

SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON  
FISHERY ECOSYSTEM PLAN INITIATIVE 4: GROUND FISH AND SALMON RISK  
TABLES – PROGRESS REVIEW

The Scientific and Statistical Committee (SSC) received a report from the August 5, 2024 meeting of the SSC Ecosystem-based Management Subcommittee (SSC-ES) from Kristin Marshall (NWFSC, SSC-ES Chair) and discussed the [subcommittee report, California Current Integrated Ecosystem Assessment \(CCIEA\) Team Report 1](#), and [Ecosystem Workgroup \(EWG\) Report 1](#). The SSC discussion covered four main topics: 1) recommendations for the 2025 groundfish assessment cycle, 2) most appropriate methods for incorporating ecosystem and environmental information into management, 3) potential management impacts of the risk table approach for groundfish, and 4) pathways for incorporation of ecosystem and environmental information into additional Fishery Management Plans (FMPs).

**Recommendations for 2025 Groundfish Assessment Cycle**

The risk table approach is a sound and transparent way of integrating information on environmental conditions, ecosystem factors, and data or structural issues affecting assessment uncertainty. Although multiple pathways for risk tables to inform harvest specifications were identified, the CCIEA Team report suggested an initial focus on using risk tables to inform the choice of sigma (scientific uncertainty) when assessments are adopted. The SSC agrees that this is an appropriate and tractable starting point.

The SSC recommends applying the risk table approach to all of the full assessments scheduled for 2025. The SSC is aware of ongoing work on environmental and ecosystem factors relevant to the sablefish, yellowtail rockfish, and chilipepper rockfish assessments. The SSC recommends the Science Centers develop risk tables even for assessments of stocks with limited ecosystem and environmental information currently available, where the “assessment data inputs” and “assessment model fits and structural uncertainty” aspects could still be considered. This would provide insights into application of risk tables in less information-rich scenarios, and would allow for consistency across assessments in how assessment uncertainty was considered. Those latter two categories of information are routinely considered and discussed by stock assessment teams (STATs) and Stock Assessment Review (STAR) Panels, so reporting on them using the structure of a risk table should not add substantially to STAT workloads. The SSC agrees with the CCIEA Team’s recommendation to include ecosystem scientists as part of the STATs to promote the identification of relevant data sources; participate in stock-specific discussions early on in the stock assessment process; and contribute to the ecosystem column of the risk tables.

Initial review of draft risk tables and their implications for sigma should take place at the STAR Panels. For the 2025 assessment cycle, the SSC intends to use the sigma values explored in the CCIEA team report, 0.25 for “favorable” category 1 assessments, 0.5 for “neutral”, and 0.75 for “unfavorable” category 1 assessments, as the simplest and most symmetric of the proposed options discussed in the SSC-ES report. Final determinations of sigma will continue to be made by the SSC when assessments are adopted, and future work may refine the sigma adjustments further.

### **Management pathways for risk tables and environmental and ecosystem information**

The SSC agrees that using risk tables to inform the specification of acceptable biological catch (ABC) buffers is one appropriate place for ecosystem and environmental information to inform management. The SSC noted that the current framework for specifying sigma is rigid and does not account for the range of uncertainty among assessments placed in the same category. While adjusting sigma is a tractable starting point, the SSC recommends continued exploration of additional pathways. When a risk table strongly suggests bias in the assessment model or its projections, this bias should be addressed in the next assessment to the extent that this is possible. This highlights the utility of the risk table approach in identifying new information that could be used in future assessments.

Additional potential pathways for incorporating ecosystem and environmental information into management advice include: directly in assessments, forecasts, and projections; integration into harvest control rules and reference points; and more extensive consideration during the stock assessment prioritization process. Ecosystem and environmental information can be especially valuable for data-limited stocks with identified environmental drivers. These pathways are not mutually exclusive.

### **Potential management impacts of risk tables for groundfish**

When using the default  $P^*$  of 0.45, even large changes in sigma lead to limited changes in ABCs. Although sigma can be adjusted downward from the default value of 0.5 for a category 1 assessment in response to favorable conditions, this creates only a limited increase in the ABC compared to the status quo because the default level of precaution is already low. This is not an inherent flaw of the risk table framework. Instead, it is an inevitable result of the Council’s default  $P^*$  of 0.45, the maximum allowed under the FMP. This leads to ABCs close to the overfishing limit (OFL), leaving little room to increase because of the Magnuson Stevens Act National Standard 1 prohibition on exceeding the OFL. Although there is limited scope for risk tables to change harvest specifications in years shortly after assessment adoption for category 1 assessments, there is considerably more scope for risk tables to change the amount of buffering applied in later projection years. Using risk tables to inform time-varying sigma could substantially increase or decrease fishing opportunities compared to the status quo, and it requires additional

work prior to implementation. Consideration of ecosystem and environmental information during the intervals between assessments could be a starting point for this work.

### **Incorporating ecosystem and environmental information in other FMPs**

The SSC recommends incorporating ecosystem and environmental information in other FMPs beyond groundfish. In March 2024, the [Council tasked](#) the EWG to work with NMFS and the appropriate advisory bodies to broaden the application of risk tables to Sacramento and Klamath River fall Chinook salmon. Unlike the groundfish and coastal pelagic species (CPS) management processes, uncertainty associated with salmon forecast models is not quantified or communicated within the PFMC process. If scientific uncertainty buffers were used in harvest specifications for salmon management, then a risk table framework could also be used to incorporate environmental and ecosystem conditions into the decision-making process.

The SSC did not discuss specific pathways for other FMPs, but supports efforts to incorporate environmental and ecosystem information there as well.

PFMC

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