The Facts about Raising Shasta Dam  

May 10, 2019

Shasta Dam is the fourth highest dam in California\(^1\) and its 4.55 million acre-foot reservoir is the largest in the state.\(^2\) The dam captures water from three rivers (the upper Sacramento, McCloud, and Pit).\(^3\) Constructed and operated by the U.S. Bureau of Reclamation, the Shasta Dam and Reservoir is the cornerstone of the giant Central Valley Project (CVP), which provides irrigation and drinking water for much of California's Central Valley and parts of, and valleys just south of, the San Francisco Bay Area.\(^4\)

In the Shasta Lake Water Resources Investigation (SLWRI) final Feasibility Report and Final Environmental Impact Statement (FEIS), the Bureau of Reclamation (Reclamation, USBR, or the Bureau) identified a plan with the greatest level of National Economic Development (NED) benefits as one including an 18.5-foot raise of Shasta Dam,\(^5\) which would increase water storage capabilities behind the dam by about 13%.\(^6\) This alternative, identified as the preferred alternative,\(^7\) was intended to improve conditions in the Sacramento River for threatened and endangered salmon and steelhead and increase the state’s overall water supply reliability.\(^8\) The Bureau released a final Feasibility Report and environmental impact statement (FEIS) which did not recommend any action (dam) alternative because of serious outstanding considerations,\(^9\) including: (1) The Bureau’s desire to have upfront funding from non-federal cost-sharing partners,\(^10\) (2) concerns by CVP contractors about CVP facilities serving non-CVP contractors,\(^11\) (3) California law prohibiting the expansion of Shasta Reservoir,\(^12\) (4) applicability of state environmental law to the project,\(^13\) and (5) process considerations. There has been no Record of Decision for the FEIS.\(^14\)

Cost and Cost-Sharers

Cost and Benefits – Raising Shasta Dam by 18.5 feet will cost nearly $1.4 billion dollars,\(^15\) approximately equal to the unpaid reimbursable debt for the CVP.\(^16\) Reclamation’s final feasibility report allocates nearly 50% of the dam-raise cost to providing salmon benefits,\(^17\) which means that nearly 50% of the dam costs could be paid by American taxpayers and not the water contractors who directly benefit from the dam raise.\(^18\) The U.S. Fish & Wildlife Service (USFWS) strongly questioned the Bureau’s claim that raising the dam will benefit salmon.\(^19\)

Water Yield – The 18.5-foot raise will increase the reservoir’s capacity by 634,000 acre-feet.\(^20\) But the average increased deliveries provided by the enlarged reservoir by the Reclamation preferred alternative are only 51,300 acre-feet\(^21\) (or 0.7% of CVP annual deliveries or a little more than 1/10\(^{th}\) of 1% of the state’s annual water budget\(^22\)). To put this in perspective, California’s urban water users saved in three months in the summer of 2015 more than 8 times the amount of the dam raise’s average annual water yield.\(^23\) Of course, the Bureau admits that hydrology, climate change, water system operations, water supply reliability and water demand are all “significant uncertainties” in regard to the project’s actual yield of water.\(^24\)

Water Contracts – There are no identified specific beneficiaries of the project, but the Bureau speaks of selling the additional supply to CVP contractors and even to State Water Project contractors,\(^25\) an eye opener to CVP contractors.\(^26\) Most of the increased supply is expected to be sold to water contractors south of the Delta.\(^27\) Easing delivery constraints through the Delta by routing Sacramento River flows through the tunnels underneath the Delta increases the utility of the dam raise.\(^28\) The Bureau’s previous study of the Shasta Dam raise was shelved when voters rejected the proposed Peripheral Canal in 1982.
**Non-Federal Cost-Sharing Partners** – California law prohibits the dam raise by not allowing the creation of an expanded reservoir that would inundate free-flowing sections of the McCloud River or even the McCloud arm of Shasta River above the McCloud River Bridge. The Bureau’s 2015 Final feasibility report announced that they would require cost-sharing partners, and in 2016, Congress created a special authorization process that required at least a 50% non-federal contribution from cost-sharing partners. No cost-sharing partners applied for Proposition 1 water storage funding from the California Water Commission as provisions in the bond made such grants for projects in conflict with the California and National Wild and Scenic Rivers Acts ineligible.

**Significant & Unavoidable Impacts**

The Bureau’s FEIS admits to many significant and unavoidable environmental impacts that cannot be mitigated. In addition, there are serious concerns about the validity of many of the Bureau’s assumptions. Significant impacts and concerns include:

**Threatened & Endangered Salmon and Steelhead** – Even though the dam raise is proposed by the Bureau to supposedly improve conditions in the Sacramento River for threatened and endangered salmon and steelhead, the U.S. Fish & Wildlife Service (USFWS) said that the claimed benefit to salmonids was not “substantial” downstream of the Red Bluff pumping plant and “only provides minimal benefit” for spring and winter-run chinook salmon upstream. However, the proposed action, “by further restricting high water flows will result in additional losses of salmonid rearing and riparian habitat and adversely affect the recruitment and natural succession of riparian habitat along the Sacramento River and bypasses.” The Service “was unable to support the adoption of any of the proposed [dam-raise] alternatives.” The USFWS also noted that improving the dam’s existing temperature control device, restoring downstream spawning gravel and rearing habitat, improving fish passage, increasing minimum flows, and screening water diversions all increase salmon survival more than the dam raise.

**Native American Cultural Heritage** – The Bureau admits that the dam raise and reservoir expansion will have “disproportionally high” impacts on Native Americans, specifically the Winnemem Wintu Tribe. The Tribe lost most of their traditional homeland under the existing reservoir. Raising the dam will drown cultural and sacred sites still used by the Winnemem to this day.

**National Forest Lands & Infrastructure** – Raising Shasta Dam and enlarging its reservoir will drown more than 2,600 acres of the Whiskeytown-Shasta-Trinity National Recreation Area, which is managed by the U.S. Forest Service for public recreation and conservation. The dam raise will also require the relocation of more than six miles of public roads, the relocation or modification of five bridges, dozens of recreation facilities (marinas, campgrounds, etc.), and utilities and wastewater systems.

**Wild & Scenic Rivers** – Expanding Shasta Reservoir will flood upstream rivers and streams, including the McCloud River, which is protected under the California Wild & Scenic Rivers Act. The expanded reservoir would also flood segments of the McCloud and upper Sacramento Rivers identified by the Forest Service as eligible for protection in the National Wild & Scenic Rivers System. Not only would the dam raise flood these important river segments, it would harm the river’s outstandingly remarkable scenic, recreational, wild trout, and Native American cultural values. The dam raise would also modify flows in a segment of the Sacramento River below the dam identified by the Bureau of Land Management for potential National Wild & Scenic River protection.

**Wildlife** – The enlarged reservoir footprint will cause permanent loss of habitat for numerous sensitive wildlife species, including Pacific fisher, northern spotted owl, northern goshawk, Cooper’s hawk, purple martin, foothill yellow-legged frog, three Shasta salamander species, and several special status bat and mollusk species. The project will also result in the flooding of several rare plant populations and their habitat (including fully or partially inundating 11 of the 24 known sites where the Shasta snow-wreath, a rare flowering shrub found nowhere else on earth is found). Critical deer fawning areas and winter habitat will also drown beneath the expanded reservoir.

**Sacramento River National Wildlife Refuge** – The dam raise/reservoir expansion will modify flows through the Sacramento River National Wildlife Refuge, with potentially significant impacts on the river’s riparian ecosystem and protected wildlife species that depend on that ecosystem (including the threatened yellow-billed cuckoo and bank swallow). The Bureau proposes a so-called Adaptive Management Plan to mitigate these impacts but
provides no information on how the Plan will be implemented, how the needs of water contracts will be weighed against ecosystem flow needs, and what guarantees will be provided to ensure that these significant impacts are truly mitigated to less than significant levels.

Delta – The effects of the dam raise/reservoir expansion will be felt all the way downstream to the Sacramento-San Joaquin Delta. Storing more water behind the expanded dam and reservoir will reduce fresh-water flows into the Delta during critical periods with increases in mortality for endangered Delta fish due to continued and increased reverse flows in the south Delta.

**Attempted WIIN Authorization**

In January 2018, the federal administration appeared to have informed the Congress that a "Secretarial Determination for Commencement of Construction" had been made to begin construction on the 18.5-foot raise under the authority of the Water Infrastructure Improvements for the Nation Act of 2016 (WIIN). According to the document, a cost-sharing partner was expected by the fall of 2019 and construction would begin in late 2019 (early fiscal year 2020). The communication did not inform the Congress that the raise is illegal under state and federal law. This is in contrast to Reclamation's SLWRI FEIS, which acknowledges "[the impact [of the dam-raise alternatives] will be significant" on the free-flowing characteristics of the McCloud River above current gross pool and be "in conflict with the PRC" (California Public Resources Code; in this case, the Wild & Scenic Rivers Act chapter).

The WIIN provides for special Secretarial authorizations for storage projects in Reclamation states. For Reclamation projects, they must have at least a 50% non-federal cost-sharing partner or partners and comply with law, including state law. Then House Majority Leader McCarthy attempted to eliminate the cost-sharing requirement and fund $20 million of pre-construction and design work for the dam raise in the federal fiscal year 2019 omnibus appropriations bill. California Natural Resources Secretary Laird, citing the state's Wild and Scenic Rivers Act, opposed the funding and asked that the project not be pursued. The cost-sharing waiver was defeated, but the design funding was approved.

Consistent with the Dept. of Interior cost-sharing policy later incorporated in the WIIN, the Westlands Board authorized entering into agreements in principle to cost share the dam raise with Reclamation in 2009 and 2014. These agreements were executed, although both have expired, the last one in 2017. In February 2018, the Westlands Water District, the largest irrigation district in the country, and since 2007 the owner of the Bollibokka fishing club on the lower McCloud River, again authorized their general manager to "submit a request to the Secretary of the Interior for the enlargement of Shasta Dam and Reservoir, indicating a willingness to potentially share the costs of the enlargement." On March 8, 2018, the San Luis and Delta Mendota Water Agency (SLDMWA), "authorized sending a letter to the United States Department of the Interior for Potential Sharing Cost for Enlarging Shasta Dam and Reservoir."

On March 22, 2018, seven environmental, sportfishing, and commercial fishing groups sent a letter to SLDMWA explaining that it and some of its members under the California water and government codes are agencies of the state and thus subject to the restrictions of the California Wild and Scenic Rivers Act that prevent assistance or cooperation with the federal government in the dam raise. In addition, local governments such as the City of Tracy that are members of the Authority must "exercise their powers granted under any other provision of law in a manner consistent with the policy and provisions of this chapter." Op eds and press accounts by and about the Authority and Westlands Water District say they dispute the California Natural Resources Secretary's and group’s assertions that raising Shasta Dam and cooperating with Reclamation to raise the dam and thus place a reservoir on the McCloud River above the McCloud River Bridge are illegal. In response to a member of Congress inquiry about the California's assertion that the dam raise is illegal, the Administration replied, "...Reclamation does not interpret the California Public Resources Code to explicitly prohibit enlargement of Shasta Dam; rather, the statute speaks to impacts on the McCloud River and fisheries. Legal, factual, technical and engineering questions exist as to whether the state law applies and whether those provisions are triggered by the Shasta enlargement." This statement is of course in conflict with the SLWRI final EIS that states that the dam raise is in conflict with state law and maps the geography of the impermissible reservoir expansion.
Recent Developments

Since at least the time of the “Secretarial Determination for Commencement of Construction,” Reclamation has called the project the Shasta Dam & Reservoir Expansion Project (SDREP). Their announced activities have been the following: engineering design for 18.5 feet dam raise; coordination with various federal, state, railroad and local agencies; consultations with tribal interests, land-owners, government and non-government agencies, preparing various required documents; identifying non-federal cost share partner(s); public involvement and stakeholder outreach; land resource management work such as, interagency agreements and land acquisition planning; and design activities for facilities to be relocated, including: roads, railroad, bridges and marinas.

On November 29, 2018, the Center for Biological Diversity filed a complaint for injunctive and declaratory relief against the Department of the Interior and the U.S. Fish & Wildlife Service for failure to make a mandatory finding on whether three range-restricted Shasta salamander species (Hydromantes sp.) should be listed as threatened or endangered under the Endangered Species Act. The complaint says that the salamanders are present on the lands that would be inundated by the expanded Shasta Reservoir. The SLWRI FEIS calls the impacts to the salamander significant and unavoidable even with mitigation.

On November 30, 2018, the Westlands Water District, as lead agency, issued a Notice of Preparation for an environmental impact report (EIR) for what it calls the “Shasta Dam Raise Project,” (SDRP). The minutes for Westlands' September 18, 2018 Board of Directors meeting indicate that Westlands considers this CEQA review “necessary to become a cost-share partner,” and that it believed it should commence the California Environmental Quality Act (CEQA) EIR process “as soon as possible” in order to “adhere to the current schedule” communicated by Reclamation. Deadline for comments was on January 14, 2019, (Shasta Dam Raise Project – shastadameir@stantec.com). The District held an open house and scoping session and an unannounced off-the-record public comment session on December 12, 2018, in Redding California. Westlands contemplated that a draft EIR will be released in early spring 2019.

In addition to scoping comments by the Winnemem Wintu Tribe and environmental groups, state agencies also provided comments to Westlands. For example, the California Department of Fish and Wildlife noted that the project would “convert part of the McCloud River into reservoir habitat, changing the free-flowing condition of the McCloud River. It further stated that “[i]nundation of the McCloud River would result in a significant loss of this river ecosystem to a reservoir ecosystem, resulting in direct and indirect adverse impacts to the current trout fishery in conflict with State law and policy.”

In its comments, the State Water Resources Control Board’s executive officer stated that Westlands is an agency of the state, thus subject to the state law prohibition on assistance in planning with federal, state, or local agencies for impoundment facilities that “could have an adverse effect on the free-flowing condition of the McCloud River or its wild trout fishery.” The letter said that EIR lead-agency status is “planning” for the purposes of this part of the California Wild and Scenic Rivers Act. It also stated that preparation of an EIR to support state and local approvals is similarly unlawful, as is sharing EIR or construction costs with others. In summary, the expanded reservoir would convert a free-flowing reach of river to “impounded waters” and Westlands’ EIR preparation is thus prohibited by the statutory language. The comment letter also noted the Water Code prohibits the Board from issuing permits or “otherwise” to such projects and highlights that the construction of SDRP requires the Board to provide time extensions on Reclamation’s Shasta Dam water rights permits, an action that the Board believes the California Wild & Scenic Rivers Act prohibits.

KQED’s science reporter Craig Miller interviewed Reclamation’s Area Manager Don Bader at the public scoping meeting:

“We’re proceeding along the federal route here,” says Bader. “If California does not participate in this process, we’ll move along forward by getting the federal approval.”

Some might interpret that as saying they’re going through with this regardless of what California thinks. “That’s one way to say it,” says Bader.
In April 2019, in response to a question about his concerns about Reclamation's Shasta Dam Raise & Enlargement Project (SDREP) by the Water Education Foundation, California Natural Resources Secretary Wade Crowfoot replied:

Federal officials are pursuing efforts to raise Shasta Dam on the Sacramento River in Northern California, despite state concerns that raising the dam would violate the protection for the McCloud River under California’s Wild and Scenic Rivers Act. The state’s concerns center on the project’s adverse impacts on the McCloud River, which is specifically protected under state law. The California Department of Fish and Wildlife and the State Water Resources Control Board restated these concerns in recent comment letters regarding the proposed raise. We hope the Bureau of Reclamation will closely consider our state agencies' concerns in the coming months.75

Reclamation maintains a webpage providing SDREP status. At this writing, they are projecting awarding the construction contract in December 2019. The project is expected to be completed in 2024.76

For current fact sheets and more resources see: https://www.friendsoftheriver.org/our-work/ sigue threat/sacramento-threat-shasta/ For additional information concerning this project, please contact Steve Evans, Wild Rivers Project Consultant for the California Wilderness Coalition, phone: (916) 708-3155, seevans@calwild.org; or Ronald Stork, Friends of the River, (916) 442-3155 x 220, rstork@friendsoftheriver.org.

3 "The four major tributaries to Shasta Lake are the Sacramento River, McCloud River, Pit River, and Squaw Creek, in addition to numerous minor tributary creeks and streams." Shasta Lake Water Resources Investigation (SLWRI) Final Feasibility Report, July 2015, p. 1-12.
4 SLWRI Final Feasibility Report, pp. 1-9, 1-12 figure 1-5.
5 SLWRI Final Feasibility Report, pp. 6-1-2.
6 The 18.5 ft. dam raise would increase the reservoir full-pool elevation by 20.5 feet, representing an enlargement of reservoir storage capacity by 634,000 acre-feet to a total capacity of 5.19 million acre-feet. SLWRI Final Feasibility Report, p. ES-19.
7 SLWRI Final Feasibility Report p. 6-7 and Final Environmental Impact Statement Shasta Lake Water Resources Investigation, United States Department of the Interior Bureau of Reclamation, Mid-Pacific Region, Final Environmental Impact Statement, December 2014, (SLWRI FEIS) pp. S-34 and 32-8 identifies the National Economic Development (NED) project as the preferred alternative.
8 For more discussion and an expanded list of intended or modeled benefits of the NED alternative, see SLWRI Final Feasibility Report, pp. 6-3-4. In the preferred alternative, the Shasta power plant is modeled to increase Energy production by 5% resulting in a 2% increase in net CVP energy production. SLWRI FEIS p. 23-21, table 23-7.
9 SLWRI Final Feasibility Report p. 9-1. Although no plan is recommended, a plan (CP4A) is identified as the preferred plan. Table 6-15 from page 45, Chapter 6, “Timeline and Status of Feasibility Study,” states: "This Final Feasibility Report evaluates and compares comprehensive plans and identifies the NED Plan. The Final EIS includes responses to public comments and identifies the Preferred Alternative." However, identification of a preferred but not recommended alternative in the Final Feasibility Report that is released to Congress was inconsistent with the 2004 federal statute authorizing the Secretary of the Interior to, in consultation with the Governor of California, submit the feasibility report of this and other named federal projects to the Congress once the Secretary determines that it should be constructed using in whole or in part federal funds. HR 2828, 108th Congress. The “Water Supply, Reliability, and Environmental Improvement Act.” MP-15-122 Reclamation Transmits to Congress Final Report on Proposed Shasta Dam Raise, U.S. Bureau of Reclamation, Mid Pacific Region News Release, July 29, 2015.
10 “Current Federal Budget conditions and the impacts those conditions have on Reclamation’s budgetary resources significantly constrain Reclamation’s ability to fully fund new construction activities of the scope and magnitude required by the SLWRI. As a result, the traditional model under Federal reclamation law, with Congress providing funding from annual appropriations to cover all the costs of construction over a relatively short period of time, and a portion of those funds being repaid to the Treasury over 40–50 years, is unrealistic for the identified SLWRI NED Plan. Alternative means of financing (primarily non-Federal) for a majority of the construction costs of the NED Plan would
Federal Reclamation law has been clear for more than two decades. "The Secretary, immediately upon the enactment of this title, shall operate the Central Valley Project to meet all obligations under state and federal law, including but not limited to the federal Endangered Species Act, 16 U.S.C. s 1531, et seq., and all decisions of the California State Water Resources Control Board establishing conditions on applicable licenses and permits for the project. (1992 Central Valley Improvement Act, §3406(b) (in part)), title 34 Public Law 102-575.


For the NED project, the estimated construction cost is $1.265 billion plus $105 million for interest on construction, making the total capital cost $1.371 billion. Construction costs for all of the alternatives range from $990 million to $1.283 billion. Capital costs range from $1.073 to $1.291 billion (SLWRI Feasibility Report, p. 4-47 table 4-7). For the latest cost estimate, $14 billion at this writing, see: https://www.usbr.gov/mp/nca/docs/sdrep-facts.pdf.


SLWRI Feasibility Report, pp. 6-9-13 especially tables 6-2 & 6-3.

SLWRI Feasibility Report, pp. 4-87, 6-9, 6-10 table 6-1. But see SLWRI Feasibility Report pp. 8-5-6 for discussion of the Bureau’s desire to cost-share fish & wildlife benefits in this project.

The U.S. Fish & Wildlife Service said that the claimed benefit to salmonids was not “substantial” downstream of the Red Bluff pumping plant and “only provides minimal benefit” for spring and winter-run chinook salmon upstream. However, the proposed action, “by further restricting high water flows will result in additional losses of salmonid rearing and riparian habitat and adversely affect the recruitment and natural succession of riparian habitat along the Sacramento River and bypasses.” The Service “was unable to support the adoption of any of the proposed [dam-raise] alternatives.” United States Department of the Interior, Fish and Wildlife Service Draft Fish and Wildlife Coordination Act Report For the Shasta Lake Water Resources Investigation, Prepared for U.S. Bureau of Reclamation Sacramento, California, Prepared by U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, Sacramento, California, November 14, 2014, (F&W CAR) p. xiii. http://www.friendsoftheriver.org/wp-content/uploads/2016/01/28-Shasta-Dam-Car-Revised.pdf. This document was later “rescinded to allow higher level review.” See endnote 49.


SLWRI Feasibility Report, p. 5-4 table 5-2.


SLWRI Feasibility Report, p. 6-25-30.

SLWRI Feasibility Report, pp. 4-30 table 4-4.

The report does not contain a breakdown of south of delta versus north of delta average annual delivery increases. Instead, it provides a breakdown of dry year delivery increases. See SLWRI Feasibility Report, pp. ES-28 table ES-3, 4-23 table 4-2.

“Modifications of Shasta Dam and Reservoir could allow for increased system flexibility and further use of new Delta conveyance facilities, providing for even greater water supply reliability benefits.” SLWRI Feasibility Report, p. 1-36. “All SLWRI comprehensive plans were formulated specifically to increase CVP and SWP water deliveries and water supply reliability. Isolated north Delta diversion facilities implemented as part of the BDCP could increase water deliveries to CVP and SWP SOD water users and improve water quality for urban and agricultural water users. Implementation of an enlarged Shasta Dam and Reservoir in combination with any BDCP alternative would likely provide greater water supply benefits than implementing either proposed project independently. Modifications of Shasta Dam and Reservoir could increase system flexibility and potential use of new Delta conveyance facilities, providing for even greater water supply reliability. However, the magnitude of the combined benefits is dependent upon type and size of conveyance facilities included in BDCP alternatives.” SLWRI Feasibility Report, p. 6-30.

The reservoir expansion would violate the California Wild & Scenic Rivers Act, in part, by impossibly creating a new reservoir on a protected section of the McCloud River and the McCloud arm of Shasta Reservoir. California Public Resources Code §5093.542 (b).


See later discussion and accompanying endnotes and references in later sections of this fact sheet on the Water Infrastructure for the Nation Act of 2016 (WIN).

With regard to Proposition 1 bond act funding, see Chapter 4, 79711(e) “Nothing in this division [bond act] shall be construed to affect the California Wild and Scenic Rivers Act (Chapter 1 4 (commencing line 5 with Section 5093.50) of Division 5 of the Public Resources Code) or the federal Wild and Scenic Rivers Act (16 U.S.C. Sec. 1271 line 7 et seq.) and funds authorized pursuant to this division shall not be available for any project that could have an adverse effect on the values upon which a wild and scenic river or any other river is afforded protection pursuant to the California Wild and Scenic Rivers Act or the federal Wild and Scenic Rivers Act.” By regulation (California Code of Regulations Title 23. Waters. Division 7. California Water Commission, Chapter 1 Water Storage Investment Program, §6001(a)(10)), the Shasta Dam Project was excluded from the California Water Commission list of Water Supply Investment Program CALFED projects. Staff explained the exclusion: “Shasta Enlargement has been removed from the eligible projects list. Although certain CALFED projects are deemed eligible under Section 79751 (a), the exception in this Section incorporating by reference prohibitions in the Wild and Scenic Rivers Act, including Section 5093.542(c) of such Act, would preclude the enlargement of Shasta Dam from being an eligible project under current law.” https://cwc.ca.gov/-/media/CWC-website/Files/Documents/2015/07_July/July2015_Agenda_Item_13_Attach_2_Summary_of_SAC_Comment_Letters.pdf See comment I.D. EP-1.

33 See SLWRI FEIS Executive Summary table S-3.

“Three alternatives provide some tangible benefit for anadromous fish, CP4, CP4A, and CP5. CP4 provides for the dedication of 378,000 acre-feet of the cold-water pool for the purpose of maintaining the required downstream temperatures below Keswick Dam. CP4A would dedicate half that amount of the cold-water pool, 191,000 acre-feet, for water management to benefit anadromous fish. CP4, CP4A, and CP5 include a plan for proposed increase of riparian, floodplain, and/ or side channel habitat between Keswick Dam and the RBPP. Only one alternative (CP4) provides any substantial benefit to anadromous fish survival; however, alternate CP4, in the majority of years, would result in either negligible or slightly negative impacts to Chinook salmon survival overall. In about 90 percent of the years, there would be no benefit to anadromous fish survival. Even in CP4, the benefits of an enlarged cold water pool for each of the four runs of Chinook salmon are limited to a few critical and dry water years representing 6–16 percent of the water years, based on the 1922–2002 period of simulation. Simulations based on current Chinook salmon population levels (i.e., 1999–2006 population average) and predicted higher future Chinook salmon population levels (i.e., Anadromous Fish Restoration Program [AFRP] population goals) show that increases in immature smolt production of winter-, fall-, and late fall-run Chinook salmon relative to No Action in excess of 10 percent occurred in only 5–11 percent of the years simulated. Increases in spring run Chinook salmon immature smolt production of greater than 10 percent occurred in 15–16 percent of the years simulated. The modelling results do not take into account the conditions that would exist within the Sacramento River and the Delta and how that would affect the overall production and survivability of Chinook salmon.” (p. viii)

“For the period of 81 years (1922 -2002) used for Reclamation's modeling (SALMOD), no significant (an increase or decrease of greater than, or equal to 5 percent) change in overall production for any of the Chinook salmon runs
(winter-run, spring-run, fall-run, and late fall-run) resulted from any of the proposed alternatives (CP1, CP2, CP3, CP4, CP4A, and CP5) compared to either the No-Action Alternative (Future Conditions 2030) or the Existing Condition (2005).” (p. ix)

"Based on the Service's evaluation of the information available, as contained in this report, as well as evaluations contained in the EIS and associated documents provided by Reclamation, the Service has determined that the proposed project does not provide substantial benefits to fish and wildlife resources within the Shasta Lake pool or the adjacent upland habitats. The Service has also determined that the proposed project does not provide any substantial benefit to anadromous fish downstream of the RBPP and only provides minimal benefit to anadromous fish (winter- and spring-run Chinook salmon) upstream of the RBPP. It is the Service’s opinion that based on the existing information; the proposed action, by further restricting high water flows, will result in additional losses of salmonid rearing and riparian habitat, and adversely affect the recruitment and natural succession of riparian forest along the Sacramento River and bypasses. Upon consideration of the information provided to date, the level of potential impacts to fish and wildlife resources, and the lack of specificity on potential mitigation and compensation measures the Service is unable to support the adoption of any of the proposed action alternatives." (xiii) United States Department of the Interior, Fish and Wildlife Service Draft Fish and Wildlife Coordination Act Report For the Shasta Lake Water Resources Investigation, Prepared for U.S. Bureau of Reclamation Sacramento, California, Prepared by U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, Sacramento, California, November 14, 2014, (USFW CAR) p. xii.


36 SLWRI Feasibility Report, p. 5-15 table 5-8.
39 The 20.5-foot reservoir raise would further inundate 2,600 acres (SLWRI Feasibility Report, p. 4-72).
42 The California Wild & Scenic Rivers Act prohibits new dam and reservoir construction that would increase reservoir levels above the McCloud River Bridge (California Public Resources Code §5093.542 (b)). The bridge is a bit more than a mile (5,440 feet) downstream of the current reservoir gross (full) pool and approximately one and two thirds of a mile (5,440 feet plus 3550 feet, the latter above current gross pool) downstream of the gross (full) pool that would be formed in the 18.5-foot dam raise alternatives (SLWRI FEIS, pp. 25-4–5, 25-36–40). The SLWRI FEIS map (Figure 25-2, p. 25-5) depicts both of the preceding reaches (McCloud River Bridge up to current gross pool elevation of 1070’, and from the current gross pool elevation of 1070’ to 1090’, the approximate gross pool elevation of the 20.5-ft preferred alternative reservoir elevation increase). It also depicts some of the potential river-bed area subject to yearly high-pool reservoir inundation, treated as elevation 1020 feet (upper limit of “lake” in critical dry year) to elevation 1070 feet (present gross pool). According to the SLWRI FEIS (pp. 25-4–5), this reach is treated by the USFS Shasta-Trinity National Forest Land and Resource Management Plan in 1994 as part of the reservoir. This reach is called the transition reach in the SLWRI FEIS (pp. 25-3–4) since the reservoir yearly high pool is usually within this reach. Referring to the lineal distance from reservoir elevation 1020 ft. to expanded reservoir elevation 1090 ft., the 20.5-ft. reservoir raise is described as increasing the length of this new “transition” reach to 12,550 lineal feet or 2.38 miles (SLWRI FEIS, p. 25-37). It may also be relevant that under the lowest of the dam-raise alternatives (the 6.5-ft. CP1 dam raise), the reservoir gross pool would rise to 1,078 feet, inundating 1470 lineal feet of the McCloud River upstream of the current Shasta Reservoir gross pool (SLWRI FEIS p. 25-27). The SLWRI FEIS wild & scenic rivers chapter can be found here: https://www.friendsoftheriver.org/wp-content/uploads/2019/05/SLWRI-FEIS-Chapter-25-ws.pdf.
43 SLWRI FEIS, pp. 25-6-7, 25-37–39. After finding the free-flowing reach of the McCloud River eligible for national wild and scenic river designation and therefore eligible for administrative protection under Forest Service policy, the Forest Service deferred a suitability determination for the McCloud River, asserting that a Coordinated Resources Management Plan CRMP would provide protection. In the event that CRMP protection "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." (Record of Decision, Final Environmental Impact Statement, Land and Resource Management Plan Shasta-Trinity National Forests, USDA, Forest Service, April 28, 1995, p. 17.) The reservoir raise would also partially inundate two inventoried Forest Service Roadless Areas, Devil’s Rock and Backbone Ridge protected by the Forest
It should also be noted that there may be some confusion between documents on the existing gross pool of Shasta Reservoir, described as elevation 1070 feet msl at SLWRI FEIS p. 25-4. The Shasta Dam and Lake, Sacramento River, Report on Reservoir Regulation for Flood Control, Appendix 1 to Master Manual of Reservoir Regulation, Sacramento River Basin, California, April 1952, Rev. January 1977, Department of the Army, Sacramento District, Corps of Engineers, Sacramento California, Shasta Dam and Lake, Sacramento River, California, Pertinent Data describes the gross pool at elevation 1067. This is likely because two msl datum are used: “Two elevation datum are referenced in text and figures herein and in the accompanying EIS. The National Geodetic Vertical Datum of 1929 (NGVD29) is used in reference to Shasta Dam and appurtenant facility designs. The North American Vertical Datum of 1988 (NAVD88) is used in reference to Shasta Reservoir inundation pool elevations, and the elevations of potential reservoir area infrastructure that may need to be modified or relocated to accommodate increased water levels, consistent with a 2001 aerial survey of the reservoir area that referenced the NAVD88 datum. The NGVD88 is 2.66 feet higher than NGVD29” (SLWRI Feasibility Report, p. 2-19). Again, any potential discrepancy or confusion between or within documents relating to the vertical datum used can usually be resolved by careful reading. Regardless, any pool-elevation discrepancies are not of relevance given that all the SLWRI pool-elevation/dam-raise alternatives raise the reservoir gross pool by 8.5 to 20.5 feet.
49 F&W CAR, pp. 165–166. The Bureau believes that there are no significant Delta impacts (SLWRI FEIS pp. S-72–73). In their comments, however, the California Department of Fish and Wildlife (CDFW) emphasized the lack of information that they possessed to analyze the FEIS preferred but not recommended alternative (CP4A): “While the Department participated in the SLWRI in its current iteration since 2000 and is a member of the SLWRI Project Coordination Team, we were not aware of the development of a new alternative, CP4A. The lack of detailed information on Alternative CP4A, now the preferred alternative, hampered our ability to provide a thorough review of the CAR. Our review and comments are therefore based solely on the content of the CAR, with the acknowledgement that additional information may have affected our response. In addition, the CAR repeatedly states that, “… there is insufficient information provided … to analyze the effects …,” or “ … the Service is unable to analyze the effects … due to insufficient information on project details.” California Department of Fish and Wildlife Comments on the U.S. Department of the Interior, U.S. Fish and Wildlife Service, Fish and Wildlife Coordination Act Report for the Proposed Shasta Dam Enlargement Project, Shasta Lake Water Resources Investigation, February 13, 2015, p. 1–2. The Bureau’s forward to the U.S. Fish and Wildlife Service of the CDFW comments (available at http://www.friendsoftheriver.org/wp-content/uploads/2016/01/20150214-Fwd-CDFW-cmts-Adobe-OCRpdf.pdf) notes that CDFW no longer had a review function except through the Fish and Wildlife Coordination Act Report once the federal FEIS was no longer accompanied by a California Environmental Quality Act (CEQA) environmental impact report. It did not note that this was due to a lack of a non-federal partner in part because of the state law prohibiting the expansion of Shasta Reservoir. It does note that the CAR had been “rescinded to allow for higher level review.” No final version of the CAR exists, as far as can be determined. A response to the rescinded CAR (presumably) was prepared by Reclamation, however. See Final Fish and Wildlife Coordination Act Recommendations for the Shasta Lake Water Resources Investigation Appendix, April 2015. http://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=22602. The rescinded report was obtained, however, under a Freedom of Information Act request. The San Jose Mercury News published a news article covering reactions to the rescinded report. See: http://www.mercurynews.com/science/ci_27406666/plan-raise-shasta-dam-takes-hit-after-federal.
This determination is supposed to be contingent on several matters. WIIN § 4007(b) (3) COMMENCEMENT. — The construction of a federally owned storage project that is the subject of an agreement under this subsection shall not commence until the Secretary of the Interior—
(A) determines that the proposed federally owned storage project is feasible in accordance with the reclamation laws;
(B) secures an agreement providing upfront funding as is necessary to pay the non-Federal share of the capital costs; and
(C) determines that, in return for the Federal cost-share investment in the federally owned storage project, at least a proportionate share of the project benefits are Federal benefits, including water supplies dedicated to specific purposes such as environmental enhancement and wildlife refuges.
We are not aware of any meaningful explanation of how the determination was reached.


SLWR FEIS 25-40.

For an analysis of the WIIN, see Friends of the River memo to files. http://www.friendsoftheriver.org/wp-content/uploads/2018/03/FOR-WIIN-CA-storage-provisions-memo-1-5-2016.pdf. The provisions of interest that touch on requirements to follow federal and state law are the following: § 4007(b) Federally Owned Storage Projects (4) ENVIRONMENTAL LAWS. — In participating in a federally owned storage project under this subsection, the Secretary of the Interior shall comply with all applicable environmental laws, including the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.). § 4007(j). Consistency with State Law: Nothing in this section preempts or modifies any obligation of the United States to act in conformance with applicable State law, § 4012. Savings Language. Subtitle J, California, should not be interpreted or implemented in a manner that preempts state law, affects obligations of the Central Valley Improvement Act (except for the Stanislaus River predator program), changes the Endangered Species Act (ESA), would cause additional adverse effects on fish species, and affects obligations of the Pacific Fishery Management Council under the ESA or Magnuson Stevens Act to manage California to Washington coastal fisheries.

See various press accounts from March 2018 and later for stories about Congressional maneuverings to advance or defeat the proposed dam raise at Legislative/Congressional/Trump Administration attempts to advance the Shasta Dam – Press and Related Documents at the Friends of the River website. https://www.friendsoftheriver.org/our-work/rivers-under-threat/sacramento-threat-shasta/

Minutes of the February 20, 2018, meeting of the Board of Directors of the Westlands Water District, pp. 11–12.


Minutes of the February 20, 2018, meeting of the Board of Directors of the Westlands Water District, p. 12.


The SLDMWA is a joint powers authority comprising water districts, two reclamation districts, a canal company, and a city with the powers held in common by the members. One or more or all of the water district members of the Authority are special districts. Cal. Gov. Code § 16271(d) defines special districts as agencies of the state. The Authority would seem to meet the definition of a special district ("Special district" means any agency of the state for the local performance of governmental or proprietary functions within limited boundaries.) Westlands is specifically defined by statute as an agency of the state. Cal. Water Code § 37823. The California Wild & Scenic Rivers Act imposes further specific duties on agencies of the state: "Except for participation by the Department of Water Resources in studies involving the technical and economic feasibility of enlargement of Shasta Dam, no department or agency of the state shall assist or cooperate with, whether by loan, grant, license, or otherwise, any agency of the federal, state, or local government in the planning or construction of any dam, reservoir, diversion, or other water impoundment facility that could have an adverse effect on the free-flowing condition of the McCloud River, or on its wild trout fishery." (emphasis
added) Cal. Pub. Res. Code § 5093.542(c). Local governments such as the City of Tracy (the lone city member of SLDMWA) are subject to the following CAWSRA code section, which requires conformance to the policy section of the Act. "...All local government agencies shall exercise their powers granted under any other provision of law in a manner consistent with the policy and provisions of this chapter." Cal. PRC §5093.61. ["this chapter" is the PRC code wild & scenic river chapter]. The pertinent policy section of the CAWSRA is as follows: "It is the policy of the State of California that certain rivers which possess extraordinary scenic, recreational, fishery, or wildlife values shall be preserved in their free-flowing state, together with their immediate environments, for the benefit and enjoyment of the people of the state. The Legislature declares that such use of these rivers is the highest and most beneficial use and is a reasonable and beneficial use of water within the meaning of Section 2 of Article X of the California Constitution." PRC §5093.50 (emphasis added)

These provisions and policy responsibilities make cooperation by with Reclamation by the Authority or its members unlawful.

62 For various press accounts on Westlands' and SLDMWA's reaction to legal opposition to their proposed cooperation with Reclamation to raise the dam see Legislative/Congressional/Truman Administration attempts to advance the Shasta Dam – Press and Related Documents at the Friends of the River website.

https://www.friendsoftheriver.org/our-work/rivers-under-threat/sacramento-threat-shasta/


64 See endnotes 42, 43, and 52.


66 https://www.usbr.gov/mp/ncao/docs/sdrep-facts.pdf. For a Reclamation map that shows Shasta Reservoir facilities that would need to be modified to accommodate the 20.5-ft reservoir raise, see:


72 CA Public Resources Code §5093.542(c)

73 See Comments on Westlands Water District’s Initial Study/notice of Preparation for the Shasta Dam Raise Project, Shasta County, from Eileen Sobeck, Executive Director, State Water Resources Control Board, November 14, 2018, pp. 1–3.


76 https://www.usbr.gov/mp/ncao/shasta-enlargement.html