

Shasta Temperature Management: Building (drought) flexibility into a Reasonable and Prudent Alternative.

In 2009 National Marine Fisheries Service (NMFS) issued a jeopardy biological opinion to the Bureau of Reclamation with 72 individual Reasonable and Prudent Alternative (RPA) actions to minimize adverse effects of Central Valley Project and State Water Project (CVP/SWP) operations to endangered fish. Critical to ensuring that the last remaining population of endangered winter-run Chinook salmon did not go extinct, is the management of river temperatures in the spawning reach of the Sacramento River during the summer incubation period. Recognizing the inherent environmental variability in a system as large as the CVP/SWP, the 2009 biological opinion (with 2011 amendments), identifies a range of acceptable operations that are dependent on the forecasted end of year storage and/or the ability to meet temperatures below biologically significant thresholds (RPA action I.2.3.A, B and C). These prescribed operations have the intended goal of conserving cold water pool within Shasta reservoir early in the year (March – May) for use later, during the temperature management season (May – October). In spite of this drought contingency planning the winter-run, and anadromous fishes in general, experienced extremely poor survival during California's recent drought. Reclamation and NMFS are now faced with the challenge of amending the RPA in preparation for reinitiation of ESA consultation, so as to ensure adequate protection of species under the jurisdiction of NOAA Fisheries.