

Adaptive Management Implementation Plan for the Reinitiation of Consultation of the Long-term Operation of the Central Valley Project and State Water Project

DRAFT, December 11, 2018 (does not reflect all comments received to date)

1 Introduction

This Adaptive Management Implementation Plan (AMIP) is intended to assist the U.S. Bureau of Reclamation (Reclamation) and the California Department of Water Resources (DWR) in utilizing the best available science currently available to operate the Central Valley Project (CVP) and the State Water Project (SWP) in a manner that will provide improved conditions for federally protected fish species. It modifies and enhances recent interagency efforts in developing the Adaptive Management Framework for the California WaterFix and Current Biological Opinions on the coordinated operations of the Central Valley Project and State Water Project (“CWF AMF”, DWR 2016).

In 2008, Reclamation and DWR reinitiated Section 7 consultation under the Endangered Species Act on the CVP and SWP operations and received Biological Opinions (BOs) from both the National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) for federally listed fishes. Both BOs provided jeopardy decisions on the species under each agency jurisdiction. During discussions on the California WaterFix, participating agencies agreed that adaptive management was the approach best suited to improve management of the Delta and its resources. The resulting CWF AMF identified a conceptual framework for governance, process, and decision making; key uncertainties, and research and science needs.

Reclamation and DWR have reinitiated consultation on the long-term operation of the CVP and SWP (ROC on LTO) and plan to incorporate formal decision support frameworks and new science during the Proposed Action. Thus such an approach needs to go beyond previous commitments to a concept and be described sufficiently for implementation of a ROC on LTO Adaptive Management Program. This AMIP refines the governance of the CWF AMF to incorporate the multiple programs federal and state action agencies (USBR, DWR) and federal and state fisheries agencies (CDFW, NMFS, USFWS) (collectively “5 Agencies”) and stakeholders participate in and will support the ROC on LTO Adaptive Management Program. Also, the AMIP describes the approach for setting and assessing objectives, designing and implementing coordinated monitoring and special studies to evaluate actions, integrating new information into evaluating management actions, and adapting as new information requires adding, changing or removing management actions.

1.1 Central Valley Project

The CVP was constructed by the Reclamation for the purpose of river regulation, navigation improvement, flood control, water storage, water distribution, and power. Later regulations (e.g.,

DRAFT (Only initial sections)

Central Valley Project Improvement Act, or CVPIA) specified the CVP must also be used for fish and wildlife enhancement. The CVP is composed of more than 18 reservoirs with a combined storage capacity of more than 11 million acre-feet, more than 10 hydroelectric power plants, and more than 500 miles of major canals and aqueducts. These facilities are generally operated as an integrated project, although they are authorized and categorized in more distinct units or divisions.

1.2 State Water Project

To provide a more reliable water supply and reduce the flood risk in the Sacramento Valley, the California legislature appropriated funds to the DWR to construct the SWP. The SWP includes the Oroville Facilities on the Feather River, a Delta cross channel, an electric power transmission system, 2 aqueducts, and several southern California reservoirs. DWR is required to plan for recreational and fish and wildlife uses of water in connection with the uses of water in connection with the SWP and other state-constructed water projects.

1.3 Existing CVP and SWP Efforts for Fish

CVPIA, signed into law in 1992, mandates changes in management of the CVP for the protection, restoration, and enhancement of fish and wildlife, including the provision of 800,000 acre-feet of water dedicated to fish and wildlife annually; water transfers provisions; special efforts to restore anadromous fish populations by 2002, restoration fund financed by water and power users for habitat restoration and enhancement and water and land acquisitions; installation of the temperature control device at Shasta Dam; and development of a plan to increase CVP yield.

Some of the beneficial actions through the CVP and CVPIA include (CVPIA Annual report 2014):

- RPA implementation
 - o Restore floodplain habitat, including at Yolo Bypass
 - o Upgrade Red Bluff Diversion Dam and operate to prevent the delays of fish migration
 - o Reservoir operations to manage the cold water pool for the needs of the listed fish species and minimize flow fluctuation effects
- Improved spawning and rearing habitat
- Knights Landing outfall gates improvements (voluntary water user action)
- Updated operation of the Head of Old River Barrier
- Clear Creek Restoration Program
- Instream Water Acquisition Program
- Implementation of short pulse flows
- Shasta Temperature Control Device
- Improvements at the Tracy Pumping Plant
- Improved fish passage and screening
- Increased monitoring programs
- Delta lands purchased for tidal habitat restoration projects

2 Intent of Adaptive Management Implementation Framework

Based on the DOI Adaptive Management Technical Guide (Williams et al. 2007), adaptive management is defined as:

Adaptive management [is a decision process that] promotes flexible decision making that can be adjusted in the face of uncertainties as outcomes from management

actions and other events become better understood. Careful monitoring of these outcomes both advances scientific understanding and helps adjust policies or operations as part of an iterative learning process. Adaptive management also recognizes the importance of natural variability in contributing to ecological resilience and productivity. It is not a 'trial and error' process, but rather emphasizes learning while doing. Adaptive management does not represent an end in itself, but rather a means to more effective decisions and enhanced benefits. Its true measure is in how well it helps meet environmental, social, and economic goals, increases scientific knowledge, and reduces tensions among stakeholders.

Similarly, the California Water Code definition is:

Adaptive management is defined in Delta Reform Act (Water Code §85052) as "a framework and flexible decision-making process for ongoing knowledge acquisition, monitoring, and evaluation leading to continuous improvements in management planning and implementation of a project to achieve specified objectives." An adaptive management approach provides a structured process that allows for taking action under uncertain conditions based on the best available science, closely monitoring and evaluating outcomes, and re-evaluating and adjusting decisions as more information is learned.

An important similarity in both definitions is that adaptive management is based on a flexible decision-making process. For the ROC on LTO, the adaptive management program uses a structured decision-making approach that incorporates uncertainty by recognizing there are different possible outcomes to management actions. This provides information that allows flexibility in operational decisions and other management actions that can be adjusted as needed based on the fisheries responses, whether immediate or over time, and as the outcomes become better understood.

The ROC on LTO AMIP provides a process to make informed decisions and better decisions, which create more benefits for less water supply impacts. Reclamation may take different adaptive management actions – identified in the ROC on LTO Biological Assessment and Environmental Impact Statement as well as below. Through the implementation of these actions it is anticipated that increased operational flexibility would be earned in accordance with the degree to which the biological objective is met by the action and the flexibility would not diminish the benefit achieved. Structured Decision Making (SDM), a quantitative method of adaptive management, can help identify the highest priority actions to undertake, and thus provide an investment strategy.

The AMIP will support strong collaborative, voluntary partnerships, use decision science-based models to aid in determining the appropriate actions to implement, and determine if an intervention action is triggered. It will also identify research, monitoring, and evaluation actions required to fill in any data gaps. Finally, it will provide a formalized process for transparency and accountability through adaptive management, scientific review, issue resolution, and reporting.

The intent of the AMIP makes the intent of the CWF AMF actionable in a number of ways:

- Describes the process and implementation schedule for conducting the SDM process to identify, prioritize and implement actions as part of Adaptive Management Program for long-term

operations of the CVP and SWP that is consistent with state and federal endangered species laws.

- Recommends how existing robust science programs can be aligned and enhanced to implement the Adaptive Management Program.
- Develops and utilizes Science Plans to address uncertainties about how water operations fits into the broader context of fisheries management, including hatcheries, harvest, and non-flow measures.
- Integrates compliance monitoring and special studies in biennial work plans to evaluate anticipated water operation and other management actions that maximize water supply by improving science and documenting how implementation avoids jeopardy and meeting other regulatory standards applicable ESA-listed fish species.
- Recommends a governance structure, practices, and norms for science and adaptive management to ensure the best available scientific information to all aspects of decision making on multiple time scales (multi-year, seasonal planning, and real-time operations considered within the bounds of annual planning).
- Applies ecological, social, and economic science to evaluate potential management action's cost effectiveness and biological responses.
- Pursues an annual independent review panel for evaluating existing monitoring and modeling performance towards improving, enhancing, or changing these surveys and tools based on recommendations.
- Implements data acquisition, management, reporting, and communication principles and practices.