

Overview of the 2009 NMFS Biological Opinion on the Long-Term Operations of the Central Valley Project and State Water Project

On June 4, 2009, National Marine Fisheries Service (NMFS) issued to the U.S. Bureau of Reclamation (Reclamation) a jeopardy biological opinion on the long-term operation of the Central Valley Project and State Water Project (CVP/SWP operations BiOp). The CVP/SWP operations BiOp concluded jeopardy and adverse modification of critical habitat for:

- Endangered Sacramento River winter-run Chinook salmon,
- Threatened Central Valley spring-run Chinook salmon,
- Threatened California Central Valley steelhead, and
- Threatened Southern Distinct Population Segment (DPS) of North American green sturgeon.

The BiOp also concluded jeopardy on Southern Resident killer whales (no designated critical habitat in the action area), and not likely to adversely affect Central California Coast steelhead and their designated critical habitats.

Within the biological opinion, NMFS offered a Reasonable and Prudent Alternative (RPA) comprising 72 actions within the Sacramento River and San Joaquin River basins and, in its entirety, is the minimum to avoid jeopardy to the listed species affected by CVP and SWP operations. In general, most of the biggest stressors, and therefore, RPA actions, were designed primarily to decrease in-river water temperatures, ensure adequate flows for various life history stages, and improve fish passage and spawning success (figure 1). NMFS tailored these protections to both meet the needs of these endangered and threatened fish and to minimize impacts to other water supply users.

Flexibilities: The RPA provides multiple flexibilities, for example, real-time operations based on monitoring triggers, phased-in implementation, performance-based approaches, incidental take limits based on estimated population sizes, actions tiered to water year type or drought exceptions, and annual reviews that may result in adaptive management changes based on new science. Also, many RPA actions within the CVP/SWP Operations BiOp were much more conservative when initially drafted. For example, the San Joaquin inflow-to-export ratio action was reduced from an initial 90-day action to a final 60-day action. Another example is that Old and Middle River (OMR) flow management was going to be initiated when juvenile winter-run Chinook salmon are first detected in the Delta, as early as October. However, in the final BiOp, the onset of the OMR flow management RPA action is set for January 1 of each year.

Peer Reviews:

- The CVP/SWP operations BiOp received several peer reviews. NMFS issued a draft BiOp in December 2008, which was peer reviewed by the Delta Stewardship Council's Delta Science Program (panel of 7 scientists), and also three desk reviews conducted through the Center for Independent Experts.
- The National Academy of Sciences, at the urging of Senator Diane Feinstein, peer reviewed the CVP/SWP operations BiOp following its issuance. The 15-member panel concluded that "On balance, the committee concludes that the actions, which are primarily crafted to improve life-stage-specific survival rates for salmon and steelhead,

with the recognition that the benefits also will accrue to sturgeon, are scientifically justified.”

- Annual reviews through the Delta Science Program: Beginning in 2010, NMFS, Reclamation, and the U.S. Fish and Wildlife Service have co-sponsored seven independent peer reviews, focused on implementation of the CVP/SWP Operations BiOp and ensuring that the agencies are learning and incorporating adaptive management approaches into the BiOps. Examples of changes that have been included through this process and general adaptive management include:
 - Managing water temperatures in the upper Sacramento River over winter-run Chinook salmon redds (as opposed to further downstream),
 - Implementing additional studies and adjusting estimated survival of juvenile winter-run Chinook salmon as part of the calculation of the number of juvenile winter-run Chinook salmon estimated to enter the Delta in each year,
 - Providing the technical teams on Clear Creek and the Stanislaus River the discretion to adjust pulse flow timing duration, and magnitude based on fish presence and timing,
 - Implementation of an Old and Middle River index,
 - Utilizing a rapid genetic analysis protocol to follow up on fish triggers associated with length-at-date criteria to implement Old and Middle River flow management and reduce false positives for the protection of winter-run Chinook salmon,
 - Improved Sacramento River water temperature modeling through the temperature management season, and
 - Implementing real-time acoustic receivers at various locations in the Sacramento River and Delta.

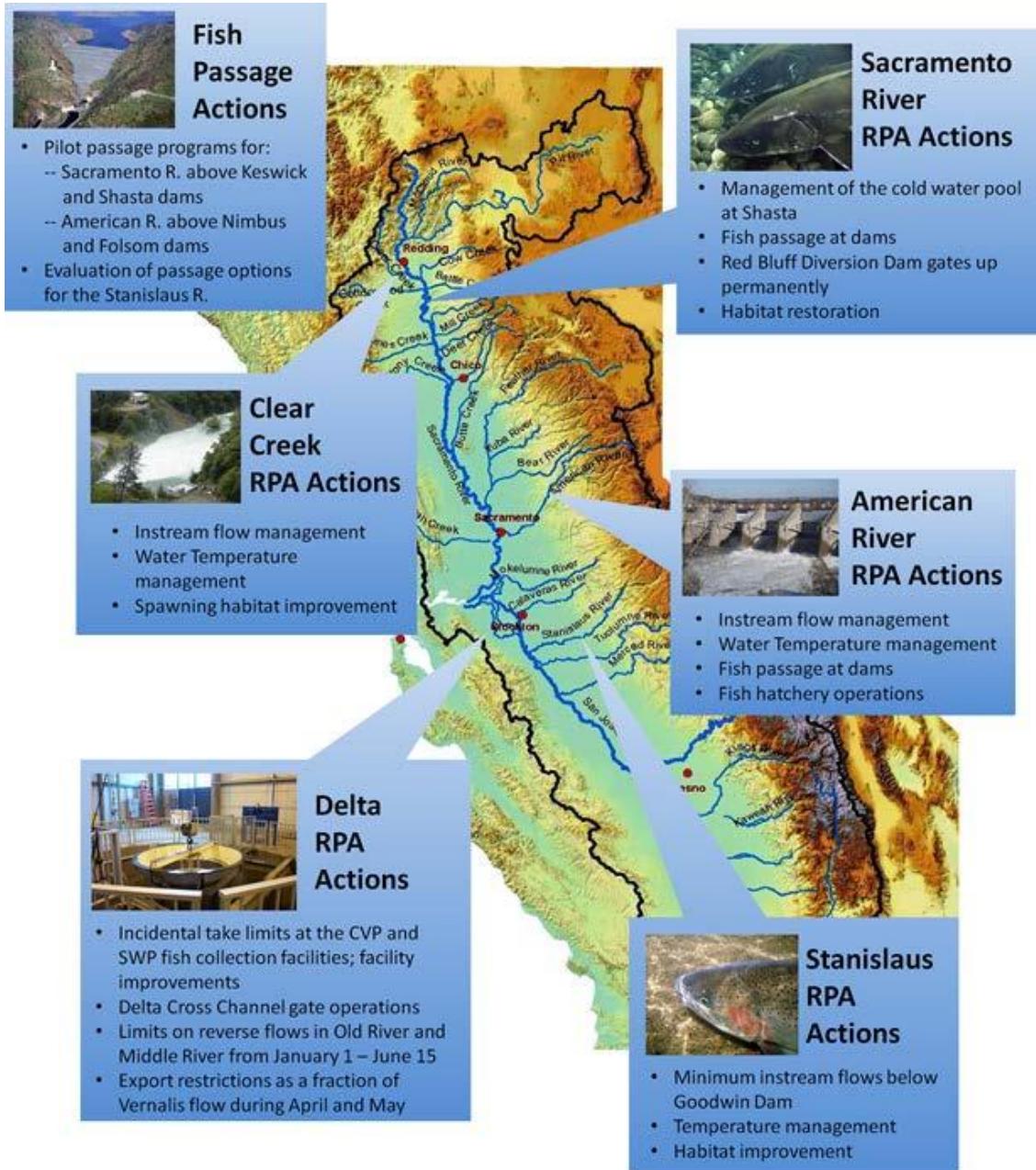


Figure 1: Map of California's Central Valley with summary of the suites of RPA actions.