UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

SEP 30 2013

David Murillo, Regional Director
Bureau of Reclamation, Mid-Pacific Region
2800 Cottage Way, MP-700
Sacramento, CA 95825

Subject: Draft Environmental Impact Statement for Shasta Lake Water Resources Investigation, California (CEQ# 20130196)

Dear Mr. Murillo:

The U.S. Environmental Protection Agency has reviewed the Draft Environmental Impact Statement for the Shasta Lake Water Resources Investigation. Our comments are provided pursuant to the National Environmental Policy Act, Council on Environmental Quality regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act.

As a crucial storage facility for the Central Valley Project, Shasta Lake is a vital part of California's water supply and economy, and a major influence on the beneficial uses of the Sacramento River. We are aware that Bureau of Reclamation has pursued feasibility studies regarding the enlargement of Shasta dam and reservoir as part of CALFED planning efforts and pursuant to several public laws since 1980. The Draft EIS evaluates five action alternatives that vary in terms of the height of the dam raise and the allocation of the additional water storage among various beneficial uses. We understand that Reclamation plans to identify a preferred alternative in the Final EIS.

Based on our review of the Draft EIS, we have rated all the Action Alternatives and the document as Environmental Concerns – Insufficient Information (EC-2). Please see the enclosed "*Summary of EPA Rating Definitions*". Our detailed comments and recommendations are enclosed. We recommend including aquatic habitat enhancements as elements of each project alternative, rather than as elements of only two alternatives. Augmenting spawning gravel and restoring aquatic habitat may benefit species as a cost-effectively and efficiently as controlling water temperature. We also recommend additional mitigation measures such as construction and operation of more advanced wastewater treatment plants, assistance with remedial efforts at abandoned mines, and watershed protection and enhancement projects that focus on reducing chronic sources of sediment.

EPA appreciates the opportunity to provide input on this project. We are available to discuss all recommendations provided. When the Final EIS is released for public review, please send one hard copy and one CD to the address above (Mail Code: CED-2). If you have any questions, please contact me at 415-972-3521, or contact Stephanie Skophammer, the lead reviewer for this project. Stephanie can be reached at 415-972-3098 or skophammer.stephanie@epa.gov.

Sincerely,

Kathleen Martyn Goforth, Manager
Environmental Review Office
Communities and Ecosystems Division

Enclosures: Summary of EPA Rating Definitions
Detailed Comments

cc: Katrina Chow, Bureau of Reclamation
Rocky Montgomery, U.S. Fish and Wildlife Service
Maria Rea, National Marine Fisheries Service
Patricia Bratcher, California Department of Fish and Wildlife
Philip Woodward, Central Valley Regional Water Quality Control Board
Kathy Mrowka, Central Valley Regional Water Quality Control Board
Michael Nepstad, U.S. Army Corps of Engineers

SUMMARY OF EPA RATING DEFINITIONS*

This rating system was developed as a means to summarize the U.S. Environmental Protection Agency's (EPA) level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the Environmental Impact Statement (EIS).

ENVIRONMENTAL IMPACT OF THE ACTION

"LO" (Lack of Objections)

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

"EC" (Environmental Concerns)

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

"EO" (Environmental Objections)

The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

"EU" (Environmentally Unsatisfactory)

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

ADEQUACY OF THE IMPACT STATEMENT

"Category 1" (Adequate)

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

"Category 2" (Insufficient Information)

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analysed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

"Category 3" (Inadequate)

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analysed in the draft EIS, which should be analysed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640, Policy and Procedures for the Review of Federal Actions Impacting the Environment.

U.S. EPA DETAILED COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR SHASTA WATER RESOURCES INVESTIGATION, CALIFORNIA SEPTEMBER 30, 2013

Alternatives

The Bureau of Reclamation evaluates five alternatives for raising Shasta Dam to various heights with the additional storage being allocated for agricultural uses, municipal and industrial uses, anadromous fish uses, or some combination thereof. The purpose and need for the project is to improve operational flexibility of the Delta watershed system by modifying the existing Shasta Dam and Reservoir to meet specified objectives. These dual objectives include, among others, increasing survival of anadromous fish and increasing water supply reliability. A suite of management measures common to all the alternatives includes modifying the temperature control device, reducing demand by allocating funds for water conservation efforts, and enlarging the cold-water pool (p. 2-24).

The Draft EIS states that the primary objectives are given equal priority (p. 2-5). All alternatives provide increased water supply reliability, and this screening criterion removed many alternatives from further consideration (see Scenarios Considered but Dismissed on page 2-99). We note, however, that only Alternatives CP4 and CP5 include aquatic habitat enhancements, such as augmenting spawning gravel and restoring riparian, floodplain, and side channel habitat - activities that may benefit the listed fish species in the most effective and cost-effective way other than controlling water temperature. It is not clear why these measures were not included in all the alternatives, as they would help to meet the objective of increasing the survival of anadromous fish, independent of dam augmentation.

> ***Recommendation:***
> Consider including aquatic habitat enhancements for fish, such as those included in Alternatives CP4 and CP5, as part of all the alternatives. In addition to those already included in Alternatives CP4 and CP5, consider incorporating into all of the alternatives other instream aquatic habitat enhancements, such as anchored complex woody debris structures or erosion resistant vegetation near the mouths of the tributaries.

Water Quality

The Draft EIS states that vegetation clearing, relocation of activities, and wave-related shoreline erosion all have the potential to have short-term and long-term sediment impacts. Shoreline processes, including constantly changing reservoir levels that vary month to month and year to year, would provide a constant mechanism by which soil in the new area of inundation could be eroded into the lake, resulting in elevated levels of suspended sediment and turbidity. The quantity of sediment may be on the scale of millions of cubic yards; however, the Draft EIS states that these impacts cannot be quantified because of the size of the lake and the number of variables that influence sediment transport. The Draft EIS indicates that the direct and indirect impacts to surface water quality, including increased turbidity, could be significant, but would be less than significant after mitigation (p. 7-81). It is not clear how this was determined. The document does not provide sufficient details regarding the mitigation to assess its effectiveness or likelihood of success (p. 7-279).

Hydrologic changes from increased storage and release of water from Shasta Lake have the potential for channel incision and bank erosion below the dam. This is caused by trapping sediment behind the dam and changes in the hydrograph and river stage that effectively lowers the base level of the tributaries. Raising the dam would allow more winter runoff storage which could lower the river stage below the dam during runoff events in the tributaries downstream, causing channel incision, loss of beneficial gravel, and bank erosion.

These impacts may affect the beneficial uses assigned to Shasta Lake and downstream in the Sacramento River. These beneficial uses include drinking water supply, freshwater habitat, migration, and spawning. The Draft EIS does not provide specific mitigation measures related to water quality impacts that may occur as a result of the project. The only mitigation proposed is to prepare a Stormwater Pollution Prevention Plan and a remediation plan for historic mine features in the future.

> ***Recommendation:***
> The Final EIS should provide a reasonable quantitative estimate of the sediment impacts expected from an enlargement of Shasta reservoir and disclose the likely results with regard to beneficial uses in the project area.
>
> The Final EIS should explain how mitigation would lessen the impacts of erosion on water quality in the project area to less than significant. Mitigation actions that should be explored include construction and operation of more advanced wastewater treatment plants, assistance with remedial efforts at abandoned mines, and watershed protection and enhancement projects that focus on reducing chronic sources of sediment.

Endangered and Threatened Species

The US Fish and Wildlife Service, National Marine Fisheries Service, and California Department of Fish and Wildlife, while not cooperating agencies, have been involved for many years and provided comments on feasibility reports and administrative drafts of the EIS. EPA understands that Reclamation intends to initiate consultation under the Endangered Species Act in the future but has not yet done so. On this note, EPA encourages Reclamation to continue to engage with the fish agencies to respond to the dual objectives, employ the best modeling, as well as provide appropriate mitigation for any adverse impacts to species. All of these issues should be addressed in the Final EIS.

SALMOD is the salmon production and mortality model used for the Shasta Enlargement EIS. SALMOD has significant limitations that are described in the appendix to the Draft EIS. For the benefit of the public and decision makers, these limitations should be discussed in more detail in the body of the Final EIS. For example, SALMOD is a comparative model, so any smolt increases should be described in a comparative fashion and the EIS should indicate that these are not firm population increases. SALMOD is not a life cycle model and it does not account for population trends over time nor how those trends may affect annual production. Additionally the Anadromous Fish Restoration Program has a goal of doubling salmon populations that has also been included in the Water Quality Control Plan as a water quality standard. The Final EIS should describe whether the actions of this project will have a significant impact on achieving this goal.

The Draft EIS indicates that a reduction in the magnitude, duration, or frequency of intermediate to large flows in the Sacramento River would occur as a result of a dam raise and that this is potentially significant (p. 11-269). Capturing more water in wet years would reduce peak flows, which are known to be highly beneficial to fish, as such flows activate floodplains and generally yield good recruitment years for anadromous fish. The reduction in flows in these years and the exposure of fish to more low water years (as some of the water is held in the reservoir and not released downstream) would likely have an adverse effect on juvenile salmonids and other species that rely on floodplain and bypass inundation for foraging. The mitigation proposed is to "develop and implement a mitigation and adaptive management plan to avoid and compensate the impact of altered flow regimes."

Additionally, the anadromous fish benefits, as quantified in the Draft EIS, are minimal (i.e. winter run Chinook salmon Table 11-45 p. 11-285) and many of the impacts to these species are not quantified for clear comparison to the benefits.

Recommendations:

We urge Reclamation to coordinate with USFWS and NMFS on the timing of the Final EIS and the Biological Opinions. The Final EIS should provide an update on the consultation process. We strongly recommend including the Biological Opinion as an appendix.

Continue to consult with USFWS, NMFS, and CDFW to develop appropriate mitigation strategies to minimize the severity of the impacts of reduced peak flows. Mitigation and monitoring measures that would protect sensitive biological resources, including salmon, Shasta snow wreath, bald eagle, and others should be identified in the Final EIS. Flow regimes should be developed that promote natural geomorphic processes necessary to restore riparian and floodplain habitat with the least negative effects.

The limitations of SALMOD should be more clearly stated and potential benefits of the dam enlargement should be accurately acknowledged in the context of all Reasonable and Prudent Measures, Salmon Recovery Program and the Salmon Doubling Goal considered by the fish agencies.

The negative impacts of modifying the hydrology such that there are fewer high flow events should be weighed against the benefits of increasing the cold water pool for anadromous fish and Delta smelt. It is unclear whether the proposed project has a net benefit or adverse impact to threatened and endangered anadromous fish.

The Final EIS should assess the actual impacts to fish, alongside the benefits, to generate a cumulative impact from the negative and positive impacts. For example, the benefits to anadromous fish are limited to a few critical and dry years.

Analysis of impacts should not conclude that, if the impact is greater than a 5% change but is still below the standard, there is no significant impact (e.g. Old Middle River and X2 Delta outflow standard). Scientific research has shown that these physical factors are highly correlated with aquatic life impacts.

National Historic Preservation Act

The Draft EIS states that hundreds of prehistoric resources, ancestral villages, sacred lands, and traditional cultural properties will be inundated or otherwise affected by a raise in Shasta dam and reservoir (p. 14-23). Consultation for tribal cultural resources is required under Section 106 of NHPA. Section 106 of the NHPA requires a federal agency, upon determining that activities under its control could affect historic properties, to consult with the appropriate State Historic Preservation Officer/Tribal Historic Preservation Officer (SHPO/THPO). Section 106 of the NHPA requires that Federal agencies consider the effects of their actions on cultural resources, following regulation in 36 CFR 800.

Recommendation:

The Final EIS should discuss how Reclamation would avoid or minimize adverse effects on the physical integrity, accessibility, or use of cultural resources in the area. The Final EIS should

discuss how Reclamation plans to fulfill its obligations under NHPA, including any future tribal consultation.

Wetland Impacts and Mitigation

The Draft EIS states that approximately 51 acres of wetlands would occur in the impoundment and relocation areas, but that all information regarding jurisdictional waters is just preliminary (p. 12-65). It is unclear how many acres exist currently and whether any of these acreage values are based on a US Army Corps of Engineers-verified jurisdictional delineation.

The Draft EIS is inconsistent in its discussion of mitigation for wetland impacts. For example, specific Best Management Practices (BMPs) and other measures to reduce temporary construction-related impacts to "less than significant levels," are described, while mitigation for permanent wetland losses is not as clearly addressed (p.12-179). A CWA Section 404 permit may be needed for this project. Unavoidable impacts to wetlands must be fully mitigated pursuant to Section 404 requirements. Note that mitigation should compensate for both permanent losses, and residual temporal losses following application of construction BMPs.

Recommendations:

EPA encourages integration of the NEPA and CWA Section 404 permitting process to reduce overall project review timelines and to provide more thorough analysis of potential aquatic resource impacts through the NEPA process. Although detailed wetland delineations may not be available until later in the CWA Section 404 permitting process, we recommend that the Final EIS disclose the expected acreage of both permanent (drawdown-related) and temporary (construction-related) wetland losses, as well as the basis for the wetland loss estimates. If estimates are not based on a Corps-verified jurisdictional delineation, the Final EIS should note that these estimates are preliminary and will be revisited in more detail during the Section 404 permitting phase using standard Corps protocols.

Ecosystem functions provided by the specific wetland areas that could be lost should be discussed, and measures that could mitigate such impacts should be identified. The Final EIS should depict the probable areas of wetland loss on maps.

Delete the section on page 3-47 that describes the MOU for the CALFED process and Section 404 permit decision. Any CWA Section 404 analysis that would occur as part of this project will need a new permit application and would not be tiered from the CALFED 2000 ROD.

Feasibility Reports

The Draft EIS states that Federal and State Feasibility Reports have been developed to provide detailed information on the potential project benefits and costs, the allocation of costs to potential project beneficiaries, and project participants. The identification of final project participants and beneficiaries and potential benefits and costs will influence the selection of the preferred alternative in the Final EIS.

Recommendation:

To ensure full public disclosure to support decision-making, we recommend that the conclusions of the Federal and State Feasibility Reports be summarized in the body of the Final EIS, and the Reports be included as appendices in the Final EIS.