

Charge to the Summer-Fall Habitat Action Monitoring and Science Plans Peer Review Panel

Orientation and Focus

The California Department of Fish and Wildlife (CDFW) issued an Incidental Take Permit (ITP) to the California Department of Water Resources (DWR) for the continued operation of the State Water Project (SWP) in March 2020. The Delta Smelt Summer-Fall Habitat Action (SFHA) is a critical component of an adaptive management plan for the SWP. It is designed to improve habitat conditions for the critically endangered Delta Smelt (*Hypomesus transpacificus*). The ITP Adaptive Management Team (AMT), composed of representatives from CDFW, DWR, and water contractors, is responsible for coordinating and updating the SWP adaptive management plan and facilitating key adaptive management tasks associated with specific actions in the ITP. The [2020 Incidental Take Permit](#) requires an independent review of the SFHA in January 2024.

The SFHA is intended to improve habitat conditions including the overlap of key physical and biological attributes (e.g., salinity, turbidity, and food availability) to support Delta Smelt growth, survival, and recruitment. Summer-fall conditions are hypothesized to be a bottleneck on the population due to limited suitable habitat for juvenile and subadult life stages. A set of habitat and food subsidy actions within the SFHA are currently prescribed, discretionary, or conceptual. In addition, each action has varied work plan assessments for monitoring and efficacy evaluation. However, there remains some uncertainty in the ability to detect ecological responses, test hypotheses, and evaluate the efficacy of the SFHA and/or individual actions.

DWR and the U.S. Bureau of Reclamation through collaboration with the Delta Coordination Group (DCG) (U.S. Bureau of Reclamation, CDFW, DWR, U.S. Fish and Wildlife Service, National Marine Fisheries Service, and State and Federal Water Contractors) have developed Monitoring and Science Plans for the SFHA that are updated annually, with several additional action-specific monitoring and research plans (e.g., Suisun Marsh Salinity Control Gates reoperation, North Delta Food Subsidy, and Sacramento Deepwater Ship channel studies). In addition, a structured decision-making (SDM) approach using the ProACT decision model¹ (i.e. Problem, Objectives, Alternatives, Consequences and Tradeoffs model) was adopted to determine the suite of Summer-Fall actions to recommend in a given hydrologic year based on a transparent and standardized tradeoff assessment of key objectives (e.g., Delta Smelt growth, habitat, and food) and performance metrics.

1 Hammond, J.S., Keeney, R.L., and Raiffa, H. (2002). *Smart Choices: A Practical Guide to Making Better Decisions*. Crown Business. ISBN 0767908864.

The purpose of this Independent Scientific Expert Review Panel (Panel) and the letter reviews that panel members will produce is to assist DCG and AMT in making improvements for the evaluation and adaptive management of the SFHA.

Product

Each panel member will write an individual Panel Letter that will address the Review Questions that are aligned with their expertise. For the letter format, the Panel shall use a Delta Science Program (DSP) template, and the letter shall contain a concise executive summary and a table of contents if the report exceeds five pages. DWR will share the panel letters with the DCG to consider the reviewers' recommendations for improvements to the scientific and decision-making approaches to inform the adaptive management of the SFHA.

Review Panel Membership

The Panel consists of 4 members, including 2 members with food web ecology and fisheries expertise and 2 members with structured decision-making expertise.

Panel Format

The review panel will convene virtually for 1-4 closed teleconference meetings prior to submitting their individual letter reviews to the DSP. The first kickoff meeting will be held by the DSP shortly after materials are distributed to the Panel and will orient reviewers to the process and general topic. The second meeting will be held with both the DSP and the DWR and/or AMT, and reviewers will have an opportunity to ask clarifying questions about the Charge and background documents.

Reviewers may hold subsequent virtual meetings as needed during the review period. The DSP will coordinate all correspondence between the reviewers and DWR.

Panel Responsibilities

1. Read and review technical reports that describe the relevant materials subject to review that are aligned with each individual's expertise (e.g., SDM and/or Monitoring and Science Plans).
2. Participate in a virtual kickoff meeting with the Delta Science Program to initiate the review and clarify any questions.
3. Participate in an open dialogue virtual meeting with the Delta Science Program and DWR and/or AMT.
4. Prepare a letter review report with findings and recommendations.

Scope

The Panel will address the Review Questions outlined in this Charge that are aligned with their expertise (e.g., food web ecology, fisheries, structured decision-making). The intent of the review is for the Panel to provide technical guidance for making improvements to the

Monitoring and Science Plans and the SDM process to improve the adaptive management of the SFHA.

The panel members with food webs and fisheries expertise will review and evaluate the methodology for the Delta Smelt SFHA Monitoring and Science Plans. These reviewers will identify science gaps and recommend improvements for monitoring, as well as identify components of monitoring that should be continued. Where recommendations to modify and improve monitoring efforts are made, the panel members will provide actionable steps to take.

The panel members with SDM expertise will review and evaluate the SDM approach for the SFHA. These reviewers will assess the effectiveness of the approach in supporting SFHA recommendations, integrating participant values, and maximizing efficiency in the context of ongoing uncertainty. The panel members will provide feedback on how well the approach has the potential to meet the objectives and physical and biological goals of the SFHA and provide recommendations for ways to improve science evaluations.

The Panel will provide feedback on how to continue or modify the SDM, monitoring, and adaptive management of the SFHA, including prioritized recommendations for cases where resources are limited.

Peer Review Materials

Materials consistent with the focus of the peer review will be provided to the Peer Review Panel and are listed below in no specific order.

Background documents

1. 2023 Summer-Fall Habitat Action – Action Plan
2. [2022 Summer-Fall Habitat Action – Action Plan](#)

Review documents

3. 2023 SFHA Monitoring and Science Plan
 - a. Appendix B. Suisun Marsh Salinity Control Gates Action Work Plan
 - b. Appendix C. Sacramento Deepwater Ship Channel Study
 - c. Appendix D. North Delta Food Subsidies Operations and Monitoring Plan
 - d. Appendix F. Managed Wetlands Study Plan
4. Summer-Fall Habitat Action Comprehensive Monitoring Plan for 2023
5. 2023 Draft Delta Coordination Group Structured Decision Making Process Document and supporting appendices
6. 2022 Draft Delta Coordination Group Structured Decision Making Process Document and supporting appendices

Supplemental Material (optional)

- Delta Smelt Summer-Fall Habitat Action Addendum to the 2023 Action Plan
- [Delta Smelt Summer-Fall Habitat Seasonal Report for WY 2022 \(usbr.gov\)](#)
- [Delta Smelt Summer-Fall Habitat Seasonal Report for WY 2021 \(usbr.gov\)](#)
- [White papers providing a synthesis of knowledge relating to Delta Smelt biology in the San Francisco Estuary, emphasizing effects of flow \(ca.gov\)](#)
- Large-Scale Flow Management Action Drives Estuarine Ecological Response. DOI:[10.1002/NAFM.10529](#)
- [Use of a Managed Flow Pulse as Food Web Support for Estuarine Habitat \(escholarship.org\)](#)
- [Hydrodynamics structure plankton communities and interactions in a freshwater tidal estuary. Ecological Monographs - Wiley Online Library](#)
- [Evaluation of a large-scale flow manipulation to the upper San Francisco Estuary: Response of habitat conditions for an endangered native fish. PlosOne 15\(10\): e0234673.](#)
- Freshwater Flow Affects Subsidies of a Copepod (*Pseudodiaptomus forbesi*) to Low-Salinity Food Webs in the Upper San Francisco Estuary. Estuaries and Coasts <https://doi.org/10.1007/s12237-022-01142-1>
- Summer-Fall Habitat Action Review Workshop Summary Report (Available upon request)
- 2021 RMA copepod biomass model (Available upon request)

Summary of Charge

An Independent Scientific Peer Review Panel (Panel) is requested to convene and review the methodology for the Delta Smelt Summer-Fall Habitat Action (SFHA) Monitoring and Science Plans, as well as the structured decision-making (SDM) approach for the SFHA and provide guidance for making improvements to decision-making, monitoring, and adaptive management. Each final letter review will address the methodology used to assess the efficacy of the Science and Monitoring Plans in evaluating the SFHA and provide feedback and recommendations on the SDM process.

DWR requests that the panel members with greater ecological food webs and fisheries expertise evaluate the methodology of the Monitoring and Science Plans to assess the efficacy of the SFHA in improving habitat conditions for the critically endangered Delta Smelt. In addition, DWR requests that the panel members with SDM expertise provide recommendations for improvements to the scientific approach and SDM process to inform adaptive management of the SFHA. Specific questions are identified below to guide the Panel for their individual Panel Letter reviews. The Panel is encouraged to review each question carefully and may ask DWR subsequent questions for clarification. Reviewers will

be expected to address questions aligned with their expertise area but are welcome to address any additional questions that they are comfortable addressing.

Review Questions

Structured Decision Making (SDM) Questions:

1. How well do the ProACT model and SDM approach, as implemented by the DCG, allow for evaluating qualitative versus quantitative information (e.g., expert opinions compared to numerical models) to support the decision?
2. How well does the SDM approach, as implemented by the DCG, integrate participant values in a standardized and transparent way?
3. How well does the SDM approach, as implemented by the DCG, effectively and efficiently use the information we have in the context of ongoing uncertainty (e.g., do all the metrics need to be modeled)?
4. Is the SDM influence diagram effective for the decision statement? How can it be improved?
5. Are there alternative decision tools that may be complementary to or better suited for the SFHA decision?

Monitoring and Science Plan Questions:

6. Are the current Monitoring and Science Plans well-designed to test the hypotheses, detect responses, and produce actionable results within the adaptive management framework? If not, what are the gaps in the monitoring plans to test their effectiveness?
7. Are the metrics suitable or sensitive enough to test our questions and hypotheses? If not, how can they be improved?
8. Are there other methods (e.g., new technologies) or analyses (including for data comparability) that should be incorporated?
9. Are there areas (metrics or analysis) that should be prioritized, adjusted, or dropped to improve science evaluations?

Overall Approach to SFHA:

10. How well are the Science and Monitoring Plans and SDM approach being integrated into the adaptive management of Delta Smelt summer-fall habitat?
 - a. Are the current Monitoring and Science Plans going to reduce the uncertainties in the SDM performance metrics and improve confidence in the decision?
 - b. How well do the Monitoring and Science Plans and SDM approach (influence diagram and performance metrics) support the evaluation of management objectives for the Summer-Fall Habitat Action? Are the Monitoring and

Science Plan and SDM approach likely to achieve the intended results? What are recommendations for improvement?

Schedule

Panel Review: commences January 2024

Final Panel Letters: May 2024