

Delta Regional Ecosystem Restoration Implementation Plan Science Input Process Map (updated August 4, 2004)

1.0 Introduction

The Delta Regional Ecosystem Restoration Implementation Plan (DRERIP) is the first of four regional plans intended to implement the California Bay-Delta Program's (Bay-Delta Program) Ecosystem Restoration Program (ERP) element. The DRERIP will refine the planning foundation specific to the Delta, refine existing Delta specific restoration actions and provide Delta specific implementation guidance, program tracking, performance evaluation and adaptive management feedback.

Preparation of the DRERIP is a collaborative effort involving the ERP implementing agencies: Department of Fish and Game (DFG) (lead), NOAA Fisheries, and the U.S. Fish and Wildlife Service, as well as the California Bay-Delta Authority (CBDA) ERP and Science Program staff and the ERP Science Board (ERPSB).

With guidance from the ERPSB, a Working Group of ERP implementing agency staff have developed an outline for the DRERIP and defined a process for obtaining scientific input. In addition, DFG has prepared approximately 50% of the plan, primarily consisting of background information. A portion of this information (Land Use) was distributed for public review and comment on the CBDA website designed specifically for the DRERIP (<http://calwater.ca.gov>).

The following information describes an approach (Science Input Process Map [Process Map] Attachment 1) for developing the scientific information necessary to complete chapters 5 through 7 of the DRERIP (see Attachment 2 for a complete plan outline). The approach follows the implementation strategy outlined in the ERP Strategic Plan and ERP Plan (ERPP) Volumes I & II. The DRERIP science input process will result in the scientific vetting of all Delta programmatic actions and targets contained in multiple ERP planning documents. The programmatic actions (defined activities intended to achieve ecosystem restoration targets) and targets (qualitative or quantitative statement of a strategic objective) represent means to achieve the six ERP strategic goals and multiple objectives. Multi-Species Conservation Strategy (MSCS) conservation measures provide additional detail to ERP actions to achieve the restoration goals. These actions and targets are grouped into ecosystem elements (ecological processes, habitats, species, and stressors).

2.0 Purpose

The purpose of the Process Map is to depict the sequencing and interaction of the science input that will form the foundation for the Delta Regional Ecosystem Restoration Implementation Plan (DRERIP). The Process Map is divided into four phases: (1) process design; (2) the development of conceptual models depicting species life history and ecosystem elements; (3) the evaluation of proposed ERP actions; and (4) an analysis of the feasibility and prioritization of the actions. Each of these phases as depicted on the Process Map is briefly described, including tasks and actions within each phase required by various groups.

The Process Map is intended largely as a planning tool for scheduling, tracking, and communicating the science input component of the DRERIP process. The Map focuses exclusively on development of a planning document and does not attempt to depict the process of implementing the plan itself, which will involve a variety of feedback loops inherent in an adaptive management process (to be defined in Chapters 5, 6, and 7 of the plan).

3.0 The Process Map

The Process Map consists of a graphical display supported by descriptive text (contained below). The graphical depiction is by nature a simplified picture of the science process. The diagram focuses on displaying the various groups that will be involved and the exchange of information over time from one group to another. The diagram is a linear depiction of activities over time. However, the science process is designed to build on itself and thus will involve "reaching back" to previous steps and testing actions against species and ecosystem conceptual models as the plan is developed. The text below provides a more detailed accounting of the specific tasks and steps that will be required to support the overall process. Some of these steps will be further defined as a component of plan development. For example, efforts to define the action vetting process and the priority setting process are specific steps in the Process Map. The overall science input process represented herein was developed by agency staff (DRERIP Working Group) working closely with members of the ERPSB.

4.0 Map Structure

The vertical axis of the Process Map depicts the various groups, or teams, that will be involved in providing input and/or oversight to the process and the development of specific plan chapters and other products (top row). Teams are grouped according to their primary function. The top row indicates products and staff activity. The four teams listed below this will be formed specifically for the DRERIP effort and represent core work efforts towards product development. The vast majority of the activity shown in the Process Map diagram is concentrated among these four product development groups. The remaining eight groups listed represent bodies that will be tapped for independent review, management decisions, and public/stakeholder input. The roles and responsibilities of these groups are summarized in the next section.

The horizontal axis of the Process Map depicts the various phases, phase deliverables, and support needs of the process. Each of these phases and the actions and interactions of various groups within each phase are described below following the description of roles and responsibilities.

The symbols within the matrix represent activity conducted by the various groups. This activity consists of meetings, workshops, decisions/approvals, presentations and discussion, work products, and work activities. Information and products will flow between the various groups, although information flow is not depicted in order to simplify the Process Map.

5.0 Roles and Responsibilities

The Process Map defines engagement of twelve groups. The individual roles and responsibilities for these groups are briefly described below.

5.1 Product Development

Working Group

Provide an oversight and review function. The Working Group will be largely responsible for Phase 1 (Process Development) and will meet throughout the process on an as needed basis.

Adaptive Management Planning Team (AMPT)

Provide overall guidance and direction to the process specifically focused on the integration of the various team efforts. Develop and review work products, particularly related to Chapters 5 and 6 of the Plan (as noted below). Specific responsibilities include:

- Consolidate information from the Action Team for Chapter 5, “Delta ERP Actions in an Adaptive Management Context”, including potential development of an overall Delta region conceptual model.
- Show linkages and dependencies among actions, potential for conflicts and cumulative effects, and how all actions fit into a larger conceptual model of the Delta.
- Provide input on priorities and adaptive management for Chapter 6, “Implementation.”
- Work with Implementing Agencies to develop a process for establishing priorities.
- Work with Implementing Agencies to use prioritization process to prioritize actions.
- Provide input on how monitoring and assessment will be used in implementation.
- Review final DRERIP draft chapters.

The AMPT consists of the co-leaders from the Action Team, and one representative from each of the following: ERPSB, CBDA Science Program, each of the three ERP Implementing Agencies (DFG, NOAA Fisheries, USFWS), an external scientist and a processes expert. DRERIP staff members from the ERP, DFG and the consulting firm support the AMPT efforts. The AMPT will meet every four to six weeks with review activity occurring between meetings.

Species Experts

Responsible for producing and reviewing life history conceptual models for Delta R , r , and some m and H species identified in the objectives listed under Goals 1 and 3 of the Ecosystem Restoration Program Plan (ERPP). Species experts will also prepare life history models for some of the Delta non-native invasive species (NIS). These NIS models will function as specific stressor ecosystem element models described in Phase 2. Species experts may work on their own or as teams. The species experts will conduct their work over a four to five month period.

Action Team

Responsible for developing ecosystem element conceptual models, evaluating ERP actions based on the species life history and ecosystem element models and assisting in evaluating action feasibility. The Action Team will address actions grouped as habitats, stressors, and process related actions. The Action Team will include sufficient members to cover the expertise needed for the particular ecosystem element and associated ERP actions. Individual conceptual models for some ecosystem elements will be developed while certain process and stressor elements may be overlaid on the habitat models.

The Action Team will have three co-leaders to facilitate progress. Co-leaders will also be members of the AMPT and are responsible for chairing Action Team meetings; working with staff to coordinate and manage team activities and development of team work products; and, acting as liaisons to the AMPT. The Action Team is expected to meet in small groups or subcommittees during specific phases of the process with team members working between meetings. Meetings will consist of workshops involving all Action Team members as well as small group meetings focused on developing ecosystem element models and vetting actions.

5.2 Peer Review

The DRERIP AMPT developed a Peer Review Strategy as shown in Attachment 3. This Strategy outlines four types of review as summarized below:

Individual Peer Reviewers

Individual peer reviewers will primarily be responsible for review of the species models. CBDA ERP and implementing agency staff will identify individual peer reviewers in consultation with the AMPT, the ERP Science Board, CBDA Science Program, and other Bay-Delta Program staff as appropriate.

Technical Peer Review Panels

A peer review panel may be established for the review of some DRERIP products. In this case, a panel lead will be identified. The panel lead will be responsible for ensuring that the panel completes its work in a timely manner, including the production of any minority reports, if necessary. The panel composition and the panel lead will be identified by the CBDA ERP and implementing agency staff, in consultation with the AMPT, the ERP Science Board, CBDA Science Program, and other Bay-Delta Program staff as appropriate. Technical peer review panels will be convened for specific review purposes, such as review of DRERIP plan chapters.

Standing Boards

The CBDA includes a number of standing scientific boards. Specifically, the Independent Science Board (ISB) and the ERP Science Board may conduct independent reviews of DRERIP products. However, in cases where the ISB or the ERP Science Board develops the product (e.g., the action vetting process), other boards or panels will be asked to complete an independent peer review of the product. One of the primary

roles defined for the ERP Science Board is the development of a vetting process that will be used by the Action Team to evaluate ERP actions in Phase 3 of the process.

5.3 Management

ERP Implementing Agency Managers (ERPIAMs)

The ERP Implementing Agency Managers (ERPIAMs) are the management level decision-makers that will approve various products. This group will be engaged approximately once a quarter. Periodic updates may be provided to the ERPIAMs more frequently.

Agency Coordination Team (ACT)

The Agency Coordination Team (ACT) facilitates communication between State and federal agencies, including those agencies not named to the CBDA. ACT is not intended to be a decision-making body. However, it provides a forum for DRERIP to inform and coordinate multi-agency issues and to disseminate information and early issue identification. Participating agencies retain their discretion to make final decisions to implement elements of the long term plan, according to their legal authority. Presentational updates on the DRERIP process and products will be provided to ACT approximately three times per year.

5.4 Public/Stakeholders

The Bay Delta Public Advisory Committee (BDPAC) Ecosystem Restoration Subcommittee, and California Bay Delta Authority (CBDA) function as public and policy arms of the process by engaging and obtaining input from stakeholders. It is expected that the Ecosystem Restoration Subcommittee will be briefed on DRERIP activity approximately once a quarter depending on the status of model development. The appropriate level and frequency of briefings for CBDA are to be determined.

6.0 Phases

As noted above, the Map is separated into four phases. Each of these phases as depicted on the Process Map diagram is briefly described below, including tasks and actions within each phase for the various groups.

6.1 Phase 1 - Process Design

Phase 1 involves establishing the overall process, including this Process Map, and defining the four product development groups, including membership and leaders. This phase involves activity primarily by the Working Group with input from the ERPSB and AMPT. Staff support, including GIS support, web-based support, and electronic library support for the DRERIP will be marshaled during this phase. The GIS and other support tools will be engaged throughout the plan development process and used specifically to facilitate communication and science input. Species Experts will be identified and Action Team Co-leaders will also be recruited in Phase 1. The phase ends

with approval of the Process Map by the ERPIAMs (as denoted by a decision diamond on the Process Map) and briefings to public/stakeholder groups. Specific tasks and products produced in this phase include:

- A Process Map detailing the teams, subsequent phases and interactions;
- Membership and commitments for each of the product development groups;
- Development of draft species life cycle models;
- Instructions for the Species Experts, including a template for the development of species life history models;
- Initiation of the vetting process development;
- Definition of a Peer Review Strategy; and
- GIS, web, and electronic library support structure.

6.2 Phase 2 - Conceptual Models

Phase 2 represents the first technical step in the process and is aimed at describing the scientific state of knowledge about key Delta species and key ecosystem elements through development of conceptual models. This will involve the engagement of approximately 30 Species Experts over a four to five month period to develop species life history models as well as engagement of the Action Team in the development of ecosystem element models. The vetting process for evaluating ERP actions (Phase 3) will also be finalized in Phase 2, including a review by the CBDA Independent Science Board (ISB) as described in the attached Peer Review Strategy.

Species Experts will be provided with a draft life cycle model, associated references, support information, and specific instructions. Species Experts will have approximately one month to develop draft life history models from the draft life cycle models. Their models will be reviewed by individual peer reviewers as described in the Peer Review Strategy (Attachment 3). Species Experts will generally work as individuals rather than in meeting or workshop settings, although some team activity may be involved. Attachment 4 provides a listing of the specific species that will be addressed by the Species Experts.

Phase 2 will also examine and develop conceptual models for the ecosystem elements associated with processes, habitats, and stressors in the ERP Plan (ERPP). In addition, for those process or stressor ecosystem elements that do not lend themselves to development as stand alone models, models will be prepared as overlays for habitat models. This work will be done by the Action Team and directed largely by the AMPT in coordination with the Working Group. A kick-off orientation workshop involving members of the Action Team will occur near the beginning of Phase 2.

Two additional workshops involving Action Team and AMPT members are planned to complete the ecosystem element conceptual models. Action Team members will work on the models between the two work sessions. Exactly how the Action Team will engage development of the ecosystem element models will be determined by the Action Team co-leaders and team members. The effort may involve formation of Action Team subcommittees or other small groups focused on specific processes, habitats, or

stressors. Draft ecosystem element models (or a subset of models) will be reviewed by the ERP Science Board through interactive workshops involving both Action Team and ERP Science Board members.

Phase 2 ends with approval of the refined vetting process along with species life history and ecosystem element conceptual models by the ERPIAMs, with briefings to Agency Coordination Team and the Ecosystem Restoration Subcommittee.

6.3 Phase 3 - Evaluate ERP Actions (“Vetting”)

Phase 3 will involve an effort to evaluate all previously identified Delta actions (including those from the ERPP Volumes I and II, Strategic Plan, Water Quality Program Plan, Draft Stage 1 Implementation Plan and Record of Decision (ROD; ERP-MSCS Milestones) in terms of the issues identified in the species life history and ecosystem element models. This evaluation will be conducted largely by the Action Team using the vetting process as reviewed by the CBDA ISB and will address why each of the actions and targets is relevant for restoring the Delta.

Two workshops involving Action Team and AMPT members are envisioned, the first when approximately 25% of the actions have been reviewed, and the second after all actions have been reviewed by the Action Team. The purpose of these workshops is to facilitate communication about actions that overlap, discuss issues that have arisen and to ensure consistency in approach. The Action Team will work in small groups in between workshops. The ERPSB will review the initial evaluation after approximately 25% of the actions have been evaluated and again once all actions have been evaluated.

Modifications to existing actions and identification of additional actions to fill perceived gaps can be expected as a result of this evaluation and this process is shown as Gap Analysis in the Process Map. Gap Analysis includes considering big picture issues, such as an entire suite of actions; comparing the problem statements in the Species Models with the actions; revising actions that were previously routed to “hold”; or developing a new action to fit current scientific understanding. Gap Analysis occurs after vetting of actions in Phase 3.

The AMPT will finalize a recommended process for setting priorities during Phase 3, which will be approved by the ERPIAMs. The AMPT will also describe linkages and integration among actions, including potential for conflicts and cumulative effects. This may result in an overall Delta Region conceptual model. The vetted actions will be incorporated into Chapter 5. Phase 3 will end with approval of the ERP Action evaluation and release of Chapters 1-5 by the ERPIAMs (as denoted by the decision diamond at the end of Phase 3 on the Process Map), and briefings to the ERPSB, Agency Coordination Team and the Ecosystem Restoration Subcommittee. The Chapter 5 draft will be reviewed by the Technical Review Panel.

6.4 Process Checkpoint – CEQA/NEPA Evaluation

At the end of Phase 3 and prior to initiating Phase 4 of the process, it is envisioned that the AMPT will take stock in the process to date and reevaluate as appropriate. A decision regarding the need for CEQA/NEPA compliance will be made at this time.

6.5 Phase 4 - Feasibility and Priority Setting

The final phase of the process will focus on identifying how actions evaluated in Phase 3 could be implemented, including the feasibility of various actions and establishment of priorities for implementation. The feasibility assessment and priority setting will include consideration of physical, financial, social-political issues, and relationship to the actions of other Bay-Delta program elements and will be based on the prioritization process developed during Phase 3. The feasibility assessment will be conducted by the Action Team supplemented with additional members as needed to incorporate adequate consideration of engineering and other feasibility factors. The AMPT will then prioritize the actions that have been vetted from a scientific and feasibility standpoint in coordination with the Working Group and ERPIAMs.

During Phase 4 the AMPT will revise their initial priority setting based on review by the ERPSB and ERPIAMs. The draft DRERIP will be reviewed by the Technical Review Panel. The phase will end with approval for release of the draft plan by the ERPIAMs, a public review period with briefings to the ERPSB, Agency Coordination Team and the Ecosystem Restoration Subcommittee, and approval of a final plan by the ERPIAMs and the CBD Authority.

Attachment 1:	DRERIP Science Input Process Map, phases 2-4
Attachment 1A:	DRERIP Science Input Process Map, phase 1
Attachment 2:	DRERIP Outline
Attachment 3:	Peer Review Strategy
Attachment 4:	List of Species Life Cycle Models Completed