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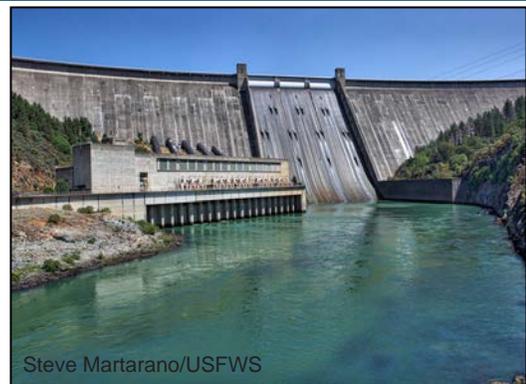
COLD WATER MANAGEMENT

2019 Biological Opinions for Central Valley Project and California's State Water Project

Careful management and strategically planned releases from the cold-water pool behind Shasta Dam are essential to the survival of the last natural population of endangered winter-run Chinook salmon in the Sacramento River and its tributaries. Reclamation and NMFS worked closely during the consultation period to develop and refine a multi-tiered Cold Water Management Strategy that addresses the biological needs of salmon resources downstream of Shasta Dam, while meeting the needs of farmers, cities and industries.

Key Takeaways

- Reclamation will employ a science-based strategy for water temperature management to minimize fish mortality in low water years, capitalizing on non-stored water to meet contract requirements in drier years and using pulse flows to help trigger salmon outmigration when water is available.
- Reclamation will support the rearing and release of winter-run Chinook salmon from the Livingston Stone National Fish Hatchery, as well as habitat restoration projects that improve historic spawning grounds for salmon in California, with built-in performance metrics and an independent review process.



New Actions

- Development of a 4-tiered Cold Water Management Plan that addresses variability in water years, and builds on new science and recent flow studies to protect Sacramento River winter-run Chinook salmon.
- Development of Temperature Dependent Egg Mortality and Egg to Fry Performance Metrics to guide and evaluate success of the 4-tiered Cold Water Management Plan.
- Establishes Drought Intervention Measures and creates a pro-active Drought Response Toolkit to improve agency response to drought conditions that could imperil winter-run Chinook salmon.
- Integration of Collaborative Habitat Restoration to support the spawning and early rearing of Chinook salmon and steelhead in the upper Sacramento River.
- Integrated coordination with the Sacramento River Settlement Contractors to meet and confer during low water years, coordinate on habitat restoration and improve science collaboration for salmon protection.