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]

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[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.

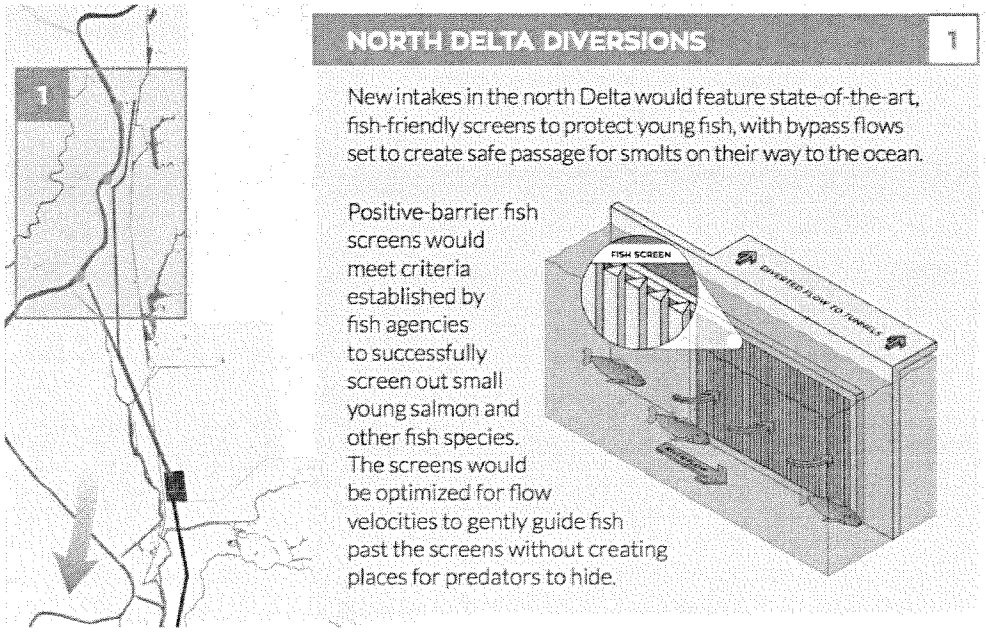
[341] RDEIR/SDEIS, Section 3, "Conveyance Facility Modifications to Alternative 4, p. 3-2.

[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, 1/4$^{th}$ 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.<br><br>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.

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[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.

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| **From:** | Tim Stroshane <spillwayguy@gmail.com> |
| **Sent:** | Friday, October 30, 2015 12:19 PM |
| **To:** | BDCPcomments; Sally Jewell; Penny Pritzker; Gina McCarthy; John Laird; Mark W. Cowin; David Murrillo |
| **Cc:** | Conner Everts; Tom Howard; Diane Riddle; Maria Rea; Michael Tucker; Larry Rabin; Lori Rinek; Mary Lee Knecht; Patty Idloff; Deanna Harwood; Amy L. Aufdemberge Esq.; Jared Blumenfeld; Tom Hagler; Tim Vendlinski; Stephanie Skophammer; Erin Foresman; Lisa Clay; Michael Nepstad; Zachary M. Simmons |
| **Subject:** | Environmental Water Caucus Comments on "California WaterFix" Recirculated Draft EIR/ Supplemental Draft EIS |
| **Attachments:** | EWC Comment Letter FINAL.pdf; ATT00001.txt |

Dear Secretary Jewell, Secretary Pritzker, Administrator McCarthy, Secretary Laird, Director Cowin, Regional Director Murillo, and officers of various Federal and California agencies with responsibilities concerning the Bay Delta Conservation Plan/"California WaterFix":

Thank you for the opportunity to comment on these documents.

On behalf of Conner Everts, Facilitator of the Environmental Water Caucus and the signatories of the attached letter, Environmental Water Caucus member groups in California object to the adverse effects of the Bay Delta Conservation Plan/"California WaterFix" Tunnels Project. We find the Recirculated Draft EIR/Supplemental Draft EIS released this past July deficient. Its defects may only be repaired by recirculating another EIR/EIS that reflects needed corrections and revisions. Its defects are comprehensive: project objectives, purpose and need omit key details and rationales; essential baseline data and analyses are omitted; adverse impacts are numerous while others go unreported; mitigations are weak or nonexistent, and rely far too heavily on a too-optimistic assessment of state and federal water project operators' management of real-time operations and adaptive management research and monitoring agendas and outcomes; and the excessively narrow range of alternatives described in the RDEIR/SDEIS defeats CEQA and NEPA requirements that a reasonable range of alternatives be evaluated.

Should you have questions concerning this letter, please contact Tim Stroshane or Conner Everts with the Environmental Water Caucus. Our contact information is in the attached cover letter.

Yours truly,

Tim Stroshane
Consultant
Environmental Water Caucus
Policy Analyst
Restore the Delta