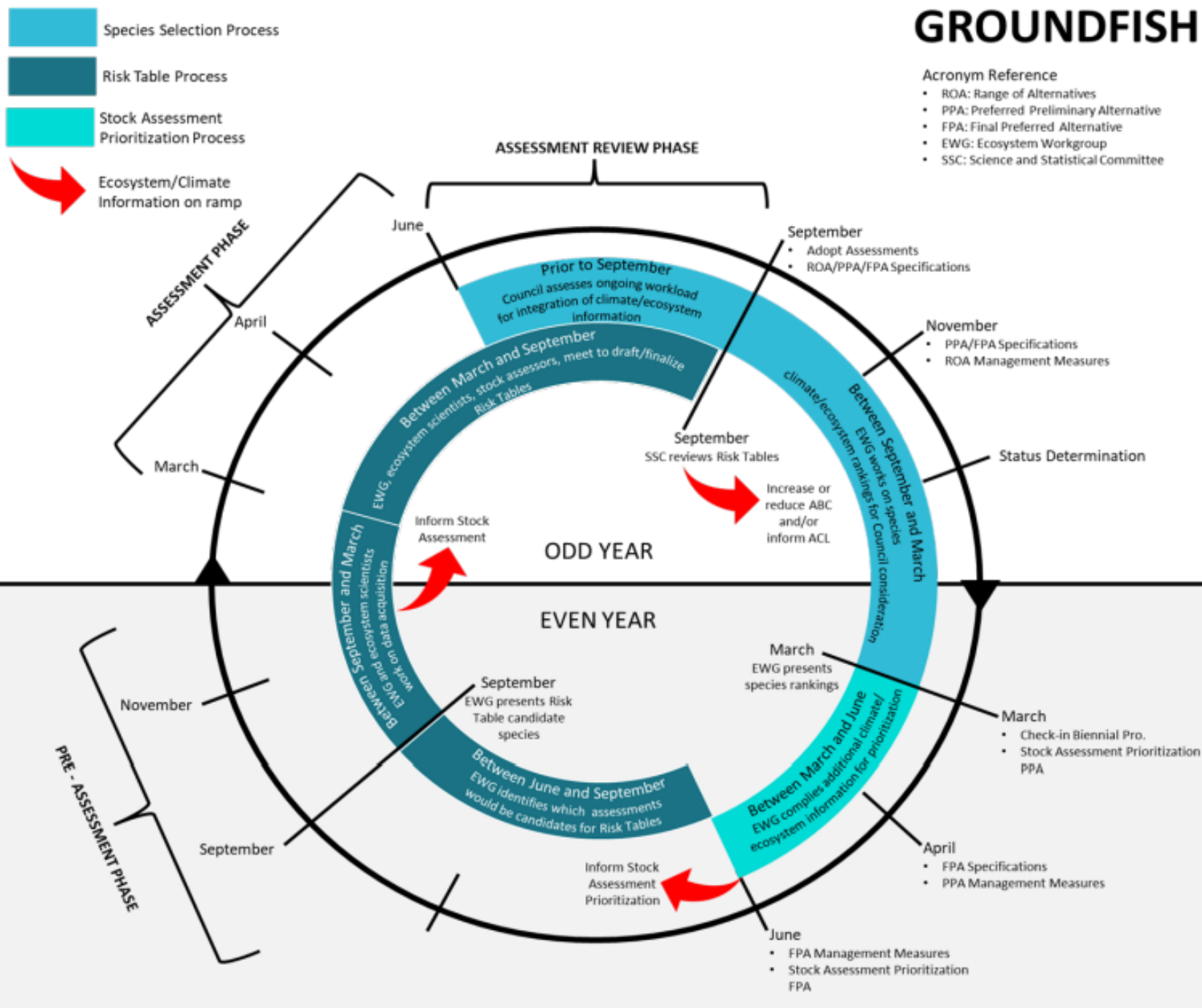
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# GROUND FISH





# Coastal Pelagic Species

Risk Table Process

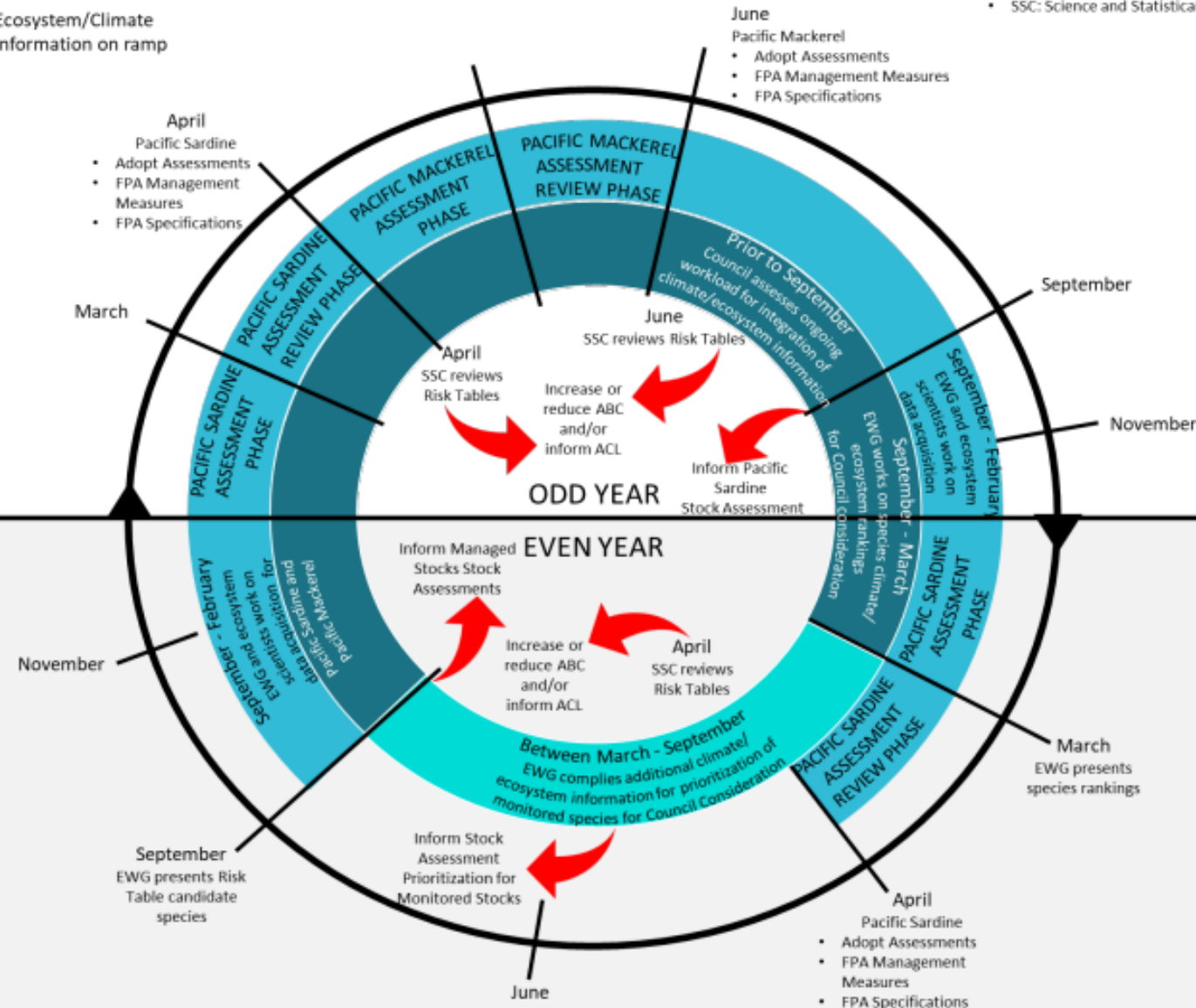
Species Selection Process

Stock Assessment Prioritization Process

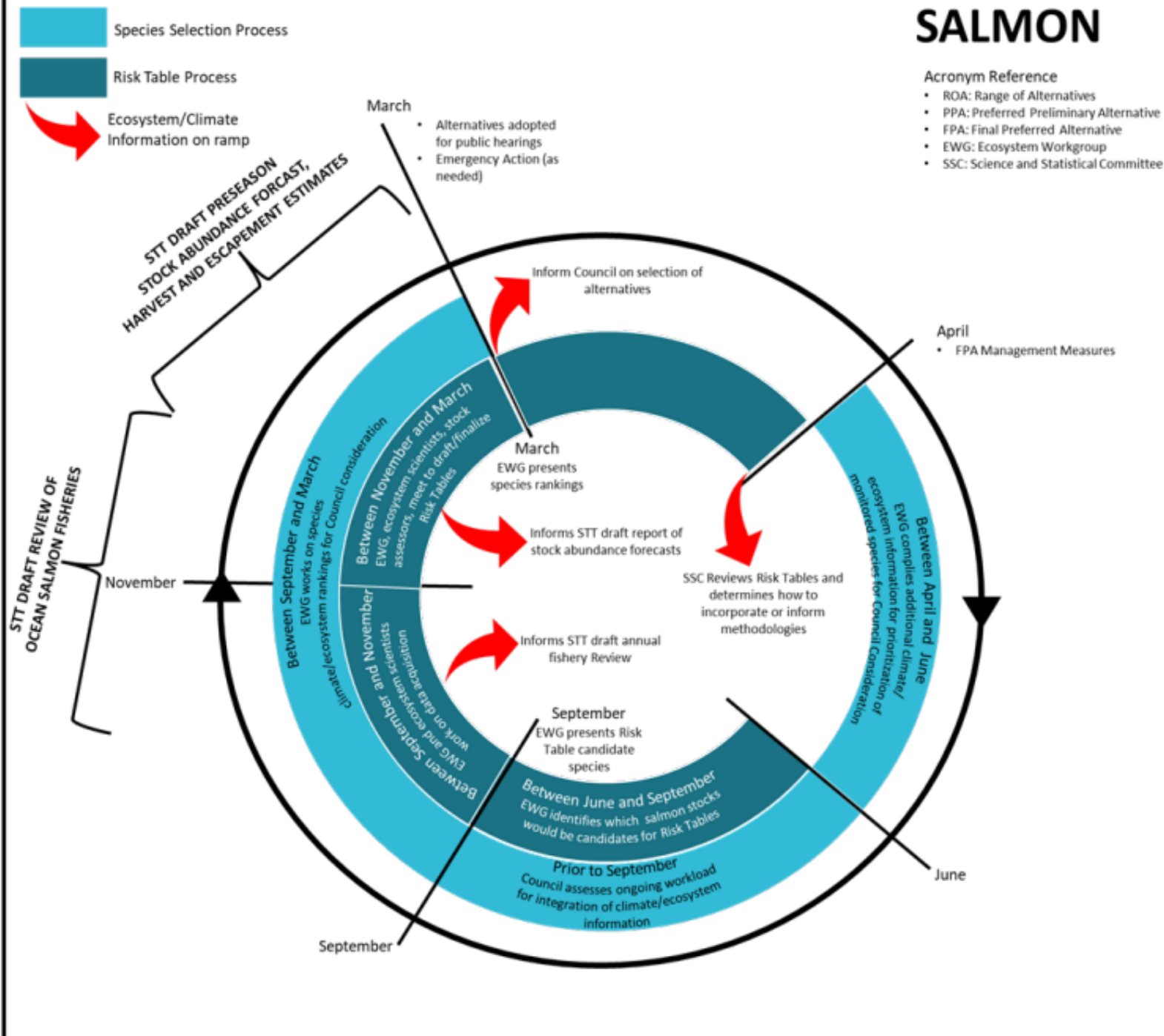
Ecosystem/Climate Information on ramp

## Acronym Reference

- ROA: Range of Alternatives
- PPA: Preferred Preliminary Alternative
- FPA: Final Preferred Alternative
- EWG: Ecosystem Workgroup
- SSC: Science and Statistical Committee



# SALMON



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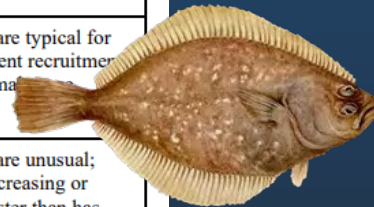
## Appendix C, Table C-1: Risk Classification Table

- A draft risk evaluation rubric to be used across all species, stocks, and species groups.

Table C-1: Risk classification rubric for environmental/ecosystem considerations, assessment, and population dynamics.

*Content for these two columns to be provided during stock assessment development and review.*

	Environmental/ecosystem considerations	Assessment model-related uncertainty considerations	Population dynamics considerations
Level 1: Above or better than normal	Some indicators show the system supporting greater abundance or increased habitat area.	Below-average uncertainty/very few unresolved issues in assessment, no or few data conflicts.	Stock trends are above normal for the stock; recent recruitment is above normal range.
Level 2: Normal	No apparent environmental/ecosystem concerns.	Typical to moderately increased uncertainty/minor unresolved issues or data conflicts in assessment.	Stock trends are typical for the stock; recent recruitment is within normal range.
Level 3: Substantially increased concerns	Some indicators show adverse signals but the pattern is not consistent across all indicators.	Substantially increased assessment uncertainty/unresolved issues, or data conflicts.	Stock trends are unusual; abundance increasing or decreasing faster than has been seen recently, or recruitment pattern is atypical.
Level 4: Major Concern	Most indicators showing consistent adverse signals a) across the same trophic level, and/or b) up or down trophic levels (i.e., predators and prey of stock).	Major problems with the stock assessment, poor fits to data, major data conflicts, high level of uncertainty, strong retrospective bias.	Stock trends are highly unusual; very rapid changes in stock abundance, or highly atypical recruitment patterns.



EWG Report 2:

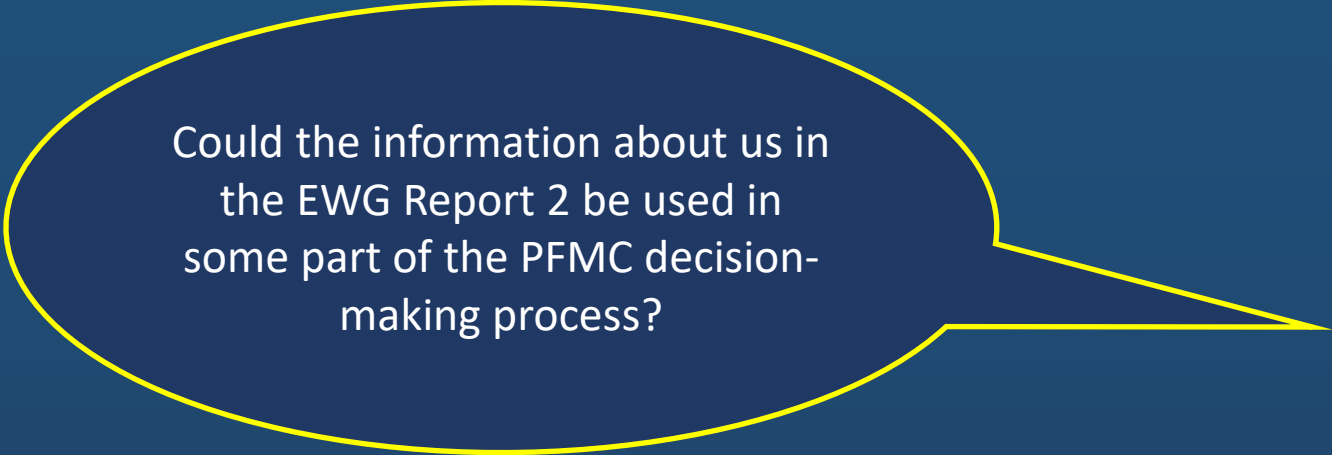
Table C-2: Risk evaluation table for petrale sole in 2023.

Table C-3: Risk evaluation table for sablefish in 2023.

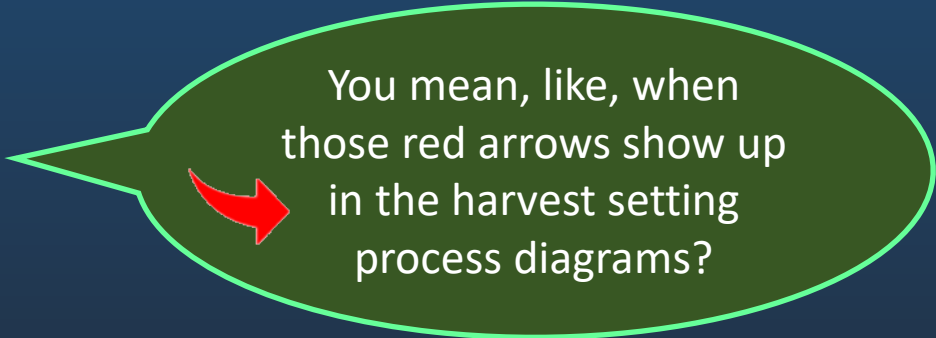
Table C-2: Risk evaluation table for petrale sole in 2023.

Environmental/ecosystem considerations	Assessment-related considerations	Population dynamics considerations

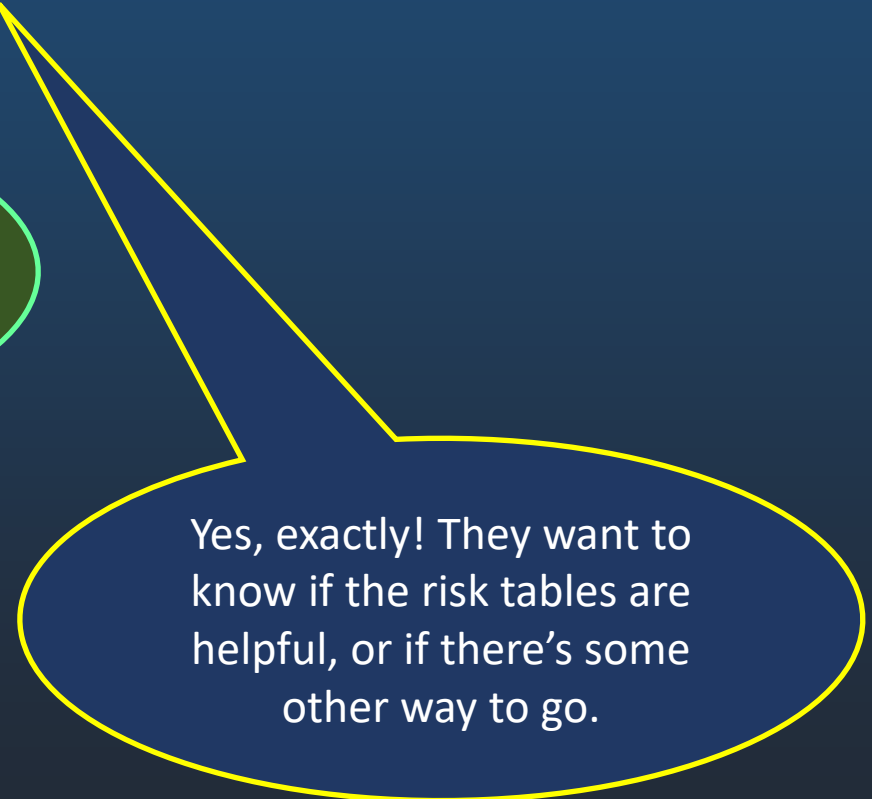




Could the information about us in the EWG Report 2 be used in some part of the PFMC decision-making process?



You mean, like, when those red arrows show up in the harvest setting process diagrams?



Yes, exactly! They want to know if the risk tables are helpful, or if there's some other way to go.

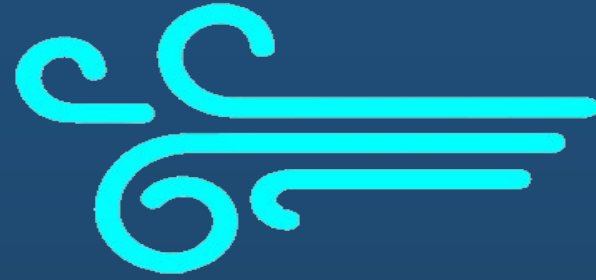


## Workshop topic suggestions for The Nature Conservancy and PFMC:

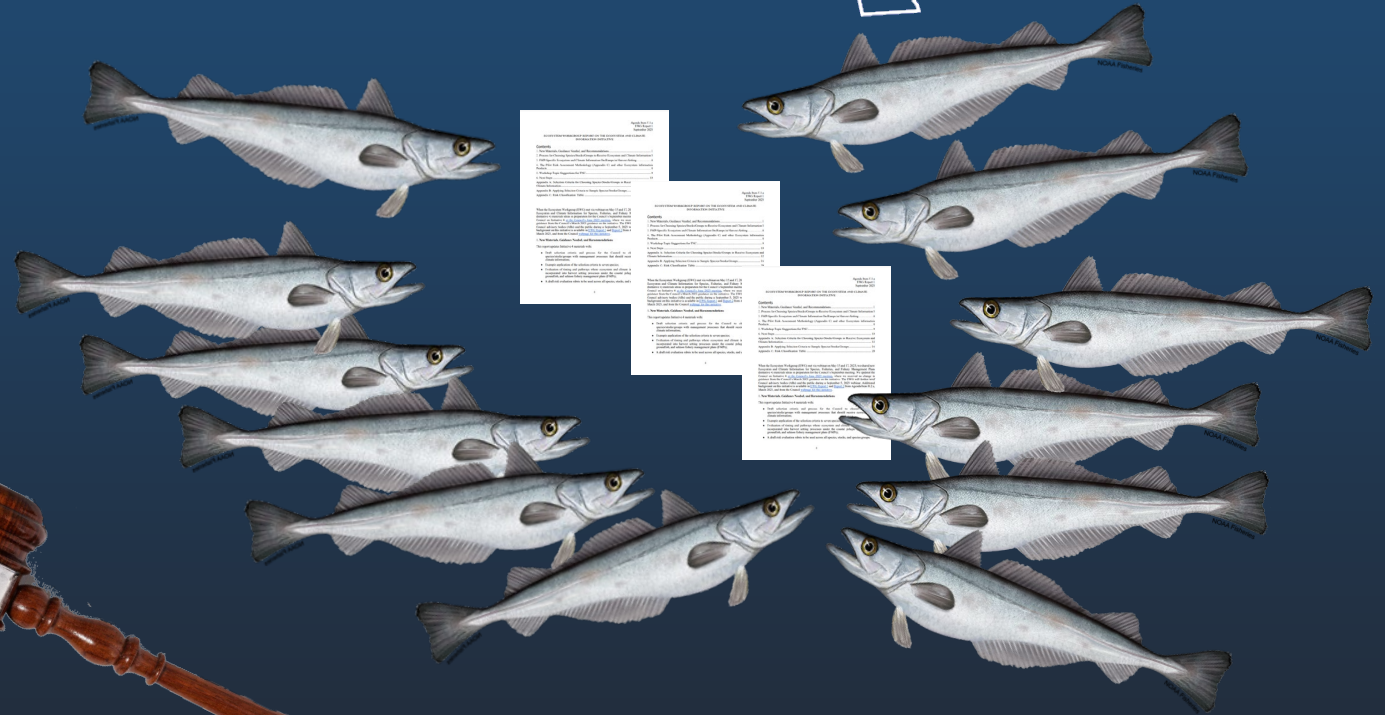
- Applying Appendix A species selection criteria to new species/stocks/groups;
- Developing recommendations for including ecosystem and climate information in the management process for data poor species/stocks/groups;
- Exploring innovative onramps for bringing ecosystem information into the fishery management process;
- Developing strategies for increasing the resiliency of our managed stocks and fisheries beyond harvest-setting processes;
- Exploring Council decision-making and NMFS review and regulatory processes to suggest ways to make those more dynamic to respond to rapidly changing environmental conditions;
- Incomplete follow-up tasks from the Climate and Communities Initiative (CCI).

Next Steps:

September-November 2023



November 2023-March 2024



March 2024



# EWG Report 1, page 2:

## Guidance Requested



## Recommendations



- Suggestions for potential workshop topics for fall/winter 2023 workshops to be conducted by The Nature Conservancy (TNC) and Council;
- Suggested next steps and timing for Initiative 4.

Additionally, the EWG will provide draft risk evaluation tables for sablefish and petrale sole for Council consideration and review in a supplemental report for the September meeting. The draft tables will also be a focus of our September 5 webinar and discussion of the draft tables would be particularly relevant to the Groundfish Management Team (GMT) and Groundfish Advisory Subpanel (GAP).

### **The EWG asks for the following guidance at this meeting:**

- Review and provide guidance on Section 2 (species selection process), Appendix A (draft species selection criteria), and Appendix B (selection criteria applied to seven species).
- Review and comment on Section 3, FMP-specific timelines and on-ramps for ecosystem and climate information use in the harvest-setting processes for CPS, groundfish, and salmon. Provide advance guidance on what FMP-specific ecosystem and climate information might be appropriate to bring into the Council process in 2024. Comments on the accuracy of the ecosystem information on-ramps (red arrows in the figures) would be particularly helpful. Are there opportunities we are missing, for example?
- Review and comment on Appendix C (application of risk evaluation rubric to petrale sole and sablefish to be provided in a supplemental report), and provide guidance on whether the Council would like the EWG to explore further any of the examples of ecosystem information products described in Section 4.
- Provide guidance on how the draft risk evaluation tables for petrale sole and sablefish (see EWG supplemental report) could be used when finalizing harvest specification.

### **In addition to recommending that the Council provide the guidance requested above, the EWG recommends that the Council:**

- Encourage and prioritize time for coordination meetings between the EWG and FMP-specific ABs through continued coordination between Council staff and AB chairs to schedule joint discussions at times suitable to different FMP processes.
- Task Council staff with sending the species selection criteria and process out for public review following the September 2023 meeting so that the EWG may provide final drafts for Council review and adoption at the March 2024 meeting.
- If the Council is interested in having the EWG evaluate additional species under the species selection criteria before March 2024, the EWG asks that the Council select no more than five additional species/stocks/groups for March 2024.
- Consider outstanding Climate and Communities Initiative tasks as potential TNC-Council workshop topics.