

# Charge to the Healthy Rivers and Landscapes Science Plan Peer Review

## Orientation and Focus

The Healthy Rivers and Landscapes Program (“Program”), described in the March 29, 2022, MOU and Term Sheet, is proposed as an alternative pathway for updating and implementing the Sacramento River, Delta, and Tributary update to the San Francisco Bay/Sacramento-San Joaquin Delta Water Quality Control Plan (WQCP) of the State Water Resources Control Board (SWRCB). The scientific rationale for the Program’s approach of providing both environmental flows and habitat improvements for native fishes is described in documents that include the 2023 Draft Scientific Basis Report Supplement in Support of Proposed Voluntary Agreements for the Sacramento River, Delta, and Tributaries Update to the WQCP (SWRCB 2023), and the forthcoming Draft Scientific Basis Report Supplement In Support of Proposed Voluntary Agreements for the Tuolumne River.

The purpose of the Healthy Rivers and Landscapes Science Plan (“Science Plan”) is to provide the framework and specific approach for assessment of the Flow and Non-Flow Measures included in the Program. In the Science Plan, the hypotheses and associated monitoring and analyses are intended to describe a full range of potential approaches for assessing the biological and ecological outcomes of the Healthy Rivers and Landscapes Program. The Science Plan will inform the development of tributary, Delta, and project-specific Science Plans; however, it is not anticipated that each of these additional Science Plans will address every hypothesis. Instead, the Science Plan is intended to provide guidance to the Healthy Rivers and Landscapes Science Committee and individual, relevant tributary and Delta science programs as they develop plans for priority areas of focus for additional monitoring in a manner that provides comparability among datasets, active experiments, decision support modeling, and synthetic data analyses needed to fill knowledge gaps to assess the outcomes of the suite of Program measures and inform ongoing and future decision making.

Activities conducted as part of the Healthy Rivers and Landscapes Science Program and under the framework of the Science Plan will provide information and data to be synthesized in triennial reports prepared in Years 3 and 6 of the Program and the Ecological Outcomes Analysis Report prepared prior to Year 7 of the Program. These products will be among the materials that inform the SWRCB in Year 8 of the Program (reporting for the Program is also discussed in the HRL Strategic Plan, section 4, in the 2022 MOU, and in Section 4.4.10.7 of the [October 2024 Draft of the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Watershed](#), or “October 2024 Draft Update”). In Year 8 of the Program, the SWRCB will evaluate

whether the Healthy Rivers and Landscapes Program warrants continuation through an evaluation described in the March 2022 Term Sheet as the “Green-Yellow-Red” process, which would result in a plan for the Program to a) continue after Year 8 in the same manner as in Years 1-8 (green); b) continue after Year 8 with some modifications to implementation (yellow); or c) discontinue because the Ecological Outcomes Analysis Report does not support the conclusion that continuing the Program will result in achievement of the Narrative Objectives. The Green-Yellow-Red process is also described in draft in the October 2024 Draft Update.

In summary, the intended functions of the Science Plan are to guide development of system-and project specific science plans to support a system-wide synthesis of the outcomes of Program actions and to set the foundation for the content of synthesis reports. The synthesis reports produced through the Science Plan framework will include the triennial synthesis report and an Ecological Outcome Analysis report that can inform adaptive management of the program, including the Green-Yellow-Red process led by the SWRCB in Year 8. Thus, adaptive management processes may occur at various time scales, including within the period of implementation, and also at the end of the eight-year term as the SWRCB considers Program continuation, modification, or termination (discussed in the 2022 MOU and in Section 4.4.10.9 of the October 2024 Draft Update).

Examples of Program actions that may be subject to adaptive decision-making include prioritization for investment of resources for habitat restoration toward types of habitats that are most likely to benefit target populations, timing and shaping of environmental flows, and investment in science resources for best use to resolve key uncertainties.

The focus of this Independent Scientific Expert Review is to assist the Science Committee in making improvements to the Science Plan. The review should consider the extent to which the Science Plan can support development of system-specific science plans that produce interoperable datasets for common metrics, and the ability of the Science Plan to meaningfully support the development of the triennial reports and Ecological Outcomes Analysis Report.

## **Product**

Each Review member will write an individual letter report that will address the Review Questions that are aligned with their expertise. For the letter format, the Reviewer 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. DSP staff will share the letters with the Department of Water Resources (DWR) and the Peer Review Planning Team to consider the reviewers’ recommendations for improvements to the Science Plan. The Peer Review Planning Team is made up of DSP staff and a subset of members from the Healthy Rivers and Landscapes Science Committee, with representatives from the Department of Water Resources, State Water Contractors,

California Department of Fish and Wildlife, Nossaman LLP, and San Luis & Delta-Mendota Water Authority.

### **Peer Review Membership**

The Review consists of three members, including members with fisheries, food web, structured decision-making and resource optimization, and monitoring evaluation expertise. As mentioned above, the reviewers will address questions related to their expertise.

### **Panel Format**

The Review 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 Reviewers and will orient them to the process and general topic. The second meeting will be held with both the DSP and the DWR and Peer Review Planning Team, 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 and the Peer Review Planning Team.

### **Panel Responsibilities**

- Read the Science Plan and supplemental material and review the Science Plan.
- Participate in a virtual kickoff meeting with the Delta Science Program to initiate the review and clarify any questions.
- Participate in an open dialogue virtual meeting with the Delta Science Program and DWR and/or Planning Team.
- Prepare a letter review report with findings and recommendations.

### **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.

#### **Review documents**

- [Healthy Rivers and Landscapes Science Plan](#)

#### **Supplemental Material (optional)**

- [HRL Science Committee Charter](#)
- [HRL Memorandum of Understanding](#)
- [Strategic Plan](#)
- [Strategic Plan-Appendix F](#)
- [Draft Scientific Basis Report Supplement](#) and [Peer Review Package](#)

- [Comments on the Scientific Basis for Implementation of the Voluntary Agreements for the Sacramento River, Delta, and Tributaries](#)
- [October 2024 Draft of the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Watershed and its appendices \(or October 2024 Draft Update\)](#)
- [Advancing Scientific Understanding and Management of the Delta Through a Food Web Perspective- Delta Stewardship Council Independent Science Board](#)
- [Review of the Monitoring Enterprise in the Sacramento-San Joaquin Delta- Delta Stewardship Council Independent Science Board](#)
- [Science Plan presentation from the April 2024 workshop](#)
- [Science Plan Presentation from the November 2024 workshop](#)
- [Science Plan Presentation from the December 2024 workshop](#)

## **Summary of Charge**

An Independent Scientific Peer Review is requested to convene and review the framework, hypotheses, identified needs for monitoring and evaluation, identified priority information gaps, and plans for data management and decision-making tools of the Science Plan. The review questions are intended to guide the reviewers toward feedback that will improve the Science Plan as a guiding framework for system-specific science plans and improving information availability on key system-wide uncertainties.

## **Review Questions**

1. Hypotheses
  - a. Do hypotheses cover key uncertainties in potential ecological outcomes of the Program actions? Are any uncertainties not addressed?
  - b. Are there hypotheses that can be removed because we already have sufficient knowledge/data on the subject, and they therefore do not address uncertainties?
  - c. Are identified baselines for individual hypotheses appropriate for the intended reporting purposes of the Science Plan and suitable for the corresponding areas of uncertainty? Are there alternative baselines for specific hypotheses that should be considered to better advance learning?
2. Metrics and covariates
  - a. Are the identified metrics and covariates appropriate for the hypotheses?
  - b. Are there proxies and/or indices that could be used in lieu of a metric/covariate that align with best practices that could be included?
  - c. Are the identified metrics and covariates in this framework specific enough that individual science plans will be consistent to perform syntheses at the scales relevant to individual hypotheses (local, sub-basin, population, as described in Figure 2 of the Science Plan) and beyond the scale of individual projects and tributaries? Are there metrics and covariates

suggested in the Science Plan that are too broad to the point that they may cause inconsistencies?

- d. Are there additional analytical frameworks or emerging methods for managing inconsistencies (with baseline data and/or across space/specific systems) that should be considered?
3. Monitoring Networks and Modeling Resources
  - a. Does the Science Plan's review of monitoring networks and modeling resources sufficiently cover what would be needed to address key uncertainties in potential ecological outcomes of the Program actions?
4. Information Gaps
  - a. Does Section 3.4 of the Science Plan describe the information gaps that are the most important for informing decisions and Healthy Rivers and Landscapes Program Evaluation? Are there additional, major information gaps that should be included?
5. Informing Adaptive Management
  - a. What additional components (decision support tools, decision process, recommendation development) are needed to describe how reporting products (Triennial Synthesis Report, Ecological Outcomes Analysis Report) of the Science Plan will be developed to inform adaptive management? Primary Program areas subject to adaptive management both during Program implementation and to inform the shape of the Program post Year 8 will include prioritization for investment in habitat restoration, the timing, shape, and magnitude of environmental flows, and science investments to maximize learning in areas of major uncertainty.
  - b. What additional content in the Science Plan would be helpful for maximizing the probability that the Science Committee can provide recommendations for adaptive management of the Program?
  - c. What recommendations do you have for approaches or tools for prioritizing hypotheses, metrics and covariates, monitoring and modeling resources to optimize information benefits at the full tributary and delta and population tiers?

## **Schedule**

Panel Review: commences April 2025

Final Panel Letters: June 2025