ENVIRONMENTAL WATER CAUCUS COMMENTS ON THE PARTIALLY RECIRCULATED DRAFT ENVIRONMENTAL IMPACT REPORT/ DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT FOR THE BAY DELTA CONSERVATION PLAN / "CALIFORNIA WATERFIX"

OCTOBER 30, 2015

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Santa Clarita Organization for Planning and the Environment (SCOPE)

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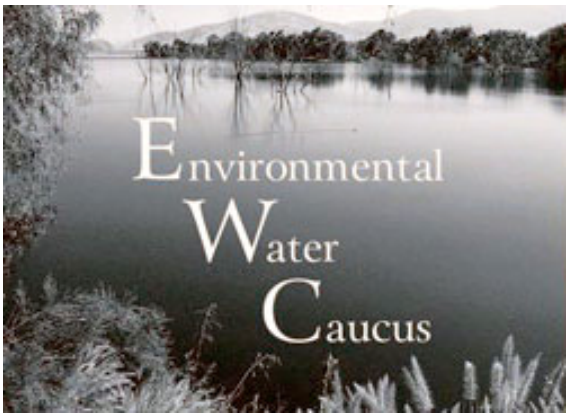

October 30, 2015

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Subject: **Comments on Bay Delta Conservation Plan/"California WaterFix" Tunnels Project Recirculated Draft Environmental Impact Report/Supplemental Draft Environmental Impact Statement (RDEIR/SDEIS)**

Dear Secretaries Jewell, Pritzker and Laird; Administrator McCarthy; Regional Director Murillo; Director Cowin, and other addressees below:

We thank you for the opportunity to comment on the above-referenced documents concerning what the Environmental Water Caucus call the Tunnels Project. The mission of the Environmental Water Caucus is to achieve comprehensive, sustainable water management solutions for all Californians. EWC and its members employ political, legal and economic strategies to restore ecological health, improve water quality and protect public trust values throughout the San Francisco Bay-Sacramento-San Joaquin Delta Estuary and the Central Valley/Sierra Nevada watersheds. The

Caucus coalesces over thirty diverse environmental water, fishing, and justice groups (including two Indian tribes) around these issues.

EWC continues to object to the Tunnels Project: it should be neither approved, financed, built, nor operated. The Tunnels Project will accelerate deterioration of the Bay-Delta Estuary by starving it of freshwater flow badly needed for the health of both the Delta and the Bay. It will starve California cities, counties, and local water agencies of badly needed tax base that could fund local and regional water self reliance projects including investments in water use efficiency, water recycling, advanced water technologies, local and regional water supply projects, and improved regional coordination of local and regional supply efforts and decades of detrimental aquatic ecosystem impacts. It will unwisely encourage continued mismanagement of California's state and federal water systems that have already failed to steward its water resources through four years of drought. The RDEIR/SDEIS violates the California Environmental Quality Act and the National Environmental Policy Act by failing to disclose impacts and evaluate a reasonable range of alternatives, and for promoting "myth-information" on behalf of project advocacy, rather than provide a science-driven analysis of Tunnels Project effects.

Myth 1: California WaterFix tries to sell itself as a sustainable water project that will improve the water supply reliability of the state and federal water export systems.

Fact: The Tunnels Project will achieve this by taking more water from Delta and Sacramento Valley water users and ecosystems, replacing this fresher water with more polluted and saline flows from the San Joaquin River. Sustainability for whom? (See our Sections II and V comments, attached.)

Myth 2: California WaterFix will improve flows through the Delta so they reflect a more natural east-to-west flow direction rather than the current north-to-south direction of flow under the influence of the south Delta export pumps.

Fact: The Tunnels will reduce Sacramento River flows by 20 to 24 percent, making permanent drought-like conditions throughout the Bay-Delta Estuary. Delta waters will stagnate, accumulating pollutants and toxins from harmful algal blooms. (See our Section II comments, attached.)

Myth 3: California WaterFix will mitigate the seismic and sea level rise risks in the Delta.

Fact: The Tunnels project does nothing to protect the Delta; it will only protect state and federal water exports from seismic and sea level rise risks to unsustainable farming in the San Joaquin Valley and suburban development in southern California.

Myth 4: The California WaterFix will be affordable to Californians because beneficiaries will pay for it.

Fact: Funding and financing plans for the Tunnels Project are stalled. Farmers balk at the high cost of Tunnels water, while urban ratepayers balk at the prospect of much higher water bills, urban property tax bills climbing to cover agriculture's water costs, and fear that other more drought-proof water supply investments would be foregone, having been spoken for by the Tunnels Project. Just because there may be a beneficiary to pay for the project is no reason to undertake it. (See our Section III comments, attached.)

Regarding this last fact we note that Mark Cowin, director of the California Department of Water Resources, stated at a recent event:

> *It really comes down to how we are going to pay for it. What's the most equitable way to invest in the projects and the strategies that we know we need? We've seen less federal investment in California water projects and that has left us in a lurch. Should we continue to press Congress?*

Hope Congress is going to provide money through the Corps of Engineers or the Bureau of Reclamation? Or other agencies? Or are we ready to take the bull by the horns and find different funding sources? Obviously every project comes down to a different equation, but trying to solve that riddle I think is probably one of the biggest linchpins in moving California water forward.

The enclosed comment document goes into detail about these and other problems with the Tunnels Project.

Should you have questions about our comments, do not hesitate to contact either Conner Everts (connere@gmail.com; 310/804-6615), or Tim Stroshane (spillwayguy@gmail.com; 510/524-6313).

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Attachments: EWC Comments on Bay Delta Conservation Plan/California WaterFix RDEIR/SDEIS

cc: (next page)

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Contents[1]

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[1] Comment preparation and consultation managed by Tim Stroshane for the Environmental Water Caucus. Contributors include Colin Bailey and Esther Min (Environmental Justice Coalition for Water), Barbara Barrigan-Parrilla (Restore the Delta), Chelsea Tu (Center for Biological Diversity), Tom Stokely and Michael B. Jackson (California Water Impact Network), Linda Sheehan and Grant Wilson (Earth Law Center), Bob Wright (Friends of the River), Patricia Schifferle (Pacific Advocates), and Bill Jennings (California Sportfishing Protection Alliance).

Executive Summary

Did 18 months make a difference that matters in the Tunnels Project?

No, not really.

The Environmental Water Caucus (EWC) objects to approval of the Bay Delta Conservation Plan[2] (BDCP)/California WaterFix project including the Tunnels Project.[3] We also object to approval of a Final Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the Tunnels Project. The definite lead agencies for the project continue to be the U.S. Bureau of Reclamation and the California Department of Water Resources (DWR), although there may be doubts in the minds of other Tunnels Applicants.[4]

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[2] BDCP, the Bay Delta Conservation Plan, here describes all 22 measures (CMs) of the habitat conservation plan. That plan consisted of what we referred to in last year's comment letter as "the Twin Tunnels" (CM1) and measures 2 through 22, consisting of the Yolo Bypass Fish Facilities Improvement Project of CM 2, habitat restoration measures 3 through 11, measures addressing several ecosystem "stressors" (like methylmercury, invasive aquatic vegetation, dissolved oxygen, predation hotspots) in measures 12 through 17, a smelt refuge in measure 18, and human behavior management measures (including urban stormwater management, boating imports of invasive species, non-project in-Delta diversions, and avoidance and minimization measures for construction activity) 19 through 22.

[3] "California WaterFix" is a misnomer; it will not fix California water issues. The EWC calls the project what it appears to be, a Tunnels Project. We think it best not to dignify the Project's self-consciously transparent "branding" effort since it rhetorically applies ideological lipstick to a metaphorical pig.

[4] Last year, according to Bay Delta Conservation Plan, Chapter 1, *Introduction*, p. 1-1, the "authorized entities" for the Bay Delta Conservation Plan included:

- California Department of Water Resources, which would own the Tunnels Project described in Conservation Measure 1
- US Bureau of Reclamation (whose authorization for take is sought under Section 7 of the ESA)
- Kern County Water Agency
- Metropolitan Water Agency of Southern California
- San Luis & Delta Mendota Water Authority
- Santa Clara Valley Water District
- State and Federal Contractors Water Agency
- Westlands Water District
- Alameda County Flood Control and Water Conservation District (Zone 7 Water Agency)

This year, EWC will continue to refer to the "Authorized Entities" as simply "the Applicants," "the BDCP Applicants", "Tunnels Applicants," or "Tunnels Project proponents." However, we cannot with confidence say we know any longer which entities constitute the Tunnels Applicants. None except DWR and the Bureau are identified in the 2015 RDEIR/SDEIS. Assuming the absence of the others' names from the RDEIR/SDEIS is significant it suggests, first, that they did not wish to be associated with the recirculated documents in 2015, and second, that they may be conflicted about continuing overt support for a project with such difficulties as the Tunnels Project. Not identifying all applicants associated with the project is, however, contrary to CEQA Guidelines § 15051. The existing BDCP financing plan of Chapter 8, November 2013, assumes that the above "authorized entities" would be paying for most Tunnels capital facilities investments. This role contributes to their being lead agencies, yet their names are not disclosed in sections of the RDEIR/SDEIS involving agency review processes.

Environmental Water Caucus Comments on
Recirculated Draft EIR/Supplemental Draft EIS
for Bay Delta Conservation Plan and Tunnels Project

We provide our comments on the Recirculated Draft EIR/Supplemental Draft EIS (RDEIR/SDEIS) as both observations, legal and policy analysis, and criticisms in Sections I through V of this document, and conclude with specific comments on the RDEIR/SDEIS in Section VI. The structure of this document roughly parallels that of our June 11, 2014, comments on the Draft EIR/EIS then under review for the Bay Delta Conservation Plan and its Tunnels Project.[5]

Last year, the Bay Delta Conservation Plan was certainly challenging to grasp. It contained both a strategic plan for habitat restoration and a quasi-project description of the proposed Tunnels Project export facility. The Tunnels project was considered as a "conservation measure," due to hyped reduction of harm to listed species at the federal and state South Delta export pumps. Its "conservation strategy" contained 21 other specific "conservation measures." The strategy also puts forward detailed biological goals and objectives, yet states that none of these goals and objectives would be used to measure compliance of the Plan with respect to the Endangered Species Act.[6] Among the Plan's other conservation measures was a "reserve system" containing dispersed "restoration opportunity areas" in the legal Delta region and Suisun Marsh. Also among its conservation measures were actions aiming to address "other stressors" to covered aquatic species. Unfortunately, some stressors, like selenium toxicity and nonnative invasive clams like *Potamocorbula amurensis*, are ignored altogether.

This year, the 2015 Tunnels Project is shorn of its restoration trappings, revealing its essence as a water conveyance scheme. The RDEIR/SDEIS details specific changes to Tunnels Project facilities and operations, and proposes retaining "environmental commitments" to be drawn from last year's conservation strategy through Section 7 consultation. These environmental commitments could consist of "portions of actions previously contemplated" under Conservation Measures 3 (natural communities protection and restoration), 4 (tidal natural communities), 6 (channel margin enhancement), 7 (riparian natural community), 8 (grassland natural community), 9 (vernal pool and alkali seasonal wetlands), 10 (nontidal marsh restoration), 11 (natural communities enhancement and management), 12 (methylmercury management), 15 (localized predatory fish reduction), and 16 (non-physical fish barriers). Instead of nearly 165,000 acres of habitat restoration under BDCP, there would be at most up to 13,300 acres of natural communities protection and restoration, just 59 acres of tidal natural community restoration, and up to 2,300 acres of restoration work in environmental commitments 6 through 11 under Alternative 4A, the preferred California WaterFix alternative.[7] This is barely one-tenth (1/10) the area of restoration effort contemplated 18 months ago by the Bay Delta Conservation Plan.

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[5] The Environmental Water Caucus incorporates by reference comments of Restore the Delta, Local Agencies of the North Delta, North Delta Water Agency, Central Delta Water Agency, and South Delta Water Agency, San Francisco BayKeeper, Friends of the River, Earth Law Center, the Environmental Justice Coalition for Water, Friends of the San Francisco Estuary, California Water Impact Network, California Sportfishing Protection Alliance, and AquAlliance, the Bay Institute, Natural Resources Defense Council, Pacific Coast Federation of Fishermen's Associations, Institute for Fishery Resources, the Greater Stockton Chamber of Commerce, and the San Joaquin Council of Governments.

[6] Environmental Water Caucus, *Comments on the Draft BDCP and Draft BDCP EIR/EIS*, June 11, 2014, addressed to Ryan Wulff, National Marine Fisheries Service, Sacramento, pp. 37-38. Hereafter cited EWC Comments, June 11, 2014. Accessible online at http://ewccalifornia.org/reports/bdcpcomments6-11-2014-3.pdf, (and http://ewccalifornia.org/reports/ewcbdcpsupplementalcomments7-30-2014.pdf).

[7] Bay Delta Conservation Plan/California WaterFix, *Recirculated Draft Environmental Impact Report/ Supplemental Draft Environmental Impact Statement, Executive Summary*, 2015, p. ES-18, and Table ES.2.2-2, p. ES-19. Hereafter cited as *RDEIR/SDEIS*. Accessible online at http://baydeltaconservationplan.com/Home.aspx.

Last year we provided several broad reasons why BDCP was a bad deal for California. The Tunnels Project is worse.

BDCP relied on a scientifically flawed hypothesis that habitat restoration can substitute for river flows as the chief strategy for "fixing the Delta," and its implementation would be catastrophic for the Delta's aquatic ecosystems, because it used science to market the Tunnels Project, not to solve Delta problems. The habitat restoration hypothesis for BDCP could be saved by providing more freshwater flows to and through the Delta ***and*** restoring additional habitats of various types.

This year's Tunnels Project sheds the pretense of restoration and opts openly for constructing and operating conveyance pipelines that would divert excessive fresh water from the lower Sacramento River in the north Delta. This contradicts scientifists and regulators' views that ***more*** fresh water flows into and through the Delta, ***not less***, are essential to recovery of Delta ecosystems and listed fish species.[8]

Tunnels Project's proponents just want the water.

If BDCP was implemented, we found last year that its hyper-bureaucratic organization would result in "paralysis by analysis" to the detriment of the Delta ecosystem it purported to "fix," particularly because water agencies would have veto power over changes to BDCP's non-water project conservation measures. In the absence of any description of governance alternatives in the RDEIR/SDEIS and Section 7 consultation process and biological opinion that details reasonable and prudent alternatives for protecting listed species, the EWC finds no plan in the RDEIR/SDEIS that the Bureau of Reclamation and the Department of Water Resources expect to develop the respective capacities internally to conduct adaptive management, real-time operations, research and monitoring priorities, and other matters that would have been otherwise delegated to the BDCP Implementation Office. We find no such attempt at independent scientific monitoring of the Tunnels Project effects, where at least before there was a pretense of doing so, now only a "collaborative science and adaptive management program."

Section I introduces our broad policy concerns that shape our comments on the Tunnels Project. These include our fundamental objection to the Tunnels Project; the need broadly to apply the precautionary principle to state, local, and federal actions governing the Delta; free speech and transparency problems with the Tunnels Project and the RDEIR/SDEIS; protection of Bay-Delta Estuary public trust resources; environmental justice effects of the project; its necessary exclusion from the Delta Plan; the need on the part of the state Water Resources Control Board to prioritize water policy decisions over major plumbing decisions in and for the Delta; and the Tunnel Project's violation of the constitutional requirement that water be used reasonably and not wastefully.

Section II of our comments focuses on major environmental issues that raised by BDCP (willingly or not) and that remain to be faced by the Tunnels Project. These include the RDEIR/SDEIS's deficit of reasonable alternatives that address broader water policy issues in the Delta and statewide, not just narrow reliability and water quality redistribution planned through tunnels designs; the ecological and endangered species issues that continue this year from last; and the water quality impacts of

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[8] Ellen Hanak, Caitrin Phillips, Jay Lund, John Durand, Jeffrey Mount, Peter Moyle, *Scientist and Stakeholder Views on the Delta Ecosystem*, Public Policy Institute of California, April 2013, Figure 1, p. 13. "A majority of scientists believe that all five stressors have had at least a moderate impact on the decline of the Delta's native fishes, with flow regime changes especially harmful ("high impact") in the case of pelagics (76%) and anadromous fish [e.g., salmonids and sturgeon] (72%), and physical habitat loss especially harmful for all three types of fish (73% for anadromous fish, 70% for resident natives, and 57% for pelagics)."

the Tunnels Project that will violate federal Clean Water Act beneficial uses, pollutant criteria, and the absence of a "least environmental damaging practicable alternative." We think the looming Section 7 consultation process needs to address this issue squarely since it relates directly to both food supplies for listed species, reasonable and prudent flow management in Delta channels, incidental take statement levels, and reduction of toxic contamination from harmful algal blooms, selenium, and other criteria pollutants.

Moving forward habitat restoration ***and Delta inflow and outflow increases together*** are as important as ever. But for the Tunnels Project proponents, the whole point of last year's BDCP is to avoid having to increase river inflow and Delta outflow to achieve real ecosystem improvements in the Delta, while still claiming to have tried to help the Delta. The pretense of claiming to help is now gone with the Tunnels Project of "California WaterFix."

We also address other issues such as adaptive management and real-time operations in Section II.

Last year, we found that BDCP's financial and economic risks exceed the benefits on offer. Far more cost-effective water supply solutions are available to California and at far lower cost. Since no updated economic and financial analysis was provided for Alternative 4A in 2015, this remains true for the Tunnels Project. Since no new study of economic and financing aspects of the Tunnels Project is provided in the RDEIR/SDEIS, we fall back on EWC's evaluation last year of BDCP's financing plan and economic justification. As far as we surmise, no meaningful progress has been made by the principals involved in planning Tunnels Project financing. Section III of these comments addresses continuing funding and financing problems of the Tunnels Project. Its financing remains sketchy at best.

Last year, EWC commented that BDCP's governance approach would give as much control to the Applicants as possible over CM1 Tunnels operations and consequently over the Delta itself. While much lip service was given to limiting the presence of political concerns in deciding important water operations and management and protection of listed fish species in the Delta, BDCP's proposed governance structure would provide veto power to the Applicants, the same folks and the same water projects already ushering these same listed fish species to the brink of extinction.

We comment in Section IV this year that such a governance process has been abandoned for the window dressing we thought it was. DWR and the Bureau (and, we presume, the other Tunnels Project proponents) would prefer to manage the project and the Delta with as little transparency as possible, since no provisions for these processes are identified in the RDEIR/SDEIS.

Last year, we outlined a long list of statutes BDCP would violate, including the state and federal endangered species acts, the Delta Reform Act of 2009, state and federal clean water acts, the California water code, the California Constitution's ban on wasteful and unreasonable use and method of diversion of water, and the Public Trust Doctrine, among other statutes.

This year, we comment in Section V that DWR and the Bureau have done little, if anything, to bring the Tunnels Project as California WaterFix into conformance with numerous state and federal laws, including environmental justice legal standards.

Finally, specifics of the RDEIR/SDEIS are examined in Section VI, including US Army Corps of Engineers permitting issues (including impacts to wetlands, navigation and federal flood control and other facilities); supplemental modeling done for the State Water Board for the impacts of increasing Delta outflows at the expense of SWP and CVP exports; failure to mitigation north Delta intake impacts; absence of baseline information on predation in the vicinity of the north Delta intakes and other baseline data needs; failure to disclose and evaluate the potential of project pumping failure on the tunnels and back-flow effects.

I. Introduction

The EWC objects to the Tunnels Project.

After nine years, the Bay Delta Conservation Plan applicants have delivered a Tunnels Project even more flawed than its expensive and monstrous predecessor.

The Tunnels Project would divert more of the Delta common pool to benefit state and federal water contractors at a time when the state has over-promised, wasted, and inequitably distributed scarce water resources; when the Delta is deteriorating from State Water Project and federal Central Valley Project mismanagement during the current four-year (and perhaps counting) drought; listed fish species are even closer to the brink of extinction; and low-income communities of color who rely on the Delta for subsistence fishing, jobs, and recreation continue to struggle to survive and thrive.

The Tunnels project would be a new facility providing the State Water Project (SWP) with three new diversion points (or "north Delta intakes") for water along the lower Sacramento River. These new intakes would divert the river into two gigantic tunnels that would isolate river water from salty tidal flows in the Bay-Delta Estuary for direct delivery to Harvey O. Banks Pumping Plant for export to the California Aqueduct of the SWP. The Tunnels Project would expand California's cross-Delta water transfers market, and enable the US Bureau of Reclamation to receive Sacramento River flow diversions not only via the intertie between the state's California Aqueduct and the Bureau's Delta Mendota Canal or via the intermingling of stored water at San Luis Reservoir south of the Delta, but also through new connectors among the new north cell of Clifton Court Forebay and Banks (State Water Project) and Jones (Central Valley Project) pumping plants.[9]

Last year we asked of the BDCP: Why should BDCP Applicants be granted such legal privilege from the federal Endangered Species Act as the "regulatory stability" of the "No Surprises Rule" that would favor their conveyance investments over the "regulatory stability" of senior water right holders and a huge array of human and non-human beneficial users of water and land in the Central Valley and the Delta?

This year we ask: what makes the Tunnels Project proponents this year worthy of special treatment in the form of a massive Tunnels system, just because they already divert water from the Delta? Why should their desire to export water more reliably from the Delta trump the prior water rights and protected beneficial uses in the Bay Delta Estuary to have a waterscape of improved conditions for all Delta residents and ecosystems, and all people of California choosing to visit the Delta now and in the future?

Historically, the Bay-Delta Estuary has been enormously productive, a magnet for many aquatic species to reproduce in and migrate through. Its native species evolved to take advantage of the Estuary's annual and seasonal variations in water quality and flow. As the seasons change, the Bay Delta Estuary cycles through such ecological roles as aquatic nursery, restaurant, and crossroads. The Delta's communities and economy were built on this ecological foundation. The health of this diverse ecosystem depends on having variable and good water quality that benefits each of these roles.

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[9] This is possible in part under State Water Resources Control Board approval in March 2000 of "joint points of diversion" in Water Rights Decision 1641. See also RDEIR/SDEIS, July 2015, Section 3.2, p. 3-5; see also RDEIR/SDEIS, Appendix A, Section 3.6.1.4, *Forebays*, p. 3-51, "Expanded Clifton Court Forebay," lines 21-29; and Section 3.6.1.5, "Connections to Banks and Jones Pumping Plants," p. 3-52, lines 23-27.

Development and implementation of the Tunnels Project must be accountable to the federal Clean Water Act (CWA). Sound planning dictates that implementation of the CWA's requirements should begin ***now***, to prevent violations by the Tunnels Project. One CWA requirement that will arise during Tunnels Project implementation is CWA Section 401 certification, which is necessary for any "[f]ederal license or permit to conduct any activity … [that] may result in any discharge into navigable waters."[10]

This year as well as last year, our comments focus on two hydrodynamic nightmares the Tunnels Project will create and worsen in the Delta: First, the massive disruption of the flow regime of the lower Sacramento River used seasonally and inter-annually by several distinct salmonid populations, two of which are highly vulnerable to the threat of extinction; and second, further reduction of Delta outflows and the eastward-moving position of X2 worsening the risks of entrainment, ***this time in the North Delta to go along with continuing drier year entrainment risks in the South Delta*.** This second nightmare threatens longfin smelt, Delta smelt, and migrating juvenile salmonids with entrainment and extinction.

Four million people in the five Delta counties depend on good water quality in the Delta for their livelihoods and quality of life. Nearly one million Delta residents depend on the Delta as their primary drinking water supply. To improve the Delta as a fishable, swimmable, drinkable, and farmable region will require protecting and enhancing the Estuary's water quality, pure and simple. If we are to leave generations to come an Estuary with sustained and diverse ecological fertility, the Estuary deserves and needs more flowing water, cleansed of the pollutants that now plague it. State and federal rejection of the Tunnels Project will only help in realizing this goal.

Apply the precautionary principle to water policy.

The uncertainties facing the Bay Delta Estuary match up well with reliance on the precautionary principle. The precautionary principle has the following characteristics applicable to evaluating risk and uncertainty in environmental (and other kinds of) decision making. Environmental writer Peter Montague describes the essence of the precautionary principle this way:

> In all formulations of the precautionary principle, we find three elements: 1) When we have a reasonable suspicion of harm, and 2) scientific uncertainty about cause and effect, then 3) we have a duty to take action to prevent harm.
>
> The precautionary principle does not tell us what action to take. However, proponents of a precautionary approach have suggested a series of actions: (1) Set goals; (2) Examine all reasonable ways of achieving the goals, intending to adopt the least-harmful way; (3) Assume that all projects or activities will be harmful, and therefore seek the least-harmful alternative. Shift the burden of proof—when consequences are uncertain, give the benefit of the doubt to nature, public health and community well-being. Expect responsible parties (not governments or the public) to bear the burden of producing needed information. Expect reasonable assurances of safety for products before they can be marketed—just as the Food and Drug Administration expects reasonable assurances of safety before new pharmaceutical products can be marketed. (4) Throughout the decision-making process, honor the knowledge of those who will be affected by the decisions, and give them a real "say" in the outcome. This approach naturally allows issues of ethics, right-and-wrong, history, cultural appropriateness, and justice to become important in the decision. 5) Assume that humans will make mistakes and that decisions will sometimes turn out badly. Therefore, monitor results, heed early warnings, and be prepared to make mid-course corrections as needed; this implies that we will avoid irreversible decisions and irretrievable commitments.

[10] 33 U.S.C. § 1341(a)(1).

> Instead of asking the basic risk-assessment question—'How much harm is allowable?'—the precautionary approach asks, 'How little harm is possible?' In sum: Faced with reasonable suspicion of harm, the precautionary approach urges a full evaluation of available alternatives for the purpose of preventing or minimizing harm.[11]

Last year, we commented critically that the BDCP sought to apply adaptive management and real-time operations as sure-fire solutions to the profound biological, geochemical, toxicological, and public health uncertainties involved with constructing and operating such a complex project in such a complex environment as the San Francisco Bay-Delta Estuary.[12] As with last year's overly optimistic BDCP, the Tunnels Project described and evaluated in the RDEIR/SDEIS overflows with over-confidence in adaptive management and real-time monitoring as providing timely and real solutions to Tunnels Project uncertainties.

We are not alone in detecting excessive optimism throughout last year's and this year's Tunnels Project environmental documentation; the Delta Independent Science Board (DISB) commented on this pervasive characteristic in 2014 and again this fall. "Many of the impact assessments hinge on overly optimistic expectations about the feasibility, effectiveness, or timing of the proposed conservation actions…." And: "In essence, it is often argued that Conservation Measures (CM) 2-22 will have sufficient positive benefits for covered species to counterbalance any negative impacts ofd water diversions and changes in flow caused by proposed alternatives (CM 1). ***This is an implausible standard of perfection for such a complex problem and plan***, as noted in our reviews of Chapters 11 and 12….It would be better to begin with more realistic expectations that include contingency or back-up plans."[13]

This year, time was much shorter for reviewing 8,000 pages of the RDEIR/SDEIS, but the DISB still found that "the [RDEIR/SDEIS] retains unwarranted optimism…" and that "uncertainties and their consequences remain inadequately addressed, improvements notwithstanding. Uncertainties will be dealt with by establishing "a robust program of collaborative science, monitoring, and adaptive management. No details about this program are provided, so there is no way to assess how (or whether uncertainties will be dealt with effectively," they conclude.[14] DISB also notes that Tunnels Project modeling efforts did not adequately conduct "modeling that would help to bracket the ranges of uncertainties or (more importantly) assess propagation of uncertainties."[15]

Substantive BDCP Revisions (Appendix D) contained in this year's recirculated documents indicate increasing grasp of the number, kind, and degree of uncertainties to be faced with construction and operation of the Tunnels Project.[16] One table reveals 17 "key uncertainties and potential research actions relevant" to Conservation Measure 1—and hence to the Tunnels Project of 2015—of which

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[11] Peter Montague, accessed online 11 September 2015 at http://www.precaution.org/lib/pp_def.htm.

[12] Environmental Water Caucus, *Comments on the Draft BDCP and Draft BDCP EIR/EIS*, June 11, 2014, addressed to Ryan Wulff, National Marine Fisheries Service, Sacramento, pp. 89-92.

[13] Delta Independent Science Board, *Review of the Draft EIR/EIS for the Bay Delta Conservation Plan*, May 15, 2014, pp. 3, 5. Emphasis added.

[14] RDEIR/SDEIS, *Executive Summary*, Section ES.4.2, "Collaborative Science and Adaptive management Program," p. ES-37 to ES-39.

[15] Delta Independent Science Board, *Review of environmental documents for California WaterFix*, September 30, 2015, pp. 10-11.

[16] RDEIR/SDEIS, 2015, Appendix D, *Substantive BDCP Revisions,* Table 3.4.1-5, p. D.3-24 through D.3-28.

six (6) are new and eight (8) are significantly revised from the first public draft of the BDCP conservation strategy.

The status and utility of these and a vast number of other substantive BDCP revisions is in considerable doubt since Section 7 consultation with the federal fisheries agencies is still in process, and the exact content of environmental commitments, incidental take statements, and reasonable and prudent alternatives are also highly uncertain.

Free Speech, Transparency, and Tunnels Project Commentary

In late 2013, the Bay Delta Conservation Plan web site was reorganized and redesigned. The site's "Correspondence" page contains the statement: "The BDCP encourages public participation. Below is a list of correspondence and public comments that have been received in regards to the BDCP from 2007-2013." In the EWC's June 11, 2014, letter on BDCP, we criticized the BDCP web site for clamping down on the free flow of information and opinion about the Tunnels Project. We remain concerned, with these new documents, about how public comments about the Project will be handled. In the RDEIR/SDEIS, Tunnels Project proponents explain they chose "not to republish complete revisions to the original Draft EIR/EIS, but rather to prepare materials focusing on new contents of the Draft EIR/EIS."[17] These "new contents" appear to include changes to Alternative 4, describing and analyzing "changes to conveyance facility design; revisions to proposed operations; changes to the proposed conservation strategy and habitat mitigation approach; and revisions and corrections to the analysis of certain impacts."[18]

Alternative 4A, a new alternative, would have "the same conveyance facility design changes, but it would not include the same kinds of changes to Alternative 4 related to" all the other conservation measures of BDCP; it would not include a habitat conservation plan.[19]

Given these changes in light of CEQA Guidelines, the Tunnels Project proponents "direct that public comments be restricted to the newly circulated information contained in the RDEIR/SDEIS. In other words," they continue, "*the partial recirculation is not an opportunity to resubmit comments on the previously published topics, or to add additional comments on previously published topics.* The comments previously submitted on the Draft EIR/EIS remain a part of the record and will be responded to in the Final EIR/EIS."[20] The Tunnels Project proponents cite CEQA Guidelines Section 15088.5(f)(2) in support of their "directive" to the public.

We are deeply concerned this seeks illogically, arbitrarily, capriciously, and unnecessarily to restrain the scope of public comment when it comes to the obvious matter of drawing comparisons between analyses and alternatives of the RDEIR/SDEIS with alternatives and analyses found in the Draft EIR/EIS. To make sense of the relative merits of one alternative to others across the two massive sets of documents, the public, governmental and other reviewers must be able to compare and analyze them. EWC finds the Tunnels Project proponents' "directive" untenable.

CEQA Guidelines section 15088.5(f)(2) states in full:

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[17] RDEIR/SDEIS, Section 1.2, p. 1-30, lines 4-7.

[18] RDEIR/SDEIS, Section 1.2, p. 1-29, lines 8-10.

[19] RDEIR/SDEIS, Section 1.2, p 1-29, line 10; and p. 1-30, lines 1-2.

[20] RDEIR/SDEIS/, Section 1.2, p. 1-30, lines 24-29. Emphasis in original.

> When the EIR is revised only in part and the lead agency is recirculating only the revised chapters or portions of the EIR, ***the lead agency may request that reviewers limit their comments to the revised chapters or portions of the recirculated EIR***. The lead agency need only respond to (i) comments received during the initial circulation period that relate to chapters or portions of the document that were not revised and recirculated, and (ii) comments received during the recirculation period that relate to the chapters or portions of the earlier EIR that were revised and recirculated. The lead agency's request that reviewers limit the scope of their comments shall be included either within the text of the revised EIR or by an attachment to the revised EIR.[21]

The Tunnels Project proponents' "directive" in the RDEIR/SDEIS improperly exceeds the standard for comments under CEQA Guidelines. The plain language of 15988.5(f)(2) does not support the directive precluding "comments on previously published *topics*." The Guidelines' restriction is for "comments received...that relate to chapters or portions" of the recirculated document. This limitation does not extend to the level of detail implied by the Tunnels Project proponents' use of the word "topics" in the RDEIR/SDEIS. So long as our comments relate to material in chapters or portions of the RDEIR/SDEIS—even if they compare or contrast or contextualize with material from the Draft EIR/EIS—the Tunnels Project proponents must, under CEQA Guidelines, respond to such comments.

The Public Trust, the Delta Common Pool, and the ESA

The Bay-Delta Estuary is an over-appropriated common pool plagued by California's abject failure to protect all beneficial uses of water—human and non-human alike—according to the needs of its most sensitive beneficial uses.[22] This failure violates the state's public trust obligations, and the Tunnels Project would continue this record of failure. It fails to plan for "improved conveyance" through and in the Delta (and called for in the Delta Reform Act) by ignoring the over-arching framework of state water policy:

- Achieving the coequal goals of Water Code Section 85054 of enhanced ecosystem health and water supply reliability.

- Water Code Section 85023, stating: “The longstanding constitutional principle of reasonable use and the public trust doctrine shall be the foundation of state water management policy and are particularly important and applicable to the Delta.”

- Water Code Section 85021 requiring reduced reliance on the Delta in meeting California’s future water supply needs (and whose strategy specifies “investing in improved regional supplies, conservation, and water use efficiency”).

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[21] Emphasis added.

[22] State Water Resources Control Board, *Water Rights Within the Bay-Delta Watershed*, September 26, 2008, presented to Delta Vision Blue Ribbon Task Force, October 17, 2008. Accessible at http://deltavision.ca.gov/BlueRibbonTaskForce/Oct2008/Respnose_from_SWRCB.pdf; California Water Impact Network, California Sportfishing Protection Alliance, and AquAlliance, *Testimony on Water Availability Analysis for Trinity, Sacramento, and San Joaquin River Basins Tributary to the BAy-Delta Estuary*, submitted by Tim Stroshane, October 26, 2012, accessible at http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/comments111312/tim_stroshane.pdf; and Theodore E. Grantham and Joshua H. Viers, "100 Years of California's water rights system: patterns, trends and uncertainty," *Environmental Research Letters*, 9(2014), accessible at https://watershed.ucdavis.edu/files/biblio/WaterRights_UCDavis_study.pdf.

- Water Code Section 12200 *et seq*., (the Delta Protection Act of 1959) requiring that neither state nor federal water projects should divert water from the Delta to which Delta users are entitled.

- Achieving the fish and specifically salmonid abundance goals of California Fish and Game Code Sections 5937, 5946, and 6902(a); and the Central Valley Project Improvement Act of 1992, Section 3406(b)(1).)

- The federal Clean Water Act requiring protection of the chemical, physical and biological integrity of the nation's waters (including those of the Bay-Delta Estuary), that the navigable waters of the United States (including those of the Estuary) not be degraded, and that the regulation of water quality standards for the Estuary be based on the "most sensitive" beneficial use among those occurring in a particular water body.

And the RDEIR/SDEIS fails to evaluate the Tunnels Project in light of this policy framework.Listed fish species are the most sensitive beneficial uses in the Bay-Delta Estuary. The most sensitive *human* beneficial uses are subsistence fishers taking nutrition directly from Delta waters. The EWC is deeply concerned that the Tunnels Project's switch to reliance on a Section 7 ESA standard of preventing mere "jeopardy" rather than the overall ESA goal of "recovery" will lead to continued deterioration of the Bay-Delta Estuary, made all the easier by construction and operation of the Tunnels Project.

Restoring the Delta for All

The Tunnels Project RDEIR/SDEIS fails to consider fully project impacts, including and not limited to public health, water quality, subsistence fishing, land use, flood risk, affordable housing, public participation, and language accessibility for environmental justice communities. The lead agencies violate Civil Rights and Environmental Laws and fail to meet Environmental Justice legal standards. For the reasons listed above, the BDCP/Tunnels Project presents an environmental injustice and should not proceed as proposed. We comment further on environmental justice issues with the Tunnels Project in Section V of these comments.

The Tunnels Project must be excluded from the Delta Plan.

Last year, when the Bay Delta Conservation Plan was considered and presented as a habitat conservation plan under federal ESA Section 10 and a natural community conservation plan under the California ESA, it could qualify for eventual incorporation as such into the Delta Plan, originally prepared by the Delta Stewardship Council, provided the BDCP met specific criteria stated in the Delta Reform Act of 2009. EWC members commented that BDCP could not meet those criteria, specifically that:

> ***BDCP cannot demonstrate compliance with, and the Department of Fish and Wildlife will be unable to sustain, this required finding*** [of Water Code Section 85320(b)(2)] ***without abusing its discretion to interpret this law.*** BDCP modeling results show decreased salmonid survival rates, increased Delta smelt entrainment risk (including at the North Delta intakes), eastward migration of X2, reduced Delta outflow, and longer residence times of water passing through the Delta. The trend of each of these indicators is away from the criterion in Water Code Section 85320(b)(2)(A), which calls for flows necessary for recovering the Delta ecosystem and restoring fisheries under a reasonable range of hydrologic conditions.[23]

[23] EWC Comments, June 11, 2014, pp. 119-120. Emphasis in original.

The legal trigger for whether BDCP may be incorporated by the Delta Stewardship Council on recommendation of the California Department of Fish and Wildlife is whether the Tunnels Project is part of an HCP/NCCP. This year, it is not. Therefore the Tunnels Project must be considered as a "covered action" in which the Delta Stewardship Council (DSC) is asked to confirm the Project's proponents assertion that the proposed project is consistent with the Delta Plan.

The Delta Plan is itself currently the subject of litigation about whether the Plan is consistent with the policies of the Delta Reform Act of 2009.[24] This complicates the covered action status of the Tunnels Project. If the Court vacates the DSC's approval of the Delta Plan as non-compliant with Delta Reform Act policies, then there would be no Delta Plan to which the Tunnels Project can legally be found to conform, until such time as the DSC approves a plan that complies with the Act.

(The causes of action in the Delta Plan litigation are entirely relevant to the prospect of Tunnels Project operation. In formulating Delta Plan policies and recommendations, plaintiffs argue that the Council:

- Formulated a "reduced reliance on the Delta" policy that does not actually reduce reliance.
- Failed to observe the Act's mandate to rely on "best available science" in formulating the Plan.
- Promoted BDCP in violation of the Act, since the Tunnels Project conflicts with the coequal goals, and misinterpreted the meaning of "improving conveyance."
- Failed to perform its duties to protect public trust resources in formulating the Delta Plan.[25])

This year, we again find that through-Delta salmonid survival rates, Delta smelt entrainment risk at the North Delta intakes, eastward migration X2, longer residence times and reduced Delta outflow are all endemic to the preferred alternative of the RDEIR/SDEIS. (See our Section II comments.)

EWC was pleased to learn that the DSC recognizes that the new preferred alternative, the Tunnels Project, cannot be incorporated into the Delta Plan and must be considered as a "covered action."

> Although WaterFix is shown as a new alternative in the environmental documents for the BDCP, for practical purposes the BDCP as it has been envisioned for the past eight years no longer exists. Unlike BDCP, the new WaterFix project is not a conservation plan aiming to improve species recovery in exchange for a long-term operational permit. Rather, the objectives of WaterFix are much more narrow —"to make physical and operational improvements to the State Water Project (SWP)/Central Valley Project (CVP) systems in the Delta necessary to restore and protect ecosystem health, water supplies of the SWP and CVP south of the Delta, and water quality within a stable regulatory framework, consistent with statutory and contractual obligation"….Because WaterFix will not be a NCCP, nor a habitat conservation plan…, the Council is not required to incorporate the WaterFix alternative into the Delta

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[24] There were numerous complaints filed by both water contractor, community, municipal, and environmental water parties. They are sometimes described as "the Delta Plan cases." A trial court decision is not expected until perhaps mid-2016.

[25] *Petitioners Central Delta Water Agency et al and California Water Impact Network et al's joint opening brief on the merits in support of first amended verified petitions for Writ of Mandate and Complaints for Declaratory and Injunctive Relief,* October 15, 2014.

> Plan. *WaterFix instead will be subject to the Council's authority over covered actions, meaning that it must be consistent with the regulatory portions of the Delta Plan.*[26]

It appears that DWR and the Tunnels Project proponents more or less accept this interpretation of theTunnels Project status with respect to the Delta Plan. Section 1 of the RDEIR/SDEIS contains no description of the Department of Fish and Wildlife's role in making the findings specified in Water Code Section 85320(b)(2).[27]

But Tunnels Project proponents actually see *two other possibilities*: Section 1 of the RDEIR/SDEIS states later that "Delta Reform Act compliance" for its alternatives (including the Tunnels Project) "would be achieved through either the Delta Plan Consistence certification process or through a possible future amendment to the Delta Plan." This "future amendment" option reflects the Tunnels Project proponents' belief that the inclusion/incorporation pathway for HCP-type facilities has no limitation in time.

This ambiguity is confusing. The ambiguity goes to the heart of what is meant by a "preferred alternative." The RDEIR/SDEIS states that the Tunnels Project is the preferred alternative. And none of the other RDEIR/SDEIS alternatives put forward in July 2015 have HCP/NCCP organization and substance associated with them. It follows logically ***the RDEIR/SDEIS errs in stating that the Delta Reform Act still provides a pathway for one of these specific alternatives to be incorporated into the Delta Plan. This error needs to be corrected.***[28]

The RDEIR/SDEIS also contains Appendix G, which is "intended to discuss an approach that may be considered for Alternative 4A...to met the Delta Plan consistency requirements." The Appendix represents the Tunnels Project proponents' view of the Delta Reform Act, the Delta Stewardship Council, and the Delta Plan.

Appendix G contains no listing of Delta Plan policies and recommendations that it believes would be the policy framework against which it would be evaluated for consistency. This seems deferred to a listing of "consistency requirements" contained in the Plan's implementing regulations. This list includes mitigation measures, best available science, adaptive management, "reduce reliance on the Delta through Improved Regional Water Self-Reliance," delta flow objectives, and a number of other regulations. ***The listing omits the regulation's definition describing "coequal goals,"*** something we are certain the Tunnels Project proponents find challenging to address.

We note too that the Delta Plan implementing regulations contain no definition of what "consistency" with Delta Plan policies and recommendations means. The RDEIR/SDEIS Appendix G avoids this topic too.

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[26] See *Bay Delta Conservation Plan Draft EIR Review Check-in*, August 27-28, 2015, Delta Stewardship Council staff report, pp. 1-2. http://deltacouncil.ca.gov/docs/delta-stewardship-council-august-27-28-2015-meeting-agenda-item-17-bay-delta-conservation-plan. Emphasis added.

[27] RDEIR/SDEIS, Section 1.1.5.5, California Department of Fish and Wildlife, p. 1-18 to 1-20.

[28] But in committing the error, EWC recognizes that the Tunnels Project proponents pine for that degree of policy certainty on behalf of their project and find it psychologically difficult to let go of such a legal and policy advantage for the project.

When it comes to reducing reliance on the Delta, RDEIR/SDEIS Appendix G relies on analysis of "Demand Management Measures" described in Appendix 1C of last year's Draft EIR/EIS.[29] As we stated last year, the reduced-reliance-on-the-Delta policy of the Act goes to the heart of whether the Tunnels Project's purpose and need is valid or capable of being found consistent with Delta Reform Act policies and the Delta Plan. We contend that the RDEIR/SDEIS fails completely to demonstrate need for the proposed project in light of analysis of other water supply options for importers of Delta water (such as those specified in Water Code Section 85021) and the potential for increased water conservation throughout California. (We remark elsewhere in these comments about the water conservation achievements of California's population during the last two years of this four-year drought. Appendix 1C, we commented last year (since the RDEIR/SDEIS brings it up again), "fails to consider cost and price issues associated with water usage. And its characterization of the limitations of conservation is an argument employing a straw man: no one seriously believes that we can conserve our way out of the state's future water demand issues, just as no one seriously believes that we can build enough storage and conveyance to eliminate those same issues."[30]

Instead, the point is that we have remaining potential to achieve greater conservation savings by changing how California culture views its water supplies. California would be seriously remiss in failing to tap this potential regardless of whether it solves the entire future water demand problem; it is simply a no-regrets step that needs to be taken, and the RDEIR/SDEIS ignores this step in developing and stating the purpose and need for the Tunnels Project. The Tunnels Project seeks to protect a status quo of water behavior and assumptions that cannot be sustained, regardless.

The Demand Management Measures of Appendix 1C are not part of any of the alternative descriptions, whether associated with the Draft EIR/EIS last year or this year's RDEIR/SDEIS. In last year's BDCP, there is no conservation measure devoted to demand reduction in the service of reducing reliance on the Delta. This year's purpose and need statement in the RDEIR/SDEIS reiterates the Tunnels Project's intention (like last year) to (as much as possible) increase water supply reliability to maximize contractual deliveries using the Tunnel Project. Demand management measures are not only NOT included as part of the alternatives' purpose and need, they divert reader attention from the Tunnels Project and its inability to comply with Water Code Section 85021. The Tunnels Project must be able to certify consistency with Delta Reform Act policies reflected in a lawful Delta Plan. It cannot.

The essential point of the mandate in Water Code Section 85021 is to reduce reliance on the Delta. This is not just a water conservation issue; it is also a coequal goals issue. The Delta Plan litigation addresses as one of its central points of argument whether the Delta Stewardship Council formulated a Plan and implementing regulations that achieve what the Legislature required of it. ***The RDEIR/SDEIS fails to demonstrate that the project contributes to reduced reliance on the Delta, and fails to demonstrate that it can achieve the co-equal goals of the Act for the Delta, whether the Delta Plan can be said to achieve them or not.***

The State Water Resources Control Board's Bay-Delta Plan

[29] Here is just one of many instances where the Section 1 directive concerning topics makes no sense. When the RDEIR/SDEIS refers to or even incorporates the content of the Draft EIR/EIS from last year, then it becomes necessary and logical for reviewers to review, verify, and analyze both documents.

[30] EWC Comments, June 11, 2014, p. 147. Since the RDEIR/SDEIS applies this appendix from last year's Draft EIR/EIS now, we reiterate our comments about it from last year, with some additional commentary.

A large but wholly implicit assumption through the Tunnels Project and its EIR/EIS is that any one of these alternatives would require wholesale revision to how water quality is regulated in the Bay Delta estuary, in order for the Tunnels Project to move forward. This year, the RDEIR/SDEIS announces "proposed new flow criteria" for north and south Delta SWP and CVP export facilities, and the proposed new head of Old River operable barrier.[31]

Such changes to Delta flows and hydrodynamics must be evaluated through public review before the State Water Resources Control Board, the only state body authorized to change water quality standards. We are concerned that the Tunnels Project proponents hope to circumvent the process by making Tunnels operational criteria seem inevitable and necessary; they are neither, and must be the subject of careful and critical review in the Board's Bay-Delta Plan update process, *before* the Tunnels Project receives permit approvals for new diversions. ***Put simply: water quality policy must come before plumbing decisions are made. What is best for the Bay-Delta Estuary, and the Delta's economy and communities comes first.***[32]

Reasonable Use of Water

California's constitution recognizes water rights only to the extent they are reasonable. (California Constitution, Article X, Section 2) Moreover, the state constitution also states that "such right does not and shall not extend to the waste or unreasonable use or unreasonable method of use or unreasonable method of diversion of water." No one has a right in California to use or divert water unreasonably, not even the state and federal governments. The EWC believes that because lack of water availability and the precarious conditions of listed fish species go unaddressed, the Tunnels Project would be an unreasonable method of diversion of water, and that continued provision of a supposedly more reliable irrigation water supply to the drainage impaired lands of the western San Joaquin Valley, as is implied but not disclosed in the Bay Delta Conservation Plan and its EIS/EIR, would continue to be a wasteful and unreasonable use of water.

The Tunnels Project would violate the California Constitution's ban on wasteful and unreasonable use of water and method of diversion of water because it:

- Fails to demonstrate and disclose its purpose and need,
- Reduces Delta outflow by increasing exports contrary to a mandate to reduce reliance on Delta exports,
- Reduces rather than increases the likelihood that listed species can survive and recover in the Delta under operating conditions of the Tunnels Project in violation of the public trust doctrine.
- Degrades rather than protects and enhances water quality in Delta channels including violation of water quality pollutant criteria and beneficial uses, degradation of a public water source without mitigation of treatment costs.

[31] RDEIR/SDEIS, Section 4.1, pp. 4.1-11 through 4.1-13.

[32] This stance is also consistent with the Delta Protection Act of 1959.

II. Major Environmental Issues

This section presents the major environmental and ecological issues provoked by the Tunnels Project and its RDEIR/SDEIS. It is organized around four major themes:

- The complete policy failure of theTunnels Project proponents through the RDEIR/SDEIS to confront whether there is a real need for the project.
- The resulting absence of a reasonable range of alternatives to address need for the project, including meaningful direct comparisons of environmental impacts of the project.
- Specific ways in which the Tunnels Project will violate the Endangered Species Act.
- Various ways in which the Tunnels Project will violate beneficial uses and criteria flow and pollutant water quality objectives, and therefore violate the federal Clean Water Act.

Introduction

A reasonable range of alternatives still are not considered. Development of alternatives increasing flows through the Delta has always been a direct and obvious first step to complying with California's public trust doctrine protecting Delta water quantity and quality. Instead of complying with the Delta Reform Act, the ESA, the Clean Water Act and applying the public trust doctrine, all of the so-called BDCP alternatives involve new conveyance as opposed to consideration of any through-Delta conveyance alternatives reducing exports.

Our organizations have already communicated several times over the years with BDCP officials about the failure to develop a reasonable range of alternatives in the process.[33]

The direct and obvious way to increase flows through the Delta is to take less water out. The broad policy alternatives that should be highlighted in the BDCP NEPA and CEQA documents are to: 1) reduce existing export levels and thereby increase Delta flows; 2) maintain existing export levels and Delta flows; and 3) further reduce Delta flows by establishing a massive new diversion, the Tunnels Project, upstream from the Delta.[34] The BDCP agencies and the new RDEIR/SDEIS continue *to ignore* the direct and obvious broad policy alternative of reducing existing export levels to thereby increase Delta flows—which is mandated by section 85021 of the California Water Code.

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[33] See also previously submitted Friends of the River comment letter of May 21, 2014, joint May 28, 2014 and September 4, 2014 comment letters focused on the failure of BDCP Draft plan and Draft EIR/EIS to identify and evaluate a reasonable range of alternatives as the declared "heart" of both the NEPA and CEQA required EISs and EIRs. A detailed evaluation of the Draft EIR/EIS's inadequate alternatives analysis was provided by the EWC in its comment letter of June 11, 2014, accessible online at http://ewccalifornia.org/reports/bdcpcomments6-11-2014-3.pdf, followed by a letter of July 22, 2015, regarding the continuing lack of a reasonable range of alternatives in the RDEIR/SDEIS. Accessible at http://restorethedelta.org/wp-content/uploads/2015/09/7-22-15-BDCP-alts-ltr-pdf.pdf.

[34] The Tunnels Project alternative is infeasible because it is not lawful under the ESA, Clean Water Act, Delta Reform Act and the public trust doctrine. It is puzzling at this Draft EIR/EIS stage of the NEPA and CEQA process that the BDCP agencies would refuse to consider lawful alternatives increasing Delta flows while both considering and giving preferred alternative status to unlawful alternatives. As the RDEIR/SDEIS admits, "Many commenters argued that because the proposed project would lead to significant, unavoidable water quality effects, DWR could not obtain various approvals needed for the project to succeed (e.g., approval by the State Water Resources Control Board of new points of diversion for North Delta intakes)." RDEIR/SDEIS, Executive Summary, p. ES-2.

The Endangered Species Act continues to be violated. The Tunnels Project is not a permissible project under the Endangered Species Act (ESA) because it would adversely modify critical habitat for at least five endangered and threatened fish species. We previously addressed the failure of the BDCP agencies to develop and consider a reasonable range of alternatives increasing Delta flows by reducing exports in our July 22, 2015, letter to you.

To summarize, ***first***, the Sacramento River Winter-Run Chinook Salmon is listed as an endangered species under the Endangered Species Act, 16 U.S.C. § 1531 et seq. Likewise, the Central Valley Spring-Run Chinook Salmon, Central Valley Steelhead, Southern Distinct Population Segment of North American Green Sturgeon, and Delta smelt, are listed as threatened species under the ESA.[35] ***Second***, reaches of the Sacramento River, sloughs, and the Delta that would lose significant quantities of freshwater flows through operation of the proposed Tunnels Project are designated critical habitats for each of these five listed endangered and threatened fish species. ***Third***, no Biological Assessment has been prepared and transmitted to the U.S. Fish and Service (USFWS) or National Marine Fisheries Service (NMFS) by Reclamation with respect to the Tunnels Project. ***Fourth***, ESA Section 7 consultations are not completed and no Biological Opinion has been released by either USFWS or NMFS with respect to the effects of the operation of the Tunnels Project on the five federally listed species of fish or their designated critical habitats. ***Fifth***, no "reasonable and prudent alternatives" (RPAs) have been developed or suggested by the USFWS or NMFS to avoid species jeopardy or adverse modification of designated critical habitat for inclusion in either the RDEIR/SDEIS or the Draft EIR/EIS last year.

Approval of the Tunnels Project in the form of preferred Alternative 4A or otherwise would violate the substantive prohibitions of Section 7 of the ESA by adversely modifying designated critical habitat as well as by jeopardizing the continued existence of the endangered and threatened fish species.

Approval of the Tunnels Project would violate the procedural requirements of the ESA because Reclamation has not evaluated its proposed action "at the earliest possible time" to determine whether its action may affect listed species or critical habitat and has not entered into formal consultation with USFWS and NMFS.

Approval of the Tunnels Project would violate the procedural requirements of NEPA because the Draft EIR/EIS and RDEIR/SDEIS have not been prepared "concurrently with and integrated with" Biological Assessments and Biological Opinions required by the ESA. Again, the Biological Assessments and Biological Opinions, though required, remain unavailable.

These are not deficiencies that can be "fixed" by responses to comments in a Final EIR/EIS. Instead, the RDEIR/SDEIS must be circulated for public review and comment. The new document must include a reasonable range of alternatives including alternatives increasing flows by reducing exports. The new public Draft NEPA document must also be prepared concurrently with and integrated with the ESA required Biological Assessments, Biological Opinions, and include

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[35] Each of these species is listed under the California Endangered Species Act as well, with most of them considered threatened. Bay Delta Conservation Plan, Section 1.4.3, Covered Species, Table 1-3, p. 1-24. This table shows that under the California Endangered Species Act, Delta smelt is listed as threatened; however, the BDCP species account for Delta Smelt states that the California Fish and Game Commission elevated delta smelt to the status of endangered on March 4, 2009. (BDCP, Appendix 2A, section 2A.1.2, p. 2A.1-2, lines 21-24.) Longfin smelt is considered threatened, winter-run Chinook salmon is considered endangered, spring-run Chinook salmon threatened, fall- and late fall-run Chinook salmon are considered species of special concern; and green sturgeon (southern DPS) is also considered a species of special concern. Longfin smelt is at this time a candidate species for listing under the federal Endangered Species Act.

reasonable and prudent alternatives, developed by the USFWS and NMFS. The required reasonable and prudent alternatives would include alternatives increasing flows through the Delta to San Francisco Bay by reducing exports.

The project is not permissible under the Clean Water Act. The Tunnels Project would reduce flows to and through and degrade water quality in the San Francisco Bay-Delta Estuary. This in turn will adversely impact numerous recognized beneficial uses and public health.

First, the Tunnels Project will violate water quality standards. ***Second***, because the state cannot issue a 401 certification to a Tunnels Project that does not meet water quality standards and objectives, the Corps of Engineers cannot legally issue a 404 permit regulating dredge and fill in waters of the United States. ***Third***, the Tunnels Project has antidegradation analysis in either the Draft EIR/EIS or the Recirculated Draft EIR/Supplemental Draft EIS (RDEIR/SDEIS), which is required for compliance with the Clean Water Act. And the lack of an adequate antidegradation analysis is yet another reason the state will be unable to issue the 401 certification. ***Fourth***, the Tunnels Project threatens to dictate water quality objectives and prejudice ongoing State Water Resources Control Board's Bay-Delta Water Quality Control Plan Phase 1 and 2 processes, in violation of the Clean Water Act.[36] ***Finally,*** the proposed project fails to meet the Clean Water Act's requirement for the Least Environmentally Damaging Practicable Alternative (LEDPA).

Project Objectives, Purposes and Needs

The Tunnels Project's framework for policy evaluation must be broadened. To Tunnels Project proponents, the reasonable range of alternatives consists of variations among engineering solutions to the problems of how to stabilize reliable exports (defined to maximize contractual amounts from annual allocations) from the Delta and improve the quality of those water exports at the same time. This is far too narrow a definition and helps account for why Californians turned against the Peripheral Canal in 1982, and why they should reject the Tunnels Project now.

The state faces a policy crossroads, of which the narrower engineering solution of the Tunnels Project must be seen as just one part. The policy problems were defined and addressed directly by key policies of the Delta Reform Act of 2009: protecting, enhancing, and restoring the Delta's ecosystem, economy, and value as a unique place in California; improving water supply reliability generally; and reducing reliance on the Delta as part of achieving such goals. The RDEIR/SDEIS fails to demonstrate California's need for the Tunnels Project in the grand sweep of this policy framework.

To achieve reliable water supplies for the Tunnels Project we must recognize that both supply and demand should be balanced at some level that does not prejudice or undermine California's water policy framework. The failure of the umpteen alternatives (of the Draft EIR/EIS last year and the RDEIR/SDEIS this year) is that they assume that the need for water from the Delta is accurately and reasonably represented by state and federal water contract amounts. The Tunnels Project proponents fail to demonstrate the reasonableness of this assumption. We have previously called

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[36] The project may, on one hand, receive conditional permits for the north Delta intakes of the Tunnels Project, including gaping exemptions from water quality standards (masquerading as permit conditions) that undermine beneficial that should be protected by the water quality control plan. On the other hand, the Tunnels project will prejudice the Phase 1 and 2 processes with premature diversion and 404 permit requests, potential Delta island purchases by the Metropolitan Water District of Southern California, as well as the inadequate Tunnels environmental review process. Under both of these circumstances, the Tunnels Project tail threatens to wag State Water Board and Army Corps dog.

into question the contracts for and uses of water.[37] Last year, we presented analysis of many urban water agencies in southern California that are increasingly investing in local and regional self-sufficiency of their water supplies, becoming more efficient users of water through re-use, recycling, stormwater capture, groundwater remediation, and other means.[38]

The EWC has presented clear alternatives for achieving water supply reliability and Delta ecosystem restoration (Responsible Exports Plan, 2015 Sustainable Water for California Plan[39]) but our alternative was not considered in the Draft EIS/EIR, nor is it considered in the RDEIR/SDEIS. The EWC alternatives rely on strict enforcement of water quality laws, adoption of the State Water Resources Control Board and Fish and Game (now Wildlife) flow and biological recommendations, shoring up existing levees, ceasing unreasonable use of water to irrigate toxic soils (primarily in the western San Joaquin Valley) that return pollution to the estuary, while also providing for modest Delta export water supply with statewide water conservation, efficiency, and recycling measures to ensure existing supplies are extended to meet demand.

Need for the Tunnels Project must be analyzed directly against water conservation potential. This year, Californians have responded to a fourth year of drought by surpassing water conservation goals established by Governor Brown for the third straight month this summer. "For June, July, and August the cumulative statewide savings rate was 28.7 percent," the State Water Resources Control Board said in an October 2015 press release. "That equates to 611,566 acre-feet of water saved—51 percent of the overall goal of saving 1.2 million acre-feet from June 2015 to February 2016," as the governor had sought in his April 1 executive order. While this is a statewide figure, many of the largest conserving jurisdictions were located within the hydrologic regions where major state and federal water contractors have seen substantial decreases in residential water use.[40] Making water conservation a way of life will be increasingly important as drought recurs throughout California under rising greenhouse gas emissions and climate change conditions. None of this is disclosed or analyzed in determining the need for the Tunnels Project.

The need for the Tunnels Project is poorly specified. A new paragraph in the Objective section of the RDEIR/SDEIS states that:

> The ecological health of the Delta continues to be at risk, the conflicts between species protection and Delta water exports have become more pronounced, as amply evidenced by the continuing court decisions regarding the intersection of the ESA, the CESA, and the operations criteria of the SWP and the CVP. Other factors, such as the continuing subsidence of lands within the Delta, increasing seismic risks

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[37] For example, Environmental Water Caucus, *Response Letter to the US Bureau of Reclamation for the Shasta Lake Water Resources Investigation DEIS*, September 30, 2013, pp. 6-8. Accessible at http://ewccalifornia.org/reports/shastadeiscomments.pdf.

[38] EWC Comments, June 11, 2014, pp. 104-105.

[39] EWC's Responsible Exports Plan accessible at http://ewccalifornia.org/reports/responsibleexportsplanmay2013.pdf. and our Sustainable Water Plan for California, accessible at http://ewccalifornia.org/reports/ewcwaterplan9-1-2015.pdf.

[40] While statewide average residential gallons per capita per day (R-GPCD) for August 2015 rose slightly from July (102 versus 98 R-GPCD), it was 17 percent lower than August 2014, San Joaquin River basin R-GPCD has fallen from 173.9 to 135.0 R-GPCD this August over last, a 22 percent decline; Tulare Lake basin's fell from 189.9 to 164.2 R-GPCD, a 13 percent decrease; and South Coast basin levels fell from 112.7 to 94.8 R-GPCD, a decline of nearly 16 percent, according to State Water Board conservation reporting data. Accessible at http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/docs/fs100115_conservation.pdf.

> and levee failures, and sea level rise associated with climate change, serve to further exacerbate these conflicts. Simply put, the overall system as it is currently designed and operated does not appear to be sustainable from an environmental perspective, *and so a proposal to implement a fundamental, systemic change to the current system is necessary*. This change is necessary if California is to '[a]chieve the two coequal goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem.' (California Public Resources Code Section 29702 subd.[a]).[41]

This passage uses lawsuit defeats for DWR and the Bureau combined with climate change, earthquake risk, sea level rise, and worsening conditions for Delta exports south of the Delta to justify "systemic change" apparently in the form of the Tunnels Project. While arguing for "fundamental, systemic change" to achieve the two coequal goals of the Delta Reform Act, the Tunnels Project ("the change" offered) would do nothing of the sort. ***The Tunnels Project is simply a water grab, intended to boost "water supply reliability" and water quality for south of Delta exports and no other user or the environment.*** The Tunnels Project proponents engage in a truncated misreading of the Delta Reform Act and its coequal goals. But the Delta Reform Act has a far broader, more encompassing policy framework with which the Tunnels Project falls far short of consistency.

The Bay-Delta Estuary is an over-appropriated common pool plagued by California's abject failure to rein in water rights and contractual commitments that exceed the capacity of Central Valley watershed to supply them. The Tunnels Project includes no adjustments to contractual service area commitments of either the State Water Project or the Central Valley Project in order to align supply with demand and prevent jeopardy to listed Delta fish species and enhance Delta ecosystems for the long term. No analysis of need and alternative sources of supply for south of Delta water contractors is provided in the RDEIR/SDEIS to demonstrate and justify need for the proposed Tunnels Project. This is contrary to CEQA and NEPA and defeats the purpose of full disclosure documents to reveal why a project is truly needed beyond the usual DWR, Bureau and contractor talking points concerning their own "water supply reliability," their own "improved water quality," and supposed "ecosystem health and productivity benefits" of additional huge diversion and rediversion points.

The failure to adequately define and quantify "increased water supply reliability" renders these documents legally inadequate. The RDEIR/SDEIS fails to inform the public and decision-makers about adverse consequences of the Tunnels Project. ***Absent a thorough documentation of the purpose and need for the Tunnels Project with respect to water supply reliability including reasonable alternative sources of supply for state and federal water contractors, decision makers cannot understand what type and level of reliability might be achieved and by what means. The National Environmental Policy Act and the California Environmental Quality Act are both violated as a result.***

Cross-Delta Water Transfers inhere in the Tunnels Project purpose, but are ignored in the RDEIR/SDEIS statements of Objective, Purpose and Need. Last year, we commented that the Tunnels Project will function to increase the Central Valley Project and State Water Project's ability to arrange and facilitate cross-Delta water market transfers in drier and drought years. The RDEIR/SDEIS argues that the Project will increase the reliability of contractual deliveries relative to the present time.[42] This finding is at best arguable since climate change may neutralize gains in

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[41] RDEIR/SDEIS, Section 1.1.4, *Project Objectives and Purpose and Need*, p. 1-7, lines 31-35, and p. 1-8, lines 1-6. Emphasis added.

[42] RDEIR/SDEIS, Section 4.3.1, p. 4.3.1-9, lines 9-11 for Alternative 4A. This reasoning is also applied to Alternative 2D at Section 4.4.1, p. 4.4.1-9, lines 20-33; and to Alternative 5A at Section 4.5.1, p. 4.5.1-9, lines 20-33.

contractual reliability with reductions in precipitation, snowpack and runoff that otherwise would support such a finding. However, the Tunnels Project proponents view the Project as a hedge against climate change impacts on contractual allocation deliveries.

The RDEIR/SDEIS attempts to provide some perspective given the different CEQA and NEPA baselines, but appears to suffer from poor, confused editing. As we understand the concept, the Tunnels Project would increase overall reliability of contractual deliveries relative to current conditions and relative to the No Action Alternative (the future condition without the Tunnels Project in place). To accomplish this, it would increase overall conveyance capacity crossing the Delta (due to its vaunted opportunities for flexible dual diversion operations), which in the view of Tunnels Project proponents, is presently a limiting factor on consummating water transfers (understood regardless of their contractual or market basis).[43] Contrary to the NEPA conclusion of the RDEIR/SDEIS for Alternative 4A, Alternative 4A would still *increase* (not decrease, as is stated therein, which does not make sense, since what are the Tunnels but additional conveyance capacity?) conveyance capacity overall, enabling cross-Delta water transfers that could lead to increases in Delta exports when compared to the No Action Alternative.

The CEQA conclusion appears logically stated to us (though we disagree with its objective):

> Alternative 4A would increase water transfer demand compared to existing conditions. Alternative 4A would increase conveyance capacity, enabling additional cross-Delta water transfers that could lead to increases in Delta exports when compared to existing conditions.[44]

These conclusions make clear that increased conveyance capacity boosts not just contractual water supply reliability, but also market-based water supply reliability, the latter of which is not disclosed in the RDEIR/SDEIS's statement of objectives, purpose and need in Section 1.

Plus , the very existence of the water transfer market is due to this lack of water available to fulfill SWP and CVP water right claims, and the contractual demands of their south of Delta customer agencies. The Tunnels Project is intended to facilitate ***both*** more reliable contractual deliveries ***and*** a water transfer market that moves senior water right holders' supplies through the Delta for compensation. The Tunnels Project assumes that contractual allocations are the Delta's primary purpose, but this improperly places market-based water transfers in the background and causes the RDEIR/SDEIS to fail as a full disclosure document under CEQA and NEPA. In both cases, water is conveyed under the Delta through the Tunnels. The only question in the long-term with a Tunnels Project in place (from the standpoint of objectives, purpose and need) is when the water moves—under contract terms, or under market-based terms?

The purpose of the Tunnels' water transfer role is to gain access to north of Delta exported supplies for south of Delta importers in the State and Federal water project service areas. The RDEIR/SDEIS also fails to evaluate the water transfer purposes of the Tunnels Project with respect to the source(s) of market-based transfer water. Last year, we commented that BDCP Draft EIR/EIS claimed that the Sacramento Valley is the main source of supplies for the water transfer market and

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[43] The RDEIR/SDEIS does a poor job of clarifying the difference between contractual allocation-based water transfers across the Delta - the normal, preferred course of exportation from the Delta - and market-based, extra-contractual acquisitions of temporary supplies of water that are moved across the Delta primarily when project allocations reach as low as 50 percent for the SWP and 40 percent for the CVP. See EWC's comments on water transfers in EWC Comment Letter, June 11, 2014, pp. 192-200.

[44] RDEIR/SDEIS, Section 4.3.1, p. 4.3.1-9, lines 34-36.

that it is "full" in most areas and many years.[45] We noted too that groundwater substitution water sales would be likely to increase in a future with the Tunnels Project in place, which we further argued, would likely be catastrophic for the Sacramento Valley's comparatively healthy connection of groundwater resources to extant rivers, streams and sloughs there. In remarks to the Delta Stewardship Council on September 24, 2015, State Water Resources Control Board Executive Director Tom Howard said of groundwater substitution water transfers:

> I think we need to do some work on this issue. I have a hard time understanding quite how the stream depletion factors [applied by DWR and the Bureau of Reclamation to water transfer proposals] were established and I think there is ongoing work associated with them. Right now there's a streamflow depletion factor of 12 to 13%. I keep advising people to read USGS Publication Number 1376 as ***the basic thesis of that USGS publication is that groundwater pumping is just another way to divert surface water***. ***It's just another method of diversion of surface water that essentially, except in very limited circumstances, any groundwater pumping eventually becomes a depletion upon the nearest surface water body***.[46]

We concluded last year that BDCP has failed to identify, disclose, and analyze the potential impacts of cross-Delta groundwater substitution water transfers on the Sacramento Valley and its groundwater resources, and that this is a serious deficiency of the Draft EIR/EIS. This year we conclude that the Tunnels Project proponents provide no analysis of these impacts, and it remains a serious deficiency of the RDEIR/SDEIS.

This year, the RDEIR/SDEIS continues to ignore water transfers as a crucial purpose of the Tunnels Project. They fail to describe it as a purpose in violation of CEQA and NEPA. In sum, the project would increase reliance on the Delta in flagrant defiance of the Delta Reform Act, and fails utterly to justify why the Tunnels Project is needed, a violation of NEPA and CEQA.

A reasonable range of alternatives is still not considered.

Rationales for Modifications to the Tunnels Project. The Bay Delta Conservation Plan and its accompanying Draft EIR/EIS in 2014 drew 12,204 comment letters with 1,518 unique letters from individuals and another 432 from public agencies, organizations, and stakeholder groups.[47] This is an overwhelming response to such an important set of documents. We can glean from RDEIR/SDEIS narrative some reasons its proponents had for modifying Alternative 4 and coming up with three new "sub-alternatives" 4A, 2D, and 5A, and why 4A is now the "preferred alternative."

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[45] Draft EIR/EIS, November 2013, Chapter 7, p. 7-13, line 10-16. "Applied annual agricultural water irrigation totals approximately 7.7 MAF in the Sacramento Valley Groundwater Basin [citation]. A portion of this applied water, and the remaining 13.9 MAF of runoff, is potentially available to recharge the basin and replenish groundwater storage depleted by groundwater pumping. *Therefore, except during drought, the Sacramento Valley groundwater basin is 'full,' and groundwater levels recover to pre-irrigation season levels each spring.* Historical groundwater level hydrographs suggest that even after extended droughts, groundwater levels in this basin recovered to pre-drought levels within 1 or 2 years following the return of normal rainfall quantities." Emphasis added.

[46] *Maven's Notebook*, "Water Transfers and the Delta Plan, part 2: The agency view," October 13, 2015, accessible online at http://mavensnotebook.com/2015/10/13/water-transfers-and-the-delta-plan-part-2-the-agency-view/. Emphasis added. See also Paul M. Barlow and Stanley A. Leake, *Streamflow Depletion by Wells—Understanding and Managing the Effects of Groundwater Pumping on Streamflow*, U.S. Geological Survey Circular 1376, 84 p. (Also available at http://pubs.usgs.gov/circ/1376/.

[47] RDEIR/SDEIS, Section 1, p. 1-3, lines 40-42.

The Lead Agencies[48] list "four examples of disclosure" from CEQA Guidelines Section 15088.5 that list instances by which significant new information dictates the need to recirculate a Draft EIR. The Lead Agencies coyly decline to state which example or examples was the basis for their decision to recirculate.

But of these, the EWC notes that the reason supplied in example 4 in the CEQA Guidelines seems the most germane: Last year's draft EIR on BDCP was so fundamentally inadequate and conclusory in nature that meaningful public review and comment were precluded and full disclosure of project attributes and impacts were defeated. A key reason for this was the sheer size and complexity of the documents involved. What commenters could glean from the enormous mass of verbiage last year nonetheless revealed a project so flawed by boosterism and magical thinking that the Lead Agencies must have felt that only new alternatives could help salvage an effort in the making since 2006.

The Lead Agencies claim that project revisions were needed because it became clear from agencies' comments that they could not meet the requirements needed for issuance from the fisheries agencies of "long-term assurances associated with Section 10 of the ESA [and comparable sections of the state's Natural Communities Conservation Planning Act]." They fail to disclose what specific requirements could not be met. The public is entitled to know, but these are not summarized in the RDEIR/SDEIS. We certainly hope they will be stated in the Final EIR/EIS prominently. All that is provided in this regard is a vague acknowledgement that:

> These challenges related to the difficulties in assessing species status and issuing assurances over a 50 year period, in light of climate change, and accurately factoring in the benefits of long term conservation in contributing to the recovery of the species. There were also questions raised as to the ability to implement large-scale habitat restoration and an interest in exploring multiple regulatory approaches that could facilitate expeditious progress on Delta solutions.[49]

Suffice to say, perhaps, that the public's and agencies' comments on the massive modeling effort revealed to the Lead Agencies that their grasp of future conditions with and without the proposed alternatives of BDCP were not up to meeting Section 10 HCP requirements that are normally applied to smaller, simpler development projects than BDCP and its habitat restoration proposals.

The second sentence of this passage also suggests strongly that "multiple regulatory approaches" meant jettisoning the habitat restoration components altogether in favor of just making the Tunnels Project a Tunnels Project. Given the now 14-year time period for Tunnels Project construction (increased from 10 years last year), can you please explain what is meant by Alternative 4A and its other sub-alternatives offering supposed "expeditious progress on Delta solutions"? After all, a year has elapsed since the last opportunity to comment on the Tunnels Project concluded. What does "expeditious" mean then? What constitutes a "solution"? And what was the problem the Tunnels is intended to solve again?

The Lead Agencies settle on two "allowance" rationales: First , to avoid their failure to meet the regulatory requirements to obtain 50-year assurances from the fishery agencies "and due to the desire to explore alternative regulatory approaches that could facilitate expeditious progress on

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[48] The Lead Agencies, again, appear to be the California Department of Water Resources and the US Bureau of Reclamation for RDEIR/SDEIS purposes. It is not clear whether the other Tunnels Project proponents mentioned above are engaged in this process as lead agencies, responsible agencies or merely subordinate investors.

[49] RDEIR/SDEIS, Section 1, p. 1-2, lines 37-42.

Delta solutions" they revised the project to "***allow*** for an alternative implementation strategy for the new alternatives in the RDEIR/SDEIS," related to achieving project goals and objectives. The second "allowance" in the implementation strategy "*allows* for other state and federal programs to address the long term conservation efforts for species recovery in programs separate from the proposed project."[50]

Simply put, the Lead Agencies wanted to consider a new water project shorn of the vast majority of its habitat restoration pretenses, and to try to meet Section 7 consultation process standards rather than Section 10 standards. It is a naked water grab and they are externalizing the habitat restoration program of BDCP (which was in part an attempt to mitigating past damage from water exports without actually doing so) onto society the way they had always intended anyway.

This kind of vague, euphemistic, and tortured reasoning reflects the general atmosphere of bureaucratic cluelessness, and desire by the Tunnels Project proponents to escape responsibility for the destructive character of the Tunnels Project. At a minimum, their obfuscating discussion of the reasoning behind new alternatives and recirculating the EIR/EIS obscures much and fails to meet the full disclosure purposes of both the California Environmental Quality Act and the National Environmental Policy Act.

It appears to the EWC that key rationales were developed to modify the Tunnels Project from the volume and content of critical comments received by the Tunnels Project proponents last summer.

- Modify Alternative 4 to reduce its on-the-ground impacts.
- Develop a wholly new alternative without much habitat restoration.
- Develop among the Tunnels Project proponents a rationale for employing the Section 7 consultation process over the Section 10 habitat conservation planning process for complying with the federal and state endangered species acts.

Modifying Alternative 4. The RDEIR/SDEIS states that in December 2014, Governor Jerry Brown's administration and "its federal partners" (we presume that means in California WaterFix-speak "the US Bureau of Reclamation") "announced several substantial changes to the proposed water conveyance portion of the proposed Bay Delta Conservation Plan…" (Is it so difficult to be clear in disclosing who participated in reformulating Conservation Measure 1 of BDCP? This kind of language is for hortatory press releases and triumphal web sites, not environmental full-disclosure documents like the RDEIR/SDEIS.)

The changes included: fish screens for each of three north Delta intake structures, access roads, fencing, security gates, control buildings, a single-bore tunnel between Intakes 2 and 3 (28-foot diameter) and the intermediate forebay, various vertical shafts at intervals, a single-bore tunnel from Intake 5 to the intermediate forebay (28-foot diameter), the intermediate forebay with outlets to the two 40-foot diameter tunnels enabling gravity flow to the area of expanded Clifton Court Forebay where a pumping plant would be constructed to lift water from the tunnels into Clifton Court for delivery to the south Delta state and federal pumping plants.

These changes to Alternative 4 are claimed to have the following benefits: eliminating three pumping plants (one from each north Delta intake); minimizing construction on Staten Island where sandhill crane critical habitat exists; relocating project features to DWR-owned property to reduce acquisitions from private land owners; eliminating permanent power lines through Stone Lakes National Wildlife Refuge; removing an underground siphon that would have affected Italian Slough, reducing overall electricity requirements of the Tunnels Project by enabling Tunnels water

[50] RDEIR/SDEIS, Section 1, p. 1-3, lines 1-14. Emphasis added.

to flow almost entire by gravity except for the final hoist from beneath Clifton Court Forebay; and overall, "reduc[ing] tunnel operation and maintenance costs."[51]

EWC notes that nowhere in this list of benefits do the Lead Agencies claim that the changes in the Tunnels Project (Alternative 4) were made to benefit fish species, water quality, or public health. The changes mainly appear to reduce Tunnels' operation and maintenance costs, and in a secondary fashion reduce impacts to Delta human residents (such as through elimination of certain visual impacts of transmission lines and power plant buildings from intake sites). Even the fish screens at the north Delta intakes are not claimed to provide fish benefits in this context. Instead, the rationale is justified for reducing "the amount of construction activity required at each intake site and would eliminate the temporary relocation of State Route (SR) 160 by realigning the highway over widened levee sections prior to commencing construction of the intake structures."[52]

Construction related impacts to fish would be the same for modified Alternative 4 as for Alternative 4A because "the proposed physical water conveyance facilities are the same for both alternatives."[53] In this sense, the changes represent distinctions without important policy or environmental differences.

Developing new alternatives with little habitat restoration. The RDEIR/SDEIS states that the "desire to explore alternative regulatory approaches that could facilitate expeditious progress on Delta solutions" is the main reason for developing the new "sub-alternatives."[54] It is not disclosed what "Delta solutions" means and what expeditious progress toward them entails. Moreover, it fails to address broader statewide water policy goals enacted in the Delta Reform Act of 2009. This statement should be clarified with respect to the stated objectives, purposes and needs the Lead Agencies employ (discussed below) to justify the Tunnels Project. They vaguely focus on the "conveyance facilities necessary for the SWP and CVP to address more immediate water supply reliability needs in conjunction with ecosystem improvements to reduce reverse flows and direct fish species impacts associated with the existing south Delta intakes." We take this to mean that since ecosystem improvements are externalized to other agencies, Alternative 4A is free to be a Tunnels Project, a water pipeline, pure and simple.

Our conclusion is confirmed in Section 3 of the RDEIR/SDEIS. The only tangible environmental benefits of the "alternative implementation strategy" is reducing reverse flows in Old and Middle River and direct fish impacts from continued exclusive operation of the south Delta pumping plants and fish facilities. The RDEIR/SDEIS supposes that the "alternative implementation strategy *allows* for other state and federal programs to address the long term conservation efforts for species recovery in programs separate from the proposed project."[55]

In plain terms, the Lead Agencies continue to believe that adding north Delta intakes with tunnels to the south Delta pumps represents an improvement over existing conditions because the north Delta intakes supposedly provide operational flexibility for avoiding impacts to fish using and residing in north Delta waters. Removal of pumps from the north Delta intakes, they argue later, is alleged to reduce potential problems with the north Delta intakes, and ballyhooed fish screens at these intakes

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[51] RDEIR/SDEIS, Section 3, p. 3-1, lines 14-33.

[52] RDEIR/SDEIS, Section 3, p. 3-2, lines 9-11.

[53] RDEIR/SDEIS, Section 3, p. 3-7, lines 31-32.

[54] RDEIR/SDEIS, Section 1, p. 1-4, lines 15-17.

[55] RDEIR/SDEIS, Section 1, p. 1-3, lines 7-8.

will keep small fish like Delta smelt, longfin smelt, and juvenile salmon from harm. (See Section VI below for more on fish screens.)

In reality, flexible operations through dual conveyance means that at any given moment reverse flows and fish entrainment and water quality problems can continue to occur somewhere in the Delta. This does not in any way mean there are net aquatic benefits from the Tunnels Project; dual conveyance simply doubles the number of places such effects would occur.

"These changes are necessary," claims the description of the new alternatives, "for the SWP and CVP to address more immediate water supply reliability needs while reducing the severity of existing ongoing environmental impacts. The strategy would achieve the latter objective and purpose in part by reducing reverse flows and direct fish impacts associated with the existing south Delta intakes."[56] ***This formulation is intended to stop readers from thinking about whether reverse flows might happen in the north Delta as long as those pesky reverse flows in Old and Middle Rivers are reduced. It is a framing exercise, a linguistic shell game through which the Lead Agencies peddle the Tunnels Project to the public.***

Thus the RDEIR/SDEIS grandly exaggerates:

> Implementing the conveyance facilities alone, as now proposed under Alternatives 4A, 2D, and 5A, would help resolve many of the concerns with the current south Delta conveyance system, and would help reduce threats to endangered and threatened species in the Delta. For instance, implementing a dual conveyance system would align water operations to better reflect natural seasonal flow patterns by creating new water diversions in the north Delta equipped with state-of-the-art fish screens, thus reducing reliance on south Delta exports.
>
> The existing operation of the SWP and CVP pumps in the south Delta can cause reversals in river flows, potentially altering salmon migratory patterns and contributing to the decline of sensitive species such as delta smelt. The new system would reduce the ongoing physical impacts associated with sole reliance on the southern diversion facilities and allow for greater operational flexibility to better protect fish. Minimizing south Delta pumping would provide more natural east-west flow patterns. The new diversions would also help protect critical water supplies against the threats of sea level rise and earthquakes.[57]

These two passages are about stopping thought, not informing it. You cannot have the improvements in potential downstream flow on Old and Middle Rivers without the likely reverse flows and flow reductions inherent in operating the north Delta intakes. You cannot operate the north Delta intakes without threats to migrating juvenile salmon smolts and Delta smelt at key times of year. If real-time operations are invoked to return operations flexibly to the south Delta pumping plants to protect fish in the north Delta, the projects will resume creating reverse flows in Old and Middle rivers with attendant threats and stresses to fish there. It is a zero-sum hydrodynamic Delta in the absence of clogging most key channels with barriers and gates. For now, at least, the Delta remains primarily a common water pool, and no amount of happy talk from the RDEIR/SDEIS or "California WaterFix" publicity can wish it away.[58]

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[56] RDEIR/SDEIS, Section 4.1, p. 4.1-1, lines 18-21.

[57] RDEIR/SDEIS, Section 4.1, p. 4.1-1, lines 38-41 and p. 4.1-2, lines 1-9.

[58] We are aware of the annual installation of temporary barriers at interior south Delta locations to help with water levels and at the head of Old River to steer migrating salmonids away from entrainment to Jones Pumping Plant in the San Joaquin River mainstem.

"However," the Lead Agencies state, in an effort to keep at least a fig leaf of green over their naked Tunnels Project, "habitat restoration is still recognized as a critical component of the State's long-term plans for the Delta, and such endeavors will likely be implemented over time under actions separate and apart from the chosen."

At this writing, no additional documentation of the likelihood California EcoRestore (CER) will be funded let alone implemented has been provided at the California WaterFix web site. At this juncture, CER is described as being less than one-fifth the size of the natural reserve planned originally under BDCP as Conservation Measure 3.[59] If one of the new alternatives is selected, then "restoration of habitat in the Delta...will instead occur through California EcoRestore, and these activities will be further developed and evaluated independent of the water conveyance facilities."[60]

The RDEIR/SDEIS fails to make detailed comparisons among alternatives. Table 1 provides a direct comparison of the three BDCP and California WaterFix preferred alternatives. This direct comparison shows, first, that there are only minor differences between these versions of the preferred alternative, and second, that to make this direct comparison, it was necessary use three different documents: the Bay Delta Conservation Plan, the RDEIR/SDEIS, and the *Conceptual Engineering Report* (dated July 2015), which was obtained only through a Public Record Act request. No such comparison was provided that we could find readily in the RDEIR/SDEIS, as is shown in Table 1.

Last year, we noted that even BDCP's Draft EIR/EIS observed there were just "slight differences" among alternatives when it came to operational attributes.[61] The RDEIR/SDEIS fails to provide comparisons of Delta outflow and exports with all other alternatives, defeating readers' ability to easily and directly gauge for themselves the relative differences among the alternatives. We present a comparison drawn from both the Draft EIR/EIS and the RDEIR/SDEIS, in Table 2. This table helps illustrate the cumbersome complexity even of summarizing the "slight differences" in operational complexities associated with analyzing and grasping the BDCP's and TP's alternatives. But it also points up the continuing deficiency of the RDEIR/SDEIS in fostering useful and meaningful comparisons among its too-numerous alternatives. All that is really provided are comparisons

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[59] "California EcoRestore's initial goal is to advance (i.e. complete or break ground on) 30,000 acres of Delta habitat restoration:

- 25,000 acres associated with existing mandates for habitat restoration, pursuant to federal biological opinions. These projects will be funded exclusively by the state and federal water contractors that benefit from the State Water Project and the Central Valley Project systems.
- 5,000 acres of habitat enhancements. Proposition 1 grants to local governments, non-profit organizations, and other entities will support these habitat enhancements throughout the Delta. Funding will come primarily from the Delta Conservancy, the California Department of Fish and Wildlife, and the California Department of Water Resources.

California EcoRestore is unassociated with any habitat restoration that may be required as part of the construction and operation of new Delta water conveyance (California WaterFix)." Accessed 14 September 2015 at http://resources.ca.gov/ecorestore/.

There is no timeline, schedule of phasing or planning document for California EcoRestore. California EcoRestore represents DWR's cherry-picking of restoration projects it likes from BDCP, especially those with "existing mandates" and which could be funded from the recently passed 2014 Water Bond.

[60] RDEIR/SDEIS, Section 4.1, p. 4.1-2, lines 15-17.

[61] EWC June 11th Letter, pp. 150-152.

between the modified Alternative 4 and each of the three other sub-alternatives incrementally shorn of the BDCP conservation strategy.[62]

**Table 1
Summary Comparing BDCP and California WaterFix Alternatives
2013 through 2015**

Feature Description/Surface Area	Alternative 4 (2013)	Modified Alternative 4 (2014)	Alternative 4A ("California WaterFix")
Conveyance capacity (cfs)	9,000	9,000	9,000
Intake facilities (acres per site)	90	90	122
Six pumps per intake, pump capacity (cfs)	500		
Total dynamic head (feet)	59-73		
Tunnel 1a connecting intakes 2 and 3 to Intermediate Forebay (Alternative 4 only)			
Tunnel length (feet)	47,400	46,100	
Number of tunnel bores; number of shafts (total)	1; 4	1; 3	
Tunnel finished inside diameter (feet)	20	28	
Tunnel 1b connecting Intake 5 to Intermediate Forebay			
Tunnel length (feet)	24,900	25,200	
Number of tunnel bores; number of shafts (total)	1; 3	1; 3	
Tunnel finished inside diameter (feet)	20	28	
North Tunnels from Intake 2 to Intake 3 (Alternative 4A only)			
Maximum Flow (Intake Flow, cfs)			3,000
Tunnel length (feet)			10,507
Number of Tunnel bores; number of shafts (total)			1; 1
Tunnel Finished Inside Diameter (feet)			28
North Tunnels from Intake 3 to Intermediate Forebay (Alternative 4A only)			
Maximum Flow (Intake Flow, cfs)			6,000
Tunnel length (feet)			35,587
Number of Tunnel bores; number of shafts (total)			1; 3

[62] RDEIR/SDEIS, Section 4.1, Tables 4.1-1, 4.1-4, and 4.1-6.

**Table 1
Summary Comparing BDCP and California WaterFix Alternatives
2013 through 2015**

Feature Description/Surface Area	Alternative 4 (2013)	Modified Alternative 4 (2014)	Alternative 4A ("California WaterFix")
Tunnel finished inside diameter (feet)[1]			40
North Tunnel from Intake 5 to Intermediate Forebay			
Maximum Flow (Intake Flow, cfs)			3,000
Tunnel length (feet)			25,186
Number of Tunnel bores; number of shafts (total)			1; 3
Tunnel finished inside diameter (feet)			28
Intermediate Forebay (acres)	245	243	243
Water surface area (acres)	41	37	37
Active storage volume (acre-feet)	710	750	750
Main Tunnels (connecting Intermedia Forebay to Clifton Court Forebay)			
Maximum Flow (cfs)	9,000	9,000	9,000
Tunnel length (feet)	159,000	159,000	159,000
Number of Tunnel bores; number of shafts (total)	2; 9	2; 9	2; 9
Tunnel finished inside diameter (feet)	40	40	40
Clifton Court Pumping Plant			
Total Number of Pumps (both pumping plants)	None	12	12
8 large pumps, capacity per pump (cfs)	None	1,125	1,125
4 small pumps, capacity per pump (cfs)	None	563	563
Total dynamic head (feet)	None	37	37
Expanded Clifton Court Forebay (total finished area, acres)	2,950	2,600	1,691
Forebay dredging area (acres)	2,030	2,010	2,121
Expanded water surface area (acres)	690	590	806

**Table 1
Summary Comparing BDCP and California WaterFix Alternatives
2013 through 2015**

Feature Description/Surface Area	Alternative 4 (2013)	Modified Alternative 4 (2014)	Alternative 4A ("California WaterFix")
Active storage volume (acre-feet)	9,260 (north cell), 8,110 (south cell)	4,300 to 10,200 (north cell), 14,000 (south cell)	4,970 to 8,100 (north) 12,050 (south)
Power requirements - Estimated pumping electric load (MW)	50-60	36	36

Notes: cfs = cubic feet per second; MW = megawatts. Acreage estimates represent the permanent surface footprints of selected facilities. Characteristics of other areas including temporary work areas and those designated for borrow, spoils, and reusable tunnel material are reported in Appendix 3C (in Appendix A of the Recirculated DEIR/SDEIS, 2015). Overall project acreage includes some facilities not listed, such as permanent access roads.
[1] Intake 3's tunnel to the Intermediate Forebay (IF) will have 40-foot diameter because it will carry both intake flows from Intakes 2 and 3 to the IF, a total flow capacity of 6,000 cfs.

Sources: Bay Delta Conservation Plan, November 2013, Chapter 4, *Covered Activities and Associated Federal Actions*, Table 4-3, p. 4-11; BDCP Recirculated Draft EIR/Supplemental Draft EIS, July 2015, Section 3, *Conveyance Facility Modifications to Alternative 4*, Table 3.2-1, p. 3-3; California Department of Water Resources, Delta Habitat Conservation and Conveyance Program, *Conceptual Engineering Report, Dual Conveyance Facility, Modified Pipeline/Tunnel Option—Clifton Court Forebay Pumping Plant (MPTO / CCO)*, July 1, 2015, Table ES-1, pp. ES-4 to ES-5; Environmental Water Caucus.

EWC's Plan Alternatives are reasonable alternatives. We repeat the EWC's demand for consideration of the Responsible Exports Plan and the Sustainable Water Plan for California as alternatives and reasonable variants. EWC's similar requests started back on April 16, 2012 but have to date been ignored in the BDCP and "California WaterFix" process.

Table 2

Operational Criteria Scenarios - BDCP EIR/EIS

Scenario	Applies to Alternative(s):	North Delta Bypass & Diversions	South Delta Exports	Yolo Bypass Diversions	Delta Cross Channel	Rio Vista Instream Flows	Delta Inflow & Outflow
A	1A, 1B, 1C, 3	Dec - June (could) make use of initial and post-pulse operational criteria; July - Sep min bypass flow of 5,000 cfs; Oct - Nov min bypass flows increase to 7,000 cfs; diversions <= to 6% of Sacramento Flow at Freeport such that North Delta Bypass flows are >= 5,000 cfs; Initial pulse trigger; post-pulse operations using Table 3-16 in EIS/EIR.	Biological Opinions' RPA actions, consistent with the No Action Alternative.	Sacramento Weir: No changes; Lisbon Weir: No changes; Fremont Weir: 17.5' notch with operable gates between Dec 1 and April 30 providing Yolo Bypass inundation of 3,000 to 6,000 cfs.	Oct - Nov: DCC closed 15 days per month; Dec - June: DCC gates closed; Jul - Sep: DCC gates open.	Sep - Dec: D 1641 criteria; Jan - Aug: minimum of 3,000 cfs.	D-1641
B	2A, 2B, 2C	Same as Scenario A	Derived from BiOps - Compare Table 3-18 of EIR/EIS to NAA operational criteria, select larger # for OMR criterion; April-May-June OMR flows in Table 3-19; Oct - Nov: No South Delta exports during D-1641 pulse flows; after D-1641 pulse flows operate to - 5,000 cfs through November.	Same as Scenario A	D-1641	D-1641	Dec - Aug: D-1641; Sep - Nov: Fall X2 from Delta smelt BiOp in Wet and Above Normal Years
B	2D (2015)	Same as Scenario A	Same as Scenario B	None - Fremont Weir not included.	Same as Scenario B	Same as Scenario B	Operational Scenario B without Fremon Weir modifications, evaluated at Early Long Term (about 2025).
C	5	Same as Scenario A	Same as Scenario A; Exports/Inflow ratio limited in April and May	Same as Scenario A	Same as Scenario A	Same as Scenario A	Same as Scenario B
C	5A (2015)	Same as Scenario A	Same as Scenario A; Exports/Inflow ratio limited in April and May	None - Fremont Weir not included.	Same as Scenario A	Same as Scenario A	Operational Scenario C without Fremont Weir modifications, evaluated at Early Long Term (about 2025).
D	6A, 6B, 6C	Same as Scenario A	None	Same as Scenario A	Same as Scenario A	Same as Scenario A	Same as Scenario B
E	7	Scenario A does apply; Dec - June, Table 3-16 would apply closely, unlike in Scenario A. Initial pulses similar to Scenario A; Post-pulse operations handled by Table 3-16.	OMR flows >= +1,000 cfs in Dec - Mar; OMR flows in June >= +3,000 cfs; OMR flows in April, May and Oct - Nov would have no south Delta exports.	Sacramento and Lisbon Weirs same as in Scenario A; Fremont Weir, same notch, operated to inundate Yolo Bypass with 3,000 to 8,000 cfs with duration governed by conditions in the Sacramento River.	Same as Scenario A	Sep - Dec: D 1641 criteria; Jan - Aug: minimum of 5,000 cfs.	Same as Scenario B
F	8	Same as Scenario E	Same as Scenario E	Sacramento and Lisbon Weirs same as in Scenario A; Fremont Weir, same notch, operated to inundate Yolo Bypass with 3,000 to 8,000 cfs with duration set for 30-45 days.	Same as Scenario A	Same as Scenario E	Jan - June: outflow = 55% of UF at Freeport or D-1641 flow requirements minimum; July - Aug, Dec: D-1641; Sep - Oct - Nov: Fall X2, Feather River flows to be proportional amount of 55% of UF at Freeport.
G	9	None	Similar to Scenario A; E/I ratio follows NMFS salmonid BO 2009.	Same as Scenario A	Flows < 11,000 cfs or > 25,000 cfs, DCC is closed; Flows > 11,000 cfs and < 25,000 cfs, DCC open to divert up to 25% of Sacramento River flow.	Same as Scenario A	Same as Scenario B
H	4 (2013)	Same as Scenario A	Derived from BiOps - Compare Table 3-21 of EIR/EIS to NAA operational criteria, select larger # for OMR criterion; April-May-June OMR flows in Table 3-22; A1	Same as Scenario A	D-1641 and Oct 1 to Dec 14: NMFS BO 2009, consistent with No Action Alternative modeling	Same as Scenario A	Decision Tree Outcomes: H1 - spring and fall outflows as per D-1641; H2 - Spring outflow for Longfin smelt and Fall outflow from D-1641; H3 - Fall X2 outflows for Delta smelt and spring outflow from D-1641; H4 - Fall X2 for Delta smelt and Spring outflow for Longfin smelt
H	4 (2014, modified)	Same as Scenario A	Same as Scenario H	Same as Scenario A	Same as Scenario H	Same as Scenario A	Operational Scenarios H1-H4 with Decision Tree of Chapter 3, Section 3.6.4.2 of Draft EIR/EIS; evaluated at Late Long Term
H	4A (2015)	Same as Scenario A	Same as Scenario H	None - Fremont Weir not included.	Same as Scenario H	Same as Scenario A	Operational Scenario H3+ (a new operational scenario which includes a criterion for spring outflow bounded by the criteria associated with Scenarios H3 and H4 of Chapter 3, Section 3.6.4.2 of Draft EIR/EIS; evaluated as Scenarios H3 and H4 at early long-term, around 2025.

Source: Bay Delta Conservation Plan Draft EIR/EIS, November 2013, Chapter 3, pp. 181-209; RDEIR/SDEIS, Section 4.1, Tables 4.1-1, 4.1-4, and 4.1-6.

Deliberate BDCP Refusal to Consider Alternatives Increasing Delta Flows. The BDCP's omission of alternatives reducing exports and increasing flows has been deliberate. A claimed purpose of the BDCP is "Reducing the adverse effects on certain listed [fish] species due to diverting water."[63] "[H]igher water exports" are among the factors the RDEIR/SDEIS admits "have stressed the natural system and led to a decline in ecological productivity."[64] "There is an urgent need to improve the conditions for threatened and endangered fish species within the Delta."[65] The new RDEIR/SDEIS admits that "the Delta is in a state of crisis" and that "Several threatened and endangered fish species . . . have recently experienced the lowest population numbers in their recorded history."[66] Alternatives reducing exports are the obvious direct response to claimed BDCP purposes of "reducing the adverse effects on certain listed [fish] species due to diverting water" and "to improve the conditions for threatened and endangered fish species within the Delta." The way to increase Delta flows is to take less water out.

Reclamation and DWR must develop and consider *an* alternative that would increase flows by reducing exports in order to satisfy federal and California law. The Delta Reform Act establishes that "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."[67] The Act also mandates that the BDCP include a comprehensive review and analysis of "A reasonable range of flow criteria, rates of diversion, and other operational criteria . . . necessary for recovering the Delta ecosystem and restoring fisheries under a reasonable range of hydrologic conditions, which will identify the remaining water available for export and other beneficial uses."[68] And, the Act requires: "A reasonable range of Delta conveyance alternatives, including through-Delta," as well as new dual or isolated conveyance alternatives.[69] In addition, the Act mandates that "The long-standing constitutional principle of reasonable use and the public trust doctrine shall be the foundation of state water management policy and are particularly important and applicable to the Delta."[70]

Reclamation and DWR have now marched along for over four years in the face of "red flags flying" deliberately refusing to develop and evaluate a reasonable range of alternatives, or indeed, any real alternatives at all, that would increase flows by reducing exports. Four years ago, the National Academy of Sciences declared in reviewing the then-current version of the draft BDCP that: "[c]hoosing the alternative project before evaluating alternative ways to reach a preferred outcome would be post hoc rationalization—in other words, putting the cart before the horse. Scientific reasons for not considering alternative actions are not presented in the plan."[71]

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[63] BDCP Draft EIR/EIS, Executive Summary, p. ES-10.

[64] RDEIR/SDEIS, Section 1, p. 1-10.

[65] Draft EIR/EIS, Executive Summary, p. ES-10; RDEIR/SDEIS, Executive Summary, p. ES-6.

[66] RDEIR/SDEIS, Executive Summary, p. ES-1.

[67] Cal. Water Code § 85021. Emphasis added.

[68] Cal. Water Code § 85320(b)(2)(A).

[69] Cal. Water Code § 85320(b)(2)(B).

[70] Cal. Water Code § 85023.

[71] National Academy of Sciences, Report in Brief at p. 2, May 5, 2011.

More than three years ago, on April 16, 2012, the Co-Facilitators of the EWC transmitted a letter to then-Deputy Secretary of the California Natural Resources Agency Gerald Meral. The letter stated EWC's concerns with BDCP's current approach and direction of the [BDCP] project, particularly its treatment of alternatives.[72] The letter specifically states:

> *The absence of a full range of alternatives,* including an alternative which would reduce exports from the Delta. It is understandable that the exporters, who are driving the project, are not interested in this kind of alternative; however, in order to be a truly permissible project, an examination of a full range of alternatives, including ones that would reduce exports, needs to be included and needs to incorporate a public trust balancing of alternatives.[73]

The EWC provided its "Reduced Exports Plan" to BDCP agency officers back in December 2012 and again in person on February 20, 2013. Then-EWC Co-Facilitator Nick Di Croce stated in his December 2012 message to Deputy Secretary Meral that:

> Now that the project is nearing its EIR/EIS stage, we feel it is important to formally present it [Reduced Exports Plan] to you and request that you get it on the record as an alternative to be evaluated. . . . As you know, CEQA and NEPA both require a full range of reasonable alternatives to be evaluated. (December 15, 2012 email Di Croce to Meral).

On November 18, 2013, FOR submitted a comment letter in the BDCP process urging those carrying out the BDCP to review the "Responsible Exports Plan," an update of the previous "Reduced Exports Plan" proposed by the EWC: as an alternative to the preferred Tunnels Project. This Plan calls for reducing exports from the Delta, implementing stringent conservation measures but no new upstream conveyance. This Plan additionally prioritizes the need for a water availability analysis and protection of public trust resources rather than a mere continuation of the status quo that has led the Delta into these dire circumstances. Only that alternative is consistent with the EPA statements indicating that more outflow is needed to protect aquatic resources and fish populations. The EWC Responsible Exports Plan is feasible and accomplishes project objectives and therefore should be fully analyzed in a Draft EIS/EIR.[74]

All of the so-called project alternatives set forth in the Draft Plan, Draft EIR/EIS, and new RDEIR/SDEIS create a capacity to divert more water from the Delta far upstream from the present diversion, which will undoubtedly decimate Delta-reliant species already on the brink of extinction, including the Delta smelt, chinook salmon, steelhead, San Joaquin kit fox, and tricolored blackbird, among dozens of others. The Draft EIR/EIS itself describes differences among the alternatives as "slight." Should the Tunnels Project be completed, this critical aquatic habitat would instead be exported through the north Delta intakes along the lower Sacramento River. And they would do so contrary to ESA Section 10 (prohibiting reduction of the likelihood of survival and recovery of listed species), ESA Section 7 (prohibiting federal agency actions that are likely to jeopardize the continued existence of any endangered species or that "result in the destruction or adverse modification of [critical] habitat of [listed] species" 16 U.S.C. § 1536 (a)(2)), and California Water Code Section 85021 (requiring that exporters reduce reliance on the Delta for water supply).

BDCP Agencies Must Consider Alternatives That Will Increase Delta Flows As Proposed Under the Responsible Exports Plan. We yet again request development of a reasonable range of alternatives that increasing Delta flows while reducing exports. Tunnels Project proponents must

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[72] Letter, p. 1.

[73] Letter, p. 2.

[74] FOR November 18, 2013 comment letter at p. 3, Attachment 4 to FOR January 14, 2014 comment letter.

prepare a new, legally sufficient, Draft EIR/EIS that incorporates actions called for by the Responsible Exports Plan (attached to our previous comment letters and also posted at http://www.ewccalifornia.org/reports/responsibleexportsplanmay2013.pdf).[75]

EWC-type alternatives could vary by how much time is allotted to phase in export reductions over time. For instance, they could range from 10 to 40 years, which would comparatively span the same range of timelines provided for Tunnels construction.

The RDEIR/SDEIS admits the existence of paper water, "quantities totaling several times the average annual unimpaired flows in the Delta watershed could be available to users based on the face value of water permits already issued."[76] The BDCP agencies misuse the Delta Reform Act's definition of the coequal goals: "'Coequal goals' means the two goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem . . ."[77] Providing "a more reliable water supply" means real water actually available, not paper water, and reflecting water available for export while meeting the needs for Delta water quantity, quality, freshwater flows, fisheries, public trust obligations, the ESA, the Clean Water Act, and senior water rights holders. It does not mean moving the exporters who are junior water rights holders—including 1.3 million acres of drainage impaired lands—to the front of the line ahead of everyone and everything else. It also does not mean putting the exporters in the front of the line during a lengthy extreme drought, crashing fish populations, and reductions in water use being made by millions of Californians.

The estimated $15 billion cost of the Tunnels Project—which will amount to as much as $60 billion or more including debt service and inevitable cost over-runs represents an "opportunity cost." The only true benefit cost study prepared on the Tunnels Project concluded that the costs are 2 to 3 times higher than the benefits.[78] Now that the project has dropped the features of habitat conservation, the exporters would not have the benefit of 50 year permits and virtually guaranteed water deliveries. That change, in addition to worsening the adverse environmental impacts of the Tunnels Project, also worsens the already negative cost benefit ratio (see Section III below). The change also leaves the taxpaying public to be stuck with all costs to mitigate the adverse impacts of the Tunnels Project.

BDCP Agencies Should Examine an Instream Water Rights Program. An additional important, yet unexamined, path forward lies in use of a comprehensive, instream water rights program that protects ecosystems and species as a reasonable alternative. If water rights continue to be the legal system by which water is allocated, then a reasonable alternative should reflect the science and ethics of our integration with our environment: legal water rights for waterways must be developed,

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[75] We attach for the BDCPComments@icfi.com addressee a copy of EWC's new *A Sustainable Water Plan for California* (May 2015) as an updated EWC alternative to the BDCP California WaterFix Delta Tunnels. The features of the new plan are similar in pertinent part to the previous Responsible Exports Plan recommendations and features set forth above. We also attach a letter sent by EWC member groups to state and federal officials about alternatives issues this past summer.

[76] RDEIR/SDEIS, Section 1, p. 1-11. The RDEIR/SDEIS refers to the State Water Resources Control Board's memorandum we cited earlier on Delta watershed water rights, and tries to downplay its findings by stating, "However, the hydrology, the SWP and CVP water contracts, and environmental regulations control actual quantities that could be made available for use and diversion."

[77] Cal. Water Code § 85054.

[78] Dr. Jeffrey Michael, *Benefit-Cost Analysis of Delta Water Conveyance Tunnels,* Eberhardt School of Business, University of the Pacific, July 12, 2012.

allocated, and enforced to support water needs for healthy aquatic ecosystems and a healthy California. The alternatives analysis of the Draft EIR/EIS and the new RDEIR/SDEIS should include consideration of this important legal and policy avenue. Alternatives describing "all appropriate methods of accomplishing the aim of the action"[79]—which includes restoration of Delta habitats and species and a reliable water supply for California—must be considered, "including those without the area of the agency's expertise and regulatory control as well as those within it."[80]

Formalizing and effectuating water rights for ecosystems will ensure that waterway and fish needs are considered up front, that planning is effective, and that expectations of implementation and enforcement are clear. California is undertaking various processes now that could set state water policy for decades. These must include consideration of water rights for waterways, to ensure the mutual well-being of the state's people and environment.

Strategies for "finding" water in such an alternative could include: (1) applying the waste and unreasonable use provisions of the state Constitution and California Water Code[81]; (2) increasing fees on diversions to encourage voluntary release of unneeded rights; (3) determining and acting on public trust violations; (4) conducting initiatives to convince existing water rights holders to donate all or a portion of their water rights voluntarily; (5) adjudicating surface and/or groundwater water rights; and (6) other specific approaches to acquiring water rights as appropriate for reassignment to instream flows.[82] If successful, an instream water rights program in California would better ensure that we can meet the water needs of both humans and the environment both now and in the long term.

The RDEIR/SDEIS must meaningfully present and evaluate alternatives that will increase Delta flows in order to comply with NEPA and CEQA. Under NEPA Regulations, "This [alternatives] section is the heart of the environmental impact statement." The alternatives section should "sharply" define the issues and provide a clear basis for choice among options by the decision-

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[79] *Environmental Defense Fund v. Corps of Engineers of United States Army*, 492 F.2d 1123, 1135 (5th Cir. 1974); 40 C.F.R. § 1502.14(c).

[80] *Id.*; 40 C.F.R. § 1502.14(c). Again, "legislative action" (such as that which may be needed to establish a program of instream water rights) "does not automatically justify excluding [the alternative] from an EIS." *City of Sausalito v. O'Neill*, 386 F.3d 1186, 1208 (9th Cir. 2004) (citing *Methow Valley Citizens Council v. Regional Forester*, 833 F.2d 810, 815 (9th Cir. 1987), *overruled* on other grounds by *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332 (1989) (quoting *City of Angoon,* 803 F.2d at 1021); *see also Kilroy v. Ruckelshaus,* 738 F.2d 1448, 1454 (9th Cir.1984) ("In some cases an alternative may be reasonable, and therefore required by NEPA to be discussed in the EIS, even though it requires legislative action to put it into effect").

[81] *See* CA Water Code Water Code § 100; *see also* Article X, Section 2 of the California Constitution.

[82] Oregon's Instream Water Rights Act (IWRA) recognizes a broad array of instream uses as beneficial uses (O.R.S. §§ 537.332 - 537.334 (recognizing that public uses that are valid instream uses include "conservation, maintenance and enhancement of aquatic and fish life, wildlife, fish and wildlife habitat and any other ecological values")). The IWRA converted minimum flow requirements to instream rights under the 1955 Minimum Perennial Streamflow Act to instream water rights. O.R.S. § 537.346. It also established a stream system to convert water rights to instream uses (O.R.S. § 537.348). Not only did the IWRA create instream water rights for waterways throughout Oregon, but it also began to create a "'culture' of flow restoration" in which conservation groups, regional land trusts, state agencies and other became partners for waterway health. See Janet Neuman *et al*., *Sometimes a Great Notion: Oregon's Instream Flow Experiments*, 36 ENVTL. LAW 1125 (2006).

maker and the public.[83] Moreover, if "a draft statement is so inadequate as to preclude meaningful analysis, the agency shall prepare and circulate a revised draft of the appropriate portion. The agency shall make every effort to disclose and discuss at appropriate points in the draft statement all major points of view on the environmental impacts of the alternatives including the proposed action."[84] The EWC's plans and an instream flow variant must be among those alternatives in a recirculated EIR/EIS that helps to disclose, sharpen and clarify the issues.[85]

Reclamation and DWR have failed to produce an alternatives analysis that "sharply" defines the issues and provides a clear basis for choice among options as required by the NEPA Regulations, 40 C.F.R. § 1502.14. The choice presented must include increasing flows by reducing exports, not just reducing flows by increasing the capacity for exports as is called for by ***all*** of the so-called "alternatives" presented in the BDCP Draft Plan, Draft EIR/EIS, and RDEIR/SDEIS. [86]

The failure to include a reasonable range of alternatives also violates CEQA. An EIR must "describe a reasonable range of alternatives to the project . . . which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives."[87] "[T]he discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly."[88] Recirculation of a new Draft EIR/EIS will be required by CEQA Guidelines section 15088.5(a)(3) because the Responsible Exports Plan alternative and other alternatives that would reduce rather than increase exports have not been previously analyzed but must be analyzed as part of a reasonable range of alternatives.

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[83] 40 C.F.R. § 1502.14.

[84] § 1502.9(a).

[85] The EIS alternatives section is to "Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated." § 1502.14(a).

[86] In *California v. Block,* 690 F.2 753, 765-769 (9th Cir. 1982), the project at issue involved allocating to wilderness, non-wilderness or future planning, remaining roadless areas in national forests throughout the United States. The court held that the EIS failed to pass muster under NEPA because of failure to consider the alternative of increasing timber production on federally owned lands currently open to development; and also because of failure to allocate to wilderness a share of the subject acreage "at an intermediate percentage between 34% and 100%." 690 F.2d at 766. Like the situation here where the BDCP agencies claim a trade-off involved between water exports and Delta restoration (RDEIR/SDEIS ES 4-6), the Forest Service program involved "a trade-off between wilderness use and development. This trade-off however, cannot be intelligently made without examining whether it can be softened or eliminated by increasing resource extraction and use from already developed areas." 690 F.2d at 767. Here, likewise, trade-offs cannot be intelligently analyzed without examining whether the impacts of alternatives reducing exports can be softened or eliminated by increasing water conservation, recycling, and eventually retiring drainage-impaired agricultural lands in the areas of the exporters from production. *Accord, Oregon Natural Desert Assn. v. Bureau of Land Management*, 625 F.3d 1092, 1122-1124 (9th Cir. 2010) (EIS uncritical alternatives analysis privileging of one form of use over another violated NEPA). Here, the BDCP alternatives analysis has unlawfully privileged water exports over protection of Delta water quality, water quantity, public trust values, and ESA values.

[87] 14 Code Cal. Regs (CEQA Guidelines) § 15126.6(a).

[88] § 15126.6(b).

In short, the fundamental flaws in the alternatives sections in the BDCP Draft EIR/EIS, Chapter 9 of the BDCP plan and the RDEIR/SDEIS have led to NEPA and CEQA documents "so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded."[89]

Expert Federal and California Agencies have also Found the Current BDCP Alternatives Analysis Deficient. On August 26, 2014, the U.S. Environmental Protection Agency (EPA) issued its 40-page review of the Draft BDCP EIS finding in BDCP's case that:

> operating any of the proposed conveyance facilities . . . would contribute to increased and persistent violations of water quality standards in the Delta, set under the Clean Water Act, measured by electrical conductivity (EC) and chloride concentrations. We recommend that the Supplemental Draft EIS include one or more alternatives that would, instead, facilitate attainment of all water quality standards in the Delta. Specifically, we recommend that an alternative be developed that would, at minimum, not contribute to an increase in the magnitude or frequency of exceedances of water quality objectives, and that would address the need for water availability and greater freshwater flow through the Delta. Such an alternative should result in a decrease in the state and federal water projects' contributions to the exceedance of any water quality objectives in the Delta.[90]

EPA further stated that "Data and other information provided in the Draft EIS indicate that all CM1 [Tunnels project] alternatives may contribute to declining populations of Delta smelt, Longfin smelt, green sturgeon, and winter-run, spring-run, fall-run and late-fall run Chinook salmon."[91] "We recommend that the Supplemental Draft EIS [now the RDEIR/SDEIS] consider measures to insure freshwater flow that can meet the needs of those [declining fish] populations and ecosystem as a whole, and is supported by the best available science. We recommend that this analysis recognize the demonstrated significant correlations between freshwater flow and fish species abundance."[92] "Other reasonable alternatives could be developed by incorporating a suite of measures, including Integrated Water Management, water conservation, levee maintenance, and decreased reliance on the Delta."[93] In addition, EPA concluded that "The Draft EIS does not address how changes in the Delta can affect resources in downstream waters, such as San Francisco Bay, and require changes in upstream operations, which may result in indirect environmental impacts that must also be evaluated. We recommend that the Supplemental Draft EIS include an analysis of upstream and downstream impacts."[94]

On July 29, 2014, the State Water Resources Control Board (SWRCB) issued its review of the Draft BDCP EIS/EIR. The SWRCB declared that the "environmental documentation prepared for the project must disclose the significant effects of the proposed project and identify a reasonable range of interim and long-term alternatives that would reduce or avoid the potential significant

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[89] 40 C.F.R. § 1502.9(a).

[90] Letter of Jared R. Blumenfeld, Regional Administrator, Region IX, USEPA, to Will Stelle, Regional Administrator, West Coast Region, National Marine Fisheries Service, *Draft Environmental Impact Statement for Bay Delta Conservation Plan, San Francisco Bay Delta, California (CEQ# 20130365)*, p. 2.

[91] *Id.*, p. 10.

[92] *Id.*

[93] *Id.* p. 3.

[94] *Id*.

environmental effects."[95] Further, "The justification for this limited range of Delta outflow scenarios is not clear given that there is significant information supporting the need for more Delta outflow for the protection of aquatic resources and the substantial uncertainty that other conservation measures will be effective in reducing the need for Delta outflow. For this reason a broader range of Delta outflows should be considered for the preferred project."[96]

On July 16, 2014, the U.S. Army Corps of Engineers found that: "the EIS/EIR is not sufficient at this time in meeting the Corps' needs under the National Environmental Policy Act (NEPA) . . . in particular with regard to the incomplete description of the proposed actions, alternatives analysis . . . and impacts to waters of the United States and navigable waters, as well as the avoidance and minimization of, and compensatory mitigation for, impacts to waters of the United States."[97] Additional Corps comments include the absence in the EIR/EIS of "an acceptable alternatives analysis"[98], no showing on which alternative may contain the Least Environmentally Damaging Practicable Alternative (LEDPA) for section 404, Clean Water Act purposes[99], "the document needs a clear explanation of a reasonable range of alternatives and a comparison of such, including a concise description of the environmental consequences of each"[100], and "new conveyance was not a part of the preferred alternative for CalFed. Does this EIS/EIR describe why the reasons for rejecting new conveyance in CalFed are no longer valid?"[101]

Finally, Reclamation and DWR had to drop the attempt to deceive the public that the Tunnels Project is part of a habitat conservation plan because of the refusal of U.S Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) scientists to falsely find that the Tunnels Project would not be harmful to endangered species of fish and their habitat. The RDEIR/SDEIS refers to their rejection as "difficulties in assessing species status and issuing assurances over a 50 year period . . ."[102] In fact, federal scientists issued "red flag" warnings that the Tunnels Project threaten the "potential extirpation of mainstem Sacramento River populations of winter-run and spring-run Chinook salmon over the term of the permit" for more than three years.

Reclamation and DWR in their RDEIR/SDEIS have ignored what the EPA, SWRCB, Army Corps, USFWS and NMFS had to say, just as they have ignored the National Academy of Sciences and the EWC for the past four years.

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[95] Letter of Diane Riddle, Environmental Program Manager, State Water Resources Control Board, to Ryan Wulff, National Marine Fisheries Service, *Comments on the Draft Bay Delta Conservation Plan, Draft Environmental Impact Report/Environmental Impact Statement for the Bay Delta Conservation Plan, and the Implementing Agreement for the Bay Delta Conservation Plan*, July 29, 2014, comment 9, pp. 11-12.

[96] *Id.* comment 10 p. 12.

[97] Letter of Colonel Michael J. Farrell, District Commander, US Army Corps of Engineers, to Ryan Wulff, National Marine Fisheries Service, July 16, 2014, p. 1.

[98] *Id.,* comment 4.

[99] *Id.,* comment 5.

[100] *Id.,* comment 19.

[101] *Id.,* comment 22.

[102] RDEIR/SDEIS, Section 1, p. 1-2.

The Tunnels Project is not permissible under the Endangered Species Act.

Section 9 of the Federal Endangered Species Act (ESA) prohibits the take of any listed species.[103] The alternatives considered in the RDEIR/SDEIS do not involve a habitat conservation plan under Section 10, but instead assume the Bureau will lead Section 7 consultation on behalf of DWR and other Tunnels Project proponents in seeking a new biological opinion from the fisheries agencies (NMFS and USFWS). It is our understanding that consultation is already under way, but it is unclear what the Bureau has submitted to qualify as a biological assessment for this process, or at what stage the process is now.[104]

The California Endangered Species Act (CESA) contains similar take prohibitions followed by a path for permitted incidental take of listed species.[105] Regarding state endangered species laws, the RDEIR/SDEIS states only that CDFW would be a responsible agency for determining CESA compliance for the project. The RDEIR/SDEIS fails to state which of the Tunnels Project proponents would apply for this incidental take permit.

EWC objects to the adverse modification of critical habitat for five threatened and endangered fish species, which would occur under the Bay Delta Conservation Plan (BDCP)/California WaterFix/ Tunnels Project.[106]

The Tunnels Project is not a permissible project under the ESA because it would adversely modify critical habitat for at least five endangered and threatened fish species. We previously addressed the failure of the BDCP agencies to develop and consider a reasonable range of alternatives increasing Delta flows by reducing exports in our July 22, 2015 letter to you.

First, the Sacramento River Winter-Run Chinook Salmon is listed as an endangered species under the Endangered Species Act, 16 U.S.C. § 1531 *et seq*. Likewise, the Central Valley Spring-Run Chinook Salmon, Central Valley Steelhead, Southern Distinct Population Segment of North American

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[103] Section 9(a)((1)(B) prohibits anyone subject to the jurisdiction of the United States to "take...any such species within the United States or the territorial sea of the United States". "Take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or to attempt to engage in any such conduct, according to Section 3 of the Endangered Species Act, subsection (19). The act is accessible online at http://www.nmfs.noaa.gov/pr/pdfs/laws/esa.pdf.

[104] US Fish and Wildlife Service and National Marine Fisheries Service, *Endangered Species Consultation Handbook: Procedures for Conducting Consultation and Conference Activities Under Section 7 of the Endangered Species Act*, March 1998, Final. Accessible online at http://www.nmfs.noaa.gov/pr/pdfs/laws/esa_section7_handbook.pdf.

[105] California Fish and Game Code Section 86 defines "take" to mean "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill" a listed species. Section 2080 of the Fish and Game Code prohibits take of listed species, Section 2081(b) authorizes the California Department of Fish and Wildlife to authorize incidental take permits under which incidental take of a listed species is "minimized and fully mitigated, and 2081(c) specifies that no incidental take permit may be issued if its issuance would "jeopardize the continued existence of the species." The California equivalent of a habitat conservation plan is called a "natural community conservation plan" or NCCP. NCCPs are authorized under the state's Natural Community Conservation Planning Act (NCCPA) in California Fish and Game Code Section 2800 *et seq*., provided they meet the statutory standards provided in Section 2820 of the act.

[106] The lead agencies for the project are the federal Bureau of Reclamation and the California Department of Water Resources.

Green Sturgeon, and Delta Smelt, are listed as threatened species under the ESA.[107] ***Second***, the reaches of the Sacramento River, sloughs, and the Delta that would lose significant quantities of freshwater flows through operation of the Tunnels Project are designated critical habitats for each of these five listed endangered and threatened fish species. ***Third***, no Biological Assessment has been prepared and transmitted to the U.S. Fish and Service (USFWS) or National Marine Fisheries Service (NMFS) by Reclamation with respect to the Tunnels Project. ***Fourth***, ESA Section 7 consultations have begun but no Biological Opinion has been completed by the USFWS or NMFS with respect to the effects of the operation of the Tunnels Project on the five federally listed species of fish or their designated critical habitats. ***Fifth,*** because of Reclamation's failure to prepare Biological Assessments and failure to initiate ESA consultation, no "reasonable and prudent alternatives" (RPAs) have been developed or suggested by the USFWS or NMFS to avoid species jeopardy or adverse modification of designated critical habitat.

Approval of the Tunnels Project would violate the substantive prohibitions of Section 7 of the ESA by adversely modifying designated critical habitat as well as by jeopardizing the continued existence of the endangered and threatened fish species.

Approval of the Tunnels Project would violate the procedural requirements of the ESA because Reclamation has not evaluated its proposed action "at the earliest possible time" to determine whether its action may affect listed species or critical habitat and has not entered into formal consultation with USFWS and NMFS.

Approval of the Tunnels Project would violate the procedural requirements of NEPA because the Draft EIR/EIS and RDEIR/SDEIS have not been prepared "concurrently with and integrated with" Biological Assessments and Biological Opinions required by the ESA. Again, the Biological Assessments and Biological Opinions, though required, do not yet exist. These are not deficiencies that can be "fixed" by responses to comments in a Final EIR/EIS. Instead, Reclamation and the Department of Water Resources (DWR) must recirculate another Draft EIR/EIS for public review and comment. The new public Draft NEPA document must also be prepared concurrently with and integrated with the ESA required Biological Assessments, Biological Opinions, and include reasonable and prudent alternatives, developed by the USFWS and NMFS. The required reasonable and prudent alternatives would include alternatives increasing flows through the Delta to San Francisco Bay by reducing exports.

No Quantified Incidental Take Estimates. This year, the Tunnels Project alternatives (2D, 4A and 5A) fail to provide clear, direct analysis and findings of effects on take of listed species, as a result of the Tunnels Project' effects on population abundance, distribution, and critical habitat and whether those effects could result in jeopardy to listed species.

What are the sizes of the population of each covered species involved? What are the locations, status, and alternative effects on their critical habitats in the Bay-Delta Estuary? What are the permissible levels of take for each covered species for each life stage that occurs in the Delta that can be managed by actions organized under BDCP and its conservation strategy? Which alternatives would not appreciably reduce the likelihood and recovery of any of the listed species among those

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[107] Each of these species is listed under the California Endangered Species Act as well, with most of them considered threatened. Bay Delta Conservation Plan, Section 1.4.3, *Covered Species*, Table 1-3, p. 1-24. This table shows that under the California Endangered Species Act, Delta smelt is listed as threatened; however, the BDCP species account for Delta Smelt states that the California Fish and Game Commission elevated delta smelt to the status of endangered on March 4, 2009. (BDCP, Appendix 2A, section 2A.1.2, p. 2A.1-2, lines 21-24.) Longfin smelt is considered threatened, winter-run Chinook salmon is considered endangered, spring-run Chinook salmon threatened, fall- and late fall-run Chinook salmon are considered species of special concern; and green sturgeon (southern DPS) is also considered a species of special concern. Longfin smelt is at this time a candidate species for listing under the federal Endangered Species Act.

that are covered by BDCP? We were unable to locate this vital information in the Bay Delta Conservation Plan.

The Tunnels Project Threatens Jeopardy and Adverse Modification of Designated Critical Habitat of Endangered and Threatened Fish Species in Violation of the ESA. The Sacramento River Winter-Run Chinook Salmon is listed as an endangered species under the ESA.[108] Critical habitat for the species was designated to include the Sacramento River extending from River Mile 0 near the Delta to River Mile 302, which is far north of the proposed BDCP diversion near Clarksburg.[109] The Tunnels Project would divert enormous quantities of freshwater from the Winter-Run Chinook Salmon's designated critical habitat. The four threatened fish species mentioned above would likewise lose enormous quantities of freshwater from their designated critical habitats because of diversion of water resulting from the project.[110]

"The ESA provides 'both substantive and procedural provisions designed to protect endangered species and their habitat.'"[111] Pursuant to the commands of Section 7 of the ESA, each Federal agency "shall . . . insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of [critical] habitat of such species. . . ."[112] "ESA section 7 prohibits a federal agency from taking any action that is 'likely to jeopardize the continued existence' of any listed or threatened species or 'result in the destruction or adverse modification' of those species' critical habitat."[113]

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[108] 50 C.F.R. § 17.11.

[109] 50 C.F.R. § 226.204.

[110] The Central Valley Spring-Run Chinook Salmon is listed as a threatened species under the ESA. 50 CFR § 17.11. Critical habitat for the species was designated to include the Sacramento River from Lat 38.0612, Long -121.7948, near Mile 0, upstream to Elk Slough (38.4140, -121.5212) in Clarksburg, California. 50 C.F.R. § 226.211(k)(5)(i). The Central Valley Steelhead is listed as threatened under the ESA. 50 CFR § 17.11. Critical habitat for the species was designated to include the Sacramento River from Lat 38.0653, Long -121.8418, near Mile 0, upstream to Elk Slough in Clarksburg. 50 CFR § 226.211(l)(5). The Southern Distinct Population Segment of North American Green Sturgeon is listed as threatened under the ESA. 50 CFR § 17.11. Critical habitat for this species is designated to include the Sacramento–San Joaquin Delta including all waterways up to the elevation of mean higher high water within the area defined in California Water Code Section 12220. 50 CFR § 226.219(a)(3). The National Marine Fisheries Service's website provides a map displaying Green Sturgeon critical habitat: <http://www.nmfs.noaa.gov/pr/pdfs/criticalhabitat/greensturgeon.pdf>. The map indicates that the critical habitat includes the Sacramento River from Mile 0 near the Delta to upstream beyond the proposed intake site near Clarksburg. The Delta Smelt is listed as threatened under the ESA. 50 CFR § 17.11. Critical habitat for the species was designated to include "all contiguous waters of the legal Delta." 50 CFR § 17.95–e–Fishes–Part 2. The US Fish and Wildlife Service's website provided a map displaying some of the Delta Smelt's critical habitat: <http://www.fws.gov/sfbaydelta/maps/delta_smelt_critical_habitat_map.pdf>. The map indicates that the Delta Smelt's critical habitat includes the Sacramento River near Mile 0 upstream to the proposed BDCP intake site near Clarksburg.

[111] *San Luis & Delta-Mendota Water Auth. v. Jewell (Jewell),* 747 F.3d 581, 596 (9th Cir. 2014), *cert. denied,* 135 S.Ct. 948 and 950 (2015).

[112] 16 U.S.C. § 1536(a)(2). "Actions" include "actions directly or indirectly causing modification to the land, *water*, or air." 50 C.F.R. § 402.02 (Emphasis added).

[113] *San Luis & Delta- Mendota Water Auth. v. Locke* (*Locke*), 776 F.3d 971, 987 (9th Cir. 2015).

The BDCP itself identifies stressors and threats to each of the five species. Common threats and stressors to the five species include habitat loss due to the operation of water conveyance systems, increasing water temperatures and predation hotspots. By installing gigantic diversion intakes in at least three locations between Clarksburg and Courtland, and by diverting massive amounts of water from the Sacramento River, the Tunnels Project will literally and directly reduce the amount of aquatic habitat available to these five species in their critical habitats. Additionally, the massive diversion will reduce flow in the critical habitat and contribute to a further increase in water temperature. The Effects Analysis chapter (Chapter 5) of the Draft BDCP Plan (November 2013) admits that significant adverse effects could result from the Tunnels Project on the covered fish and their habitat including: "Change in entrainment of fish in water diversions. Change in predation as a result of new structures. Modification of river flow. Change in habitat. Change in food and foraging. Permanent indirect and other indirect losses. Disturbances related to construction and maintenance."[114]

The BDCP identifies key hydrologic and hydrodynamic changes that reduce or adversely modify habitat of these listed fish species. (See below, this section.) These changes will exacerbate threats and stressors already known to affect these fish. Modeling results in the RDEIR/SDEIS reveal that through-Delta survival rates of winter-run, spring-run, and fall-run Chinook salmon all decrease relative to the No Action Alternative from Tunnels Project operation.[115]

Specifically, ***the BDCP identifies reduced habitat due to water storage and water conveyance systems as a stressor and threat to Winter- Run Chinook Salmon.***[116] There will be adverse effects on juvenile winter-run Chinook salmon including near-field (contact with screens and aggregation of predators) and far-field (reduced downstream flows[117], reduced Sacramento River attraction flows for migrating adult winter-run Chinook salmon[118], possible reduction of survival of juvenile winter-run Chinook salmon during downstream migration and possible negative effect on upstream migration of adult winter-run Chinook salmon by changing attraction flows/olfactory cues.[119] The BDCP also admits that "A potential adverse effect of the BDCP on adult winter-run Chinook salmon will be the reduction in flow downstream of the north Delta diversions on the Sacramento River, reducing river flow below the north Delta intakes."[120] The reduced outflow along with the possible change in olfactory signals due to change in the flow mixture "could affect upstream migration."[121] The RDEIR/SDEIS states: "when compared to the CEQA baseline, [Alternative 4A], including climate change, would substantially reduce the quantity and quality of spawning and egg incubation habitat for winter-run Chinook salmon relative to existing conditions."[122] The BDCP likewise identifies

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[114] Bay Delta Conservation Plan, Chapter 5, pp. 2-13.

[115] RDEIR/SDEIS, Chapter 11, Tables 11-4A-23, -51, and -74.

[116] BDCP EIR-EIS Administrative Draft, p. 11A-47 (March 2013).

[117] Bay Delta Conservation Plan, Chapter 5, p. 5.3-23; RDEIR/SDEIS p. 4.3.7-48.

[118] Bay Delta Conservation Plan, Chapter 5, p. 5.3-29.

[119] Bay Delta Conservation Plan, Chapter 5, p. 5.3-32.

[120] Bay Delta Conservation Plan, Chapter 5, p. 5. 3-45; BDCP Appendix 5C, Tables C.A-41 and C.A-42; RDEIR/SDEIS, Section 4.3, Figures 4.3.2-7 and 4.3.2-8.

[121] *Id*.

[122] RDEIR/SDEIS, Section 4.3, p. 4.3.7-58.

similar threats and stressors to the Spring-Run Chinook Salmon, Steelhead, Green Sturgeon, and Delta Smelt that would result from the Tunnels Project.

The BDCP identifies several threats and stressors to the Central Valley Spring-Run Chinook Salmon, which include flow reductions causing increased water temperature and habitat elimination or degradation due to water conveyance systems.[123] The BDCP Plan admits that adverse effects of the proposed north Delta diversions on juvenile Spring-Run Chinook Salmon include near-field (physical contact with the screens and aggregation of predators) and far-field (reduced downstream flows).[124] "Plan Area flows have considerable importance for downstream migrating juvenile salmonids and will be affected by the proposed north Delta diversions . . . Because of the north Delta diversions, salmonids migrating down the Sacramento River generally will experience lower migration flows compared to existing conditions. . . As with winter-run Chinook salmon, it was assumed with high certainty that Plan Area flows have critical importance for migrating juvenile spring-run Chinook salmon."[125] Other admitted adverse effects caused by operations of the north Delta diversions include reduced attraction flows in the Sacramento River for migrating adult spring-run Chinook salmon.[126] "Lower river flow downstream of the north Delta intakes under the BDCP may reduce survival of juvenile spring-run Chinook salmon during downstream migration along the Sacramento River and also could negatively affect upstream migration of adult spring-run Chinook salmon by changing attraction flows/olfactory cues."[127] The RDEIR/SDEIS again delivers bleak prospects for the survival of this federally-protected species: "Under Alternative 4A (including climate change effects), there are flow and storage reductions, as well as temperature increases in the Sacramento River that would lead to biologically meaningful increases in egg mortality rates and overall reduced habitat conditions for spawning spring-run and egg incubation."[128]

The BDCP states that threats and stressors to the Steelhead include water storage and conveyance systems as well as flow reductions contributing to increased water temperatures.[129] The Plan admits near-field (physical contact with the screens and aggregation of predators) and far-field (reduced downstream flows leading to greater probability of predation) effects of the north Delta diversions on juvenile Sacramento River Region Steelhead.[130] The plan also admits that "Sacramento River attraction flows for migrating adult Sacramento River region steelhead will be lower from operations of the north Delta diversions under the BDCP."[131] The Plan admits that respect to the Feather River, "the reduction in flows in the high-flow channel due to

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[123] BDCP EIR-EIS Administrative Draft, p. 11A-83, 11A-76 (March 2013).

[124] Bay Delta Conservation Plan, Chapter 5, p. 5. 4-16; see also RDEIR/SDEIS, Section 4.3, p. 4.3.7-79, lines 15-17.

[125] Bay Delta Conservation Plan, Chapter 5, p. 5. 4-17; BDCP Appendix 5C, Tables C.A-41 and C.A-42; see also RDEIR/SDEIS, Section 4.3, Figures 4.3.2-7 and 4.3.2-8.

[126] Bay Delta Conservation Plan, Chapter 5, p. 5. 4-19.

[127] Bay Delta Conservation Plan, Chapter 5, p. 5. 4-20.

[128] RDEIR/SDEIS, Section 4.3, p. 4.3.7-98.

[129] BDCP EIR-EIS Administrative Draft, p. 11A-129, 11A-133 (March 2013).

[130] Plan, Chapter 5, 5. 6-11; see also RDEIR/SDEIS, p. 4.3.7-199, lines 1-6.

[131] Plan, Chapter 5, 5. 6-13; BDCP Appendix 5C, Tables C.A-41 and C.A-42; see also RDEIR/SDEIS, Section 4.3, Figures 4.3.2-7 and 4.3.2-8.

BDCP would reduce conditions in an already unsuitable habitat."[132] The RDEIR/SDEIS states: "In general, Alternative 4A would degrade the quantity and quality of rearing habitat for steelhead relative to Existing Conditions."[133]

The BDCP identifies increased water temperatures and habitat loss as threats and stressors to the Green Sturgeon.[134] With respect to admitted adverse effects, the Plan admits that flow changes will reduce transport and migration flows in the Feather River and Plan area.[135] "As such [reduction in early fall releases], average in stream flows during some months of the three periods identified above (June-September, August-October, August-June) are expected to substantially decline in the Feather River at Thermalito and moderately decline in the Sacramento River at Verona under the BDCP, especially for the LOS [low-outflow scenario] (Appendix 5.C, flow, passage, salinity, and turbidity, section 5.C.5.3.3, High Outflow and Low Outflow Scenarios)."[136] Also, the plan admits that "there is [on the Feather River] the potential for appreciable change in the Feather River as a result of operational differences between the BDCP scenarios and future conditions without the BDCP (EBC2_LLT)."[137] The RDEIR/SDEIS states: "In general, Alternative 4A would reduce the quantity and quality of rearing habitat for larval and juvenile green sturgeon relative to Existing Conditions."[138]

The BDCP identifies several threats and stressors to the Delta Smelt, including water exports and increased water temperature.[139] Admitted adverse effects caused by the BDCP north Delta intakes include reducing the quantity of sediment entering the Plan Area thus increasing water clarity and negatively affecting delta smelt.[140] Greater water residence time from changes in water operations will likely increase the toxic blue-green alga *Microcystis* having both direct and indirect effects on the smelt.[141] North Delta intakes' operations will introduce and increase entrainment and impingement of Delta smelt as well as introduce and increase predation hotspots in and around the new intakes.[142]

In 2013, NMFS reiterated its previous "Red Flag" comment that the Tunnels Project threatens the "potential extirpation of mainstem Sacramento River Populations of winter-run and spring-run Chinook salmon over the term of the permit . . . ."[143] The U.S. Environmental Protection Agency

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[132] Plan, Chapter 5, pp. 6-16.

[133] RDEIR/SDEIS, Section 4.3, p. 4.3.7-22.

[134] BDCP EIR-EIS Administrative Draft, 11A-162–165 (March 2013).

[135] Plan, Chapter 5. pp. 8-17 through 8-24.

[136] Plan, Chapter 5. 5. p. 8-18.

[137] Plan, Chapter 5, 5. p. 8-24.

[138] RDEIR/SDEIS, Section 4.3, p. 4.3.7-296.

[139] BDCP EIR-EIS Administrative Draft, p. 11A-8–11 (March 2013).

[140] Plan, Chapter 5, p. 5. 1-30; see also RDEIR/SDEIS, Section 4.3, p. 4.3.7-26, 4.3.7-29.

[141] Plan, Chapter 5, p. 5. 1-32; BDCP, Appendix 5C, p. 5.4-14; RDEIR/SDEIS, Chapter 8, Table 8-60a.

[142] RDEIR/SDEIS, Section 4.3, p. 4.3.7-24, lines 4-7.

[143] NMFS Progress Assessment and Remaining Issues Regarding the Administrative Draft BDCP Document, Section 1.17, 12, April 4, 2013.

(EPA) has called for alternatives addressing "the need for water availability and greater freshwater flow through the Delta."[144] Likewise, the Army Corps of Engineers, State Water Resources Control Board, and USFWS scientists also raised concerns regarding the BDCP's impacts on water quality and impacts to endangered and threatened species.[145]

However, comments from other federal agencies were ignored. In April 2015, the claimed habitat conservation elements of the BDCP have been dropped or drastically pared back in the switch from the BDCP to the "California WaterFix." As just one example, the plan to provide "*65,000 acres* of tidal wetland restoration" has been eviscerated to merely "*59 acres* of tidal wetland restoration."[146] Consequently, the current Tunnels Project is *even more of a threat* to fish species and their habitat compared to the previous version that resulted in the concerns raised then by the EPA, Army Corps of Engineers, State Water Resources Control Board, and NMFS and USFWS scientists.

"The goal of the ESA is not just to ensure survival but to ensure that the species recover to the point it can be delisted."[147] Pursuant to the commands of the ESA, each Federal agency "shall. . . insure that any action authorized, funded, or carried out by such agency. . . is not likely to jeopardize the continued existence of any endangered or threatened species *or result in the destruction or adverse modification of [critical] habitat of such species* . . . ."[148] "[T]he purpose of establishing 'critical habitat' is for the government to carve out territory that is not only necessary to the species' survival but also essential for the species' recovery."[149] Also, "existing or potential conservation measures outside of the critical habitat cannot properly be a substitute for the maintenance of critical habitat that is required by Section 7 [of the ESA, 16 U.S.C § 1536]."[150]

Taking the fresh water flows and safe refuge away from endangered and threatened fish species would neither insure their survival nor insure their recovery and delisting. On-the-ground habitat restoration is not a lawful substitute under the ESA for maintaining existing critical habitat of and in the waters of the Sacramento River, sloughs, and Delta. The reduction of water and flows, increased residence times of water, and increased water temperature are adverse modifications of their critical habitat. Approval of the BDCP would violate the ESA. The Tunnels Project is thus not permissible under the ESA.[151]

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[144] EPA Letter, August 26, 2014, p. 2.

[145] We briefly summarized some of these agencies comments in our July 22, 2015 letter (at pp. 8-10) to you.

[146] RDEIR/SDEIS, Executive Summary, p. ES–17. Emphasis added.

[147] *Alaska v. Lubchenko,* 723 F.3d 1043, 1054 (9th Cir. 2013), citing *Gifford Pinchot Task Force v. U.S. Fish and Wildlife Service,* 378 F.3d 1059, 1070 (9th Cir. 2004).

[148] 16 U.S.C. § 1536(a)(2). Emphasis added.

[149] *Gifford Pinchot,* 378 F.3d 1059, 1070.

[150] *Gifford Pinchot,* 378 F.3d 1059, 1076.

[151] We have brought the impermissibility of the Tunnels Project given the substantive prohibitions of the ESA and the related procedural ESA and NEPA violations to the attention of Reclamation and DWR on numerous occasions for more than two years now. These prior communications include the FOR letters of June 4, September 25 and November 18, 2013, January 14, March 6, May 21, and July 29 (including pp. 10-11), 2014, EWC letter of June 11, 2014 (including pp. 29-30) and our recent joint letters of July 16 (requesting an extension of time to comment), and July 22 (alternatives), 2015. We also addressed these issues in our meeting with federal agency representatives in Sacramento on November 7, 2013.

Reclamation is Presently Violating both NEPA and ESA Procedure by Failing to Issue a Draft EIR/EIS Concurrently with and Integrated with ESA Required Biological Assessments and Biological Opinions. Fortunately, the ESA obligates federal agencies "to afford first priority to the declared national policy of saving endangered species."[152] Despite that, Reclamation has failed to prepare a Biological Assessment pertaining to its action and has failed to initiate consultation with USFWS and NMFS even though Biological Assessment preparation and initiation of consultation are required by the ESA.[153] The RDEIR/SDEIS concedes that "formal consultation under ESA Section 7" will be necessary.[154]

Section 7 of the ESA (16 U.S.C. § 1536(a)(4) requires that "Should the agency find that its proposed action *may* affect a listed species or critical habitat, it must formally or informally consult with the Secretary of the Interior, or his or her delegee [USFWS and/or NMFS]."[155] "Formal consultation is required when the acting agency or consulting agency determines that the proposed action is *likely* to adversely affect a listed species or critical habitat.[156] Formal consultation requires the consulting agency . . , to issue a biological opinion stating whether the proposed action is likely to jeopardize such species or habitat."[157]

ESA Regulations (50 C.F.R. § 402.14(a)) require that "Each Federal agency shall review its actions *at the earliest possible time* to determine whether any action may affect listed species or critical habitat. If such a determination is made, formal consultation is required. . . ."[158] The Ninth Circuit Court of Appeals has repeatedly held that: "Any possible effect, whether beneficial, benign, adverse or of an undetermined character, triggers the formal consultation requirement."[159]

Even ardent advocates for the Tunnels Project who prepared the 48,000 pages of BDCP and Tunnels Project documents do not contend that taking large quantities of water away from the Sacramento River, sloughs, and Delta will not have "any possible effect, whether beneficial, benign, adverse or of an undetermined character" on the endangered and threatened fish species or their habitat. Not surprisingly, no preposterous claim of "no possible effect" is made in the Draft EIR/EIS or RDEIR/SDEIS. But instead of reviewing the proposed Tunnels Project at the earliest possible time, Reclamation delays ESA review until some unspecified and unacknowledged future time.

NEPA regulations require that "To the fullest extent possible, agencies shall prepare draft environmental impact statements concurrently with and integrated with environmental impact

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[152] *Tennessee Valley Authority v. Hill,* 437 U.S. 153, 185 (1978).

[153] See RDEIR/SDEIS, Chapter 1, p. 1-15 (under "Section 7 of the Endangered Species Act").

[154] *Id.*

[155] *Jewell,* 747 F.3d 581, 596. Emphasis in decision.

[156] 50 C.F.R. §§ 402.13, 402.14.

[157] 16 U.S.C. § 1536(b); 50 C.F.R. § 402.14.

[158] *Karuk Tribe of California v. U.S. Forest Service,* 681 F.3d 1006, 1020 (9th Cir. 2012) (en banc)(emphasis added), *cert. denied,* 133 S.Ct. 1579 (2013).

[159] *Western Watersheds Project v. Kraayenbrink*, 620 F.3d 1187, 1210 (9th Cir. 2010). *Accord, Karuk Tribe,* 681 F.3d 1006, 1027; *Cal. ex rel. Lockyer v. U.S. Dep't of Agric.,* 575 F.3d 999, 1018 (9th Cir. 2009).

analyses and related surveys and studies required by the. . . Endangered Species Act. . . ."[160] "The [ESA] regulations also acknowledge that the agencies are expected to concurrently comply with both Section 7 of the ESA and NEPA.[161] Consequently, against this threat of extinction, conducting the draft EIS public review and comment stage without Biological Assessments or Biological Opinions leaves the public in the dark and violates both the ESA and NEPA. In the absence of the ESA required analyses, the draft EIS/EIR is "so inadequate as to preclude meaningful analysis" in violation of NEPA.[162]

Reclamation has violated the "at the earliest possible time" ESA mandate and the "concurrently with and integrated with" NEPA mandate by prematurely issuing the Draft EIR/EIS and now the REDIR/ SDEIS attempting to hide from the reviewing public the critical pertinent information and analyses that would be supplied by the missing Biological Assessments and Biological Opinions. New upstream diversions of large quantities of water from the Sacramento River will undeniably "affect" the listed fish species and their critical habitats.

The public now has what it does not need: unsupported advocacy from the consultants speculating that the adverse effects will be offset or that the effects will not really be all that adverse. ***The public does not have what it does need:*** the federal agency Biological Assessments and Biological Opinions required by the ESA and NEPA.[163]

Evasion of ESA obligations by Reclamation is both extreme and deliberate. Reclamation has on August 26, 2015, joined with DWR in submitting a change petition to the State Water Resources Control Board to add three new points of diversion and rediversion to state and federal water right permits for the Tunnels Project. The change petition recites that "The proposed project reflects the culmination of a multiyear planning process that began in 2006 . ."[164] The passage of nine years without a biological opinion for the Tunnels Project makes a mockery of the ESA requirement to commence ESA review "at the earliest possible time." Because of the absence of the ESA-required Biological Assessments and Biological Opinions, Reclamation feels free to make the demonstrably false representation in the petition that "The California WaterFix would result in substantially improved conditions in the Delta for endangered and threatened species and afford greater water supply reliability for the state."[165]

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[160] 40 C.F.R. § 1502.25(a).

[161] *See* 50 C.F.R. § 402.06 ('Consultation, conference, and biological assessment procedures under section 7 may be consolidated with interagency cooperation procedures required by other statutes, such as the National Environmental Policy Act (NEPA).')." *Jewell*, 747 F.3d 581, 648. "ESA compliance is not optional," and "an agency may not take actions that will tip a species from a state of precarious survival into a state of likely extinction." *Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.,* 524 F.3d 917, 929-30 (9th Cir. 2008).

[162] 40 C.F.R. § 1502.9(a). The CEQA rule is the same. Recirculation is required where feasible project alternatives were not included in the Draft EIR. CEQA Guidelines, 14 Cal. Code Regs., § 15088.5(a), or when "The draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded." CEQA Guidelines, § 15088.5(a)(4).

[163] "The ESA requires an agency to use 'the best scientific and commercial data available' when formulating a BiOp." *Locke,* 776 F.3d 971, 995. "The purpose of the best available science standard is to prevent an agency from basing its action on speculation and surmise." *Locke*, 776 F.3d at 995.

[164] Petition cover letter, p. 1.

[165] Petition cover letter, p. 2.

Red flag comments and the Record so far have made it clear that there is at minimum significant uncertainty about whether the Tunnels Project is even permissible under the ESA. This critical issue cannot be resolved until the Biological Assessments and Opinions have been completed. Reclamation has not obtained the determination pursuant to ESA-required consultation whether the RDEIR/SDEIS "preferred alternative"—the Tunnels Project—is even lawful or feasible.

Against this threat of extinction from known stressors and negative effects on the critical habitat, conducting the NEPA environmental draft process prior to and in a vacuum from the ESA consultation process violates the ESA command to carry out the ESA process "at the earliest possible time" and violates the NEPA command to conduct the NEPA and ESA processes "concurrently" and in an "integrated" manner. This also constitutes unlawful piece-mealing or segmenting of the NEPA process from the ESA required analyses of the jeopardy and habitat threats posed by the proposed Tunnels Project.

Reclamation is Proceeding in the Absence of the "Reasonable and Prudent Alternatives" that Must be Developed and Identified pursuant to the ESA. Reclamation and DWR have ignored repeated warnings and suggestions made to them over the years by public agencies including the EPA, U.S. Army Corps of Engineers, and State Water Resources Control Board, by the National Academy of Sciences and by the Environmental Water Caucus (EWC) of the failure of the BDCP documents including the Draft EIR/EIS and the new RDEIR/SDEIS to include a reasonable range of alternatives increasing freshwater flows through the Delta by reducing exports and not including new upstream conveyance.[166]

Beyond ignoring the NEPA alternatives mandate, expert government agencies, the Academy and the EWC, Reclamation is also ignoring the crystal clear prohibitions and mandates of the ESA and NEPA. The previous section set forth the procedural ESA requirements for consultation "at the earliest possible time" and the procedural NEPA requirements for the NEPA Draft EIS to be prepared "concurrently with and integrated with" the analyses required by the ESA.

There is more. Under Section 7 of the ESA, 16 U.S.C. § 1536(b)(3)(A), after consultation "If it appears that an action may affect an endangered or threatened species, the consulting agency must provide a biological opinion to the action agency explaining how the action 'affects the species or its critical habitat.' *Id.* § 1536(b)(3)(A). When a biological opinion concludes that the action is likely to jeopardize an endangered or threatened species, or adversely modify its habitat, then the consulting agency must suggest 'reasonable and prudent alternatives [RPA].' *Id.*"[167] The consulting agency "in the course of proposing an RPA, must insure that the RPA does not jeopardize the species or its habitat."[168]

EWC member groups wrote to state and federal officials that Reclamation and DWR had to drop the attempt to sell the Tunnels Project as part of a habitat conservation plan.[169] The USFWS and NMFS scientists were unwilling to find falsely that the Tunnels Project would not be harmful to endangered species of fish and their habitat. The RDEIR/SDEIS euphemizes this as "difficulties in

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[166] Letter of EWC member groups to state and federal officials, July 22, 2015. Accessible at http://restorethedelta.org/wp-content/uploads/2015/09/7-22-15-BDCP-alts-ltr-pdf.pdf.

[167] *Cottonwood Envtl. Law Ctr. v. U.S. Forest Serv.,* 789 F.3d 1075, 1085 (9th Cir. 2015). *Accord, Jewell*, 747 F.3d 581, 596; *Locke*, 776 F.3d 971, 988.

[168] *Jewell,* 747 F.3d 581, 636.

[169] *Id.*, p. 10.

assessing species status and issuing assurances over a 50 year period . . ."[170] In fact, for more than three years, federal scientists have issued "Red Flag" warnings that the Tunnels Project threaten the "potential extirpation of mainstem Sacramento River populations of winter-run and spring-run Chinook salmon over the term of the permit," contrary to publicity claims made for the project.

At this time, the Draft EIR/EIS and RDEIR/SDEIS alternatives and alternatives analyses are of no value whatsoever to either decision-makers or the public. This appears to be a deliberate effort on the part of Reclamation and DWR to evade the solemn legal obligation to develop in a Draft EIR/EIS for public review and comment a reasonable range of alternatives including ones that would increase freshwater flows through the Delta by reducing exports and that would not include new upstream conveyance. A central feature of this intentional violation of procedural requirements is premature issuance by Reclamation of the Draft EIR/EIS and RDEIR/SDEIS on the one hand, while with the other hand, Reclamation has deliberately failed to prepare a timely Biological Assessment and initiate formal ESA consultation with USFWS and NMFS.[171]

Other Ecological Issues. The Bay Delta Conservation Plan fails to provide adequate assurances that its biological goals and objectives will be implemented and used to hold the Applicants accountable for making progress towards recovery of listed species and minimizing incidental take, as well as compliance with the terms of the implementing agreement and incidental take permit terms.

Last year, the BDCP failed to provide adequate assurances that its Section 10-based biological goals and objectives will be implemented.[172] This year, the Tunnels Project alternatives of the RDEIR/SDEIS, having removed Section 10 habitat conservation plan obligations, will leave the biological ecological issues we identified completely unaddressed.

In the absence of any biological opinions for listed species for both the Bay Delta Conservation Plan and the 2015 Tunnels Project alternatives the full scope of the alternatives and their necessary mitigations are unknown, and therefore the description of alternatives is incomplete. This renders the RDEIR/SDEIS inadequate, and must be recirculated once the biological opinions as to both jeopardy of listed species and reasonable and prudent alternatives are known.

Also, California EcoRestore is supposed to take up some of the ecological and habitat restoration functions from BDCP relative to the 2015 Tunnels Project alternatives. But this too goes unaddressed in the RDEIR/SDEIS. It should be addressed in Cumulative Impacts, but is not. California EcoRestore's role in the RDEIR/SDEIS is highly ambiguous. As a cumulative project (that is, one that is reasonably foreseeable), then omission of its analysis from the RDEIR/SDEIS renders the latter document premature and inadequate to the task assigned it under CEQA and NEPA.

There is also gaping ambiguity on the relationship of California EcoRestore to the eventual content of Section 7 biological opinions for listed Delta smelt and salmonids. In BDCP, this ambiguity was at least partially addressed by the Decision Tree hypotheses last year. This year, vastly reduced restoration is expected, and limited to requirements already imposed by the existing 2008 and 2009 biological opinions, according to the RDEIR/SDEIS.

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[170] RDEIR/SDEIS, Section 1, pp. 1-2.

[171] The same is true for DWR and Bureau of Reclamation filing applications for 401 certification and changes to points of diversion of state and federal water project water right permits with the State Water Resources Control Board, and for dredge and fill permit (Section 404) with the US Army Corps of Engineers.

[172] EWC Comment Letter, June 11, 2014, pp. 38-44.

Flawed Habitat Restoration Hypothesis for Increasing Food Web Productivity. The Tunnels Project alternatives this year withdraw from any pretense of additional habitat restoration beyond that already required of the DWR and Bureau. What becomes of actions, such as increased flow and other possible management strategies, to address nonnative invasive clams (particularly *Potamocorbula*), as we discussed last year, is gapingly ambiguous. Hopefully, it will at least be addressed in the new Section 7 biological opinions, but these are as yet unavailable. The extent to which the biological opinions will address last year's "habitat for flow" hypothesis (which we characterized then as "magical thinking") remains unknown at this time, another omission rendering the RDEIR/SDEIS inadequate. Without the biological opinions, the supposed "environmental commitments" are wishes and prayers at this time, since vettings by the NMFS and USFWS and California Department of Fish and Wildlife are not completed.

Freshwater flow expands native fishes' critical habitat in and through the Delta. ***And*** it pushes the nonnative *Potamocorbula* westward, putting greater distance between its range and the presence of pelagic food webs and nutrients in Suisun Bay and the western Delta used by native estuarine species and juvenile and smolting salmon migrating to sea.[173]

The Tunnels Project alternatives continue to fail to prevent jeopardy to listed fish species under the Endangered Species Acts. Tunnels Project incidental take permissions should be rejected by the state and federal fishery agencies.

Clean Water Act Violations

The Tunnels Project will violate water quality standards for flow and other parameters, preventing necessary Clean Water Act Section 401 certification. The California Department of Water Resources and the United States Bureau of Reclamation filed an application for a CWA Section 404 dredge and fill permit with the US Army Corps of Engineers on August 24, 2015, and they filed an application for a 401 certification on September 23, 2015 with the State Water Resources Control Board (SWRCB).[174] The 404 permit will be needed from the Army Corps of Engineers because construction of the Tunnels Project will result in discharges of dredge or fill material into waters of the United States.[175] Section 401 requires that the SWRCB certify that the Corps' Section 404 permit meets CWA requirements before the permit may be legally issued.[176] State and federal

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[173] *Id.*, pp. 41-42.

[174] Accessed September 15, 2015, at http://www.spk.usace.army.mil/Media/RegulatoryPublicNotices/tabid/1035/Article/616568/spk-2008-00861-california-waterfix-project.aspx.

[175] "Many of the actions that will be implemented under the Tunnels Project will result in the discharge of dredged or fill materials into waters of the United States and will need to be authorized by USACE."Public Draft Plan § 1.3.7.1 (Nov. 2013), available at: http://baydeltaconservationplan.com/Libraries/Dynamic_Document_Library/Public_Draft_BDCP_Chapter_1_-_Introduction.sflb.ashx. This is no less true of intake construction of the "California WaterFix" version (Alternative 4A) of the Tunnels Project.

[176] "No license or permit shall be granted until the certification required by this section has been obtained or has been waived as provided in the preceding sentence. No license or permit shall be granted if certification has been denied by the State, interstate agency, or theAdministrator, as the case may be." 33 U.S.C. § 1341(a)(1).

agencies have long recognized the importance of this requirement, meeting several times to discuss it in the context of the preparation of the Tunnels Project EIR/EIS.[177]

In the Administrative Draft of the Bay Delta Conservation Plan issued in March 2013, the conservation strategy announced: "*The BDCP will fundamentally alter the hydrodynamics of the Delta.*"[178] This sentence has since been toned down to read, "The BDCP will modify the hydrodynamics (i.e., tidal flows) in the Delta channels," but the original formulation is truer.[179] Overall, says BDCP, east to west flows will increase; the frequency and magnitude of reverse flows in Old and Middle River will decrease because of reduced south Delta pumping in most water year types. In the north Delta, flow patterns will "change" from increased diversions to Yolo Bypass with the proposed modifications to Fremont Weir. BDCP states:

> These changes in flow patterns in the north Delta present ecosystem-level tradeoffs between habitat in the Yolo Bypass and the Sacramento River during the winter-spring migration period, resulting in both positive and negative effects on the migration and passage of fish through and within the Delta...[180]

This year, the Tunnels Project, freed from habitat and ecosystem restoration encumbrances, is touted to accomplish what BDCP apparently could not:

> The ecological problems with the current system could be greatly reduced by the construction and use of new north Delta intake structures with state-of-the-art fish screens.[181]

> Although Alternatives 4A, 2D, and 5A comprise only the conveyance facilities and operations that formerly constituted [Conservation Measure 1] under BDCP alternatives, and no longer include habitat restoration beyond what is needed to provide full mitigation under CEQA and NEPA, habitat restoration is still recognized as a critical component of the state's long-term plans for the Delta. Habitat restoration in the Delta beyond these alternatives' mitigation requirements will occur separately through implementation of California EcoRestore, and these activities will be further developed and evaluated independent of the water conveyance facilities.[182]

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[177] As reflected by U.S. EPA in its comments on these discussions: "[a]lthough there is no statutory requirement that the NEPA document prepared for an HCP under the Endangered Species Act be used as the basis for permits and certifications required under CWA §404 to authorize and implement the project, EPA recognizes the importance of coordination in federal review. Toward this end, EPA and the Corps have met with the project proponent on numerous occasions over the past several years in the interest of using the BDCP EIS/EIR to inform the Corps' 404 regulatory decisions. Despite these efforts, significant unresolved issues remain about the scope of analysis for the proposed project, the level of detail required to trigger the consultation process and federal permitting, and the structure of a comprehensive permitting framework for the proposed project." U.S. EPA, "EPA's Comments on BDCP ADEIS," p. 6 (July 03, 2013), available at: www2.epa.gov/sites/production/files/documents/july3-2013-epa-comments-bdcp-adeis.pdf.

[178] Administrative Draft of the Bay Delta Conservation Plan, March 2013, Chapter 5, *Effects Analysis*, p. 5.3-2, line 23. Emphasis added.

[179] Bay Delta Conservation Plan, November 2013, Chapter 5, *Effects Analysis*, p. 5.3-2, line 23.

[180] *Ibid.*, p. 5.3-2, lines 34-37.

[181] RDEIR/SDEIS, Executive Summary, p. ES-2, lines 1-2.

[182] RDEIR/SDEIS, Executive Summary, p. ES-8.

These stated rationales attributing ecological and biological benefits to fish from the Tunnels Project ***are, like last year's BDCP Conservation Measure 1, still claptrap.*** On one hand, the Tunnels Project will increase exports and the Delta's loss of outflow at the same time, both wet and above normal years.[183] (Moreover, in drought years, the Bureau and the Department typically petition the State Water Board to have Delta water quality objectives waived, and the Board grants this request. There is little reason to believe the Tunnels Project would change the outcome.)

The project reduces Delta freshwater flow conditions in violation of CWA requirements to fully protect the most sensitive beneficial uses. The inadequate flow proposals of the Tunnels Project EIR/EIS alternatives will ensure that its implementation trips over mandatory compliance with the CWA. Flow regimes that fully protect Delta ecosystems and aquatic species are necessary to avoid this result.

CWA regulations dictate that adopted criteria must protect the "most sensitive" beneficial use.[184] The SWRCB's August 2010 flow criteria report used science to identify the *minimum* amount of unimpaired flow that would protect Delta fish species and habitats. That report thus reflects flows needed to comply with CWA mandates. A new Bay-Delta Plan adopting the Tunnels Project's proposed flow regimes would fall significantly short of this benchmark, and thereby would fail to protect the most sensitive beneficial uses as required by the CWA.

Instead of improving flow conditions in the Delta, the Tunnels Project will actually *increase* average exports[185] and *reduce* already inadequate Delta outflow in many months. Specifically, on average for February through June, the Tunnels Project would *decrease* Delta outflow by about 1,000 cubic feet per second and also *decrease* the median Delta outflow by about 2,000 cfs.[186] For the period of January through June (the time period during which the August 2010 Flow Criteria from the SWRCB called for an increase of outflow to 75 percent of unimpaired Delta outflow), the BDCP *decreases* outflow. Tunnels Project modeling (Figure 1) shows that long-term monthly average Sacramento River flows below the north Delta intake diversions would *decrease* between 6 to 38 percent from current and future flows without the Tunnels project, and in wet years river flows would decrease between 7 and 42 percent (Tables 3 and 4). Overall, monthly lower Sacramento River flows are projected by "California WaterFix" to decrease between 20 and 24 percent, and flows in the Sacramento River at Rio Vista are expected to decrease significantly (Figures 2 and 3).[187]

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[183] We take up the matter of BDCP's unacknowledged purpose of expanding opportunities for cross-Delta water market transfers in Section VI of this comment letter.

[184] 40 CFR § 131.11 ("For waters with multiple use designations, the criteria shall support the most sensitive use"); see also 40 CFR §131.6.

[185] *See* Public Draft Plan, App. 5B, Fig. 5.B.4-4, available at: http://baydeltaconservationplan.com/Libraries/Dynamic_Document_Library/Public_Draft_BDCP_EIREIS_Appendix_5B_-_Responses_to_Reduced_South_of_Delta_Water_Supplies.sflb.ashx. See also BDCP/California WaterFix, RDEIR/SDEIS, 2015, Section 4.3.1, Figures 4.3.1-15, -16, -18, -19, -20, and -21.

[186] *See* Public Draft Plan, App. 5C, Attachment 5.C.A, Table C.A-41, available at: http://baydeltaconservationplan.com/Libraries/Dynamic_Document_Library/Public_Draft_BDCP_Appendix_5C_-_Part_5_-_Flow_Passage_Salinity_and_Turbidity.sflb.ashx.

[187] Estimates derived by Restore the Delta from graphical analysis interpolating data in Figures 4.3.2-7 and 4.3.2-8 from the Recirculated Draft EIR/EIS, Section 4.3.

Figure 1
Sacramento River Flow Downstream of North Delta Intakes for Alternative 4A, Long-Term and Wet Year Averages

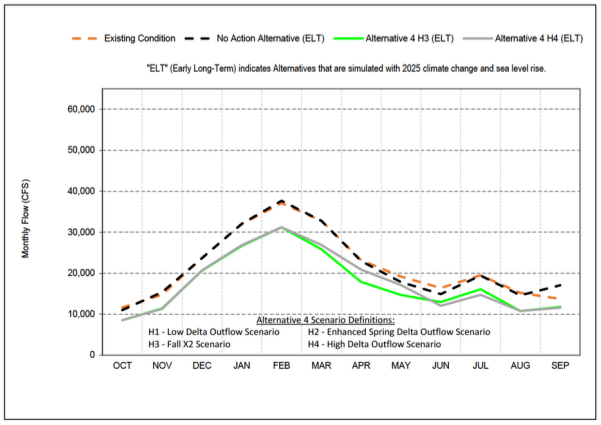

Figure 4.3.2-8
Sacramento River Flow downstream of North Delta Intakes for Alternative 4A, Long-Term Average

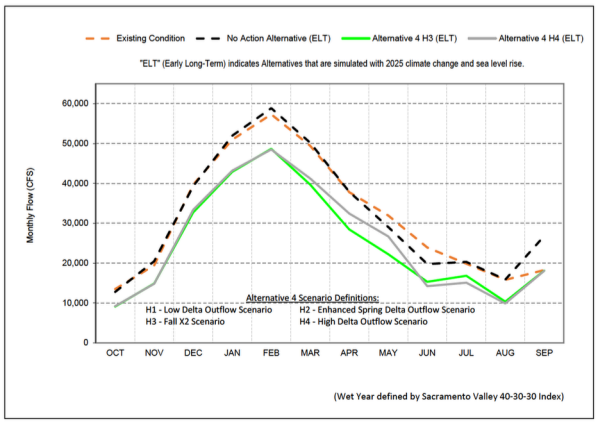

Figure 4.3.2-7
Sacramento River Flow downstream of North Delta Intakes for Alternative 4A, Average Wet Years

Source: RDEIR/SDEIS, Section 4.3.

Table 3
Monthly Long-Term Average Estimates of Flow for Lower Sacramento River Downstream of North Delta Intakes Interpolated from Figure 4.3.2-8

	Existing Conditions	No Action Alternative	Alt 4A - Scenario H3	Alt 4A - Scenario H4	% Change EC to H3	% Change EC to H4	% Change from NAA to H3	% Change from NAA to H4
October	11,667	11,333	8,667	8,667	-26%	-26%	-24%	-24%
November	15,333	16,000	11,667	11,667	-24%	-24%	-27%	-27%
December	23,333	23,333	20,667	20,667	-11%	-11%	-11%	-11%
January	36,000	36,000	25,667	25,667	-29%	-29%	-29%	-29%
February	37,000	37,667	31,333	31,333	-15%	-15%	-17%	-17%
March	33,000	33,000	26,333	27,333	-20%	-17%	-20%	-17%
April	23,333	23,667	14,667	21,000	-37%	-10%	-38%	-11%
May	19,000	18,000	14,667	17,000	-23%	-11%	-19%	-6%
June	16,667	15,000	13,000	12,000	-22%	-28%	-13%	-20%
July	19,333	19,333	16,000	14,667	-17%	-24%	-17%	-24%
August	15,333	15,000	11,000	11,000	-28%	-28%	-27%	-27%
September	14,000	17,000	11,667	11,667	-17%	-17%	-31%	-31%
Average	**22,000**	**22,111**	**17,111**	**17,722**	**-22%**	**-20%**	**-23%**	**-20%**

Table 3
Monthly Long-Term Average Estimates of Flow for Lower Sacramento River Downstream of North Delta Intakes Interpolated from Figure 4.3.2-8

	Existing Conditions	No Action Alternative	Alt 4A - Scenario H3	Alt 4A - Scenario H4	% Change EC to H3	% Change EC to H4	% Change from NAA to H3	% Change from NAA to H4

Source: Bay Delta Conservation Plan/California WaterFix Recirculated Draft EIR/EIS, Section 4.3, Figure 4.3.2-8; Restore the Delta.

Table 4
Monthly Wet Year Average Estimates of Flow for Lower Sacramento River Downstream of North Delta Intakes Interpolated from Figure 4.3.2-7

	Existing Conditions	No Action Alternative	Alt 4A - Scenario H3	Alt 4A - Scenario H4	% Change from EC to H3	% Change from EC to H4	% Change from NAA to H3	% Change from NAA to H4
October	13,333	12,667	9,000	9,000	-33%	-33%	-29%	-29%
November	20,000	21,000	14,667	14,667	-27%	-27%	-30%	-30%
December	40,000	40,000	33,333	34,000	-17%	-15%	-17%	-15%
January	51,333	52,000	42,667	43,333	-17%	-16%	-18%	-17%
February	56,667	55,333	48,000	48,000	-15%	-15%	-13%	-13%
March	49,333	50,000	39,333	41,333	-20%	-16%	-21%	-17%
April	38,333	38,333	28,667	32,667	-25%	-15%	-25%	-15%
May	32,000	28,667	22,000	26,667	-31%	-17%	-23%	-7%
June	24,000	20,000	14,667	14,000	-39%	-42%	-27%	-30%
July	20,000	20,333	16,667	15,000	-17%	-25%	-18%	-26%
August	16,000	16,000	10,667	10,000	-33%	-38%	-33%	-38%
September	18,000	25,333	18,000	18,000	0%	0%	-29%	-29%
Average	**31,583**	**31,639**	**24,806**	**25,556**	**-23%**	**-21%**	**-24%**	**-22%**

Source: Bay Delta Conservation Plan/California WaterFix Recirculated Draft EIR/EIS, Section 4.3, Figure 4.3.2-7; Restore the Delta.

Figure 2
Flow Differences in the Sacramento River Below the North Delta Diversion Facilities - by Water Year Type and Monthly Averages

Supplemental Modeling Results for New Alternatives

Table B.7-28. Differences[a] (Percent Differences) between Pairs of Model Scenarios for the Sacramento River Downstream of the North Delta Diversion Facility, Year-Round

Alternative 4A_ELT: In Delta—Sacramento River Downstream of North Delta Diversion Facility					
Month	Water Year Type	EXISTING CONDITIONS vs. H3_ELT	NAA_ELT vs. H3_ELT	EXISTING CONDITIONS vs. H4_ELT	NAA_ELT vs. H4_ELT
JAN	W	-8,039 (-15.8%)	-9,041 (-17.4%)	-7,770 (-15.2%)	-8,772 (-16.9%)
	AN	-7,749 (-19.4%)	-6,852 (-17.6%)	-7,426 (-18.6%)	-6,529 (-16.8%)
	BN	-5,110 (-21.5%)	-4,441 (-19.2%)	-4,881 (-20.5%)	-4,211 (-18.2%)
	D	-2,362 (-13.5%)	-2,338 (-13.4%)	-2,271 (-13%)	-2,247 (-12.9%)
	C	-1,489 (-10.4%)	-1,724 (-11.9%)	-1,583 (-11.1%)	-1,818 (-12.5%)
	All	-5,292 (-16.6%)	-5,393 (-16.8%)	-5,114 (-16%)	-5,215 (-16.3%)
FEB	W	-8,645 (-15.1%)	-10,210 (-17.3%)	-8,794 (-15.3%)	-10,359 (-17.6%)
	AN	-6,358 (-13.9%)	-7,592 (-16.2%)	-6,933 (-15.2%)	-8,168 (-17.4%)
	BN	-6,730 (-21.1%)	-6,501 (-20.5%)	-6,073 (-19%)	-5,844 (-18.4%)
	D	-3,911 (-18.4%)	-3,727 (-17.7%)	-3,914 (-18.5%)	-3,730 (-17.7%)
	C	-1,457 (-9.9%)	-1,171 (-8.1%)	-1,498 (-10.2%)	-1,212 (-8.4%)
	All	-5,892 (-15.9%)	-6,448 (-17.1%)	-5,918 (-15.9%)	-6,474 (-17.2%)
MAR	W	-9,752 (-19.7%)	-10,534 (-21%)	-8,204 (-16.6%)	-8,987 (-17.9%)
	AN	-9,309 (-20.9%)	-9,918 (-22%)	-8,600 (-19.3%)	-9,209 (-20.4%)
	BN	-7,641 (-31.2%)	-6,162 (-26.8%)	-5,674 (-23.2%)	-4,195 (-18.2%)
	D	-4,605 (-22.3%)	-4,232 (-20.9%)	-4,019 (-19.5%)	-3,646 (-18%)
	C	-1,286 (-9.7%)	-1,086 (-8.3%)	-1,437 (-10.8%)	-1,237 (-9.5%)
	All	-6,958 (-21.2%)	-6,932 (-21.1%)	-5,921 (-18%)	-5,895 (-18%)
APR	W	-9,336 (-24.7%)	-9,411 (-24.8%)	-5,368 (-14.2%)	-5,443 (-14.4%)
	AN	-8,102 (-31.2%)	-7,516 (-29.6%)	-3,656 (-14.1%)	-3,070 (-12.1%)
	BN	-3,943 (-22.2%)	-3,440 (-19.9%)	2,028 (11.4%)	2,531 (14.7%)
	D	-1,713 (-13.2%)	-1,559 (-12.1%)	-1,296 (-10%)	-1,142 (-8.9%)
	C	-594 (-5.8%)	-398 (-4%)	-772 (-7.5%)	-576 (-5.7%)
	All	-5,282 (-22.8%)	-5,071 (-22.1%)	-2,288 (-9.9%)	-2,078 (-9.1%)
MAY	W	-9,729 (-30.5%)	-6,842 (-23.5%)	-5,259 (-16.5%)	-2,372 (-8.2%)
	AN	-4,789 (-22.8%)	-3,475 (-17.6%)	-852 (-4.1%)	462 (2.3%)
	BN	-2,653 (-18.6%)	-1,429 (-11%)	-301 (-2.1%)	923 (7.1%)
	D	-832 (-7.6%)	-478 (-4.5%)	-733 (-6.7%)	-379 (-3.6%)
	C	-319 (-4.1%)	-706 (-8.7%)	-390 (-5%)	-777 (-9.6%)
	All	-4,468 (-23.3%)	-3,130 (-17.5%)	-2,062 (-10.8%)	-724 (-4.1%)
JUN	W	-8,590 (-35.9%)	-4,448 (-22.5%)	-9,667 (-40.4%)	-5,525 (-28%)
	AN	-3,291 (-20.2%)	-2,146 (-14.2%)	-4,474 (-27.4%)	-3,328 (-22%)
	BN	-576 (-4.2%)	-131 (-1%)	-1,672 (-12.3%)	-1,228 (-9.3%)
	D	-114 (-0.9%)	-430 (-3.4%)	-997 (-8.2%)	-1,313 (-10.5%)
	C	-698 (-7.1%)	-643 (-6.5%)	-901 (-9.1%)	-846 (-8.6%)
	All	-3,431 (-20.9%)	-1,935 (-13%)	-4,356 (-26.5%)	-2,860 (-19.2%)

Supplemental Modeling Results for New Alternatives

Alternative 4A_ELT: In Delta—Sacramento River Downstream of North Delta Diversion Facility					
Month	Water Year Type	EXISTING CONDITIONS vs. H3_ELT	NAA_ELT vs. H3_ELT	EXISTING CONDITIONS vs. H4_ELT	NAA_ELT vs. H4_ELT
JUL	W	-3,039 (-15.3%)	-3,493 (-17.2%)	-4,796 (-24.1%)	-5,250 (-25.8%)
	AN	-2,622 (-12.2%)	-3,234 (-14.6%)	-4,724 (-21.9%)	-5,335 (-24%)
	BN	-2,676 (-12.8%)	-2,676 (-12.8%)	-4,181 (-20%)	-4,180 (-20%)
	D	-3,793 (-19.7%)	-3,190 (-17.1%)	-5,186 (-26.9%)	-4,583 (-24.5%)
	C	-5,314 (-34.5%)	-4,065 (-28.7%)	-5,041 (-32.7%)	-3,793 (-26.8%)
	All	-3,414 (-17.5%)	-3,333 (-17.1%)	-4,802 (-24.6%)	-4,720 (-24.3%)
AUG	W	-5,461 (-34.5%)	-5,527 (-34.8%)	-5,917 (-37.4%)	-5,983 (-37.7%)
	AN	-3,225 (-20.3%)	-3,934 (-23.7%)	-4,922 (-31%)	-5,630 (-33.9%)
	BN	-3,142 (-20.1%)	-2,743 (-18%)	-3,208 (-20.5%)	-2,809 (-18.4%)
	D	-6,927 (-40.8%)	-4,466 (-30.8%)	-5,173 (-30.5%)	-2,711 (-18.7%)
	C	-1,311 (-13%)	-514 (-5.5%)	-986 (-9.8%)	-188 (-2%)
	All	-4,453 (-29.3%)	-3,852 (-26.4%)	-4,424 (-29.1%)	-3,823 (-26.2%)
SEP	W	-122 (-0.7%)	-8,712 (-32.5%)	-146 (-0.8%)	-8,736 (-32.5%)
	AN	-842 (-6.4%)	-8,871 (-41.8%)	-1,937 (-14.7%)	-9,965 (-46.9%)
	BN	-4,050 (-32.6%)	-4,406 (-34.5%)	-4,555 (-36.7%)	-4,911 (-38.4%)
	D	-4,443 (-36.6%)	-2,036 (-20.9%)	-4,329 (-35.6%)	-1,922 (-19.7%)
	C	-1,024 (-12.1%)	-227 (-3%)	-715 (-8.4%)	83 (1.1%)
	All	-1,979 (-14.4%)	-5,293 (-31%)	-2,162 (-15.7%)	-5,477 (-32.1%)
OCT	W	-4,396 (-32.5%)	-3,674 (-28.7%)	-4,299 (-31.8%)	-3,576 (-28%)
	AN	-2,898 (-26.1%)	-2,207 (-21.2%)	-2,925 (-26.3%)	-2,234 (-21.4%)
	BN	-3,116 (-27%)	-2,141 (-20.2%)	-3,186 (-27.6%)	-2,210 (-20.9%)
	D	-1,948 (-18.9%)	-1,898 (-18.6%)	-1,995 (-19.4%)	-1,945 (-19%)
	C	-2,003 (-19.9%)	-1,319 (-14%)	-1,966 (-19.5%)	-1,282 (-13.6%)
	All	-3,071 (-26.4%)	-2,463 (-22.4%)	-3,061 (-26.4%)	-2,453 (-22.3%)
NOV	W	-4,552 (-23.4%)	-5,584 (-27.3%)	-4,621 (-23.8%)	-5,654 (-27.6%)
	AN	-3,008 (-19.6%)	-4,562 (-27.1%)	-2,841 (-18.6%)	-4,395 (-26.1%)
	BN	-3,226 (-25.7%)	-4,198 (-31%)	-3,301 (-26.3%)	-4,273 (-31.5%)
	D	-3,394 (-26.4%)	-3,025 (-24.2%)	-3,607 (-28%)	-3,238 (-25.9%)
	C	-1,380 (-14.3%)	-1,196 (-12.7%)	-1,529 (-15.9%)	-1,345 (-14.2%)
	All	-3,381 (-22.9%)	-3,994 (-25.9%)	-3,460 (-23.4%)	-4,073 (-26.4%)
DEC	W	-6,980 (-17.6%)	-6,607 (-16.8%)	-6,348 (-16%)	-5,975 (-15.2%)
	AN	-1,498 (-6.9%)	-2,533 (-11.2%)	-1,314 (-6.1%)	-2,349 (-10.3%)
	BN	-1,109 (-6.7%)	-1,603 (-9.3%)	-1,423 (-8.5%)	-1,916 (-11.2%)
	D	-1,378 (-8.9%)	-1,320 (-8.6%)	-1,662 (-10.8%)	-1,604 (-10.4%)
	C	-1,157 (-9.8%)	-181 (-1.7%)	-1,511 (-12.8%)	-534 (-4.9%)
	All	-3,094 (-13%)	-3,055 (-12.9%)	-3,034 (-12.8%)	-2,996 (-12.6%)

[a] Red boxes indicate that flows under the alternative are more than 5% lower than flows under the baseline; green boxes indicate that flows under the alternative are more than 5% greater than flows under the baseline.

Source: RDEIR/SDEIS, Appendix B.

Figure 3
Flow Differences in the Sacramento River at Rio Vista by Water Year Type and Monthly Averages

Table B.7-30. Differences[a] (Percent Differences) between Pairs of Model Scenarios in the Sacramento River at Rio Vista, Year-Round

Alternative 4A_ELT: In Delta—Sacramento River at Rio Vista					
Month	Water Year Type	EXISTING CONDITIONS vs. H3_ELT	NAA_ELT vs. H3_ELT	EXISTING CONDITIONS vs. H4_ELT	NAA_ELT vs. H4_ELT
JAN	W	-1,351 (-1.9%)	-5,751 (-7.6%)	-1,083 (-1.5%)	-5,482 (-7.3%)
	AN	-4,656 (-11.1%)	-4,109 (-9.9%)	-3,691 (-8.8%)	-3,144 (-7.6%)
	BN	-2,635 (-12.6%)	-2,080 (-10.2%)	-2,422 (-11.6%)	-1,867 (-9.2%)
	D	-1,259 (-8.5%)	-1,396 (-9.3%)	-1,175 (-7.9%)	-1,312 (-8.7%)
	C	-837 (-7.1%)	-1,098 (-9.1%)	-917 (-7.7%)	-1,179 (-9.7%)
	All	-1,959 (-5.3%)	-3,247 (-8.4%)	-1,689 (-4.5%)	-2,978 (-7.7%)
FEB	W	-444 (-0.5%)	-6,718 (-7.7%)	-998 (-1.2%)	-7,272 (-8.3%)
	AN	-1,957 (-3.7%)	-3,029 (-5.6%)	-3,235 (-6.2%)	-4,307 (-8%)
	BN	-3,701 (-12.3%)	-3,773 (-12.5%)	-2,624 (-8.7%)	-2,696 (-8.9%)
	D	-2,287 (-11.8%)	-2,286 (-11.8%)	-2,332 (-12.1%)	-2,331 (-12.1%)
	C	-759 (-6.2%)	-586 (-4.9%)	-786 (-6.4%)	-613 (-5.1%)
	All	-1,672 (-3.8%)	-3,805 (-8.2%)	-1,865 (-4.2%)	-3,998 (-8.6%)
MAR	W	-4,683 (-7.3%)	-7,195 (-10.9%)	-3,278 (-5.1%)	-5,790 (-8.7%)
	AN	-4,854 (-10.4%)	-6,077 (-12.7%)	-3,888 (-8.3%)	-5,111 (-10.7%)
	BN	-5,390 (-25.7%)	-4,039 (-20.6%)	-3,495 (-16.7%)	-2,144 (-10.9%)
	D	-2,885 (-16.3%)	-2,570 (-14.8%)	-2,397 (-13.6%)	-2,082 (-12%)
	C	-644 (-6%)	-536 (-5.1%)	-770 (-7.2%)	-662 (-6.2%)
	All	-3,843 (-10.7%)	-4,503 (-12.3%)	-2,844 (-7.9%)	-3,504 (-9.5%)
APR	W	-5,365 (-14%)	-5,844 (-15.1%)	-1,274 (-3.3%)	-1,753 (-4.5%)
	AN	-5,540 (-24.4%)	-5,048 (-22.7%)	-917 (-4%)	-425 (-1.9%)
	BN	-2,808 (-19.2%)	-2,450 (-17.1%)	3,375 (23%)	3,733 (26.1%)
	D	-1,250 (-12.1%)	-1,134 (-11.1%)	-704 (-6.8%)	-589 (-5.8%)
	C	-382 (-5%)	-237 (-3.2%)	-543 (-7.1%)	-398 (-5.3%)
	All	-3,322 (-15.6%)	-3,294 (-15.5%)	-196 (-0.9%)	-168 (-0.8%)
MAY	W	-8,550 (-31.7%)	-5,837 (-24.1%)	-4,668 (-17.3%)	-1,955 (-8.1%)
	AN	-4,082 (-24%)	-2,931 (-18.5%)	-655 (-3.9%)	496 (3.1%)
	BN	-2,210 (-20.2%)	-1,148 (-11.6%)	-159 (-1.5%)	903 (9.2%)
	D	-609 (-7.5%)	-314 (-4%)	-512 (-6.3%)	-217 (-2.8%)
	C	-159 (-3%)	-510 (-9%)	-221 (-4.2%)	-571 (-10.1%)
	All	-3,843 (-24.9%)	-2,619 (-18.4%)	-1,748 (-11.3%)	-524 (-3.7%)
JUN	W	-7,622 (-46%)	-4,059 (-31.2%)	-8,393 (-50.7%)	-4,830 (-37.2%)
	AN	-3,222 (-32.6%)	-1,969 (-22.8%)	-4,056 (-41%)	-2,803 (-32.5%)
	BN	-349 (-5%)	-26 (-0.4%)	-1,129 (-16.1%)	-806 (-12.1%)
	D	-14 (-0.2%)	-244 (-3.9%)	-640 (-10.6%)	-870 (-13.9%)
	C	-393 (-9.1%)	-365 (-8.5%)	-534 (-12.3%)	-506 (-11.7%)
	All	-3,009 (-30.6%)	-1,687 (-19.8%)	-3,666 (-37.2%)	-2,344 (-27.5%)

Alternative 4A_ELT: In Delta—Sacramento River at Rio Vista					
Month	Water Year Type	EXISTING CONDITIONS vs. H3_ELT	NAA_ELT vs. H3_ELT	EXISTING CONDITIONS vs. H4_ELT	NAA_ELT vs. H4_ELT
JUL	W	-2,201 (-19.8%)	-2,283 (-20.4%)	-3,633 (-32.7%)	-3,715 (-33.1%)
	AN	-1,893 (-15.6%)	-2,309 (-18.4%)	-3,337 (-27.5%)	-3,753 (-29.9%)
	BN	-1,907 (-16.3%)	-1,887 (-16.2%)	-2,952 (-25.3%)	-2,932 (-25.1%)
	D	-2,368 (-22.5%)	-1,950 (-19.3%)	-3,633 (-34.5%)	-3,215 (-31.8%)
	C	-3,633 (-47%)	-2,764 (-40.2%)	-3,328 (-43%)	-2,458 (-35.8%)
	All	-2,352 (-21.9%)	-2,216 (-20.9%)	-3,429 (-31.9%)	-3,293 (-31.1%)
AUG	W	-3,911 (-46%)	-3,932 (-46.1%)	-4,218 (-49.6%)	-4,239 (-49.7%)
	AN	-2,332 (-27.3%)	-2,808 (-31.2%)	-3,504 (-41%)	-3,979 (-44.1%)
	BN	-2,225 (-26.6%)	-1,916 (-23.8%)	-2,292 (-27.4%)	-1,983 (-24.6%)
	D	-4,890 (-52.8%)	-3,151 (-41.9%)	-3,631 (-39.2%)	-1,892 (-25.1%)
	C	-680 (-15.5%)	-113 (-3%)	-562 (-12.8%)	5 (0.1%)
	All	-3,134 (-38.9%)	-2,693 (-35.4%)	-3,121 (-38.8%)	-2,679 (-35.2%)
SEP	W	-361 (-3.4%)	-10,311 (-49.8%)	-335 (-3.1%)	-10,285 (-49.6%)
	AN	-513 (-7.6%)	-6,686 (-51.6%)	-1,224 (-18%)	-7,398 (-57.1%)
	BN	-2,770 (-44.1%)	-3,025 (-46.3%)	-3,116 (-49.6%)	-3,371 (-51.6%)
	D	-3,102 (-50.7%)	-1,417 (-32%)	-3,004 (-49.1%)	-1,320 (-29.8%)
	C	-568 (-15.8%)	-195 (-6.1%)	-425 (-11.8%)	-51 (-1.6%)
	All	-1,427 (-19.4%)	-5,104 (-46.3%)	-1,539 (-20.9%)	-5,216 (-47.3%)
OCT	W	-3,775 (-43.3%)	-2,923 (-37.2%)	-3,637 (-41.7%)	-2,786 (-35.4%)
	AN	-2,527 (-40.9%)	-1,861 (-33.7%)	-2,415 (-39.1%)	-1,749 (-31.7%)
	BN	-2,340 (-37.4%)	-1,498 (-27.7%)	-2,419 (-38.6%)	-1,577 (-29.1%)
	D	-1,511 (-28.5%)	-1,420 (-27.2%)	-1,468 (-27.6%)	-1,377 (-26.4%)
	C	-1,410 (-27%)	-880 (-18.8%)	-1,495 (-28.7%)	-964 (-20.6%)
	All	-2,504 (-37.6%)	-1,896 (-31.3%)	-2,461 (-36.9%)	-1,852 (-30.6%)
NOV	W	-3,511 (-22.2%)	-4,866 (-28.3%)	-3,632 (-22.9%)	-4,987 (-29%)
	AN	-2,379 (-21%)	-4,148 (-31.7%)	-2,086 (-18.4%)	-3,856 (-29.4%)
	BN	-2,415 (-29.5%)	-3,679 (-38.9%)	-2,409 (-29.4%)	-3,673 (-38.9%)
	D	-2,803 (-32.1%)	-2,609 (-30.6%)	-2,944 (-33.7%)	-2,750 (-32.2%)
	C	-897 (-16.4%)	-1,010 (-18.1%)	-1,041 (-19%)	-1,154 (-20.6%)
	All	-2,620 (-24.3%)	-3,498 (-30%)	-2,667 (-24.7%)	-3,545 (-30.4%)
DEC	W	-2,736 (-6.3%)	-3,662 (-8.3%)	-1,504 (-3.5%)	-2,429 (-5.5%)
	AN	-156 (-0.8%)	-1,491 (-7.3%)	22 (0.1%)	-1,313 (-6.4%)
	BN	-105 (-0.7%)	-1,217 (-8.1%)	-183 (-1.3%)	-1,295 (-8.6%)
	D	-873 (-7.3%)	-742 (-6.3%)	-1,153 (-9.6%)	-1,022 (-8.6%)
	C	-760 (-9.3%)	31 (0.4%)	-1,085 (-13.3%)	-294 (-4%)
	All	-1,211 (-5.3%)	-1,745 (-7.5%)	-917 (-4%)	-1,451 (-6.2%)

[a] Red boxes indicate that flows under the alternative are more than 5% lower than flows under the baseline; green boxes indicate that flows under the alternative are more than 5% greater than flows under the baseline.

Source: RDEIR/SDEIS, Appendix B.

These tables and figures show that most changes are colored in red enabling the eye to see the preponderance of *decreases* in flow of 5 percent or more compared with Existing Conditions ***and*** the No Action Alternative (especially along the Sacramento River downstream of the north Delta intakes).[188] The vast majority of differences reported in these two tables are decreases in average flows across all water year types. Most of the decreases are of 10 percent or more and many of these are of 20 to 30 percent or more. Only slight improvements occur in just a handful of months and water year types. (Most San Joaquin River flows at Vernalis between February and September in most water year types decrease greater than 5 percent relative to existing conditions as well.)

Reducing flows in the Sacramento River is not a "waterfix," certainly not for the Bay-Delta Estuary. This will increase residence time of water in the Bay-Delta Estuary relative to existing conditions and to a future without the Tunnels; salinity violations and will increase with the Tunnels Project as well (Figure 4).[189] DWR and its partners opted not to model residence time behavior for Alternative 4A and the other RDEIR/SDEIS alternatives (2D and 5A). However, the water source "fingerprinting" analyses in interior and western Delta water ways in both last year's and this year's modeling appendices show replacement of good quality Sacramento River water with lower-flow and poorer quality San Joaquin River water, so it is reasonable, in the absence of more definitive modeling, that relative to existing conditions residence times will increase with the Tunnels Project under both Alternatives 4 and 4A (Figures 4 and 5).

The lower-flowing and more polluted San Joaquin River will make up greater fractions of water flowing into the western Delta, Franks Tract, and at Contra Costa Water District's Rock Slough intakes.[190] Meanwhile, better quality Sacramento River water diverted into the Tunnels will improve state and federal export water quality, making Delta water quality elsewhere the poorer.[191]

Decreased flows and increased residence times will cause the designated beneficial uses of migratory and rare fish species to decline, according to Tunnels Project RDEIR/SDEIS modeling results. Through-Delta survival rates of the juvenile and smolt life stages of winter-run, spring-run, fall-run and late-fall-run Chinook salmon are ***all expected to decrease relative to both existing conditions and the No Action Alternative*** (Figure 6). These fish species are "rare and endangered species" beneficial uses as well as "migration of aquatic organisms" beneficial uses. These reduced flows will decrease the size of critical open water estuarine habitat beneficial uses for state and federally-listed species like Delta smelt and longfin smelt, both of which count also as rare and endangered beneficial uses under the current Bay-Delta Water Quality Control Plan.[192] The U.S. EPA

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[188] See also Appendix B, Tables B.7-28 (downstream of north Delta intakes), B.7-30 (Sacramento River at Rio Vista), B.7-32 (Delta outflow), and B.7-34 (San Joaquin River at Vernalis), pp. B-357 to B-370.

[189] RDEIR/SDEIS, Section 4.3.4, p. 4.3.4-67, lines 4-12.

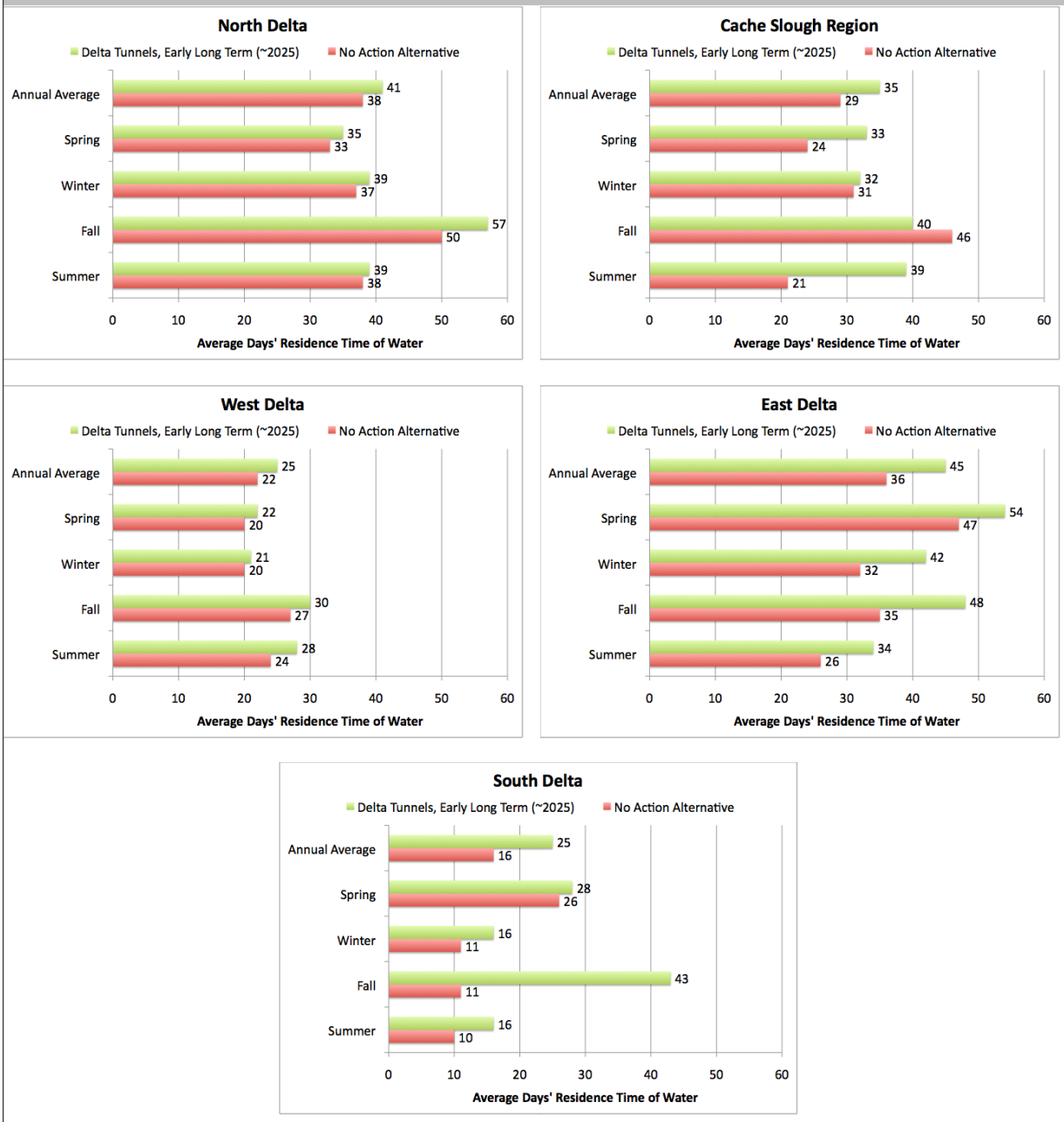
[190] This reasoning is confirmed by source-water fingerprint modeling provided in both the 2013 Draft EIR/EIS and the 2015 RDEIR/SDEIS. The source water fingerprint modeling results are found in Bay Delta Conservation Plan, Draft EIR/EIS/ November 2013, Appendix 3D, pp. 147-168, 8D-171 to 8D-192; and in Bay Delta Conservation Plan, Recirculated Draft EIR/Supplemental Draft EIS, Appendix B, pp. B-191 to B-256.

[191] Bay Delta Conservation Plan Draft EIR/EIS, November 2013, Appendix 8D (figures for Alternative 4, Scenarios H3 and H4), 2013; BDCP/California WaterFix, Recirculated Draft EIR/Supplemental Draft EIS, Appendix B, Section B.4.2 (figures for No Action Alternative, Alternative 4A, Scenarios H3 and H4), 2015; analyzed by Restore the Delta.

[192] State Water Resources Control Board, *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary*, December 13, 2006, p. 9.

expressed serious concerns about the EIR/EIS Administrative Draft's (ADEIS) proposed decrease in outflow "despite the fact that several key scientific evaluations by the federal and State agencies

Figure 4
Average Residence Time of Water in Delta Regions, Alternative 4 (and 4A) and No Action Alternative, 2015 Analysis

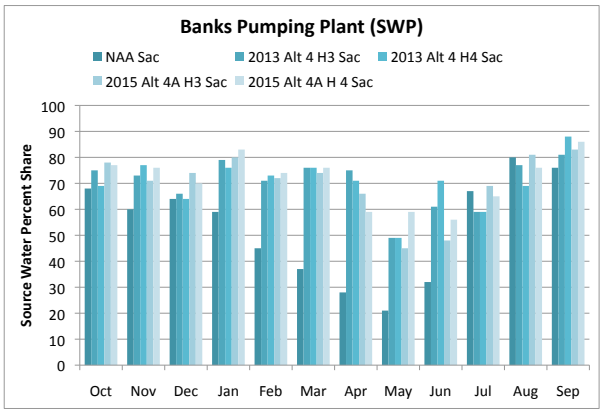


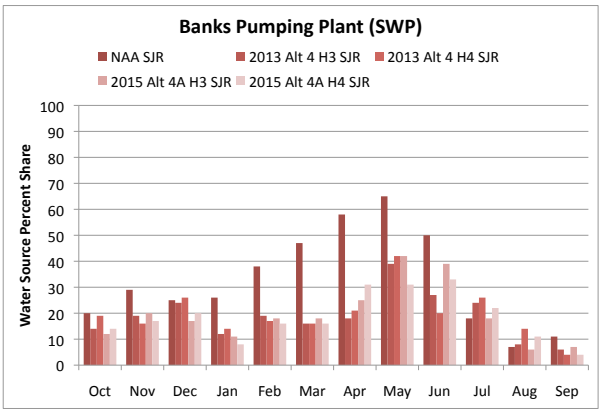
Source: Bay Delta Conservation Plan RDEIR/SDEIS, 2015, Table 8-60a, p. 8-82.

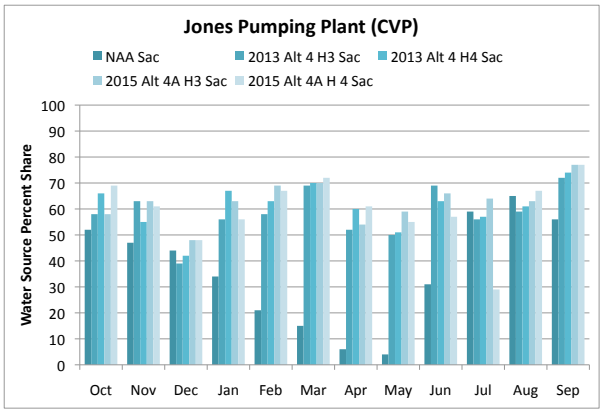
Figure 5

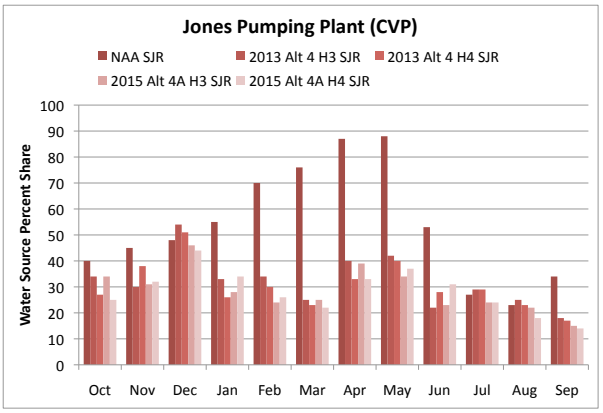
**Share of Delta Location River Sources from "Fingerprint" Modeling Results
No Action Alternative, 2013 BDCP Conservation Measure 1
and 2015 Tunnels Project**

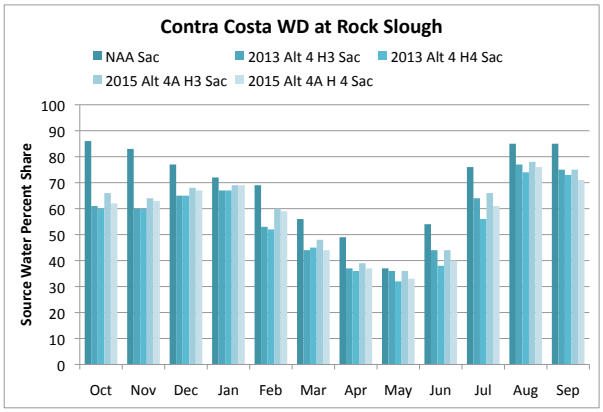
Sacramento River | **San Joaquin River**











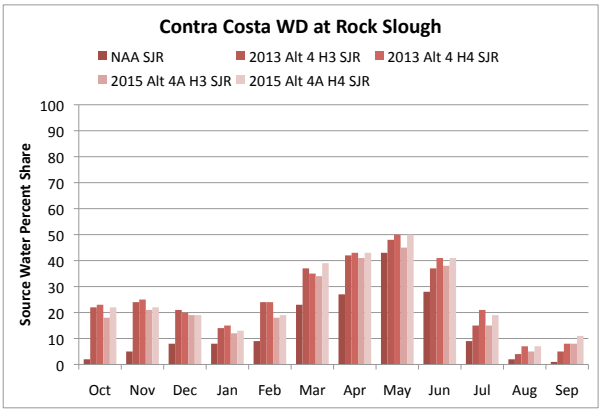
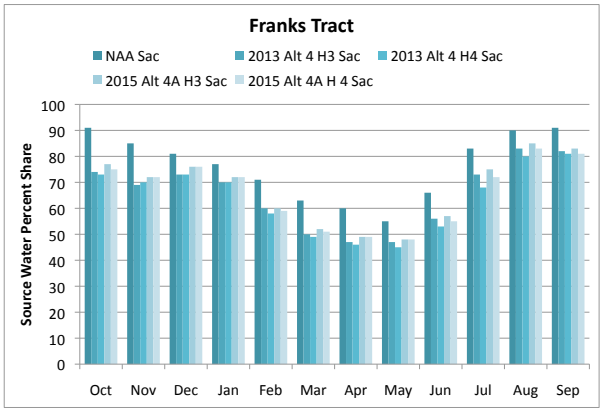
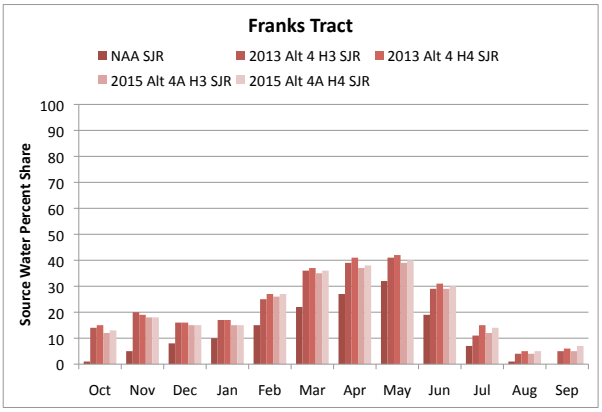


Figure 5

**Share of Delta Location River Sources from "Fingerprint" Modeling Results
No Action Alternative, 2013 BDCP Conservation Measure 1
and 2015 Tunnels Project**

Sacramento River **San Joaquin River**



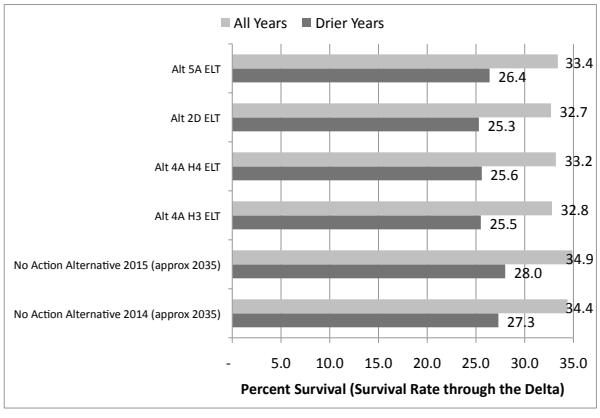


Sources: BDCP Draft EIR/EIS, Appendix 8D (figures for Alternative 4, Scenarios H3 and H4); BDCP/ California WaterFix, Recirculated Draft EIR/Supplemental Draft EIS, Appendix B, Section B.4.2 (figures for No Action Alternative, Alternative 4A, Scenarios H3 and H4); Restore the Delta.

Figure 6

Through-Delta Survival Rates of Emigrating Juvenile Salmon Races Under Alternative 4A (California WaterFix)

Winter Run Chinook Salmon



Spring Run Chinook Salmon

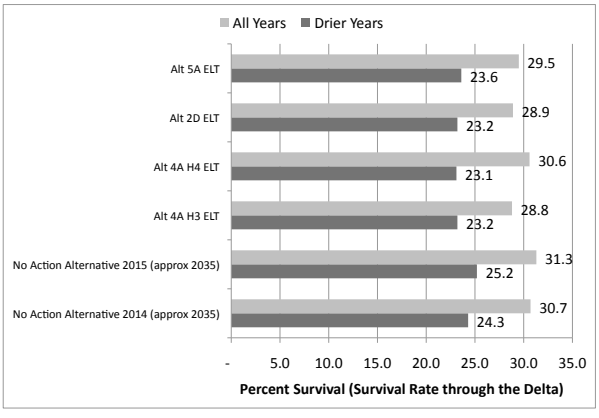
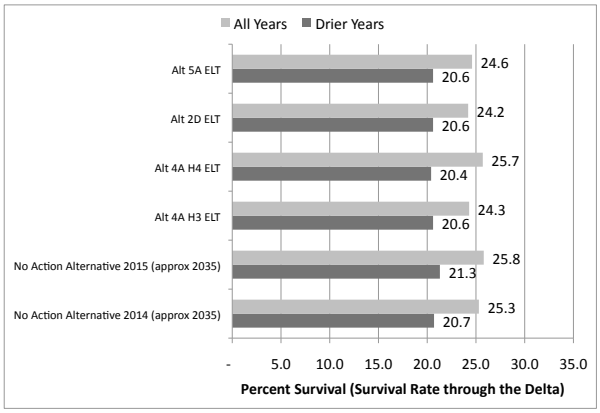
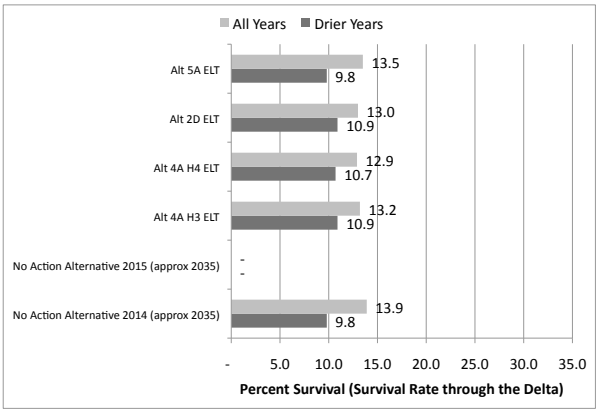


Figure 6
Through-Delta Survival Rates of Emigrating Juvenile Salmon Races Under Alternative 4A (California WaterFix)

Fall Run Chinook Salmon - Sacramento River



Fall Run Chinook Salmon - San Joaquin River



Source: Bay Delta Conservation Plan/California WaterFix RDEIR/SDEIS, 2015, Section 4.3, Tables 11-4A-23, -51, and -74; Section 4.4, Tables 11-2D-16, -31, and -45; and Section 4.5, Tables 11-5A-14, -31, and -45; and Environmental Water Caucus.

indicate that *more* outflow is necessary to protect aquatic resources and fish populations."[193] The Tunnels Project's flow regime will violate the beneficial uses of affected waterways and therefore violate water quality objectives. In order to receive the Section 404 permit, DWR and the Bureau of Reclamation must revise the Tunnels Project to ensure that it fully protects all designated beneficial uses.

The project increases Delta several pollutant concentrations, resulting in violations of pollutant criteria. Reduced through-Delta flows will stagnate water conditions and cause Delta water quality to deteriorate badly. RDEIR/SDEIS modeling results reveal that the project will degrade water quality for boron, bromide, chloride, electrical conductivity, dissolved organic carbon, nitrate, mercury, pesticides, and selenium.[194] (See details below.) Harmful algal blooms are expected to worsen under Tunnels Project operational regimes relative to the No Action Alternative as well as existing conditions. While these constituents' concentrations will *increase* in western and central Delta locations, as well as Contract Costa Water District's Pumping Plant No. 1, their concentrations are expected to *decrease* in export waters of the North Bay Aqueduct in Barker Slough, and Jones Pumping Plant and Banks Pumping Plant in the south Delta. These results hold for both changes compared with existing conditions as well as the No Action Alternative, the latter of which factors out most sea level rise and climate change impacts.

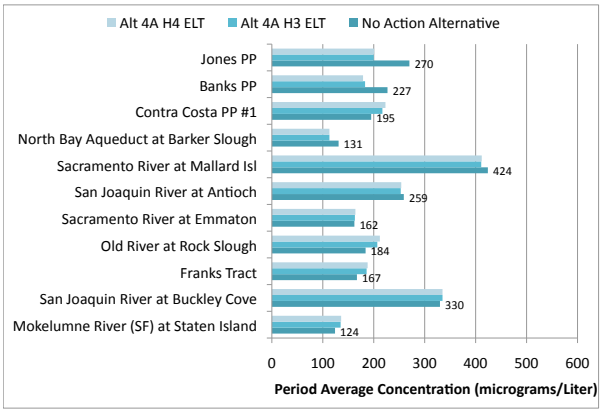
[193] U.S. EPA, "EPA Comments on Administrative Draft EIR/EIS, III Aquatic Species and Scientific Uncertainty, Federal Agency Release," p. 4 (July 18, 2013) (emphasis added), available at: http://www2.epa.gov/sites/production/files/documents/july3-2013-epa-comments-bdcp-adeis.pdf.

[194] RDEIR/SDEIS, Appendix B.

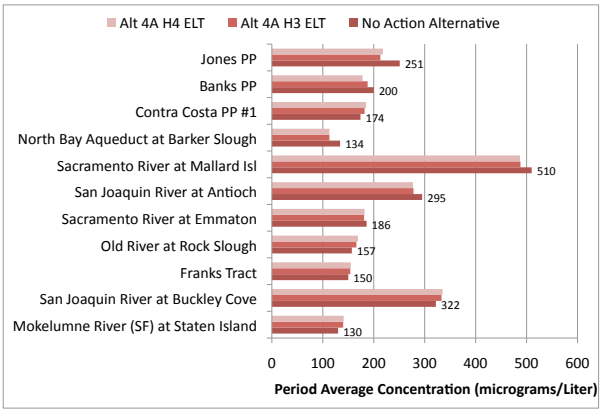
Boron

Although period average concentrations decrease with Tunnels operations (except for Sacramento River at Emmaton and Contra Costa Water District's Pumping Plant No. 1), agricultural (that is, crop sensitivity) threshold of 500 micrograms per liter (µg/L) would see exceedances a substantial percentage of the time at San Joaquin River at Antioch and Sacramento River at Mallard Island.[195] The Tunnels Project will increase boron concentrations throughout the year at the south fork of the Mokelumne River, as well as at Franks Tract and Old River at Rock Slough, relative to both existing conditions and No Action Alternative.[196] In the western Delta, boron concentrations increase with Tunnels operation relative to existing conditions and No Action Alternative between February and September, most months of the year. Finally, boron concentrations increase at the Contra Costa Water District's Pumping Plant No. 1, while boron concentrations decrease the North Bay Aqueduct intakes at Barker Slough and at Banks and Jones pumping plants of the state and federal water projects.

Figure 7
Period Average Boron Concentrations of Various Delta Locations



All Years



Drought Years

Source: RDEIR/SDEIS, Appendix B, Table Bo-3, p. B-71. Data values shown are for the No Action Alternative for comparison purposes.

Bromide

For both human health and aquatic life criteria, the Tunnels Project would increase the frequency of criteria violations in the interior and western Delta, but would decrease bromide violations 25 to 30 percent of the time at Banks and Jones pumping plants. Western Delta bromide concentrations are a problem for Antioch diversions as well. One method of evaluating the Tunnels Project's bromide concentrations suggests that wet years may see increases rather than decreases.[197] (Figures 8, 9, and 10.)

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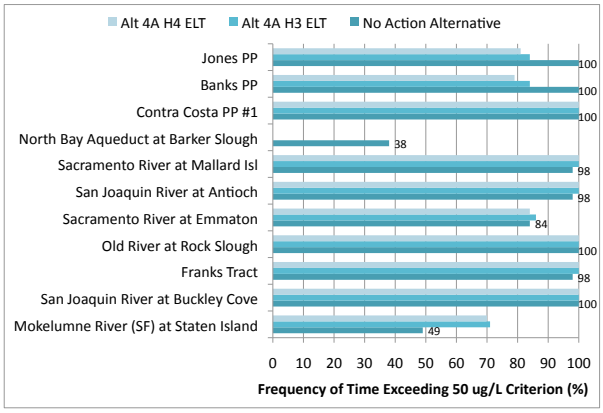
[195] RDEIR/SDEIS, Appendix B, Table Bo-3, p. B-71.

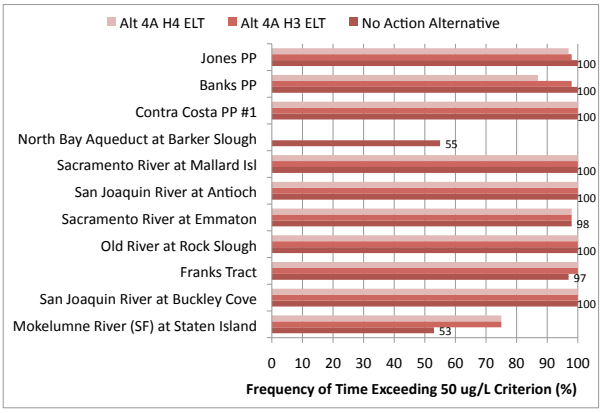
[196] RDEIR/SDEIS, Appendix B, Table Bo-4 and Bo-5, pp. B-73 and B-74.

[197] RDEIR/SDEIS, Appendix B, Table Br-1 and Table Br-2, pp. B-84, and Tables Br-5 and Br-6, p. B-87.

Figure 8
Frequency Percentage of Exceedances of Bromide Human Health Criterion



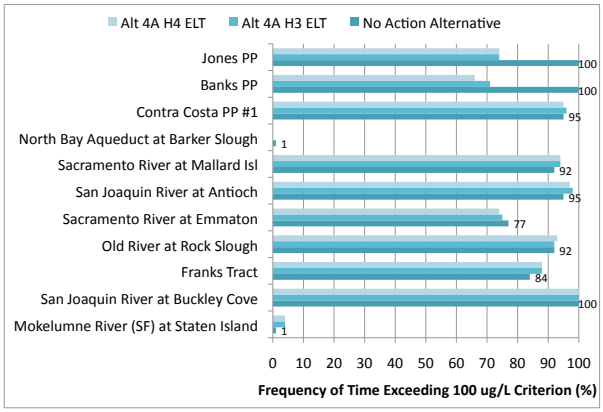
All Years



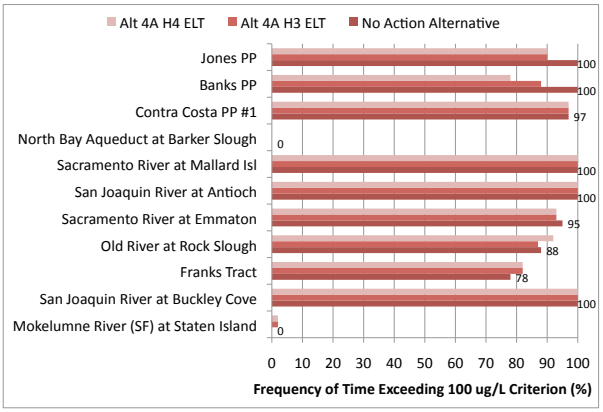
Drought Years

Source: RDEIR/SDEIS, Appendix B, Table Br-1, p. B-83. Data values shown are for the No Action Alternative for comparison purposes.

Figure 9
Frequency Percentage of Exceedances of Bromide Aquatic Life Criterion



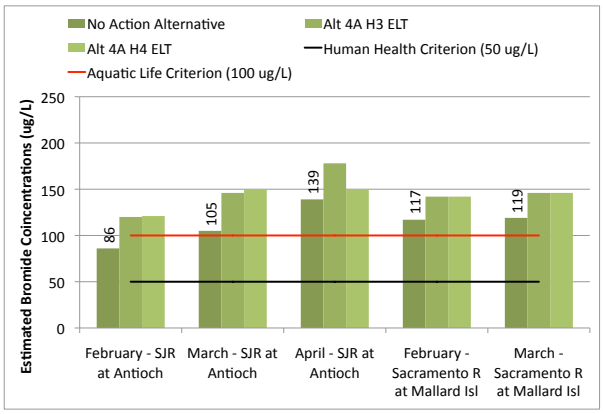
All Years



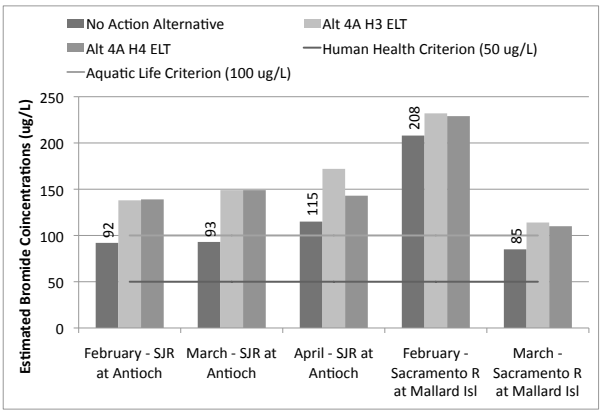
Drought Years

Source: RDEIR/SDEIS, Appendix B, Table Br-1, p. B-83. Data values shown are for the No Action Alternative for comparison purposes.

**Figure 10
Estimated Concentrations of Bromide
in Wet and Above Normal Water Year Types
(Periods of Normally Acceptable Water Quality for Withdrawal)**



Wet Years



Above Normal Years

Source: RDEIR/SDEIS, Appendix B, Table Br-5, p. B-87. Data values shown are for the No Action Alternative for comparison purposes.

Chloride

The Mokelumne River south fork at Staten Island sees significant increases in chloride concentrations all year, every year. This is closely influenced by reduced flow through Georgiana Slough downstream of the north Delta intakes. Other interior and western Delta areas will see increased chloride concentrations relative to both existing conditions and No Action Alternative by the Tunnels during March through June (for interior locations) and March through August for Sacramento River at Emmaton, San Joaquin River at Antioch and Sacramento River at Mallard Island.[198]

Salinity

The Tunnels Project will more than triple the number of spikes in excess of salinity objectives along the Sacramento River downstream of the Tunnels, and along the San Joaquin River at Prisoners Point. Outright violations of salinity objectives are expected to more than double with the Tunnels in place.[199] These violations will degrade water quality for Delta agriculture and for fish and wildlife beneficial uses. This means that the State Water Resources Control Board cannot issue a 401 certification regardless of whether it has adequately assessed the project's propensity to degrade water quality.

Along the lower Sacramento River, salinity violations will more than double, and will occur about a quarter of the time that salinity objectives are in effect, up from about 11 percent of the time now and with the Tunnels Project in place. These conditions will worsen relative to current and future

[198] RDEIR/SDEIS, Appendix B, Tables Cl-6 through Cl-9 for two estimation methods and the two operational scenarios (H3 and H4), pp. B-93 and B-96.

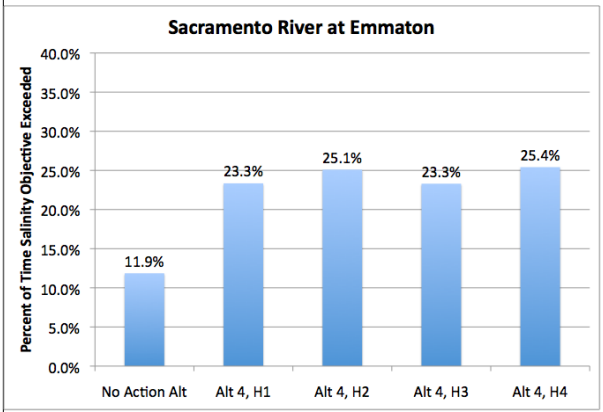
[199] RDEIR/SDEIS, Appendix B, Table EC-1, p. B-129. "Spikes" here means daily exceedances of a salinity objective, while compliance with objectives is determined by comparing multi-day running averages with an objective. When the running average is exceeded, a violation is then deemed to occur by regulators.

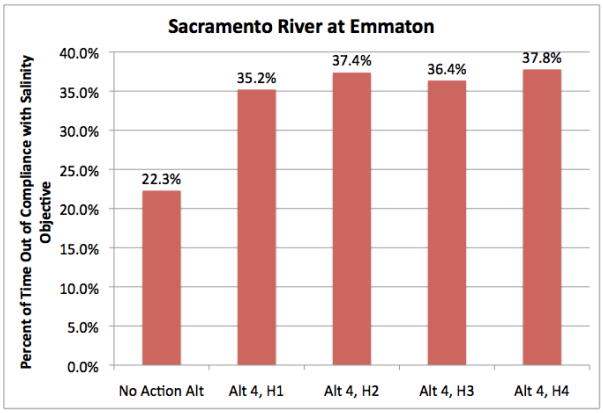
conditions between May and September, especially in drought years (which are expected to increase in frequency). Interior Delta salinity will also worsen between March and September (such as along the South Mokelumne River and at San Andreas Landing on the San Joaquin), as well as between February and June at Prisoners Point along the San Joaquin.[200] (Figure 11)

Figure 11
Projected Salinity Effects by 2060
of the Tunnels Project/Bay Delta Conservation Plan
Percentage of Time Salinity Exceedances and Violations Would Occur

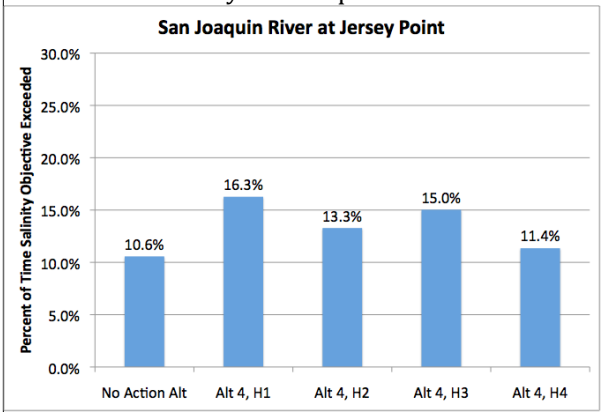
Exceeding Water Quality Objectives **Out of Compliance with Water Quality Objectives**

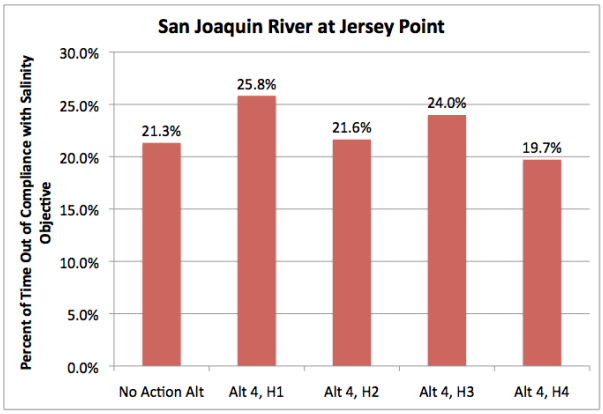
Delta Agricultural Beneficial Use Water Quality Objectives





- **Sacramento River at Emmaton:** Exceedances increase over the No Action Alternative by nearly to over 100 percent of the time in the Alt 4 scenarios, while noncompliance with the objective increases by over 50 percent of the time over the No Action Alternative.



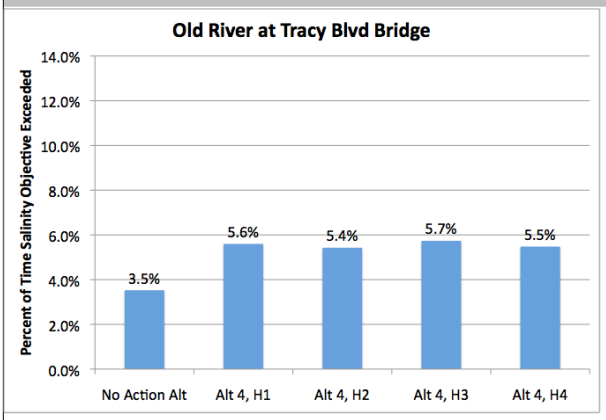


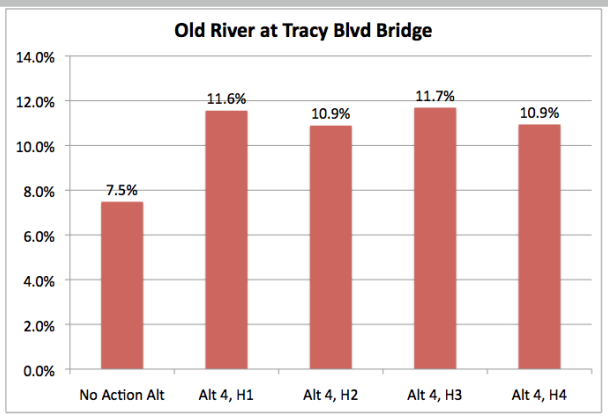
- **San Joaquin River at Jersey Point:** exceedances increase over the No Action Alt by nearly 15 to 80 percent, while non compliance with the objective increases similarly, and decreases slightly in the High Outflow Scenario (where both Spring and Fall X2 apply).

[200] RDEIR/SDEIS, Appendix B, Tables EC-8A and EC-8B, pp. B-134 to B-135.

Figure 11
Projected Salinity Effects by 2060
of the Tunnels Project/Bay Delta Conservation Plan
Percentage of Time Salinity Exceedances and Violations Would Occur

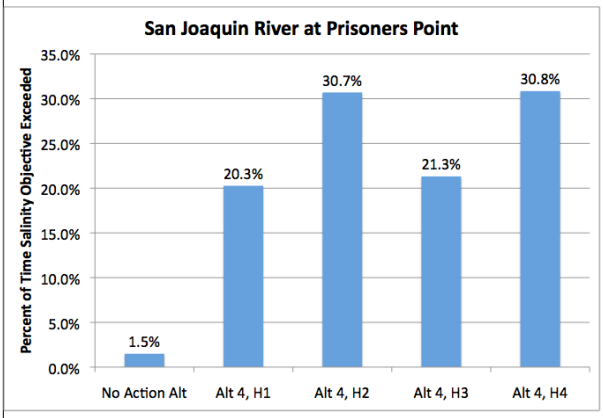
Exceeding Water Quality Objectives | **Out of Compliance with Water Quality Objectives**

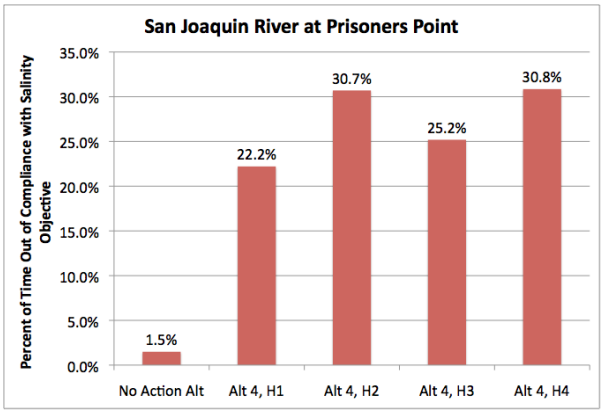




- **Old River at Tracy Blvd Bridge:** Exceedances increase by about two-thirds typically over the No Action Alternative. Noncompliance with the objective would increase by one-third to 40 percent. These percents are lower because as shown above (Table 2) the existing rate of violations is already high.

Delta Fish and Wildlife Water Quality Objective

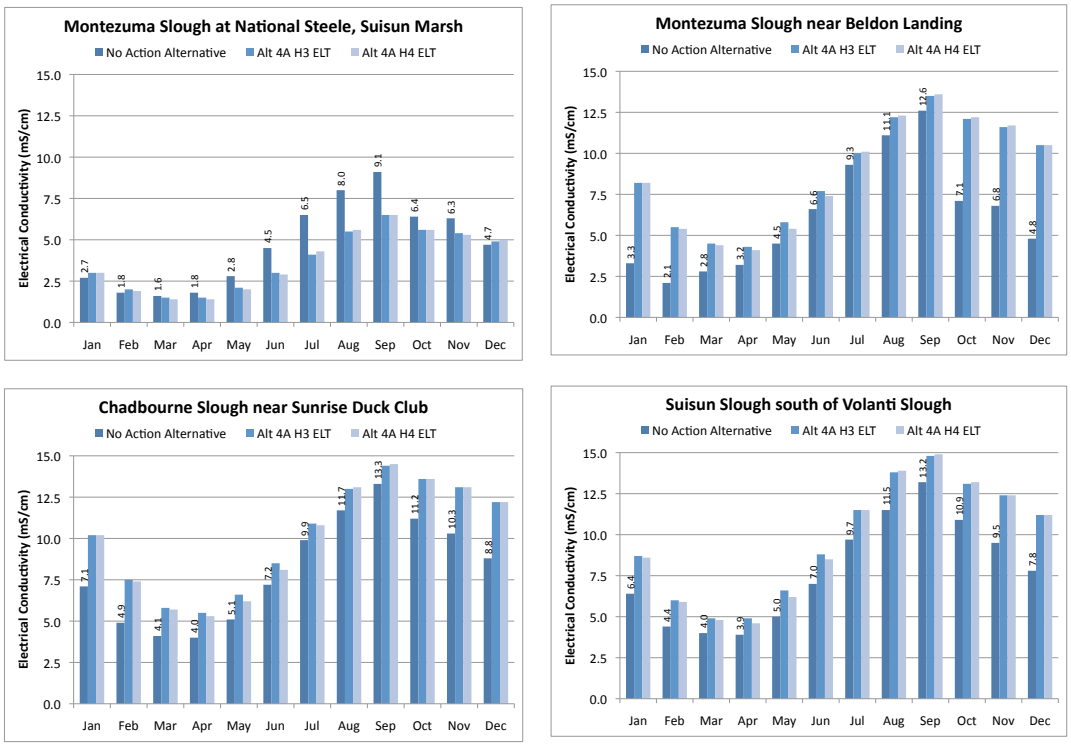




- **San Joaquin River at Prisoners Point:** The percent of time exceedances would occur increases sharply—1200 to 1900 percent increase in exceedances and a similar similar range for noncompliance. This is a fish and wildlife-related salinity objective, while the other three are agricultural beneficial use salinity objectives.

Source: Bay Delta Conservation Plan EIR/EIS, Appendix 8H, *Electrical Conductivity,* Table EC-4, p. 8H-5. Note: Percentage of time is based on a 16-year hydrology modeled using DSM2 in Appendix 8H. Being "out of compliance" is the number of days that the 30-day running average at the monitoring site registers violations of the salinity objective. "Exceeding Water Quality Objective" refers to the number of days that the monitoring equipment actually registers salinity exceeding the threshold level the objective.

Figure 12
Interior Suisun Marsh Waterways to See Salinity Increase from Tunnels Operations



Sources: RDEIR/SDEIS, Appendix B, Tables EC-4 through EC-7. Data values shown are for the No Action Alternative for comparison purposes.

The Tunnels will be the opposite of a "WaterFix" for Suisun Marsh. "California WaterFix" modeling results show that every month's average salinity will increase about 56 percent over present conditions and about 60 percent over future conditions in the Beldon Landing area, 28 percent over present conditions and 27 percent over future conditions near Sunrise Duck Club, and 27 percent over present conditions and 26 percent over future conditions along Suisun Slough near Volanti Slough.[201] This altered salinity regime will result in less habitat for fish and other aquatic species native to the Bay-Delta Estuary, as well as affect agricultural soils and vegetation in Suisun Marsh.

Pesticides

The San Joaquin River is an impaired water body for chlorpyrifos, diazinon, diuron, DDT, and Group A pesticides (human carcinogens) under the Clean Water Act.[202] Increasing that river's fraction of water contributed to the Delta will result in more concentrated pesticides reaching central and western Delta water ways from the San Joaquin, and with longer residence times, its pesticide burdens stay longer. The Bay-Delta Estuary will be left with a worsening pesticide "cocktail" supplied by the San Joaquin River's agricultural effluent.

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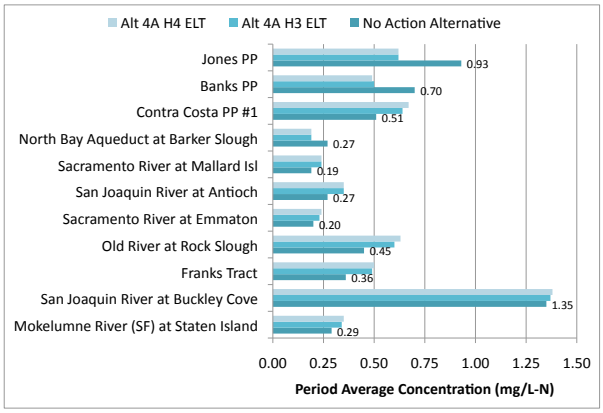
[201] RDEIR/SDEIS, Appendix B, Tables EC-5, EC-6, and EC-7, pp. B-131 to B-132.

[202] US EPA, 2010 California California 303(d) List of Water Quality Limited Segments. Accessible online at http://gispublic.waterboards.ca.gov/pub/303d/2010_USEPA_approv_303d_List_Final_122311wsrcs.xls.

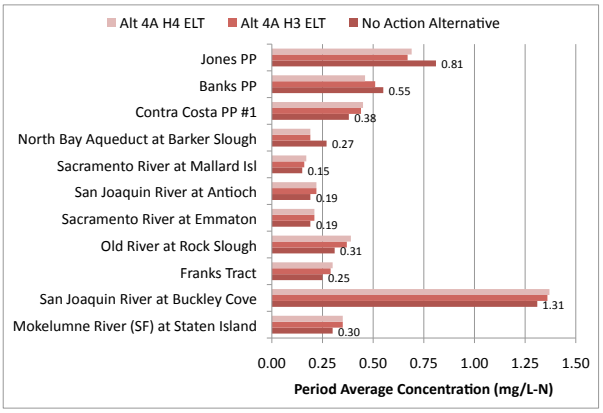
Nitrates

Tunnels Project modeling results indicate increases of nitrates relative to the No Action Alternative of 19 to 34 percent for interior Delta locations in all years (except for San Joaquin River at Buckley Cove near Stockton). Similar modeling results are shown for the western Delta as well, 16 to 30 percent increases in salinity (Figure 13). And Contra Costa Water District's Pumping Plant No. 1 is projected to see a 25 percent increase in nitrates. This would likely result in significant increases in water treatment costs for the District. In all of these locations the monthly period average changes were almost all increases in the range of 10 to 30 percent. As with other pollutants, nitrate concentrations are expected in Tunnels modeling results to decrease significantly at Barker Slough, Jones and Banks.[203]

Figure 13
Period Average Nitrate-N Concentrations



All Years



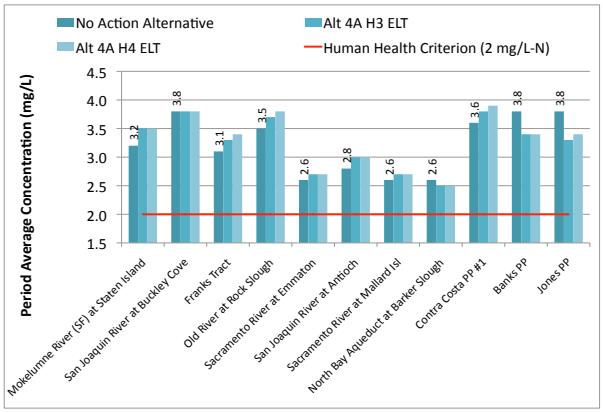
Drought Years

Source: RDEIR/SDEIS, Appendix B, Tables N-4 and N-5, p. B-162. Data values shown are for the No Action Alternative for comparison purposes.

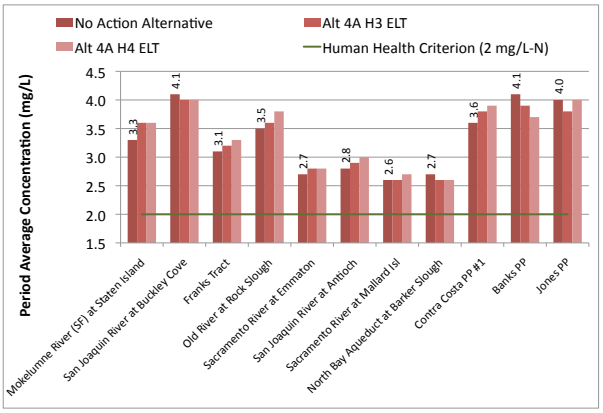
[203] RDEIR/SDEIS, Appendix B, Tables N-4 and N-5, pp. B-162 and B-163.

Dissolved Organic Carbon (Figure 14)

Figure 14
Period Average Dissolved Organic Carbon Concentration



All Years



Drought Years

Source: RDEIR/SDEIS, Appendix B, Table DOC-1, p. B-171. Data values shown are for the No Action Alternative for comparison purposes.

Methyl Mercury

As shown in Figure 15, the ratio of mercury concentrations in largemouth bass tissue was for Alternative 4 Tunnels scenarios well over 1.5 to *twice or more* the toxicity threshold.[204] (DWR and its partners try to divert attention from the toxicity threshold by comparing these levels to continuation of the status quo No Action Alternative[205], but the important comparison is to the toxicity threshold for ecological and public health protection.) Alternative 4A modeling in 2015 shows that the Tunnels project despite having less habitat restoration and no Yolo Bypass improvements would have only slightly less effect on fish tissue concentrations of mercury. Moreover, fish tissue concentrations at several Estuary locations would still be more than 1.5 to 2 times the USEPA's mercury guidance concentration. This analysis, however does not reflect "California EcoRestore's" habitat restoration efforts, which cumulatively can be expected to have impacts similar to the Tunnels and the Bay Conservation Plan last year.[206] The Bay Delta Conservation Plan states that "at this time… there is no proven method to mitigate methylation and mobilization of mercury into the aquatic system resulting from inundation of restoration areas. *The*

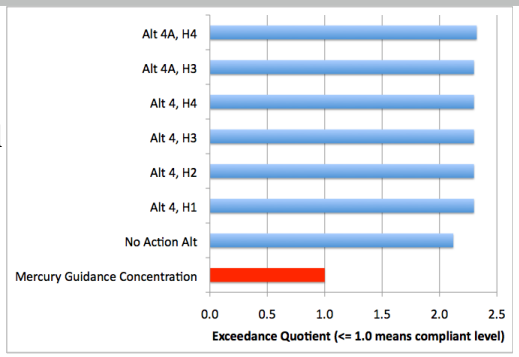
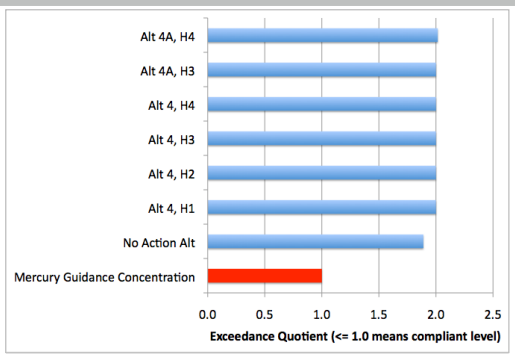
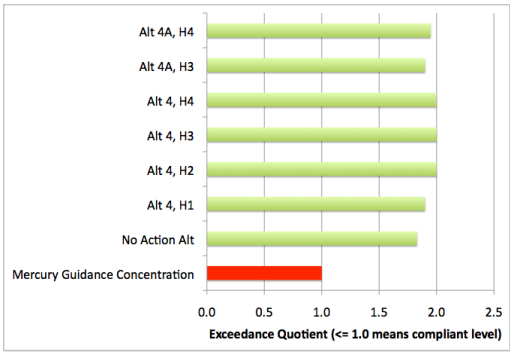
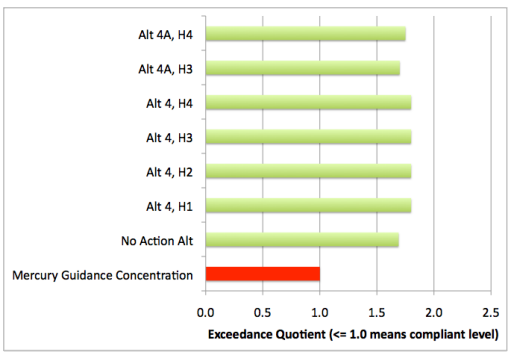
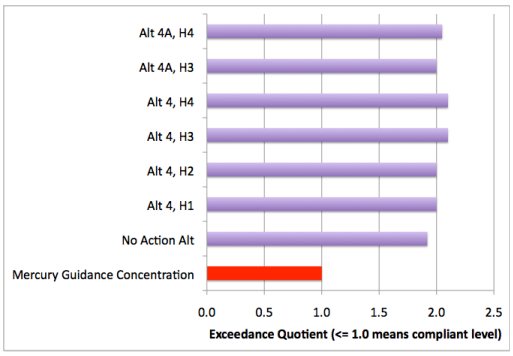
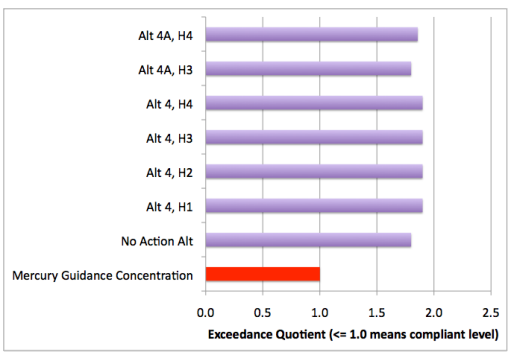
[204] Environmental Water Caucus, *Comment Letter on Bay Delta Conservation Plan and Draft Environmental Impact Report/Statement*, June 11, 2014, Figure 9, pp. 85-86. Accessible online at http://ewccalifornia.org/reports/bdcpcomments6-11-2014-3.pdf.

[205] Bay Delta Conservation Plan/California WaterFix, Recirculated Draft EIR/Supplemental EIS, 2015, Section 4.3.4, p. 4.3.4-33, lines 15-45.

[206] Based on Equation 1 calculations according to Appendix 8I of the Bay Delta Conservation Plan Draft EIR/EIS in 2013-2014 and Appendix B (Tables Hg-5 and Hg-7) and Appendix 8I of the Recirculated Draft EIR/Supplemental EIS in 2015. See also Environmental Water Caucus, *Comment Letter*, June 11, 2014, above.

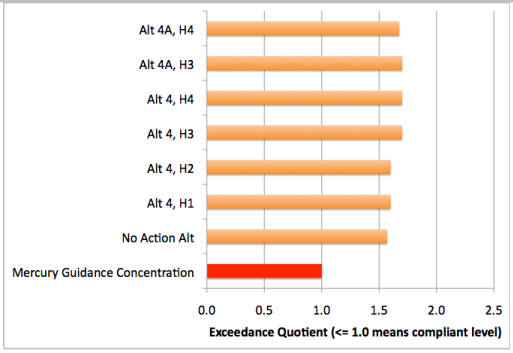
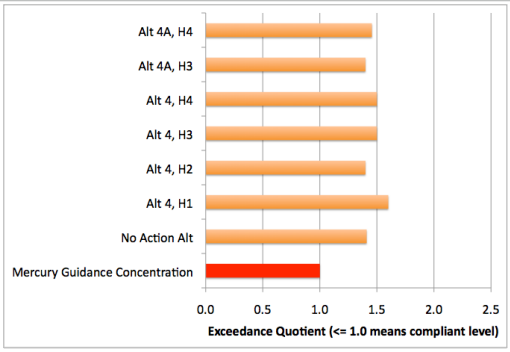
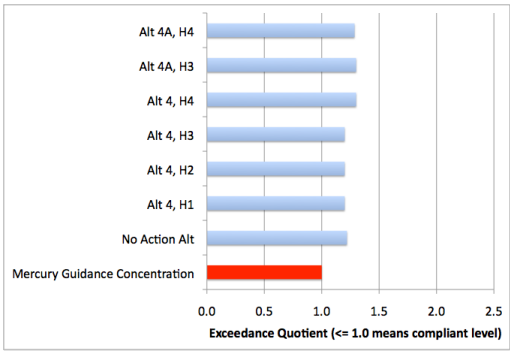
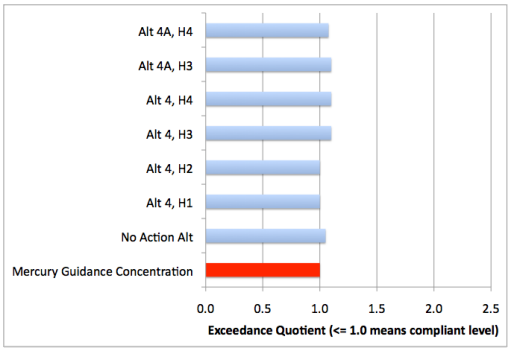
mitigation measures…are meant to provide a list of current research that has indicated potential to mitigate mercury methylation."[207]

Figure 15
Mercury Concentrations in Largemouth Bass (350 mm) Tissue Exceed Toxicity Thresholds in Future Condition with and without Tunnels Project

Location	Average of All Years	Average of Drought Years
Mokelumne River (S Fork) at Staten Island		
Franks Tract		
Old River at Rock Slough		

[207] Charles N. Alpers, et al, *Sacramento-San Joaquin Delta Regional Ecosystem Restoration Implementation Plan, Ecosystem Conceptual Model: Mercury*, prepared January 24, 2008, pp. 12-13. Accessible online at https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=6413.

Figure 15
Mercury Concentrations in Largemouth Bass (350 mm) Tissue Exceed Toxicity Thresholds in Future Condition with and without Tunnels Project

Location	Average of All Years	Average of Drought Years
San Joaquin River at Antioch		
Sacramento River at Mallard Island		

Notes: "Exceedence Quotient" is the ratio of estimated concentrations of mercury (mg/kg of wet weight) to the Delta TMDL guidance concentration of 0.24 mg/kg ww of mercury. In every alternative and existing conditions, "Exceedance Quotients" are greater than 1.0, meaning that in every case, the guidance concentration recommended by USEPA is violated. All Exceedance Quotients reported here are based on Equation 1 calculations according to Appendix 8I of the Bay Delta Conservation Plan Draft EIR/EIS and Appendix B (Tables Hg-5, p. B-147, and Hg-7, p. B-149) and Appendix 8I of the Recirculated Draft EIR/ Supplemental EIS. A ratio of 1.0 or less would mean compliance with the mercury guidance concentration.

Selenium

The RDEIR/SDEIS errs in assuming decreasing selenium tissue loads. Selenium concentrations in water are expected to change only slightly under the Tunnels Project's flow regimes, annual average selenium concentrations in whole-body sturgeon are expected to increase substantially, according to Tunnels Project modeling results in the RDEIR/SDEIS. These results are summarized in Figures 16, 17, and 18. In addition, the RDEIR/SDEIS reports that protective toxicity thresholds recommended by Presser and Luoma will be exceeded under Tunnels Project flow regimes relative to No Action Alternative conditions. In particular, their "low" threshold of 5 mg/kg, dry weight would see an exceedance quotient of 1.1 for both operational scenarios of the Tunnel Project, relative to the No Action Alternative condition of 0.95 for the San Joaquin River at Antioch. Under the higher protective threshold they recommend, the exceedance quotient would not rise above 1.0, but would nonetheless increase from 0.59 to about 0.7. For Sacramento River at Mallard Island, average annual exceedance quotients under Tunnels Project flow conditions would increase over the No Action Alternative from 0.88 to 0.99, very close to exceedance. Modeling results do not

report the error rate for the modeling here performed, so these results could represent exceedance, since they are so close to 1.0.[208]

The Tunnels Project provides no mitigation method at all, just a list of "adaptive management" research issues to be handled later.[209] *Calling the Tunnels project "California WaterFix" plus DWR's premature application to the Corps of Engineers are not real adaptive management, but political prejudging of scientific outcomes.* For both tunnels construction and habitat restoration work in and around the Bay-Delta Estuary, DWR and its partners would have to handle MeHg on a case by case basis.[210]

Retirement of the drainage impaired lands of the western San Joaquin Valley has been found time and again to be the most cost-effective solution to the problem of selenium-tainted irrigation drainage.[211] Land retirement is the best and cheapest option for slowing the rate at which selenium loads and concentrations reach the Delta, and for sequestering selenium in its source rock and soils longer into the future. The natural reservoir of selenium has been documented to hold up to at least another 300 years' worth of tainted drainage at current rates.[212] The National Research Council's 2012 report on Bay-Delta sustainable water management cited this selenium reservoir as well, stating in part:

> Irrigation drainage, contaminated by selenium from those soils, is also accumulating in western San Joaquin Valley groundwaters. The problem is exacerbated by the recycling of the San Joaquin River when water is exported from the delta. While control of selenium releases has improved, how long those controls will be effective is not clear because of the selenium reservoir in groundwater.

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[208] RDEIR/SDEIS, Appendix B, Table Se-7, p. B-186.

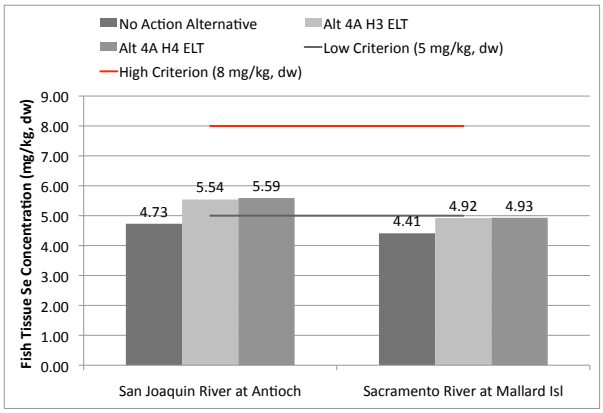
[209] These research approaches include: Characterize soil mercury concentrations and loads on a project-by-project basis; sequester MeHg using low-intensity chemical dosing techniques using metal-based coagulants like ferric sulfide or poly-aluminum chloride. These floculants bind with dissolved organic carbon and MeHg to flocculate and deposit mercury out of solution; minimize microbial methylation activity in restored wetlands; design restored wetland habitat to enhance photodegradation of MeHg; remediate sulfur-rich sediments with iron to prevent the biogeochemical reactions that methylate mercury; cap mercury-laden sediments (essentially entomb and bury them permanently to keep from mobilizing and methylating mercury). The research "measures" that BDCP proposes do not include basic toxicological research into mercury's effects on these and other fish and aquatic species found in the Delta.

[210] Bay Delta Conservation Plan Environmental Impact Report/Environmental Impact Statement, Chapter 8, *Water Quality*, p. 8-260, lines 30-35; p. 8-446, lines 39-42, and p. 8-447, lines 1-2. "Because of the uncertainties associated with site-specific estimates of methylmercury concentrations and the uncertainties in source modeling and tissue modeling, the effectiveness of methylmercury management...would need to be evaluated separately for each restoration effort, as part of design and implementation. Because of this uncertainty and the known potential for methylmercury creation in the Delta this potential effect...is considered adverse."

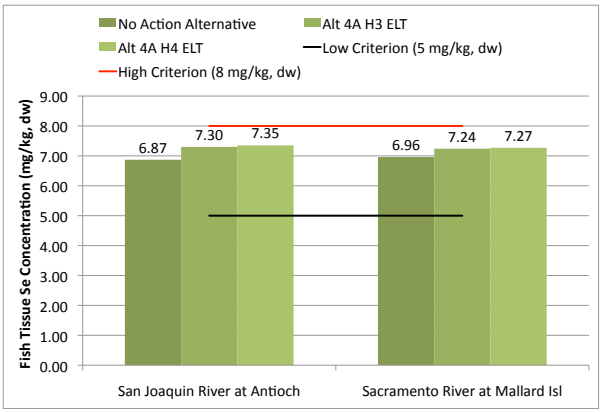
[211] Presser, T.S. and S.E. Schwarzbach. 2008. *Technical Analysis of In-Valley Drainage Management Strategies for the Western San Joaquin Valley*, US Geological Survey Open File Report 2008-1210. Accessible online at http://pubs.usgs.gov/of/2008/1210/.

[212] T.S. Presser and S.N. Luoma, 2006. *Forecasting Selenium Discharges to the San Francisco Bay-Delta Estuary: Ecological Effects of a Proposed San Luis Drain Extension,* United States Geological Survey Professional Paper 1646, cited in: T. Stroshane, *Testimony on Recent Salinity and Selenium Science and Modeling for the Bay-Delta Estuary*, plus appendices, prepared for the California Water Impact Network, August 17, 2012, for Workshop #1, Ecosystem Changes and the Low Salinity Zone, before the State Water Resources Control Board.

Figure 16
Period Average Whole-Body Sturgeon Selenium Concentration



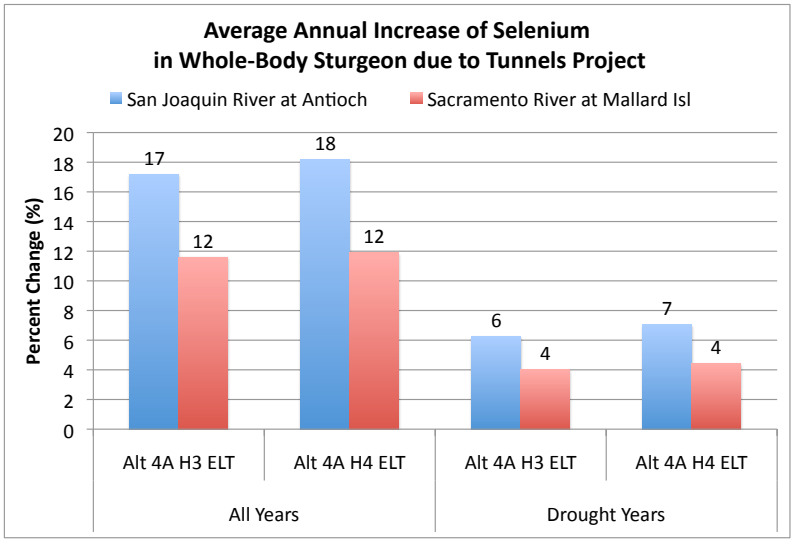
All Years



Drought Years

Source: RDEIR/SDEIS, Appendix B, Table Se-5, p. B-185.

Figure 17

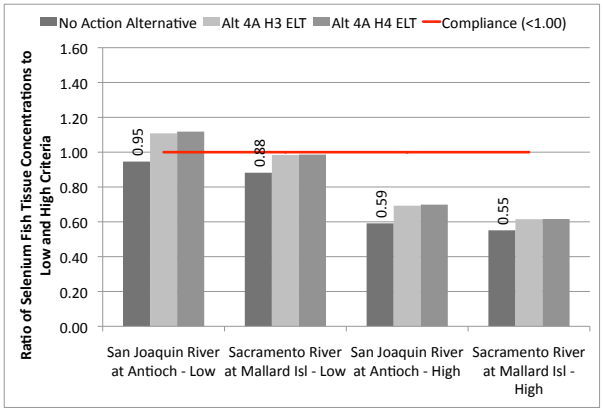


Source: RDEIR/SDEIS, Appendix B, Table Se-6, p. B-185.

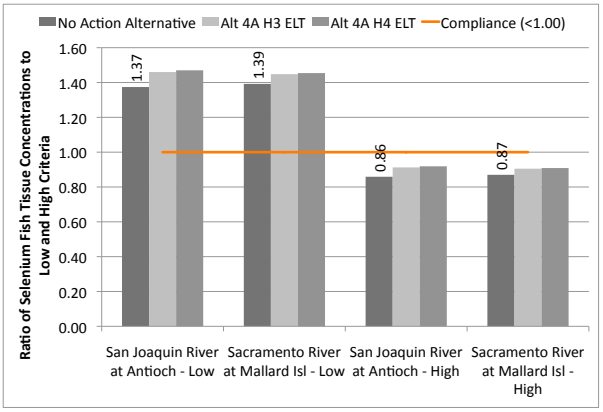
...Other aspects of water management also could affect selenium contamination. For example, infrastructure changes in the delta such as construction of an isolated facility could result in the export of more Sacramento River water to the south, which would allow more selenium-rich San Joaquin River water to enter the bay. The solutions to selenium contamination must be found within the Central Valley

and the risks from selenium to the bay are an important consideration in any infrastructure changes that affect how San Joaquin River water gets to the bay.[213]

Figure 18
Comparison of Annual Average of Selenium Concentrations in Whole-Body Sturgeon with Toxicity Thresholds



All Years



Drought Years

Source: RDEIR/SDEIS, Appendix B, Table Se-7, p. B-186. Data values shown are for the No Action Alternative for comparison purposes.

Of course, ending application of Delta waters to irrigate western San Joaquin Valley drainage impaired lands could reduce the need for deliveries to the San Luis Unit of the Central Valley Project by up to a million acre-feet per year. ***This reduction could provide by itself dramatically improved reliability for all other CVP contractors' allocations, without the investment of billions for the Tunnels project.***

Harmful Algal Blooms

Algae occur naturally in all fresh and marine water environments. Most species are harmless under normal circumstances, but some "cyanobacteria" (also known as "blue-green algae") which use photosynthesis can "bloom" or undergo a rapid population boom during periods of slack flow, nutrient pollution conditions (such as from nitrates, nitrogen and phosphorus), and rising temperatures. Their sheer biomass can cause, according to the USEPA, a dramatic reduction or complete consumption of all dissolved oxygen in the water, suffocating oxygen-respiring organisms like fish, and can produce "cyanotoxins" that pose a significant potential threat to human and ecological health and affect taste, odor and safety of drinking water. They can degrade water ways used for recreation and as drinking water supplies.[214]

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[213] National Research Council, Committee on Sustainable Water and Environmental management in the California Bay-Delta, *Sustainable Water and Environmental Management in the California Bay-Delta*, Washington, DC: The National Academies Press, 2012, p. 94. Accessible online 8 May 2014, at http://www.nap.edu/catalog.php?record_id=13394.

[214] USEPA Region 9, *Frequently Asked Question and Resources for Harmful Algal Blooms and Cyanobacterial Toxins*, Version 1, July 2015. Accessible at http://www2.epa.gov/sites/production/files/2015-07/documents/habs_faqs-and-resources_v1-july2015.pdf.

When these conditions combine, harmful algal blooms can result. These conditions are ripest in August and September in the Estuary, but drought can increase harmful algal bloom activity. The most common blue-green algae species in the Bay-Delta Estuary is called *Microcystis*. In 2014, *Microcystis* algal blooms lasted beyond October into December due to low flows and warm temperatures—water residence time was that long.[215] Its toxin is deadly to wildlife, dogs, and human beings, and exposure can cause liver cancer in humans. It is a dangerous ecological and public health threat.

The Tunnels are likely to increase residence times and slow flows in the western and central Delta. The recirculated Draft EIR/S this year acknowledges that "it is possible that increases in the frequency, magnitude, and geographic extent of of *Microcystis* blooms in the Delta would occur relative to Existing Conditions"[216] as well as compared with the "no action alternative" (or the future condition of the Delta without "California WaterFix" Tunnels).

Because it cannot meet water quality standards, the Tunnels Project cannot obtain the required Clean Water Act 401 Certification it needs for a 404 permit to build the project. To obtain CWA Section 401 certification, the project at issue must meet several CWA requirements, including the requirement to meet water quality standards under CWA Section 303.[217] If these requirements are met, then either the Regional Water Quality Control Boards (RWQCB) or the SWRCB may grant Section 401 certification.[218]

As implementing U.S. EPA regulations assert[219], Section 401 certification "shall" include "a statement that there is a reasonable assurance that the activity will be conducted in a manner which will not violate applicable water quality standards."[220] In other words, the state *cannot* grant Section 401 certification to a project if there is no reasonable assurance that it will meet water quality standards. The examination of whether a project violates water quality standards does not include "balancing" factors such as economic considerations – a project either meets water quality

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[215] Peggy Lehman, Staff Environmental Scientist, California Department of Water Resources, presentation to IEP 2015 Workshop, Folsom, California, "Response of Microcystis to Drought," , March 20, 2015.

[216] RDEIR/SDEIS, Section 4.3, p. 4.3.4-67.

[217] 33 U.S.C. § 1341(a)(1), (d). A state agency may also condition, deny or waive certification under certain circumstances. See also 33 U.S.C. § 1341(a)(1)-(2), and 33 U.S.C. § 1341(d). According to § 401(d), certification "*shall* set forth any effluent limitations and other limitations … necessary to assure that any applicant"complies with certain provisions of the CWA. The Supreme Court in *PUD No. 1 of Jefferson County v. Washington Department of Ecology* held that this includes CWA §303, since § 301 incorporates it by reference. *PUD No. 1 of Jefferson County v. Washington Department of Ecology*, 511 U.S. 700, at 713-715 (1994) (PUD No. 1).

[218] In California, the Regional Water Quality Control Boards are responsible for granting water quality certification, unless the project occurs in two or more regions, in which case the SWRCB is responsible. *See* SWRCB, "Instructions for Completing the Clean Water Act Section 401 Water Quality Certification Application" (Jan. 2005), available at:www.swrcb.ca.gov/centralcoast/water_issues/programs/401wqcert/docs/instruct_401_wq_cert_app.pdf.

[219] The Supreme Court held that the EPA's interpretation is consistent with the CWA in *PUD No. 1*.

[220] 40 CFR § 121.2(a)(3); *PUD No. 1* at 712.

standards, or it does not.[221] Furthermore, as confirmed by the 1994 U.S. Supreme Court decision in *PUD No. 1 of Jefferson County v. Washington Department of Ecology* (*PUD No. 1)*, CWA Section 401 certification considers the impacts of the *entire* activity – not just impacts of any particular discharge that triggers Section 401.[222] For the Tunnels Project to receive Section 401 certification, the *entire project* must show it can be built and operated so as to meet all water quality standards. This it will not do, as we show in this letter and its attachments, because water quality standards cannot be met under the currently-proposed Tunnels Project flow regimes and related effects on estuarine water quality and beneficial uses.

The CWA states that water quality standards "shall consist of the designated uses of the navigable waters involved *and* the water quality criteria for such waters based upon such uses."[223] In other words, "a project that does not comply with a designated [*i.e*., beneficial] use of the water does not comply with the applicable water quality standards."[224] This fundamental CWA mandate does not change when the impact on beneficial uses arises from altered flow. The CWA was established specifically to "restore and maintain the chemical, *physical*, and biological integrity of the Nation's waters"—not solely to regulate "pollutants."[225] The U.S. Supreme Court addressed this issue directly in *PUD No. 1*, stating that:

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[221] 40 CFR § 131.11 ("For waters with multiple use designations, the criteria shall support the most sensitive use"); see also 40 CFR §131.6. As noted by the state Supreme Court, Porter-Cologne "cannot authorize what federal law forbids"; that is, California cannot allow for the "balancing away" of the most sensitive beneficial uses in a reliance on Porter-Cologne rather than the Clean Water Act. *City of Burbank v. State Water Resources Control Bd*., 35 Cal.4th 613, 626, 108 P.3d 862 (2005).

[222] *PUD No. 1*, 511 U.S. 700 (1994). *PUD No. 1* established that so long as there is a discharge, the state can regulate an activity as a whole under §401. *PUD No. 1* at 711-712.

[223] 33 U.S.C. 1313(c)(2)(A) (emphasis added); *PUD No. 1* at 704. In addition to the uses to be protected and the criteria to protect those uses, water quality standards include an antidegradation policy to ensure that the standards are"sufficient to maintain existing beneficial uses of navigable waters, preventing their further degradation." *PUD No. 1* at 705; 33 U.S.C. 1313(d)(4)(B); 40 CFR § 131.6. EPA regulations add that "[e]xisting instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected." 40 CFR §131.12.

[224] *PUD No. 1,* 511 U.S. at 715. *See also* 40 CFR § 131.3(b) (U.S. EPA stating that "[w]hen criteria are met, water quality will *generally* protect the designated use," [emphasis added] indicating that numerical criteria do not always by themselves protect a designated use). Recognized beneficial uses in the Bay-Delta Estuary include, but are not limited to, agricultural supply (AGR), groundwater recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), Estuarine Habitat (EST), and Rare, Threatened, or Endangered Species (RARE).

[225] 33 U.S.C. § 1251(a). Emphasis added.

> Petitioners also assert more generally that the Clean Water Act is only concerned with water 'quality,' and does not allow the regulation of water 'quantity.' This is an artificial distinction.[226]

The Court specifically took note of CWA Sections 101(g) and 510(2), which address state authority over the allocation of water as between users. The Court found that these provisions "do not limit the scope of water pollution controls that may be imposed on users who have obtained, pursuant to state law, a water allocation."[227] This conclusion is supported by the "except as expressly provided in this Act" language of Section 510(2), which conditions state water authority; and by the legislative history of Section 101(g), which allows for impacts to individual water rights as a result of state action under the CWA when "prompted by legitimate and necessary water quality considerations."[228] Accordingly, these CWA provisions are not impediments to California's implementation of its CWA mandate to ensure compliance with water quality standards, *including* within the context of flows.

As noted above, in its August 2010 flow criteria report, the Water Board found that "[t]he best available science suggests that current flows are insufficient to protect public trust resources," and that "[r]ecent Delta flows are insufficient to support native Delta fishes for today's habitats."[229] However, flow regimes proposed by the current Tunnels Project rely on water quality (including flow) objectives that have been failing to protect Delta ecosystem and aquatic species beneficial uses for the last 15 years or more. These include: Water Right Decision 1641 (D-1641)[230]; the 2006 San Francisco Bay/Sacramento-San Joaquin Delta Estuary Water Quality Control Plan; the 2009 NMFS Biological Opinion (BiOp); and the 2008 USFWS BiOp.

Further, the Tunnels Project notably incorporates "bypass flows" that ostensibly establish the minimum amount of water that must flow downstream of the planned north Delta intake. Rather

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[226] *PUD No. 1,* 511 U.S. at 719. In *PUD No. 1*, the U.S. Supreme Court took up the question of whether Washington state had properly issued a CWA Section 401 certification imposing a minimum stream flow requirement to protect fish populations. The Supreme Court held that conditioning the certification on minimum stream flows was proper, as the condition was needed to enforce a designated use contained in a state water quality standard. *Id.* at 723. In reaching this decision, the court noted that the project as proposed did not comply with the designated use of "[s]almonid [and other fish] migration, rearing, spawning, and harvesting," and so did not comply with the applicable water quality standards. *Id*. at 714.

[227] *Id*. at 720.

[228] *Id*. "See 3 Legislative History of the Clean Water Act of 1977 (Committee Print compiled for the Committee on Environment and Public Works by the Library of Congress), Ser. No. 95–14, p. 532 (1978) ('The requirements [of the Act] may incidentally affect individual water rights. . . .It is not the purpose of this amendment to prohibit those incidental effects. It is the purpose of this amendment to insure that State allocation systems are not subverted and that effects on individual rights, if any, are prompted by legitimate and necessary water quality considerations')." *See also* Memorandum from U.S. EPA Water and Waste Management and General Counsel to U.S. EPA Regional Administrators, "StateAuthority to Allocate WaterQuantities – Section 101(g) of the Clean Water Act" (Nov. 7, 1978), available at: http://water.epa.gov/scitech/swguidance/standards/upload/1999_11_03_standards_waterquantities.pdf.

[229] SWRCB, 2010 Delta FlowCriteria Report, pp. 2, 5. Accessible at http://www.swrcb.ca.gov/waterrights/water_issues/programs/bay_delta/deltaflow/docs/final_rpt080310.pdf.

[230] D-1641 requires the SWP and CVP to meet flow and water quality objectives, including specific outflow requirements, an export/import ratio, spring export reductions, salinity requirements, and, in the absence of other controlling restrictions, a limit to Delta exports of 35 percent total inflow from February through June and 65 percent inflow from July through January.

than protecting Delta flow, the Tunnels Project reduces average annual Sacramento River flow downstream of the North Delta intakes.[231] Reduced flows downstream of the north Delta intakes extend all the way past Rio Vista as well.[232] Because it fails to put needed flows back into failing waterways, the Tunnels Project will violate water quality standards by failing to protect sensitive beneficial uses. These include "rare, threatened or endangered species habitat," "estuarine habitat," "spawning, reproduction, and/or early development," and other sensitive beneficial uses.[233] Chinook salmon, Central Valley steelhead, sturgeon and lamprey all migrate and spawn in this area, with Delta smelt and longfin smelt likely spawning in the lower Sacramento River, or in hydraulically connected adjacent channels. Factoring out climate change effects, juvenile and salmon smolt survival rates through the Delta to Chipps Island decrease for each run of salmon under the flow regimes put forward by proponents of the Tunnels Project.[234] The Tunnels Project will thus fail as a set of flow regimes that could support Section 401 certification for necessary Section 404 permits.

Actions that "reasonably protect"[235] rather than "protect" the beneficial use are insufficient. If multiple beneficial uses are at stake, adopted flow criteria must protect the *most sensitive* beneficial use (*i.e.*, they cannot "balance" away uses) and must be based on science.[236] As the state Supreme Court found, Porter-Cologne balancing provisions[237] that provide only "reasonable" protection "cannot authorize what federal law forbids." [238] The more protective CWA water quality standard requirements take precedence over weaker Porter-Cologne language; ecosystem and species needs cannot—and must not—be balanced away.

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[231] See Attachment 1 in this letter, above, and Public Draft Plan § 5.3.1.1, available at: http://baydeltaconservationplan.com/Libraries/Dynamic_Document_Library/Public_Draft_BDCP_Chapter_5_-_Effects_Analysis.sflb.ashx. See Also BDCP Draft EIR/EIS Chapter 3, *Description of Alternatives*, Table 3-17, p. 3-186.

[232] See RDEIR/SDEIS, 2015, Appendix B, Table B.7-30, pp. B-361 to B-362.

[233] State Water Resources Control Board, *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta*, December 13, 2006, p. 9.

[234] By "factoring out climate change effects," we refer to the Tunnels Project proponents' preference for environmental impact comparisons between the No Action Alternative and Alternative 4A (either Scenarios H3 or H4). This comparison reflects the future migration prospects of these fish with and without the proposed Tunnels Project. Even by their preferred comparison of the Tunnels Project with the No Action Alternative, juveniles and smolts have lower survival rates through the Delta to Chipps Island.

[235] SWRCB, "Comments on the Second Administrative Draft Environmental Impact Report/Environmental Impact Statement for the Bay Delta ConservationPlan," p. 1 (July 05, 2013), available at: baydeltaconservationplan.com/Libraries/Dynamic_Document_Library/State_Water_Resouces_Control_Board_Comments_on_BDCP_EIR-EIS_7-5-2013.sflb.ashx. Emphasis added.

[236] EPA regulations state that "criteria must be based on sound scientific rationale and must contain sufficient parameters or constituents to protect the designated use. For waters with multiple use designations, the criteria shall support the most sensitive use." *See* 40 CFR §131.11; *see also* 40 CFR §131.6.

[237] Calif. Water Code § 13000.

[238] *City of Burbank v. State Water Resources Control Bd.*, 35 Cal.4th 613, 626, 108 P.3d 862 (2005) (citing the Supremacy Clause).

USEPA commented last year on the Bay Delta Conservation Plan and its draft EIR/EIS that "[b]ecause the location of X2 [the estuarine habitat water quality objective] is closely tied to freshwater flow through the Delta, the proposed project would have a strong influence on this parameter, yet the Draft EIS does not analyze each alternative's impacts on aquatic life in the context of this relationship."[239] The Bay-Delta Water Quality Control Plan's estuarine habitat water quality objective will likely be violated by the Tunnels Project as well. In the RDEIR/SDEIS nor the Draft EIR/EIS there is no modeling of how changes in X2, the Delta's estuarine habitat water quality objective may affect a variety of estuarine species. X2, which measures the approximate center of the estuary's low salinity zone relative to the Golden Gate, was shown last year in BDCP modeling to migrate upstream under the Tunnels' influence relative to existing conditions and the No Action Alternative.[240] The modeled upstream migration of X2 means that critical habitat for estuarine species will shrink, especially relative to the No Action Alternative (Figure 19). Species abundance and X2 are negatively correlated: when X2 moves further from the Golden Gate, species abundances typically decrease as the size of the Low Salinity Zone decrease (with lower flows), with few exceptions.[241] This apparently remains true of the RDEIR/SDEIS, in which no new modeling is conducted.

The State Water Board has indicated tentative interest in designating subsistence fishing as a beneficial use statewide, including in the Delta.[242] Our organizations and others would certainly welcome such a beneficial use designation in the Delta as elsewhere because protection of the most sensitive ecological and estuarine beneficial uses will also protect subsistence fishing as a beneficial use. Humans are connected to these other beneficial uses, no less so in the Bay-Delta Estuary.

The Tunnels Project will also violate numerous pollutant criteria mentioned above with drastic consequences for public health and vitality of the region's ecosystems and water-dependent economic sectors like tourism, recreation, agriculture, and subsistence fishing. On this score, the Tunnels Project will further violate water quality standards, precluding the State Water Resources Control Board from certifying the project under Clean Water Act Section 401.

In summary: implementation of the Tunnels Project will require a CWA Section 404 permit from the Army Corps of Engineers, which it cannot receive unless the state issues a CWA Section 401 certification. The certification in turn cannot be legally issued unless the project as a whole (*i.e.*, rather than the individual discharge mandating the 404 permit) meets water quality standards, which includes meeting beneficial uses designed to protect Delta species and ecosystems. The Tunnels Project will fails across the board; we provide more details of this failure in Attachment 5 to this letter.

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[239] USEPA, "Draft Environmental Impact Statement for the Bay Delta Conservation Plan, San Francisco Bay Delta, California (CEQ# 20130365), August 26, 2014, p. 5. Accessible at http://www.friendsoftheriver.org/site/DocServer/8-26-14_EPA_Cmmnt_on_BDCP.pdf?docID=9539.

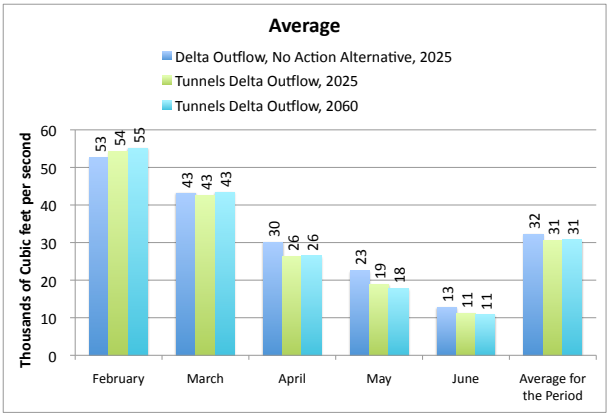
[240] See Figure 7, p., 66 of Environmental Water Caucus comments on Bay Delta Conservation Plan, June 11, 2014; accessible online at http://ewccalifornia.org/reports/bdcpcomments6-11-2014-3.pdf.

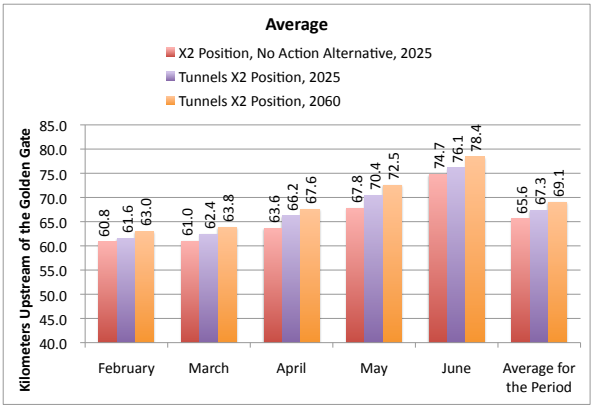
[241] Panel Summary Report on Workshop on Delta Outflows and Related Stressors, May 5, 2014. Accessible online at http://deltacouncil.ca.gov/sites/default/files/documents/files/Delta-Outflows-Report-Final-2014-05-05.pdf. This report identifies "key papers" in which the relationships of X2, Delta outflow, and species abundances are anchored.

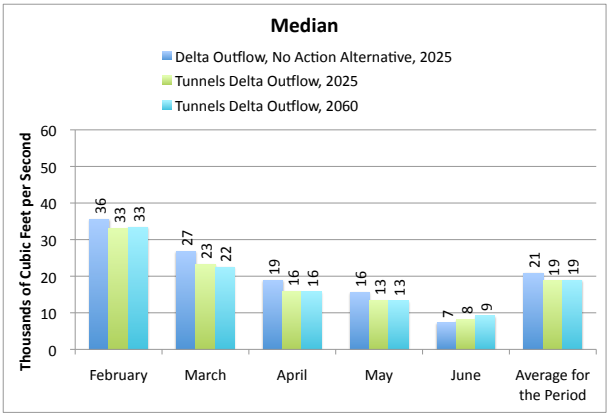
[242] Email from Esther Tracy of State Water Resources Control Board, Office of Public Participation, to Andria Ventura, Clean Water Action, "State Water Resources Control Board Beneficial Uses," May 6, 2014, forwarded to Colin Bailey of Environmental Justice Coalition for Water, thence to Tim Stroshane, Environmental Water Caucus consultant. Tracy's message primarily concerns subsistence fishing by California Indian Tribes.

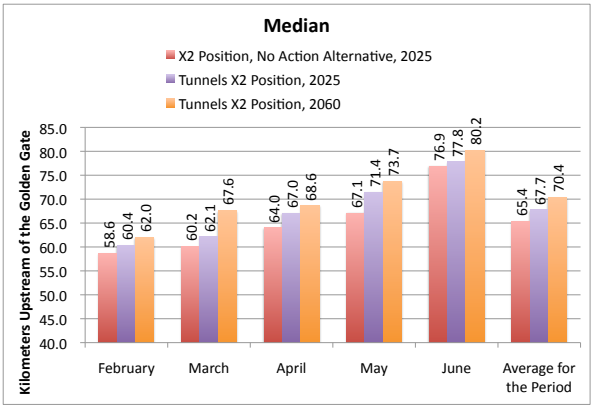
Figure 19
Delta Outflow to Decrease in Future Scenarios with Tunnels Project, Average X2 Position to Move Eastward with Tunnels Project

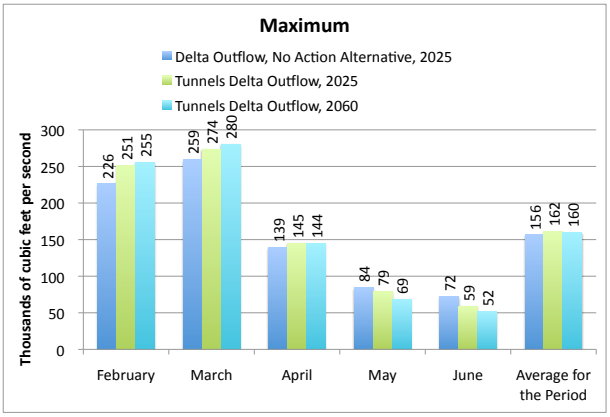
Delta Outflow **X2 Position**

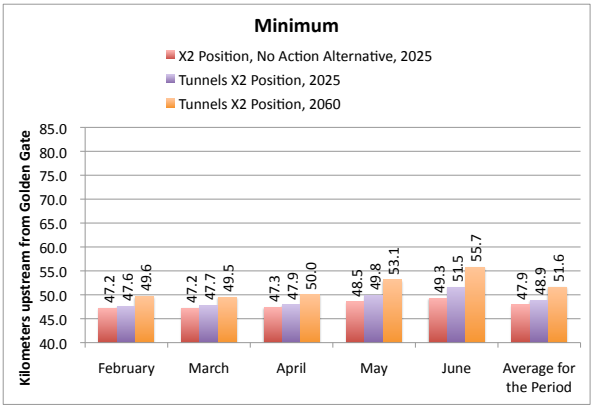












Sources: Bay Delta Conservation Plan, Appendix 5.C., Attachment 5C.A, Table C.A-41, p. 5C.A-174; and Table C.A-42, p. 5C.A-176. NOTE: The average value is skewed somewhat by presence in the data of high outflow and low X2 years. The median is the value where half of all other values in the dataset are greater than the median value, and half are less. Delta outflow and X2 are inversely related. Greater outflow means less distance of X2 from the Golden Gate.

There is no defensible anti-degradation analysis. A cornerstone of the State Water Board and Regional Water Board's regulatory authority is the Antidegradation Policy (Resolution 68-16), which is included in the Basin Plans as an appendix. However, the Tunnels Project Draft EIR/EIS and RDEIR/SDEIS fail to discuss or analyze constituents which will "degrade" water quality. These documents do not evaluate whether the designated beneficial use is degraded and what it means for Clean Water Act compliance.

Section 101(a) of the Clean Water Act (CWA), the basis for the antidegradation policy, states that the objective of the Act is to "restore and maintain the chemical, biological and physical integrity of the nation's waters." Section 303(d)(4) of the CWA carries this further, referring explicitly to the need for states to satisfy the antidegradation regulations at 40 CFR § 131.12 before taking action to lower water quality. These regulations (40 CFR § 131.12(a)) describe the federal antidegradation policy and dictate that states must adopt both a policy at least as stringent as the federal policy and implementing procedures.

The CWA requires the *full* protection of identified beneficial uses. The Federal Antidegradation Policy, as required in 40 CFR 131.12 states, "The antidegradation policy and implementation methods shall, at a minimum, be consistent with the following: (1) Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected." The Delta is classified as a Tier II, "high quality," waterbody by US EPA and the SWRCB. EPA Region 9's guidance on implementing antidegradation policy states, "All actions that could lower water quality in Tier II waters require a determination that existing uses will be fully maintained and protected." [243]

California's antidegradation policy is described in the State Antidegradation Guidance, SWRCB Administrative Procedures Update 90-004, 2 July 1990 ("APU 90-004") and USEPA Region IX, ("Region IX Guidance"), as well as Water Quality Order 86-17. [244]

California's Antidegradation Policy (Resolution 68-16) requires that:

- Existing high quality water will be maintained until it has been demonstrated that any change will be with the maximum benefit to the people of the State.
- The change will not unreasonably affect present and anticipated beneficial uses.
- The change will not result in water quality less than prescribed in the policies.
- Any activity which produces a waste or increased volume or concentration will be required to meet waste discharge requirements using the best practicable treatment or control of the discharge necessary to assure that neither pollution nor nuisance will occur and the highest water quality with maximum benefit to the people of the state will be maintained.

While California's Antidegradation Policy requires that, "[t]he change will not unreasonably affect present and anticipated beneficial uses and the change will not result in water quality less than prescribed in the policies," the Federal Antidegradation Policy requires a "determination that existing uses will be fully maintained and protected."[245]

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[243] EPA, Region 9, Guidance on Implementing the Antidegradation Provisions of 40 CFR 131.12, page 7.

[244] "Guidance on Implementing the Antidegradation Provisions of 40 CFR 131.12" (3 June 1987).

[245] Draft BDCP EIR/EIS, 2013, page 8-408.

The Tunnels Project will reduce flows and result in poorer water quality for a number of constituents, including boron, bromide, chloride, electrical conductivity, nitrate, organic carbon, some pesticides, mercury and selenium. The Delta is currently impaired for many of the constituents that will increase under the proposed alternative. Several water quality constituents are detailed in Attachment 5 where degradation is expected should the Tunnels Project be constructed and operated.

Even if DWR and the Bureau of Reclamation provide an adequate antidegradation analysis of the Tunnels Project, the point remains that they cannot move forward on a 401 certification from the State Water Resources Control Board if any water quality standards are not met. The antidegradation analysis is supposed to ensure they comply with any and all water quality standards, but there is clear evidence that cannot and will not.

Water Quality, Real-Time Operations, and Adaptive Management

Tunnels Project operational modeling criteria scenarios could prejudice water quality objectives for the Bay-Delta Estuary from the State Water Resources Control Board. A large but wholly implicit assumption through the RDEIR/SDEIS is that any one of these alternatives would require wholesale revision to how water quality is regulated in the Bay Delta estuary, in order for the Tunnels Project to move forward. The setting sections of Chapter 5, 6, 7, and 8 (comprising water supply, surface water, groundwater, and water quality) contain no descriptions of the existing water quality objectives as they apply to flow and operational actions by the state and federal water facilities in the Delta. The Draft EIR/EIS Executive Summary last year only hints at this matter, titling one section "New Rules for North Delta Diversions," but does not address this matter, making no mention of the regulatory regime change that would apparently be required of the State Water Board.[246] This year, the RDEIR/SDEIS announces "proposed new flow criteria" for north and south Delta SWP and CVP export facilities, and the proposed new head of Old River operable barrier.[247]

Such changes to Delta flows and hydrodynamics must be evaluated through public review before the State Water Resources Control Board, the only state body authorized to change water quality standards. ***We are concerned that the Tunnels Project proponents hope to circumvent the process by making Tunnels operational criteria seem inevitable and necessary; they are neither, and must be the subject of careful and critical review in the Board's Bay-Delta Plan update process, before the Tunnels Project receives permit approvals for new diversions. Put simply: water quality policy must come before plumbing decisions are made. What is best for the Bay-Delta Estuary, and the Delta's economy and communities comes first***.[248]

Further complicating this picture is the role and regulation by SWRCB of Real-Time Operations [RTOs]. Real-time operational decisions:

> are expected to be needed during at least some part of the year at the Head of Old River gate and the north and south Delta diversion facilities."[249]

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[246] Bay Delta Conservation Plan, Draft EIR/EIS, November 2013, *Executive Summary*, Section ES.9.1.4, "New Rules for North Delta Diversions," pp. ES-52 to ES-53.

[247] RDEIR/SDEIS, Section 4.1, pp. 4.1-11 through 4.1-13.

[248] This stance is also consistent with the Delta Protection Act of 1959.

[249] *RDEIR/SDEIS,* p. 4.1-13, lines 17-18.

Table 5: Comparison of Alternatives' Operational Criteria

Indicator	Alternative 4A Criteria	Alternative 4 Criteria
	New Criteria Included in Alternative 4A	
North Delta Bypass Flows	Initial Pulse Operations plus Initial Pulse Protection: Low-level pumping of up to 6% of total Sacramento River flow such that bypass flow never falls below 5,000 cfs. No more than 300 cfs can be diverted at any one intake. If the initial pulse begins and ends before Dec 1, post-pulse criteria for May go into effect after the pulse until Dec 1. On Dec 1, the Level 1 rules defined in Table 3-16 in the Draft EIR/EIS apply unless a second pulse occurs. If a second pulse occurs, the second pulse will have the same protective operation as the first pulse. Post-pulse Criteria (specifies bypass flow required to remain downstream of the North Delta intakes): October, November: bypass flows of 7,000 cfs before diverting at the North Delta intakes. July, August, September: bypass flows of 5,000 cfs before diverting at the North Delta intakes. December through June: post-pulse bypass flow operations will not exceed Level 1 pumping unless specific criteria have been met to increase to Level 2 or Level 3 as defined in the Section 3.6.4 of the Draft EIR/EIS. If those criteria are met, operations can proceed as defined in Table 3.4.1-2 in the BDCP Public draft. The specific criteria for transitioning between and among pulse protection, Level 1, Level 2, and/or Level 3 operations, will be developed and based on real-time fish monitoring and hydrologic/behavioral cues upstream of and in the Delta. During operations, adjustments are expected to be made to improve water supply and/or migratory conditions for fish by making real-time adjustments to the pumping levels at the north Delta diversions. These adjustments would be managed under Real Time Operations (RTO).	Initial Pulse Operations: see Table 3.4.1-2 of Bay Delta Conservation Plan. October, November: Flows will exceed 7,000 cfs. July through September: Flows will exceed 5,000 cfs December through June: Variable, as shown in Table 3.4.1-2.

Table 5: Comparison of Alternatives' Operational Criteria

Indicator	Alternative 4A Criteria	Alternative 4 Criteria
South Delta operations	1 October, November: No south Delta exports during the D-1641 San Joaquin River 2-week pulse, no Old and Middle River (OMR) flow restriction during 2 weeks prior to pulse, and a monthly average of −5,000 cfs in November after pulse. December: OMR flows will not be more negative than an average of −5,000 cfs when the Sacramento River at Wilkins Slough pulse triggers, and no more negative than an average of −2,000 cfs when the delta smelt action 1 triggers. No OMR flow restriction prior to the Sacramento River pulse, or delta smelt action 1 triggers. January, February[15]: OMR flows will not be more negative than an average of 0 cfs during wet years, −3,500 cfs during above- normal years, or −4,000 cfs during below-normal to critical years, except −5,000 in January of dry and critical years. March[16]: OMR flows will not be more negative than an average of 0 cfs during wet or above- normal years or −3,500 cfs during below-normal and dry year and −3,000 cfs during critical years. April, May: Allowable OMR flows depend on gaged flow measured at Vernalis, and will be determined by a linear relationship. If Vernalis flow is below 5,000 cfs, OMR flows will not be more negative than−2,000 cfs. If Vernalis is 6,000 cfs, OMR flows will not be less than +1,000 cfs. If Vernalis is 10,000 cfs, OMR flows will be at least 1,000 cfs. If Vernalis exceeds 10,000 cfs, OMR flows will be at least +2,000 cfs. If Vernalis is 15,000 cfs, OMR flows will be at least +3,000 cfs. If Vernalis is at or exceeds 30,000 cfs, OMR flows will be at least 6,000 cfs. June: Similar to April, allowable flows depend on gaged flow measured at Vernalis. However, if Vernalis is less than 3,500 cfs, OMR flows will not be more negative than −3,500 cfs. If Vernalis exceeds 3,500 cfs and up to 10,000 cfs, OMR flows will be at least 0 cfs. If Vernalis exceeds 10,000 cfs and up to 15,000 cfs, OMR flows will be at least +1,000 cfs. If Vernalis exceeds 15,000 cfs, OMR flows will be at least +2,000 cfs. July, August, September: No OMR flow constraints.	None specified.

Table 5: Comparison of Alternatives' Operational Criteria

Indicator	Alternative 4A Criteria	Alternative 4 Criteria
Head of Old River Gate operations	October 1–November 30th: RTO management in order to protect the D-1641 pulse flow designed to attract upstream migrating adult Fall-Run Chinook Salmon. HORB will be closed approximately 50% during the time immediately before and after the SJR pulse and that it will be fully closed during the pulse unless new information suggests alternative operations are better for fish. January: When salmon fry are migrating, (determined based on real time monitoring), initial operating criterion will be to close the gate subject to RTO for purposes of water quality, stage, and flood control considerations. February–June 15th: Initial operating criterion will be to close the gate subject to RTO for purposes of water quality, stage, and flood control considerations. The agencies will actively explore the implementation of reliable juvenile salmonid tracking technology which may enable shifting to a more flexible real time operating criterion based on the presence/absence of covered fishes. June 16 to September 30, December: Operable gates will be open.	December, June 16 to September 30, and during the days in November 2 weeks after the D-1641 pulse: Operable gate will be open. All other months: Operable gate will be partially or completely closed via real-time operations, to minimize entrainment risk for outmigrant juvenile salmonids and/or manage San Joaquin River water quality. In determining the criteria for opening and closure of the Head of Old River gate, the fish and wildlife agencies goal is to have the Head of Old River gate closed as much as possible from February 1 through June 15; however, the Head of Old River gate may be open subject to real-time operations for purposes of water quality, stage, and flood management considerations. **Note to Reader:** Prior to issuance of the final BDCP document, operational guidance will be developed for use by project operators in implementing these operational criteria.
Rio Vista minimum flow standard	January through August: flows will exceed 3,000 cfs September through December: flows per D-1641.	None specified.

Table 5: Comparison of Alternatives' Operational Criteria

Indicator	Alternative 4A Criteria	Alternative 4 Criteria
Spring outflow	March, April, May: To ensure maintenance of longfin smelt abundance, initial operations will provide a March–-May average Delta outflow bounded by the requirements of Scenario H3, which are consistent with D-1641 standards, and Scenario H4, which would be scaled to Table 3-24 in Chapter 3, Section 3.6.4.2 of the Draft EIR/EIS. Over the course of the 2081(b) permit term the longfin smelt indices of annual recruitment based upon the 1980–2011 trend in recruitment relative to winter-spring flow conditions will be used to evaluate the effect of operations on longfin smelt (i.e., evaluate positive cohort over cohort population growth). Adjustments to the criteria above and these outflow targets may be made using the Adaptive Management Process and the best available scientific information available regarding all factors affecting longfin smelt abundance.	March through May: As described in Section 3.4.1.4.4, *Decision Trees,* initial operations will be determined through the use of a decision tree. If at the initiation of dual conveyance, the Permit Oversight Group determines that the best available science resulting from structured hypothesis testing developed through a collaborative science program indicates that spring outflow is needed to achieve the longfin smelt abundance objective the following water operations would be implemented within the decision tree The high outflow scenario would be to provide a March0-May average outflow scaled to the 90% forecast of eight-river index for the water year, with scaling as summarized in the separate table below. March-May outflow targets are achieved using flow supplementation provided through an approved water transfer, by limiting CVP and SWP Delta exports to a total of 1,500 cfs and finally, if these two water sources have been utilized, through releases from Oroville, with subsequent appropriate accounting adjustments between the SWP and the CVP. Alternatively, if best available science resulting from structured hypothesis testing...shows that Delta foodweb has improved, and evidence from the collaborative science program shows that longfin smelt abundance is not strictly tied to spring outflow, the alternative operation under the decision tree for spring outflow would be to follow flow constraints established under D-1641. February, June: Flow constraints established under D-1641 will be followed. All other months: no constraints.
	Key Existing Criteria Included in Modeling	
Winter and summer outflow	Flow constraints established under D-1641 will be followed.	Flow constraints established under D01641 will be followed if not superseded by criteria listed above.

Table 5: Comparison of Alternatives' Operational Criteria

Indicator	Alternative 4A Criteria	Alternative 4 Criteria
Fall outflow	September, October, November implement the USFWS (2008) BiOp Fall X2 requirements. However, similar to spring Delta outflow and consistent with the existing RPA adaptive management process, adjustments to these outflow targets may be made using the Adaptive Management and Monitoring Program described below and the best available scientific information available regarding all factors affecting delta smelt abundance.	September, October, November: As described in Section 3.4.1.4.4, *Decision Trees*, initial operations will be determined through use of a decision tree. Within that tree, the evaluated starting operations would be to implement the USFWS (2008) BiOp requirements, and the alternative operation would be to operate to D-1641 requirements. The alternative operation would be allowed, if the research and monitoring conducted through the collaborative science program show that the position of the low-salinity zone does not need to be located in Suisun Bay and the lower Delta, as required in the biOp, to achieve the BDCP objectives for Delta smelt habitat and abundance. All other months: No constraints.
Delta Cross Channel gates	Operations as required by NMFS (2009) BiOp Action 4.1 and D-1641.	None specified.
Suisun Marsh Salinity Control Gates	☒ Gates would continue to be closed up to 20 days per year from October through May.	None specified.
Export to inflow ratio	☒ Operation criteria are the same as defined under D-1641. ☒ The D-1641 export/inflow (E/I) ratio calculation was designed to protect fish from south Delta entrainment. For Alternative 4A, Reclamation and DWR propose that the North Delta Diversion (NDD) does not affect either Delta inflows or exports as they relate to the E/I ratio calculation.	Combined export rate is defined as the diversion rate of the Banks Pumping Plant and Jones Pumping Plant from the south Delta channels.[b] Delta inflow is defined as the sum of the Sacramento River flow downstream of the proposed north Delta diversion intakes, Yolo Bypass flow, Mokelumne River flow, Cosumnes River flow, Calaveras River flow, San Joaquin River flow at Vernalis, and other miscellaneous in-Delta flows. Operation criteria are the same as defined under D-1641, subject to BDCP adaptive management.
Notes		[b] = It has not yet been determined whether the combined export rate will include the diversion rate of the new north Delta diversions.

Sources: Bay Delta Conservation Plan, Section 3.4, *Conservation Measure 1*, Table 3.4.1-1, pp. 3.4-18 to 3.4-20; Bay Delta Conservation Plan/California WaterFix, RDEIR/SDEIS, Section 4.1, Table 4.1-2, pp. 4.1-2, pp. 4.1-7 to 4.1-10.

Table 5 provides a comparison of operational criteria used in the modeling of both the tunnels project of Conservation Measure 1 last year and the Tunnels Project of the RDEIR/SDEIS. This table shows the complex range and number of operational criteria that must be taken into account as indicators or parameters that would govern real-time operations of the Tunnels Project. As indicated in Table 5, there are a number of changes made to Alternative 4A (the Tunnels Project, 2015, the RDEIR/SDEIS) relative to the parameters and operational criteria anticipated for the Conservation Measure 1 tunnels project. For every change and increase to the number and array of criteria that must be tracked for operating tunnels there is a corresponding increase of complex interactions that must be accurately accounted for in real-time in order to make adjustments that provide accurate and appropriate feedback within the system of water project and ecosystem interactions. The efficacy of real-time operations depends entirely on the belief or assumption that real-time operators have an accurate and complete grasp of the systems they work with and the interactions among the varied components of that system. This accurate and complete grasp extends not only to the conceptual and mathematical models with which they work but to basic needs for accurate and timely data from reliable instrumentation in appropriate locations.

Real-time operations are defined in Conservation Measure 1 of the Bay Delta Conservation Plan:

> [R]eal-time operational decision-making process (real-time operations [RTOs]) allows for short-term adjustments in operations within the range of CM1 [that is, Tunnels Project operating] criteria..., in order to maximize water supply for SWP and CVP relative to the [BDCP] Annual Operating Plan and its quarterly updates subject to providing the necessary protections for covered species.[250]

The Tunnels Project's documents expect retention of BDCP's use of RTO teams focused on each Delta facility and coordinating with each other. We note that the RDEIR/SDEIS does not specify that post hoc descriptions of RTOs would be made public through such an Annual Operating Plan. Our organizations are not opposed to RTOs in principle. Tunnels Project proponents acknowledge that RTOs cannot be modeled.[251] Not only can they not be modeled, RTOs themselves will be difficult (if not impossible) to regulate and monitor by state authorities when the most sensitive beneficial uses have admittedly uncertain threshold conditions that should not be exceeded.

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[250] BDCP, November 2013, Section 3.4.1.4.5, *Real-Time Operational Decision-Making Process*, p. 3.4-26, lines 14-18.

[251] This is most explicitly noted in BDCP Appendix 5.C, Attachment 5C.A, *CALSIM II and DSM2 Modeling Results for the Evaluated Starting Operations Scenarios*, pp. 5C.A-157 to 162. Old and Middle River flow real-time operations are an example, p. 5C.A-157, lines 31-44. "The magnitude of the export restrictions [relating to Old and Middle River flows] cannot be simulated accurately with CALSIM because the limits will be adaptively specified by the USFWS smelt working group, based on real-time monitoring of fish and turbidity and temperature conditions. The assumed restrictions provide a representative simulation compared to D-1641 conditions without any OMR restrictions." Moreover, real-time operations pose dramatic uncertainties for South Delta export operations with real-time adaptive operations in place. "If the least restrictive OMR flow of -5,000 cfs were allowed for 6 months (January-June), a maximum of 1,800 taf per year could be pumped (assuming the San Joaquin River diversion to Old River satisfied the 35% of the net Delta depletion that is south of the OMR flow stations. But because of the 1,500 cfs limit on exports in April and May (2009 NMFS BiOp), the maximum exports would be 1,400 taf per year. If the OMR restriction was reduced to -2,500 cfs for the 6 months (with 1,500 cfs in April and May), a total of 780 taf could be pumped from the South Delta. This is a very dramatic reduction for the CVP and SWP exports which historically have exported about half (45%) of the total exports during these months. This uncertainty in the potential south Delta exports is a consequence of the adaptive management framework for the 2008 USFWS BiOp and 2009 NMFS BiOp actions regarding OMR flow." Since BDCP contemplates real-time operations in several other Delta and Yolo Bypass locations, uncertainties will compound for planning operations, exports, and outflows.

Tunnels Project proponents push use of RTOs as "silver bullets" for gaps in mitigation that ought to protect listed fish species but which come up short. This implies that individual experts will be given broad discretion over project operations to make "short-term adjustments"—possibly to the usurpation of established laws and regulations in the name of optimizing or maximizing Delta exports relative to Delta inflows, water quality objectives, and Delta outflow, and potentially contrary to the SWRCB's role as the sole body with authority to change and enforce water quality objectives.

Given that the adaptive management research agenda of Appendix D to the RDEIR/SDEIS is replete with large numbers of studies to increase understanding of the water project and ecosystem interrelationships, EWC lacks confidence that RTO's silver bullet role would succeed. Moreover, this is not the kind of "experiment" that is called for in the literature of adaptive management of natural resources. Even more important it is unlawful as a basis for mitigating significant, unavoidable impacts under CEQA and NEPA. For example, real-time operations and modeling were employed in 2014 and 2015 along the upper Sacramento River by the Bureau of Reclamation to manage and control temperature conditions, but failed to prevent large scale losses of winter-run and spring-run Chinook salmon while SWRCB staff and officials could only stand by helplessly. Real-time operations can create situations in which project operators can behave as they see fit, and apologize later. That is unacceptable now that listed fish species are so close to extinction. We doubt that real-time operations can be permitted sufficient margins of error to prevent catastrophe. This is why we advocate application of the precautionary principle for enforcing and complying with water quality objectives.

Adjustments to water quality flow objectives and beneficial uses should err on the side of precaution. Designated beneficial uses should be protected as required under the CWA and its implementing regulations. The most sensitive of them will be endangered further by Tunnels Project operating criteria that reduce and reverse Sacramento River flows, and bring more polluted San Joaquin River water to Delta channels. The precautionary principle must come to the fore in state and federal fisheries and water project operations management.[252] ***Sound policy preventing extinction and restoring and enhancing the integrity of Bay-Delta Estuary waters must come before new plumbing and south of Delta export deliveries.***

This is not a call to end south of Delta exports, but an appeal to state and federal officials that they realistically assess how to protect fully all beneficial uses by protecting the most sensitive among them fully under the CWA before reasonable quantities of Delta exports can be determined and permitted. ***The Tunnels Project as proposed would put plumbing and exports first, which is neither an acceptable, lawful nor reasonable prioritization.***

Last year, we noted that the essential purpose of real-time operations (or “RTOs”), as described in BDCP, is to

> maximize water supply for SWP and CVP relative to the Annual Operating Plan and its quarterly updates subject to providing the necessary protections for covered species. RTOs would be implemented on a timescale practicable for each affected facility and are part of the water operating criteria for CM1, which will be periodically evaluated and possibly modified through the adaptive management program [citation]. The RTOs will satisfy Water Code Section 85321: “The BDCP shall include a transparent, real-time operational decision-making process in which fishery agencies ensure that applicable biological performance measures are achieved in a timely manner with respect to water system operations.”

[252] Peter Montague, accessed online 11 September 2015 at http://www.precaution.org/lib/pp_def.htm.

When developing adjustments to Tunnels Project operations in real-time, the RTO team[253] would consider covered species risks, actions needed to avoid adverse effects on covered fish species, water allocations currently or in future years, "end of year [reservoir] storage," the San Luis Reservoir low point[254], delivery schedules for any SWP or CVP contractor, and "actions that could be implemented throughout the year to recover any water supplies reduced by actions taken by the RTO team."[255] These criteria for consideration place a great deal of pressure on the RTO team to minimize water costs to North Delta Intake diversions, lest they be compensated later. It would be wise to assume for CEQA and NEPA purposes that some fraction of the time RTO team personnel will make errors.

RTO team activities would be needed under BDCP not only at the North Delta Intakes, but at the Delta Cross Channel gates, Head of Old River gate, the Fremont Weir operable gate, and the "nonphysical barriers" intended to shoo fish away from certain channels without actually blocking river flows.

The RTO team would attempt to plan RTOs as part of BDCP's "Annual Delta Water Operations Plan," by anticipating periods when RTOs may be employed, alternative responses to be considered, the intended benefits to covered species, any expected effects on water supply, and the monitoring and analysis procedures used to track adjustments. RTOs would necessitate an elaborate range of accounting procedures since the state and federal water projects will not tolerate net losses of water exports just because covered fish show up unannounced and uninvited at the North Delta Intakes or the South Delta pumping plants.

This section of Chapter 3 in BDCP states some "salvage density triggers" for Old and Middle River flow adjustments between January 1 and June 15 affecting the South Delta export facilities.[256] At the North Delta Intakes, RTO monitoring will manage bypass flow operations from December through June, but the "exact triggers and responses for RTO at the north Delta diversions are still under development." Generally they are intended to manage north Delta diversion bypass flows:

- within a preset range when juvenile salmonids are emigrating downstream past the intakes.
- within a preset range when adult sturgeon are migrating upstream.
- within a preset range to avoid an increase in frequency and magnitude of reverse flows (and entrainment) at Georgiana Slough compared to baseline (Real-time adjustments to avoid reverse flows are primarily the responsibility of DWR operators with occasional input from RTO team as appropriate.)
- and to manage the distribution of pumping activities among the three north Delta and two south Delta intake facilities to maximize survival of covered fish species in the Delta and water supply.[257]

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[253] The Real-Time Operations Team would comprise one representative each from the three state and federal fishery agencies and from DWR and the Bureau of Reclamation.

[254] San Luis Reservoir has a "low point" of about 300,000 acre-feet of storage below which the intakes for San Felipe Project contractors (Santa Clara Valley Water District and San Benito County Water District) are unable to withdraw water due to the potential for algal bloom contamination and other water quality concerns, due to the fact that when San Luis Reservoir gets that low, temperature and water quality conditions make it economically infeasible for San Felipe Project contractors to treat the water to an acceptable level for beneficial use.

[255] Bay Delta Conservation Plan, Chapter 3, p. 3.4-26, lines 34-39, and p. 3.4-27, lines 1-4.

[256] *Ibid.*, p. 3.4-28 to 3.4-29, Table 3.4.1-3.

[257] *Ibid*., lines 13-22.

But the fact these ranges and pumping activities are undisclosed means the project descriptions are incomplete in both the Draft EIR/EIS and the RDEIR/SDEIS.

Undue, Improper and Excessive Reliance on Adaptive Management. Table 6 identifies threats and stressors for Delta smelt, winter-run and spring-run Chinook salmon, and Central Valley steelhead, and identifies sections of the RDEIR/SDEIS and Draft EIR/EIS sections where effects of the Tunnels Project exacerbate the threats and stressors, and cites to passages, data tables and charts that document the impact and the reliance on real-time operations and adaptive management as supposed mitigations. Such alleged mitigations are metaphorical birds in the bush, not mitigations in the hand. CEQA requires that mitigations actually reduce or avoid significant impacts. RTOs and adaptive management research tasks are not recognized as CEQA or NEPA mitigation "wild cards." You either mitigate to a level less than significant or adverse, or you have not. RTOs and adaptive management are not "enforceable," and cannot be modeled. Mitigations must be measurable and enforceable. Deteriorating through-Delta survival rates of the various runs of Chinook salmon disclosed in the RDEIR/SDEIS belie the RDEIR/SDEIS's claims for the Tunnels Project that supposed mitigations will be effective. ***Thus, the RDEIR/SDEIS is inadequate for proposing mitigations based on real-time operations and adaptive management, and then claiming that significant, adverse impacts are reduced to levels that are less than significant or not adverse.***

The National Research Council's committee on Sustainable Water and Environmental Management of the Bay Delta Estuary suggested using a technique to determine whether adaptive management is an appropriate strategy before it is undertaken. The technique probes three direct criteria:

- the existence of information gaps
- good prospects for learning at an appropriate time scale compared to management decisions, and
- the presence of opportunities for adjustment.[258]

In the case of BDCP, the NRC committee concluded that adaptive management is appropriate for use in BDCP, but further concluded that "BDCP needs to address...difficult problems and integrate conservation measures into the adaptive management strategy ***before there can be confidence in the adaptive management program***." The NRC committee also stressed that it is critical that the results of adaptive management efforts management decision making.

We are more circumspect than the National Research Council about the applicability of adaptive management to the politics of the Tunnels Project and the Delta's future. For one thing, state regulatory and operational agencies fail repeatedly to apply existing statewide water policy goals to their actions, plans, and programs. The Tunnels Project's (and BDCP's) adaptive management program is co-opted by the narrow engineering objectives we described earlier that same statewide policy goals, focused as they are on better export water quality and more reliable, larger export deliveries.

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[258] National Research Council, Panel to Review California's Bay Delta Conservation Plan, *A Review of the Use of Science and Adaptive Management in California's Draft Bay Delta Conservation Plan,* Washington, DC: National Academies Press, 2011 p. 39. Accessible online 7 April 2014 at http://www.nap.edu/catalog.php?record_id=13148. Emphasis added.

**Table 6
Sources of Threat and Stressor Acknowledgements for Listed Species
Bay Delta Conservation Plan/Alternatives 4 and 4A**

Listed Species	Threats and Stressors	Tunnels Project' Sources
Delta Smelt	• Increased water clarity • Potential North Delta intakes entrainment and impingement, predation • Exposure to contaminants and harmful algal blooms due to increased water residence time • Reduced flows and upstream migration of X2 habitat	**Water clarity:** RDEIR/SDEIS, p. 4.3.7-26, 4.3.7-29 **North Delta Intakes: entrainment and predation loss**, p. 4.3.7-24, lines 4-7. **X2 moves upstream:** Alternative 4 modeling applies to Alternative 4A (Section 4.1.6, p. 4.1-43, lines 10-30), shows upstream X2 migration, BDCP Appendix 5C Tables C.A-41 and -42. See also Figures 4.3.2-7 and -8, Section 4.3.2 Water Supply. **Increased residence time:** Appendix 5C, Table 5C.5.4-14 of BDCP; Table 8-60a of RDEIR/SDEIS.
Winter-run Chinook Salmon	• North Delta intakes contact at fish screens and predator concentration (hotspots) • North Delta intakes reduce downstream flows, leading to greater probability of predation effects • Reduced attraction flows for migrating adults from North Delta intakes operation • Exposure to contaminants in late long term period (2060)	**Fish screens operation with adaptive management plan and real-time operations:** p. 4.3.7-48, lines 11-17. Claims to eliminate entrainment and impingement risk, but does not make same claim for delta smelt. **Reduced downstream and attraction flows:** BDCP Appendix 5C Tables C.A-41 and -42. See also Figures 4.3.2-7 and -8, Section 4.3.2 Water Supply. **Increased residence time:** Appendix 5C, Table 5C.5.4-14 of BDCP; Table 8-60a of RDEIR/SDEIS.
Spring-run Chinook Salmon	• North Delta intakes contact at fish screens and predator concentration (hotspots) • North Delta intakes reduce downstream flows, leading to greater probability of predation effects • Reduced attraction flows for migrating adults from North Delta intakes operation • Exposure to contaminants in late long term period (2060)	**Fish screens operation with adaptive management plan and real-time operations:** p. 4.3.7-79, lines 15-17. Claims to eliminate entrainment risk. **Reduced downstream and attraction flows:** BDCP Appendix 5C Tables C.A-41 and -42. See also Figures 4.3.2-7 and -8, Section 4.3.2 Water Supply. **Increased residence time:** Appendix 5C, Table 5C.5.4-14 of BDCP; Table 8-60a of RDEIR/SDEIS.
Central Valley Steel-head	• North Delta intakes contact at fish screens and predator concentration (hotspots) • North Delta intakes reduce downstream flows, leading to greater probability of predation effects • Reduced attraction flows for migrating adults from North Delta intakes operation • Exposure to contaminants in late long term period (2060)	**Fish screens operation with adaptive management plan and real-time operations:** p. 4.3.7-199, lines 1-6. **Reduced downstream and attraction flows:** BDCP Appendix 5C Tables C.A-41 and -42. See also Figures 4.3.2-7 and -8, Section 4.3.2 Water Supply. **Increased residence time:** Appendix 5C, Table 5C.5.4-14 of BDCP; Table 8-60a of RDEIR/SDEIS.

Researchers Craig R. Allen and Lance H. Gunderson have identified more circumscribed conditions under which adaptive management may be applied with success. They argue that adaptive management is probably most appropriate when the degree of scientific uncertainty over environmental systems is high and the governance capacity of the system is also high. Among the "pathologies" or challenges they identify about political and organizational situations that readily undermine the efficacy of adaptive management are: lack of stakeholder engagement, surprises getting suppressed rather than learned from, procrastination on protective action toward the resource of concern (e.g., "paralysis by analysis" or a focus on planning, not action), and "learning not used to justify changing policy and management."[259] "Controllability" of outcomes for the Delta is indeed low at this time: Many, many governmental, private, and non-profit entities compete to govern some or another aspect of the region's natural resources and economic development, immediately creating adaptive management challenges to social learning and effective resource management. It is often remarked that Delta governance is fragmented, given the sheer number of state, local and federal governmental jurisdictions that exist. Is adaptive management really possible when the state of California through its Department of Water Resources tends to regard the Delta as an internal colony to be plundered for its water wealth, and regulatory agencies frequently defer to the Department's activities there? The Tunnels Project is the pinnacle moment for state government's and export service area contractors' colonial impulses toward the Delta.

There are no guarantees that scientific findings can successfully and meaningfully inform intensely political water decisions by mostly bureaucratic water managers. We are concerned that Tunnels Project proponents place too much faith in the water and environmental managers who will govern the Tunnels Project and/or implement BDCP.

There is no reason, after 48,000 pages of BDCP and "California WaterFix", to think that the Tunnels Project will be operated with any more environmental sensitivity or patience for social learning from scientific adaptive management experiments on Delta endangered species and other beneficial uses over the last six decades.

An alternative is to regulate the Delta on the basis of ***the precautionary principle***: First, do no harm. If you aren't sure what you're doing, you should proceed slowly and carefully, or perhaps not at all. Better safe than sorry.[260] If you must, export water from the Delta responsibly, not at the expense of the Delta's ecological and economic needs, and not profligately.[261]

The Proposed Project is not the Least Environmentally Damaging Practicable Alternative (LEDPA). Finally, the Tunnels Project also fails to meet another Section 404 requirement, "[t]he requirement [under CWA § 404(b)(1)...that the project proponent must demonstrate that the project is the [Least Environmentally Damaging Practicable Alternative] LEDPA."[262] "A proposed action is not the LEDPA simply because a federal agency is a partner and chooses that proposed

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[259] Craig R. Allen and Lance H. Gunderson, "Pathology and Failure in the design and implementation of adaptive management," *Nebraska Cooperative Fish & Wildlife Research Unit--Staff Publications*. Paper 79. *http://digitalcommons.unl.edu/ncfwrustaff/79.* Also published in *Journal of Environmental Management* 92 (2011): 13279-1384.

[260] Peter Montague, "The Uses of Scientific Uncertainty," *Rachel's Environment and Health Weekly* #657, July 1, 1999.

[261] See Environmental Water Caucus, *A Sustainable Water Plan For California*, 2015. Accessible online 20 October 2015 at http://ewccalifornia.org/reports/ewcwaterplan9-1-2015.pdf.

[262] USEPA, Preliminary Administrative Draft Comments for the Bay Delta Conservation Plan DEIR/S p. 2, April 26, 2012.

action as its preferred alternative."[263] The Tunnels Project appears to be the *most* environmentally damaging alternative possible. It most definitely is not the least damaging, and therefore, it is not the LEDPA.

Over two years ago, EPA pointed out that "Chapter 8 of the [Administrative Draft EIS] ADEIS indicates that, as proposed, all project alternatives of the BDCP would result in adverse effects to one or more beneficial uses within the affected water bodies."[264] EPA also explained that "The DEIS should sharply distinguish between alternatives and evaluate their comparative merits, consistent with 40 CFR 1502.14(b)."[265] Over one year ago, EPA explained to state agencies that:

> Other reasonable alternatives could be developed by incorporating a suite of measures, including water conservation, levee maintenance, and decreased reliance on the Delta. Such alternatives would be consistent with the purpose and need for the project, as well as with the California Bay-Delta Memorandum of Understanding among Federal Agencies and the Delta Reform Act of 2009.[266]

The "alternatives" of the Tunnels Project presented in the Draft EIR/EIS and the RDEIR/SDEIS are nothing more than peas out of the same pod.[267] There has also been a complete failure on the part of Tunnels Project proponents to obtain and present the Reasonable and Prudent Alternatives (RPA) required under the Endangered Species Act in the RDEIR/SDEIS.[268]

Under the NEPA Regulations, "This [alternatives] section is the heart of the environmental impact statement." The alternatives section should "sharply" define issues and provide a clear basis for choice among options by the decision-maker and the public. 40 C.F.R. § 1502.14. Moreover, if "a draft statement is so inadequate as to preclude meaningful analysis, the agency shall prepare and circulate a revised draft of the appropriate portion."[269]

Operation of the Tunnels Project would have enormous adverse environmental impacts causing and worsening violations of water quality standards. We understand that the exporters and their supporters wish to take enormous quantities of water away from the lower Sacramento River. But we have a government of laws, not of men and women. It is time either to drop this horrendously damaging and expensive project or follow the law whether certain interests want to do so or not. If the project is not dropped, it will be necessary to recirculate another Draft EIR/EIS for public and decision-maker review that presents a reasonable range of alternatives that would not include the Tunnels Project and that would finally began to increase flows through the Delta. The range of reasonable alternatives required by NEPA must include the Reasonable and Prudent Alternatives (RPA) produced pursuant to the Endangered Species Act and the Least Environmentally Damaging Practicable Alternative (LEDPA) pursuant to the Clean Water Act.

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[263] EPA, BDCP DEIS Corrections and Additional Editorial Recommendations, p. 1, August 27, 2014.

[264] EPA's Comments on BDCP ADEIS, p. 3, July 3, 2013.

[265] *Id.* p. 2.

[266] EPA Detailed Comments on the Draft Environmental Impact Statement for the Bay Delta Conservation Plan; August 26, 2014, p. 13.

[267] http://restorethedelta.org/wp-content/uploads/2015/09/7-22-15-BDCP-alts-ltr-pdf.pdf.

[268] http://restorethedelta.org/wp-content/uploads/2015/09/9-9-15-BDCP-final-ltr-pdf.pdf.

[269] 40 C.F.R. § 1502.9(a).

III. Continuing Failure to Provide Adequate Funding Assurances

Because there is no new financial and economic analysis of the Tunnels Project alternatives in the RDEIR/SDEIS, our comments last year about the Tunnels Project apply equally this year:

> There is great instability and uncertainty in the future of water exports from the Delta. Taking account of the range of reasonably foreseeable future of Delta exports shows dramatic effects on the Twin Tunnels' incremental water cost and financial performance. This instability fatally undermines BDCP's capacity to provide credible funding assurances.
>
> Compared to other sources of potential new water supply in California, the Twin Tunnels project ranges from the high end of these alternative sources to being infeasible altogether, depending on financing assumptions used in the BDCP analysis.
>
> The BDCP analysis of water affordability from the Twin Tunnels project is deeply flawed and fails to support the demand-side basis of financial assurances needed to make statutory findings for issuance of incidental take permits. The fishery agencies should reject BDCP incidental take application for lack of adequate funding assurances.
>
> The Twin Tunnels financing plan remains highly uncertain and fails to meet the requirements of funding assurances needed to make statutory findings for issuance of incidental take permits.

Lack of a financing plan means the Tunnels Project and its RDEIR/SDEIS are incomplete, and cannot fulfill disclosure requirements of the California Environmental Quality Act and National Environmental Policy Act.

Economist Jeffrey Michael, director of the Center for Business and Policy Research at the University of the Pacific in Stockton, revisited his analysis of benefits and costs of the Tunnels Project, and found that the Tunnel Project's economics were worsened by three key modifications made to it:

- ***The new plan drops the 50-year permit, and any notion of regulatory assurances about future water deliveries.*** This change has already been revealed and discussed, but its importance to the economics can not be understated. According to the State's BDCP consultants, the regulatory assurance was the basis for ***over half*** of the economic value of the Tunnels to the water exporters' who would finance them. The already flimsy economic case for the Tunnels completely falls apart without the regulatory assurance. It drops the estimated benefits by nearly $10 billion.[270]

- ***The average annual incremental water yield with the tunnels compared to "No Action" has dropped by 135,000 acre feet(af).*** The 2013 EIR (table 5-9) had four scenarios with an incremental yield that ranged from a loss of 27,000 af to a gain of 821,000 af, and an average gain of 392,000 af across all four scenarios. The new EIR has 2 scenarios with an incremental yield ranging between a loss of 23,000 af to a gain of 537,000 af which is an

[270] Jeffrey Michael, *Valley Economy Blog*, "Is BDCP a good deal for water agencies? Jason Peltier and David Sunding disagree," June 23, 2012, accessible at http://valleyecon.blogspot.com/2012/06/is-bdcp-good-deal-for-water-agencies.html; see also "Comparing Benefit Cost Estimates of the Tunnels," September 3, 2013, http://valleyecon.blogspot.com/2013/09/comparing-benefit-cost-estimates-of.html; and "Quick Take on LA Times' Report on Restructuring the Delta Tunnel Plan," http://valleyecon.blogspot.com/2015/04/quick-take-on-la-times-report-on.html.

average gain of 257,000 af. Thus, the best case scenario for water exporters dropped by 284,000 af, and the average dropped by 135,000 af. Michael reports that loss of water yield would drop benefits by about $1 billion.[271]

- ***The new plan shows the estimated construction period has grown from 10 to 14 years***. The construction period is now described as 2016 to 2029, compared to 2015 to 2024 in the 2013 plan. An extra 4 years of waiting to receive any economic benefits (while accumulating financing costs) will further reduce the benefit-cost ratio.[272]

Inaction on financing is underscored by indefinite postponement of public negotiations among the State Water Contractors and the California Department of Water Resources early this year.[273] The problem of repayment arrangements remains unresolved. How would the state or the bond-issuing entity make state water contractors and their member agencies commit to "take-or-pay" financing given the Tunnels Project's exorbitant cost and the relative cost competitiveness of other local supply alternatives? How would federal water contractors of the Central Valley Project finance their fair share as beneficiaries of the Tunnels Project? Can congressional approval be mustered?

Kern County Water Agency, in its draft comment letter on the Tunnels Project earlier this month, stated bluntly:

> The alternatives in the RDEIR/SDEIS serve as an important initial step in developing a workable solution to the challenges facing California's water resources and the Delta. The alternatives, however, do not currently provide [public water agencies] with a Project that is economically feasible. As described in further detail below, additional efforts need to be taken to reduce the cost of the Project, protect the Project's yield, and improve the likelihood that the Project will be constructed and implemented in a manner that improves water supplies at an affordable cost.[274]

The step-up provisions that are missing from existing contractual relationships between Metropolitan Water District and its member agencies continues to be a problem without resolution.[275]

The ability and willingness to pay of Central Valley Project (CVP) water contractors is a continuing question mark. As we noted last year, agricultural water agencies make up about 90+ percent of

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[271] See BDCP, Draft EIR, November 2013, Chapter 5, Water Supply, Table 5-9, accessible at http://baydeltaconservationplan.com/Libraries/Dynamic_Document_Library/Public_Draft_BDCP_EIR-EIS_Chapter_5_-_Water_Supply.sflb.ashx; and http://baydeltaconservationplan.com/RDEIRS508/Recirc_Figures/Fig_4.3.1.15_NS%20Delta%20LT%20Avg_Alt4A-508.pdf.

[272] See http://baydeltaconservationplan.com/RDEIRS/Ap_A_Rev_DEIR-S/App_22B_Air_Assumptions.pdf and http://baydeltaconservationplan.com/RDEIRS/Ap_A_Rev_DEIR-S/App_16A_Regional_Imp.pdf.

[273] "Negotiation Meeting #2 originally scheduled for Tuesday, February 17, 2015 at the Resources Building has been postponed. It will be rescheduled for a later date. Details will be posted to this website when the new date is available." This is the most current announcement as of this writing at the web site of the negotiations, accessible October 25, 2015, at http://www.water.ca.gov/swpao/swpcontractamendmentforbdcp/announcements.cfm.

[274] Draft letter of James M. Beck, General Manager, Kern County Water Agency, to Mark Cowin, Director, DWR, and David Murillo, Regional Director, US Bureau of Reclamation, *Partially Recirculated Draft Environmental Impact Report/Supplemental Draft Environmental Impact Statement*, October 30, 2015, p. 2.

[275] EWC Comments, June 11, 2014, pp. 103-107.

both cost allocations and water deliveries within the CVP. 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 of the CVP, while San Joaquin Valley and Sacramento region CVP contractors have together repaid about 21.5 percent of this cost.[276] Enormous and intractable drainage challenges plague the San Luis Unit on the west side of the San Joaquin Valley, with large repayment obligations currently on the books, including for BDCP Applicant agency Westlands Water District. Westlands and the US Department of the Interior recently announced a proposed settlement concerning drainage service obligations, that, if Congress approves, would relieve Interior and the Bureau of Reclamation of the obligation to provide drainage service to the San Luis Unit, and forgive Westlands' debt obligations to the CVP (including for drainage service repayment), while more cost-effective solutions are available.[277] Should the settlement go through, this would remove existing CVP debt obligations and increase the debt capacity of Westlands Water District to afford taking on the financial burdens of the Tunnels Project—all at exorbitant cost to US taxpayers and the environment.

On the State Water Project side of the picture, a San Francisco Superior Court judge decided on October 9, 2015, that the Metropolitan Water District of Southern California owes the San Diego County Water Authority a cumulative total of $231.7 million due to MWD over-charging water rates to the Authority. The judge is expected to finalize his judgment in the case later this year.[278] Should MWD lose as this case makes its way through appeals, what would be the effect of this case's outcome on MWD's ability to support the financial requirements of the Tunnels Project? Until the case is resolved, how could Tunnels Project funding negotiations resume with such lingering financial uncertainty?

An additional financing issue not disclosed in the RDEIR/SDEIS is the degree to which local and regional water contractors of the State Water Project and Central Valley Project will rely on water rates versus increases in their property tax bases to finance the Tunnels Project. The RDEIR/SDEIS contains no analysis of this possibility nor what economic impacts a property tax-oriented revenue strategy would have on water demand and local water conservation efforts to comply with Water Code Section 85021. Using property taxes rather than water rates to finance the Tunnels Project would disconnect water consumption from the real cost of water, a dysfunctional price signal. ***The SDEIS is deficient and inadequate for omitting an economic and financial analysis of the proposed project, and for omitting discussion of this particular impact on the human economic environment.***

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[276] EWC Comments, June 11, 2014, pp. 107-109.

[277] Congressional Research Service, *Westlands Drainage Settlement: A Primer*, June 25, 2015, pp. 1-2. Accessible at http://pennyhill.com/jmsfileseller/docs/IF10245.pdf; US Bureau of Reclamation, Mid-Pacific Region Public Affairs, Westlands v. United States Settlement, September 2015, accessible at http://wwd.ca.gov/resource-management/drainage/drainage-settlement-documents/ and http://wwd.ca.gov/wp-content/uploads/2015/10/westlands-vs-united-states-settlement.pdf. Westlands' web site contains documents of the draft settlement, a list of permanently retired lands, transfer of facilities' titles, and draft legislation to implement the settlement. See also California Water Impact Network, Food & Water Watch, and Restore the Delta, *Special Report: Retiring Toxic Farmland in Western San Joaquin Valley Would Save Water, Environment, and Taxpayer Money*, July 14, 2015, accessible at https://www.c-win.org/content/c-win-special-report-retiring-toxic-farmland-western-san-joaquin-valley-would-save-water-env. The ECONorthwest study of land retirement is accessible at http://www.econw.com/media/ap_files/San_Luis_Unit_Land_Retirement_Final_Report_071415.pdf.

[278] San Diego County Water Authority, News Release, *MWD Owes Water Authority $232 Million, Judge Declares*, October 10, 2015, accessible at http://www.sdcwa.org/mwd-owes-water-authority-232-million-judge-declares. Additional background and source documents on the case are accessible from SDCWA at http://www.sdcwa.org/mwdrate-challenge.

Finally, the BDCP Tunnels Project plan, RDEIR/RDEIS does not contain a description of adequate compensation for the five Delta counties (Yolo, Solano, San Joaquin, Sacramento, and Contra Costa), Delta cities and towns, and dozens of reclamation districts to offset the property tax and revenue declines resulting from construction and operation of the project. Without adequate analysis for full economic mitigation for the greater Delta region, the plan fails to protect the Delta as place under the Delta Reform Act. This compensation is required by Water Code Section 85089.[279]
So many questions remain for the RDEIR/SDEIS; answers continue to be deferred until some later time. Meanwhile, the RDEIR/SDEIS fails to disclose the problems let alone their resolution.

[279] "Construction of a new Delta conveyance facility shall not be initiated until the persons or entities that contract to receive water from the State Water Project and the federal Central Valley Project or a joint powers authority representing those entities have made arrangements or entered into contractors to pay for…(b) Full mitigation of property tax or assessments levied by local governments or special districts for land used in the construction, location, mitigation, or operation of new Delta conveyance facilities." California Water Code Section 85089(b).

IV. Worsening Failure to Provide Governance and Implementation Support

Failure to coordinate timely Section 7 consultation with NMFS and USFWS means that not only are crucial elements of the NEPA and CEQA environmental reviews incomplete, the details of organization and administration of Tunnels Project construction and operation are also incomplete. Key products of the needed biological opinions—the matter of whether there is jeopardy to listed species, and the formulation and implementation of reasonable and prudent alternatives to prevent jeopardy and encourage survival and recovery of listed species—are the basis for ***organizing and administering*** avoidance and minimization of impacts, identifying opportunities and parameters for real-time operations, and for setting an agenda for adaptive management research tasks. These critical elements help define Tunnels Project governance. In the rush to acquire water rights, water quality certification and dredge/fill approvals from the State Water Resources Control Board and the US Army Corps of Engineers, perhaps there is no greater evidence of this baby having been born prematurely than the absence of these critical elements from the description of the alternatives: ***How will these administrative, scientific, and resource management tasks be organized and governed?***

At least in last year's Bay Delta Conservation Plan there were gestures in these directions, even though in our comments last year we felt there were egregious problems with how BDCP thought through these matters.[280] This year, however, it appears no thought is given by Tunnels Project proponents to these problems; they seem implicitly to regard their new "preferred alternative" as primarily a water project that would be owned and operated by DWR through its State Water Project to help benefit the Bureau's Central Valley Project—though even this simple matter of ownership is not even stated unequivocally that we could find in the RDEIR/SDEIS.

Other questions continue to abound about this project that originated with last year's BDCP: How will the financial assurances be obtained by Tunnels Project proponents to ensure implementation of the reasonable and prudent alternatives, once they emerge from the tardy Section 7 consultation? How will environmental justice and water quality concerns of the public be represented and incorporated into Tunnels Project operational decision-making? (See our Section V comments.) Will there be the equivalent of a Permit Oversight Group? An Authorized Entities Group? Will there even be a "California WaterFix" office to implement the Tunnels Project and oversee operational (including RTOs), restoration, annual planning, and adaptive management agendas and actions? If there are to be any public entities governing operation and management of the Tunnels Project, will their activities and meetings comply with Bagley-Keene and Brown Act governance requirements of the California Government Code? The RDEIR/SDEIS is silent on such crucial matters.

[280] EWC Comments, June 11, 2014, Section V, pp. 110-117.

V. This Year's Tunnels Project is Also Contrary to Law

BDCP's draft July 2013 Implementing Agreement says (twice) that "all activities undertaken pursuant to this Agreement, the BDCP, or the Permits must be in compliance with all applicable local, state and federal laws and regulations."[281] The May 2014 Implementing Agreement contains this identical provision.[282] This section of EWC's comments describes the many ways that BDCP fails to comply with many applicable laws and regulations.

The Bay Delta Conservation Plan, theTunnels Project, and its Project Objectives and Purpose and Need do not comply with existing state or federal law. The EWC documents these failures to comply with established law in this section and the following section where compliance deficiencies are itemized with respect to the National Environmental Policy Act and the California Environmental Quality Act.

We have already commented in Section II herein on unlawful omissions from the RDEIR/SDEIS's statements of objectives, purpose and need for the project, and on its violations of NEPA/CEQA, ESA and the Clean Water Act.

Our comments in this section focus on many ways in which the Tunnels Project violates the Delta Reform Act of 2009, the California Water Code, the California Constitution's ban on waste and unreasonable use and unreasonable method of diversion of water, and the Public Trust Doctrine. We make a case for finding the Tunnels Project inconsistent as a covered action under the Delta Reform Act.

The RDEIR/SDEIS omits key federal legislation from its regulatory baseline.

The RDEIR/SDEIS fails to include Coordinated Operations Act (Public Law 99-546), the San Luis Act (Public Law 86-488) and the Central Valley Project Improvement Act (Public Law 102-575).

RDEIR/SDEIS does not meet Environmental Justice legal standards.

The State of California defines environmental justice as the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies.[283] Federal and state laws require agencies to consider environmental justice and to prohibit discrimination in their decision-making processes. The Presidential Memorandum accompanying the Federal Executive Order (EO) 12898 (1994) singles out NEPA and states that "[e]ach Federal agency must provide opportunities for effective community participation in the NEPA process, including identifying potential effects and mitigation measures in consultation with affected communities and improving the accessibility of public meetings, crucial documents, and notices. The Tunnels Project fails to meet these legal requirements, including.

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[281] *Draft 2013 Implementing Agreement*, Sections 23.6 and 23.22.

[282] *Draft 2014 Implementing Agreement*, Section 24.5, p. 89. Section 24.20, p. 92, also states "This Agreement will be governed by and construed in accordance with the laws of the United States and the State of California."

[283] California Government Code § 65040.12(c).

1. ***CEQA participation requirements***— CEQA requires a process that provides an opportunity for meaningful participation of the public. According to Public Resources Code Section 21061: "The purpose of an environmental impact report is to provide public agencies and the public in general with detailed information about the effect which a proposed project is likely to have on the environment; to list ways in which the significant effects of such a project can be minimized; and to indicate alternatives to such a project." Public Resources Code section 21003(b) provides: "Documents prepared pursuant to [CEQA] should be organized and written in such a manner that will be meaningful and useful to decision makers and to the public." CEQA Guidelines section 15201 explains that "Public participation is an essential part of the CEQA process. Each public agency should include provisions in its CEQA procedures for wide public involvement . . . in order to receive and evaluate public reactions to environmental issues relating to the agency's activities." RDEIR/SDEIS fail to meet the purpose of CEQA and has obstructed meaningful and useful means to public participation. Lead agencies fail to translate critical documents and conduct sufficient outreach to affected communities to facilitate their meaningful participation.

2. ***NEPA participation requirements and Equal Justice Executive Order 12898***: Federal Executive Order (EO) 12898 (1994), Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires Federal agencies to make environmental justice part of their mission and to develop environmental justice strategies. The Presidential Memorandum accompanying the Executive Order specifically singles out NEPA, and states that "[e]ach Federal agency must provide opportunities for effective community participation in the NEPA process, including identifying potential effects and mitigation measures in consultation with affected communities and improving the accessibility of public meetings, crucial documents, and notices."[284] RDEIR/SDEIS fail to meet NEPA participation requirements and the Presidential Memorandum for effective community participation in consultation with affected communities and improving the accessibility of public meetings, crucial documents, and notices.

3. ***Title VI of the Civil Rights Act of 1964*** provides: "No Person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance."[285] RDEIR/SDEIS fails to meet Title VI of the Civil Rights Act of 1964, by failing to provide sufficient documents for information affecting limited English speaking communities, thus excluding them from participation.

4. ***California Government Code section 11135 (a) and implementing regulations in the California Code of Regulations Title 22 Sections 98211 (c) and 98100***. Government Code 11135(a) provides: "No person in the State of California shall, on the basis of race, national origin, ethnic group identification, religion, age, sex, sexual orientation, color, genetic information, or disability, be unlawfully denied full and equal access to the benefits of, or be unlawfully subjected to discrimination under, any program or activity that is conducted,

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[284] Memorandum from President Clinton, March 1994, available at http://www.epa.gov/fedfac/documents/executive_order_12898.htm.

[285] Executive Order 13166 "Improving Access to Services for Persons with Limited English Proficiency," See 65 Fed. Reg. 50,121 (Aug. 16, 200). EPA "Guidance to Environmental Protection Agency Financial Assistance Recipients Regarding Title VI Prohibition Against National Origin Discrimination Affecting Limited English Proficient Persons, 69 Fed. Reg, 39602. (June 25, 2004). Lau v. Nichols, 414 U.S. 563 (1974) providing that National Origin Discrimination to Limited English Speakers. See also Executive Order 13166, 65 Fed. Reg. 50,121 121 (Aug. 16, 200), and 69 Fed. Reg, 39602 (June 25, 2004).

operated, or administered by the state or by any state agency, is funded directly by the state, or receives any financial assistance from the state." RDEIR/SDEIS fails to meet California Government Code section 11135 (a) and California Code of Regulations Title 22 Sections 98211 (c) and 98100 by unlawfully denying full and equal access to documents for EJ communities.

5. ***The Dymally-Alatorre Bilingual Services Act***—Government Code Sections 7290-7299.8 requires that, when state and local agencies serve a "substantial number of non-English speaking people," they must (among other things) translate documents explaining available services into their clients' languages. RDEIR/SDEIS fails to meet the Dymally-Alatorre Bilingual Services Act by not providing at minimum the Executive Summary in languages other than English.[286]

Language Accessibility and Public Participation. Tunnels Project proponents have still failed to respond adequately to requests for materials and outreach in Spanish and other languages. Currently, only some documents (e.g., Fast Facts) are available in five languages other than English, but they only present promotional information that is too limited in scope for use by the target audience to engage meaningfully in the decision-making process. Moreover, the promotional narrative is misleading about impacts of the Tunnels Project.

The Fast Facts documents issued this summer at the July open house events claim to address certain issues raised in comments received on last year's Draft EIR/EIS. However, nowhere in this four-page document are negative impacts of the tunnels mentioned—on public health, health of communities, water quality and subsistence fishing, impact on small communities, air quality, etc. RDEIR/SDEIS documents are still not available in other languages, thus making them inaccessible not just to individuals, but to many communities as a whole which have a high percentage of limited English speakers.

In addition, when environmental justice community members and partners have called the contact number for more information in Spanish, they are prompted to leave a message. After leaving a message, our colleagues reported that the messages were returned only after a week had passed. Immediate questions or concerns were left unanswered or referred to the Fast Fact sheet for answers that do not exist on those sheets.

As noted in a joint May 28, 2014, letter regarding the lack of access for limited English speakers, the environmental justice survey completed to support Chapter 28 of the EIS/EIR (Environmental Justice) excluded non-English speakers within the Delta. Since then, no efforts by Tunnels Project proponents. Thus, EJ legal standards concerning language accessibility are ignored have been made to publish even the Executive Summary in languages other than in English.

Last year, we also commented that the closing of the BDCP forum to critical comment is contrary to the promise of encouraging public participation. This year, the two open house sessions held on July 28, 2015, in Sacramento and the second on July 29, 2015, in Walnut Grove were ostensibly conducted for the purpose of collecting public feedback on the then-current status of the BDCP and Tunnels Project. The open house process once again avoided meaningful public participation and a traditional public hearing process by presenting a "science fair" style open house. In addition, the open house was hosted during typical working hours, which, while convenient for the agencies which staffed the event, did not allow many community members to participate (and contrary to the open house's very purpose: to elicit and capture public comments on the BDCP and Tunnels

[286] California Government Code Sections 7290-7299.8.

Project). Attendees of these open house meetings conveyed to us that no interpretive services were advertised at these meetings for hearing impaired persons.

Land Use, Flood Risk, and Affordable Housing. As we mentioned last year, the Tunnel Project still fails to consider how to maintain affordable housing opportunities in the Delta region as land use changes are implemented. Impacts on low-income home owners, such as threats to public safety and lowered home value must be addressed as part of any proposed land use changes for which the RDEIR/SDEIS call.

Disproportionate impacts of flooding on renters must be mitigated for all residents of the Delta. The impacts on existing communities of alterations in land use plans must be evaluated, particularly the potential for increased vulnerability to flooding.

A sustainable Delta will require dramatic changes in land use decisions. The Delta is already over-developed, thereby limiting choices for flood attenuation and increasing the potential for catastrophic damage associated with a seismic event. As those choices are made, the potential exists to provide equitable benefits in planning for EJ communities, but there is also the threat of disproportionate impacts on those same communities. For this reason, a sustainable vision for the Delta must identify and account for the particular impacts on EJ communities.

We are deeply concerned that the Tunnel Project facilities and alignments may foreclose otherwise viable options for improving land use and affordable housing for the Delta's poorest residents. A disproportionate number of the developments the Tunnels Project would put at risk are populated by low-income, predominantly Latino residents. Changes in flood mapping and zoning will have a profound effect on these developments, while their ability to recover from a flood event is limited.

Moreover, these existing communities may be detrimentally impacted by the advent of upper scale developments protected by new "super levees," which have the potential to re-route flood waters in ways that may negatively impact lower income communities. The following figures taken from Draft EIR/EIS (Appendix: Figure 6-5 SPFC and Non-SPFC Levees, 6-6 Reported Delta Levee Problem Areas, 6-7 Effective Federal Emergency Management Agency Flood Zones, 28-1 Minority Populations in the Plan Area, and 28-2 Low-Income Populations in the Plan Area) demonstrate that FEMA flood zone encompasses much of the central, south, and western Delta as well as Suisun Marsh where many low-income and minority Delta residents live. RDEIR/SDEIS fail to analyze the impacts to communities whose transportation routes could be disrupted due to flood impacts.

At an even greater disadvantage are communities that reside in, but don't own property in, floodplains—including tenants and farmworkers. These communities receive less assistance than property owners after a flood event and are more likely to be permanently displaced and suffer a total or near total loss of their movable property. Any emergency plan must target the special needs and vulnerabilities of these residents as well as their capacity to lead their own recovery effort, if it is, in fact, supported with resources.

As development becomes limited and/or more expensive in floodplains, the supply of low- income housing will be curtailed. Any land use changes must include a plan for provision of affordable housing for the current and expected population in the Delta Region. No such plan appears in the RDEIS/DEIR.

Public Health & Water Quality. The Tunnels Project degrades rather than protects or enhances the water quality in the Delta. In addition, water quality and other assessments in Chapter 25 Public Health are based on many decisions/papers published prior to our drought conditions and do not effectively consider public health impacts for environmental justice communities.

The Tunnels Project creates an overall pattern of inequitable and discriminatory water quality impacts, several of which would have public health implications. By diverting the Sacramento River right as it enters the Delta, the Tunnels diversions reduce flows and slows down water, which increases residence time, which, in turn, concentrates salinity and pollutants in the western and central Delta, while privileging export water quality south of the Delta over in-Delta beneficial uses. Over and over again in the RDEIR/SDEIS, modeling results for boron, bromide, chloride, salinity, nitrate, pesticides, mercury, selenium, and dissolved organic carbon show the maldistribution of water quality impacts from the Tunnels Project. (See our Section II comments on water quality above.) It also contributes to why harmful algal blooms will be significant and adverse impacts of the project down the road. These and other water quality constituents, which were not modeled for the RDEIR/SDEIS, all worsen for south and west Delta water ways and the Suisun Marsh and improve for the export pumps. This is a conscious decision to sacrifice in-Delta water quality and the environmental justice communities that rely on it; it is an integral part of the Project design and purpose and the water quality modeling, however incompletely done, bears that out.[287]

In addition, as noted in RDEIR/SDEIS Chapter 25-66, there are significant bromide effects on drinking water quality, which relate to precursors for carcinogenic disinfectant byproducts—a significant water supply treatment cost issue for both municipal exporters and in-delta municipal drinking water suppliers, such as Stockton, Walnut Grove, Isleton, Rio Vista, etc. Treatment plant upgrades would further increase the burden of water accessibility on small and low-income communities.

As noted in the RDEIR/SDEIS, public health impacts from *Microcystis* blooms have yet to be fully assessed.[288] As RDEIR/SDEIS state, public health impact would be significant and unavoidable. In addition, RDEIR/SDEIS still fails to comprehensively evaluate the public health impacts on small communities on fish consumption and exposure to methylmercury. Species of fish affected by the Tunnels project are pursued during subsistence fishing by populations already burdened with environmental injustice. Despite the RDEIR/SDEIS stating the adverse effects and negative health impacts of the Tunnels Project, more investigation and analysis needs to be completed.[289] As noted in EWC's letter, Interior Suisun Marsh salinity is expected to increase substantially from operation of the Tunnels, according to data in the RDEIR/SDEIS. Reverse flows on the lower Sacramento River will increase, which may injure neighboring water right holders. Numerous water quality pollutant criteria and beneficial uses will be violated and conditions degraded. And subsistence fishers may be harmed by worsening mercury and selenium concentrations contaminating fish tissues in the long term, resulting from Tunnels operations.

BDCP's analysis of selenium as a water quality stressor is inadequate for failing to acknowledge or address uncertainties about the regulatory and technological setting of the Grassland Bypass Project and long term management and mitigation of selenium loading to the San Joaquin River in the western San Joaquin Valley. These projects indicate the ecological and public health risks of

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[287] See Project Objectives at 1-8, Section 1.1.4.1, lines 18-21, stating "DWR's fundamental purpose in proposing the proposed project is to make physical and operational improvements to the SWP system in the Delta necessary to restore and protect ... water quality within a stable regulatory framework, consistent with statutory and contractual obligations" and Project Objectives at 1-8, Section 1.1.4.1, lines 34-37, stating project objectives include to "[r]estore and protect the ability of the SWP and CVP to deliver up to full contract amounts...". Emphasis added.

[288] RDEIR/SDEIS, Appendix A, Chapter 25.3.3.2.

[289] RDEIR/SDEIS, Appendix A, Chapter 28.5.8.7.

various scenarios of selenium loading to the Bay Delta Estuary. BDCP irresponsibly downplays the risks and foreseeable costs and circumstances involved.[290]

The RDEIR/SDEIS have conducted no analysis of in-Delta water demand and subsistence fishing patterns represented by these beneficial uses when it conducts its operational studies of the Tunnels Project. These uses are protected by, among other statutes, the Delta Protection Act of 1959. Additional evaluation must be conducted and allow for proper public participation to apply the precautionary principle (see our Section I and II comments above), rather than allowing real-time operational decisions to exacerbate environmental injustices for Delta-dependent communities.

To ensure that community and public health and the environment are protected by the Tunnels Project, we recommend that decisions on changes in conveyance and operation of Delta water infrastructure be incremental and reversible, dependent upon the measured impact on the ecosystem, essentially incorporated into the proposed Collaborative Science and Adaptive Management Program agenda. This can only be done by having habitat restoration proceed first, so that the public knows it will succeed. Success for the Delta common pool resources should be assured before any Tunnels Project project is deemed safe to develop. Agricultural and storm water discharges must be limited to protect water quality. Remediation of mine sites and stream beds must be prioritized and ecosystem restoration projects must be prioritized, sited, and designed so as to limit the potential for additional methylation of mercury and the related health impacts to wildlife and human health.

Violations of Civil Rights and Environmental Law. The lack of consideration for environmental justice communities, lack of proper assessment of public health impacts and mitigation efforts, lack of access to information regarding the project, lack of provision of adequate oral and written bilingual information, failure to notice meetings in various languages, and limited public access to the document through required computer access, exorbitant fees violate the below cited principles of environmental justice and constitutes violations of CEQA and NEPA, as well as federal and state civil rights of a significant population of the five Delta counties.

The Tunnels Project is contrary to the Delta Reform Act.

Tunnels Project proponents continue to construe their responsibilities under the Delta Reform Act of 2009 far too narrowly. That analysis focuses almost entirely on Water Code Section 85320, which sets out special findings the California Department of Fish and Wildlife must make, and briefly describes an appeal process to the Delta Stewardship Council.[291] There are numerous other sections

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[290] California Water Impact Network testified to the State Water Resources Control Board about limitations of the Grassland Bypass Project and the challenges Grassland area farmers face in developing and implementing a cost-effective treatment technology for concentrating, isolating, managing and sequestering selenium. See: C-WIN, *Testimony on Recent Salinity and Selenium Science and Modeling for the Bay-Delta Estuary*, prepared by T. Stroshane and submitted to the State Water Resources Control Board Workshop #1, Ecosystem Changes and the Low Salinity Zone, September 5, 2012, 44 pages plus appendices. Accessible at http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/cmnt081712/tim_stroshane.pdf.

[291] This narrow treatment is exemplified in EIR/EIS, Appendix 3A, *Identification of Water Conveyance Alternatives, Conservation Measure 1*, Table 3A-15, p. 3A-149. It erroneously assumes that hydrologic conditions, flow criteria, diversion rates, and conveyance designs are the universe of appropriate selection criteria for "a reasonable range of alternatives" for BDCP.

with which the Tunnels Project must also comply, and which are ignored in the limited policy analysis provided in the RDEIR/SDEIS.

A new section in "Project Objectives" introduces a Tunnels Project talking point as an objective: "Improve the ecosystem of the Delta by reducing the adverse effects to certain listed species of diverting water by siting additional intakes of the SWP and coordinated operations with the CVP."[292] The objective alleges as fact something that is demonstrably false using RDEIR/SDEIS modeling results and information: Adding north Delta intakes on the lower Sacramento River increases the number of places where adverse impacts of State Water Project diversions will occur, such as reduced critical aquatic habitat, and increased pollutant loads and concentrations, contrary to state and federal endangered species acts and the Delta Reform Act of 2009.

The Act declares that "the Sacramento-San Joaquin Delta watershed and California's water infrastructure are in crisis and existing Delta policies are not sustainable."[293] The Delta is a critically important natural resource for California and the nation. It serves Californians concurrently as both the hub of the California water system and the most valuable estuary and wetland ecosystem on the west coast of North and South America.[294] Populations of many ecologically and commercially important species (which are also public trust resources) declined substantially over the past 15 years. These declines are related, among other factors, to increased diversions of water since 1985.

Under the Act, departments of the State of California have the duty to protect public trust resources in the Delta. This includes the California Department of Water Resources.[295] The Act's "coequal goals" have a holistic purpose beyond water and ecology:

> "Coequal goals" means the two goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. The coequal goals shall be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place.[296]

The Act states that the public trust doctrine is at the heart of achieving these two coequal goals: "The longstanding constitutional principle of reasonable use and the public trust doctrine shall be the foundation of state water management policy and are particularly important and applicable to the Delta."[297] Objectives in the Act also inhere in and flesh out what the coequal goals mean and how water supply reliability is to be understood:

> The policy of the State of California is to achieve the following objectives that the Act declares are inherent in the coequal goals for management of the Delta:
> (a) Manage the Delta's water and environmental resources and the water resources of the state over the long term.
> (b) Protect and enhance the unique cultural, recreational, and agricultural values of the California Delta as an evolving place.

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[292] RDEIR/SDEIS, Section 1.1.4.1, *Project Objectives*, p. 1-8, lines 32-33.

[293] Wat. Code § 85001 subd. (a).

[294] Wat. Code § 85002.

[295] California Water Code Sections 85210 and 85023.

[296] California Water Code Section 85054.

[297] California Water Code Section 85023.

> (c) Restore the Delta ecosystem, including its fisheries and wildlife, as the heart of a healthy estuary and wetland ecosystem.
> (d) Promote statewide water conservation, water use efficiency, and sustainable water use.
> (e) Improve water quality to protect human health and the environment consistent with achieving water quality objectives in the Delta.
> (f) Improve the water conveyance system and expand statewide water storage.
> (g) Reduce risks to people, property, and state interests in the Delta by effective emergency preparedness, appropriate land uses, and investments in flood protection.
> (h) Establish a new governance structure with the authority, responsibility, accountability, scientific support, and adequate and secure funding to achieve these objectives.[298]

To implement objectives to restore Delta ecosystems and promote statewide water conservation, water use efficiency, and sustainable water use inhering in the coequal goals[299], the Act calls for reduced reliance on the Delta for the state's future water supply needs:

> 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.[300]

The Act finds and declares that the coequal goal of "water supply reliability" in the Act "involves implementation of water use efficiency and conservation projects, wastewater reclamation projects, desalination, and new and improved infrastructure…."[301] The inherent objective, to which the Tunnels Project proponents refer often to "[i]mprove the water conveyance system" in Water Code § 85020 subd. (f) therefore must conform to achieving the coequal goals, including all of the considerations that the Act says inhere in those goals as well as meet the defining declarations of the Act.[302]

When the Act's objectives ("inherent in the coequal goals") and policy declarations for the state and the Delta are taken as a whole (which is how legislation should be read and interpreted)**,** it is evident the Act intends active protection of the Delta's water, cultural, and environmental resources —cumulatively, they are about *stewardship*. To steward, according to the *American Heritage Dictionary of the English Language*, is to manage, guide, administer, or supervise, often in the care of real property, passengers on a ship or airliner. More recent meanings of "steward" connote care for the landscape and the environment. The plain meaning of "stewardship" provided by the Act "for the sustainable management of the Sacramento-San Joaquin Delta ecosystem, to provide for a more reliable water supply for the state, to protect and enhance the quality of water supply from the Delta, and to establish a governance structure that will direct efforts across state agencies to develop a legally enforceable Delta Plan."[303]

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[298] California Water Code Section 85020.

[299] California Water Code Sections 85020 subds. (c-d).

[300] California Water Code Section 85021.

[301] California Water Code Sections 85054, 85004 subd. (b).

[302] *Ibid.*

[303] California Water Code Section 85001 subd. (c).

While the Tunnels Project aspires to "fundamental, systemic change" for the Delta, it takes no responsibility for and even evinces open hostility to statewide water policy goals that intend that the Delta be protected and sustainably managed as "the most valuable estuary resource" on the west coast of North America. The Tunnels Project severs the coequal goals of the Delta Reform Act and to concentrate state agency effort on water supply reliability at the expense of ecosystem enhancement in the Delta.

Merely achieving prevention of "jeopardy" for listed fish species under a new Section 7 biological opinion will not protect and enhance the Delta ecosystem. Jeopardy will be difficult enough to avoid since one purpose of the Tunnels project is

> restor[ing] and protect[ing] the ability of the SWP and CVP to deliver up to full contract amounts, when hydrologic conditions result in the availability of sufficient water, consistent with the requirements of state and federal law and the terms and conditions of water delivery contracts held by SWP contractors and certain members of San Luis Delta Mendota Water Authority and other existing applicable agreements."[304]

While the RDEIR/SDEIS protests that this purpose of meeting contractual amounts is "not a target," and "not intended to imply that increased quantities of water will be delivered" by the Tunnels Project, this purpose is directly contrary to the Delta Reform Act's mandate for water importers to reduce their reliance on Delta supplies.[305]

Last year, the Draft EIR/EIS failed to properly consider what it will take to recover Delta ecosystems and restore fisheries. California Water Code Section 85320 lays out a process through which BDCP would go before the California Department of Fish and Wildlife prior to receiving approval of its natural communities conservation plan and incidental take permit application package and issuance of incidental take permits. Section 85320(b)(2) lists among the special findings CDFW must make:

> (A) *A reasonable range of flow criteria, rates of diversion, and other operational criteria* required to satisfy the criteria for approval of a natural community conservation plan as provided in subdivision (a) of Section 2820 of the Fish and Game Code, *and other operational requirements and flows necessary for recovering the Delta ecosystem and restoring fisheries under a reasonable range of hydrologic conditions*, *which will identify the remaining water available for export and other beneficial uses.*[306]

The Tunnels Project is no longer eligible for this special process in the Delta Reform Act. It will instead be handled as a covered action by the Delta Stewardship Council, which will evaluate its consistence with the Delta Plan. We believe this will be hard for the Council, since the Delta Plan is currently in litigation over whether the Delta Plan itself complies with the Act. It will also be challenging to determine whether a covered action such as the Tunnels Project could truly be found consistent with the Delta Plan without having to revise the Plan first.

Last year's Draft EIR/EIS failed to properly comply with the Act's co-equal goals. The "co-equal goals" are defined as:

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[304] RDEIR/SDEIS, Section 1.1.4.2, *Purpose and Need*, p. 1-9, lines 33-37.

[305] California Water Code Section 85021.

[306] Emphasis added.

> the two goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. The coequal goals shall be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place.[307]

The Tunnels Project thoroughly unbalances application of the co-equal goals of the Delta Reform Act. It fails to "improve the water conveyance system," as required by Water Code Sections 85020(f). While this section of the Act does not set forth criteria by which "improvements" to the conveyance system of the Delta are to be judged, the Tunnels Project fails to protect, restore and enhance the Delta ecosystem; as we have already pointed out in these comments, it will actively reduce critical habitat for listed fish species, and it will degrade water quality conditions resulting in violations of pollutant criteria or degradations to sensitive beneficial uses of the Bay Delta Estuary. Thus, it cannot be found to "improve the water conveyance system" over what exists in the Delta now or at the future time without the project in the RDEIR/SDEIS's No Action Alternative, since "improvement" must be evaluated under the coequal goals framework of the Act.

The Tunnels Project also fails to comply with WC Section 85020(g) because it does not consider any Delta levee improvements in its project purpose/objectives.[308] The RDEIR/SDEIS only considers the Tunnels Project as a means of reducing future impacts to water deliveries from sea level rise and seismic or other levee failure. It does not consider Delta levee improvements as a means of reducing flood risk not only to water conveyance, but also to the people, places and infrastructure of the Delta.

Omission of Delta levee improvements flies in the face of the Delta Protection Commission's *Economic Sustainability Plan* that states that levees can be brought up to PL 84-99 standard to reduce the probability of catastrophic levee failure for $2 to $4 billion. To be consistent with Water Code Section 85020(g), BDCP would have to include a goal (and implementing conservation measures and funding assurances) to improve critical Delta levees for both ecosystem restoration and water supply reliability.

Last year's Draft EIR/EIS failed to comply with Water Code Section 85021. It is state policy to reduce reliance on diversions from the Delta (Water Code Section 85021[309]). However, the project objectives and purpose call for "full contract deliveries" to CVP and SWP contractors. According to USEPA[310], that volume of water is 7.43 million acre-feet, nearly a million acre-feet more than the maximum amount of water ever diverted from the Delta in a single year. This BDCP outcome would increase, not reduce, reliance on the Delta for imported water. While the federal purpose clarifies that alternatives providing less than full contract deliveries is acceptable, the objective/purpose to work toward meeting full CVP and SWP contract deliveries is clearly an attempt to increase Delta diversions, not reduce them. This fundamental flaw continues in the RDEIR/SDEIS.

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[307] California Water Code Section 85054.

[308] Water Code Section 85020(g) which states: "The policy of the State of California is to achieve the following objectives that the Legislature declares are inherent in the coequal goals for management of the Delta: ...(g) Reduce risks to people, property, and state interests in the Delta by effective emergency preparedness, appropriate land uses, and investments in flood protection."

[309] See footnote 217, above.

[310] See June 2010 letter from USEPA to USBR, NMFS and USFWS. Accessed at http://www.c-win.org/webfm_send/150

It should also be noted that in drought years, the Bureau and DWR habitually petition the State Water Resources Control Board to have Delta water quality standards waived on vague grounds of protecting "health and safety" for their contractors. The Board has yet to refuse these requests, in defiance of legal due process of all other interested parties, and there is no reason to think that the operational criteria modeled in the Draft EIR/EIS and for the RDEIR/SDEIS[311] would change this propensity to request temporary urgency changes that the Board grants with impunity. In any event, BDCP modeling and expected reliance on "real-time operations" will continue and expand reliance on the Delta for exports.

By definition of the project's purpose, need, and design of each of the alternatives, the Tunnels Project violates California Water Code Section 85021, which requires reduced reliance on the Delta for future water supplies among those already depending on Delta imports. The project's operational goals focus on increasing reliance on the Delta for North Delta Intake diversions during wet and above normal years, while continuing emphasis on South Delta diversions for export in all other water years.[312] Moreover, the Tunnels Project's unacknowledged purpose of increasing the reliability of market-based cross-Delta water transfers is also contrary to Water Code Section 85021.

Tunnels Project proponents fail to demonstrate in the RDEIR/SDEIS what they have done locally and regionally to decrease their reliance on Delta imports/exports and to justify each of their needs for the Tunnels Project.

The Tunnels Project proponents' obsessive focus on full contract deliveries and north Delta diversions to the Tunnels Project come at exclusion of other potential actions. The coequal goals of the 2009 Delta Reform Act can be met by other activities less disruptive to the Delta such as levee improvements, increased Delta outflows and 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. But no such actions are analyzed as reasonable alternatives in the RDEIR/SDEIS.

The Tunnels Project RDEIR/SDEIS fails to specify how the preferred alternative would comply with Water Code Section 85086(c)(2) of the Delta Reform Act. This section requires the State Water Resources Control Board to include "appropriate flow criteria" in its order on the Tunnels Project's change petition. These criteria "shall be informed by the analysis conducted pursuant to [Water Code Section 85086(c)(1)]"—meaning the Board's *Delta Flow Criteria* report of August 2010. The RDEIR/SDEIS also fails to mention and analyze the need to incorporate continued compliance with this requirement over time through an adaptive management-based program integrating science and monitoring results into ongoing Delta water management.

The RDEIR/SDEIS fails to demonstrate how the Tunnels Project complies with the Reasonable Use and Public Trust Doctrines, mentioned in Water Code Section 85023, which states that these doctrines are "particularly important and applicable in the Delta." The EWC has located no analysis in theRDEIR/SDEIS that evaluate the proposed/preferred alternative from the standpoint of its compliance with Article X, Section 2 of the California Constitution, or of its compliance with the Public Trust doctrine. Evaluation of this action is required by Water Code Section 85023 (which merely states existing law applicable throughout California) to demonstrate this compliance.

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[311] RDEIR/SDEIS, Section 4.1, Table 4.1.1-2.

[312] Bay Delta Conservation Plan EIR/EIS, Chapter 5, Water Supply, Figures 5-22 (wet years) and 5-23 (dry years).

The RDEIR/SDEIS fails to demonstrate compliance with Water Code Section 85031(a), specifically area of origin laws and doctrines that apply to the Delta. This section of the California Water Code requires that actions contemplated under the Delta Reform Act comply with area of origins water rights statutes. The RDEIR/SDEIS fails to demonstrate through its modeling results ior any other analysis that it complies with Water Code Sections 12200-12205 (the Delta Protection Act of 1959). Delta outflow is reported by the RDEIR/SDEIS to decrease while residence times of water in the Delta increase. In-Delta salinity levels are projected by the RDEIR/SDEIS to increase which will reduce the quality of water for in-Delta agricultural uses for irrigation and the beneficial uses enjoyed by environmental justice communities whose members rely on subsistence fishing in the Delta for a significant portion of their diet and nutrition. Interior Suisun Marsh salinity is expected to increase substantially from Tunnels operation, according to data in the RDEIR/SDEIS (Figure 12, this document). Reverse flows on the lower Sacramento River will increase, which may injure neighboring water right holders and put vulnerable listed and other fish at risk of entrainment and death at the north Delta intakes. Numerous water quality pollutant criteria and beneficial uses will be violated and degraded. And subsistence fishers may be harmed by worsening mercury and selenium concentrations contaminating fish tissues in the long term, resulting from Tunnels operations. ***The RDEIR/SDEIS has conducted no analysis of in-Delta water demand and subsistence fishing patterns represented by these beneficial uses when it conducts its operational studies of the Tunnels Project. These uses are protected by, among other statutes, the Delta Protection Act of 1959.***

In addition, the RDEIR/SDEIS fails to identify the role of the ***Delta common pool*** in shaping the experiences of environmental justice communities and the informal ways in which they make use of Delta habitat, fish, and other resources for their subsistence and recreation. They are beneficial users of water via the common pool and its public trust resources. The California Department of Water Resources recognizes the Delta common pool for purposes of analyzing and regulating water transfers.[313]

The EWC described the relevance of the 1959 Delta Protection Act to the water policy framework that governs projects like the Tunnels Project.[314] We further linked Delta Protection Act concerns to environmental justice by virtue of the fact that the Act treats protection of Delta "users" which includes, in our view, not just lawful water diverters residing in the Delta, but all beneficial users of water, human and non-human.

The RDEIR/SDEIS fails to comply with Water Code Section 1700, et seq.

Last year, we commented on Conservation Measure 21 (addressing non-project in-Delta diversions through "remediation" or removal of land owners' diversions. This was partly about fish screen installation, but it was also about eliminating competing diversions about which the Bureau and DWR complained to the State Water Resources Control Board last summer.[315] This led to a sequence of water rights complaints, charges, counter-charges, and counter-complaints from interested

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[313] California Department of Water Resources, *op. cit.*, footnote 27, above, p. 3.

[314] EWC Comment Letter, June 11, 2014, pp. 124-125.

[315] Letter of Mark Cowin, Director, California Department of Water Resources and David Murillo, Regional Director, US Bureau of Reclamation, to Barbara Evoy, Chief, Division of Water Rights, State Water Resources Control Board, July 23, 2014. Accessible online at http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/complaints/docs/072314_dwr_reclam_s_and_c_deltadiversions.pdf.

parties who use or divert water in and from the Bay-Delta Estuary.[316] Subsequent to these letters, SWRCB issued notices seeking additional information about water rights and how better to enforce the state's priority system of allocating water during drought conditions in the Delta, the Sacramento Valley and the San Joaquin Valley.[317] SWRCB issued an order requiring all water right claimants in the Central Valley watershed of the Delta to disclose and document water right claims and report their claims and usage plans during 2015. The Board subsequently prepared a database of all the information they received from the solicitation. Using the database, the Board prepared and released demand curves from which it determined water availability for the Central Valley during 2015. On April 23 and May 1, 2015, the Board issued curtailment notices to all post-1914 appropriative water rights in the Sacramento and San Joaquin River watersheds, inclusive of the Delta, due to insufficient projected water supplies. On June 12, 2015, the Board updated its curtailments of diversion activity, based on updated water supply projections from the Department of Water Resources in early May, to include water right claimants with a priority date back to 1903 and later.

The Board failed to act timely on CSPA's complaint, which alleged "unauthorized and illegal diversions of water by DWR and USBR at their Delta pumping facilities, a complaint against USBR and others for unauthorized and illegal diversion of San Joaquin River riparian flow and a petition to the State Water Board to initiate on its own motion, an adjudication of Central Valley water rights."[318] In responding to the Board's notice requesting information for its September 24, 2014, public workshop, CSPA set forth several analytic and evidentiary tasks that EWC agrees are also important for full documentation and feasibility determinations for the Tunnels Project. These tasks include measuring:

- Actual Delta outflow as opposed to the Net Delta Outflow Index (NDOI) relied upon by the Board. The NDOI is a calculated guesstimate and seriously over states Delta outflow during drier periods as compared to the tidally filtered flow data collected by the U.S. Geological Survey (USGS) stream flow gages at Rio Vista, Three Mile Slough, Jersey Point and Dutch Slough. The USGS data correlates with salinity changes and the NDOI doesn't. For example, while the NDOI reported average Delta outflow as 3,805 cubic feet-per-second (cfs) during May 2014, the USGS gages reported that actual Delta outflow was a negative 45 cfs.

- Actual natural inflow as opposed to the calculated guesstimates of "Full Natural Flow" at rim dams the Board has historically relied upon. The Board has never required the comprehensive "gaging" of natural flows. Natural springs in the Sacramento and Feather River watersheds provide millions of acre-feet (AF) of flow throughout the year, even in summer. DWR/USBR have no storage rights for these artesian flows that are commingled in upstream reservoirs when downstream riparian and appropriative demands exist.

- Actual accretions of water to the Delta and reaches of streams tributary to the Delta, including return flows, discharges and other inputs, as opposed to the calculated guesstimates of accretions the Board has historically relied upon. For example, return flows from the Colusa Basin Drain at Knights Landing, Butte Creek/Butte Slough/Sacramento

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[316] Various respondents' letters accessible online at http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/complaints/index.shtml.

[317] The Board issued its notice of public workshop on September 5, 2014, its notice of solicitation on September 10, 2014, and its final order on February 4, 2015. Accessible online at http://www.swrcb.ca.gov/waterrights/board_decisions/adopted_orders/orders/2015/wro2015_0002.pdf.

[318] Accessible online at http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/complaints/docs/081314_cspa_evoy.pdf.

Slough and the Natomas Basin Cross Canal are unknown because of an absence of flow gages. All accretions, whether from return flows, discharges from wastewater treatment facilities, groundwater, etc. are subject to the water rights priority system.

- Actual channel losses in the Delta and reaches of streams tributary to the Delta, as opposed to the calculated guesstimates historically relied upon by the Board. For example, the Board must identify and quantify losing reaches of streams tributary to the Delta and make an effort to identify the causes. Are losing reaches of streams the result of illegal diversions or adjacent pumping of groundwater for local use or substitution for water transferred via project facilities?

- The "abandoned water" in the Delta and the legal rights to it in accordance to the priority system. Riparian and return flows, accretions and compliance flows that reach the Delta are considered "abandoned" flow when the Delta is in balance. The rights to abandoned water by DWR/USBR must be in accordance with the rights of senior appropriators.

- Commingled water from all sources that are drawn from the Sacramento watershed into the San Joaquin watershed, as the result of export pumping by the state and federal projects. By statute and precedent, it is the responsibility of the party causing a commingling of water from one watershed to another to ensure that the water rights of existing parties is not diminished or impaired. The Board must determine whether in-Delta diverters are actually taking stored Project water, whether the Projects are storing water they're not entitled to store and whether the Projects commingling of water is adversely impacting the right of Delta water users from exercising their legal entitlements.

In sum, CSPA concluded, the Board must determine, among other things: whether DWR and USBR have legal rights to all of the water they claim or have stored; whether the flows Delta diverters are accused of improperly taking actually reach the Delta; whether the Project's operations and commingling of water have deprived Delta water users of entitled water supplies; whether Delta diverters are entitled to tidal flows in a common Delta Pool and whether DWR and USBR are claiming abandoned water that is instead subject to the priority system. The Board cannot credibly make the necessary findings based solely on information regarding Delta water rights and diversions requested in the Draft Order.

The issues of commingled waters in a Delta common pool and the legal problems it poses for the Board is also critical to the future of the Bay-Delta Estuary region. Once acted upon, the common pool concept would provide meaningful definition of Delta common pool rights and uses. It would have the added benefit of supplementing establishment of the legal Delta in 1959 as a territorial definition of the Estuary's region. In the absence of defining, legalizing and governing a Delta common pool as a sustainable commons, Delta exports will themselves come under greater, not less suspicion of illegal diversions.

The RDEIR/SDEIS presents modeling results that indicate changes in the source water that would be obtained for export pumping by the Tunnels Project from the Delta common pool. We have shown in this comment document the expected negative water quality effects this pattern of Tunnels diversion and rediversion will cause. Source fingerprint modeling in the RDEIR/SDEIS shows that Banks and Jones pumping plants will continue exporting some San Joaquin River water. Unfortunately, the RDEIR/SDEIS fails to present modeling results in a sufficient level of detail to evaluate CSPA's August 13, 2014, allegations concerning the Mokelumne, Calaveras, and Cosumnes River fractions that Tunnels Project operations may involve.[319]

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[319] RDEIR/SDEIS, Appendix B, Figures B.4-19 through -22, B.4-41 through -44, and B.4-63 through -66.

These water rights issues are not addressed in the RDEIR/SDEIS and their omission from baseline and setting analyses means the impacts of the project on in-Delta and export service area water supplies are not adequately disclosed and analyzed.

The Tunnels Project will violate the federal Clean Water Act.

We identify several instances earlier in these comments on the RDEIR/SDEIS why the Tunnels Project would violate the federal Clean Water Act: *First*, flow effects would violate existing inadequate flow objectives. *Second*, increases in concentrations of criteria pollutants would degrade water quality and violate existing bromide, selenium dissolved organic carbon, and mercury criteria. *Third*, RDEIR/SDEIS modeling results indicate reduced survival rates for juvenile salmon under conditions of Tunnel Project operations, which demonstrates failure to protect at least three key beneficial uses (rare and threatened species, migratory uses, and estuarine habitat). These uses are the most sensitive in the Bay-Delta Estuary. Degradation of these beneficial uses threaten further impacts to in-Delta drinking water quality and environmental injustices associated with recreational beneficial uses.

There are no designated beneficial uses or criteria set to benefit export water water quality in the Bay-Delta Estuary. The privileging of Delta export water quality and water usage over in-Delta beneficial uses and pollutant criteria compliance parallels the Tunnels Project's efforts to boost junior water rights over senior water diverters in the Delta. We find improved export water quality promised by the Tunnels Project to south of Delta importers coming at the expense of legal beneficial uses, environmental justice communities, and public health as a result of the proposed Tunnels Project. ***The RDEIR/SDEIS fails utterly to disclose these failures and unlawful outcomes.***

The Tunnels Project is contrary to Article X, Section 2 of the California Constitution.

The Tunnels Project would be contrary to Article X, Section 2 of the California Constitution and California Water Code Section 100 because it violates:

- Various sections of the Delta Reform Act of 2009 identified here in Section VI.
- State and federal clean water legislation and regulation.
- California Water Code's no injury rule and unlawful diversion rules.
- Ecological and funding assurance requirements of the state and federal ESAs and state NCCPA.
- The Delta Protection Act of 1959 - the Delta's area of origin water rights.

The Tunnels Project violates the Public Trust Doctrine.

The Tunnels Project would further divert and degrade the Delta common pool thereby violating the rights of environmental justice communities to continue fishing in locations that would be altered and enclosed by BDCP facilities and restoration projects. The presence of the common water and estuary pool in the Delta makes it subject to regulation under the Public Trust Doctrine. ***The state of California has a fiduciary responsibility to protect such common pool resources in common for the people of California.***

VI. Specific Comments on the RDEIR/SDEIS

Objective, Purpose and Need Issues

We commented earlier on severe deficiencies of BDCP's purpose and need relating to water transfers, Delta Plan consistency, the attempt to use real-time operations and adaptive management to substitute for enforceable and trackable mitigation measures, reasonableness of the range of alternatives, and other matters. (See Section II comments, above.)

Cumulative impacts are not adequately analyzed in the RDEIR/SDEIS.

Last year, EWC commented that the Draft EIR/EIS improperly excluded many programs and well-known storage projects from its list of projects considered for cumulative impact analysis of the Bay Delta Conservation Plan. We provided a list of projects, programs and other actions omitted from the Draft EIR/EIS cumulative impact analysis. (That is, they were included in the report's list of cumulative projects, but were excluded from modeling and narrative analysis of cumulative impacts.) No explanations were provided for their exclusion. We found it implausible that BDCP's justification of itself as a "stand-alone project" extended to storage projects, restoration plan and recent levee studies. We concluded that the Draft EIR/EIS was deficient in fully disclosing reasonably expected cumulative projects and their cumulative impacts in relation to BDCP and that the Draft EIR/EIS needed revision and recirculation.[320]

This year, with the severing of the habitat conservation plan from the Tunnels Project, the question arises of the relationship of California EcoRestore to baseline and cumulative impact considerations under CEQA and NEPA. The RDEIR/SDEIS does not confront these problems. The problems are:

- There continues to be no single, unified section in the RDEIR/SDEIS that addresses cumulative impacts adequately and clearly.

- The CEQA baseline does not contain BDCP-scaled habitat restoration measures, and therefore there needs to be a CEQA cumulative impacts analysis that includes California EcoRestore as part of the reasonably foreseeable cumulative projects that get analyzed.

- The NEPA baseline (the No Action Alternative) is claimed by the RDEIR/SDEIS to contain California EcoRestore projects spun off from BDCP like the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Implementation Plan, which was originally part of the 2009 NMFS salmon biological opinion. There is no quantified demonstration of this. The No Action Alternative's modeling is a black box in the RDEIR/SDEIS. Yet this project is not separately identified in the RDEIR/SDEIS's Appendix 3D in which projects are listed and indication is given as to where in the existing conditions, no action alternative, and cumulative impacts analysis the project was analyzed.

Such problems of presentation and analysis contribute greatly to our feeling that the RDEIR/SDEIS relies on obfuscation and confusion to create an elaborate shell game about the impacts of the Tunnels Project. There is no attempt to clearly and succinctly sort out and distinguish among the various assumptions that have gone into the RDEIR/SDEIS's changes to baseline, No Action Alternative, and cumulative impacts analysis. Discussion of baseline and no action alternative assumptions are analyzed mainly in Sections 4.1 and 4.2 and no analysis of cumulative impacts is provided anywhere in Sections 1 through 5 of the RDEIR/SDEIS, while Appendix A contains just the

[320] EWC Comments, June 11, 2014, pp. 220-225.

extensive, revised compendium of Attachment 3D-A in Appendix 3D. No explanation or clarification is provided to guide readers through the underlying array of projects. ***This is an inadequate treatment of cumulative impacts and the RDEIR/SDEIS should be revised to correct this deficiency and then recirculated.***

This year, we also find that the Tunnels Project must not be considered a stand-alone project. DWR and the Bureau recently concluded public review and comment period on its latest Draft EIS for Coordinated Long-Term Operations of the Central Valley Project and the State Water Project.[321] Earlier in 2015, the San Luis Delta Mendota Water Authority (SLDMWA) and the US Bureau of Reclamation ran a public review process on a long-term 10-year water transfer program for cross-Delta water transfers.[322]

Neither of these other review processes were referenced in the Tunnels Project RDEIR/SDEIS, even though both of them bear on the presumed need for and impacts of the Tunnels Project in both practical and cumulative ways. The OCAP is integral to review and evaluation of the Tunnels Project because there would not be a Tunnels Project without the state and federal water systems into which it would be integrated. And, as we have argued earlier in these comments, a key but unacknowledged purpose of the Tunnels Project is to facilitate the very water transfers program that was evaluated earlier this year by SLDMWA and the Bureau. OCAP and the long-term water transfer program are reasonable and foreseeable, and neither is analyzed in the Tunnels Project RDEIR/SDEIS. Each were reasonable and foreseeable projects in February 2009 as well, since coordinated long-term operation of the state and federal water systems had been in the works since at least 1986 (with passage of the Coordinated Operations Act mentioned above) or 2000 (when the CalFED Record of Decision was signed), and the water transfer program since at least 1991 when the first Drought Water Bank was organized to address drought conditions in California through use of water transfers. ***The RDEIR/SDEIS is inadequate in its treatment of these projects for cumulative impact analysis, and should be revised to correct this deficiency and then recirculated.***

Army Corps Permitting

The Tunnels Project must obtain 404 permits concerning discharge and disposal of dredged or fill material into the navigable waters of the United States. In addition, the Tunnels Project must obtain permits under the Rivers and Harbors Act Sections 10 and 14 concerning potential alterations in, under or over navigable waters, and to flood control projects and other federal engineered water ways—in the Tunnels Project case, the Sacramento and San Joaquin River flood control projects' levee systems and the Stockton Deep Water Ship Channel.

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[321] US Bureau of Reclamation and California Department of Water Resources, Draft Environmental Impact Statement/Draft Environmental Impact Report, *Coordinated Long-Term Operation of the Central Valley Project and the State Water Project*, released July 31, 2015 Accessible online at http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=21883. See comments on this document by Friends of the River, September 29, 2015; AquAlliance, September 29, 2015, and by California Water Impact Network and California Sportfishing Protection Alliance, September 29, 2015; and Environmental Water Caucus, accessible online at http://calsport.org/news/wp-content/uploads/Final-Draft-Comments-on-OCAP-Remand-DEIS-9-18-15.pdf .

[322] US Bureau of Reclamation and San Luis Delta Mendota Water Authority, *Long-term Water Transfers*, Environmental Impact Statement/Environmental Impact Report, Public Draft, released May 1, 2015, accessible at http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=18361. See AquAlliance media release on its decision to litigate this document, accessible at http://www.aqualliance.net/ground-water-issues/lawsuit-filed-against-10-year-water-transfer-program/.

The EWC objects strenuously to the Tunnels Project receiving a 404 permit. In order to obtain a 404 permit, as we pointed out earlier in these comments, the project in its entirety must receive a 401 water quality certification from the State Water Resources Control Board. We argue from modeling results in the RDEIR/SDEIS that the Tunnels Project will degrade Delta water ways with a variety of pollutants, reduce fresh water flows further than they already have been through the western and central Delta, increase residence times, increase the overall share of polluted water in the Delta, and violate existing water quality objectives and criteria for still other pollutants. Migratory and rare and endangered fish beneficial uses, as well as estuarine habitat beneficial uses will be degraded as a result, a further violation of the federal Clean Water Act. ***We believe it would be arbitrary and capricious—an abuse of agency discretion—for the State Water Board to issue a 401 certification for the Tunnels Project.***

But should the Board make that determination anyway, we feel compelled to object to issuance of the 404 permit on other environmental grounds. We note that data provided on Tunnels Project impacts to waters of the United States in Appendix E of the RDEIR/SDEIS is anticipated to involve 595.3 acres of "impact acreages" facing permanent impacts, another 179 acres of temporarily impacted acreage to be treated as permanent (and therefore compensated through No Net Loss policy) and a total of 1,931 acres of temporary impact acreage. Total permanently impacted acreage is reported by the Corps of Engineers' description at its web site concerning the Tunnels Project proponents' 404 permit application as 284.03 acres and 490.98 acres of non-wetland waters. It is unclear how these two methods of accounting for permanent versus temporary impacts with wetland and non-wetland water bodies given what is found in Appendix E.

The RDEIR/SDEIS fails to disclose the location or resource description of those water bodies in relation to project features.

The Clean Water Act 404 program requires that the Least Environmental Damaging Project Alternative (LEDPA) be identified. The RDEIR/SDEIS fails to disclose which, if any, of the alternatives (or any of those from the Draft EIR/EIS last year) is or should be considered the LEDPA.

The RDEIR/SDEIS, as we pointed out earlier in these comments, incorporates no findings of jeopardy/no jeopardy to listed species, reasonable and prudent alternatives, or incidental take statement and so is incomplete and therefore inadequate for evaluating dredge and fill permit application information and water quality certification needs.

EWC incorporates by reference in these comments and supports the contentions of Local Agencies of the North Delta (LAND)'s recent letter to the Corps of Engineers:

- The Tunnels Project would at a minimum result in changes to water levels, flow patterns and associated tides in relation to levee elevations;
- Increase salinity in the north Delta;
- Impair flood management operations of local reclamation districts;
- Interfere with water and land-based recreation along Delta water ways intersected by the Tunnels Project's alignment and surface facility element;
- Destroy cultural resources, and imperil state and federally listed plant and wildlife species.[323]

[323] Letter of Osha R. Meserve, representing Local Agencies of the North Delta, to Michael S. Jewell, Chief, Regulatory Branch, US Army Corps of Engineers, Sacramento District, *Comments on Department of Water Resources' 2015 California Water Fix Project Section 404/10 Application*, September 24, 2015, p. 2.

Moreover, LAND notes that the application was incomplete and had not received benefit of an officially authorized signature. In addition, wetland delineations included in the application were apparently mapped remotely and figures included in the application were completed without authorization for entry by landowners that would be affected by these delineations.

According to the Delta Independent Science Board's September30, 2015, final review, the RDEIR/ SDEIS fails to clearly state the sequence and provide detail of wetlands delineation for a 404 permit application: avoid wetland loss, because it is easier to protect existing wetlands than it is to produce successful new ones; if loss cannot be avoided, the minimize its loss through project siting and design; and finally, if loss cannot be minimized sufficiently, then plan for and provide compensation of wetlands (the No Net Loss policy).[324] A logical place to have provide a full and complete analysis of the status of waters of the United States in relation to Tunnels Project facilities in the Delta would have been the "Surface Waters" sections of the RDEIR/SDEIS. They are located in the legal Delta and the Plan Area of the proposed Tunnels Project. Alternative descriptions of the location of intakes, intermediate forebay, vertical shafts, control buildings, power facilities, levee work, and other aspects of wetland delineation are not found in this section. The current RDEIR/SDEIS surface waters sections cover only state and federal water project reservoir operations, river flows, and reverse flows in relation to flood potential and south Delta pumping operations. There is no discussion of impacts of project construction, and dredge and fill management and disposal on wetlands of the Delta. ***Appendix E of the RDEIR/SDEIS fails to provide this information as well, and is therefore inadequate. The RDEIR/SDEIS should be recirculated with updated and accurate information concerning efforts by the Tunnels Project proponents to avoid, minimize and, if necessary, compensate for wetlands impacts.***

In addition to the 404 permit application, the Tunnels Project must seek and obtain permission to affect navigable waters of the United States, either in, under or over the water. Neither Appendix E nor Chapter 19 of Appendix A of the RDEIR/SDEIS lack sufficient information showing locations, sizes and uses of these waters and where and how Tunnels Project design, construction and operation would affect navigable waters of the United States. ***The RDEIR/SDEIS is therefore inadequate. It should be updated with information that is understandable by the public and that conforms to law, and another draft EIR/EIS should be recirculated.***

Section 4.3.2 of the RDEIR/SDEIS addresses "surface waters." Its subjects include flood potential of CVP-SWP reservoir flood storage capacity, highest monthly river flows on the Sacramento and San Joaquin Rivers related to flood potential, and reverse flows in Old and Middle Rivers (including construction activity impacts on runoff and flooding potential in this corridor of the Delta. No baseline or existing conditions information about flood control facilities in the Plan Area of the Delta and Tunnels Project is provided in this section, nor is there a reference to baseline information provided to Chapter 6 of the Draft EIR/EIS last year where some of this information is provided. The RDEIR/SDEIS in Section 4.3.2 does not state that this analysis is somehow relevant to the 404 permit, nor does it attempt to provide any analysis or findings from the alternative description that would support the Tunnels Project application to the Corps for a 404 permit. No attempt is made to relate the change in reverse flow conditions, changes to or increases in runoff patterns from Tunnels Project construction or implementation of Environmental Commitments 3, 4, and 6-11, the potential to create or contribute polluted runoff water or exceed stormwater facilities' capacity, or expose people or structures to significant risks of loss, injury or death from flooding due to construction of the Tunnels Project to specific affected levee systems or deep water ship channels or navigable streams or dredge/fill disposal sites in this Section. The impact discussion is

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[324] Delta Independent Science Board, *Review of environmental documents for California WaterFix*, September 30, 2015, p. 6. Accessible online at http://deltacouncil.ca.gov/docs/final-delta-isb-comments-partially-recirculated-draft-environmental-impact-reportsupplemental.

unconnected to the concerns of the Corps of Engineers in evaluating the potential impacts of the proposed Tunnels Project on Delta levees (levees that comprise state, federal and locally maintained operated levees that make up flood protection throughout the Delta), navigable water ways, and dredge/fill disposal options for the project.

Moreover, Mitigation Measure SW-4, "Implement Measures to Reduce Runoff and Sedimentation," states that "proponents will implement measures to prevent an increase in runoff volume and rate from land-side construction areas and to prevent an increase in sedimentation in the runoff from the construction area as compared to Existing Conditions." There is no project-level disclosure in the RDEIR/SDEIS as to where, when, and how such mitigations will be handled. Such information should already be in-hand for the RDEIR/SDEIS since such mitigations are necessary for project-level review by permitting agencies (for Section 401 water quality certification, 404 dredge/fill permitting, navigable waters and federal facilities impacts review). Project level analysis is deferred to "drainage studies" to be prepared for each construction site later.

There is no connection of this mitigation to the actual construction schedule described elsewhere in the Draft EIR/EIS or the RDEIR/SDEIS.[325] Moreover, it is clear that while project-level information is needed by the Corps of Engineers to process the 404 permit, Tunnels Project proponents fail to provide it in this RDEIR/SDEIS. The RDEIR/SDEIS is thus inadequate as a CEQA and NEPA document, and inadequate for the purpose of fully disclosing project-level impacts and mitigation measures at specific locations, at specific times, and under specific conditions of runoff and flood control capacity.

The handling of these matters strongly suggests that the Tunnels Project proponents want on one hand to have the RDEIR/SDEIS represent a project-level review for permitting purposes (so it can "jump-start" construction and still try to comply with Delta Reform Act limitations on construction); and on the other hand, they have only program-levels of description and analysis (where available) implying that, as much as possible as, they hope to comply with CEQA and NEPA using a "program" level of evaluation and review rather than a project-level document with its necessarily greater level of detail, and hoping that such level of analysis and mitigation will be legally sufficient. This approach is as hasty as it seems to be wasteful.

The ambiguity between project-level and program-level review in the RDEIR/SDEIS is also seen in the analysis of "wind fetch." Mitigation Measure SW-8 addresses "wind fetch" mitigation to reduce potential damage from wind-driven waves across expanded open water areas at habitat restoration locations. Once again, no project-level specifics are provided in the Draft EIR/EIS. Instead, the Draft EIR/EIS states that "these measures will be designed based upon wind fetch studies that will be completed prior to construction of habitat restoration areas with increased open water in the Delta."[326] This mitigation applied to last year's preferred alternative, the conservation strategy of Bay Delta Conservation Plan and its Alternative 4 configuration at that time. The RDEIR/SDEIS continues to rely on this mitigation measure as mitigation for the Tunnels Project this year, without acknowledging the nearly entire deletion of BDCP related habitat restoration work. Will that create more or less need for wind fetch studies? ***Whatever the case, it is another instance of an unlawful approach to CEQA mitigation. It should be corrected and a new EIR/EIS recirculated.***

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[325] Draft EIR/EIS, Chapter 6, p. 6-59 to 6-60.

[326] Draft EIR/EIS, Chapter 6, p. 6-63.

These same comments apply to Sections 4.4.2, addressing Alternative 2D, and 4.5.2, addressing Alternative 5A since the same project-level/program-level impact analysis and mitigation problems exist there.[327]

In addition, these sections refer at Impact SW-7 in Sections 4.3.2, 4.4.2, and 4.5.2 to a Mitigation Measure SW-7 in Alternative 1A that is supposed to be described under Alternative 1A in the Draft EIR/EIS. We referred back to Impact SW-7 and find no such Mitigation Measure SW-7 narrative provided there.[328] ***The RDEIR/SDEIS and the Draft EIR/EIS are both deficient for reliance on a phantom flood control-related mitigation measure, and are therefore inadequate. The Tunnels Project RDEIR/SDEIS must be revised, corrected, and recirculated again.***

The Section 14 review by the Corps need only focus on Tunnels Project's effects on the Sacramento and San Joaquin River flood control projects and the Stockton Deep Water Ship Channel, but the RDEIR/SDEIS is thoroughly deficient for purposes of understanding the Tunnels Project's on the entire spectrum of flood control facilities in the Delta. A logical place to provide a full and complete analysis of the status flood control facilities in relation to Tunnels Project facilities in the Delta would have been the "Surface Waters" sections of the RDEIR/SDEIS. There is no mention in Appendix E of the Delta Stewardship Council's current process of evaluating and developing its Delta Levee Investment Strategy. There is no data provided in the RDEIR/SDEIS or Appendix E on levee mileage operation and maintenance responsibilities for state, federal and local agencies with levee responsibilities. There is no effort in the RDEIR/SDEIS or its Appendix E to analyze which entities' levees would be directly affected by Tunnels Project design, construction, and operational activities. ***These omissions render the RDEIR/SDEIS incomplete and therefore inadequate. It should be updated with information that is understandable by the public and that conforms to law, and another draft EIR/EIS should be recirculated.***

Appendix E acknowledges that additional historic preservation and flood risk analysis must be performed under National Historic Preservation Act Section 106 (including programmatic agreement execution and Native American tribal consultation) and Executive order 11988 concerning floodplain modification and development. None of these sections of Appendix E provide substantive analysis and evidence of compliance with these important federal environmental review requirements. What is provided is little more than a glorified checklist: "yes we need to do these things." These things must be done in public and they are required to be done through established public processes that must be completed in draft environmental documents circulated to the public prior to issuance of the Final EIR/EIS on the Tunnels Project. Chapter 19 merely states that no Tunnels Project facilities intersect at the surface with any transport or navigation-related facilities in the Delta, without demonstrating it. ***Absence of evidence that these processes have been completed and their analysis and findings put to use means the current RDEIR/SDEIS is inadequate. It should be updated with evidence that these two processes have been complied, and another draft EIR/EIS should be recirculated.***

We reiterate that the Tunnels Project is not the Least Environmentally Damaging Practicable Alternative (LEDPA). Finally, the Tunnels Project also fails to meet another Section 404 requirement, "[t]he requirement [under CWA § 404(b)(1)...that the project proponent must demonstrate that the project is the [Least Environmentally Damaging Practicable Alternative]

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[327] RDEIR/SDEIS, Section 4.4.2, pp. 4.4.2-6 to 4.4.2-10 for Alternative 2D; and Section 4.5.2, pp. 4.5.2-6 to 4.5.2-10 for Alternative 5A.

[328] Draft EIR/EIS, Chapter 6, p. 6-62.

LEDPA."[329] "A proposed action is not the LEDPA simply because a federal agency is a partner and chooses that proposed action as its preferred alternative."[330] The Tunnels Project appears to be the *most* environmentally damaging alternative possible. It most definitely is not the least damaging, and therefore, it is not the LEDPA.

The Corps in its March 2013 paper states that once DWR submits information to the Corps on "practicable alternatives, the Corps "intends to make a preliminary determination regarding the Least Environmentally Damaging Practicable Alternative (LEDPA) under the 404(b)(1) for CM1 that meets its overall project purpose. Project phases and related timing of the 404/10 and Section 408 authorizations will be acknowledged in this step."[331] We respectfully request detailed clarification of the LEDPA process in the next recirculated Draft EIR/EIS. What is to be the scope of these alternatives aiming to arrive at a LEDPA? How do they relate, if at all, to CEQA and NEPA alternatives analysis and the need for the range of alternatives to be reasonable? What avenues are available to the public for participating in the review, analysis and evaluation of the LEDPA?

Finally, we recall that the Army Corps of Engineers stated in March 2013, when the Tunnels Project was still expected to be a habitat conservation plan, that the Tunnels Project proponents "intend for the BDCP EIR/EIS to be a project level document for the purpose of supporting the issuance of state and federal fish and wildlife agencies of take authorizations….It will also serve as a programmatic document for the actions set out in the BDCP and provide project-level detail for the proposed construction of a new SWP north of Delta intake facilities and conveyance and the operations of new intakes and existing SWP facilities, known as Conservation Measure 1…"[332] The Corps then provided a proposed schedule that one year later had already slipped substantially from its anticipated issuance of Corps issuing Section 408 (RHA Section 14) permissions and 404/10 permits for all CM1 phases in "late 2015 through 2018." It is now late 2015 and the Tunnels Project still does not have project-level information needed by the Corps of Engineers in the RDEIR/SDEIS.

We understand that the Corps, as a cooperating agency, "will provide input" to the Tunnels Project proponents so that the EIR/EIS can be used by the Corps "to the maximum extent possible to make future permit decisions." We observe there is much work left to do in that regard, because the Tunnels Project is so fundamentally unlawful, flawed, and poorly organized that it will be a monumental task to take this sow's ear and render it a silk purse.

Supplemental Modeling for SWRCB (Increased Delta Outflows)

The 2010 *Delta Flow Criteria Report*[333] was rejected as an alternative by BDCP Applicants on grounds that modeling showed that the State Water Board's flow criteria would allegedly result in widespread dead pools in and depleted deliveries from upstream reservoirs, which would violate

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[329] USEPA, Preliminary Administrative Draft Comments for the Bay Delta Conservation Plan DEIR/S p. 2, April 26, 2012.

[330] EPA, BDCP DEIS Corrections and Additional Editorial Recommendations, p. 1, August 27, 2014.

[331] *Ibid*., p. 3.

[332] US Army Corps of Engineers, "BDCP: Permit Application Approach for Conservation Measure 1," March 2013, p. 1.

[333] State Water Resources Control Board, *Development of Flow Criteria for the Sacramento-San Joaquin Delta Ecosystem*, prepared pursuant to the Sacramento-San Joaquin Delta Reform Act of 2009, August 2010. Accessible online at http://www.swrcb.ca.gov/waterrights/water_issues/programs/bay_delta/deltaflow/docs/final_rpt080310.pdf.

BDCP EIR/EIS alternative screening criteria. The Board included DWR's analysis as an appendix to the Draft Delta Flow Criteria report in July 2010. Once out for public review, the modeling results (Appendix B "Water Supply Modeling" of the draft report) were roundly criticized from many quarters, because it exceeded the charge of Water Code Section 85086, had not been included for expert and public review in the informational proceedings, and had not been peer-reviewed prior to its release. In putting the water supply impact appendix forward, DWR tried hard to reframe the agenda of the Delta Flow Criteria process after the proceeding yielded results they did not like. The primary reason reservoirs would go to dead pool in their analysis was that the modeling criteria simultaneously maximized Delta inflows, outflows, and south of Delta deliveries at the expense of prudent carry-over for dry year or drought conditions. CVP and SWP operators made a related point to consulting engineer and modeler Walter Bourez when interviewed about BDCP modeling in 2013 that they would not operate the reservoirs that way; they would definitely try to optimize reservoir releases for meeting Delta water quality objectives, manage cold-water pools, while meeting senior water rights and making releases available for deliveries as best they could.[334] The approved report in August 2010 does not include DWR's suspect modeling appendix.

The point of the Delta flow criteria proceeding was to answer the question of "what flows do fish need?" ***This is needed to determine the public trust instream flow needs for the Delta. Under the public trust doctrine and Water Code Section 85086(c)(2), only what flows remain after such analysis should be allocated to SWP and CVP contractors. Deletion of the DFC report as an alternative removed a scientifically informed and reasonable option from consideration, yet another disservice to the public of this RDEIR/SDEIS.***[335]

Reading a bit between the lines, it appears to us that inclusion of Appendix C to the RDEIR/SDEIS was done under protest. The barely-contained hostility to this set of CalSIM II modeling results does bleed through. Grudgingly, the Tunnels Project proponents acknowledge that as a cooperating agency, the State Water Board's "consideration of the proposed project is not limited to the scope of the CEQA analysis and the State Water Board water right approval process may require consideration of issues beyond that required in CEQA."

(This passage from Section C.1 of the RDEIR/SDEIS misconstrues CEQA. That Act's primary purpose is to ensure that information is fully disclosed about the nature and scope of a proposed project, its merits in comparison to a reasonable range of alternatives, disclosure of an accurate baseline set of conditions into which the project would be introduced, the impacts (including cumulative impacts) of the project on the physical environment, and whether those impacts can be avoided or mitigated.

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[334] Of the assumptions disclosed for the impact analysis in the 2010 modeling effort by DWR, the analysis assumes "full entitlements for CVP and SWP contractors." This was and is still not a reasonable assumption, given the constraints placed on CVP and SWP Delta operations to keep their uses and diversions reasonable under the law. "Full entitlements" is also an ambiguous term; it could be interpreted as full contractual entitlements regardless of water year type, or according to water year type. It could also mean "no net loss to exports," as well. These ambiguities are neither identified nor clarified in DWR's 2010 modeling of impacts in 2010. The California Water Impact Network and the California Sportfishing Protection Alliance pointed out to the State Water Board that it was application of "full entitlements" to Delta exports and water project operations in the Delta that led to the Legislature's passage of Water Code Section 85086 and to preparation of the Delta Flow Criteria Report in the first place. Letter of Carolee Krieger and Bill Jennings to Charles Hoppin, Chair, State Water Resources Control Board, "Comment Letter - Draft Delta Flow Criteria Report," July 28, 2010, 2 pages. Accessible online 12 May 2014 at http://www.swrcb.ca.gov/waterrights/water_issues/programs/bay_delta/deltaflow/docs/comments072910/carolee_krieger.pdf.

[335] Appendix 3A, p. 3A-67, lines 40-48 to p. 3A-68, lines 1-14; and Draft Delta Flow Criteria report accessible online 4 May 2014 at http://www.swrcb.ca.gov/waterrights/water_issues/programs/bay_delta/deltaflow/.

The scope of the CEQA alternatives analysis in the RDEIR/SDEIS is fundamentally flawed for narrowly exhibiting only "slight differences" in design and operational scenarios, and not utilizing the viewpoint of statewide water policies rooted in the voter-approved Article X, Section 2 of California's Constitution, the Public Trust Doctrine, and the 2009 Delta Reform Act.)

Appendix C continues:

> This evaluation was conducted primarily to consider increases in outflow, ***without consideration of water supply benefits***, and as such, ***an alternative that included this operational scenario would likely not meet the project objectives or purpose and need statement***. Therefore, the purpose of this evaluation was to provide a broader range of Delta outflows and other operational parameters to consider during the State Water Board's anticipated water rights hearing on the petition for changes in… [the state and federal projects'] authorized points of diversion necessary to implement the proposed project.[336]

The hostility is evident in the failure to include water supply impacts (benefits or costs). The provision of these modeling results buttresses our argument in these comments that the Tunnels Project proponents construe the purpose and need for their project far too narrowly. As a state agency, the California Department of Water Resources is failing mightily to comply with state policies set forth by the Legislature in the Delta Reform Act, as we described above in Section V.

One can sense the clenched teeth of the Tunnels Project proponents at having to supply cold water pools in reservoirs for later temperature-controlled releases benefiting upstream spawning fish, and Delta inflows and outflows from exports in this sentence from Appendix C:

> In order to provide Delta outflow similar to what was included in Alternative 8 without impacting instream flows and storage, ***additional Delta outflows*** (beyond those presented for Alternative 4 in the BCP Draft EIR/EIS or Alternative 4A in this RDEIR/SDEIS) ***were achieved by reducing SWP and CVP exports.***[337]

It is ironic that it appears the RDEIR/SDEIS discloses the modeling results but failed to incorporate this as an alternative (even if it is one that DWR and the Bureau would likely have rejected). Had they incorporated it as a more fully-fledged alternative, it would moot one of EWC's most damning comments on the RDEIR/SDEIS and the Draft EIR/EIS; it would have provided a truly reasonable and genuine alternative to the parade of only "slightly different" tunnels options, one that would address in a meaningful way the restoration and flow needs of fish species that have been harmed up and down the Central Valley by state and federal water project operations.

The assumptions built into the modeling results provided in Appendix C do appear to represent an alternative that addresses many, though not all of our concerns for water quality and flow concerns, as well as endangered species concerns.

> *In general, the intent behind the additional modeling was to evaluate the water supply effects* of a high-Delta outflow scenario (beyond that modeled for Alternative 4 in the BDCP Draft EIR/EIS or Alternative 4A in this RDEIR/SDEIS) that provides both general and specific benefits to fish and their habitat related to increases in outflow during the fall (September through November), winter/spring (January through June), and summer (July and August) hydrological periods beyond those specified by the U.S. Fish and Wildlife Service and National Marine Fisheries Service in the 2008 and 2009 Biological Opinions, existing

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[336] RDEIR/SDEIS, Appendix C, Section C.1, p. C-1, lines 22-29. Emphasis added.

[337] RDEIR/SDEIS, Appendix C, Section C.1, p. C-1, lines 29-32.

> California Department of Fish & Wildlife California Endangered Species Act determinations, and the State Water Board's current WQCP. Increased fall Delta outflow will shift the low salinity zone further downstream in the Delta, likely resulting, based on current understanding of the science, in more favorable conditions for Delta smelt habitat in the western Delta and Suisun region. Similarly, increased winter/spring Delta outflow will shift the low salinity zone further downstream into the Suisun region likely resulting in more favorable conditions for longfin smelt and Delta smelt habitat. Higher Delta outflow during this period could also shift pelagic fish further from the export pumps and assist out-migrating salmonids. Additionally, the increased winter/spring Delta outflow would push fresh water through the Delta, past the Suisun region, and out into the San Francisco Bay likely benefiting native estuarine species that have evolved under conditions of seasonally fluctuating salinity. The increase in Delta outflow during the summer over the amount specified in Alternative 4A may provide general habitat benefits and a quantity of flow that can be adaptively managed to benefit Delta smelt when conditions during the previous winter and spring are likely to produce a strong cohort. The relationships between the survival and abundance of various species and habitat conditions and outflows are currently under active investigation by the Collaborative Adaptive Management Team, an interagency group of scientists investigating outflow and other issues pertinent to CVP and SWP Delta operations. These issues will also be central to the State Water Board's current water quality control planning and other decision making processes.[338]

Missing from this description of a positive feedback loop or "virtuous circle" is conceptual reasoning on how increased Delta through-flow would benefit migratory fish species like Chinook salmon, Central Valley Steelhead, green and white sturgeon, and lamprey species throughout the mainstem Sacramento, San Joaquin Rivers, the Delta. We would like to see the Delta Passage Model applied to this alternative to see what effects these alternatives would have on through-Delta salmon survival rates to Chipps Island. As we pointed out elsewhere in these comments, there are viable models that could estimate what effects these increased flows could potentially have on Delta smelt, longfin smelt, the various runs of Chinook salmon, and water quality constituents—the list would be a long one.

Moreover, since Appendix C's intent was to evaluate water supply effects—as the passage above initially claims—then Appendix C is itself incomplete. Appendix C's modeling results contain charts illustrating impacts to monthly flows of the State Water Board's modeling assumptions for Delta outflow and total Delta exports. Unsurprisingly, Delta outflows increase, while Delta exports decrease. But the sequence of Tables showing modeling results by waterway and water year type along the various nodes of CalSIM II omits disclosure of numerical results for Delta exports.

So Appendix C is a missed opportunity. Failure to include it as an alternative makes clear the abject failure of both purpose and CEQA and NEPA process associated with the Tunnels Project. ***The RDEIR/SDEIS should be revised to include new reasonable alternatives that increase Delta outflow and provide cold water pool protection for upstream spawning needs of migratory salmonids, and should be recirculated.***[339]

Delta outflows are Bay inflows. The San Francisco estuary receives 90 percent of its freshwater inflow from the Sacramento-San Joaquin River watershed, which passes through the Delta before it reaches the lower estuary as San Francisco Bay. The San Francisco Estuary Partnership finds that:

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[338] RDEIR/SDEIS, Appendix C, Section C.1, p. C-2, lines 1-25. Emphasis added.

[339] This is urgent. The National Marine Fisheries Service announced this week that the winter-run Chinook salmon spawning activity suffered 95 percent mortality of fry eggs this summer and early fall. Peter Fimrite, "Heavy drought toll on salmon: 95% death rate measured for young winter chinook," *San Francisco Chronicle*, October 29, 2015, p. 1.

> Freshwater inflows to the San Francisco Estuary have been highly altered. Both the amounts and variability of inflows have been reduced, with the result of creating persistent, man-made, low inflow "drought" conditions in the Estuary. Large scale alteration of freshwater inflow to the Estuary began in the 1950s and 1960s when most [of] the large dams and water diversion facilities were developed, but flow conditions have deteriorated further in the last decade.[340]

Improving the alternatives analysis of the RDEIR/SDEIS must include reorienting the objectives, purpose and need statement of the Tunnels Project. This means interpreting the meaning of "improving conveyance" in a broader, balanced context of the coequal goals, not the nuances of narrow engineering alternatives that entail slight operational differences about how best to provoke reverse flows in the lower Sacramento River, degrade water quality and push listed fish species closer to extinction.

Failure to Mitigate Adverse Impacts of North Delta Intakes in Reliance on Adaptive Management and Fish Screens

Key to the talking points and mitigation approach of the Tunnels Project for addressing direct, in-river impacts of the three north Delta intakes between Courtland and Clarksburg along the lower Sacramento River is the placement and operation of fish screens before the aperture of each intake structure that do not yet exist. Tunnels Project promotional descriptions (like the one in Figure 20 below) include this conceptual illustration of north Delta intake fish screens. The sketch here acknowledges risks of both flow velocities and predation risk to fish as they would prepare to pass the screens of the north Delta intakes. It is conceptual and not to scale because juvenile salmonids (4 to 8 inches) and small Delta and longfin smelt (2 to 4 inches) would be tiny compared with fish screens at least 10 to 20 feet high.

However, neither conceptual, scaled illustrations nor engineered drawings of north Delta intake fish screens are provided in the Draft EIR/EIS or the RDEIR/SDEIS.

The RDEIR/SDEIS describes water conveyance from the north Delta to the south Delta through the Tunnels Project. "Water would be diverted from the Sacramento River through three fish-screened intakes on the east bank of the Sacramento River between Clarksburg and Courtland."[341] For the new sub-alternatives, the RDEIR/SDEIS states: "...implementing a dual conveyance system would align water operations to better reflect natural seasonal flow patterns by creating new water diversions in the north Delta equipped with state-of-the-art fish screens, thus reducing reliance on south Delta exports."[342]

The 2011 *BDCP Fish Facilities Technical Team Technical Memorandum* observed that, "There is a high level of uncertainty as to the type and magnitude of impacts that these new diversions will have on covered fish species that occur within the proposed diversion reach."[343] The proposed screens are experimental and have never been employed anywhere else. Their size (multiple, very large and in close proximity), type (on-bank flat plate) and tidally influenced location make it

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[340] *The State of the Estuary 2015,* San Francisco Estuary Partnership, p. 23.

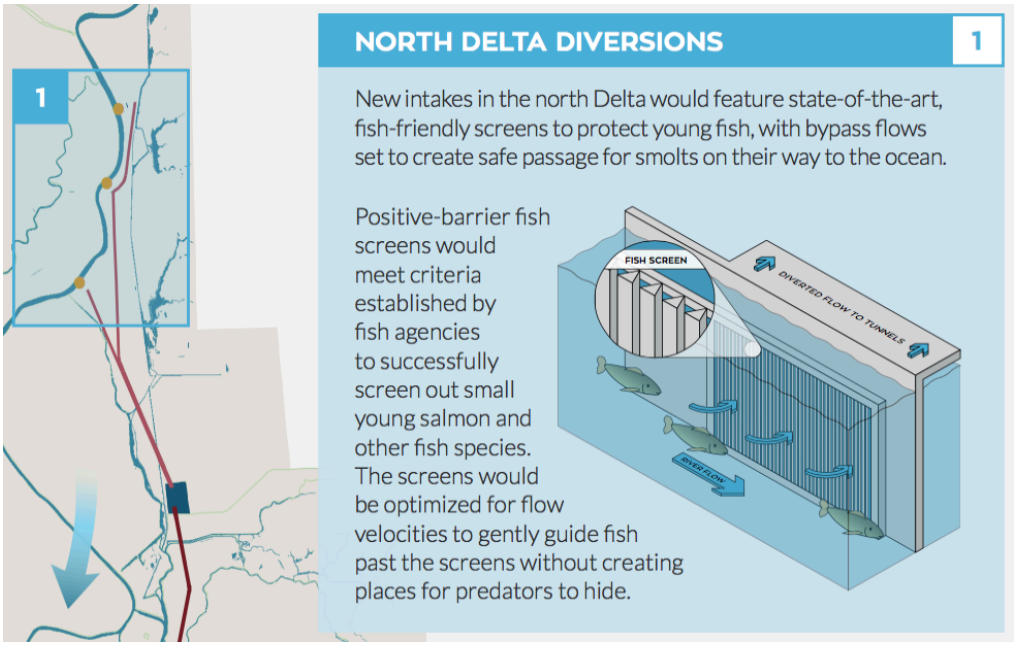
[341] RDEIR/SDEIS, Section 3, "Conveyance Facility Modifications to Alternative 4, p. 3-2.

[342] RDEIR/SDEIS, Section 4.1, p. 4.1-1 to 4.1-2.

[343] BDCP Fish Facilities Technical Team, Technical Memorandum, July 15, 2015, p. 33, accessible at http://baydeltaconservationplan.com/Libraries/Dynamic_Document_Library/Fish_Facilities_Team_Technical_Memo_Final_7_15_2011.sflb.ashx.

almost impossible to conform to existing screening criteria.[344] Even with a required variance from existing DFW and NMFS fish screening criteria, enormous uncertainties will remain, which is why the technical team suggested phased construction to see if the first one works before constructing the rest.[345] Part of the problem is that Delta smelt are present at the diversion points during the months of February through June, and no screens can prevent entrainment of larval delta smelt, longfin smelt, Sacramento splittail and smaller lamprey ammocoetes.[346]

Figure 20
Conceptual Illustration of North Delta Intake Fish Screen
from Tunnels Project Promotional Brochure



Source: California WaterFix, September 2015. Full source accessible at https://s3.amazonaws.com/californiawater/pdfs/ajqxf_FIX_FS_Fish_Final.pdf.

Fish screen descriptions indicate they would exclude fish greater than 20 millimeters (mm) in length from being scooped up by diversions, but there is no mention in any of the intake descriptions of BDCP, the Draft EIR/EIS or the RDEIR/SDEIS what happens to fish, larvae and eggs that are 20 mm in size or smaller. When EWC consultant Tim Stroshane discussed fish screens with a DWR representative at the Walnut Grove Open House in late July, he was informed that the fish screen at the Bureau's Red Bluff diversion to the Tehama Colusa Canal on the upper Sacramento River represented a "prototype" of what would be used at the north Delta intakes of the Tunnels Project. A February 2015 DWR engineering study provided three fish screen examples whose design features had potential for use in the Delta: The aforementioned Red Bluff screen, and screens

[344] *Ibid.*, pp. 22, 23.

[345] *Ibid.*, pp. 35, 36.

[346] Administrative Draft Bay Delta Conservation Plan, March 2012, Chapter 5, *Effects Analysis*, Appendix 5.B, *Entrainment*, p. B.0-12.

at the Glenn-Colusa Irrigation District's Hamilton City diversion and the City of Stockton pumping facility.[347]

The fish screens are assumed to be in place as part of applying north Delta bypass flows in Tunnels Project operational criteria for each of Alternatives 4A (the preferred alternative), 2D, and 5A:

> The objectives of the north Delta diversion bypass flow criteria include regulation of flows to 1) maintain fish screen sweeping velocities; 2) reduce upstream transport from downstream channels in the channels downstream of the intakes [that is, reduce "reverse flows" in the lower Sacramento and its various distributaries]; 3) support salmonid and pelagic fish transport and migration to regions of suitable habitat; 4) reduce losses to predation downstream of the diversions; and 5) maintain or improve rearing habitat conditions in the north Delta.[348]

Both the NMFS and the California Department of Fish and Wildlife have put forward basic design criteria for fish screens.[349] There are two vectors of flow that shape their criteria: approach, and sweeping velocity. Table 7 compares these agencies' fish screen design criteria with BDCP/Tunnels Project approach to fish screen design criteria. DWR's *Conceptual Engineering Report* (*CER*) summarizes current Tunnels Project thinking about fish screens.

The proposed fish screens for the north Delta intakes are intended to be "self-cleaning." According to the *CER*, they will consist of gear motors with variable speed control; one cleaning system per screen bay group. The capacity of a screen-bay group is 500 cfs, so there are six such screen bay groups per 3000 cfs intake. Therefore there will be six motorized cleaning systems per intake. Each cleaning system will traverse its screen bay at a rate of 0.5 to 2 feet per second (120 feet per minute or 1.4 miles per hour). Each cleaning cycle is estimated to take 5 minutes, maximum.[350]

Debris removal and "biofouling" can create difficulties for the fish screens, however. "Cleaning frequency depends on the debris load," states the *CER*. Daily checks of intake screen clean functionality must be performed."[351] Biofouling has troubling aspects as well, according to the *CER*:

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[347] California Department of Water Resources, *Engineering Solutions to Further Reduce Diversion of Emigrating Juvenile Salmonids to the Interior and Souther Delta and Reduce Exposure to CVP and SWP Export Facilities*, Draft Phase II - Recommended Solutions Report, prepared in response to the National Marine Fisheries Service 2009 Biological Opinion and Conference Opinion on the Long-Term Operations of the Central Valley Project and State Water Project, Reasonable and Prudent Alternative IV.1.3, February 2015, pp. 2-27 to 2-32. Hereafter, DWR, *Engineering Solutions.*

[348] RDEIR/SDEIS, Section 4.1, p. 4.1-11.

[349] CDFW's fish screening criteria are found online at http://www.dfg.ca.gov/fish/Resources/Projects/Engin/Engin_ScreenCriteria.asp. The states' fish screening policy is found online at http://www.dfg.ca.gov/fish/Resources/Projects/Engin/Engin_ScreenPolicy.asp. NMFS' fish screening criteria are found online at http://www.westcoast.fisheries.noaa.gov/publications/hydropower/southwest_region_1997_fish_screen_design_criteria.pdf.

[350] California Department of Water Resources, *Conceptual Engineering Report: Dual Conveyance Facility, Modified Pipeline/Tunnel Option—Clifton Court Forebay Pumping Plant*, July 1, 2015, Table 6-2, pp. 6-4 through 6-6.

[351] *Ibid.*, p. 6-17.

**Table 7
Comparison of Fish Screen Design Criteria**

In streams and rivers:	CDFW	NMFS	BDCP/Tunnels Project
Approach velocity (the water velocity vector component perpendicular to the screen face)	For self-cleaning screens, 0.33 feet per second, where exposure to the fish screen shall not exceed 15 minutes; for "screens which are not self-cleaning, 1/4th of the river/stream approach velocity, or about 0.0825 feet per second. "The screen shall be cleaned before the approach velocity exceeds the approach velocity" of 0.33 feet per second.	Shall not exceed 0.33 feet per second for fry; for all locations, fingerling criteria are 0.8 feet per second.	0.33 feet per second for salmonid fry, except in the presence of Delta smelt when approach velocity shall be 0.2 feet per second. One cleaning system per screen operating 0.5 to 2 feet per second with a cycle time of approximately 5 minutes (maximum). (6 cleaners per cleaning system at each intake.)
Sweeping velocity (the water velocity vector component parallel and adjacent to the screen face)	At least two times the allowable approach velocity in streams and rivers.	Sweeping velocity shall be greater than approach velocity.	Greater than the approach velocity under NMFS criteria and "at least double the approach velocity per the CDFW (2000) criteria."
Other	Screen face shall be parallel to flow and adjacent bankline. No explicit criteria for small fish like Delta smelt.	Screen face "should be generally parallel to river flow and aligned with the adjacent bankline."	"Unused sections of the fish screens will be covered to provide operational flexibility as necessary."

Sources: Footnote below for NMFS and CDFW fish screen criteria; and Bay Delta Conservation Plan, November 2013, Chapter 5, Effects Analysis, Appendix 5B, *Entrainment*, p. 5.B-7, lines 28-43; California Department of Water Resources, *Conceptual Engineering Report: Dual Conveyance Facility, Modified Pipeline/Tunnel Option—Clifton Court Forebay Pumping Plant*, July 1, 2015, Table 6-2.

Biofouling, the accumulation of algae, freshwater sponge, Asian clams, mussels, and other biological organisms, can occlude the screens and jeopardize function. A key design provision for intake facilities is that all mechanical elements can be moved to the top surface for inspection, cleaning, and repairs. The intake facilities have top-side gantry crane systems for removal and insertion of screen panels, tuning baffle assemblies, and bulkheads.

> All panels will require removal for pressure washing. Additionally, screen bay groups will require dewatering for inspection and assessment of biofoul growth rates.
>
> With the invasion of Quagga and Zebra mussels into inland waters, screen and bay washing will increase. Coatings and other deterrents will be more thoroughly investigated during preliminary and final design.[352]

The *CER* anticipates that a

> log boom system will be aligned within the river alongside the intake structure to protect the fish screens and their cleaning systems from damage by large floating debris. Spare parts for vulnerable portions of the intake structure should be available to minimize downtime should repairs be needed. With the majority of working components being submerged and with security provisions in place, vandalism damage is not expected to be significant.[353]

No estimate is provided in the *CER* for how often and how long individual screens must be hoisted from the river for cleaning. Such maintenance would force temporary shutdown of at least that portion of the screened intake. This could cause either loss of screening capability while diversions continued, or interrupt diversions while screen was cleaned. In either case, it imposes costs either on risks to fish or to water diversions. Neither the *CER* nor the RDEIR/SDEIS propose any guidance, assurance or mitigation measure to avoid impacts to fish during fish screen maintenance activities at each north Delta intake. Promotional materials for the Tunnels Project do not mention such problems with the fish screens.

None of this information is incorporated into the RDEIR/SDEIS's descriptions of any of the alternatives. Alternative descriptions for the north Delta intakes are therefore deficient and the RDEIR/SDEIS should be revised, improved, corrected, and recirculated to repair this deficiency.

These critical omissions from alternative descriptions do not prevent Tunnels Project proponents from claiming and applying alleged benefits of such fish screens to offset significant impacts as mitigations to listed fish species and non-covered fish species that would be expected to encounter the north Delta intakes and their screened entrances. The alleged mitigation offset begins with the Tunnels Project's approach to adaptive management:

> Specifically, collaborative science and adaptive management will, as appropriate, develop and use new information and insight gained during the course of project construction and operation to inform and improve:...the design of fish facilities including the intake fish screens.[354]

As forward-looking as this passage tries to be, it reflects an absence of confirmed and effective mitigation on behalf of fish protection in the design of intake fish screens. Tunnels Project proponents want to build the intakes with screens, and then improve the screens as a matter of adaptive management. "As appropriate" is a notoriously meaningless phrase when it comes to establishing a definite course of action; it means "whatever we think is best for the project."

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[352] *Ibid.*, p. 6-17.

[353] *Ibid.*, p. 6-18.

[354] RDEIR/SDEIS, Section 4.1.2.4, *Collaborative Science and Adaptive Management Program*, p. 4.1-18, lines 28-31; see also Section 4.1.3.1, p. 4.1-29 for Alternative 2D and Section 4.1.4.1, p. 4.1-36 for Alternative 5A.

> The collaborative science process will also inform the design and construction of the fish screens on the new intakes. This requires active study to maximize water supply, ensure flexibility in their design and operation, and minimize effects to covered species.[355]

The collaborative science process of course assumes the intakes and some version of the fish screens are built first, then subjected to study. It is not a mitigation program because it allows the fish screens to go forward without demonstrating that the impact is avoided, minimized or mitigated. It employs adaptive management in the service of building and operating massive intake structures in the presence of listed fish species and asking California and decision makers to trust the Tunnels Project proponents that they will solve the problems of proper vector velocities, and routinized screen cleaning and maintenance while ignoring consideration of whether the project achieves the Delta Reform Act's coequal goals and reduced Delta reliance policy, and complies with the state's reasonable use and public trust doctrines.

But even more—what is this "Collaborative Science and Adaptive Management Program (AMMP)"? The RDEIR/SDEIS says only that

> it is assumed that the [AMMP] developed for Alternative 4A would not, by itself, create nor contribute to any new significant environmental effects; instead the AMMP would influence the operation and maintenance of facilities and protected or restore habitat associated with Alternative 4A.[356]

The RDEIR/SDEIS fails to disclose whether the AMMP replaces BDCP's Implementation Office or clarify that this is the Tunnels Project's analog to last year's Implementation Office with its adaptive management program, research agenda, and governance processes. This is arm-waving, gesturing to maintain a modicum of adaptive management-as-wild-card, while having rejected all of the Section 10 habitat conservation plan approach.

This "wild card" application of the fish screens is applied throughout the RDEIR/SDEIS's treatment of impacts to Delta smelt, longfin smelt, winter-run Chinook salmon, spring-run Chinook salmon, and Central Valley steelhead. The "wild card" fish screens are also applied to non-covered native and non-native species as well that would be vulnerable to impingement, entrainment, injury and death from the north Delta intakes. For winter-run Chinook salmon:

> State-of-the art [footnote] fish screens operated with an adaptive management plan would be expected to eliminate entrainment and impingement risk for juvenile winter-run Chinook salmon.
>
> [Footnote] The fish screens would be state of the art by incorporating the best available technology and operating to fishery agency standards of protection for fishes. The features of the fish screens are described in more detail in Section 3.6.1.1 of Chapter 3, Description of Alternatives.[357]

The footnote to this passage does not say whether that Section 3.6.1.1 is in the 2015 RDEIR/SDEIS, the 2013 Bay Delta Conservation Plan or the 2013 Draft EIR/EIS. It turns out the reference is to the Draft EIR/EIS last year. This oversight should be corrected. The that it is referenced in the RDEIR/SDEIS means it is permissible and appropriate to verify and compare that description with what we have available to us in 2015. There, the Draft EIR/EIS acknowledges:

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[355] RDEIR/SDEIS, p. 4.1-20, lines 4-6.

[356] RDEIR/SDEIS, Section4.1.2.4, p. 4.1-18, lines 20-24; and repeated in Section 4.1.3.3, pp. 4.1-28 to 4.1-29, and Section 4.1.4.3, pp. 4.1-36.

[357] RDEIR/SDEIS, Section 4.3.7, p. 4.3.7-48, lines 13-15.

> For the purposes of this EIR/EIS, *it is assumed that the fish screens would be designed to meet delta smelt criteria, which requires 5 square feet per cfs [cubic feet per second or 5 feet per second]*. The fish screen sizes, like the individual intake sizes, would vary depending on intake location and would range from 10 to 22 feet in height and from 915 to 1,935 feet in length. ***It is anticipated that the screen cleaning system would include several traveling brush cleaning systems installed on the waterside of the intake.*** As an alternative to the fixed screen panel and brushing system, a traveling screen system with a screen belt and stationary brush/water jet system could be used.[358]

This Draft EIR/EIS passage also juxtaposes Delta smelt criteria with the cleaning system for the screens. We note that last year's passage assuming Delta smelt criteria cites to no supporting authority or documentation for such criteria. These criteria involve an average velocity of flow that is two and a half (2.5) times faster than the cleaning rate of the fish screens (2 feet per second, fps) and 15 to 25 times faster than the approach velocity criteria in BDCP, CDFW, and NMFS criteria summarized in Table 7. (0.2 fps to 0.33 fps). The Tunnels Project proponents need to get their stories straight on fish screen design criteria performance and whether a cleaning system faster than the approach and sweeping velocities really works to prevent mishaps with fish in their vicinity. Could the cleaning system itself cause impingement, injury and death to fish as an alternative pathway to fish demise beyond the passive screen/approach velocity interaction? Put another way, would self-cleaning operations occur while the intakes are operating, or would they have to be shut down to allow cleaning to proceed and avoid harming fish? Are Tunnels Project engineers and biologists considering this possibility?

These passages indicate, despite their technological and scientific optimism, that the screens continue to be unproven, experimental, and very much a work in progress. A recent DWR staff email (sent on the date the RDEIR/SDEIS was released) concerning the *CER* indicates that construction details are very much still in the planning and design stage, including basic details of the fish screens.[359] As with any scientific effort, outcomes of properly designed research experiments are never known in advance. The RDEIR/SDEIS's brand of optimism is therefore speculative at best, boosterish at worst.

The RDEIR/SDEIS also concludes that "Potential entrainment and impingement risks at the proposed north Delta facilities would be limited because it is outside the main range of delta smelt....The intakes would be screened and would exclude delta smelt of around 22 mm and larger."[360] This conclusion is speculative. As with last year's Draft EIR/EIS, BDCP did not model and disclose results estimating entrainment and impingement risks for Delta smelt at the north Delta intakes to buttress this claim. Table 11-4A-1 presents modeling results of "proportional entrainment...of Delta Smelt at SWP/CVP South Delta Facilities for Alternative 4A…" No other such table is presented for entrainment risk at north Delta intakes.[361]

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[358] Draft EIR/EIS, November 2013, p. 3-87, lines 16-22. Emphasis added.

[359] Email from Cassandra Enos of DWR to Dawn Bertolani, HGCPM, et al, "CER and Construction Activities Details Meeting," July 10, 2015. Enos writes: "I think the consensus was that it would be helpful to have another meeting in a couple of weeks to discuss the intake construction in more detail." Among the questions she had left from a previous meeting: "What size are the baffles on the fish screens? What is the size/design of the refugia? How will the sweeping velocity past the screens be measured?...What's the depth of the fish screens?…"

[360] RDEIR/SDEIS, p. 4.3.7-24, lines 4-7.

[361] This is also true of Alternatives 2D and 5A. See RDEIR/SDEIS, Section 4.4.7, Table 11-2D-1, p. 4.4.7-3, and Section 4.5.7, Table 11-5A-1, p. 4.5.7-4.

These comments help document concerns expressed by the Delta Independent Science Board (DISB). In its comments to the Delta Stewardship Council about the RDEIR/SDEIS, the DISB stated:

> It is unclear how (and how well) the fish screens would work. The description of fish screens indicates that fish >20 mm are excluded, but what about fish and larvae that are <20 mm, as well as eggs?...some fish screens appear to have been installed, but data on their effects are not given. Despite the lack of specific data on how well screens function, the conclusion that there will be no significant impact is stated as certain (e.g., page 1-100 line 38).
>
> Here, as in many other places, measures are assumed to function as planned, with no evidence to support the assumptions. The level of certainty seems optimistic, and it is unclear whether there are any contingency plans in case things don't work out as planned. This problem persists from the Previous Draft.[362]

Assuming Delta smelt-friendly design parameters does not mean those parameters are known or have been incorporated into a specific design that would perform as assumed; at least, it was not disclosed as part of alternative descriptions in the Draft EIR/EIS or the RDEIR/SDEIS. This passage does not explain where the Delta smelt fish screen criterion comes from. Nor is it consistent with NMFS or CDFW criteria shown in Table 7 above. This raises our concern that north Delta intake fish screen designs are in error relative to fish designs, and that North Delta bypass flow operational criteria may not be correct. The Tunnels Project proponents should clarify and correct where necessary the fish screen criteria and designs, and recirculate the RDEIR/SDEIS.

In sum, there are distinct disadvantages associated with even the most current fish screen technology applied along the Sacramento River. Fish screens "do affect or impact river flow," states a recent DWR engineering report drafted for compliance with the NMFS salmonid biological opinion.

> A large amount of system structure would be placed into the water, thus potentially affecting local and regional hydraulic patterns. Another disadvantage...is the potential for debris accumulation. Debris may obstruct or damage parts of the screen, which potentially could lead to minimizing the effectiveness of the system. Therefore, CDFW and NMFS screening criteria may not always be met. Debris issues would require constant monitoring and maintenance to assure that the system is working properly.

The study adds:

- Boat navigation may also be affected. Some type of boat lock may be necessary to accommodate recreational boat passage.
- In waterways where there are dynamic hydraulics such as reversing flow, there would be potential for fish impingement.[363]

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[362] Delta Independent Science Board, *Review of environmental documents for California WaterFix*, September 30, 2015, p. 17.

[363] DWR, *Engineering Solutions,* pp. 2-31 to 2-32.

DWR's study rejected fish screen technology for natural diversion situations where a portion of the Sacramento River splits off at either Georgiana Slough or Three Mile Slough.[364] ***Given the fact that fish screen options were considered at sites just a few miles downstream of the north Delta intakes, why were fish screens rejected for natural diversions from the Sacramento River, while they are deemed acceptable or even necessary for the north Delta intakes associated with the Tunnels Project?***

Absence of Baseline Information to Measure Predation Significance of North Delta Intakes

The RDEIR/SDEIS's conclusions on the effects of the north Delta intakes on predation loss are also speculative: "Predation loss at the north Delta intakes may occur but would be limited because few delta smelt are anticipated to occur that far upstream." This conclusion ignores BDCP modeling results concerning upstream migration of X2 (the estuarine habitat indicator that is a key component of Delta smelt habitat index measurement) due to Tunnels Project operations, described in these comments above and in EWC's comments last year.[365] As X2 migrates upstream, estuarine habitat grows smaller and migrates eastward, and the Delta smelt's favored fresh, open water habitat grows smaller and migrates eastward (upstream) as well. By the time north Delta intakes with fish screens were completed and begin operation, and under changing climatic conditions, X2 and Delta smelt could frequent this reach more than anticipated originally, assuming they survive that long.

Also related to the proposed introduction of north Delta intakes into the lower Sacramento River is the matter of predation of listed species. Last year's BDCP states the conceptual framework of fish predation this way:

> The likelihood of a predation event is a function of three factors: rates of encounter between predator and prey; a decision by the predator to attack the prey; and capture or feeding efficiency of the predator(s). Encounter frequencies between predators and covered fish are related to their overlap in habitat use spatially and temporally, the vulnerability of prey, which is typically linked to environmental conditions like river flows and turbidity..., and their abundance relative to alternative prey....[366]

"Predation hotspots" were mapped in last year's Bay Delta Conservation Plan.[367] BDCP did not define what a predation hotspot is, but they appear to have a few recognizable characteristics: most, if not all, are associated with artificial (human-built) in-channel hydraulic structures like temporary rock barriers, failed levees, submerged bridge abutments, and Jones Pumping Plant. They also include artificial open water areas like Clifton Court Forebay and Franks Tract where waters lack

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[364] *Ibid.*, p. 4-1. "The use of fish screens as a deterrence option was evaluated and discussed for each site. Typically, maximum flow diversions are used to size fish screens and meet CDFW and NMFS screening requirements. Given the range of high maximum flows over the Delta daily tidal cycles at the five sites, fish screens would be unreasonably large to meet these requirements. Average flow diversions were also used but resulted in screen sizes that were still large and exceptionally long. These results were presented to the TWG at its January 28, 2014 meeting (see Appendix A). The TWG decided to remove fish screens from further consideration based on the required large structure sizes and concerns over the ability to meet CDFW and NMFS screening criteria."

[365] EWC Comments, June 11, 2014, p. 65 and Figure 7.

[366] BDCP, November 2013, p. 3.4-299, lines 4-9.

[367] BDCP, November 2013, Figure 3.4-32, "Predation Hotspots in the Plan Area."

refuges for prey fish, and prey visibility is high due to relatively shallow conditions. Predators have also learned to wait patiently for deliveries of salvaged fish from Banks and Jones pumping plants at regular locations along the lower Sacramento River. "Total consumption rates," says BDCP, "relate to predator number, predator size, water temperature, prey density, and sometimes prey vulnerability (i.e., microhabitat use of predator and prey and whether the prey has a refuge at low density)."[368] Currently known predation hotspots are listed and briefly described.[369] Salvage release sites are areas where microhabitat use coincides with predator frequency.

Last year's Draft EIR/EIS acknowledges that both the north Delta water diversion facilities and nonphysical fish barriers are expected to create new predation hotspots.[370]

The baseline of predation in the lower Sacramento River between Clarksburg and Courtland for each of the listed fish species is unknown and not disclosed in the RDEIR/SDEIS for its three sub-alternatives. Predation losses for winter-run Chinook salmon at the north Delta intakes are acknowledged by the RDEIR/SDEIS: "

> Potential predation effects at the north Delta intakes for juvenile salmonids remaining in the Sacramento River (as opposed to entering the Yolo Bypass) could occur if predatory fish aggregated along the screens as has been observed at other long screens in the Central Valley [citation]. Baseline levels of predation are uncertain, however.

This section's lengthy description of a "bioenergetics model" to estimate potential fish predation in the Sacramento River exemplifies the Tunnels Project Proponents' willingness to speculate when it serves Tunnels Project talking points. ***The fact remains that the RDEIR/SDEIS still has no baseline of comparison for fish predation in the river reach between Clarksburg and Courtland on the Sacramento River needed to arrive at a reasonable CEQA and NEPA conclusion about the significance of predation effects in this area.***[371] ***The RDEIR/SDEIS has neither adequately nor persuasively demonstrated its claim that listed fish would not be present.***

No lawful mitigation plan for predation hotspot mitigation or avoidance has been included in descriptions of the RDEIR/SDEIS's alternative descriptions. Therefore, the RDEIR/SDEIS's impact conclusions concerning predation loss for Delta smelt and other listed fish species are speculative and therefore inadequate. The RDEIR/SDEIS should be revised to incorporate baseline information on predation in this reach of the river and then recirculated the RDEIR/SDEIS for additional public review.

The RDEIR/SDEIS is incomplete for lack of other critical baseline data.

Last year, EWC commented that the Draft EIR/EIS and BDCP documents are incomplete because DWR has been unable to collect necessary environmental, cultural resource and geotechnical survey and field data from Delta lands along the Tunnels Project alignment related to habitat restoration

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[368] BDCP, November 2013, p. 3.4-299, lines 12-14.

[369] BDCP, November 2013, p. 3.4-299, lines 15-39, and p. 3.4-300, lines1-11.

[370] BDCP, November 2013, p. 3.4-300, line 12.

[371] See RDEIR/SDEIS, footnote 5, p. 4.3.7-66, indicating methodological problems with another fish predation study at the GCID fish screen in the Sacramento River near Hamilton City. moreover, the potential for north Delta-located intakes has been expected since at least the CalFED Record of Decision in 2000. Yet no baseline studies were conducted in anticipation apparently.

and Conservation Measure 1 facilities.[372] Last year, we also noted that the Draft EIR/EIS failed to disclose adequately the cultural resource setting of the Delta Plan Area, and that the County of Sacramento's comments on the incomplete discussion of Chapter 18's regulatory setting section was inadequate for omitting special planning and neighborhood preservation areas of the County's zoning code.

This year, we note that the RDEIR/SDEIS fails to incorporate Sacramento County's comment as part of its RDEIR/SDEIS.[373] This year, the habitat restoration activities are now omitted from the preferred alternative and the other two sub-alternatives addressed in the RDEIR/SDEIS. This year, we find, however, that the same broad issues exist for the Tunnels Project: ***The inability of the California Department of Water Resources to gain access to Delta lands along the alignment of the Tunnels Project means that data necessary for cultural and biological resources, soils, and geotechnical matters is unavailable to adequately describe the Tunnels Project's environmental baseline.***

The lack of available data is acknowledged in the RDEIR/SDEIS.

> Although the majority of the footprint of the water conveyance facility has not been surveyed, sensitive resources have been located with and near the portions of the alignment that have been surveyed. For this reason, additional archaeological resources are likely to be found in the portion of the footprint where surveys have not yet been conducted.[374]

The RDEIR/SDEIS further acknowledges that there remain "unidentified and unevaluated historic architectural and built environment resources that could be affected by construction activities associated with the Tunnels Project.

> As described in detail for Alternative 4 [*sic*], although DWR does not have legal access to the majority of the footprint for the water conveyance, historical documentation suggests numerous additional resources occur in the footprint of the water conveyance facilities that have not been identified or which cannot currently be accessed and evaluated. Construction may result in direct demolition of these resources, damage through vibration, or indirect effects such as changes to the setting.[375]

Impact CUL-6 is not so much an impact discussion, but an admission that the RDEIR/SDEIS is incomplete. An adequate and complete CEQA/NEPA document is required to have benefited from full due diligence by the document preparers, and acknowledging its incompleteness does not resolve the RDEIR/SDEIS's defects in this area, nor does Mitigation Measure CUL-6 ("Conduct a survey of inaccessible properties to assess eligibility, determine if these properties will be adversely impacted by the Project and Develop treatment to resolve or mitigate adverse impacts.") provide mitigation for the incomplete "impact"; ***these are research agenda and methodology items for the next recirculated draft CEQA/NEPA document, not adequate treatments of these issues under CEQA and NEPA. They are a speculative to-do list, not analysis in and of themselves.***

In the area of geotechnical and soils matters, the Draft EIR/EIS and RDEIR/SDEIS attempt to evaluate the Tunnels Project's vulnerability to earthquake and ground-shaking risk, de-watering of

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[372] EWC Comments, June 11, 2014, pp. 133-135.

[373] RDEIR/SDEIS, Sections 4.3.14, 4.4.14, and 4.5.14.

[374] RDEIR/SDEIS, Section 4.3.14, Impact CUL-2, p. 4.3.14-2, lines 15-19.

[375] RDEIR/SDEIS, Section 4.3.14, Impact CUL-6, p. 4.3.14-5, lines 25-30. The same is true for Impact CUL-6 in Section 4.4.14, pp. 4.4.14-5 to 4.4.14-6; and Section 4.5.14, pp. 4.5.14-5 to 4.5.14-6.

groundwater from construction activities, ground settlement, potential slope failure, vibrations, fault rupture, liquefaction, and canal seepage. Each impact and mitigation is discussed as a matter of "could," rather than "would" or "will." This is because neither document's analyses of these various geotechnical issues is based on data from actual conditions along the Project's alignment. This is acknowledged implicitly when the RDEIR/SDEIS states:

> ***NEPA Effects:*** This potential effect *could* be substantial because settlement or collapse during dewatering *could* cause injury of workers at the construction sites as a result of collapse of excavations.
>
> The hazard of settlement and subsequent collapse of excavations *would* be evaluated by assessing site-specific geotechnical and hydrological conditions at intake locations, as well as where intake and forebay pipelines cross waterways and major irrigation canals. A California-registered civil engineer or California-certified engineering geologist *would* recommend measures in a geotechnical report to address these hazards, such as seepage cutoff walls and barriers, shoring, grouting of the bottom of the excavation, and strengthening of nearby structures, existing utilities, or buried structures.[376]

Again, such prospective statements are due to the fact that DWR has not obtained entry to Delta lands along the alignment of the Tunnels Project or any of its potential sub-alternatives to conduct the drilling, boring, and petrologic and soils analyses needed to define the impacts of the Tunnels Project on geological and soils conditions. ***The passage in this NEPA conclusion, like's the cultural resources counterpart above, is not a valid NEPA conclusion, but a research design and methodology description for recirculating the next Draft EIR/EIS. It does not even accurately represent the extent, location or magnitude of project impacts. This kind of narrative is rife in the RDEIR/SDEIS's treatment of geology/seismicity issues, and is inadequate to the full disclosure purposes of CEQA and NEPA.***

DWR's difficulties obtaining entry continue.[377] In December of 2013, after five years of litigation, oral argument in the consolidated appeals in the Delta "access wars" finally took place at the Court of Appeal for the Third Appellate District in Sacramento. This was a milestone event in the legal battle spawned by the State's multi-billion dollar twin-tunnel project inappropriately named the Bay Delta Conservation Plan. Counsel for the State urged the court to reverse rulings that have prevented the Department of Water Resources from gaining access to Delta lands to conduct investigations they insisted were essential to complete planning for the BDCP. Counsel for the Delta landowners sought to affirm and strengthen the favorable rulings that had thus far stymied DWR's ambitious plans.

The argument before the Court of Appeal focused on whether DWR could lawfully acquire such access rights by proceeding under the "pre-condemnation entry" statute (Code Civ. Proc. §1245.010, et seq.). The entries DWR requested were prolonged and invasive. DWR claimed that the pre-condemnation entry statute allows it to obtain those entry rights without affording landowners the many rights and safeguards DWR would be required to give them if it proceeded under the more time-consuming procedure known as "eminent domain."

The landowners, on the other hand, argued that the requested "entries" were so prolonged and intrusive that they amounted to easements that could be lawfully obtained only by eminent domain.

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[376] RDEIR/SDEIS, Section 4.3.5, p. 4.3.5-2, lines 16-22. Similar narrative problems exist in Sections 4.4.5 and 4.5.5 as well.

[377] EWC is grateful to member group Restore the Delta and Thomas Keeling, Freeman Firm, Stockton, California, for this summary description of temporary and permanent entry litigation between the California Department of Water Resources and Delta land owners.

They contended that DWR's entry requests were not brief and innocuous "entries" contemplated by the pre-condemnation entry statute. By attempting to obtain these interests by way of an abbreviated pre-condemnation entry procedure, DWR tried to do an end-run around eminent domain laws and, in fact, sought an unconstitutional taking of private property.

In March, 2014 the Court of Appeal issued its Decision. The Majority ruled in favor of the Delta landowners, holding that DWR could not proceed with "geotechnical" entries it sought by way of the pre-condemnation entry statute because that would effectuate an unconstitutional taking. On that point, the appellate court affirmed the Superior Court's ruling. The appellate court also ruled in favor of Delta landowners with respect to DWR's requested "environmental" entries, holding that they, too, amounted to unconstitutional takings. On this issue, the Court of Appeal reversed the trial court's ruling.

DWR petitioned the California Supreme Court for review of that decision, and that petition was granted. Briefing on the merits is now complete, and we expect oral argument in the Supreme Court sometime in 2016. We think that well-established case law, the statutory framework, and sound principles of judicial and public policy favor the Delta landowners in this proceeding.

However, regardless of the outcome in the Supreme Court, Delta landowner resistance has already successfully blocked DWR's effort to invoke a procedural "shortcut" to conduct prolonged and invasive "surveys" in the Delta to advance the pernicious twin tunnel scheme.

DWR's Eminent Domain Attempts. Frustrated by its failed effort to access Delta properties by way of the pre-condemnation entry statute, in mid-2011—even as the appeals from the Coordination Trial Judge's rulings were being perfected—DWR commenced eminent domain proceedings in four counties in order to condemn temporary easements to access its proposed drilling sites and stage its drilling operations. DWR also tried to condemn permanent easements, each approximately 4 feet by 4 feet, for each boring it intended to drill.

However, DWR made several serious missteps in its zeal to obtain the temporary and permanent easements it insisted it needed for BDCP-related geotechnical research. Over a two-year period, the landowners' counsel successfully resisted DWR's eminent domain efforts. As a result, DWR has since dismissed its eminent domain actions in San Joaquin, Yolo, Sacramento and Contra Costa Counties.

The gaps in setting/baseline, impact, and mitigation information render necessary analyses in the RDEIR/SDEIS of these issues incomplete. As a consequence, the RDEIR/SDEIS is inadequate. It should be revised, updated with site-specific data on these matters, and recirculated for public review.

Clifton Court Pump Failure, Water Hammer and Back-flow Effects

The RDEIR/SDEIS states that a key modification to Alternative 4 in the Draft EIR/EIS was the removal of three north Delta intake pumps to be replaced with two pumping plants lifting water from the southern end of the Tunnels into Clifton Court Forebay.[378] This conceptual design is now assumed for modified Alternative 4 and the new preferred Alternative 4A of the Tunnels Project.

[378] RDEIR/SDEIS, Section 3.1, pp. 3-1 to 3-2. "...after extensive engineering analysis, DWR has determined that it is not necessary to build pumping plants adjacent to each intake to move the water from the river and into tunnels. Instead, water could be moved from the river into tunnels by two new pumping plants constructed 40 miles away on DWR property at the southern end of the tunnels near Clifton Court Forebay."

This new conceptual design has a potential hazard issue that is neither identified nor described in the RDEIR/SDEIS. ***Power failure at Clifton Court Pumping System coinciding with high Tunnels Project diversion rates are acknowledged to be capable of causing a water hammer effect that would send water rushing back up through the tunnels and surge towers back through surge and vent shafts, the intermediate forebay, and potentially out through the intakes and fish screens between Hood and Courtland.***

According to an appendix to the *CER*, sudden power failure to the south Delta pumping plants for the Tunnels Project could cause an "adverse hydraulic transient condition" that would result from a "sudden flow change resulting from rapid closure of a valve or from loss of power to pumps." The *CER* states that "for the vast majority of these transients [sic], the impacts are not significant and specific control facilities are not necessary for protection. However, in extreme cases, pressure transients can result in damage to the conveyance system, and/or flooding damage."[379] The *CER* evaluates "one of the more critical conditions...associated with a total power failure during peak delivery rates."

The "critical condition" of this "water hammer" event is described this way:

> ...when the pumps at the Clifton Court Pump Station (CCPS) suddenly lose power and have no provision for overflow in a closed system, the water within the CCPS shaft is rapidly brought to rest by the impulse of the higher pressure developed at the face of the pump impellers. As soon as the first, adjacent volume of water is brought to rest, the same action is applied to the next upstream segment of fluid bringing it also to rest. In this manner, a pulse wave of high pressure travels upstream at some sonic wave speed...and at a sufficient pressure to bring the fluid to rest. With the pressure increase, the tunnel expands slightly and the kinetic energy is converted to elastic energy in the pipe.
>
> When this pressure wave reaches the [intermediate forebay, IF] the boundary condition, the fluid in the tunnel is under the extra head required to stop the flow. At this point the elastic energy in the pipe is lost as the pressure is suddenly released to the IF. With the lost pressure, the tunnel contracts, release[s] the stored energy and reversing the flow. This reflection process is repeated until the action of friction, the imperfect elasticity of fluid, and the tunnel wall dampens out the pressure waves—eventually bringing the fluid to rest at the constant river elevation.
> ...
> While the above represents a theoretical condition, in actuality [for the Tunnels Project], the compression (i.e., pressure) wave traveling upstream does not bring the fluid to rest because there is an overflow relief at the surge shaft weirs and as a result, the magnitude of the potential surge is lessened.[380]

It is unclear from this description how violent or potentially damaging to the tunnels and related such an event would be. The *CER* Appendix conducts multiple modeling analyses to gauge the sensitivity and realism of the analysis and significance of the threat of water hammer causing back flow and potential flooding. The appendix finds that the surge shafts incorporated into the conceptual Tunnels Project design do help reduce the impact, but "While this [i.e., surge shaft weirs underground allow some forward moving flow to continue] results in overflow to [Clifton Court Forebay] it will be less than the delivery demand from the pumps of 9,000 cfs and actually limits the typical head build-up that would otherwise be required to stop the flow. In effect, the surge shaft

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[379] California Department of Water Resources, *Conceptual Engineering Report: Dual Conveyance Facility, Modified Pipeline/Tunnel Option—Clifton Court Forebay Pumping Plant*, July 1, 2015, Appendix D, *AECOM Surge Analysis Technical Memorandum* No. 3, December 3, 2014, p. 1. Hereafter cited as *AECOM Appendix D.*

[380] AECOM Appendix D, pp.1-2.

weirs act as a large shock absorber to the system..."[381] But in the time it takes to reduce the full effect of the rapid back-flow in the Tunnels Project and the intermediate forebay, "the timing is such that the IF level rises slightly above the river elevation for a brief period of time (on the order of 10-20 minutes). This results in a small reverse flow to the river at intakes 5 and 3" which are located close to Hood and Courtland.

The *CER* Appendix further found that:

> The characteristic response observed does suggest that reverse flows into the Sacramento River are a possibility during conditions when a head imbalance occurs. A head imbalance will occur when the water level at the surge shaft weirs (EL 14.6) is equal to or higher than the Sacramento River water elevation.
>
> During conditions where the Sacramento River water elevations are much higher than EL 14.6 little, or no, reverse flow will occur. However, in conditions where the Sacramento River water surface elevations are lower than EL 14.6 measurable reverse flow will occur. This creates a scenario that as flow stoppage occurs at the CCPS, the water level quickly rises to an elevation somewhat greater than EL 14.6 When the compression wave returns, a head imbalance has developed and flows will reverses back up the system towards the Sacramento River. While this condition does not pose a surge related risk to the CCPS or CCF, it does potentially create back flow through the intake screens into the river during periods of river levels below EL 14.6 unless checking gates or other control measures are used to prevent the backflow.[382]

The *CER* Appendix estimates backflows at the intakes as being quite low (on the order of 37 to 217 cfs with the current intermediate forebay design used in the modeling). The CER appendix also charts head elevations of Tunnels backflow showing the magnitude and attenuation of the pulse waves and the backflows anticipated in the modeling. But the CER appendix does not show or describe potential impacts of surge and vent shaft impacts from such back flow events and the extent to which they would reach the surface, either in water ways or on island lands in the Delta.

This water hammer/backflow problem—an apparent consequence of modifying the "preferred alternative" by relocating pumps from the north Delta intakes to Clifton Court Forebay—is unmentioned as a possible hazard in the hazard and hazardous materials impact discussions of Sections 4.3, 4.4, and 4.5 of the RDEIR/SDEIS. No attempt is made to evaluate the likelihood of varying combinations of circumstances that could cause blackouts in the grid involving the CCPS that would cause such hazardous events. What is the design strength of tunnels, and is that sufficient to avoid failure of tunnel walls in such events? What is Plan B in the event of catastrophic damage from water hammer and backflow to tunnel walls, the intermediate forebay, surge and vent shafts, and intakes?

While the effects of such an event are acknowledged in the CER, they are not disclosed or evaluated in the RDEIR/SDEIS. An independent expert panel should be convened to examined this problem. This is yet another example of the deficiencies of the RDEIR/SDEIS, which is inadequate, should be revised and recirculated.

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[381] AECOM Appendix D, p. 13.

[382] AECOM Appendix D, p. 13.