ENVIRONMENTAL WATER CAUCUS RESPONSE LETTER TO THE U.S. BUREAU OF RECLAMATION FOR THE SHASTA LAKE WATER RESOURCES INVESTIGATION DEIS SEPTEMBER 30, 2013

Environmental Justice Coalition For Water

RESTORE THE DELTA
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Middle River People

Pacific Coast Federation of Fishermen's Associations
PCFFA
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California Sportfishing Protection Alliance
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sacramento river preservation trust

Southern California Watershed Alliance

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A Statewide Voice for Our Waters

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Butte Environmental Council
Protecting Butte County's Land, Air & Water Since 1975

CA Save Our Streams Council

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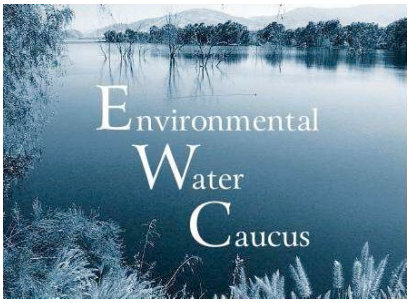
Institute for Fisheries Resources
Unite. Protect. Restore.

NORTHERN CALIFORNIA COUNCIL
CATCH and RELEASE
FEDERATION OF FLY FISHERS

The Fish Sniffer

GREAT SEAL OF THE KARUK TRIBE



September 30, 2013

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By email to: BOR-MPR-SLWRI@usbr.gov

Subject: Comments on Draft Environmental Impact Statement dated June 2013

The Environmental Water Caucus is submitting the following comments based on a review of the SLWRI DEIS.

We find the project a waste of public money, providing little additional water yield for an exorbitant price tag and which would be a travesty for American taxpayers. In addition, the beneficial effect on salmon populations is illusionary and amounts to an attempt to shift the cost burden to the public instead of having the real beneficiaries pay for their water supply. In short, the project is a fraud and should be abandoned.

A recent Interior Department Inspector General Report found that under current repayment contractual terms, CVP agricultural service contractors would never pay off their debt for construction of the CVP. Approximately 52% of the CVP debt has been repaid with a remaining amount of $674 million. If the entire $1.1 billion cost of enlarging Shasta Dam 18.5 feet were properly allocated to CVP customers instead of the taxpayers for illusory salmon benefits, this project would more than double the remaining repayment obligations of the CVP for a mere 88,000 acre-feet of additional CVP firm yield.

The stated purpose of enlarging Shasta Dam is to meet the two primary project objectives of increased survival of Sacramento River anadromous fish populations and to increase

water supply reliability for CVP agricultural, M&I, and environmental purposes. However, preferred alternative CP-4 and the other alternatives are fundamentally flawed in that they will not increase survival of anadromous fish in any substantial way, especially given the cost and the plethora of other viable projects recommended by the fishery agencies but not evaluated by Reclamation. Enlargement of Shasta Dam is not mentioned as one of over a thousand recommendations from the National Marine Fisheries Service in the Draft Central Valley Salmon Recovery Plan. The proposed project is based on inflated and illusory benefits for natural salmon production in the Sacramento River, as described in the attached comments, and cannot be justified as proposed.

The claimed benefits to salmon allow two thirds of the billion dollar project cost to be shifted to taxpayers and not the true beneficiaries – the CVP water contractors. The clear favorite and most "cost effective" Alternative CP- 4 is projected to produce 813,000 salmon smolts, which at a return rate of .13% will result in 1,057 adult salmon annually at a cost to the taxpayers of $654.9 million! That cost is a clear demonstration of the absurdity of undertaking this project.

Furthermore, Enlarging Shasta Reservoir by raising the dam from 6.5 to 18.5 feet will flood public lands managed by the Forest Service, encompassing segments of the upper Sacramento, McCloud, and Pit Rivers, Salt Creek, and several small tributary streams, triggers several requirements and mandates in the National Wild & Scenic Rivers Act. Although the DEIS attempts to address Wild & Scenic River issues in Chapter 25, it fails to recognize the actual requirements of the Act and the true implications of the reservoir enlargement in regard to previous Forest Service studies and commitments made in the 1994 Shasta-Trinity National Forests Plan. Nor does the DEIS adequately address the impacts of reservoir enlargement and the legal implications of violating the California Public Resources Code.

The raising of Shasta Dam is a threat to the very existence of the Winnemem Wintu Tribe and the ability to bring back the salmon and a way of life that the Creator gave to the Tribe. The Winnemem Wintu's efforts are about preserving a beautiful natural world, with abundant salmon, clean water, and ecologically healthy and diverse forests, that has been and continues to be flooded, logged, cut up by roads, mined, subdivided, sold, and destroyed acre by precious acre. The raising of Shasta Dam would, again, bring great harm to the World as the Winnemem Wintu know it. The DEIS fails to assess and acknowledge the full scope of the devastating and irreparable impacts this Project would have on the Winnemem Wintu Tribe.

Additionally, we find the following major issues that are explained in detail in the attached comments letter:

- Realistic and much more cost effective alternatives to meet the primary objectives

are not considered or fully evaluated.

- Substantial funding for water conservation and recycling, retirement of drainage-problem lands, reoperation of Shasta Dam and Reservoir, and a host of projects recommended by the public and U.S. Fish and Wildlife Service were either not considered or rejected due to Reclamation's bias toward justifying an enlarged Shasta Dam.
- Failure to disclose the relationship between the SLWRI and BDCP and to accomplish an adequate cumulative impact analysis.
- Failure to provide information on water rights for use by the SWRCB.
- Failure to perform an adequate Benefit-Cost Analysis without inflated fishery benefits which would show a negative benefit value for the project.
- Failure to disclose the Bureau's petitions to the State Water Resources Control Board to extend the deadlines for compliance with water rights permits and for licensing of the water rights of the Central Valley Project.
- Failure to disclose the effects of the San Joaquin and Sacramento River outflows.
- Failure to disclose the Bureau's water transfer program (from north of Delta sellers to south of Delta contractors) and its reliance upon groundwater substitution by water right-holding transferors.

We request that you abandon this ill-conceived project and save the dollars, the environmental damage, and the affront to Native American interests that this project would generate if pursued by the Bureau of Reclamation.

David Nesmith

Co-Facilitator

Nick DiCroce

Co-Facilitator

EWC SPECIFIC COMMENTS ON SLWRI DEIS

Purpose and Need

Our organizations believe that it is egregiously wasteful of public taxpayer funds and other scarce resources including water by investing in the raising of Shasta Dam.

The proposed project for enlarging Shasta Dam has two primary project objectives: 1. To increase survival of Sacramento River anadromous fish populations, and; 2. To increase water supply reliability for CVP agricultural, M&I, and environmental purposes. These objectives appear to be merely acceptable pretenses for creating more storage capacity that would be used by the Bureau of Reclamation to try to meet Central Valley Project water service contract obligations. By its own numbers, the project will spend large sums of taxpayer funds to increase deliveries by only very small amounts. This makes the project's supply yield extremely expensive. Compared to other supply investments that could be made with these funds, this project is expensive and wasteful.

Figures 1 and 2 below document the quandary of chronic shortfalls in deliveries to contractors of California's state and federal water systems. In 1960, the California Department of Water Resources (DWR) announced its approach to the Delta and to providing additional imported water supplies. The Department announced then that the Delta had about an average of 3 million acre-feet annually available for export to state and federal water contractors of the San Joaquin Valley and southern California. This amount would hold until about 1981, according to DWR, by which it planned to build reservoirs on North Coast rivers like the Mad, the Van Duzen, the Eel, and the Trinity. About 5 million acre-feet was thought to come from those reservoirs for export to the Sacramento Valley to increase flows to the "Delta pool." From that "pool," surplus water could, DWR argued, be safely exported from the Delta.

Only the Trinity River Division of the CVP was completed. The other streams are now designated as wild and scenic and development of their flows for diversion has long been off the table.

Figure 1 below summarizes CVP south of Delta deliveries between 1985 and 2010. This chart also presents a line at the top that represents 3,488,246 acre-feet, the total amount of "annual entitlements" reported in the Bureau's Draft Hydrology, Hydraulics, and Water Management Technical Report.[1] There is a substantial gap between the amounts that

[1] US Bureau of Reclamation, Hydrology, Hydraulics, and Water Management Technical Report, Shasta Lake Water Resources Investigation, California, June 2013, Table 1-25, pp. 1-35 through 1-37.

represent deliveries to contractors during this period and the original "annual entitlements" claimed by the parties to the CVP water service contracts. The average difference between contract "entitlements" and actual deliveries south of the Delta exceeds 1.119 million acre-feet per year.

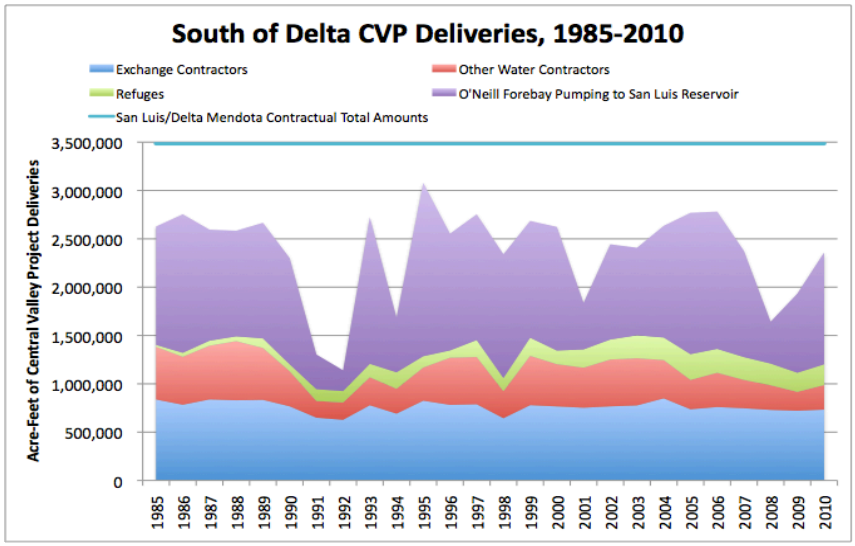

Figure 1. Source: US Bureau of Reclamation delivery data from the Central Valley Projects Operations Office online.

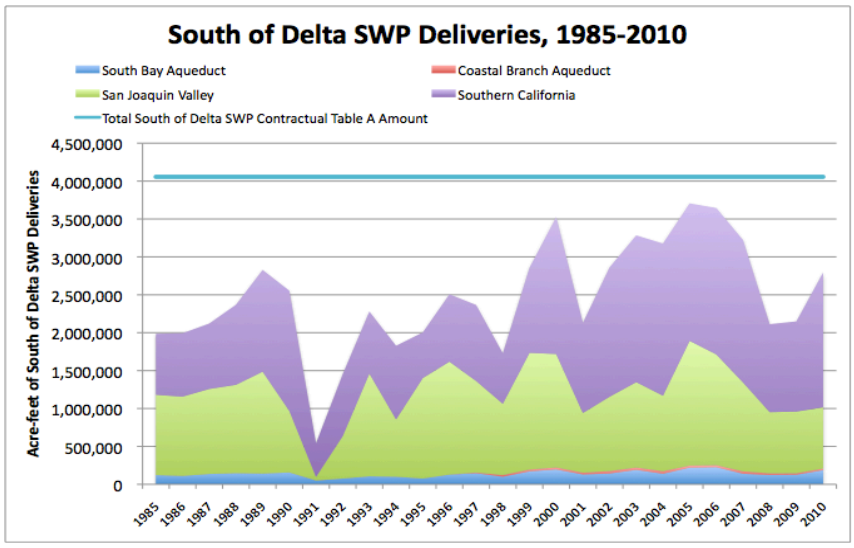

Figure 2. Source: California Department of Water Resources, Bulletin 132, various years.

Figure 2 summarizes State Water Project south of Delta deliveries between 1985 and 2010. This chart, similar to Figure 1, presents a line at the top that represents 4,056,205 acre-feet, the total Table A amounts in State Water Project contracts for deliveries south of the Delta. Here too there is a substantial gap between the amounts that represent deliveries to contractors during this period and the original "Table A" amounts claimed

by the parties to State Water Project contracts. The average difference between total Table A amounts for south of Delta contractors and their actual deliveries exceeds 1.593 million acre-feet.

In addition, the California Water Impact Network has shown that total consumptive water rights claims for the Sacramento and Trinity River basins exceed annual average unimpaired flows by a factor of 5.6 acre-feet of claims per acre-foot of flow.[2] A similar ratio occurs in the San Joaquin River Basin. In order to meet Delta water quality standards, temperature control and flow needs of fish upstream, the paramount rights of the San Joaquin River Exchange Contractors south of the Delta, and in-basin entitlements of Sacramento Valley water rights holders, water in storage at Shasta is stretched thin at best, and is deficient of supply at worst.

While Shasta Lake is a federally-owned and operated facility, long-standing agreements for coordinated operations of both the state and federal projects, as well as for "joint point of diversion" by both projects' south Delta pumping plants, mean that operationally Shasta is used to help the State Water Project serve its customers. This is why it is relevant to include discussion of State Water Project contractor delivery performance. These coordinated operations are also reflected in the DEIS's discussion of impacts affecting both projects from raising Shasta Dam and enlarging Shasta Lake.

After 40 years of operation for the State Water Project and over 70 years of south of Delta exports for the Central Valley Project, the Bureau and DWR still have not fulfilled their contracts. Nor would any member groups of the Environmental Water Caucus want them to develop the North Coast rivers to enable these contracts to be fulfilled. Combined, the state and federal projects fail to meet on average about 2.7 million acre-feet of paper water every year; in dry or drought years, this figure increases dramatically.

Therefore, the most important purpose of the enlargement of Shasta Lake is to increase water deliveries to Central Valley Project customers south of the Delta. But this project does a poor job of that, as our comments indicate.

The Proposed Project Will Not Help Fish

However, the favored alternative CP-4 and the other alternatives are fundamentally

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[2] Stroshane,T., *Testimony on Water Availability Analysis for Trinity, Sacramento, and San Joaquin River Basins Tributary to the Bay-Delta Estuary*, Submitted by the California Water Impact Network on behalf of California Sportfishing Protection Alliance, and AquAlliance on October 26, 2012, for Workshop #3: Analytic Tools for Evaluating Water Supply, Hydrodynamic, and Hydropower Effects of the Bay-Delta Plan. Accessible online at http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/comments111312/tim_stroshane.pdf

flawed in that they will not increase survival of anadromous fish in any substantial way, especially given the cost and the plethora of viable projects recommended by the fishery agencies that do not involve dam enlargement.

Numerous realistic and much more cost effective alternatives to meet the primary objectives to increase survival of Sacramento River anadromous fish populations and to increase water supply reliability for CVP agricultural, M&I, and environmental purposes are not considered or fully evaluated. Substantial funding for water conservation and recycling, retirement of drainage-problem lands, reoperation of Shasta Dam and Reservoir, and a host of projects recommended by the public and U.S. Fish and Wildlife Service were either not considered or rejected due to Reclamation's bias toward enlarging Shasta Dam.

Additionally, the alleged benefits to the anadromous salmon fish populations downstream of Keswick Dam from higher cold water carryover storage on October 1 are not enforceable. Nowhere in the document does Reclamation commit that the additional water stored for salmon will be under the control of the National Marine Fisheries Service, the California Department of Fish and Wildlife and/or the California State Water Resources Control Board. Based on past experience, the modeling in the DEIS will not resemble actual operations and the additional storage will simply be used to provide larger water allocations for CVP contractors during any given year.

Shasta Dam Enlargement is Not a Salmon Recovery Action

The DEIS and Feasibility Study have both found that Alternative CP-4, raising Shasta Dam 18.5' and dedicating 378,000 of the additional storage to the cold water pool, is the most cost effective alternative. While no environmentally-preferred alternative has been selected, it is clear that Reclamation supports CP-4 as the best justification for the project because putting two thirds of the costs on the taxpayers makes the project appear economically justifiable even though it is not.

However, enlarging Shasta Dam is not part of any plan for recovery of Sacramento River salmon. The concept of raising Shasta Dam for salmon benefits is not mentioned anywhere in any plans by the National Marine Fisheries Service, the U.S. Fish and Wildlife Service nor the California Department of Fish and Wildlife. In particular, NMFS' most recent draft Recovery Plan[3] for Sacramento River salmon does not include Shasta Dam enlargement.

The U.S. Fish and Wildlife Service (USFWS) has stated in its draft Fish and Wildlife Coordination Act Report (FWCAR) that: "*In about 90% of the years, there would be no*

[3] http://swr.nmfs.noaa.gov/recovery/centralvalleyplan.htm

benefit to anadromous fish survival." USFWS goes on to state that temperature-related mortality is only about 9% and that "*Predominate* (sic) *sources of mortality were due to superimposition, habitat constraints, the flushing or dewatering of redds, and entrainment in unscreened diversions. Restoration opportunities that could assist in reducing these causes of mortality have been removed from further consideration, raising the prospect that those species could suffer further declines or, at a minimum, gain no benefit."*

The Draft USFWS FWCAR stated that only Alternative CP-4 provided any fishery benefits, yet Reclamation continued to fully analyze other alternatives with phony salmon production benefits as if they would meet one of the primary goals of increasing survival of Sacramento River anadromous fish populations. All the while Reclamation rejected numerous suggestions from the USFWS to evaluate more viable activities to meet that primary goal of increased salmon survival that do not include enlarging Shasta Dam. USFWS clearly discouraged Reclamation from pursuing a dam enlargement-only list of alternatives and made a strong case[4] that numerous other options will better meet fishery restoration goals for the Sacramento River that are consistent with both the CALFED Record of Decision and the Central Valley Project Improvement Act Anadromous Fishery Restoration Program (CVPIA AFRP).

The USFWS points out that the so-called "benefits" of this project to salmon are largely inconsequential and include only one of many life history impacts to juvenile salmon in the Sacramento River, especially given the huge cost.

Furthermore, there is no enforcement mechanism mentioned anywhere in the large volume of documents about how any cold water pool reserved for salmon under any alternative would be actually reserved for salmon. USFWS also describes the problem in the FWCAR.[5] The description of CP-4 says quite clearly that CVP operational needs will take priority over the cold water for salmon (page 2-49):

"*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 are no conflicts with current operational guidelines or adverse impact on water supply."*

Reclamation makes no mention about including any terms and conditions in its water permits or Biological Opinions that would require reservation of the additional cold water

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[4] USFWS Draft FWCAR for SLWRI, pages v -viii.

[5] Draft USFWS FWCAR for SLWRE, p vi:
"*Clarify whether and quantify the extent that the cold water pool (378,000 af) in CP4 would be used to augment flows to provide additional benefits for fish and wildlife species. Specify the authority for those augmented flows, and identify if those flows would be at the discretion of the Service; National Oceanic and Atmospheric Association, National Marine Fisheries Service (NOAA Fisheries); and California Department of Fish and Game (CDFG);*"

pool for salmon. It will simply become a larger pool of water for delivery in any water year. There is nothing in the DEIS or any of the planning documents to ensure that October 1 carryover storage in Shasta Lake will be any different than the No Action Alternative.

It is clear from past experience that the fisheries benefits and modeling performed for this document will have no basis in reality if the project is built because there is no enforcement mechanism to ensure cold water is actually reserved for salmon. The additional storage would simply be provided to CVP water contractors as additional supply during any given year where additional water is stored. The reservoir would therefore have greater fluctuations during wetter years when additional water can be captured from the Dam enlargement and greater impacts than identified to recreation and other resources.

For instance, if extra water is stored in Shasta Lake from early in the season, but it ends up being a dry year, how would Reclamation ensure that San Joaquin Exchange Contractors and Sacramento River Water Right Contractors with priority water contracts would not obtain the cold water reserved for salmon?

This project is therefore, a sham foisted once again upon the taxpayers of the United States to have them pay for the dam enlargement while the beneficiaries do not pay their share. The allocation of $654.9 million in costs (Feasibility Report Table 5.2) on the public because of supposed fishery benefits is a hoax.

The USFWS has indicated that there are a lot of other projects, costing a lot less that would do much more for salmon survival, for example:

"The restoration of spawning and rearing habitat, improving fish passage, increasing minimum flows, and screening water diversions would likely result in greater increases in anadromous fish survival during the 91 percent of the years when temperature is not a limiting factor as well as address the secondary objective of Ecosystem Restoration." [6]

There is also a distinct possibility that Reclamation will operate an enlarged Shasta Dam to store more water in fall because there would be decreased likelihood of subsequent flood control spills. Reduction of fall flows in the Sacramento River below Keswick Dam would further impact fall run and late fall run Chinook spawning and incubation as well as dewater redds. Modeled operations are not the same as actual operations.

In summary, calling enlargement of Shasta Dam a project to increase Sacramento River salmon is simply a dishonest effort to economically justify the project. The problem is that it cannot be justified based on increasing salmon survival and therefore the overall

[6] USFWS FWCAR SLWRI, p. v

economic justification for enlarging Shasta Dam is not valid either.

Study Area Should Include Trinity River and Lower Klamath River

The Study area only includes the Trinity River above Lewiston Dam. Because the Trinity and Shasta Divisions of the CVP are integrated, the study area should include the Lower Klamath and Trinity rivers. Operations at Shasta Dam directly and indirectly affect the Trinity and Lower Klamath rivers as well as the Hoopa Valley and Yurok tribes which have federally reserved fishing rights held in trust by the Interior Department. The 2013 Flow Augmentation from Trinity and Lewiston dams into the Lower Klamath River is an example of how the two projects are integrated. In December 2012 and January 2013, Trinity River "spills" were redirected to the Sacramento River in lieu of Shasta Dam releases. An enlarged Shasta Lake may reduce Safety of Dams spills from Lewiston Dam into the Trinity River. Operations at Shasta Dam cannot be separated from Trinity River Division operations and should be fully analyzed.

Alternatives Do Not Meet One Primary Purpose – Salmon Survival

The two primary project objectives are to increase survival of Sacramento River anadromous fish populations and to increase water supply reliability for CVP agricultural, M&I, and environmental purposes, with an emphasis on enlarging Shasta Dam. Increasing survival of salmon by enlarging Shasta Dam is like fitting a square peg into a round hole and is not a reasonable justification for the project.

It is very telling that the National Marine Fisheries Service, U.S. Fish and Wildlife Service, California Department of Fish and Wildlife and the CVPIA Anadromous Fisheries Restoration Program have identified over a thousand projects to increase salmon survival in the Sacramento River, yet none of those recommendations includes raising Shasta Dam for that purpose. On the other hand, the USFWS and others have suggested a variety of other projects to increase salmon survival, yet few were fully analyzed and incorporated into the various alternatives.

For instance, an alternative to retire drainage problem lands in the San Luis Unit of the CVP was never considered as a viable alternative to increase water supply reliability and improve salmon survival. Retirement of nearly 300,000 acres of drainage problem land in the San Luis Unit was analyzed in Reclamation's 2007 Final Environmental Impact Statement evaluation and Record of Decision for the San Luis Drainage Feature Re-evaluation (SLDFR). The CVP Least Cost Yield Increase Plan[7] identified that land fallowing was a "least cost" method of increasing CVP firm yield that could increase supplies by up to 1.2 million AF. Land fallowing could also be used to increase reservoir

[7] See http://www.usbr.gov/mp/cvpia/docs_reports/docs/least_cost_cvp_yield_increase_plan.pdf

cold water storage for salmon.

Reducing CVP demand by buying out agricultural lands with drainage problems has long been advocated by the California Environmental Water Caucus in our "California Water Solutions Now" and the "Responsible Exports Plan."[8] The National Economic Development Act analysis contained in the SLDFR Final EIS showed that only through land retirement could net economic benefits be realized for the San Luis Unit.[9] All other alternatives to continue irrigated agriculture were net losses to the United States economy.

According to the USFWS's FWCAR, only one alternative, CP-4, would provide any benefits to Sacramento River salmon. However, Reclamation analyzed four other alternatives; not one actually meets one of two primary project objectives, except to the extent that they provide minor benefits and minimal spending (compared to dam enlargement) on Sacramento River spawning gravel replenishment and other minor habitat enhancements.

Conversely, USFWS provided Reclamation with an extensive list of alternatives to enhance salmon survival and habitat without raising Shasta Dam, most of which were rejected.

USFWS Draft FWCAR (p 22):

> *"The Service believes that Reclamation should evaluate among the SLWRI alternatives the capability of improving flow and temperature conditions for anadromous fish in the Sacramento River between Keswick Dam and RBDD without raising Shasta Dam. This could be accomplished through operational changes at Shasta Dam combined with modifications to the TCD."*

As stated previously, none of the alternatives analyzed would provide actual salmon benefits because there is no enforcement mechanism to ensure that the additional cold water storage would actually be dedicated to salmon. No authority is given to fishery and regulatory agencies to determine use of the cold water pool reserved for salmon. Existing contractual commitments to senior CVP water contractors, including but not limited to Sacramento River Water Rights Contractors and San Joaquin River Exchange Contractors would have a priority over use of the additional storage, regardless of how Reclamation analyzes use of the additional cold water in this DEIS. Pressure would continue for Reclamation to provide increased water allocations to other CVP contractors because of increased available storage.

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[8] See http://www.ewccalifornia.org/home/index.php

[9] See Appendix N for Final EIS for San Luis Drainage Feature Re-evaluation, Table N-1-, p N-17. accessed at http://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=2240

It is clear that the alternatives analyzed by Reclamation were a series of straw men to make enlargement of Shasta Dam under CP-4 appear cost effective at meeting primary project objectives by using phony benefits to salmon. The real costs fall upon the taxpayers and the salmon will not benefit to any substantial extent. Therefore, Reclamation should select the No Action Alternative as the most cost effective and environmentally preferred alternative.

Impacts Of Reservoir Enlargement On Potential Wild & Scenic Rivers

Enlarging Shasta Reservoir by raising the dam from 6.5 to 18.5 feet will flood public lands managed by the Forest Service encompassing segments of the upper Sacramento, McCloud, and Pit Rivers, Salt Creek, and several small tributary streams triggers several requirements and mandates in the National Wild & Scenic Rivers Act. Although the DEIS attempts to address Wild & Scenic River issues in Chapter 25, it fails to recognize the actual requirements of the Act and the true implications of the reservoir enlargement in regard to previous Forest Service studies and commitments made in the 1994 Shasta-Trinity National Forests Plan. Nor does the DEIS adequately address the impacts of reservoir enlargement and the legal implications of violating the California Public Resources Code.

The National Wild & Scenic Rivers Act requires consideration by all federal agencies of federal Wild & Scenic River protection for the McCloud, upper Sacramento, and Pit Rivers, and other reservoir tributaries as an alternative to the federal proposal to raise the dam and expand the reservoir.

Section 5(d)(1) of the National Wild & Scenic Rivers Act states:

"*In all planning for the use and development of water and related land resources, consideration shall be given by all Federal agencies involved to potential national wild, scenic, and recreational river areas, and all river basin and project plan reports submitted to the Congress shall consider and discuss any such potentials. The Secretary of the Interior and the Secretary of Agriculture shall make specific studies and investigations to determine which additional wild, scenic, and recreational river areas within the United States shall be evaluated in planning reports by all Federal agencies as potential alternative uses of the water and related land resources involved.*"

This section of federal law clearly requires the Bureau of Reclamation to go beyond the simple reporting of past state and federal considerations of Wild & Scenic protection for the river segments affected by the SLWRI. It specifically requires consideration of Wild & Scenic protection in the context of and as an alternative to the proposed dam raise and reservoir enlargement, not only for the McCloud, but also for the upper Sacramento and Pit Rivers, and all other streams on public lands tributary to Shasta Reservoir. No such

comprehensive assessment of Wild & Scenic Rivers is provided in the DEIS.

The Bureau should work with the Forest Service to include in a revised DEIS a comprehensive assessment specifically addressing the impacts of the dam raise and reservoir enlargement on the free flowing character and outstanding values of all rivers and streams tributary to the reservoir and include a range of alternatives that proposes Wild & Scenic protection with and without various reservoir enlargement alternatives.

For example, the Forest Service in the 1994 Shasta-Trinity National Forests Draft Plan found the upper Sacramento River from Box Canyon Dam to the Whiskeytown-Shasta-Trinity National Recreation Area to be eligible for federal protection, but the agency did not recommend it because of land ownership patterns along the river. But the river was also not actively threatened by reservoir expansion at that time. The Wild & Scenic Rivers Act requires the Forest Service and the Bureau to revisit potential Wild & Scenic protection of the upper Sacramento River in the context of the project outlined in the revised DEIS, as well as for other rivers and streams that may be affected by reservoir expansion.

The Bureau of Reclamation has previously recognized the clear mandate of the National Wild & Scenic Rivers Act to consider and evaluate potential Wild & Scenic Rivers as potential alternative uses to water and related land resources in the planning for water development. As part of its planning and study of the Auburn Dam project on the North and Middle Forks of the American River, the Bureau convened a multi-agency interdisciplinary team that determined segments of the river that would be flooded by the dam proposal to be eligible for Wild & Scenic protection in 1993 (letter dated March 17, 1993 from Susan E. Hoffman, Division of Planning and Technical Services Chief, U.S. Bureau of Reclamation Mid-Pacific Region). The study to determine if the eligible segments were suitable for designation was scheduled for Phase II and III of the American River Water Resources Investigation. This part of the study was never completed because soon after the eligibility finding, Congress rejected authorization of the Auburn Dam project.

The National Wild & Scenic Rivers Act requires consideration of federal Wild & Scenic River protection for the segments of the lower Sacramento River with significant federal lands downstream of Shasta Dam as an alternative to the federal proposal to raise the dam and expand the reservoir.

The lower Sacramento River between Anderson and Colusa has several segments with substantial federal public lands managed by the Bureau of Land Management (the Sacramento River Bend Area) and the U.S. Fish and Wildlife service (USFWS). Because the Shasta Dam raise and reservoir expansion will significantly modify flows through these segments and the DEIS notes that flow modification from the dam raise may have potentially significant impacts on the river's riparian and aquatic ecosystems and fish and

wildlife, the project triggers the section 5(d)(1) requirement that the federal segments of the lower river be studied and considered for potential federal protection as an alternative to the proposed water resources project. It should be noted that the BLM has already determined a 20-mile segment of the Sacramento River between Balls Ferry and Red Bluff to be eligible for federal protection. The revised DEIS should include Wild & Scenic studies of all the federal segments of the lower river.

The DEIS admits that all alternatives to raise the Shasta Dam and expand its reservoir will adversely affect the McCloud River's eligibility as a National Wild & Scenic River and will specifically harm the river's free flowing character, water quality, and outstandingly remarkable values.

In Chapter 25, the DEIS documents that raising Shasta Day by 6.5-18.5 feet will flood from 1,470 feet to 3,550 feet of the segment of the McCloud River eligible for National Wild & Scenic River protection. The DEIS also admits that this flooding will adversely affect the McCloud's free flowing character, water quality, and outstandingly remarkable Native American cultural, wild trout fishery, and scenic values.

The Environmental Water Caucus believes that even more of the eligible segment of the McCloud River will be harmed by all of the dam raise alternatives because the Bureau incorrectly identifies elevation 1,070 feet as the terminus of the McCloud segment identified by the Forest Service. In fact, the terminus of the eligible McCloud segment is simply defined by the Forest Service as "Shasta Lake". (LRMP FEIS, Appendix pgs. E-4, E-13) The Forest Service's map depicting the eligible segment of the McCloud shows that eligible segment ends at the McCloud River Bridge (FEIS Appendix E pg. 3-36). There is no mention of elevation 1,070 as the terminus of the eligible segment nor is there any reference in the LRMP to the McCloud's so called "transition reach". Hence, the impact of the dam raise and reservoir expansion is larger than documented in the DEIS.

Flooding the McCloud River violates the 1995 Shasta-Trinity National Forests Land and Resource Management Plan and Record of Decision in regard to protecting the McCloud River's eligibility as a potential National Wild & Scenic River.

The Forest Service recommended Wild & Scenic River protection for the McCloud River in its 1990 draft of the Shasta-Trinity National Forests Land and Resource Management Plan (LRMP). In response to concerns of river-side landowners, the Forest Service chose to pursue protection of the McCloud River's free flowing character and outstandingly remarkable values through a Coordinated Resource Management Plan (CRMP) developed by the Forest Service and other federal and state agencies and the riverside landowners. This decision is reflected in the 1995 final Shasta-Trinity National Forests LRMP and Record of Decision (ROD), which states:

> "A Coordinated Resource Management Plan (CRMP) has been adopted for long

term management of the Lower and Upper McCloud River and Squaw Valley Creek. This agreement is between private land owners, the Forest Service, Pacific Gas & Electric, Nature Conservancy, CalTrout, and the DFG. This plan will effectively maintain the outstandingly remarkable values of this potential wild and scenic river. If for any reason the terms of the CRMP are not followed and the wild and scenic river eligibility is threatened, the Forest Service will recommend these segments for Federal Wild and Scenic designation." (1995 Final LRMP, page 3-23)

"*If, after a period of good faith effort at implementation, the CRMP fails to protect the values which render the river suitable for designation then the Forest Service will consider recommendation to the national Wild and Scenic River System."* (1995 ROD page 17)

The DEIS admits that raising the dam will periodically flood 1,470 feet of the eligible segment of the McCloud River, which would make the flooded segment ineligible for federal Wild & Scenic protection. (DEIS pg. 25-26) The EWC and its members believe that more of the eligible river would be flooded (see discussion below about the actual terminus of the eligible McCloud). Regardless, it is clear that the Bureau's proposal to raise Shasta Dam and expand its reservoir directly violates the intent of the CRMP and constitutes failure of the CRMP, and it also violates the protective management proposed in the LRMP. Therefore, the Forest Service is bound by its own ROD to consider and recommend federal protection for the river. This requirement is not reflected in the DEIS and it should be included in the revised DEIS.

The Bureau is misleading the public when it claims that raising the dam and expanding the reservoir will not conflict with the Shasta-Trinity National Forests LRMP because the portion of the McCloud that would be flooded is private land and not National Forest land. The Forest Service has the authority to study and recommend the river within its reservation boundary, as it did so in the 1990 draft LRMP. It has the authority to determine that expanding the reservoir and flooding an eligible segment of the McCloud reflect a de-facto failure of the CRMP and therefore triggers Forest Service reconsideration of its Wild & Scenic River recommendation for the McCloud. This important protection is a fundamental component of the LRMP, which means that the Bureau's proposal violates the LRMP.

All dam raise/reservoir enlargement alternatives violate the California Public Resources Code 5093.542 prohibiting the construction of a reservoir that would harm the McCloud's free flowing condition and extraordinary wild trout fishery upstream of the McCloud River Bridge.

In 1989, the California Legislature passed and the Governor signed legislation declaring that the McCloud River possesses extraordinary resources, including one the of the finest

wild trout fisheries in the state, and that continued management of river resources in their existing natural condition represents the best way to protect the unique fishery of the McCloud, and that maintaining the McCloud in its free-flowing condition to protect its fishery is the highest and most beneficial use of the waters of the river.

The legislation specifically prohibited any dam, reservoir, diversion, or other water impoundment on the McCloud River upstream of the McCloud River Bridge. It also prohibited any state agency cooperation, participation, or support for 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. These prohibitions and conditions are now memorialized in the California Public Resources Code (PRC) 5093.542.

The DEIS admits that all dam raise alternatives will have a significant unmitigated impact on the McCloud's free flowing condition and will have a potentially significant impact on the river's wild trout fishery (DEIS pg. 25-40). The DEIS suggests that the wild trout fishery impacts could be mitigated to less than significant levels but these mitigations remain to be determined. Regardless, all the dam alternatives in the DEIS clearly violate state law. This has been recognized by the California Legislature and the Governor, which passed and signed water bond legislation prohibiting use of the bond funds to raise Shasta Dam.

SLWRI Environmental Justice, And American Indian Cultural Resources

We sing to the water. We sing to the fish.
We have done so since life began.
Pay attention to our ways.
You might just learn how
to save yourselves
from yours.

~ Chief Caleen Sisk, Winnemem Wintu

The rights and interests of low-income communities, people of color communities, and Native American tribes, at times all one-in-the-same, must not be sacrificed wholesale at the mantle of corporate profit and unsustainable practices.

Environmental justice began as an idea, a reaction to a pattern of placing environmental burdens and negative land uses disproportionately in low-income, people of color communities that, through an era of formal racial apartheid, had been set up as sacrifice zones to be used for whatever purpose was most expedient to those who wielded greater power in the political system. Environmental justice became a social movement – a

movement of, for, and by the People – to challenge the status quo and assert the rights of all communities to a clean and healthy environment and self-determination. Notwithstanding that the finest principles to be born out of the Environmental Justice movement have not been wholly incorporated into the rule of law, using the regulatory framework that does exist, the DEIS rightly identifies a host of impacts to low-income, people of color communities, most especially Native American communities, for which there is no mitigating. (See Table 24-2 at 24-29.)

Environmental justice dictates the right of every person to live, work, and play in a safe, healthy, and sustainable environment. Environmental justice demands that low-income, people of color and tribal communities participate as equal players in decisions that affect their local environment and health.

However, in the context of Native American communities, most especially the Winnemem Wintu tribe, the concept of environmental justice is not wholly adequate to capture the insidious character of the loss that raising the Shasta Dam, in any of its proposed manifestations, would impose.(See 14-11: 6-14 [acknowledging the potential, permanent loss of at least an estimated 155 village sites ancestral to the Winnemem Wintu].) What is proposed here is something much deeper and we must call it out for what it is, for it harkens back to one of the most odious episodes in our Nation's history, marked by Native American dispossession and genocide as European settlers made their way Westward, often accompanied, if not preceded, by the U.S. military.

The Winnemem Wintu

The Winnemem Wintu Tribe is an historic, non-gaming Native California Tribe. The Winnemem Wintu's traditional territory includes the east side of the upper Sacramento River watershed, the McCloud River and Squaw Creek watersheds, and approximately 20 miles of the Pit River from the confluence of the McCloud River, Squaw Creek and Pit River up to Big Bend. Salmon, which have been eliminated upstream of the Shasta Dam since its construction, are an essential component of Winnemem Wintu culture and, once a staple food, remain an important source of protein, when accessible. Although 90 percent of the Winnemem Wintu's traditional lands are now submerged under the McCloud Reservoir and Shasta Reservoir, and salmon no longer breed upstream of Shasta Dam, the Winnemem Wintu Tribe have continuously maintained their spiritual, cultural, and traditional connection to their remaining accessible traditional tribal lands and waters.

In the years following statehood for California, the Winnemem Wintu lands were appropriated for resource exploitation. The Winnemem Wintu people omitted as a Federal recognition tribe, lack the economic infrastructure to address the extreme poverty that affects many of their members, and live with high unemployment, inadequate access to education and health care, and a host of other social problems. The ability of the

Winnemem Wintu Tribe to maintain cultural distinctiveness and cohesion is impacted adversely by their lack of access to tribal territory and lack of Federal recognition and would be impacted further still by losing access to their ceremonial grounds and sacred pools.

In 1851, the federal government and representatives from the Winnemem Wintu Tribe and other California Indian tribes signed the Treaty at Cottonwood Creek, ceding vast tribal lands to the federal government in exchange for reservation land, food, and clothing. Though this treaty was never ratified by the United States Senate, the federal government considered the land ceded, and began granting land, mineral, and resource rights to private parties in the Winnemem Wintu's historical homeland with no compensation to the Winnemem Wintu. Eventually, some of the Winnemem Wintu received Indian allotments that allowed them to remain on the McCloud River and other traditional sites. However, the majority of habitable allotments were flooded when Reclamation constructed Shasta Dam.

In 1941, Congress passed 55 Stat. 612, which gave the United States the right to take title to all tribal lands needed for the Central Valley Project and related infrastructure. The Act also promised that the Indians would be paid "just and equitable compensation" for the land taken, and that the sites of any "relocated cemeteries shall be held in trust by the United States for the appropriate tribe, or family." 55 Stat. 612 §§ 2, 4.

The Winnemem Wintu people were never provided "just and equitable compensation" for the United States government's massive appropriation of land for Shasta Reservoir. Even the Winnemem Wintu's sacred gravesites were violated. Reclamation moved approximately 183 Winnemem Wintu graves within a short two months from the impact area of the Shasta Dam to a new site, styled the "Shasta Reservoir Indian Cemetery," and violated 55 Stat. 612 by failing to hold this site in trust for the Winnemem Wintu. Since the Winnemem Wintu were never compensated for their land allotments that were taken by the government and flooded by the Shasta Dam, the Winnemem Wintu still own that land. Reclamation cannot proceed with any plans that would enlarge the Shasta reservoir without first settling the ownership of the land already flooded.

Due in large part to Reclamation's repeated violation of 55 Stat. 612, the Department of the Interior failed to include the Winnemem Wintu when the Department published its list of "federally recognized" tribes in 1978. In 2008, the California Legislature passed Assembly Joint Resolution 39, which urges Congress to restore federal recognition to the Winnemem Wintu, but Congress has failed to act on this request. Adding insult to injury, Reclamation cited the Winnemem Wintu's lack of federal recognition as a tribe to justify Reclamation's exclusion of the Winnemem Wintu from Reclamation's decision-making process, notwithstanding that Reclamation's proposal to raise Shasta Dam would have a disproportionate and devastating effect on the Winnemem Wintu, again.

The federal government's repeated uncompensated takings of Winnemem Wintu lands and destruction of their primary staple – the McCloud River's salmon – coupled with its unconscionable efforts to stymie the participation in the decision making process, demonstrates this injustice.

For the Winnemem Wintu, the raising of Shasta Dam is not just an intellectual issue of water allocation that affects farmers in the Valley or housing development in the South. Nor is it simply the power struggle between private development and public agencies charged with protecting public trust resources including fish, wildlife, and recreation. Instead, the raising of Shasta Dam is a threat to the very existence of the Winnemem Wintu Tribe and the ability to bring back the salmon and a way of life that the Creator gave to the Tribe. The Winnemem Wintu's efforts are about preserving a beautiful natural world, with abundant salmon, clean water, and ecologically healthy and diverse forests, that has been and continues to be flooded, logged, cut up by roads, mined, subdivided, sold, and destroyed acre by precious acre. The raising of Shasta Dam would, again, bring great harm to the World as the Winnemem Wintu know it. The DEIS fails to assess and acknowledge the full scope of the devastating and irreparable impacts this Project would have on the Winnemem Wintu Tribe.

Indigenous Peoples' Rights Demand An End To The Shasta Lake Dam Raise

The United Nations' Declaration on the Rights of Indigenous Peoples (Declaration) recognizes and affirms the rights of indigenous peoples to their cultural, religious, and spiritual practices, to have private access to sacred sites (Arts. 12(1), 11(1)), as well as to maintain and strengthen their spiritual relationship with their traditionally held lands, territories, waters and coastal seas and other resources (Art. 25). With the Declaration, Native peoples have rights acknowledged by the international community of nations, including rights to sacred places both within existing reservation or territorial boundaries and beyond.

The United Nations Declaration on the Rights of Indigenous Peoples ("Declaration of Indigenous Rights") affirms that indigenous communities have the right to participate in the development or use of their traditional territories and resources.[10] Although the Declaration of Indigenous Rights is not binding on Reclamation, since it was nearly unanimously endorsed, it represents customary international law. It mandates that Reclamation and other government agencies cooperate in good faith with the Winnemem

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[10]*See generally* U.N. Declaration on the Rights of Indigenous Peoples, G.A. Res. 61/295, art. 3, U.N. GAOR, 61st Sess., 107th plen. mtg., U.N. Doc. A/RES/61/295 (Sept. 13, 2007). Although the United States voted no, all but four of the U.N. member states voted in 2007 to support the Declaration of Indigenous Rights. In 2010, the State Department announced "support" for the Declaration of Indigenous Rights, but that support was qualified, as the United States proposed a different definition of "free, prior informed consent" than that laid out in the Declaration. *See* Announcement of U.S. Support for the United Nations Declaration of the Rights of Indigenous Peoples, *available at* *http://www.state.gov/documents/organization/153223.pdf*.

Wintu and other First Peoples. The Declaration further states that all indigenous peoples have a right to self-determination (art. 3), a right to their lands and natural resources (art. 26), a right to the conservation and protection of their environment (art. 29), and the right to maintain, develop, and participate in decisions regarding development on their lands (arts. 20, 23). It also mandates that countries obtain the "free and informed consent" of indigenous communities prior to approving any project that will affect that community's territory or resources. (See Declaration of Indigenous Rights, art. 32.) Reclamation should consider these factors and abide by these principles in its decision making process.

Impacts To Irreplaceable Cultural Resources Should Prevent Any Proposal To Raise Shasta Dam

Were the Shasta Dam raised to any of the heights currently under consideration, such a move would submerge the historic and present-day cultural and ceremonial land of the Winnemem Wintu Tribe. This would be yet another manifestation of discrimination against the Winnemem Wintu people; it would further displace the Winnemem Wintu people and place still more and, possibly, insurmountable obstacles in the way of the Winnemem Wintu people's spiritual and cultural practices; and, properly characterized, would be part and parcel of the cultural genocide perpetrated against the California Tribal population that claims the area now inundated by Shasta Lake as a result of the construction of Shasta Dam, of which the Winnemem Wintu people are part.

The Winnemem Wintu *must* have continued access to their historic communal sites for cultural and spiritual practices because their culture is inextricably tied to the land and waters; sites cannot simply be moved or replaced.[11] What is considered "abiotic" by the Western world is deeply and vibrantly alive for the Winnemem Wintu. Over many millennia, community members have developed intimate relationships with particular stones, mountains, meadows, and pools along the McCloud River that hold benevolent healing spirits.

Although 90 percent of the Winnemem Wintu's traditional lands are now submerged under Shasta Lake Reservoir, the Winnemem Wintu have continuously maintained their spiritual and cultural connections to their remaining unsubmerged lands. Ceremonial, medicinal and social activities linked to specific Winnemem Wintu sacred sites include the blessing and healing of sexually and physically abused women, training and initiation of traditional medicine people, the SudiSawal traditional hydrotherapy purification ceremony, the Blessing of the Hands ceremony, introduction of children to the spiritual worlds at Children's Rock, traditional place-specific baptism of Winnemem babies, traditional marriage ceremonies, fasting rituals, the Coming of Age ceremony for young women, the initiation rites for young men, the blessing of the acorn caps for young

[11]Declaration of Indigenous Rights art. 25 recognizes the right of indigenous peoples "to maintain and strengthen their distinctive spiritual relationship" with their traditional territories.

women, the traditional Spring Dekas ceremony, the ceremonial burial of babies' placentas and of hair during times of mourning, the traditional practice of gathering medicinal teas, foods and cooking materials at places of great sentiment and long-standing tradition, pilgrimages to sacred prayer rocks, the transmission of Coyote Stories from generation to generation and the visitation of ancestral dwelling places, burial grounds and massacre sites. These cultural practices form the foundation of the Winnemem Wintu's identity as a distinct people, and are anchored to the earth in specific places that will be affected by the proposed dam enlargement.

The DEIS mentions potential impacts to cultural resources, but Reclamation does not actually place much importance on protecting the Winnemem Wintu culture. Reclamation seems to think that the disproportionate adverse effects the dam raise would have on the Winnemem Wintu and their cultural resources are justified by benefits that will accrue *elsewhere*. This contemplated sacrifice of the Winnemem's culture for the benefits claimed for others is shocking in its disdain for the Winnemem Wintu community. The Reclamation fails to acknowledge that there is nowhere else in the world where Winnemem Wintu can learn to be Winnemem Wintu. The Winnemem Wintu have a right to sustainable traditional food sources and a right to practice their culture in their traditional territory. Reclamation must rectify its failure to address the potential destruction of most of the Winnemem Wintu's remaining cultural sites by evaluating alternatives and mitigation measures that would prevent such losses, not one of which is identified in the DEIS.

What BOR is doing by ignoring the Winnemem Wintu's concerns and destruction of culture is the very definition of cultural genocide and environmental injustice.

Conclusion for SLWRI Environmental Justice, And American Indian Cultural Resources

In summary, raising the Shasta Dam is unconscionable because doing so would render the indigenous Winnemem Wintu tribes' sacred ceremonial land inaccessible, thereby, furthering the cultural genocide proscribed by international legal norms and our modern-day sense of what is moral and just and right.

<u>Rare and Endangered Species</u>

The No Action Alternative is the only alternative that protects existing habitat for a larger variety of rare, endemic, threatened, and endangered species. All of the action alternatives will cause significant impact to the limited remaining habitat for rare, threatened, endangered, and endemic species and their habitats.

For instance, the endemic Shasta Salamander, a California threatened species and an USFS sensitive and Survey and Manage species, only breeds in limestone caves, some of which will be within the inundation zone.

The Shasta Snow-Wreath, an endemic species that only has 21 occurrences, will lose 9 sites within the new inundation zone (43% of known occurrences). No amount of mitigation can make up for that lost habitat that exists only in that place on this planet Earth.

The USFWS' FWCAR, (p. 176) summed it up succinctly as follows:

"*The SLWRI would inundate the limited habitat of 8 rare species (e.g., Shasta snow-wreath, Shasta salamander, Shasta sideband snail, Wintu sideband snail, Shasta chaparral snail, Shasta hesperian snail, Shasta huckleberry, and western purple martin) 7 of which are endemic to the vicinity of Shasta Lake. Additional habitat would be disturbed by the relocation of campgrounds, roads, bridges, and facilities beyond the Inundation Zone. Thus, the raising of Shasta Dam and implementation of the SLWRI would result in the loss, degradation, and fragmentation of habitat and as a result, may require further evaluation by the Service of the factors threatening these 8 species pursuant to section 4 of the ESA. Additionally, the reduction in winter flows with the raising of Shasta Dam would result in adverse effects to riparian habitat along the Sacramento River and to sensitive aquatic species in the Delta."*

Acid Mine Drainage/Water Quality

In addition to destroying limited remaining habitat for a number of species including California Fully Protected Species such as ringtail and rough sculpin, the inundation zone includes acid mine tailings with toxic levels of metals (zinc, cadmium, copper and lead) and other contaminants that will further expose remaining sensitive populations and water supplies to pollution.

USFWS FWCAR (p. 25):
"The raising of Shasta Dam could further exacerbate loading of acid mine drainage into Shasta Lake by inundating or elevating the water table near other abandoned mines and mine tailings. The inundation could increase the rate of loading of copper, cadmium, zinc, and mercury into the water column. During a site visit at Shasta Lake, acid mine drainage with a pH of 2 was observed near the Bully Hill Mine within the Inundation Zone of the SLWRI (P. Uncapher, NSR, pers. comm. 2007). Further loading of acid mine drainage and mercury into Shasta Lake would result in greater increases in toxic cadmium, copper, zinc, and mercury in fish and invertebrates in the lake. These toxic elements would then bioaccumulate within sensitive wildlife raptor species such as the

bald eagle and osprey that prey on fish in Shasta Lake. Shasta Lake has the highest concentration of breeding bald eagles in California and should be protected from the adverse affects of acid mine drainage."

"*The increased loading of cadmium, copper, zinc, and mercury in Shasta Lake could then be transferred downstream through Keswick Dam and into the only known spawning habitat for the endangered winter-run Chinook salmon (Moyle 2002). Of even greater concern is the potential effect that raising Shasta Dam could have on the ability of Keswick Reservoir to dilute acid mine drainage and mercury from the Iron Mountain Mine Superfund site (D. Welsh, Service, pers. comm. 2007). The dilution of acid mine drainage in Keswick Reservoir is essential to preserving vitally important spawning habitat downstream from Keswick Dam. Changes in the operation of Shasta Dam and Keswick Dam in the SLWRI could result in the release of cadmium, copper, zinc, and mercury from sediments in Keswick Reservoir into the water column and the transport of these toxic elements downstream into the Sacramento River (Finlayson et al. 2000; D. Welsh, Service, pers. comm. 2007). Increased levels of these toxic elements in the Sacramento River would be transported downstream into the Southern California water supply and into the Delta which is already impaired by high concentrations of mercury and other toxic heavy metals*."

Considering that the benefits to the environment from enlarging Shasta Dam are weak at best, destruction of additional habitat for endemic, rare, threatened, and endangered species and degradation of water quality with toxic metals is not justified. Reclamation should select the No Action Alternative.

Central Valley Project Repayment

The economic justification for this project is based on unrealistic repayment assumptions, especially for CVP agricultural service contractors such as the Westlands Water District, which holds one of the largest single CVP water contracts. A recent Interior Department Inspector General Report found that under current repayment contractual terms, Westlands and other CVP agricultural service contractors would never pay off their debt for construction of the CVP.[12]

"*We found that USBR's water rate setting policies do not ensure that an appropriate share of capital costs and prior-year funding deficits are repaid annually. Water deliveries to the CVP contractors have been highly variable from year to year. When*

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[12] Central Valley Project, California: Repayment Status and Payoff, Report No.: WR-EV-BOR-0003-2012. U.S. Department of Interior Inspector General, March 2013. http://www.doi.gov/oig/reports/upload/WR-EV-BOR-0003-2012Public.pdf

actual water deliveries are less than projected deliveries, revenues are insufficient to recover the Federal investment in the project. When actual water deliveries exceed projected deliveries, however, existing contract provisions stipulate that excess revenues collected by USBR must be refunded to the contractors. As a result, USBR has not demonstrated steady progress toward recovery of Federal investments in the CVP."

The assumptions and conclusions that CVP agricultural service contractors will pay off their share of enlarging Shasta Dam is but one more fiction in this economically infeasible project. Increasing the debt of CVP water contractors to pay for a portion of this project is putting good money after bad- it will never be repaid.

The No Action Alternative will involve the smallest cost to society and should be selected as the Environmentally Preferred Alternative.

Presently, CVP water contractors lag on repaying the costs of existing CVP facilities, according to a March 2013 review by the US Department of the Interior, Office of Inspector General (IG).[13] The IG found:

- The current rate-setting process contributes to repayment uncertainty.[14]
- Contract provisions limit repayment of project costs.[15]
- By 2030, when CVP capital facilities are required by Congress to be paid off, repayment could be short by between $330 million to $390 million.[16]
- Municipal and industrial contractors face an annual operating and maintenance deficit of about $55 million annually by 2030 as well.[17]
- Power customers "will pay any costs above the irrigation contractors' ability to pay," meaning that when irrigation revenues fail to cover costs (such as when actual deliveries are less than projected deliveries), revenues from power sales within the CVP are used to reduce or eliminate those deficits.[18]

Table 1 summarizes the change in status of San Joaquin Valley water contractors repaying their allocated share of project costs. A 2008 study for the Delta Vision Blue Ribbon Task Force found that nearly $1.3 billion is owed by CVP contractors for the capital facilities

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[13]Ibid..

[14]DOI, CVP Repayment Status, p. 4.

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[16]Ibid., p. 5.

[17]Ibid., pp. 6-7.

[18]Ibid., p. 7

of the project. Of this amount, San Joaquin Valley and Sacramento contractors have together repaid about 21.5 percent of this cost.

Table 1
San Joaquin Valley Central Valley Project Repayment
Change in Status
2008 to 2013 ($Millions)

Year	Allocated Capital Cost to Repay	Repayments as of 9/30/2006 and 9/30/2011	Cumulative Capital Relief	Net Capital Costs (i.e., remaining to be repaid)	Percent of Costs Repaid
(columns)	A	B	C	D = (A - B - C)	E = (B/A * 100)
Irrigation Contractor Totals					
2008	$955	$185	$1	$769	19.4%
2013	$1,004	$485	$2	$518	48.3%
Municipal & Industrial Contractor Totals					
2008	$38	$10	$0	$28	26.3%
2013	$92	$63	$0	$30	67.7%
San Joaquin Valley Totals					
2008	$993	$195	$1	$797	19.6%
2013	$1,096	$547	$2	$548	49.9%
Grand Totals, CVP					
2008	$1,285	$277	$33	$975	21.5%
2013	$1,323	$602	$47	$674	48.3%

Sources: Entrix, Inc., *Overview on Central Valley Project Financing, Cost Allocation, and Repayment Issues*, provided to the Delta Vision Blue Ribbon Task Force, September 18, 2008, Table 4, p. 17. Accessible online 15 July 2013 at http://deltavision.ca.gov/ConsultantReports/CVP_Financing_and_Repayment_Summary_9-18-08.pdf; US Department of Interior, Bureau of Reclamation, Mid-Pacific Region Office, "Schedule of Construction Costs Allocation by Contractor," Schedule A-2Bb, December 2012.

Table 1 reveals a shifting picture of CVP cost repayment by the contractors. Just five years ago, San Joaquin Valley irrigation contractors had repaid just 19.4 percent of their allocated costs of $955 million, but within five years, Bureau accounting records indicate that collectively they have now repaid nearly half of their project costs (48.3 percent)

even though their allocated capital costs rose to just over $1 billion. The surge in repayments was led by Friant-Kern and Madera Canal-area contractors, neither of who would benefit directly from Shasta Dam raise supplies.

By contrast, CVP irrigation contractors on the west side of the San Joaquin Valley continue to lag on repayment of their allocated CVP costs. The irrigators of the Delta-Mendota Canal and Pool units, the San Luis unit (both Fresno and Tracy), and the Cross Valley Canal in Kern County all have repaid less than 27 percent of allocated project costs, though facilities like the Delta Mendota Canal and the San Luis Canal have existed since the 1950s and 1960s. This appears to be the case despite the fact that irrigation contractors with these CVP units by law pay no interest on their contracts (while municipal and industrial contractors do).

Along the San Luis Canal where Westlands Water District is the primary irrigation contractor, just 22.7 percent of the nearly $460 million in allocated capital costs for the Canal unit have been repaid, leaving about 77 percent that must be repaid by 2030 under congressional repayment requirements, now just 18 years away. This amounts to about $355 million, or about $20 million per year between now and 2030.

Mitigation

Under the National Environmental Policy Act, mitigation is required to be identified, but it is not required to be implemented. For instance the Trinity River Mainstem Fishery Restoration EIS/EIR and Record of Decision (Interior 2000) identified that increased drawdown of Trinity Lake would require mitigation in the form of extended boat ramps. However, despite the best efforts of Trinity Lake recreational users and residents, no boat ramps have ever been extended, nor are there plans to implement any such projects. Mitigation from Reclamation is a hollow promise.

Therefore, another part of this project is phantom mitigation- impacts that are identified and promises to mitigate those impacts are the same as the promises made to the Winnemem Wintu for federal recognition and compensation for loss of land below the existing inundation zone.

Recreation

All of the alternatives involve relocation of key recreational facilities. In the case of CP-4, it will involve modifying or replacing 9 marinas, 6 public boat ramps, 6 resorts, 328 campsites/day-use sites/RV sites, 2 USFS facilities, 11.6 miles of trail, and 2

trailheads.

The DEIS concludes that by relocating those facilities, impacts will be insignificant. However, the conclusion is based on an assumption that the annual fluctuation in the reservoir will remain the same, with higher minimum and maximum levels, on average.

The assumption of a similar drawdown rate cannot be supported because there is no mechanism to ensure that water reserved in the reservoir for salmon or other purposes will remain there. Existing contractual commitments to senior CVP water contractors, including but not limited to Sacramento River Water Rights Contractors and San Joaquin River Exchange Contractors would have a priority over use of the additional storage, regardless of how Reclamation analyzes use of the additional cold water in this DEIS. Pressure would continue for Reclamation to provide increased water allocations to other CVP contractors because of increased available storage.

Therefore, the relocation of a significant portion of Shasta Lake's recreational facilities to higher ground will cause significant impacts because of increased fluctuation in reservoir levels. Additionally, the disruption from relocation of numerous key facilities and the period during construction and transition will result in decreased visitor days and decreased recreational benefits that could last for years.

Reclamation should select the No Action Alternative as the most cost effective and least damaging to recreation. There are no recreational benefits from enlarging Shasta Dam.

Shasta/BDCP Operations

The Shasta Dam Draft EIS fails to provide any analysis of the proposed project's relationship to the Delta Tunnels project. While the Draft EIS, in Chapter 3, Table 3-1, lists the Bay Delta Conservation Plan as one of many "qualitative assessment actions related to water/natural resource management and restoration" in its cumulative impacts analysis, the Delta Tunnels project should be analyzed as part of the "quantitative" projects in the list. For one thing, the Bay Delta Conservation Plan (BDCP) process has invested in countless modeling exercises that look at many quantitative variables. BDCP's Conservation Measure 1 also contains quantitative water quality and flow parameters for modeling its performance under a wide variety of circumstances.

This omission is crucial, because together the Shasta Raise project along with the Delta Tunnels project explains the main purpose and need for the Shasta Raise project. Together, their most important impacts may be on the Delta and on the effort to improve water supply reliability of the Central Valley Project and the State Water Project.

The Delta Tunnels project would have three 3,000 cfs intakes along the Sacramento River in the north Delta between the communities of Courtland and Hood that would deliver better-quality (lower salinity) Sacramento River into two 40 foot-diameter tunnels that would extend 35 miles directly to the Banks Pumping Plant where these flows would be lifted into the California Aqueduct, or via intertie (or via Joint Point of Diversion operations) to the Delta Mendota Canal for south of Delta delivery. In short, the Delta Tunnels project would add a new point of diversion in the Delta to the State Water Project's Banks Pumping Plant. BDCP documents make clear that the Delta Tunnels project would be owned and operated as part of the State Water Project. When there is capacity in the Tunnels, however, BDCP documents state DWR's intention that the Bureau could have DWR "wheel" water deliveries to its CVP contractors through the Tunnels.

The Hydrology, Hydraulics, and Water Management chapter makes no mention of this possibility. The Bureau should clearly analyze in this Draft EIS the "hydraulics" and "water management" impacts of the interrelationship of the Shasta Dam Raise and the Delta Tunnels projects. Shasta Dam operations govern a majority of the flows that occur in the Sacramento River Basin (along with Oroville and Folsom dams); the Delta Tunnels would divert water from the Sacramento for export. If the Bureau intends to avoid incorporating the Delta Tunnels project from its cumulative impact analysis for improved salmon performance and water supply reliability, then the agency should state its reasons for omitting such a logical and timely analysis.

California Environmental Quality Act Jurisdiction

Our organizations recognize that the Draft EIS states that "This document has been prepared in accordance with the California Environmental Quality (CEQA) and could be used by State of California (State) permitting agencies that would be involved in reviewing and approving the project."

The DEIS mentions in Chapter 2 and in other "subject" chapters how NEPA requirements differ from CEQA requirements when it comes to the comparative baseline, and even incorporates both "existing conditions" as 2005 conditions into some aspects of the analysis, even though NEPA only requires a No Action (Project) Alternative. The impact analyses of each chapter in the DEIS however treat only the No Action Alternative. At best, this is confusing.

Why has the Bureau of Reclamation chosen not to make this Draft EIS also a formal Draft Environmental Impact Report under the California Environmental Quality Act? In the interests of full disclosure, we believe a clear explanation of the Bureau's reasoning on this point is warranted.

The California Environmental Water Caucus (EWC) appreciates that the Bureau makes the effort to prepare the document as though it is an EIR, and that the Bureau believes the document could be used by state permitting agencies that must review and approve the project, such as the State Water Resources Control Board. Our organizations are skeptical that the document will adequately fulfill the Board's needs for information, especially as it pertains to the Bureau's Shasta Dam water rights permits.

Hydrology, Hydraulics, and Water Management

The Bureau concludes in this chapter that the five comprehensive plans and the No Action Alternative would have either no impact, impacts that are less than significant, or even beneficial.

However, this chapter fails utterly to disclose:

- It is largely San Joaquin River flows that are exported at the South Delta pumps; it is questionable that Shasta flows are used for export.
- The Bureau of Reclamation's Shasta Dam water rights permits are part of overall Central Valley Project time extension requests that the State Water Board will consider as part of
- Phase 4 (Implementation phase) of the Bay-Delta Water Quality Control Plan process now under way, and
- The relevance of the Bay Delta Conservation Plan and its proposed Delta Tunnels project as a well-known and reasonably foreseeable project to Shasta Dam operations.

These failures are described in detail in the following sections:

Failure To Disclose How Rarely The San Joaquin River Reaches Delta Outflow And Is Routinely Exported Through State And Federal Pumps Near Tracy, And Conversely, How Most Of Delta Outflow And Western Delta Salinity Control Is The Domain Of Sacramento River Flows Controlled By Upstream Sacramento River Basin Reservoir Operations.

Omitted from the affected environment section of this chapter is any account of the known hydrodynamic fate of San Joaquin River flows in the presence of Delta export pumping by the federal Central Valley Project and the State Water Project. The fate issue affects the Bureau's understanding of the San Joaquin River's actual hydraulic connection or connectivity to the rest of Delta inflows and Delta outflow. These hydraulic relationships in turn affect the dynamic size of the low salinity zone on which many listed species in the Bay-Delta Estuary depend. They also affect the volume of Delta outflow, rates of fish entrainment and death at the export pumps, survival of migrating salmon

smolts and the survival of sensitive open water (pelagic) fish like longfin smelt, Delta smelt, and threadfin shad.

Two different modeling studies show that the fate of San Joaquin River flows during late winter into spring months is in the hands of the Delta export pumps. Both studies show that less than 1 percent of San Joaquin River water passing Vernalis ever reaches Chipps Island as part of Delta outflow. Well over 80 to 90 percent of San Joaquin River flows are instead exported at the state and federal pumps near Tracy.[19]

Omission of information about the fate of existing San Joaquin River flows means the public cannot discern from the Draft EIS on the Shasta Dam Raise and Reservoir Enlargement whether the San Joaquin River is hydraulically connected to the rest of the Bay-Delta Estuary and eventually whether the Board's proposed flow objectives for the River's tributaries will actually protect fish beneficial uses once they pass Vernalis.

This also means that the public cannot discern what actual hydraulic and hydrodynamic role the Sacramento River, and consequently Shasta Dam operations, plays in the Delta now and in the future.

A third study by the California Department of Water Resources was performed as part of complying with a modified Cease and Desist Order before the State Water Resources Control Board in 2011. The Department agreed to study "low head pumping" as a method for controlling salinity at key compliance monitoring stations during the summer irrigation season when interior South Delta salinity objectives must be met. The goal for the study was to determine what flows and at which locations low head pumping would significantly reduce or eliminate the salinity objective violations by the Department and the Bureau.

The most important factor in South Delta salinity, the Department acknowledged, was the sources of water reaching each south Delta compliance monitoring site. From modeling results, the Department found that 83 to 93 percent of the salty water reaching the interior South Delta compliance monitoring sites originated from the San Joaquin River.[20] These

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[19] Flow Science Incorporated, Evaluation of the fate of San Joaquin River Flow, Water Years 1964 and 1988, prepared for the San Joaquin River Group Authority, June 2, 2005, Table 2 and Figures 1 through 4; and Jim Wilde, Michael Mierzwa, and Bob Suits, Using Particle Tracking to Indicate Delta Residence Time, poster presentation for the CalFed Science Conference, October 23-25, 2006, Step 2 data for June 15, 2003 through July 23, 2003. Accessible online at http://baydeltaoffice.water.ca.gov/modeling/deltamodeling/presentations/DeltaResidenceTimeMethodology_wildej.pdf.

[20] California Department of Water Resources, Low Head Pump Salinity Control Study, prepared to meet requirements of the State of California State Water Resources Control Board, Water Rights Order WR 2010-0002, Condition A.7, April 2011, Tables III.3 through III.6 and Figures III.5 and III.6; cost data shown in Tables ES.1 and ES.2. Accessible online at: http://www.swrcb.ca.gov/waterrights/water_issues/programs/bay_delta/docs/lhscs_rpt.pdf.

compliance points are in close proximity to both the Central Valley Project's Jones Pumping Plant and the State Water Project's Banks Pumping Plant.

Yet the Bureau's Shasta Dam Raise Draft EIS strongly implies, without demonstrating, that the water stored in Shasta Lake is important to South of Delta export deliveries to CVP and even State Water Project contractors south of the Delta for deliveries. This suggests a paradox: On one hand, the San Joaquin River is by far the major source of all exports from the south Delta pumping plants (in-Delta return flows are the other, much smaller component); neither Sacramento River flows nor San Francisco Bay tidal flows account for more than 1 percent in DWR's analysis. On the other hand, the EWC asks the Bureau to please explain in Chapter 6 (Hydrology, Hydraulics and Water Management) of the DEIS how Shasta Dam releases, including those from enlarged reservoir alternatives, are related to Delta exports to CVP and SWP service areas, particularly during the irrigation season.

Failure to disclose the direct quantitative relationship between enlarged Shasta Dam operations and the proposed Delta Tunnels project contained in the proposed Bay Delta Conservation Plan; this means that the cumulative impact analysis is inadequate.

The Bureau of Reclamation is among the proponents of the Bay Delta Conservation Plan (BDCP), together with the California Department of Water Resources, and several CVP and SWP water contractors. BDCP is a proposed habitat conservation plan under the state and federal endangered species acts. Its centerpiece water facility is the Delta Tunnels Project (sometimes referred to as the "Twin Tunnels project").

Failure To Provide Information In The Draft EIS On The Shasta Dam Raise That Would Facilitate Review By The State Water Resources Control Board Of Both Shasta Dam Water Rights Permits And The Relationship Of Those Permits To Other Storage, Diversion, And Rediversion Permits Of The CVP And Even Of The SWP.

Because the individual water facilities comprising both the federal Central Valley Project and the State Water Project are operated as a coordinated whole, any changes to their operations such as introduction of the Delta Tunnels project and the raising of Shasta Dam would necessitate review by the State Water Resources Control Board of the Bureau's Central Valley Project water rights permits.

The Hydrology, Hydraulics, and Water Management chapter correctly identifies the State Water Resources Control Board as the agency responsible for regulating water rights and water quality in the Delta and Central Valley basins. But the chapter and the rest of the Draft EIS fail utterly to identify the specific water rights issues that could arise in association with each and every comprehensive plan alternative.

The State Water Board summarized its water rights role when it commented recently on the 2013 administrative draft of the Bay Delta Conservation Plan EIR/EIS, and into which the Environmental Water Caucus introduce some relevant paraphrasing:

"Before the State Water Board may approve a change in a water right permit or license...including a change in the point of diversion specified in the permit or license, the Board must find that the change will not injure any legal user of water. (Water Code § 1702.) Information concerning the extent, if any to which fish and wildlife would be affected by the change shall also be considered. (Water Code § 1701.2.) The State Water Board has an independent obligation to consider the effect [of a proposed water facility, in this case the Shasta Dam Raise and the Delta Tunnels project] on public trust resources and to protect those resources where feasible (National Audubon Society v. Superior Court (1983), 33 Cal. 3d 419), and to prevent the waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of water (Cal. Const., art. X, § 2; Water Code § 275). Pursuant to its authority under the Water Code the State Water Board may request additional information outside of the CEQA process to meet the State Water Board's public trust and other obligations. Accordingly, while [interested] parties may determine that CEQA does not require an analysis of all of the issues pertaining to water right change petition approval (including impacts to other legal users of water and public trust resources), it would assist the State Water Board in its consideration [of the proposed projects, Shasta Dam Raise and the Delta Tunnels] if the [environmental impact document] discussed these issues."[21]

The Bureau of Reclamation is surely well aware that it is settled law that the Bureau is to obey California water rights law through the operations of its water facilities and projects within state boundaries.

So while the Bureau claims its Draft EIS is written to comply with CEQA for use by state permitting authorities, it is clear that the absence of any water rights implications from the analysis anywhere in the Draft EIS is inadequate for the needs of analyzing water rights.

Failure To Disclose The Bureau's Petitions To The State Water Resources Control Board To Extend The Deadlines For Compliance With Water Rights Permits And For Licensing Of The Water Rights Of The Central Valley Project.

California's appropriative water rights doctrine requires that all holders of appropriative water rights, including those issued as permits and licenses by the State Water Board, be put to beneficial use diligently and continuously. In 2009, the Bureau submitted and the

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[21] State Water Resources Control Board, Comments on the Second Administrative Draft Environmental Impact Report/Environmental Impact Statement for the Bay-Delta Conservation Plan, July 5, 2013, p.2.

Board began processing petitions to extend the deadline for CVP water rights, including those for Shasta Dam and Reservoir.

Many parties protested the Bureau's petitions to the State Water Board, including petitions from EWC member groups Friends of the River, California Water Impact Network, California Sportfishing Protection Alliance, and AquAlliance. Among the issues raised in the protests were:

- Full application of the pumping rates as found in the permits would exacerbate poor fishery conditions.
- Full collection to storage in the project reservoirs would exacerbate harm to habitat conditions.
- Full application of water service to permitted places-of-use in the western San Joaquin Valley would exacerbate poor water quality conditions and may hasten irreversible salinization of downslope agricultural lands.
- Reclamation has been "cold storaging" a portion of its water rights.

The Board has also written the Bureau in 2009 that the Bureau should avoid piecemealing its time extension requests. The Board expressed at that time its preference that the Bureau and DWR present a comprehensive environmental document that would cover both the Bay Delta Conservation Plan and the time extension request petitions.[22]

It is evident from the absence of water rights considerations in the Shasta Lake Draft EIS relevant to the time extension petitions for CVP water rights that the Bureau is not mindful of the protests of its CVP permits and the State Water Board's concerns for timely processing of the petitions. For the Bureau to have the Draft EIS on the Shasta Dam Raise be useful before the State Water Board, it must also address all water rights protest issues.

Failure To Disclose The Bureau's Water Transfer Program (From North Of Delta Sellers To South Of Delta Contractors) And Its Reliance Upon Groundwater Substitution By Water Right-Holding Transferors.

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[22] "Reclamation should collaborate with DWR regarding preparation of a comprehensive document. The environmental analysis required for the petitions is an evaluation of potential changes in operation of the CVP facilities, impacts to cold water pools, potential impacts to required downstream flows for maintenance of public trust resources, water quality, etc., associated with diverting the full face value of Reclamation's permits. It should become apparent within the next 180 days whether the BDCP EIR/EIS will evaluate these issues. If the required evaluation is not included in that document, Reclamation will need to timely enter into a Memorandum of Understanding (MOU) to prepare an appropriate CEQA document." Letter of Victoria A. Whitney, Deputy Director for Water Rights, to Richard J. Woodley, US Bureau of Reclamation, Permitted Applications 5625, et al., of US Bureau of Reclamation, Central Valley Project, December 23, 2009, p. 2.

Shasta operations are integral to the Bureau's water transfer programs. When the Bureau and DWR establish and operate water transfer programs during dry years (as they did in 2013), they rely heavily on senior water rights holders and "settlement contractors" of the Sacramento River Basin. Arranged transfers occur when these water right holders or settlement contractors forego diverting surface flows from the Sacramento River released from Shasta Dam. Those waters flow on to the Delta where a "like amount" is diverted at the CVP and/or SWP pumps as capacity permits for buyers of the water south of the Delta.

In 2013 (a dry water year in the Sacramento Basin and a "critically dry" year in the San Joaquin River Basin), these transfers result in "like amounts" of groundwater pumping by the water sellers in the Sacramento River Basin so that they can still irrigate crops they had otherwise planned to water with surface supplies.

The Draft EIS fails to acknowledge and incorporate into its analysis of project impacts the documented relationship of surface and subsurface water resources in the Sacramento River Basin. The California Environmental Water Caucus is deeply concerned that the combined purpose and needs for Shasta Dam Raise and the Delta Tunnels project are intended not only to increase water supply reliability for water contractors under ordinary circumstances, but also to facilitate water transfers that require exporting of Sacramento River surface supplies from the Delta to complete the transfers. This strategy is short-sighted because in a sustained dry period, continuing groundwater substitution water transfers could result in local or region-wide severing of the connection of groundwater supplies and flows with surface flows in Sacramento River basin streams. This could result in gaining streams (that is, rivers and creeks fed by groundwater) becoming losing streams (where surface flows seek a new hydraulic gradient by percolating underground to the falling water table). The risk of permanent dependence on groundwater substitution water transfers, especially in long-run drought conditions, is that this severing will become permanent and catastrophic for Sacramento River basin water resources, fish populations, and riparian ecosystems generally. At a minimum, the Hydrology chapter's cumulative impact analysis should address the potential for groundwater supply (overdraft) resulting from reliance on groundwater substitution transfer programs in forecasted extended 21st century dry periods that appear in the Climate Change Modeling appendix.

Air Quality and Climate

Chapter 5 (Air Quality and Climate) of the Draft EIS is inadequate. It asserts there are no sensitive receptors for air quality in the vicinity, but fails to demonstrate that is the case. Sensitive receptors are defined by the Air Resources Board:

> Sensitive individuals refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses
>
> Where sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (sensitive sites or sensitive land uses).[23]

First, the Bureau's analysis of air quality impacts fails to define a radius or compass rose of wind directional tendencies within which sensitive receptors might be affected by construction effects of the proposed project. Second, Chapter 5 fails to characterize what sensitive receptors are in the vicinity of the Primary Study Area. Third, it fails to show where they are located to indicate that they are or are not within the Primary Study Area. Fourth, it fails to state how far from Shasta Dam's construction and other land-clearing operational sites the sensitive receptors are, and d) fails to state why they are far enough away from the project site to warrant no significant impacts or mitigation needs.

The analysis is also inadequate because it fails to facilitate ready comparison of air quality criteria used by Shasta County Air Quality Management District with construction-generated emissions from each comprehensive plan alternative and then fails to show how many days of violations (if any) would occur based on construction activity. Simply incorporating the criteria recommended for use in impact analysis by SCAQMD, as shown on page 5-29 of the DEIS would solve this problem.

Chapter 5 correctly recognizes that there are no established criteria of significance for greenhouse gas (GHG) emissions under CEQA or NEPA practices. This means that the Bureau cannot rule out the possibility that emission of any greenhouse gases (GHGs) during construction of the Shasta Dam Raise. The Bureau summarizes on page 5-22 a number of thresholds and criteria that could be used to assess the GHG impacts of construction and operation activities of the Shasta Dam Raise. They include:

- Zero (i.e., all emissions are significant)
- 900 metric tons of carbon dioxide equivalent (MT CO_2e) per year (which would capture about 90 percent of residential and nonresidential discretionary development)

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[23] California Air Resources Board, Air Quality and Land Use Handbook: A Community Health Perspective, April 2005, p. 13. Accessible online 29 August 2013 at http://www.arb.ca.gov/ch/handbook.pdf.

Table 2 Annualized Unit Cost of Shasta Dam Raise Alternatives					
	CP 1	**CP2**	**CP3**	**CP4**	**CP5**
Total Capital Cost ($ millions)	$967	$1,068	$1,242	$1,250	$1,272
Total Annualized Cost ($ millions)	$44	$51	$54	$56	$61
Total Production of Fish (thousands of fish)	61	379	207	813	378
Acre-feet of Storage Capacity (TAF)	256	443	634	634	634
Acre-feet of Supply Yield (TAF)	47.3	77.8	63.1	47.3	113.5
Ratio of New Yield to New Capacity	0.18	0.18	0.10	0.07	0.18
Cost of Annual Yield per Acre-foot	$930	$656	$856	$1,184	$537
Source: US Bureau of Reclamation, Draft Plan Formulation Appendix, Shasta Lake Water Resources Investigation, California, June 2013, Tables 5-9 and 5-10, pp. 5-110 and 5-111; and California Environmental Water Caucus.					

- 10,000 MT CO_2e per year (a potential Air Resources Board mandatory reporting level for California's cap-and-trade program)25,000 MT CO_2e per year (currently ARB's mandatory reporting level for the statewide emissions inventory program).

The Bureau opts to use the most relaxed criterion, 25,000 MT CO_2e per year as its criterion for evaluating GHG emissions from Shasta Dam Raise construction activity.

Chapter 5 underestimates GHG emissions in the construction phase of the proposed alternatives. The air quality impact analysis fails to incorporate all relevant greenhouse gas emissions associated with cement production needed for the dam. This information should be readily available from other sources and should be incorporated, along with estimates of how much concrete each alternative will need poured how much GHGs in carbon dioxide equivalents would be generated. Without it, the Bureau fails to disclose a complete and reasonable estimate of how much concrete would be needed in the Dam Raise's construction and of GHG emissions associated with each alternative, and the current analysis is therefore inadequate.

In addition, Chapter 5 also inflates greenhouse gas emission savings by using fossil fuel power plants as analytic offsets but fails to acknowledge that fossil fuel plants provide baseline loads while hydropower tends to meet peak time load needs because hydro generation can be easily ramped up to meet heavy load peaks.

Costs/Benefits

Unit Costs. The Shasta Lake Water Resources Investigation report states that the costs of project alternatives will range from $967 million to $1.27 billion, and that annualized costs of the project (amortized over 100 years, according to the Bureau[24]) will range between $44 million and $61 million.

As shown in Table 2, the expanded reservoir these amounts are intended to purchase range from an additional 256,000 acre-feet to 634,000 acre-feet of new storage capacity. Supply yields from the additional storage capacity are considerably less, ranging from 47,300 acre-feet for comprehensive plans 1 and 4 up to 113,500 acre-feet per year on average for CP 5. Table 1 calculates a ratio of the new supply yield to the new storage capacity for each comprehensive plan. These ratios range between 0.07 to 0.18, meaning that yield from this project represents about 7 to 18 percent of new storage created.[25]

Table 1 shows that the unit cost of the supply yielded by the proposed project would range between $537 per acre-foot for CP2 to $1,184 per acre-foot for CP4.The Bureau's fish production modeling (SALMOD) in the analysis of the proposed project, shows that fish do better when they have more water of appropriate temperatures flowing to benefit them. But this is still an expensive way to encourage fish production and stimulate recovery of one of Nature's more important natural services to society.
State and federal laws already exist requiring that the migratory fish populations of the federal Anadromous Fish Restoration Program be doubled over the 1967-1991 population average for each species and salmonid run using already available AFRP recovery plans.[26] Instead of using technology, money and engineering, we should be using our governments' police power to require that salmon be produced toward full recovery.

Funds for the Shasta Dam raise and reservoir enlargement should be reprogrammed to Bureau programs that assist local cities, communities, and water districts with investing

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[24] US Bureau of Reclamation, Draft Attachment 1 Cost Estimates for Comprehensive Plans, Engineering Summary Appendix, Shasta Lake Water Resources Investigation, California, June 2013, Cost summaries for each comprehensive plan, Attachment pages 1-1 through 1-6.

[25] This could make investment in expanded reservoir capacity nearly as bad a purchase by the Bureau as was New Melones Dam and reservoir in the 1970s. The Bureau recently reported that actual carryover storage at New Melones occurs just 39 percent of the time, and averages 21,048 acre-feet per year, less than 1 percent of New Melones' 2.4 million acre-feet of storage capacity. See United States Department of the Interior, Comments: Draft Substitute Environmental Document in Support of Potential Changes to the Water Quality Control Plan for the San Francisco Bay-Sacramento/San Joaquin Delta Estuary: San Joaquin River Flows and Southern Delta Water Quality (SED), March 29, 2013, pp. 3-4. Accessible online 26 August 2013 at http://www.waterboards.ca.gov/waterrights/water_issues/programs/hearings/baydelta_pdsed/docs/comments032913/amy_aufdemberge.pdf.

[26] California Fish and Game Code Section 6902(a); and the Central Valley Project Improvement Act of 1992, Section 3406(b)(1), accessible online 30 August 2013 at .

in water supply projects that will help the State of California meet the goals contained in the Delta Reform Act of 2009.[27]

Net Economic Benefits of the Project Under Climate Change The Climate Change Modeling Appendix relies on five basic ensemble climate change scenarios (Q1 through Q5) that were assembled from 112 general circulation models recommended by the Intergovernmental Panel on Climate Change. These models have been "downscaled" for use at the regional level to estimate a range of potential impacts on the potential of the proposed project to improve water supply reliability. The analysis relies on Comprehensive Plan 5 as the alternative to be tested in the climate change comparisons.

The Appendix's authors analyze future impacts of the project by distilling down climate change scenarios to three, thereby attempting to bracket the range of potential climate change outcomes.[28]

To evaluate some of the economic impacts of climate change trends on the state's water system (CVP and SWP) with and without the enlargement of Shasta reservoir, four models were employed. Figures 3-100 through 3-103 summarize each model's estimation of the change in net economic benefits from Comprehensive Plan 5. For three of the four models, the outlook is at best mixed. In Silicon Valley, net benefits could range from no change under a slow growth and cooler/wetter scenario (SGQ4) to $37 million per year in a fast-growth and drier/hotter climate scenario (EGQ2). It is unclear from the DEIS what effect the $1.2 billion price tag of CP5 will have on rates for contractors within the San Felipe Project (which include Santa Clara Valley Water District and San Benito County Water District). They receive their water from the west end of San Luis Reservoir. Santa Clara Valley Water District is working on a "low point" intake project to lower the

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[27] California Water Code Section 85021, stating: "The policy of the State of California is to reduce reliance on the Delta in meeting California's future water supply needs through a statewide strategy of investing in improved regional supplies, conservation, and water use efficiency. Each region that depends on water from the Delta watershed shall improve its regional self-reliance for water through investment in water use efficiency, water recycling, advanced water technologies, local and regional water supply projects, and improved regional coordination of local and regional water supply efforts."

[28] It should be pointed out that just 13 years into the 21st century, none of the 15 downscaled models in the Bureau's climate change methodology are ruled out. The Bureau has produced a simplified analysis (Q1 through Q5) that themselves represent "central tendencies" of the 112 models in each quadrant of possible climate outcomes. So there is equal probability drier/hotter climate results in the future as wetter/cooler. Q5 is a central tendency grouping of the other four quadrants. It is sometimes referred to in the text of the Climate Change Modeling Analysis as a "consensus" climate scenario, but there is really no basis for a consensus here. Q5, because of its emphasis on the central tendencies of the four quadrant scenarios, really approximates "current trends" without climate change—which has the problem of approximating "stationarity" in the climate results. Stationarity in this context means that "natural systems fluctuate within an unchanging envelope of variability, a staple assumption of water resource engineering. Scientists have demonstrated that stationarity "has long been compromised by human disturbances in river basins" and now anthropogenic climate change and oceanic-scale temperature oscillations make stationarity untenable as an assumption about future climate conditions. P.C.D. Milly, Julio Betancourt, Malin Falkenmark, Robert M. Hirsch, Zbigniew W. Kundzewicz, Dennis P. Lettenmaier, and Ronald J. Stouffeer, "Stationary is Dead: Whither Water Management?" Science, 319: 573-574, 1 February 2008.

elevation at which the San Felipe Project takes water from San Luis. The Shasta Raise project will be an added expense for which San Felipe Project contractors will be responsible in the years ahead. Elsewhere in the Climate Change Modeling Appendix, CVP San Luis storage performance is shown to worsen in the years to come to the point of "dead pool" (water inaccessible with existing reservoir intakes or by gravity release), with or without the raising of Shasta Dam.

The climate change scenarios (where change is really at work in the modeling process in EGQ2 and SGQ4) show that, in Figure 3-144 (p. 3-116), "avoided water quality costs for Silicon Valley will have small negative benefits (i.e., net costs) over the long term. In Figure 3-145, agricultural net revenues in the Central Valley service areas of the CVP and SWP see only a modest range of net benefits from about negative $300,000 (i.e., a net cost) per year in the near term to a high of $6 million per year in net benefits in the long run of a high-growth and drier/hotter climate scenario. California's agricultural economy is about $30 to $40 billion in overall size, so this net benefit to agricultural customers of the CVP and SWP is only about one-one-thousandth (1/1000) of one percent of the California's agricultural economy—vanishingly small, in other words.

Other findings for the economic net benefits of the Shasta Dam Raise and Reservoir Enlargement project are similarly vanishingly small, yet would likely involve rate increases to both CVP urban and agricultural customers that they may prefer to avoid.

These findings also strongly suggest that were an honest and adequate Benefit-Cost Analysis performed on this proposed project (for which CP4 appears to be the Bureau's preferred alternative), its ratio of benefits to costs would be well under 1.0. This would be strong grounds for rejecting the project and spending scarce taxpayer funds on other more cost-effective alternatives. The California Environmental Water Caucus urges the Bureau to perform an honest and adequate Benefit-Cost Analysis of the CP5 alternative.

Climate Change, the State's Water System, and the Shasta Dam Raise Project

Tables 3 through 6 below distill climate change modeling results from the Climate Change Modeling Appendix concerning statewide water system operations, unmet water demand, and Delta water quality compliance effects of Comprehensive Plan 5. These tables, based on graphical interpretation of probability exceedances plots in the Bureau's Climate Change Modeling Appendix, reveal that:

- The Shasta Dam Raise project (CP5) will not implement a "big gulp/little sip" hydraulic strategy that has been discussed widely. In half of all years, the ranges of reservoir storage for water supply and carryover, and for Delta export pumping actually decrease by increasing at the bottom and decreasing at the top of the

range. These findings suggest modest increases in system-wide water supply reliability (but they come at the expense of the top end of most reservoir storage and Delta export ranges), especially in drier years. Storage increases that are found are nowhere near the amounts needed to meet unmet demand found elsewhere in the Appendix. (See Tables 3, 4, and 6.)

- The Shasta Dam Raise project (CP5) will contribute only slightly to reduction of unmet water demand. Climate change scenarios without the proposed project show a range of unmet demand from 2.7 to 8.2 million acre-feet. With the Shasta Dam Raise project, the Modeling Appendix forecasts a reduction ranging between 5,000 and 33,000 acre-feet per year. This range is generally just a fraction of 1 percent of the overall unmet water demand. (See Table 5.)

- The Shasta Dam Raise project will only marginally decrease the risk of "dead pool" storage conditions at the state water system's reservoirs, and actually increases the risk of dead pools in south-of-Delta reservoirs. Dead pools occur when water levels in reservoirs become inaccessible by existing reservoir intakes or by gravity release. Dead pool conditions without the Shasta Dam Raise project are expected in the Modeling Appendix at all state water system reservoirs except for Oroville. However, with the Shasta Dam Raise project, the Modeling Appendix suggests only marginal decreases in dead pool storage risks at the end of September, including Oroville. And the risk of dead pools for both state and federal portions of San Luis Reservoir actually increase. (See Table 5.)

The Bureau fails in the Draft EIS to provide a clear statement of the Shasta Dam Raise project's ability to meet both its stated objective of improving water supply reliability, and if so, by how much. The Bureau has done analysis that can only be applied to one of the five alternatives. If the best this project can accomplish is to reduce unmet water demand by 5,000 to 33,000 acre-feet in the 21st century, that increment of water will be extremely costly to provide through the Shasta Dam Raise project. (Recall from Table 1 above that CP5 costs over $1.2 billion with an annualized capital and operating cost of $61 million per year.) The incremental cost of reducing this unmet demand with CP5 would lie somewhere between $1,800 and $12,000 per acre-foot, an extraordinarily expensive source of new water for attempting to drought-proof the state's modern water system.

Table 3

Climate Change Effects on California Water System Storage

End of May (Water Supply Availability)

State Water System Component	Climate Change Modeled Effect Without Shasta Dam Raise	Climate Change Modeled Effect With Shasta Dam Raise
Shasta	Half the time: 2.2 to 4.55 MAF; median range between 3.6 to 4.55 MAF	Half the time: 2.75 to 5.2 MAF/ median range between 3.7 to 5.2 MAF
Folsom	490 to 800 TAF/ median range between 660 to 800 TAF	560 to 800 TAF/ media range between 660 to 780 TAF
Oroville	1.8 to 3.4 MAF/ median range between 2.3 to 3.3 MAF	1.9 to 3.4 MAF/ median range between 2.5 to 3.3 MAF
New Melones	650 TAF to 2.15 MAF/ median range between 1.25 to 2.0 MAF	700 TAF to 2.25 MAF/ median range between 1.3 to 2.0 MAF
Millerton	350 to 520 TAF/ median range between 420 to 520 TAF	360 to 520 TAF/ median range between 460 to 500 TAF
CVP San Luis	410 to 820 TAF/ median range between 5380 to 730 TAF	420 to 800 TAF/ median range between 5380 to 620 TAF
SWP San Luis	490 to 890 TAF/ median range between 600 to 780 TAF	490 to 870 TAF/ median range between 650 to 750 TAF

Note: Initial range of reservoir storage volumes are graphical interpretations of exceedance plots presented in the climate change modeling appendix. They represent the range of water volumes attainable between the lowest exceedance plot and the highest plot for each climate change scenario occurring between the 25th and 75th percent exceedances (in other words, half of all years examined in the model runs). Thus, what is reported here are water volumes and X2 positions that span the climate change scenarios in half of all years. The median values reported in this table are simply the range of medians from the same exceedance plots from lowest to highest. For median values of these exceedance plots, half of plot's values will be above the median and half will be below.

Source: Graphical interpretation of Figures 3-61 through 3-83; and Figures 3-119 through 3-140, in US Bureau of Reclamation, *Shasta Lake Water Resources Investigation, Draft Climate Change Modeling Appendix*, June 2013.

Table 4

Climate Change Effects on California Water System Storage
End of September (Carryover Supplies)

State Water System Component	Climate Change Modeled Effect Without Shasta Dam Raise	Climate Change Modeled Effect With Shasta Dam Raise
Shasta	Half the time: 750 TAF to 3.75 MAF; median range between 2.2 to 3.75 MAF	1.4 to 4.3 MAF/ median range between 2.5 to 4.3 MAF
Folsom	150 TAF to 800 TAF/ median range between 460 to 800 TAF	280 to 800 TAF/ median range between 500 to 800 TAF
Oroville	900 TAF to 3.2 MAF/ median range between 1.4 to 2.6 MAF	1.1 to 3.1 MAF/ median range between 1.6 to 2.5 MAF
New Melones	400 TAF to 2.0 MAF/ median range between 1.4 to 1.8 MAF	600 TAF to 1.95 MAF/ median range between 1.2 to 1.7 MAF
Millerton	150 to 240 TAF/ median range between 175 to 220 TAF	160 to 240 TAF/ median range between 175 to 220 TAF
CVP San Luis	40 TAF (Dead pool) to 230 TAF/ median range between 40 TAF (Dead pool) to 100 TAF	40 TAF (Dead pool) to 220 TAF/ median range between 40 TAF (Dead pool) to 110 TAF.
SWP San Luis	160 to 550 TAF/ median range between 280 to 450 TAF	170 to 540 TAF/ median range between 310 to 460 TAF

Note: Initial range of reservoir storage volumes are graphical interpretations of exceedance plots presented in the climate change modeling appendix. They represent the range of water volumes attainable between the lowest exceedance plot and the highest plot for each climate change scenario occurring between the 25th and 75th percent exceedances (in other words, half of all years examined in the model runs). Thus, what is reported here are water volumes and X2 positions that span the climate change scenarios in half of all years. The median values reported in this table are simply the range of medians from the same exceedance plots from lowest to highest. For median values of these exceedance plots, half of plot's values will be above the median and half will be below.

Source: Graphical interpretation of Figures 3-61 through 3-83; and Figures 3-119 through 3-140, in US Bureau of Reclamation, *Shasta Lake Water Resources Investigation, Draft Climate Change Modeling Appendix*, June 2013.

Table 5
Comparison of Climate Change Modeling Effects on Dead Pool Storage Conditions
and Impact of Shasta Dam Raise

State Water System Component	Climate Change Modeled Effect Without Shasta Dam Raise	Climate Change Modeled Effect With Shasta Dam Raise
Unmet Demand	2.7 to 8.2 million acre-feet/year (DEIS, Figure 3-83, p. 3-73)	Reduction in unmet demand of 5,000 to 33,000 acre-feet/year (DEIS Figure 3-141, p. 3-114)
Storage Performance		
Shasta	Dead pool at end of September 3% to 22% of the time (i.e., up to one in every five years)	Dead pool at end of September 3% to 16% of the time (i.e., up to one in every six years)
Folsom	Dead pool at end of September 3% to 22% of the time (i.e., up to one in every five years)	Dead pools at end of September 2% to 13% of time (i.e., up to one in every eight years)
Oroville	No dead pool conditions expected.	Dead pool at end of September no more than about 2 percent of the time.
New Melones	Dead pool at end of May 2% to 6% of the time; dead pool at end of September up to 12% of the time (one in eight years on average)	Dead pools at end of May up to about 5 percent of the time; dead pools at end of September up to about 8 percent of the time (i.e., up to about one in every 12 years)
Millerton	Dead pool at end of September between 4% and 13% of the time (i.e., up to one in every eight years on average)	Dead pool at end of September 4% to 8% of the time.
CVP San Luis	Dead pool at end of September between 25% and 50% of the time (i.e., one in every two to four years) under most climate scenarios	Dead pool at end of September about 25 to 73% of the time (i.e., from about one in four to about three in every four years)
SWP San Luis	Dead pool at end of September between 2% and 4% of the time.	Dead pool about 4 percent of the time.

Note: Initial range of reservoir storage volumes are graphical interpretations of exceedance plots presented in the climate change modeling appendix. They represent the range of water volumes attainable between the lowest exceedance plot and the highest plot for each climate change scenario occurring between the 25th and 75th percent exceedances (in other words, half of all years examined in the model runs). Thus, what is reported here are water volumes and X2 positions that span the climate change scenarios in half of all years. The median values reported in this table are simply the range of medians from the same exceedance plots from lowest to highest. For median values of these exceedance plots, half of plot's values will be above the median and half will be below.

Source: Graphical interpretation of Figures 3-61 through 3-83; and Figures 3-119 through 3-140, in US Bureau of Reclamation, *Shasta Lake Water Resources Investigation, Draft Climate Change Modeling Appendix*, June 2013.

Table 6
Comparison of Climate Change Modeling Effects on Delta Export Operations,
Delta Outflow, Salinity Control, and Impact of Shasta Dam Raise

Delta Facility or Compliance Point	Climate Change Modeled Effect Without Shasta Dam Raise	Climate Change Modeled Effect With Shasta Dam Raise
Banks Pumping Plant Exports (SWP)	1.4 MAF to 3.6 MAF in half of all years (i.e., 25th to 75th exceedance probabilities); median exports of between 1.8 MAF to 3.0 MAF per year.	1.6 MAF to 3.4 MAF in half of all years; median exports of between 2.1 to 2.9 MAF
Jones Pumping Plant Exports (CVP)	1.3 MAF to 2.75 MAF in half of all years; median exports of between 2.0 to 2.6 MAF	1.7 to 2.4 MAF in half of all years; median exports of between 2.1 to 2.6 MAF
Combined Exports to South of Delta	2.7 MAF to 6.35 MAF in half of all years; median exports of between 3.8 to 5.6 MAF	3.3 MAF to 5.8 MAF in half of all years; median exports of between 4.2 to 5.3 MAF
Delta Outflow	5 MAF to 29 MAF in half of all years; median Delta outflow of between 7 and 15 MAF	6 MAF to 28 MAF in half of all years; media Delta outflow of between 7.5 to 15 MAF
X2 Position (i.e., location of 2.0 EC salinity in kilometers east of Golden Gate, measuring position of the low-salinity zone of the Delta estuary)	61 km to 83 km in half of all years; median X2 position of between 65 and 78 km	62 km to 82 km in half of all years; median X2 position of between 65 to 77 km.

Note: Initial range of export and outflow volumes and X2 positions are graphical interpretations of exceedance plots presented in the climate change modeling appendix. They represent the range of water volumes attainable between the lowest exceedance plot and the highest plot for each climate change scenario occurring between the 25th and 75th percent exceedances (in other words, half of all years examined in the model runs). Thus, what is reported here are water volumes and X2 positions that span the climate change scenarios in half of all years. The median values reported in this table are simply the range of medians from the same exceedance plots from lowest to highest. For median values of these exceedance plots, half of plot's values will be above the median and half will be below.

Source: Graphical interpretation of Figures 3-61 through 3-83; and Figures 3-119 through 3-140, in US Bureau of Reclamation, *Shasta Lake Water Resources Investigation, Draft Climate Change Modeling Appendix*, June 2013.

The following Environmental Water Caucus affiliated organizations support the comments and recommendations shown in the attached letter to the US Bureau of Reclamation on the Shasta Lake Water Resources Investigation DEIS dated June, 2013.

The corresponding logos are shown at the front of this document.

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