



State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Northern Region
601 Locust Street
Redding, CA 96001
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director



January 14, 2019

Jose Gutierrez
Westlands Water District
3130 N. Fresno Street
Fresno, CA 93703

Subject: Review of the Initial Study and Notice of Preparation for the Shasta Dam Raise Project, State Clearinghouse Number 2018111058, Shasta and Tehama Counties

Dear Mr. Gutierrez:

The California Department of Fish and Wildlife (Department) has reviewed the Initial Study and Notice of Preparation (NOP) dated November 2018, for the above-referenced project (Project). As a trustee for the State's fish and wildlife resources, the Department has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants and their habitat. The Department offers the following comments and recommendations on this Project in our role as a trustee agency pursuant to the California Environmental Quality Act (CEQA; California Public Resources Code [PRC] section 21000 *et seq.*).

Project Description

The Project as proposed includes raising the Shasta Dam up to 18.5 feet and increasing the storage capacity in Shasta Reservoir up to 634,000 acre-feet. Project features and related construction activities include the following: clearing vegetation from portions of the inundated reservoir area; constructing the dam, appurtenant structures, reservoir area dikes, and railroad embankments; and relocating roadways, bridges, recreation facilities, utilities, and miscellaneous minor infrastructure. The Primary Study Area includes Shasta Dam and Lake; the lower portions of all contributing major and minor tributaries flowing into Shasta Lake; Trinity and Lewiston reservoirs; the Sacramento River and between Shasta Dam and the Red Bluff Pumping Plant (RBPP), including tributaries at their confluence.

The U.S. Bureau of Reclamation (Reclamation) released the Shasta Lake Water Resources Investigation Final Environmental Impact Statement (SLWRI FEIS) in 2014 and the SLWRI Final Feasibility Report in 2015, evaluating substantially the same project.

The Department has commented on previous iterations of this Project via several letters to Reclamation as required as the State's trustee for natural resources and consistent with the Public Resources Code section 5093.542.

January 31, 2007	Subject: Comments on Request for Review and Comment of the Draft Plan Formulation Report
November 7, 2008	Subject: Comments on the Administrative Draft of the Environmental Impact Statement and Environmental Impact Report, Feasibility Report, and Appendices
January 21, 2010	Subject: Comments on Request for Review and Comment of the Draft Interim Report, December 2009
August 16, 2010	Subject: Comments on Request for Review and Comment of the Reservoir Tributary Fishery Characterization Draft Work Plan, July 2010
April 12, 2011	Subject: Comments on the Second Administrative Draft of the Environmental Impact Statement, Feasibility Report and Fisheries and Geology Appendices for the Shasta Lake Water Resources Investigation.
September 9, 2011	Subject: Comments on Request for Review and Comment of the Reservoir Tributary Fishery Characterization Second Draft Work Plan, July 2011
February 8, 2013	Subject: Comments on the Public Draft of the Feasibility Report and Selected Attachments for the Shasta Lake Water Resources Investigation
April 8, 2013	Subject: Comments on the 2013 Administrative Draft of the Environmental Impact Statement and selected Technical Reports
September 30, 2013	Subject: Comments of the Draft Environmental Impact Statement and Proposed Shasta Dam Enlargement Project/Shasta Lake Water Resources Investigation

Many of the comments and issues made in these letters are still relevant, and should be reviewed as part of the Draft Environmental Impact Report (DEIR) development.

Comments and Recommendations

CEQA Guidelines 15063(d)(3) requires that identified environmental effects listed in the initial study are to be briefly explained to indicate that there is some evidence to support the checklist entries. The brief explanation may be through narrative or a reference to an earlier Environmental Impact Report (EIR). If reference to an earlier EIR is used, a citation to the page or pages where the information is found should be included. However, an initial study is neither

intended nor required to include the level of detail included in an EIR. (CEQA Guidelines, section 15063, subd. (a)(3)). Here, Westlands Water District as the Lead Agency, cited to the 2014 SLWRI FEIS. Westlands refers the NOP reader to entire sections within the SLWRI FEIS, some of which are hundreds of pages. Although this approach may provide evidence in support of the checklist entries, it does not “briefly” explain the evidence and is burdensome. The Department is unable to fully evaluate the NOP and review numerous sections of the SLWRI FEIS to provide a complete and detailed response during the 45-day review period. Therefore, while the Department is providing this letter in response to the NOP, the Department may continue to identify potentially significant impacts of this Project of Statewide importance as the CEQA process unfolds.

Project Alternatives

CEQA Guidelines section 15126.6(e)(1) and (2) state a “No Project” alternative shall be evaluated and “shall discuss the existing conditions at the time the notice of preparation is published.” Only Comprehensive Plans (CP) 1 through 5 are presented in the NOP, none of which is a No Project alternative. The Department recommends evaluating the No Project alternative in the draft EIR.

Further, the NOP must identify the existing environmental conditions (see CEQA Guidelines, § 15063, subd. (d)(2).) Instead, the NOP relies solely on the 2014 SLWRI FEIS for its environmental analysis, and that SLWRI FEIS in turn reaches conclusions based predominately on baseline conditions from 2013 and earlier with the most recent update (2014) occurring for botanical surveys. Studies Reclamation conducted are well over five years old and need to be updated to present a meaningful basis for analysis, particularly given changed regulatory circumstances and operational rules, historic drought, and large wildfires that have affected the Project area since 2005. The Department recommends all biological surveys over 5 years old be updated and field verified prior to the release of the draft EIR in order to reflect an accurate biological baseline.

Biological Resources

Thousands of acres of terrestrial and potentially hundreds of acres of riverine and aquatic habitat would be impacted under the six alternatives that were presented in the NOP. This amount of impacted public trust resources (fish, wildlife, native plants, and natural communities) is a substantial loss. All of the dam raise alternatives would result in significant and unavoidable impacts to a large number of terrestrial and aquatic resources. Asserted benefits to fish should not be looked at as a means to offset, mitigate, or account for impacts to wildlife, botanical, and other resource values, including habitats.

A primary objective of the Project is to increase the survival of anadromous fish populations in the Sacramento River, primarily upstream from the Red Bluff Pumping Plant. The other primary objective is to "Increase water supply and water supply reliability for agricultural, M&I [Municipalities & Industrial], and environmental purposes to help meet current and future water demands." It is unclear to the Department whether the Project is capable of substantially benefitting anadromous fish, particularly in a manner that provides equal weight to the other primary objective of water supply and water supply reliability. The SLWRI FEIS demonstrated that benefits to anadromous fish appear to be further limited whenever operation to benefit anadromous fish are in conflict with current operational guidelines or water supply reliability. For example, page 1-12 of the NOP discusses a cold water pool adaptive management plan that "may include operational changes...to benefit anadromous fish." Page 2-61 of the SLWRI FEIS discusses the adaptive management benefitting anadromous fish as follows (emphasis added): "The adaptive management plan may include operational changes to the timing and magnitude of releases from Shasta Dam to benefit anadromous fish, **as long as there were no conflicts with current operational guidelines or adverse impacts on water supply reliability.**"

Many other projects could increase survival and recovery of anadromous fish. The NOP relies on increasing the volume of the cold-water pool as the primary means to increase anadromous fish survival in the Sacramento River. However, the Department believes increasing the cold-water pool via a dam enlargement is not the top anadromous fish recovery priority. A range of other higher priority recovery actions are identified in various recovery plans, five-year reviews, and recovery strategies for Central Valley anadromous fish. For example, improving flow management; screening pumps and diversions; enhancement of spawning and rearing habitat; removing fish passage barriers, and floodplain restoration could also achieve increased anadromous fish survival, and would do so in a much more efficient and cost effective manner than raising Shasta Dam. The SLWRI FEIS eliminated consideration of lower cost and lower impact alternatives, and limited the range of alternatives to those that would raise Shasta Dam. The NOP's Project objectives should accommodate a range of alternatives that would increase survival and recovery of anadromous fish and improve water supply reliability without raising Shasta Dam.

Fisheries Resources and Water Operations

The preliminary determinations of significant impacts in the NOP for downstream impacts to aquatic biological resources (Impact Aqua-9 through 24) are taken from the 2014 SLWRI FEIS. These 2014 conclusions are predicated on baseline conditions from 2005 and future conditions at 2030. CEQA Guidelines section 15125 requires an EIR to describe the environmental conditions in the vicinity of the project at the time of NOP publication, which would then serve as the baseline

for evaluation of impacts. Several regulatory documents affecting Sacramento River operations have been developed since 2005, including U.S. Fish and Wildlife Service (FWS) 2008 Biological Opinion (BiOp) for Delta smelt and the National Marine Fisheries Service (NMFS) 2009 *Biological Opinion and Conference Opinion on the Long-term Operations of the Central Valley Project and the State Water Project*, and the CDFW 2009 Incidental Take Permit for ongoing operations of the State Water Project in the Delta. The Lead Agency's preliminary determinations may be inaccurate since the baseline should consider conditions in 2018 rather than 2005, and incorporate the aforementioned regulatory documents as applicable.

Further, Reclamation has reinitiated Section 7 consultation with NMFS and FWS pursuant to the federal Endangered Species Act. Federal documents indicate that new Biological Opinions could be issued as soon as June 2019. The operational changes that might result from the reinitiated consultation are unknown at this time, and the Department is concerned that there is a disjunction between various processes addressing facility operations that could preclude informed decision-making and public understanding.

For modeling, the 2014 SLWRI FEIS limited its analysis to:

- CalSim-II (primary and extended study areas). This modeling does not incorporate real-time operations decision-making;
- Sacramento River Temperature Model;
- SALMOD, VERSION 3.8 (Primary study area) for Impact Aqua-12, Changes in Flow and Water Temperature in the Upper Sacramento River Resulting from Project Operation – Chinook Salmon and Steelhead, which considers the Sacramento River only from Keswick to the Red Bluff Pumping Plant; and
- A qualitative assessment of aquatic impacts primarily based on changes to monthly average flows with a threshold of >5% change constituting a significant impact or benefit.

The Department considers this analysis to be insufficient in describing the full potential of downstream impacts that could result from the proposed Project. The analysis relies on a single quasi-life cycle model that considers egg-to-juvenile life stages only, and does not consider year-over-year impacts, supplemented with a qualitative analysis. In particular, while there may be potential to increase reservoir storage that may be beneficial in critical and dry year types, this comes at the expense of reduced flows below Shasta/Keswick during normal, above normal, and wet years. These wetter year types are essential for providing conditions that enhance resilience and recovery of all fish species, particularly listed species and species of special concern that are severely impacted during critical and dry years and extended periods of drought.

The Department recommends that the draft EIR include a comprehensive description of current and proposed Project operations and a comprehensive list of CalSim II modeling inputs and assumptions and a thorough description of climate change scenario inputs to CalSim II. The Department recommends that the applicant tier analyses of biotic and abiotic impacts based on the CalSim II modeling requested above. Biotic and abiotic analyses should utilize the most recently available analyses. These include but may not be limited to, the analyses and methods utilized for the California WaterFix Final EIR/EIS Alternative 4A, the California Water Fix 2081(b) Application¹ [which in turn refers to the California Water Fix Biological Assessment Appendices 5A, 5C, 5D, 5F, 6A, and 6B), the California WaterFix 2081b Permit,² the June 16, 2017 National Marine Fisheries Service California WaterFix Section 7 Biological Opinion,³ and the June 23, 2017 U.S. Fish and Wildlife Service California WaterFix Section 7 Biological Opinion.⁴ These analyses and methods are not as limited as the modeling found in the 2014 SLWRI FEIS.

The most pertinent analyses relating to the potential effects of the Project on downstream aquatic resources include, but are not limited to:

Winter-run Chinook Salmon, Spring-run Chinook Salmon, Delta Smelt, Longfin Smelt

- Channel Velocity (DSM2-HYDRO)
- Entry into Interior Delta
- Flow Routing into Channel Junctions

Winter-run Chinook Salmon and Spring-run Chinook Salmon:

- Through-Delta Survival
 - Delta Passage Model
 - Newman 2003 (spring-run only)⁵
 - Perry 2010⁶
 - Perry Survival Model 2017⁷

¹ Available at https://live-california-waterfix.pantheonsite.io/wp-content/uploads/2017/10/CWF_2081b_10716.pdf

² Available at https://live-california-waterfix.pantheonsite.io/wp-content/uploads/2017/10/CWF_website_2081b_072817.pdf

³ Available at https://www.westcoast.fisheries.noaa.gov/central_valley/CAWaterFix.html

⁴ Available at <https://www.fws.gov/sfbaydelta/HabitatConservation/CalWaterFix/Index.htm>

⁵ Newman, K. B. Modelling paired release-recovery data in the presence of survival and capture heterogeneity with application to marked juvenile salmon. *Statistical Modelling* 3:157–177 (2003).

⁶ Perry, R. W., J. R. Skalski, P. L. Brandes, P. T. Sandstrom, A. P. Klimley, A. Ammann, and B. MacFarlane. Estimating survival and migration route probabilities of juvenile Chinook salmon in the Sacramento-San Joaquin River Delta. *North American Journal of Fisheries Management* 30(1):142-156 (2010).

⁷ California WaterFix Biological Opinion. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southwest Fisheries Service Center (NMFS), Long Beach, California. Appendix E. Analysis of UPP using Perry survival model. In California WaterFix Biological Opinion. National Oceanic and Atmospheric Administration, National Marine Fisheries Service. Southwest

- Life Cycle Models (CHNWR only)
 - Interactive Object-oriented Salmon Simulation (IOS)
 - Oncorhynchus Bayesian Analysis (OBAN)
 - NMFS Winter Run Life Cycle Model (NMFS WRLCM)

Longfin Smelt

- Mount 2013⁸ (outflow)

Delta Smelt and Longfin Smelt (habitat related, quantitative/qualitative analyses)

- Migration impedance and lost reproductive opportunity
- Changes in larval transport
- South Delta facilities-entrainment
- Microcystis
- Reduction in transport of food web materials
- Sediment removal and changes in turbidity
- Changes in abiotic habitat (X2)

McCloud River

Raising the water level behind Shasta Dam will convert part of the McCloud River into reservoir habitat, changing the free-flowing condition of the McCloud River. The Wild and Scenic Rivers Act specifically identifies the extraordinary resources of the McCloud River in that it supports one of the finest wild trout fisheries in the State, and affords specific protection through language prohibiting construction of water impoundment facilities on eligible river segments (Public Res. Code, § 5093.542). The Wild and Scenic Rivers Act prohibits State agencies or departments from assisting or cooperating in any way "in the planning or construction of any dam, reservoir, diversion, or other water impoundment facility that could have an adverse effect on the free-flowing condition of the McCloud River, or on its wild trout fishery." (Public Res. Code, § 5093.542, subd. (c).)

This segment of the McCloud River is also designated as a Wild Trout Water, and pursuant to Fish and Game Commission's Wild Trout Policy "All necessary actions, consistent with State law, shall be taken to prevent adverse impact by land or water development projects affecting designated Wild Trout Waters." The California Natural Resources Agency sent a letter, dated March 13, 2018, to members of Congress asking that they "not pursue the Shasta Dam enlargement project, which disregards California law." The Department's participation relative to Project impacts

Fisheries Service Center (NMFS), Long Beach, California (2017). Available at: http://www.westcoast.fisheries.noaa.gov/publications/Central_Valley/CAWaterFix/WaterFix%20Biological%20Opinion/cwf_appendix_e.pdf

⁸ Mount, J., W. Fleenor, B. Gray, B. Herbold, and W. Kimmerer. Panel Review of the draft Bay-Delta Conservation Plan. Prepared for the Nature Conservancy and American Rivers. September. Saracino & Mount, LLC, Sacramento, CA (2013).

has been, and continues to be, to protect and enhance fishery resources. Inundation of the McCloud River would result in a significant loss of this river ecosystem to a reservoir ecosystem, resulting in direct and indirect adverse impacts to the current trout fishery in conflict with State law and policy. Likely changes to the trout fishery would include a shift from riverine trout habitat to habitat that supports non-native lake dwelling fish species. The Department recommends the DEIR include alternatives that do not include raising the dam and affecting the McCloud River.

Terrestrial Resources

Several special status species and habitats are known to occur within this Project study area. The Department recommends updating all surveys over five years old, especially those for endangered, threatened, or candidate species to reflect new data and/or observations that may have occurred since the SLWRI FEIS studies were conducted. The California Natural Diversity Database (CNDDDB), along with other electronic databases (California Native Plant Society and U.S. Fish and Wildlife Service) provide useful positive detection information for determining which species are potentially present on a site. This information should not substitute for updated surveys.

Vegetation mapping should be updated to reflect any newly listed sensitive natural communities (<https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities#sensitive%20natural%20communities>). Vegetation types that are not on the State's sensitive list but that may be considered rare or unique to the region under CEQA Guidelines section 15125 (c), should also be analyzed. California Rare Plant Rank (CRPR) 1, 2 and 3 species should be analyzed within the DEIR.

Additionally, both the Carr and Hirz fires may have altered species and habitats likely to be affected by the proposed Project. The Department recommends the draft EIR describe the cumulative impacts the Project, combined with the fires, on wildlife, plant, and vegetation communities.

Maps depicting the proposed inundations of Comprehensive Plans 1 through 5 should be presented in the DEIR. These should be shown in separate figures for ease of comparison. The SLWRI FEIS and 2015 Feasibility Report do not show the inundation impacts. Further, the inundation layer should be overlaid on the known sensitive species observations.

A new scientific paper on Shasta salamander (*Hydromantes shastae*) (Bingham et al. 2018)⁹ splits the species into three genetically distinct species. Though the

⁹ Bingham, R. E., Papenfuss, T. J., Lindstrand, L. & Wake, D. B. Phylogeography and Species Boundaries In the *Hydromantes shastae* Complex, With Description of Two New Species (Amphibia; Caudata; Plethodontidae). Bulletin of the Museum of Comparative Zoology 161, 403–427 (2018).

CESA listing status for these has not been updated, all should be treated as a CESA threatened species. All three species, as identified in the Bingham paper would be impacted by the Project, but one in particular, *Hydromantes wintu*, occurs entirely between the Pit and McCloud River arms of Shasta Lake, and its range is likely less than 2,000 acres in size. The draft EIR should evaluate the potential of the Project to significantly impact these salamander species, and the potential to compromise the continued existence of *H. wintu*.

Foothill yellow-legged frog (*Rana boylei*) is currently a State candidate species, following a determination by the California Fish and Game Commission on June 21, 2017 that listing the species as threatened may be warranted. As such, foothill yellow-legged frog is afforded all the legal protections a State listed species during the candidacy period and the draft EIR should address the potential to substantially reduce the habitat or numbers or range of the species.

Thank you for the opportunity to comment. If you have any questions, please contact Curt Babcock at (530) 225-2740, or by e-mail at Curt.Babcock@wildlife.ca.gov.

Sincerely,



Tina Bartlett
Regional Manager

ec: State Clearinghouse
state.clearinghouse@opr.ca.gov

Jose Gutierrez
Westlands Water District
jgutierrez@westlandswater.org

Paul Uncapher
Stantec
paul.uncapher@stantec.com

Jason Roberts, Gregg Erickson, Eric Larson, Kevin Shaffer, Kenneth Kundargi, Shannon Little, Curt Babcock, Amy Henderson, Kevin Thomas
California Department of Fish and Wildlife
Jason.Roberts@wildlife.ca.gov, Gregg.Erickson@wildlife.ca.gov,
Eric.Larson@wildlife.ca.gov, Kevin.Shaffer@wildlife.ca.gov,
Kenneth.Kundargi@wildlife.ca.gov, Shannon.Little@wildlife.ca.gov,
Curt.Babcock@wildlife.ca.gov, Amy.Henderson@wildlife.ca.gov,
Kevin.Thomas@wildlife.ca.gov