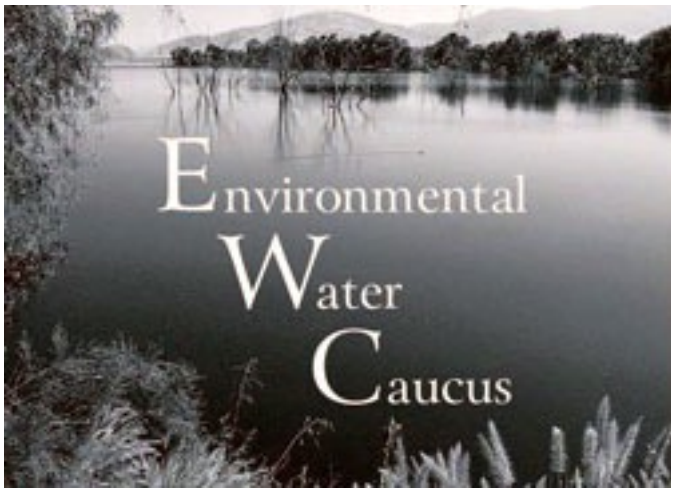

January 27, 2017

Transmitted via email: info@baydeltaconservationplan.com; CalWaterFix@water.ca.gov

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Subject: Additional Comments on Bay Delta Conservation Plan/California WaterFix Final Environmental Impact Report/Statement issued December 22, 2016

To whom it concerns:

The Environmental Water Caucus (EWC) submitted comments on the Bay Delta Conservation Plan (BDCP) Draft Environmental Impact Report/Statement (DEIR/S) in June 2014 (Comment Letter 778, Volume II, Appendix A), comments on the BDCP Implementing Agreement in July 2014 (Comment Letter 1803, Volume II, Appendix A), and comments on the California WaterFix Recirculated Draft Environmental Impact Report/Supplemental Environmental Impact Statement (RDEIR/SDEIS) in October 2015 (Comment Letter 2653, Volume II, Appendix B). EWC has also participated as signatories to numerous other letters about the various forms of this project since 2012.

EWC continues to object to and reject approval of the California WaterFix project and its predecessor, Conservation Measure 1 in the Bay Delta Conservation Plan.

In summary, this letter provides EWC comments on Master Responses contained in Volume II of the Final EIR/EIS. Generally, we find that they tend to repeat talking points

and unfounded assertions we have already commented on in the above mentioned letters earlier in this environmental review process.

In addition to comments on the Master Responses, we incorporate by reference letters and their attachments concerning the Final EIR/EIS submitted by California Sportfishing Protection Alliance, California Water Impact Network, and AquAlliance; Local Agencies of the North Delta and Friends of Stone Lakes; Friends of the River; and the case in chief submitted to the State Water Resources Control Board's change petition by the Pacific Coast Fishermen's Federations Association/Institute for Fishery Resources, as well as narrative materials provided by California Water Research (see Attachment 3).

Finally, EWC's letter further incorporates as its own content the cases in chief submitted to the California WaterFix change petition proceeding before the State Water Resources Control Board by Restore the Delta as integral to our collective response to the BDCP/ California WaterFix Final Environmental Impact Report/Environmental Impact Statement Master Responses to Comments released in December 2016. Reference to RTD's testimony and exhibits will occur as part of our comments on the selected Master Responses provided herein.

We format quoted passages from Master Responses in *italics*. EWC comments on the quoted passages are presented in regular typeface.

Master Response 3: Project Objective and Purpose and Need

Page 1-29:29-32[1]: "…the lead agencies have acted well within their discretion in defining the project's objectives, purposes, and need, which under state law have been informed by, and are intended to advance, the coequal goals set forth in the Sacramento-San Joaquin Delta Reform Act of 2009 (Delta Reform Act).

We note that the lead agencies for BDCP/California WaterFix have cherry-picked their preferred provisions of the 2009 Delta Reform Act, and have excluded analysis of and compliance with California Water Code Section 85021, which states in part that it is the policy of the State of California to reduce reliance on the Delta for California's future water needs. It also ignores Water Code Section 85020(f) which states in part that inhering in the co-equal goals it is the policy of the State of California to achieve the objective of improving the water conveyance system. Improving the water conveyance system does not in itself mean increasing conveyance capacity, but may mean improving the existing conveyance system's efficiency, reducing its ecological impact, and by reducing reliance on the existing conveyance system consistent with Section 85021. The Delta Reform Act should be read as an integral whole that not only seeks to balance the coequal goals of ecosystem recovery and water supply reliability, but does

[1] This citation method will be used for pull quotes: [page number of Volume II, Part 1]:[the range of numbered lines where the page number of the quotation is to be found]. For this quotation, the citation is to page 1-29, lines 29 through 32 (or page 1-29:29-32).

so in balance with the Act's command to reduce Delta reliance for the state's future water needs by applying the public trust and reasonable use legal doctrines as particularly applicable in the Delta.

Page 1-29:36-39: "As stated in the State CEQA Guidelines, '[a] clearly written statement of objectives will help the Lead Agency develop a reasonable range of alternatives to evaluate in the EIR and will aide decision makers in preparing findings or a statement of overriding considerations if necessary. The statement of objectives should include the underlying purpose of the project."[2]

We have stated previously in EWC comments that it is clearly an underlying purpose of California WaterFix—and BDCP Conservation Measure 1 before it—to increase capacity of the state and federal water systems to conduct water transfers from north of Delta sellers to south of Delta buyers at times when contract amounts cannot be met.

> [In 2015], the RDEIR/SDEIUS continues to ignore water transfers as a crucial purpose of the Tunnels Project. They fail to describe it as a purpose in violation of CEQA and NEPA. In sum, the project would increase reliance on the Delta in flagrant defiance of the Delta Reform Act, and fails utterly to justify why the Tunnels Project is needed, a violation of NEPA and CEQA.[3]

Master Response 4: Alternatives

Page 1-43:16-20: "…the selection of alternatives for an EIR/EIS is directly linked to the project's objectives and purpose and need, and an EIR/EIS need not analyze alternatives that would not meet a project's basic goals or objectives. Accordingly the draft EIR/EIS, RDEIR/SDEIS, and Final EIR/EIS do not include alternatives that would not meet the purpose and need and most of the basic project objectives or alternatives that are beyond the scope of the project.

"For example, the EIR/EIS does not include alternatives that require actions on a statewide basis from a variety of actors such as local governments. Despite their very substantial scope, their habitat benefits [in BDCP's case], and the very large geographic areas they cover and affect, neither the proposed project nor any of the other alternatives in the EIR/EIS are intended to—nor are they required to—function as the equivalent of a statewide plan for dealing with water supply or a comprehensive plan for addressing the numerous challenges facing the Delta. Rather statewide water issues are comprehensively addressed by DWR every five years through updating the California Water Plan."

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[2] State CEQA Guidelines Section 15124, subd. (b).

[3] Environmental Water Caucus comment letter on California WaterFix and water transfers, BDCP/California WaterFix Final EIR/EIS, Volume II, Appendix A-2, letter 2653, p. 23 (see also pp. 19-23 for full commentary). See also Environmental Water Caucus comment letter on BDCP and water transfers, BDCP/California WaterFix Final EIR/EIS, Volume II, Appendix A-1, letter 778 (pp. 145-149 and 192-198).

[and]

Page 1-45:20-21: "DWR is not a statewide governing body that can impose a statewide water strategy on different parts of the state. Further, DWR lacks any statutory authority to make and implement localized decisions about water technology investments, to develop and impose investments for new water supply projects that serve particular geographic regions, or to mandate coordinated efforts among local and regional water suppliers. The 2009 Delta Reform Act appropriately recognizes DWR's limited role and does not assign such duties to DWR. The Act's organizational structure makes this apparent. The policy regarding regional water self-sufficiency is contained in an early portion of the Act…that describes the policies of the state and does not mention the BDCP. The BDCP is addressed in later portions of the Act…in which California Water Code Section 85320 spells out specific criteria that must be met for the BDCP to be incorporated into the Delta Plan by operation of law…."

[and]

Page 1-45:31-40: "Furthermore, as noted in the Delta Stewardship Council's Delta Plan, the responsibility for implementing most of the state's water management strategies and achieving the state water objectives lies not only with DWR, but with 'over 600 local water agencies, including several privately owned and operated companies, plus wastewater districts, community service districts, and other special districts' [citation to Delta Plan, Chapter 3]. Again, neither DWR nor CDFW, USFWS, or NFMS [sic] *has the regulatory authority to impose legal duties on any water agencies, local governments or individuals under the BDCP or the California WaterFix. Accordingly, any alternatives that would require the imposition of legal duties on non-applicants are beyond the scope of the proposed project, and are not considered reasonable alternatives."*

In these passages, the Lead Agencies acknowledge that the California WaterFix is indeed a proposed project of statewide impact, but they argue that the project should not be saddled with statewide responsibilities. We think this reveals an improper asymmetry and an abuse of discretion on the part of DWR when it states that it lacks statutory authority.

These passages are among the clearest expressions to date by DWR and other lead agencies on how they see their duties under the 2009 Delta Reform Act (DRA). Water Code Sections 85020 through 85023 are policies of the State of California, of which the Department of Water Resources is a department within the state's Natural Resources Agency. These policies state direct intentions, policies, and that the "longstanding constitutional principle of reasonable use and the public trust doctrine shall be the foundation of water management policy and are particularly important and applicable to the Delta." Yet DWR and the lead agencies, like Melville's Bartleby the scrivener, would prefer not to shoulder the responsibilities imposed by the Delta Reform Act. Such a position is hidebound, unreasonable and incorrect on its face. DWR has ample powers

of contract based in the Water Code with water service suppliers to implement such policies as are provided in the DRA, but it chooses not to use them. They choose not to even though the DRA does not provide them with agency discretion NOT to comply with the Delta policies of the DRA.

While true that the DRA's organizational provisions aim to enable and authorize responsibilities of the Delta Stewardship Council, the Delta Independent Science Board, and direct certain "early actions" of the State Water Resources Control Board, none of them detract from or otherwise limit DWR's obligation as an agency of the State of California to carry out the Delta policies we cite in the previous paragraph.

During Part 1 of the California WaterFix change petition hearing, DWR has consistently avoided putting forward any recommendations for permit conditions for whatever order the State Water Resources Control Board might produce. This is consistent with an implicit DWR policy of refusing to engage with Delta policies of the Delta Reform Act, which require state agencies, including DWR, to reduce reliance on the Delta for California's future water supplies, for example. It is under the Delta policies in the DRA that DWR and CDFW will find their authority for implementing such policies through contracting, prioritization of grant funds, and other potentially applicable powers. These authorities and responsibilities are provided to state agencies with Delta-related responsibilities (like DWR and CDFW) by the California legislature.

These are pleadings of state agencies whose leadership and upper management are essentially captured by regulated interests—the most powerful and influential of those 600 or so local water agencies to which Master Response 4 points.

Master Response 5: Funding and Financing of the Project

Page 1-67 through 1-75: "BDCP Chapter 8, Implementation Costs and Funding Sources."

Undiscounted current dollar estimates are the same as future spending plus *inflation*, not interest. Inflation represents a cost factor that accounts for overall changes in the economy through time of prices for all factors. Interest is a specific cost associated with credit and borrowing, and is not the same as inflation.

The sole source of funding/financial information associated with California WaterFix is Chapter 8 of BDCP, specifically Table 8-5 (p. 8-14). This table shows that total capital costs for Conservation Measure 1 facilities would be $14.571 billion. Annualized operations and maintenance costs would total another $1.456 billion, for a total project cost of land acquisition, construction and operations/maintenance of $16.03 billion. That is the principal that would be paid for by water contractors (see Table 8-37, pp. 8-65 to 8-66; and see Table 8-41, p. 8-74). These tables do not include any estimate of debt service, transaction costs, or interest costs. No one knows for sure, since after 10 years

of planning, there is still no financing plan for various sources of funds for California WaterFix.

But if the water contractors fund the project up front out of revenue bonds, then this principal amount ($16.03 billion in 2013 dollars—the year of the estimate for Tunnels costs) would be used to estimate the overall payment of interest to bond holders over the life of the bonds. Bonding characteristics are suggested in BDCP on page 8-79, Table 8-43. These characteristics could have been, and could still be, applied to the project costs to arrive at an estimate of total debt service beyond the total cost of the project and for the term of the revenue bonds. None was provided.

Providing such an estimate would be like receiving the full disclosure estimate when a person goes to purchase a house using a mortgage. Full disclosure requirements for mortgages require the lender to state what the principal of the loan is, the annual percentage rate (the effective interest rate charged on the loan), and what the total amount of interest that would be paid over the term of the loan. It is this last figure—the total amount of interest cost on the project—that the Lead Agencies appear quite unwilling to calculate and disclose to the public. Others have estimated these costs at around $40 billion, raising the total cost of the Tunnels project (capital, operations/maintenance, and total interest costs) to potentially over $55 to $60 billion. It is a simple idea we have been trying to get across, but one that DWR and the Lead Agencies apparently think is just too damaging to project prospects to admit to.

Most of the rest of this cost discussion in Master Response 5 appears to be deliberately confusing, when it could be simply and fully disclosed as one table that builds from the Tables identified from BDCP in the previous paragraph here. We apply this comment to the discussion of “Debt Financing” on pages 1-70 through 1-71. This section is absurdly abstract and confusingly written. Simple financial analysis can illustrate the project’s cost of debt service and add it to the capital and annual operating/maintenance costs of the project. Please use prevailing interest or discount rates applied to comparable infrastructure bonds for these estimates. Please do the calculation and disclose it to the public as part of a new recirculated Draft EIR/EIS.

We note, that the $114 million identified to pay for “legal and underwriting services” is not the same as debt financing (page 1-71:14-15). They are transaction costs, and do not add any value for ecosystem or water supply improvements associated with California WaterFix. Yet, if it is true that BDCP and California WaterFix planning costs to date amount to around $250 million, then this estimate of transaction costs alone represent about 46 percent of the cost of the effort expended to date just to get BDCP and California WaterFix to this point. That is a great deal more money for no value added to either water users or ecosystem beneficial uses.

Page 1-72, “Why Large Cost Overruns are Not Likely.”

This portion of Master Response 5 strikes us as the height of presumption and hubris. While "commenters are correct that any large infrastructure project has the potential for cost overruns…the estimates of the cost of building and operating the proposed water conveyance facility have been designed to minimize these risks by including cost contingencies" (lines 17-20). We have not researched the Bay Bridge or Boston Big Dig projects, but it is likely that their original cost estimates at the outset included contingency allowances. Yet, as Master Response 5 acknowledges, there were still large cost overruns in these and many other projects. Such occurrences have been well documented elsewhere in our earlier comments.[4]

This portion of Master Response 5 also states "Furthermore, the organizational structure of the team that would manage construction of the conveyance facility will be designed to further minimize this cost overrun risk. One of the most important factors for a project of this scope to adhere to cost estimates is to ensure that the cost estimate itself is accurate and accounts for cost uncertainty."[5]

To our knowledge, DWR and its project design engineers lack definite understanding about subsurface conditions for tunnel construction under the Delta. The Conceptual Engineering Report indicates some subsurface conditions in some locations, but it seems clear that with the project only 10 percent designed, much more subsurface study is necessary before cost estimates can incorporate uncertainties and reduce the risks that will attend inserting tunnel boring machines 150 feet below the surface to create a 35 mile-long, two-bore tunnel system. Until these conditions are better known, tunnel boring and other related cost estimates should not be considered settled.

Cost and cost overruns are issues for determining how and whether the public interest would be served by the project's construction and financing. The public interest is a decision criterion required by California's Water Code of the State Water Resources Control Board in its decision making—including on water rights change petitions. Addressing public interest concerns in the Final EIR/EIS is entirely appropriate and

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[4] See also the studies of large infrastructure projects: Bent Flyvbjerg, Massimo Garbuio, and Dan Lovallo, "Delusion and Deception in Large Infrastructure Projects: Two Models for Explaining and Preventing Executive Disaster," *California Management Review* 51(2): 170-192, Winter 2009; and Bent Flyvbjerg, Nils Bruzelius, and Werner Rothengatter, *Megaprojects and Risk: An Anatomy of Ambition*, New York, NY: Cambridge University Press, 2003.

[5] In Natural Resources Defense Council v U.S. Forest Service, 421 F.3d 797, 811 (9th Cir. 2005), the Ninth Circuit held that "Inaccurate economic information may defeat the purpose of an EIS by 'impairing the agency's consideration of the adverse environmental effects' and by 'skewing the public's evaluation' of the proposed agency action." The Court found that "the market-demand error was sufficiently significant that it subverted NEPA's purpose of providing decision makers and the public with an accurate assessment of the information relevant to evaluate the Tongass Plan." 421 F.3d at 812. The Court concluded from this situation that the Forest Service in this case had violated NEPA for not providing accurate information significant to the evaluation of alternatives and unlawfully misleading the public in its opportunity to comment on the Plan. Here also misleading economic and cost information is provided in the California WaterFix Final EIR/EIS, and so we allege this violates NEPA.

reasonable since it is the premier document for informing public officials' decisions on this project, and the Board is a responsible party with this project.

Master Response 13: Public Trust

Page 1-111:3-12: "In summary, what constitutes feasible protection for public trust resources is a determination made by the responsible state agency after balancing public trust and competing interests and considering its statutory authority and responsibilities. To the extent that the California Department of Water Resources (DWR) has a duty to take public trust values into account before it approves a project, it has done so through the process of designing and studying the impacts of the proposed project, as documented in large part by this EIR/EIS. Other agencies, such as the State Water Board and the California Department of Fish and Wildlife (CDFW), have the duty to take public trust values within their statutory roles into account when issuing permits for the proposed project, processes that rely on the Final EIR/EIS, but which also have different statutory requirements not relevant to DWR's decision-making."

Page 1-114:5-8: "Here, California WaterFix and the action alternatives in the Final EIR/EIS all involve proposals by which DWR and the Bureau of Reclamation…would add new points of diversion and alter the system operations by which they provide water to other public agency customers."

Page 1-114:12-14: "Compliance with CEQA, with its mandate to mitigate significant environmental effects to the extent feasible,[citation] tends to ensure compliance with the public trust doctrine, at least with respect to public projects involving public use of public trust resources."

We appreciate the Lead Agencies providing a master response that describes their view of public trust resource issues and the public trust doctrine. We could not disagree with it more, however. Compliance with CEQA may "tend to ensure" compliance with the public trust doctrine, but this is at best a tepid assurance and at worst a weak excuse for lack of compliance given the numerous ways in which the status quo of water project operations is now failing public trust resources, whether they are endangered species, or various human and non-human beneficial uses compromised by water quality degradation. Moreover, the Final EIR/EIS modeling results showing decrease salmon smolt survival do not support this contention. This latter statement is tantamount to arguing that because DWR is a public agency complying with full disclosure laws it therefore complies with the public trust doctrine. This *may* represent a limited aspect of procedural compliance with the public trust doctrine, but it is insufficient for substantive compliance with the public trust doctrine. Meeting existing water quality objectives in the 2006 Bay-Delta Plan or in D-1641 is hardly evidence of compliance with the public trust doctrine when the State Water Board declared in 2010:

> The best available science suggests that current flows are insufficient to protect public trust resources.[6]
>
> There is sufficient scientific information to support the need for increased flows to protect public trust resources; while there is uncertainty regarding specific numeric criteria, scientific certainty is no the standard for agency decision making.[7]

These Board determinations are contrary to a presumption by DWR and the Lead Agencies that the California WaterFix and its Final EIR/EIS represent any kind of *de facto* substantive public trust doctrine compliance. The public trust doctrine requires, whenever feasible, that the people's rivers must flow, their fish populations must survive and thrive in good condition, and that their water quality must be healthful and capable of supporting all beneficial uses (whether now recognized or under consideration as is the case with subsistence fishing and cultural uses of water) that enable human populations and their economies to thrive and grow. Those resources are to be held and protected in trust by our government for all our people. This does mean balancing these needs against other uses of water, but it does not mean balancing fish and good water quality out of existence so that economic beneficial uses are made paramount. Nowhere has the Final EIR/EIS performed a systematic and scientifically methodical balancing of public trust resources as compared with those beneficial uses, such as Delta exports, that are now privileged by existing water quality objectives and by extension, the proposed design and operation of the California WaterFix project. The BDCP/California WaterFix Final EIR/EIS is therefore inadequate and should not be certified until such time as an adequate and systematic balancing of public trust uses and resources is performed.

We also appreciate that the Lead Agencies acknowledge "California WaterFix and the action alternatives in the Final EIR/EIS all involve proposals by which DWR and the Bureau […] would add *new points of diversion* and alter the system operations" through

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[6] State Water Resources Control Board. 2010.*Development of Flow Criteria for the Sacramento-San Joaquin Delta Ecosystem.* August 3, p. 2.

[7] *Ibid.*, p. 4.

which they supply water to their public customers (p. 1-114, lines 5-8).[8] We think this is a common sense acknowledgement that will help the State Water Board make a reasonable determination concerning its hearing question that asked, "Will the changes proposed in the petition in effect initiate a new water right?" Here we have the Lead Agencies acknowledging that the diversions are in effect new, and that system operations will change as a result of the project. The answer to the Board's question is "yes."

Master Response 14: Water Quality

Antidegradation Analysis

Page1-134:27-29: "Water development and water conservation projects may be considered to be important social and economic developments that justify a lowering of water quality (see Water Code Section 13000). Similarly, environmental protection may constitute important social development, justifying a change in water quality, even if no other social or economic benefits to the community are demonstrated [citation]. Where there are two conflicting uses, the quality of water for one use may be reduced where the change improves water quality for the other, in appropriate circumstances (see 40 CFR Section 131.11(a)(1)). This latter analysis is outside the scope of CEQA and NEPA and necessarily requires evaluation of economic value and social issues associated with the existing beneficial uses, and the economic costs and changes in these conditions that may occur as a result of lowered water quality….The evaluate of socio-economic changes is not the purview of the water quality analysis, which is rightfully focused on providing the numerical and qualitative assessment of only the potential for implementation of the project alternatives to degrade existing water quality with respect to regulatory water quality objectives and beneficial uses. The socio-economic evaluation must be conducted based on the results of the EIR/EIS and the later stages of regulatory agency review and permitting of changes to the CVP and SWP water rights orders, or other regulatory actions."

This quote provides procedural and substantive distortion by the Lead Agencies. It represents the utmost in bad legal interpretation and bad decision making.

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[8] This statement appears to contradict a later statement in Master Response 26 that "The joint petition for the change in point of diversion requests adding to DWR and Reclamation water rights the three new diversion intakes on the Sacramento River. DWR and Reclamation are not applying for, and the petition does not initiate a new water right as a part of the proposed project." The new diversions are acknowledged by DWR witnesses in the change petition proceeding to remove water from Delta channels, a change that is distinct from and new to the design and operation of water conveyance to the south Delta pumps. In addition, see testimony at this proceeding of December 8, 2016, of Tim Stroshane of Restore the Delta, RTD-10rev2, pp. 5-25, online at http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/RestoretheDelta/RTD_10_rev2.pdf, and associated exhibits found at http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/restore_the_delta.shtml. His testimony is also attached to this letter.

Water Code Section 13000 says precisely nothing about the legislature stating that water projects may be important social and economic development projects that justify lowering water quality. This section states:

> 13000. The Legislature finds and declares that the people of the state have a primary interest in the conservation, control and utilization of the water resources of the state, and that the quality of all the waters of the state shall be protected for use and enjoyment by the people of the state.
>
> The Legislature further finds and declares that activities and factors which may affect the quality of the waters of the state shall be regulated to attain the highest water quality which is reasonable, considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic, and social, tangible and intangible.
>
> The Legislature further finds and declares that the health, safety and welfare of the people of the state requires that there be a statewide program for the control of the quality of all the waters of the state; that the state must be prepared to exercise its full power and jurisdiction to protect the quality of waters in the state from degradation originating inside or outside the boundaries of the state; ***that the waters of the state are increasingly influenced by inter basin water development projects and other statewide considerations***; that factors of precipitation, topography, population, recreation, agriculture, industry and economic development vary from region to region within the state; and that the statewide program for water quality control can be most effectively administered regionally, within a framework of statewide coordination and policy. [emphasis added.]

Read as a whole, Section 13000 offers no support for the Lead Agencies' strained reading. If the Porter-Cologne Water Quality Control Act, from which this section is excerpted, says anything about certain water projects justifying degradation of water quality, we challenge the Lead Agencies to find and disclose to the public the correct citation for that alleged authorization.

We are aware that there is a process under federal water quality regulations through which projects must pass in order to justify degradation of water. It essentially is a benefit-cost analysis that must be performed to ascertain whether the project's benefits outweigh its detrimental effects and costs to address water quality degradation.

The Lead Agencies contend that a full antidegradation analysis is beyond the scope of CEQA and NEPA and need not be performed for the Final EIR/EIS to be considered adequate.

We disagree. CEQA Guidelines, for example, provide that economic analysis may be conducted to ascertain the causal relationship between the proposed project's physical

effects and another physical effect that might occur through economic interactions. Water quality changes are such an instance. Since one area of the California WaterFix's effects stems from its potential changes to Delta water quality, then antidegradation is an issue to be addressed. Decision makers need information on whether water quality changes from the project would result in acute as well as long-term degradation, and the extent of such changes needs to be evaluated to ascertain for decision makers whether such water quality changes exceed the threshold for antidegradation policy compliance under state and federal clean water laws. To comply with state and federal full disclosure requirements, the California WaterFix Final EIR/EIS should provide analysis by the Lead Agencies that ascertains whether that compliance occurs.

Instead, once again following Bartleby, the Lead Agencies would prefer not to. By adhering rigidly and inflexibly to a narrow grasp of legal adequacy of CEQA and NEPA documents and of their scope for analysis, DWR and the Lead Agencies fail to provide an adequate antidegradation analysis of the California WaterFix project in the Final EIR/EIS. Certification of the Final EIR/EIS should be withheld until such an analysis is prepared and included in this document. To wait and do them in "later stages of regulatory agency review and permitting of changes to the CVP and SWP water rights orders, or other regulatory actions," is failure to inform the public and decision makers in a timely fashion.

Microcystis and Harmful Algal Blooms

Page 1-136:5-39: "Alternative 4A would not be expected to substantially increase the frequency or geographic extent of Microcystis *blooms in the Delta, relative to what would occur under the No Action Alternative.*

(35-39): "To ensure project operations do not create increased Microcystis *blooms in the Delta, water flow through Delta channels would be managed through real-time operations, particularly the balancing of the north and south Delta diversions. By operating the south Delta pumps more frequently during periods conducive to increased* Microcystis *blooms, residence times could be substantially reduced when necessary."*

This specific passage strains credulity as to how the Lead Agencies consider they will mitigate the potential for harmful algal blooms during dry seasons when the Delta has become more vulnerable to their occurrence. Tunnels operation will demonstrably lead to reduced flows throughout the western, central and south Delta. This passage suggests that DWR and the Bureau could operate the Delta export pumps in such a way as to reduce residence time and "mitigate" harmful algal blooms when the conditions conducive to their growth align. Does that mean the two pumping plants will increase pumping to increase flow in the south and central Delta when blooms grow? Or does it mean that they will increase reservoir releases to increase flushing inflows into and through the Delta so as to eliminate the threat of harmful algal blooms when they occur? Both? How will that occur while still complying with Export to Inflow ratios that apply, or Delta outflow requirements, or interior south Delta salinity objective

compliance? Either option poses significant conflicts on the one hand with fishery agencies and environmentalists striving to protect fish populations in the Delta from the worst effects of Delta exports; or on the other hand "wasting" reservoir releases to San Francisco Bay and the Pacific Ocean to eliminate HAB threats in the Delta rather than provide export flows to thirsty irrigators and export-dependent urban regions. These conditions generally happen in the dry summer months of otherwise dry or droughty water years. Because neither of these options is seriously analyzed in Master Response 14 or elsewhere in the EIR/EIS, it appears to the Environmental Water Caucus that the underlying message of lines 35-39 here is simply "trust us." But "trust us" has never been allowed under CEQA or NEPA as serious and adequate mitigation measures for substantive environmental impacts.

Master Response 19: Climate Change and Greenhouse Gas Emissions

EWC incorporates in full the content of the case in chief submitted to the California WaterFix change petition proceeding before the State Water Board by the Pacific Coast Federation of Fishermen's Associations/Institute for Fishery Resources concerning climate change modeling and effects. See Attachment 3 for specific citations.

Master Response 26: Area of Origin and Other Legal Water Users

Area-of-Origin Protections

This portion of Master Response 26 mentions three area-of-origin laws in California by name, but a fourth is anonymous, mentioned only as having been enacted in 1984. We ask that DWR disclose to which statute this refers (p. 1-253, lines 2-4)

This section also cites Tehama-Colusa Canal Authority v. U.S. Department of the Interior (819 F.Supp.2d 956, and 721 F.3d (9th Cir. 2013)) as representing more of a limitation on area-of-origin water rights than it may actually be. This discussion (p. 1-253:5-16) fails to mention that the courts found that Tehama-Colusa Canal Authority had contracted away its area-of-origin water rights when it executed a water service contract with the Bureau of Reclamation for water deliveries in Tehama-Colusa Canal. Having contracted its area-of origin rights away, the courts found that stored water is thus allocated based on the status of such contracts within Central Valley Project operations. But other parties in areas of origin for source waters of the state and federal water projects have not contracted away their area of origin rights.

Page 1-253:17-22: "No measures or operating assumptions for the proposed project would affect protections under area-of-origin laws regarding rights to source water. Additionally, the CALSIM II modeling performed for conveyance facility operations takes into account projected future demand for water supply in areas upstream of the Delta (as part of the future No Action baseline) prior to calculating proposed project diversion estimates to ensure that no area-of -origin protections or water rights are affected by project conveyance facilities."

Any truth of this legal point derives only from its reliance on CalSIM II modeling results. Elsewhere, DWR consistently has said in the EIR/EIS as well as at the Change Petition Proceeding that it and the Bureau operate the state and federal water projects in real time based on a number of considerations, but that project operators do not use CalSIM II modeling to decide operations. Thus, this passage above means only that water rights in the Delta would not be harmed in the virtual world of CalSIM II modeling, and provides no practical or genuine assurances that Delta beneficial uses of water would not be impaired by operation of new diversions in the north Delta.

Page 1-253:23-28: "…the proposed project would not change current regulatory requirements that protect the beneficial use of water. When exporting water fro the Delta, DWR and Reclamation must comply with all current state and federal regulatory requirements in effect at the time of the export pumping, including numerous environmental standards, laws, and regulations relating to Delta inflow and outflow, Delta water quality, fish protection, environmental needs, water rights, and the needs of other users, including in-Delta users."

Again, this statement is prospective rather than an assessment of how the Tunnels project would be operated in real-time. It is also based upon long-term annual and monthly averages, rather than highlighting more fine grained daily flow, stage, and salinity changes associated with modeled Tunnels project operations. Testimony and exhibits prepared by the Sacramento Valley Water Users (on upstream reservoir operations), East Bay Municipal Utilities District (on reverse flows), San Joaquin County, and South Delta Water Agency et al, presented analyses of CalSIM II modeling results made available to the proceeding by DWR reveal that more fine-grained daily flow, stage, and salinity changes would likely injure in-Delta water users.

This passage also fails to take account of State Water Board considerations of flow increases called for or expected from in Phases 1 and 2 of the Board's Bay-Delta water quality control plan update.

The 1959 Delta Protection Act addresses "area-of-origin" water rights but also "beneficial use" as a concept applicable to Delta water use. The needs of Delta water beneficial users take priority under the Act over exports. These beneficial users can and should be reasonably interpreted, in the absence of any other definition, as those regulated in the State Water Board's Bay-Delta Water Quality Control Plan, human and non-human alike, and for which demand should be estimated every year as part of water project delivery planning and operations.

Master Response 27: Environmental Justice

Coordination with Environmental Justice Communities During the California WaterFix Planning Process

See the incorporated testimony to the Change Petition Proceeding from Barbara Barrigan-Parrilla, executive director of Restore the Delta. Her testimony directly responds to Master Response 27 (pp. 1-254 to 1-256, points 1 through 6). While BDCP and California WaterFix public meetings were convened and an "environmental justice survey" was prepared, actual organized engagement with members of environmental justice communities in and around the Delta region was missing and would have required far greater effort by the Lead Agencies. They did not muster that effort. Ms. Barrigan-Parrilla's incorporated testimony and exhibits address with personal experience, census and other data analysis, the location and make-up of environmental justice communities based on race and ethnic categories; poverty and income; and populations facing language barriers. In addition to identifying these populations in more geographic detail, her testimony also gives greater setting context to what these populations are up against: economic distress, food deserts, threats to drinking water quality (from both surface and groundwater sources), an epidemic of obesity, and rising costs of drinking water. None of these issues are recognized in the BDCP/California WaterFix Final EIR/EIS. Finally, her testimony details numerous shortcoming with DWR's Environmental Justice Survey effort and report.

Among the economically distressed cities in California during 2016, Stockton and its environmental justice communities rank first in the state and sixth *nationally* in economic distress. The Tunnels EIR/EIS fails to capture these facts. The city and several of its zip codes have high rates of adults with only high school educations, high vacancy rates, low labor force participation, and declining job growth and business starts. Many residents of Stockton rely for a portion of their weekly diets on subsistence fishing to supplement what they can afford to buy for food.

In sum, we are deeply concerned that the Lead Agencies have failed to demonstrate that the Tunnels project would not cause direct significant economic impacts on the environmental justice communities of the Delta region, particularly in San Joaquin County communities, which comprise the largest geographical portion of the legal Delta. This is because Chapter 28 of the Final EIR/EIS obscures the setting, thus diffusing project environmental justice effects. These communities depend on access to a safe, good quality drinking water supply and on consumption of local fish. They recreate in Delta waters, the quality of which may be threatened in future summers with more frequent outbreaks of harmful algal blooms. These are all critical components of an accessible environment and healthy diet for economically disadvantaged communities. As such they should not be put further at risk.

Master Response 31: BDCP/California WaterFix and 2009 Delta Reform Act

Page 1-274:21-29: "The Delta Plan is currently the subject of ongoing litigation that would affect the its [sic] *policies and recommendations or interpretation of the Delta Reform Act. On June 24, 2016, Sacramento Superior Court Judge Michael P. Kenny ruled the Delta Plan invalid [citation], pending the DSC's remedying certain deficiencies identified in his ruling. Subsequently,the DSC filed notices of appeal in the four*

coordinated cases where petitioners prevailed in part. Those notices automatically stay the effect of Judge Kenny's ruling, leaving the Delta Plan in place pending the outcome of the appeals in the coordinated cases. Thus, the Delta Plan and the DSC's consistency certification process may undergo changes depending on the outcome of the litigation, including the resolution of all appeals."

Master Response 31 fails to state precisely the grounds Judge Kenny gives in his decision for invalidating the Delta Plan. The deficiencies of the Delta Plan lay primarily in its failure to set forth performance measures for a variety of Delta Plan policies, including flow criteria, reduced Delta reliance, and several other areas where quantified objectives and criteria should have been included in the Plan, but were not.

Responses to Comments by Specific Issue Raised

Page 1-275: 29-34: "Some commenters suggest that neither the BDCP nor the California WaterFix are consistent with the coequal goals for the Delta, and therefore cannot be approved. ***There is no requirement in state law that the project achieve the coequal goals.*** *Nevertheless, both the BDCP and California WaterFix would advance the coequal goals, consistent with state policy."* [Emphasis added.]

Here, Lead Agencies stubbornly continue to read applicable state laws narrowly and in isolation rather than as part of an integrated, whole legislative program.

Take for example, "There is no requirement in state law that the project achieve the coequal goals." The coequal goals are a matter of state policy in the Delta legislation for 2009, and the term "coequal goals" finds its definition in the Delta Reform Act of 2009. The coequal goals are also referred to in the "Delta Policies" section, which provides a number of objectives by which state agencies ("it is the policy of the state of California to…") are to work toward, to strive to achieve.

Why would the Legislature set goals for our state agencies if the Legislature does not intend its executive departments to work towards achieving them? Consequently, we regard the Lead Agencies' statement above in bold to be cynical: "You didn't say we had to…" implying that the Lead Agencies will decline to try to meet these goals and comply with these Delta policies. Moreover, Master Response 31 also does not acknowledge that the objectives of Water Code Section 85020 state only "improve conveyance" not increase conveyance capacity, which is what the Tunnels (as either BDCP or California WaterFix) would do if constructed and operated, as discussed above under Master Response 3.

Page 1-277: 11-17: "Under Section 85021, it is the obligation of each region that relies on water from the Delta watershed, not DWR or the Bureau of Reclamation, to determine the best ways to meet this goal by improving regional self-reliance. Neither DWR nor any of the public water agency proponents of the proposed project have the legal authority or duty to impose a statewide investment strategy on different regions of

the state or individual water suppliers that depend on water from the Delta watershed. In addition, DWR lacks any legal authority or duty to make and implement localized decisions about water technology investments, to develop and impose investments for new water supply projects that serve particular geographic regions, or to mandate coordinated efforts among local and regional water suppliers."

In Master Response 31, DWR and the Bureau reject accepting any responsibility for enforcing Water Code Section 85021's state mandate to reduce reliance on the Delta for California's future water needs. This is a clear abuse of agency discretion. DWR is a state agency that owns and operates the State Water Project, and administers contracts for water service from the Project serving northern and southern California regions reliant on the Delta. As a state agency, it is responsible for enforcing the mandate to reduce Delta reliance by aligning its water service contracts and allocations of the State Water Project with Water Code Section 85021. The Bureau has similar capacity with respect to its owning, operating and administering contracts for water service within the service area of the Central Valley Project. The Bureau also has a duty laid out for it in the National Reclamation Act of 1902 to comply with state water laws in which the Bureau operates. This congressionally-mandated duty includes compliance with the Delta policies of the Delta Reform Act of 2009, including reducing Delta reliance.

Master Response 31 also fails to accurately represent the verbatim language of Water Code Section 85021. This section is silent on whether any water agency has specific obligations under the law to achieve reduced Delta reliance. DWR construes this to mean that it and the Bureau have no responsibility for stimulating local and regional self-sufficiency in water supply separate from Delta reliance. Master Response 31 would let DWR and the Bureau continue to operate their projects without regard to the statutory command to reduce Delta reliance. A more logical and reasonable interpretation of 85021—consistent with this command—is that all state agencies should determine what authorities and funding they do have and apply them toward enforcing, encouraging, and assisting local and regional agencies with meeting the requirements of this section of the Delta Reform Act. We think that the contracting authorities of both DWR and Reclamation are sufficient to accomplish such changes as are required by the State Legislature to California water law.

But, like Bartleby, once again, DWR (and apparently Reclamation) would prefer not to. They want to construct and operate a massive conveyance project without any responsibility for meeting legal requirements in the Delta policies imposed by the State Legislature and enacted by the Governor of California in 2009.

One of the purposes of the Tunnels Project—in either its BDCP or California WaterFix forms—is to maintain Delta exports while increasing water supply reliability of the state and federal water projects that export from the Delta. This purpose is, on its face, contrary to Water Code Section 85021 of the Delta Reform Act, which commands that reliance on the Delta for California's future water needs be reduced.

Master Response 32: Water Rights Compliance Issues for California WaterFix

This master response (pages 1-280 to 1-285) describes in some detail the water rights associated with the state and federal water systems operating in and upstream of the Delta. It also describes hydrologic factors that influence salinity control in the Delta (inflows, net Delta outflow, exports, net in-Delta channel depletions for consumptive use, and tidal flux). All of this is material that should have been in the Draft EIR/EIS and/or the Recirculated Draft EIR/EIS. Master Response 32 also reiterates the Lead Agencies' contention that the California WaterFix project's water rights need only be changed; the proposed project, they say, can and should be treated as a mere change in the point of diversion for state and federal project water rights permits, not as a new water right.

We attach and incorporate the testimony and exhibits of Tim Stroshane, policy analyst with Restore the Delta, submitted to the State Water Board for the California WaterFix change petition proceeding. His testimony addresses the question posed by the State Water Resources Control Board, does the proposed change petition for California WaterFix in effect initiate a new water right? Mr. Stroshane argues that it does, and backs up his argument with a number of exhibits.[9]

Mr. Stroshane's testimony argues that the proposed project needs a new water right because:

1) The three new points of diversion (see Page 1-114, lines 5-8 of the Master Responses in Volume 2 of the Final EIR/EIS) are not the same as the existing DWR water right permit that contains a single diversion at Hood;

2) The single point of diversion at Hood was the basis for the Peripheral Canal proposal that was defeated by the California electorate in 1982. As a consequence, the diversion point at Hood has not complied with due diligence requirements of California prior appropriation doctrine;

3) The existing water right permits are expired and should be licensed, since the rest of the facilities in the water right permits are completed and putting water to beneficial use;

4) Consequently, the California WaterFix diversion points should be the subject of a new water right application with a priority date of when this new application is filed; and

5) Finally, the nature of the diversion points for California WaterFix would take water out of Delta channels and isolate it from through-Delta flow, resulting in depletions in a different part of the Delta than now occurs. This too is a distinct

[9] Mr. Stroshane's exhibits may be accessed at http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/restore_the_delta.shtml.

> difference in the nature of the diversion originally included in the state water right permits and therefore requires a new application to appropriate.

In sum, the change petition should be withdrawn, and the Lead Agencies should file a new water right application, if the project is to move forward.

Master Response 33: Adaptive Management and Monitoring

This master response treats adaptive management as isolated from key problems to which adaptive management scientific studies and monitoring efforts should be attached. At this time (January 2017) there remains no coherent adaptive management and monitoring program yet available for public review after 11 years of conveyance project planning. We are told in Master Response 33 that "A framework for the Adaptive Management and Monitoring Program is presented in Chapter 3, *Description of Alternatives*, and a final Adaptive Management and Monitoring Program plan document and/or Memorandum of Agreement will be completed and made available as part of the California WaterFix BiOps and prior to the Record of Decision." A framework is not a program. This release is still at least three months away.

The Lead Agencies have made it clear that the actual proposed project would not be operated according to model algorithms or results. Instead, they would operate the Tunnels system in real time in coordination with the rest of both the Central Valley Project and State Water Project. But that takes having a considerable, well-understood scientific basis for doing so, in a manner that enables project operators to avoid environmental, ecological and physical impacts of Tunnels operation. Otherwise, in the absence of having that understanding, the Tunnels would be operated according to essentially a trial-and-error approach. This is why "initial operating criteria" are used for modeling the project—they allow for the start of operations, as well as the need to change operations should bad environmental or other effects emerge with time and experience.

Trial, error, new trial. That's the process the California WaterFix poses now.

Apart from the lengthy delays associated with adaptive management planning for the California WaterFix project, we reiterate our EWC statement in October 2015 that:

> Given that the adaptive management research agenda of Appendix D to the RDEIR/SDEIS is replete with large numbers of studies to increase understanding of the water project and ecosystem interrelationships, EWC lacks confidence that [real-time operation's] silver bullet role would succeed. Moreover, this is not the kind of "experiment" that is called for in the literature of adaptive management of natural resources. Even more important it is unlawful as a basis for mitigating significant, unavoidable impacts under CEQA and NEPA. For example, real-time operations and modeling were employed in 2014 and 2015 along the upper Sacramento River by the Bureau of Reclamation to manage and control

> temperature conditions, but failed to prevent large scale losses of winter-run and spring-run Chinook salmon while SWRCB staff and officials could only stand by helplessly. Real-time operations can create situations in which project operators can behave as they see fit, and apologize later. That is unacceptable now that listed fish species are so close to extinction. We doubt that real-time operations can be permitted sufficient margins of error to prevent catastrophe. This is why we advocate application of the precautionary principle for enforcing and complying with water quality objectives.
>
> Adjustments to water quality flow objectives and beneficial uses should err on the side of precaution. Designated beneficial uses should be protected as required under the [Clean Water Act] and its implementing regulations. The most sensitive of them will be endangered further by Tunnels project operating criteria that reduce and reverse Sacramento River flows, and bring more polluted San Joaquin River water to Delta channels. The precautionary principle must come to the fore in state and federal fisheries and water project operations management. Sound policy preventing extinction and restoring and enhancing the integrity of Bay-Delta Estuary waters must come before new plumbing and south of Delta export deliveries.
>
> This is not a call to end south of Delta exports, but an appeal to state and federal officials that they realistically assess how to protect fully all beneficial uses by protecting the most sensitive among them fully under the CWA before reasonable quantities of Delta exports can be determined and permitted. The Tunnels Project as proposed would put plumbing and exports first, which is neither an acceptable, lawful nor reasonable prioritization.

The Adaptive Management and Monitoring framework that DWR put forward as part of its case in chief in the change petition proceeding was devoid of specific proposals for experimental studies and monitoring programs that would address the real time operational needs for scientific understanding that a project of such complexity as the California WaterFix Tunnels would require. This is deeply troubling. The Environmental Water Caucus has only very low confidence in the Lead Agencies' capacity to produce an adequate adaptive management program for California WaterFix in a timely fashion and which would increase public confidence in their ability to operate a Tunnels project that would have only the most limited environmental effects.[10]

Master Response 33 continues California WaterFix's tradition of speaking of adaptive management and monitoring in blythe generalities rather than offering summaries of specific research areas that would have to be applied to construction period and early operational life of the California WaterFix project. Currently, this response only addresses broad research scope topics, as well as general organizational coordination

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[10] Please see our Adaptive Management-related comments in the EWC letter of October 30, 2015, Final EIR/EIS Volume II part B, letter number 2653.

issues. After 11 years of BDCP and California WaterFix planning, this is all the Lead Agencies have? It is all the more disturbing that "adaptive management" is what the Lead Agencies resort to for coping with or reducing significant unavoidable impacts of the proposed project which have no known mitigation. We are concerned that this corrupts adaptive management from something that should *inform* the design and operation of a proposed Tunnels project to a program that is intended to yield study results that *comport with* a predetermined design and operational program for it—or worse, scientific results that ratify operations after final damage to endangered species is a *fait accompli*. The message of the Lead Agencies continues to be: "Trust us." We don't and we won't.

Master Response 36: California WaterFix versus the Peripheral Canal

The Lead Agencies apparently prepared this master response to highlight differences between the earlier Peripheral Canal proposal and the present California WaterFix proposal. While we are perplexed as to why this response was prepared, the decision by the Lead Agencies to discuss such a comparison is intriguing and unique.

The three main differences described in the comparison are for goals, approaches and new information; facilities and footprint differences; and operations and adaptive management.

Master Response 36 omits critical facts in this comparison. While it is true that state fisheries biologists supported such a canal as a way to eliminate the adverse environmental effects of south Delta export pumping, it is also true that other supporters of the canal also wanted improvements in export water quality—specifically, the lower salinity supplies available from the Sacramento River by the Hood diversion directly conveyed without mixing in the present through-Delta method of conveyance—that would come with construction and operation of a Peripheral Canal (page 1-309:10-12). This significant change in export water quality carries a direct likeness to the proposed California WaterFix project, a likeness that comes at the expense of the rest of the Delta's in-channel water quality.

The next paragraph erroneously states that "the proposed [California WaterFix] project is similar in that it proposes conveying water from *a diversion point* located in the north Delta to the existing CVP and SWP pumps located in the south Delta" (page 1-309:14-16). This sentence erroneously states that the proposed project would have a single diversion point in the north Delta, when the proposed project has since 2012 been described as having *three separate north Delta diversion points*. This error is later corrected on the next page where it states: "Relative to the Peripheral Canal with 23,300 cfs maximum diversion, the proposed project (Alternative 4A) would include three smaller intakes with a total maximum diversion capacity of 9,000 cfs…" (page 1-310:3-5). Please correct this error in an errata document issued to the public immediately.

What state fisheries biologists saw in the proposed Peripheral Canal facilities was a series of “release facilities” dotting the Canal’s alignment. (See attached map.) After initial diversion of flows at Hood for export, portions of these exported flows would be released along the eastern periphery of the Delta to supplement the flows of various sloughs and rivers like the San Joaquin. It is doubtful that these release points would have mitigated the effect of the Peripheral Canal being operated to divert “up to 9 million acre-feet of water per year at full development” at a rate of 23,000 cubic feet per second, as Master Response 36 states (page 1-310:15-16). Our point here is that these “release facility” design elements would have had operational criteria associated with them, contrary to Master Response 36’s statement that “While the Peripheral Canal would have been operated to meet water quality criteria, it did not include operational provisions explicitly intended to reduce effects on fish species” (page 1-310:17-19).

This comparison is probably provided to make readers feel better about the California WaterFix, given the massive supplies of fresh water from the Delta the Peripheral Canal would have diverted. However, both projects are sow’s ears (and worse), both bad when compared with other more reasonable alternative paths to increased water supply reliability that do not rely on changes in Delta conveyance and export methods.

Master Response 41: Transparency and Public Involvement

The public process that the Lead Agencies created for BDCP and the California WaterFix have been far more about style and appearance than substance. A few examples should suffice. First, the myriad public meetings and workshops involved little or no outreach to environmental justice communities. The Lead Agencies reached out to known water-oriented communities while making little effort to actualize an environmental justice outreach plan they had formulated early in their process. (See Barbara Barrigan-Parrilla’s Testimony, attached.)

Second, the Environmental Justice Community Survey acknowledged that it lacked a sound scientific methodology, yet DWR has relied on this survey to pass off lackluster analysis of environmental justice issues in Chapter 28 of the Final EIR/EIS.

Third, Master Response 41 states that, *“After the conclusion of scoping under CEQA and NEPA and prior to the release of BDCP and associated Draft EIR/EIS for public review and comment, the lead agencies sought to ensure transparency and public access throughout the interim planning years (2009-2013) by hosting public meetings, steering committee meetings, working group meetings and publication of preliminary and administrative drafts of both the BDCP and the EIR/EIS for informal public review online” (page 1-333:6-11)*.

This period indeed saw the most transparency and public access to ideas and concerns about the proposed project; but it was also the least consequential period because no firm project concept was yet chosen for commenters to react to with substantive review and evaluation.

The more consequential period for public process occurred once the Tunnels Project in BDCP was chosen as the initial preferred alternative in July 2012. This period was followed by closure and redesign of the Bay Delta Conservation Plan web site when the Draft EIR/EIS was released for public review at the end of 2012. Thereafter, all comments on the Draft EIR/EIS were held from public scrutiny. A project of such statewide importance as this one should have retained the transparency and public access to commentary on the proposed project, since it was the proposed project in the Draft EIR/EIS that mattered. This practice of withholding public comments from transparent sharing and scrutiny by any other party continued all the way through the closure of the public review period on the Recirculated Draft EIR/Supplemental Draft EIS in October 2015. Public comments on the Draft EIR/EIS were eventually obtained only after Friends of the River submitted a Public Act Request for their disclosure by DWR.

Early on, the Lead Agencies attempted to be transparent. But as we see it, when they grew too uneasy with the volume and extent of substantive critical comments they faced, they ended their efforts in digital democracy. They not only jettisoned the habitat conservation plan component of the original project, they altered the conveyance proposal as well in response, from Conservation Measure 1 in BDCP to the California WaterFix.

Master Response 43: Water Transfers

Page 1-338:22-40: "Beyond those currently expected to occur, water transfers are not proposed as part of the operations of the California WaterFix Project; neither the proposed project nor alternatives are expected to impact existing and future levels of water transfers…."

The Tunnels project has always had the unstated purpose of increasing the capacity of the state and federal water projects to convey water transfers in dry years by giving the projects the ability to bypass Delta mixing with salt water. This is a significant obfuscation for the public by the Lead Agencies. This purpose does not fit so well with their talking points that seek to stifle and block critical thinking about the Tunnels project.

Page 1-338:31-40: "The Final EIR/EIS anticipates that compared to existing conditions, upstream Delta [sic] *consumptive water use will increase in the future with or without the California WaterFix facilities, which will likely result in less water available for SWP and Central Valley Project (CVP) deliveries. This in turn could result in an increase in demand for water transfers from SWP/CVP contractors south of the Delta from sellers north-of-the-Delta. However, the increase in transfer demand under the No Action Alternative could be offset by increases in flexibility of SWP/CVP deliveries with the construction of the California WaterFix facilities, depending on specific operations and water year types. As a result, transfer abilities could improve, independent of the south-*

of-Delta transfer demand because of the new transfer capacity provided by the California WaterFix facilities and the removal of certain timing constraints limiting transfers."

We incorporate and attach the October 30, 2015 comments of AquAlliance into this letter as representing those of EWC.

The phrase "transfer abilities could improve" really means that water transfers could "increase" in the future with construction and operation of the Tunnels project. This seeks to divert readers from the likelihood that adding Tunnels capacity increases pressure for and ability to conduct water transfers. You don't build a massive and expensive new tunnels project to move water and then not use it as much as possible.

Currently, when transfers occur, they are routed through the Delta, and contribute freshwater flows to the Delta typically during the irrigation season. They also contribute their fair share of the salinity-controlling hydraulic barrier that enables through Delta conveyance to the south Delta export pumps to work.

Increasing Delta conveyance capacity using the Tunnels would reduce, if not eliminate, the need for DWR and the Bureau to incorporate "carriage water" adjustments to transfer amounts in order to ensure that water added to the Delta common pool makes enough of a contribution to salinity control without causing the transferred water to be mixed with more saline tidal flows in Delta channels.

With the Tunnels, those through-Delta flows would no longer occur at times when water transfers would occur. Water quality of the transfer water delivered for export would improve at the north Delta diversions, but transfer activity would no longer provide ancillary flow benefits to the rest of the Delta.

Page 1-340:"Practical considerations also made a project-level analysis of actual future transfers very difficult and perhaps impossible, to accomplish, as any attempt to determine the actual sources of water that would be used for particular future transfers would necessarily be speculative at this time. Which entities, if any, may be willing to act as sellers for water transfers in a particular year in the future is uncertain because sellers may need to use the water themselves or may not have water available to transfer. Moreover, their interest in selling is likely to be contingent on the price and the hydrologic and regulatory conditions existing at the time, which are variable and uncertain. Likewise, buyers' interest in participating in transfers in any given year is dependent in large part on price, water supply conditions, and cross-Delta conveyance availability. Estimating the exact sources and amounts of water that would actually be provided by willing sellers in any future year would thus be speculative. In addition, the environmental conditions and regulatory requirements in effect at the time any new California WaterFix facilities in the north Delta become operative may differ at that future time as well. Taken together, these variables make project-level analysis of water transfers impractical."

Impracticality is in the eye of the beholder. The Lead Agencies would (yes, like Bartleby) simply prefer not to analyze the degree to which addition of Tunnels conveyance capacity under the Delta would influence the activity of a water transfer market. Water transfers simply do not fit the Lead Agencies preferred happy talk about the environmental benefits of its massive tunnels project.

The analytic variables to which they point as involving excessive speculative complexity —price of water, price of crops that willing sellers in the Sacramento Valley grow; the hydrologic, water supply, and regulatory conditions that go into whether a water transfer market is triggered in any given year—are all susceptible of hydrologic and economic modeling. The Delta Economic Sustainability Plan of 2011 incorporated a multinomial logic model to simulate how farmers make cropping decisions based in part on water supply and quality conditions (which in Delta channels are closely related), as well as other factors like crop price, hydrologic conditions, and other factors of production. How a water transfer market forms when contractual deliveries suffer in dry years is readily susceptible of modeling with not a lot more complexity than was employed for the Delta Economic Sustainability Plan, had the Lead Agencies deemed it an analytic priority.

We incorporate testimony and exhibits of Michael Machado, representing Restore the Delta, to document such modeling analysis for the record.

Such similar modeling was not performed by the Lead Agencies, likely because "impractical" means that a conveyance facility whose purpose included making water transfers easier is not such a sympathetic purpose for a massive public infrastructure investment for public viewing. But the element of alleged speculation on water transfer effects could be overcome through methodical scenario design and analysis for modeling use.

Page 1-342:9-11: "In addition, Water Code Section 1810 provides that available unused capacity in any regional or local publicly owned water conveyance facilities, including in the California Aqueduct, must be made available for bona fide transfers, provided fair compensation is paid."

Given this legal requirement in the California Water Code, it becomes even more clear that the Tunnels' importance lies in increasing conveyance capacity so that during droughts there would be even more unused capacity to facilitate transfers than exists today. Such framing of the tunnels' image notwithstanding, the easier the state and federal government make it to use water transfers, the easier it will be for SWP and CVP water contractors to employ market forces to incentivize the destruction of Sacramento Valley rivers and aquifers for the benefit of supplying San Joaquin Valley growers and south-of Delta urban water contractors. In these regards, the Tunnels project is contrary to the Sustainable Groundwater Management Act of 2014.

Master Response 47: Drought and EIR/EIS Modeling

Page 1-351:11-28: "The CALSIM II model cannot simulate specific operational decisions that occur in real-time to meet regulatory requirements, including real-time operational decisions to avoid exceeding applicable water quality standards. In addition, the CALSIM II model does not reflect emergency operational criteria such as those approved on a case-by-case basis by the State Water Resources Control Board…in response to Temporary Urgency Change Petitions (TUCPs) filed by the Bureau of Reclamation (Reclamation) and the Department of Water Resources (DWR) to address the drought emergency in 2014 and 2015….[I]t is not reasonably foreseeable how the various agencies will respond to future droughts, with or without the proposed project, because each drought is different in scope, location and severity, the regulatory setting is likely to be different, and new or altered infrastructure and improved scientific knowledge will all inform future responses to drought. However, the proposed project, the California WaterFix, is not expected to affect how frequently Reclamation and DWR may file TUCPs to address future drought conditions, so it has no impact relative to Existing Conditions in that regard.

"Operational decisions modeled in CALSIM II are based upon monthly mathematical relationships that do not reflect real-time decisions that occur on a daily or weekly basis by SWP and CVP operations. Nor do they reflect operations approved under the TUCP Orders issued by the State Water Board for the 2014 and 2015 water years."

We agree with this statement by the Lead Agencies. We agree in particular that modeling in the Final EIR/EIS does not reflect real-time operations of the water projects with the new Tunnels system. There should be some realistic, if qualitative, assessment by the Lead Agencies about what specific ways real-time operations would differ in drought years from modeled operations, and why such actions would be taken by project operators. With a project of such massive scale, magnitude, and duration, the absence of such an analysis is troubling, and raises questions about the role of real-time operations and adaptive management that are treated as "wild cards" the Lead Agencies employ to avoid mitigation of significant direct and indirect project impacts to fish, water quality, and the Delta economy.

We incorporate by reference the letter by California Water Research on this matter. CWR has been in the forefront of providing cogent evaluations of the limitations of CALSIM II as a modeling application for purposes of analyzing effects of California Water Fix and BDCP.

Page 1-351:33-40; 1-352:1-9: "Modeling of action alternatives and the No Action Alternative with projected climate change and sea level rise effects at 2025 and 2060 shows that changes in climate and sea level could result in "dead pool" conditions in SWP and CVP reservoirs upstream of the Delta under both the No Action Alternative as well as the action alternatives. [footnote defining "dead pool" as the surface elevation in a reservoir at which no more water can be drained by gravity through the reservoir's outlet works.] The dead pool conditions presented in the CALSIM II model results in the

Final EIR/EIS are based on modeled SWP and CVP water operations under current regulations, future demand assumptions, climate change and sea level rise. When system wide storage levels are at or near dead pool, also described as stressed water supply conditions, the CALSIM II model results should only be an indicator of stressed water supply conditions and should not be understood to reflect what would occur in the future under a given scenario. For instance there may be operational changes and physical solutions that could be implemented to avoid dead pool conditions, but the modeling does not assume such actions would occur because it is not known how regulatory agencies with jurisdiction over the CVP and SWP or other agencies that own and operate reservoirs will respond to climate change, sea level rise, and increased water demands.

"Instead, consistent with the requirements in CEQA and NEPA to disclose and analyze the reasonable foreseeable project-specific and cumulative impacts of a project, the action alternatives evaluation is a comparative analysis to determine the incremental differences between conditions under the action alternatives and conditions under Existing Conditions and the No Action Alternative."

Master Response 47 asks readers to pay little attention to how bad these modeled results are, by suggesting that we, first, merely think of "dead pool" as "not dead pool"—they are instead opportunities by which real-time project operations would find other solutions to the conditions that face operators that would be less serious. At the same time, the Lead Agencies contend that "it is not known" or even speculative how regulators and operators would handle a given drought situation. Second, the Lead Agencies in Master Response 47 remind us that CALSIM II results should be treated as representing an analysis comparing scenarios rather than any sort of absolute set of results.

It is not a matter of speculation how water regulators and project operators handle droughts in California. Droughts since the mid-1970s are a ready empirical basis by which scenarios could be developed that are reasonable and based on Lead Agencies' direct experience. We understand that their actions may be contingent in real time and that determining real-time operations will depend on specific conditions. But broad regulator actions like implementing water conservation regulations and TUCPs are matter of recent and historical record across a range of timing, duration, and scope of drought experiences.

The entire second section of Master Response 47 (entitled "Past Responses to Drought Emergencies…") undermines this claim that modeling of emergency responses is speculative. This section goes into great detail about various actions taken in 1976-1977 and 1987-1992 by DWR and Reclamation, other state and federal agencies, state and federal water contractors, the legislature, the governor, and others, to address drought. It might be more difficult than just letting Shasta, Oroville, Folsom, and/or New Melones go to dead pool in CALSIM II, but modelers could have been directed to develop a representative set of scenario conditions representing a composite of

emergency responses that would have affected supply, demand, Delta rock barriers[11], conveyance timing and rate, and other parameters in CALSIM II. It is misleading and disingenuous to call it speculative.

For lack of including a plausible composite of emergency responses to drought conditions into CALSIM II modeling, the comparative analysis unrealistically allowed modeling of major reservoirs in the state and federal water projects to go to dead pool during dry years. Comments from Sacramento Valley Water Users, and the California Water Impact Network, et al, make similar arguments. They have stated—and in the Sacramento Valley Water Users' case produced alternative modeling assumptions and results—that unrealistic operational assumptions in the Lead Agencies modeling lead to inaccurate representations of operational outcomes in these major reservoirs.[12]

Page 1-352:20-35: "There are many ways that drought can be defined. Some ways can be quantified, such as meteorological drought (period of below normal precipitation) or hydrologic drought (period of below average runoff); others are more qualitative in nature (shortage of water for a particular purpose). There is no universal definition of when a drought begins or ends, nor is there a state statutory process for defining or declaring drought.

"Drought is a gradual phenomenon and can best be thought of as a condition of water shortage for a particular user in a particular location. Although persistent drought can be an emergency, it differs from other emergency events such as wildfires and floods insofar as droughts occur over a period of months or years. But as with any emergency, each one is different, and requires an individualized response to lessen the impacts of drought on fish, wildlife and human health and safety. As a result, there is no universal definition of when a drought begins or ends, and no set response for every drought. Drought impacts increase with the length of a drought, as annual carry-over storage in reservoirs decrease and water levels in groundwater basins decline. Droughts that have occurred throughout California's history shape the ways in which DWR and Reclamation meet the needs of both public health standards and urban and agricultural water demand, as well as protecting the ecosystem and its inhabitants."

This part of Master Response 47 represents a vague attempt to define drought as an emergency, neglecting the hydrologic reality that drought recurs with great frequency in California. They can and should be planned for. Moreover, if they are planned for, they

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[11] EWC does not support the use of barriers per se; we merely point out that installation of rock barriers in strategic location can affect (usually reducing) the rate at which reduced upstream reservoir supplies can be released for Delta salinity control and for limited exportation during dry periods. Since DWR has installed rock barriers in both the 1976-1977 drought and during 2015's drought year, barriers could be part of such a composite of drought response modeling.

[12] See the modeling attachments to East Bay Municipal Utilities District comment letters, incorporated into BDCP/California WaterFix Final EIR/EIS, Volume II, Appendix A-1, Letter 1633; and BDCP/California WaterFix Final EIR/EIS, Volume II, Appendix A-2, Letter 2482.

need never be emergencies, except in the most exceptional circumstances. This is why there have been calls to make water conversation regulations permanent—that we make conservation a way of life in California because of the specter of increased drought frequency under climate change.

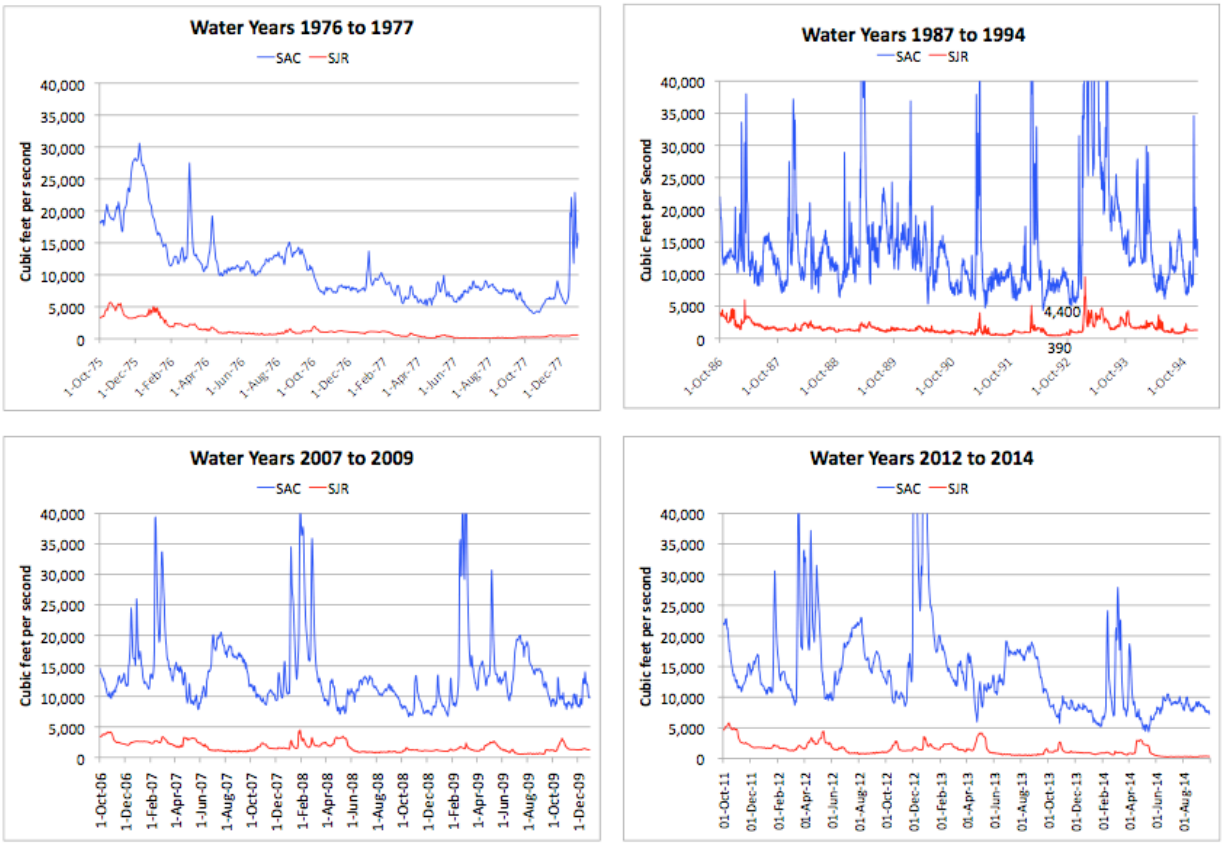
The operations of the State Water Project and Central Valley Project need to change so that they take better account of the frequency of drought. Past water management and allocation decisions by DWR and the Bureau have contributed to water supply shortages in historical and recent drought experience.

Restore the Delta looked into various indicators of previous droughts (1976-1977, 1987-1994, 2007-2009, and 2012-2015) to discern patterns indicating how the state and federal water projects are operated during droughts.[13]

Figure 1 indicates the degree to which natural conditions played a role in reducing Delta inflow via the Sacramento and San Joaquin Rivers during each of four major drought periods since 1976. With Figure 1 we wish to illustrate that the current drought of 2012-2014 is similar to that of the 1970s, particularly with how low flows have become on the San Joaquin as of the end of water year 2014. Flows on the San Joaquin were similarly low near the end of water year (i.e., about September) of 1992.

[13] This analysis was originally submitted to the State Water Board as protest comments on a Temporary Urgency Change Petition issued in May 2015. Accessible at http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/comments_tucp2015/docs/rtd_stroshane05052015.pdf.

Figure 1
Comparison of Delta Inflow Hydrographs During Recent Drought Periods



Source: Dayflow.

The behavior pattern by state and federal water project operators exhibit an overall management strategy first articulated in a DWR drought report from May 1976:

> The usual strategy described in discussions with Central Valley surface water project operators who are experiencing a below-normal supply is to serve all the water possible on demand of the users, carrying little or no water over to guard against a dry 1977 except in the Central Valley Project, the State Water Project, New Don Pedro Reservoir, and Lake McClure. This strategy is based on the belief that a good crop this year is desirable, since next year will probably be a near-normal or better water supply. In some areas, was needed and served early in the season to make up for the subnormal precipitation on nuts, fruit, and vineyards. In some instances, where the surface water shortage will be offset by pumping more ground water, surface water is being held for delivery during the peak months of water demand, July and August.

While this early drought report exempted the CVP and SWP initially from “water use now” behavior, unfortunately, there is indication in these data that beginning with the

1976-1977 drought, holding carryover storage for the potential for subsequent dry years was not seriously practiced by DWR and the Bureau.

Figure 2, below, shows the water year type designations the state has applied to the water years involved in the last four major drought periods, inclusive of the immediately previous wet year that led to reservoir conditions being full or nearly full in the state and federal reservoirs upstream of the Delta.

Designations of Water Years Leading Up to and During Recent Drought Periods

	Water Year Type			Water Year Type	
Water Year	Sacramento River Basin	San Joaquin River Basin	Water Year	Sacramento River Basin	San Joaquin River Basin
1975	Wet	Wet	2006	Wet	Wet
1976	Critical	Critical	2007	Dry	Critical
1977	Critical	Critical	2008	Critical	Critical
1986	Wet	Wet	2009	Dry	Below Normal
1987	Dry	Critical	2011	Wet	Wet
1988	Critical	Critical	2012	Below Normal	Dry
1989	Dry	Critical	2013	Dry	Critical
1990	Critical	Critical	2014	Critical	Critical
1991	Critical	Critical			
1992	Critical	Critical			
1993	Above Normal	Wet			
1994	Critical	Critical			

Notes: Only one "Above Normal" year, just two "Below Normal" years, and just six "Dry" years in these drought periods. Each drought was preceded by a "Wet" year in both the San Joaquin and Sacramento River basins. The Sacramento River Basin saw nine "Critical" years and the San Joaquin River Basin saw 13 "Critical" years during these drought periods.

Source: California Data Exchange Center, http://cdec.water.ca.gov/cgi-progs/iodir/wsihist.

Figure 2

As dry conditions unfolded in the years subsequent to 1986, 2006, and 2011, Figure 3 reveals the downward trend in state and federal water project allocations that ensued. (No water allocation data for the Central Valley Project in 1976 and 1977 were available for this analysis.) Senior water right holders (i.e., the San Joaquin River Exchange Contractors and the Sacramento River Settlement Contractors) received 100 percent or near 100 percent allocations in each drought period, in accord with governing water right priorities, as well as by contractual obligations of the Bureau of Reclamation to provide water service to these entities during dry periods. Only in 1991, 1992, 1994, 2014, and 2015 did these senior water right holders receive less than 100 percent allocations from the Central Valley Project.

Junior water contractors of the CVP experienced these drought periods very differently, but it is important to note that in the first year of each drought period (and in the 1987-1989 period) these junior water contractors received full allocations. Only in subsequent years were they cut back. Only in 2007 and 2012 were south of Delta CVP contractors cut back to less than 100% allocations in first years of drought periods. It is not clear how much of that cutback was due to climatic conditions, greater north of Delta development (combined with their contractual seniority over south-of-Delta contractors), and material effects of biological opinion restrictions on Delta exports. The pattern of practice by the Bureau of Reclamation was to provide full allocations in the first year in hopes that next year would as likely as not be a normal to wet year that would provide full supplies. When those years (and other years following) were not, allocations were cut back, and most recently in 2014 and 2015, allocations by the Bureau for the CVP junior water contractors north and south of the Delta were zero.

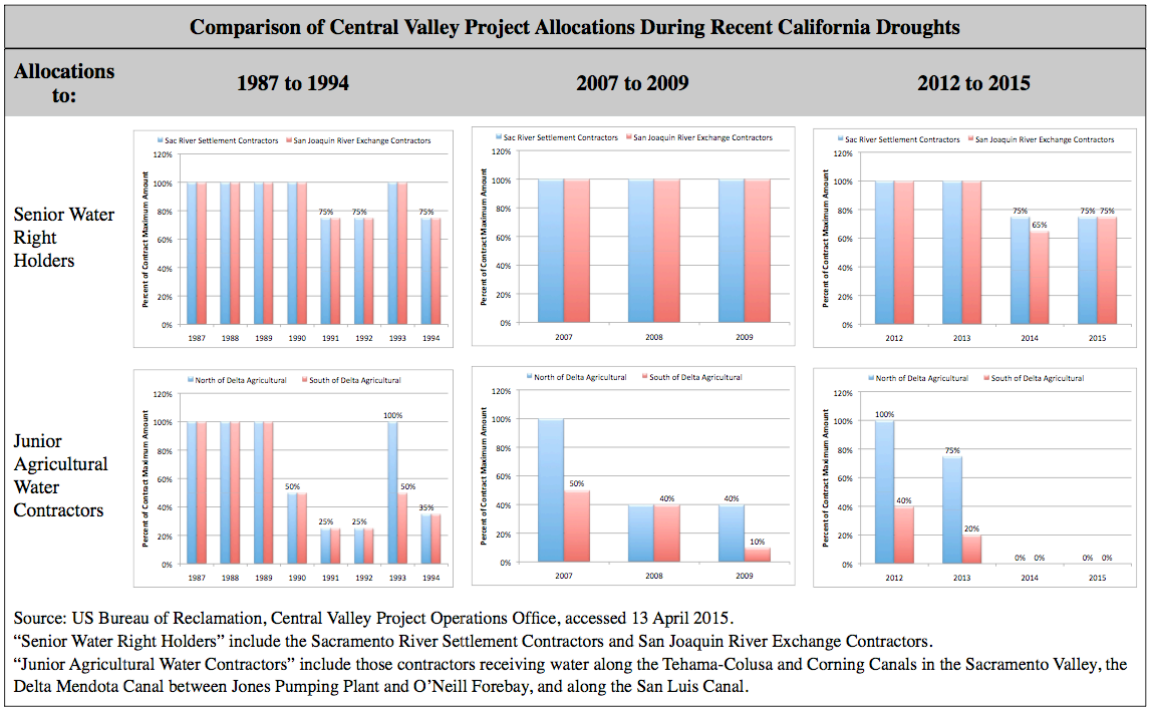


Figure 3

For the State Water Project, less historical allocation data are available, but what is available shows a similar pattern (Figure 4). Wet years in 2006 and 2011 are followed by only moderate cutbacks in the next year to 60 to 65 percent of total Table A amounts. Successive dry years are followed by deeper cuts in allocation amounts, to the point where in 2014 State Water Project contractors received just 5 percent of their Table A amounts. This year, SWP contractors are scheduled to receive 20 percent after only modest rainfall and the worst Sierra snowpack on record.

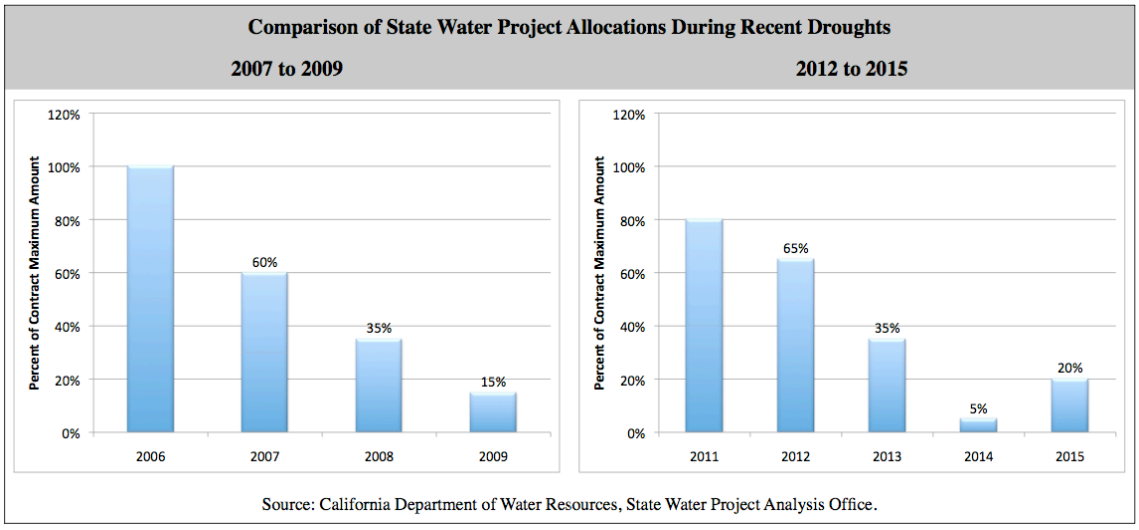


Figure 4

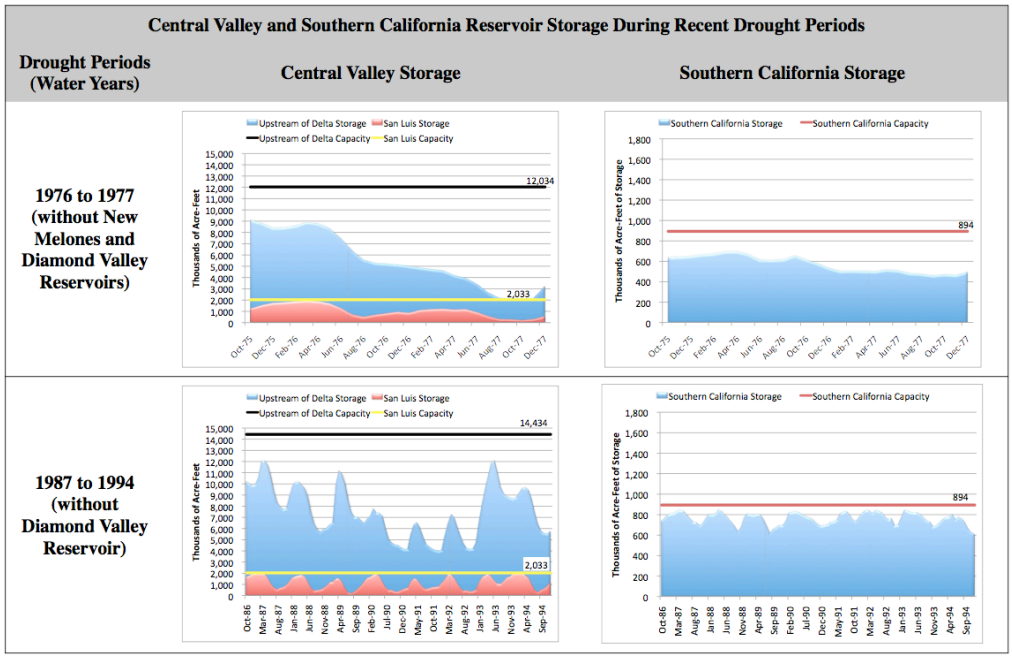


Figure 5

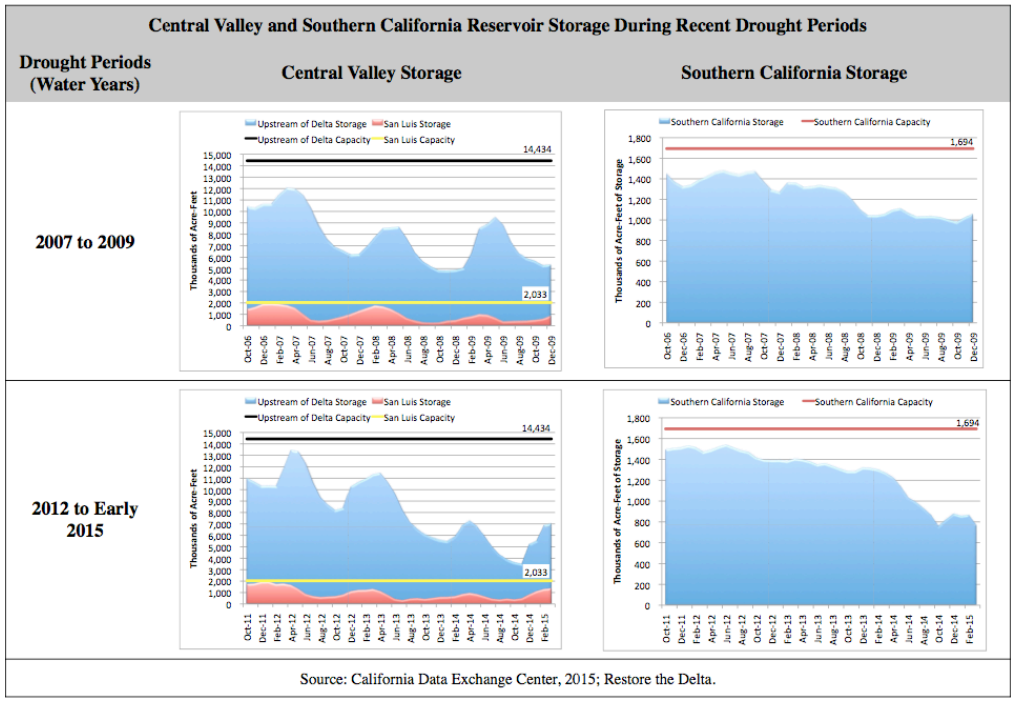


Figure 6

Figures 5 and 6 indicate that, rather than take steps to preserve reservoir storage over time during droughts, the state and federal reservoirs are managed in such a way that storage decreases over time during droughts as a consequence of liberal allocations to

contractors. Figure 5 shows that the upstream-of-Delta reservoirs of the state and federal projects tend to be managed to lower rather than preserve storage conditions during drought periods, while southern California storage is only the whole preserved over the course of the drought periods for the 1970s and 1990s.

Figure 6 reveals that over time in recent drought (2007-2009 and the current drought) has led to decreased storage in both the upstream-of-Delta reservoirs of the state and federal projects as well as the southern California reservoirs included in our analysis. In the 2007-2009 period, upstream Central Valley reservoir depletions over approximately three years come to nearly 7 million acre-feet (MAF) after peaking at 12 MAF around April 2007. In the same period, southern California storage peaked in August 2007 peaked at over 1.4 MAF.

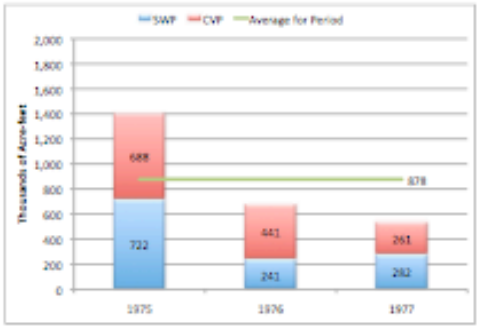
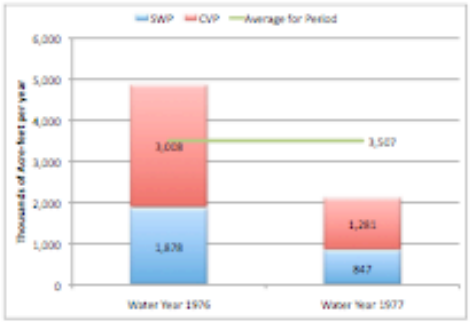
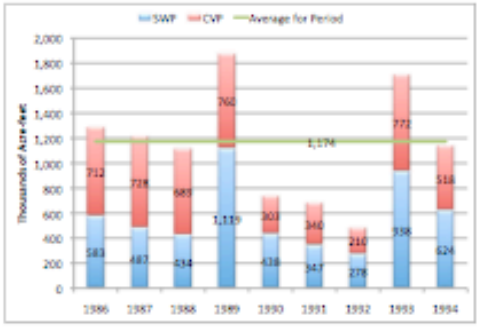
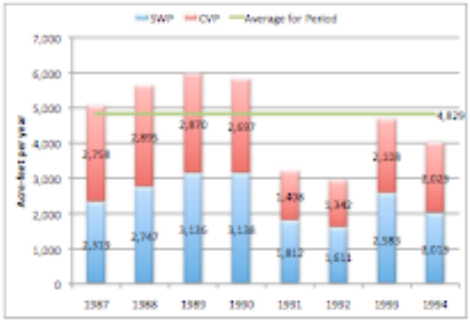
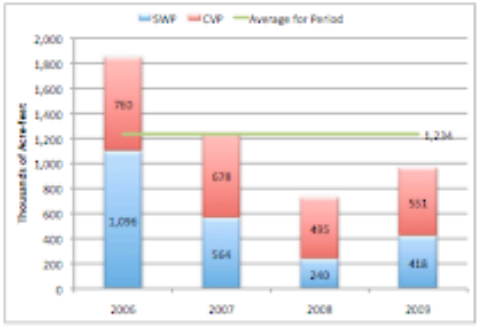
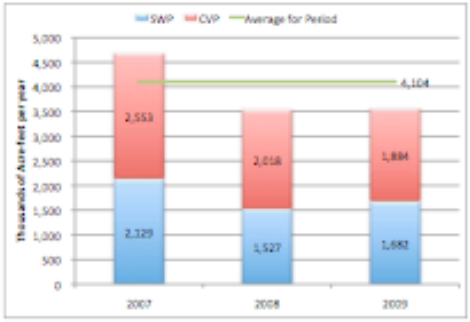
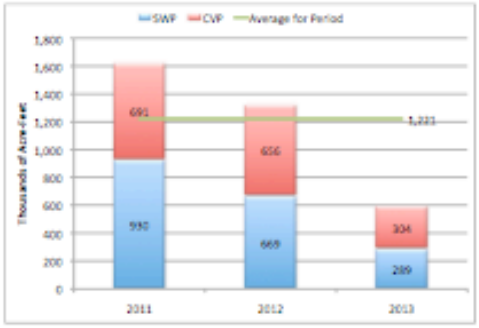
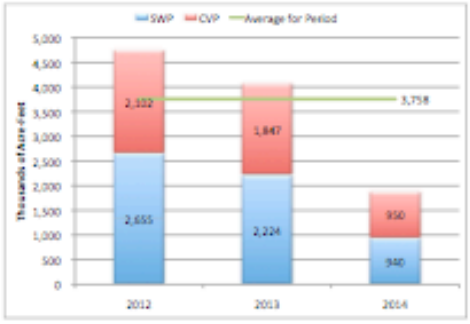
In our recent drought period (2012-2015), upstream Central Valley storage peaked at over 13 MAF in April 2012, but has seen cumulative depletions of about 9.5 MAF by about November 2014, before December 2014 storms raised storage levels to back about 7 MAF upstream of the Delta. Southern California storage in the current drought peaked also in the spring of 2012 at about 1.4 MAF but has seen depletions since then of nearly 0.6 MAF by March 2015.

Figure 7 compares fall quarter (October 1 through December 31) exports with annual water year exports (October 1 through September 30) for the state and water projects during drought periods. These charts reveal that the pattern of export behavior is to maximize Delta exports early in the dry period, apparently on the assumption that wet conditions will materialize in the next water year. Yet the longer the dry period goes, the lower fall and annual exports become. The pattern and practice is to divert and export water as much as possible, with little apparent heed for the possibility—even likelihood—that the following year could continue dry or dryer.

The way to best serve the public interest through this drought and future droughts is to require state and federal water project operations and management to place a greater weight in annual decision making on allocations, reservoir storage, and Delta exports on the likelihood of drought every year, not just in the second or third consecutive dry year unlike what has occurred with this and previous droughts.

Figures 1 through 7 strongly suggest that operation of state and federal water projects have been handled as though the probability of dry years are random events, equivalent to coin tosses. Increasingly scientists and other climate professionals warn society that climate change is instead upon us, and that dryer and warmer years are more likely over time than are wet years; this means that 50-50 odds, which hold with coin tosses, do not reasonably apply with California's climate. Instead, we are in a "new normal," to which state and federal water system operators have yet to adapt.

Fall Quarter and Annual Delta Exports During Recent Drought Periods

Drought Period	Fall Quarter (October 1 through December 31)	Annual (October 1 through September 30)
1975 to 1977		
1987 to 1994		
2007 to 2009		
2012 to 2014		

Source: California Department of Water Resources, Dayflow database. Accessible online at http://www.water.ca.gov/dayflow/.

Figure 7

Conclusion

Project operation behaviors revealed in these data indicate that project operators and their customers have learned little about how to preserve and steward surface water supplies during California's short and long droughts. If surface water management may be analogous to use of a checking account, and groundwater supplies a savings account, then EWC suggests that the Tunnels project is analogous to a line of credit or sub-prime loan that would encourage greater transfers of surface water through cross-Delta (north-to-south) water transfers at the expense of groundwater without the reliable prospect of surface recharge to the Sacramento Valley aquifers in the future. The Tunnels would encourage consumptive uses of imported water south-of-Delta that would not be sustainable.

Thank you for the opportunity to comment on the master responses of the BDCP/ California WaterFix Final EIR/EIS. If you have questions, do not hesitate to contact us at the email addresses below.

Sincerely,

	
Conner Everts Co-Facilitator	Tim Stroshane Consultant

Attachments:

1. Letter of USEPA to US Bureau of Reclamation, January 18, 2017
2. Map of Peripheral Canal with release points for environmental flows
3. AquAlliance comment letter, October 30, 2015
4. California Water Research citations presented to State Water Board
5. Restore the Delta case-in-chief

Attachment 1
Letter of USEPA to US Bureau of Reclamation, January 18, 2017

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

January 18, 2017

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

Subject: Final Environmental Impact Statement for the Bay Delta Conservation Plan/California WaterFix CEQ# 20160318

Dear Mr. Murillo:

The U.S. Environmental Protection Agency has reviewed the Bay Delta Conservation Plan/California WaterFix Final Environmental Impact Statement (FEIS) pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act.

The WaterFix project evolved from the Bay Delta Conservation Plan (BDCP), which was proposed as a Habitat Conservation Plan (HCP) to support the issuance of a 50-year incidental take permit under Section 10 of the Endangered Species Act (ESA). EPA's August 26, 2014 comments on the Draft EIS for the BDCP detailed our significant concerns with that proposal and its potential adverse impacts on water quality and aquatic life in the Bay Delta. We withheld our rating due to the lead agencies' commitment to produce a Supplemental Draft EIS. In April 2015, the Bureau of Reclamation (Reclamation) and California Department of Water Resources (DWR) announced fundamental changes to the proposed project and changed its name from BDCP to the California WaterFix. The WaterFix project focuses on the construction and operation of proposed new water export intakes on the Sacramento River to divert water into a 35-mile twin tunnel conveyance facility.

In our October 30, 2015 review of the SDEIS, we noted that the proposed WaterFix project continued to predict significant adverse impacts to the Delta and its resources. As we reiterated in that letter, the most essential decision for achieving the desired balance of water reliability and restoration of the Bay Delta ecosystem is how freshwater flows through the Delta will be managed. We noted that decisions regarding appropriate flow management are being deferred, pending future regulatory actions by multiple state and federal agencies that will determine operational parameters important to the evaluation of the project's impacts. Because information was not available for a complete evaluation of environmental impacts, we found the SDEIS to be inadequate.

The FEIS provides a modified statement of the purpose of the federal action, no longer mentioning construction. It clarifies that the purpose of the Reclamation's proposed action is "to improve movement of water entering the Delta from the Sacramento Valley watershed to existing Central Valley Project (CVP) and State Water Project (SWP) pumps in the south of the Delta in a manner that minimizes or avoids adverse effects to listed species, supports coordinated operation with the SWP, and is consistent with the Project Objectives", which include ecosystem restoration and "delivery of up to full contract

Attachment 2
Map of Peripheral Canal with Release Points for Environmental Flows

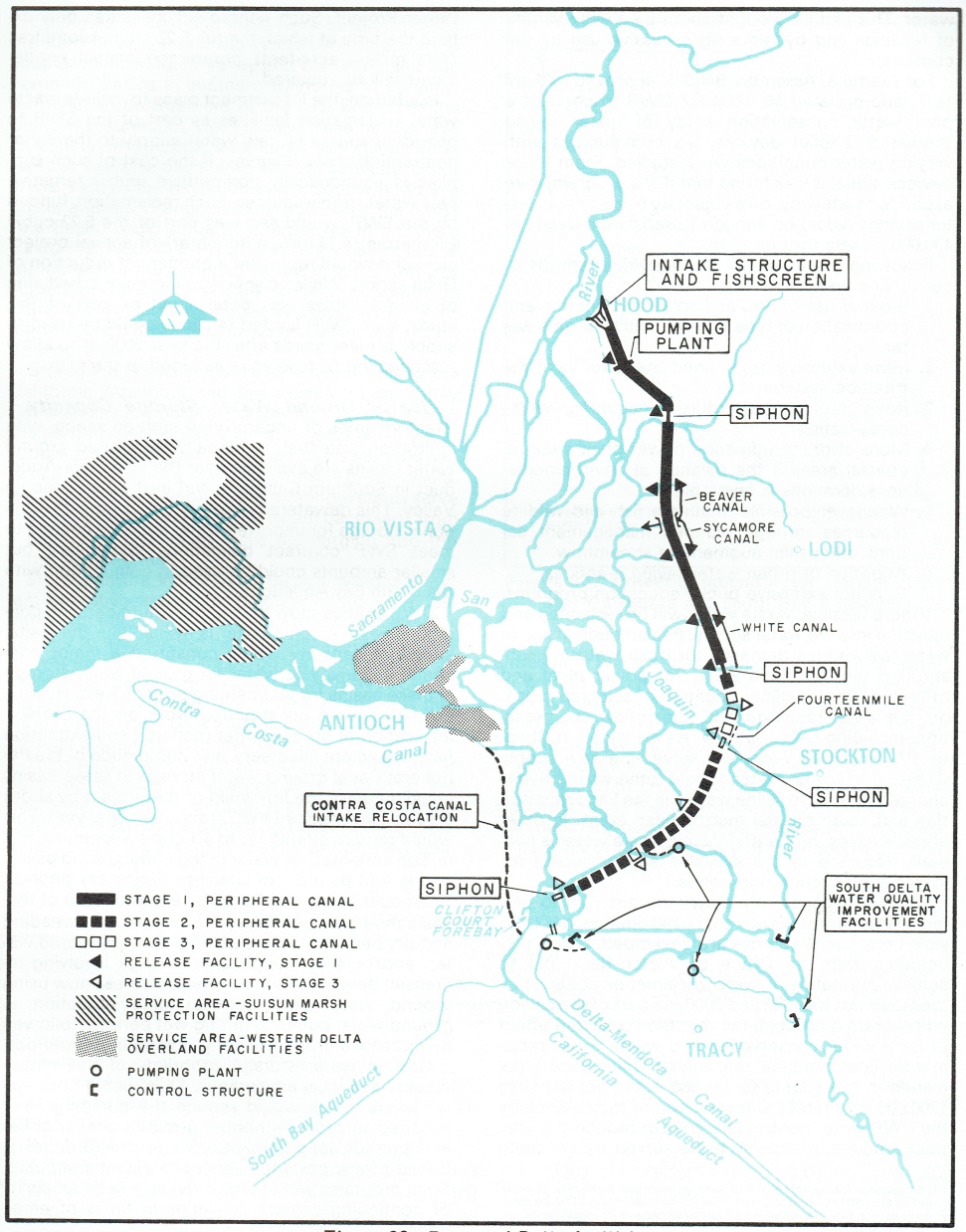


Figure 32. Proposed Delta facilities.

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Source: California Department of Water Resources, Bulletin 76: Delta Water Facilities, July 1978.

Attachment 3

AQUALLIANCE
DEFENDING NORTHERN CALIFORNIA WATERS

October 30, 2015

BDCP/WaterFix Comments
Ryan Wulff, NMFS
P.O. Box 1919
Sacramento, CA 95812
Via Email to: BDCPComments@icfi.com

Subject: Comments on the Supplemental Draft Environmental Impact Statement and Partially Recirculated Draft Environmental Impact Report ("SDEIS/RDEIR")

Dear Mr. Wulff:

AquAlliance represents groundwater dependent communities, farms, and ecosystems in the northern Sacramento Valley and foothills and submits the following comments and questions regarding the Supplemental Draft Environmental Impact Statement and Partially Recirculated Draft Environmental Impact Report ("SDEIS/RDEIR") for the Water Fix/Twin Tunnels Project ("Project"). The Project has eliminated the habitat conservation plan ("HCP") pursuant to the federal Endangered Species Act ("ESA") and the natural community conservation plan ("NCCP") pursuant to the California Natural Community Conservation Planning Act for the Sacramento–San Joaquin River Delta that were requirements established in the 2009 Delta Reform Act and developed in the Delta Stewardship Council's Plan.[1] The California Department of Water Resources ("DWR"), the US Bureau of Reclamation ("Bureau") ("Agencies") and many of their contractors[2] are the proponents of the Project. DWR acts as the lead agency for the purposes of the California Environmental Quality Act ("CEQA") and the Bureau serves as the lead agency for the National Environmental Policy Act ("NEPA").

Unfortunately, the Project purpose remains the same: drain as much water as possible from the Sacramento River Watershed and the Delta to continue some of the most destructive forms of desert agriculture, urban sprawl, and industrial extraction. The SDEIS/RDEIR attempts to disclose impacts as required by CEQA and NEPA, but simultaneously obfuscates many of the direct and indirect impacts. AquAlliance seeks to bring to light some of these hidden impacts and baseline information as we did with the DEIS/EIR and to underscore the absurdity of the Twin Tunnels

[1] Water Code Section 85320 et seq. http://www.leginfo.ca.gov/cgi-bin/displaycode?section=wat&group=85001-86000&file=85320-85322

[2] " The BDCP proponents include the following state and federal water contractors under either the SWP or CVP: Alameda County Flood Control and Water Conservation District, Zone 7; Kern County Water Agency; Metropolitan Water District of Southern California; San Luis & Delta-Mendota Water Authority; Santa Clara Valley Water District; and Westlands Water District. Additional water contractors may become BDCP proponents in the future through the BDCP process." (DEIR/EIS p. 1-1)

project, which creates the infrastructure to drain the Sacramento River Watershed and the Delta of essential fresh water.

We incorporate by reference as though fully stated herein, for which we expressly request that a response to each comment contained therein be provided, all comments submitted on both sets of draft BDCP and Water Fix/Twin Tunnels NEPA and CEQA documents by our coalition of C-WIN, CSPA, and AquAlliance the multiple comment letters submitted by the Environmental Water Caucus, and all of AquAlliance's past submissions including comments by Professor Kyran Mish. We also incorporate by reference as though fully stated herein, for which we expressly request that a response to each comment contained therein be provided, for AquAlliance's previous comments on the Bureau's Environmental Assessments for the 2010/2011 Water Transfer Program, the 2013 Water Transfer Program, the 2014 Water Transfer Program, the Bureau and San Luis Delta Mendota Water Authority's Ten-Year Water Transfer Plan, the Glenn Colusa Irrigation District ("GCID") 10-Wells Project DEIR, comments created by Kit Custis for AquAlliance on the Ten-Year Water Transfer Plan, and comments by Kit Custis on the GCID 10-Wells Project DEIR. These comment letters all pertain to water transfer programs and streamflow depletion that illustrate the history of Sacramento Valley water transfers to south of the Delta, contain valuable background and impact information for the area of origin, and present AquAlliance's opposition to the water transfers that will expand under the Water Fix/Twin Tunnels Project.

A. Hydrology

1. <u>The SDEIS/RDEIR fails to adequately disclose the planned increase in water transfers from the Sacramento River Watershed to south of the Delta.</u>

If the Twin Tunnels are built as planned with the capacity to take from 9,000 to 15,000 cubic feet per second ("cfs") from the Sacramento River, they will have the capacity to drain between 38% - 63% of the Sacramento River's average annual flow of 23,490 cfs at Freeport[3] (north of the planned Twin Tunnels). As proposed, the Twin Tunnels will also increase water transfers when the infrastructure for the Project has capacity:

> Alternative 4 provides a separate cross-Delta facility with additional capacity to move transfer water from areas upstream of the Delta to export service areas and provides a longer transfer window than allowed under current regulatory constraints. In addition, the facility provides conveyance that would not be restricted by Delta reverse flow concerns or south Delta water level concerns. As a result of avoiding those restrictions, transfer water could be moved at any time of the year that capacity exists in the combined cross-Delta channels, the new cross-Delta facility, and the export pumps, depending on operational and regulatory constraints, including BDCP permit terms as discussed in Alternative 1A.[4] [This paragraph failed to remove "BDCP" from the SDEIS/RDEIR and should be corrected.]

With the obvious intention of increasing transfers under Alternative 4, it is unclear how the NEPA and CEQA effects conclusion are opposite from each other unless this is in error.

[3] USGS 2009. http://wdr.water.usgs.gov/wy2009/pdfs/11447650.2009.pdf
[4] SDEIS/RDEIR Appendix A, pp. 5-15, 5-16.

"NEPA Effects: Alternative 4 would decrease water transfer demand compared to existing conditions. Alternative 4 would ~~de~~increase conveyance capacity, enabling additional cross-Delta water transfers that could lead to increases in Delta exports when compared to No Action Alternative." (SDEIS/RDEIR 4.3.1-9) "CEQA Conclusion: Alternative 4 would increase water transfer demand compared to existing conditions. Alternative 4 would increase conveyance capacity, enabling additional cross-Delta water transfers that could lead to increases in Delta exports when compared to existing conditions." (*Id.)*The Lead Agencies have thoroughly confused the issue and must either explicitly explain or correct the differing conclusions that under NEPA effects "Alternative 4 would *decrease* water transfer demand" and under CEQA "Alternative 4 would *increase* water transfer demand" when both agree that, "Alternative 4 would increase conveyance capacity, enabling additional cross-Delta water transfers that could lead to increases in Delta exports…" (*Id*.) (emphases added)

The Project's DEIS/EIR stated that north-to-south water transfers will occur during dry years when State Water Project ("SWP") contractor allocations drop to 50 percent of Table A amounts or below or when Central Valley Project ("CVP") agricultural allocations are 40 percent or below, or when both projects' allocations are at or below these levels (p. 5-52). However, recent patterns contradict this premise in Table 5-2, which illustrates that past water transfers have regularly occurred when SWP and CVP San Joaquin Ag allocation percentages have been much higher (p. 5-51) and the SDEIS/RDEIR does nothing to correct the false narrative.

The SDEIS/RDEIR also fails to illustrate the early history of water transfers and to provide more current information through 2014. AquAlliance expands upon our previous comments providing more context and history that should be presented in another recirculated SDEIS/RDEIR.

- 1991. WY – Critical. Reported transfers amounted to 820,000 af.[5]
- 1992. WY – Critical. Reported transfers amounted to 193,000 af. (*Id.*)
- 1993. WY – Above Normal. No transfers appear to have occurred. (*Id.*)
- 1994. WY – Critical. Reported transfers amounted to 220,000 af. (*Id.*) [6]
- 2002. WY - Dry. Settlement Contractors in the Sacramento Valley received 100% of their allocation. Reported transfers amounted to 172,000 af.[7]

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[5] USBR, 2008. Draft Environmental Assessment for the *Option Agreement Between Glenn-Colusa Irrigation District, Bureau of Reclamation, and the San Luis & Delta-Mendota Water Authority for 2008 Operations*. (p.17)

[6] In 1994, following seven years of low annual precipitation, the state continued a Drought Water Bank program, which allowed water districts to sell surface water and continue growing rice with ground water. Western Canal Water District and Richvale Irrigation District exported 105,000 af of river water to buyers outside of the area and substituted groundwater from the Tuscan aquifer to continue growing rice. This early experiment in the *conjunctive use* of the groundwater resources – conducted without the benefit of project specific environmental review – caused a significant and immediate adverse impact to orchards, residents, and the environment (Msangi 2006). Until the time of the 1994 water transfers, groundwater levels had dropped, but the Tuscan aquifer had sustained the normal demands of domestic and agricultural users. The water districts' extractions, however, an abnormal demand on the groundwater, lowered groundwater levels throughout the Durham and Cherokee areas of eastern Butte County (Msangi 2006). The water level fell and the water quality deteriorated in the municipal wells serving the town of Durham (Scalmanini 1995) and even shallow residential wells dried up tens of miles away from the pumping. Irrigation wells failed on several orchards in the Durham area. One farm never recovered from the loss of its crop and later entered into bankruptcy.

- 2003. WY - Above Normal. Settlement Contractors in the Sacramento Valley received 100% of their allocation. Reported transfers amounted to 206,000 af. (*Id*.)
- 2004. WY - Below Normal. Settlement Contractors in the Sacramento Valley received 100% of their allocation. Reported transfers amounted to 120,500 af. (*Id*.)
- 2005. WY – Above Normal. Settlement Contractors in the Sacramento Valley received 100% of their allocation. Reported transfers amounted to 5 af. (*Id.)*
- 2006. WY – Wet. Settlement Contractors in the Sacramento Valley received 100% of their allocation. No transfers were reported. (*Id.)*
- 2007. WY – Dry. Settlement Contractors in the Sacramento Valley received 100% of their allocation. Reported transfers amounted to 147,000 af. (*Id.)*
- 2008. WY - Critical. Settlement Contractors in the Sacramento Valley received 100% of their allocation. GCID alone planned an 85,000 af transfer[8] of an expected cumulative total from the Sacramento Valley of 360,000 af.[9] Another source revealed that the actual transfers for that year were 233,000 af.[10]
- 2009. WY-Dry. Settlement Contractors in the Sacramento Valley received 100% of their allocation. The Bureau approved a 1 year water transfer program under which a number of transfers were made. Regarding NEPA, the Bureau issued a FONSI based on an EA. DWR opined that, "As the EWA's exclusive mechanism in 2009 for securing replacement water for curtailed operations through transfers, the DWB is limited to the maximum 600,000 acre feet analyzed in the EIS/EIR for the program."[11] Reported transfers amounted to 274,000 af.[12]
- 2010/2011. WYs – Below Normal, Wet. Settlement contractors in the Sacramento Valley received 100% of their allocation for both years. The Bureau approved a 2 year water transfer program through an Environmental Assessment/FONSI. The *2010-2011 Water Transfer Program* sought approval for 200,000 AF of CVP related water transfers and suggested there would be a cumulative total of 395,910 af of CVP and non-CVP water.[13] The Bureau asserted in that no actual transfers were made under the *2010/2011 Water Transfer Program*, however, a Western Canal Water District Negative Declaration

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[7] Western Canal Water District, 2012. *Initial Study and Proposed Negative Declaration for Western Canal Water District 2012 Water Transfer Program*. (p. 25)

[8] GCID, 2008. Initial Study and Proposed Negative Declaration for *Option Agreement Between Glenn-Colusa Irrigation District, San Luis & Delta-Mendota Water Authority and the United States Bureau of Reclamation for 2008 Operations, and Related Forbearance Program.*

[9] USBR, 2008. Draft Environmental Assessment for the *Option Agreement Between Glenn-Colusa Irrigation District, Bureau of Reclamation, and the San Luis & Delta-Mendota Water Authority for 2008 Operations*. (pp. 4 and 17)

[10] Western Canal Water District, 2015. *Initial Study and Proposed Negative Declaration for Western Canal Water District 2015 Water Transfer Program*. (p. 21)

[11] DWR, 2009. Addendum to the Environmental Water Account Environmental Impact Statement/Environmental Impact Report http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=107 Re: 2009 Drought Water Bank Transfers State Clearinghouse #1996032083. (p. 3)

[12] Western Canal Water District, 2012. *Initial Study and Proposed Negative Declaration for Western Canal Water District 2012 Water Transfer Program*. (p. 25)

[13] AquAlliance, 2010. Comments on the Draft Environmental Assessment and Findings of No Significant Impact for the *2010-2011 Water Transfer Program*. (pp. 1-2)

declared that 303.000 af were transferred from the Sacramento Valley and through the Delta in 2010.[14]

- 2012. Settlement contractors in the Sacramento Valley received 100% of their allocation. The Bureau planned 2012 water transfers of 76,000 AF of CVP water all through groundwater substitution, but it is unclear if CVP transfers occurred. [15] SWP contractors and the Yuba County Water Agency ("YCWA") did transfer water and the cumulative total transferred is stated to be 190,000 af.[16]
- 2013. WY – Dry. Settlement contractors in the Sacramento Valley received 100% of their allocation. The Bureau approved a 1 year water transfer program, again issuing a FONSI based on an EA. The EA incorporated by reference the environmental analysis in the 2010-2011 EA. The *2013 Water Transfer Program* proposed the direct extraction of up to 37,505 AF of groundwater (pp. 8, 9, 11, 28, 29, 35), the indirect extraction of 92,806 AF of groundwater (p. 31), and the cumulative total of 190,906 (p. 29).[17] Reported transfers amounted to 210,000 af.[18]
- 2014. Federal Settlement Contractors in the Sacramento Valley received 75% and State Settlement Contractors received 100% of their allocations. Total maximum proposed north-to-south transfers were 378,733 af and total maximum proposed north-to-north transfers were 295,924 af.[19] Reported north-to-south transfers amounted to 198,000 af.[20]

The SDEIS/RDEIR acknowledges that less water will be available for delivery south of the Delta with the Project (SDEIS/RDEIR 4.3.1-9), preferred Alternative 4A "would increase water transfer demand compared to existing conditions," (*Id*.) and past transfers have taken place in all water year types and when SWP and CVP south-of-Delta contractors receive allocations of all kinds (DEIS/DEIR p. 5-51). In violation of NEPA and CEQA, the analysis of the significant impacts that will accompany increased transfers due to the Project is nowhere to be found.

2. <u>The SDEIS/RDEIR fails to correct the lack of disclosure of the Lead Agencies conjunctive use and water transfer plans, programs, projects, and funding.</u>

The SDEIS/RDEIR fails to reveal that the current Project is part of many more plans, programs, projects, and funding to develop groundwater in the Sacramento Valley, to develop a "conjunctive" system for the region, and to place water districts in a position to integrate the

[14] Western Canal Water District, 2012. *Initial Study and Proposed Negative Declaration for Western Canal Water District 2012 Water Transfer Program*. (p. 25)
[15] USBR 2012. Memo to the Deputy Assistant Supervisor, Endangered Species Division, Fish and Wildlife Office, Sacramento, California regarding Section 7 Consultation.
[16] Western Canal Water District, 2015. *Initial Study and Proposed Negative Declaration for Western Canal Water District 2015 Water Transfer Program*. (p. 21)
[17] USBR, 2013. Draft Environmental Assessment and Findings of No Significant Impact for the *2013 Water Transfers.* (p. 29)
[18] Western Canal Water District, 2015. *Initial Study and Proposed Negative Declaration for Western Canal Water District 2015 Water Transfer Program*. (p. 21)
[19] AquAlliance, 2014. *2014 Sacramento Valley Water Transfers.* (Data from: 1) USBR, 2014 EA for *2014 Tehama-Colusa Canal Authority Water Transfers*; 2) USBR and SLDMWA, 2014. EA/Negative Declaration, *2014 San Luis & Delta Mendota Water Authority Transfers*.)
[20] Western Canal Water District, 2015. *Initial Study and Proposed Negative Declaration for Western Canal Water District 2015 Water Transfer Program*. (p. 21)

groundwater into the state water supply. These are plans that the Bureau, together with DWR, water districts, and others have been pursuing and developing for many years. [21] [22]

An environmental impact statement should consider "[c]onnected actions." 40 C.F.R. §1508.25(a)(1). Actions are connected where they "[a]re interdependent parts of a larger action and depend on the larger action for their justification." *Id.* §1508.25(a)(1)(iii). Further, an environmental impact statement should consider "[s]imilar actions, which when viewed together with other *reasonably foreseeable or proposed agency actions*, have similarities that provide a basis for evaluating their environmental consequences together, such as common timing or geography." *Id.* §1508.25(a)(3). The Bureau's participation in funding, planning, attempting to execute, and frequently executing the programs, plans and projects has circumvented the requirements of NEPA. DWR's failure to conduct project or programmatic level CEQA review for water transfers and comprehensive environmental review for the *Sacramento Valley Water Management Agreement* has segmented a known, programmatic project for decades, which means that the Bureau is also failing to comply with state law as the CVPIA mandates. A list of connected actions and similar actions is found in the Cumulative Impacts section below.

3. <u>The SDEIS/RDEIR fails to adequately disclose the existing geology that is the foundation of the Sacramento River's hydrology and the Sacramento Valley's groundwater basins.</u>

The DEIS/EIR (p. 7-1) and the SDEIS/RDEIR both fail to note a significant geographic feature in the Sacramento River hydrologic region: the Cascade Range. The Cascade Range is the genesis of the Sacramento River and some of its most significant tributaries: the Pit and the McCloud Rivers. This serious omission continued throughout Chapter 7 of the DEIS/EIR and has not been corrected in the SDEIS/RDEIR. The enormous influence of the Cascade Mountain Range on not only the Sacramento River, but the geology, soils, and hydrology of the Sacramento Valley's ground water basin is also completely missing. The California Department of Conservation describes the Range thusly: "The Cascade Range, a chain of volcanic cones, extends through Washington and Oregon into California. It is dominated by Mt. Shasta, a glacier-mantled volcanic cone, rising 14,162 feet above sea level. The southern termination is Lassen Peak, which last erupted in the early 1900s. The Cascade Range is transected by deep canyons of the Pit River. The river flows through the range between these two major volcanic cones, after winding across interior Modoc Plateau on its way to the Sacramento River."[23] The Sacramento River Watershed Program provides another simple, adequate description of its namesake: "The Sacramento River is the largest river and watershed system in California (by discharge, it is the second largest U.S. river draining into the Pacific, after the Columbia River). This 27,000–square mile basin drains the eastern slopes of the Coast Range, Mount Shasta, the western slopes of the southernmost region of the Cascades, and the northern portion of the Sierra Nevada. The Sacramento River carries 31% of the state's total surface water runoff."[24]

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[21] Hauge, Carl, 2011. Presentation to the State Water Commission, September 14, 2011. pp. 11,12,14.

[22] McManus, Dan, 2014. Presentation to the State Water Commission, March 3, 2014. p. 2. "Future Water Supply Program (FWSP), Provides data collection and analysis to facilitate and support Sacramento Valley groundwater substitution transfers and conjunctive mgmt."

[23] California Department of Conservation, California Geological Survey, 2002. *California Geomorphic Provences*. [sic]

[24] http://www.sacriver.org/aboutwatershed/roadmap/sacramento-river-basin

The failure of the SDEIS/RDEIR to correct the inadequacies of the DEIS/EIR of some of the most basic geologic, geographic and hydrologic information in the EIS/EIR on which the entire Project is dependent causes the reader to wonder what else has been ignored or purposely omitted in the document.

4. The SDEIS/RDEIR fails to disclose the over appropriation of water rights in the Sacramento River Watershed

AquAlliance brought the over appropriation of water to the Lead Agencies' attention in comments for the DEIS/EIR. It appears to have been ignored, so we raise it again here. The public is presented with inadequate baseline data with which to consider the consequences of the Project. The comparison of the average unimpaired flow of the Sacramento River Watershed stacked against the claims that have been made for water is but one example. The average annual unimpaired flow in the Sacramento River basin is 21.6 MAF, but the consumptive use claims are an extraordinary 120.6 MAF![25]

5. The SDEIS/RDEIR fails to present the existing conditions of Sacramento Valley groundwater that was omitted in the DEIS/EIR and to correct inaccuracies.

There remains an absence of accurate and detailed information that describes the Sacramento Valley groundwater conditions in the SDEIS/RDEIR. The DEIS/EIR stated, "A portion of this applied water, and the remaining 13.9 MAF of runoff, is potentially available to recharge the basin and replenish groundwater storage depleted by groundwater pumping. Therefore, except during drought, the Sacramento Valley groundwater basin is "full," and groundwater levels recover to pre-irrigation season levels each spring. Historical groundwater level hydrographs suggest that even after extended droughts, groundwater levels in this basin recovered to pre-drought levels within 1 or 2 years following the return of normal rainfall quantities." (p. 7-13)

AquAlliance brought the failures in these conclusory statements to light in our previous comments hoping the Lead Agencies would provide decision-makers and the public with important factual data. Sadly, the corrections were not made in the SDEIS/RDEIR. We remind the Lead Agencies that a summary of conditions in the Durham area of Butte County find that while water levels may recover after dry to drought periods with intense use, wells aren't returning to previous levels, but moving steadily in a downward trajectory.[26] Additionally, even the Yuba River area, often touted by state and federal agencies as a successful conjunctive use program, takes 3-4 years to recover from groundwater substitution in the south sub-basin[27] although the Yuba County Water Agency analysis fails to determine how much river water is sacrificed to achieve the multi-year recharge rate.

More examples that contradict long-term predictions of "full" and "recovered" groundwater basins are found in the most current DWR maps.[28] Presented below are tables that use the DWR maps to illustrate maximum and average groundwater elevation decreases for Butte, Colusa, Glenn, and

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[25] California Water Impact Network, AquAlliance, and California Sportfishing Protection Alliance 2012. *Testimony on Water Availability Analysis for Trinity, Sacramento, and San Joaquin River Basins Tributary to the Bay-Delta Estuary*.
[26] Buck, Christina 2014. *Groundwater Conditions in Butte County*.
[27] 2012. *The Yuba Accord, GW Substitutions and the Yuba Basin*. Presentation to the Accord Technical Committee. (pp. 21, 22).
[28] http://www.water.ca.gov/groundwater/data_and_monitoring/northern_region/GroundwaterLevel/gw_level_monitoring.cfm

Tehama counties at three aquifer levels in the Sacramento Valley between the Fall of 2004 and 2014.

AquAlliance's Table 1 and Table 2 cover 11 years and illustrate what should have been shared with the public in the DEIS/EIR or the SDEIS/RDEIR. They demonstrate maximum and average groundwater elevation decreases for Butte, Colusa, Glenn, and Tehama counties, all the counties believed to overlie the Tuscan Aquifer, at three aquifer levels in the Sacramento Valley between the fall and spring of 2004 and 2014.[29] If the Bureau and DWR wanted to truly share significant shorter term data, they should disclose that maximum fall decreases for deep wells between 2013 and 2014 were 3.1 feet for Butte, 42.2 feet for Colusa, 26.9 feet for Glenn ,and 15.1 feet for Tehama – three counties significantly over 10 feet! (*Id.*)

Table 1. Fall 2004-2014 DWR Monitoring Results

County Fall '04 - '14	Deep Wells (Max decrease gwe)	Deep Wells (Avg. decrease gwe)
Butte	-12.7 (-11.4)*	-10.5 (-8.8)*
Colusa	-59.5 (-31.2)*	-59.5 (-20.4)*
Glenn	-79.7 (-60.7)*	-44.3 (-37.7)*
Tehama	-34.6 (-19.5)*	-10.9 (-6.6)*

County Fall '04 - '14	Intermediate Wells (Max decrease gwe)	Intermediate Wells (Avg. decrease gwe)
Butte	-23.0 (-21.8)*	-9.4 (-6.5)*
Colusa	-40.6 (-39.1)*	-22.6 (-16.0)*
Glenn	-57.2 (-40.2)*	-25.0 (-14.5)*
Tehama	-30.2 (-20.1)*	-12.4 (-7.9)*

County Fall '04 - '14	Shallow Wells (Max decrease gwe)	Shallow Wells (Avg. decrease gwe)
Butte	-17.6 (-13.3)*	-5.9 (-3.2)*
Colusa	-36.7 (-20.9)*	-7.6 (-3.8)*
Glenn	-53.5 (-44.4)*	-15.1 (-8.1)*
Tehama	-30.2 (-15.7)*	-9.5 (-6.6)*

* 2004-2013 monitoring results are in parentheses for comparison.

Table 2. Spring 2004-2014 DWR Monitoring Results (Monitoring from spring 2015 is still not available.)

County Spring '04 - '14	Deep Wells (Max decrease gwe)	Deep Wells (Avg. decrease gwe)
Butte	-20.8 (-10.6)	-14.6 (-8.9)
Colusa	-26.9 (-10.5)	-12.6 (-7.1)
Glenn	-49.4 (-36.2)	-29.2 (-19.9)
Tehama	-6.1 (-4.7)	-5.3 (-4.2)

[29] *Id.*

County Spring '04 - '14	Intermediate Wells (Max decrease gwe)	Intermediate Wells (Avg. decrease gwe)
Butte	-25.6 (-27.9)	-12.8 (-8.1)
Colusa	-49.9 (-24.6)	-15.4 (-7.4)
Glenn	-54.5 (-44.9)	-21.7 (-13.8)
Tehama	-16.2 (-16.5)	-7.9 (-8.8)

County Spring '04 - '14	Shallow Wells (Max decrease gwe)	Shallow Wells (Avg. decrease gwe)
Butte	-23.8 (-12.7)	-7.6 (-4.1)
Colusa	-25.3 (-11.0	-12.9 (-3.3)
Glenn	-46.5 (-23.9)	-12.6 (-8.3)
Tehama	-38.6 (-16.9)	-10.8 (-7.4)

* 2004-2013 monitoring results are in parentheses for comparison.

The DWR data clearly present a different picture of the condition of the Sacramento Valley groundwater basin over time than what is provided in the SDEIS/RDEIR. This must be corrected and considered in the NEPA and CEQA process.

6. The SDEIS/RDEIR fails to correct the lack of disclosure in the DEIS/EIR of direct and indirect groundwater impacts to the Sacramento Valley that would result from expanded north-to south, cross-Delta water transfers

AquAlliance commented previously about the internal BCDP communication from the Department of the Interior that indicates that the purchase of approximately 1.3 MAF of water is being planned as a means to make up for flows that would be removed from the Sacramento River by the BDCP tunnels.[30] As provided above, it is possible that the Twin Tunnels may extract almost two-thirds of the average annual flow from the Sacramento River, which is what creates the need for the 1.3 MAF. The source of the additional water that is integral to the Project was not disclosed or analyzed in the DEIS/EIR nor in the SDEIS'RDEIR. Furthermore, the Lead agencies improperly conclude that, "The analysis of any potential upstream impacts from transfers is not a part of this EIR/EIS and must be covered pursuant to separate laws and regulations once the specific transfer has been proposed." (DEIS/EIR p. 5-77)
Neither CEQA nor NEPA permit this approach of segmenting and piecemealing review of the whole of a project. As noted above, water transfers are expected to increase and are an integral part of the Project and groundwater substitution transfers are a significant piece of water transfer practices, plans, and programs either directly or indirectly through reservoir reoperation. The deferral to disclose the amount of water that could be transferred, the source of the water, and the impacts from transferring water from the Sacramento Valley are absent. In addition, the SDEIS/RDEIR does not reveal that the current Project is part of multi-decade planning and implementation process to develop groundwater in the Sacramento Valley, to develop a "conjunctive" system for the Sacramento Valley, and to integrate Sacramento Valley groundwater into the state's water supply.

With the Sacramento Valley groundwater an intended target, this must be disclosed and analyzed in another re-circulated Draft EIS/EIR.

[30] Belin, Lety Summary of Assurances Email, dated 2/25/13.

7. The Project Description does Not Include all Project Components.

i. The Bureau Fails to Disclose Significant Past, Present, and Future Streamflow Depletion

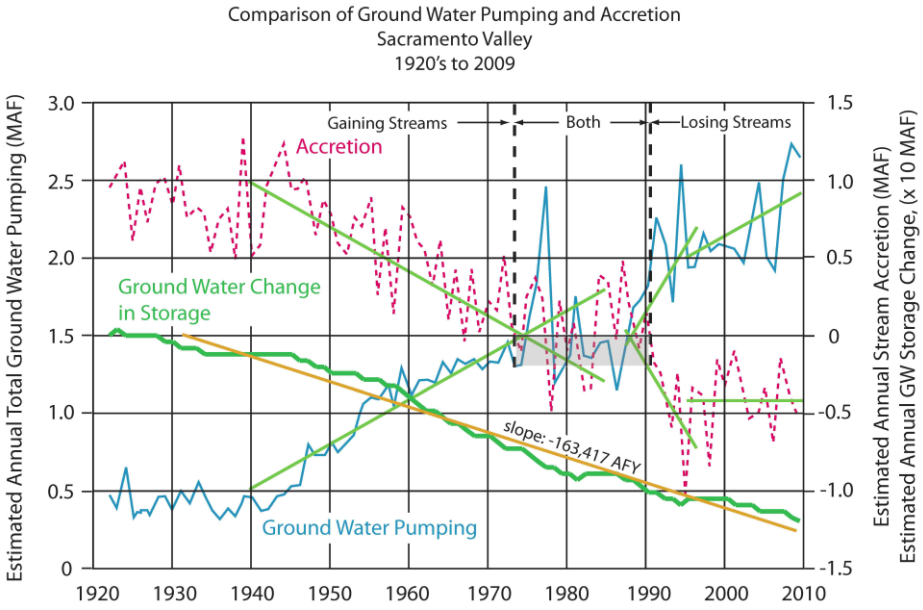
Streamflow depletion is not mentioned at all in the SDEIS/REDIR and it is mentioned sparingly in the DEIS/EIR:

1) A citation on page 7-120.
2) The same citation on page 34-16.
3) A description of groundwater substitution transfers on page 1E-3.
   a) "The quantity of surface water available is based on the quantity of groundwater actually pumped less any streamflow depletion losses."
   b) "Additional groundwater pumping will, to some extent, have an effect on the surface water supply, referred to as streamflow depletion. The impacts of the transfer on streamflow can continue to occur long after the transfer has been completed. If the additional streamflow depletion occurs at a time when excess flow is available, downstream users are not affected. However, if the depletion occurs at a time when other downstream users could divert that water, the transfer could have an impact on other legal users."
   c) "Accounting for the impact of the transfer on streamflow is essential to determining the amount of real water available for transfer and to avoid injury to downstream water users. The amount and timing of the impacts, however, cannot be directly measured but can be estimated through the use of mathematical models. Although the work required to accurately assess the appropriate streamflow depletion factor for a particular transfer can be time-consuming and costly, the assessment of an appropriate streamflow depletion factor is necessary to protect other legal users of water."
4) A more in-depth discussion of groundwater substitution transfers on page 1E-8.
   a) "Precipitation and streamflow are the source of recharge for groundwater basins. A change in the amount of groundwater pumping affects both the groundwater and surface water resources. The timing and magnitude of the impacts to the surface water supply varies from place to place depending on a number of factors, including geology, hydrology, regional groundwater use, and depth and construction of the wells among others. Groundwater pumping will result in some level of streamflow depletion, the effect of which may extend well beyond the area from which transfer is made, depending on the specifics of the transfer. It is important that the impacts to streamflow from increased groundwater pumping are accounted for in the transfer to prevent injury to other legal users of water. Streamflow depletion cannot be directly measured and must be estimated using a technical analysis including groundwater modeling considering the specific conditions of the transfer and hydrogeology."
5) A description of groundwater substitution transfers on page 1E-10. "The amount of water available for transfer is determined by metering the quantity of water pumped and applying a streamflow depletion factor based on an analysis of the specific wells and geology of the groundwater basin."
6) In section "Potential Quantities of Upstream-of-Delta Water for Transfer" in Appendix 5C, the following is found:

a) "Groundwater substitution transfers could approach as much as 400,000 acre-feet in any given year prior to allowance for impacts on streamflows. Groundwater substitution supplies are generally subject to a correction factor to adjust for streamflow depletion effects of water transfers in the current year. As the groundwater basins of the Sacramento Valley are pumped, there will be gradual effects on streamflow as the basins recharge over time. In the past few years, an allowance of 12 percent has been assumed as the amount of impact on Delta inflow in the current year." (p. 5C-23)

The absence of any meaningful disclosure of past, present, and future groundwater and streamflow depletion in either the DEIS/EIR or the SDEIS/RDEIR underscores once again the completely vacuous attempts by the Lead Agencies to meet NEPA and CEQA requirements. AquAlliance presents a figure that is a comprehensive picture of the destructive past and present impacts to the groundwater and streams of the Sacramento River that should have been revealed in the NEPA and CEQA documents for this project. It encapsulates all that the Lead Agencies seek to obfuscate from the public and policy makers.

Exhibit 10.7



Changes in Accretion, Ground Water Pumping and Ground Water Storage

1. 1920's: ~+953 TAFY accretion with ~+451 TAFY gw pumping = ~ 1,400 TAFY loss in gw storage
2. Late 1960's to Early 1970's: first zero accretion occurs with ~1,300 to ~1,500 TAFY gw pumping
3. 1920' to 2009: ~ +953 TAFY accretion to ~ - 445 TAFY accretion = ~ 1,400 TAFY difference
4. Slope of Accretion 1940 to mid-1970's ~ -27,000 AFY; late 1980's to mid-1990's ~ - 85,000 AFY; ratio ~ 3X
5. 1940 to mid-1970s' and late 1980's to mid 1990's slopes of ground water pumping increases are mirror images of slopes of accretion losses
6. Mid -1990's to 2010 groundwater pumping slope is similar to 1940 to mid-1970's, but accretion slope is flat.
7. Ground water change in storage ~ 12 to 14 MAF 1922 to 2009 (Figure 35, C2VSim User's Manual v. 3.02-CG, v. R374, June 2013, and Table 10 C2VSim Final Report 3.02-CG, v. R374, June 2013)

The figure was created for AquAlliance for comments on the DEIS/EIR for the 10-Year Water Transfer Program in 2014 by Kit Custis who explains:

Two recent reports on the condition of groundwater in the Sacramento Valley are provided by the Northern California Water Association (NCWA, 2014a and 2014b). Tables 3-6, 3-7, and 3-8 in the NCWA technical supplement report (2014b; Exhibits 10.5a to 10.5c) provide water balance information for the Sacramento Valley for the same three decades as Brush and others (2013a). The NCWA tables separate the water balance elements into three types, land uses (Table 3-6), streams and rivers (Table 3-7), and groundwater (Table 3-8). The values of the change in groundwater storage given in Table 3-8 are similar to those given by

Brush and others (2013a). The NCWA technical supplement report (2014b) also provides additional information on the 1922 to 2009 water balance through the use of graphs and bar charts. Figures 3-22 and 3-24 (Exhibits 10.6c and 10.6d) provide graphs of simulated estimates of annual groundwater pumping in the Sacramento Valley and the annual stream accretion. Positive stream accretion occurs when groundwater discharges to surface water, negative when groundwater is recharged. Other graphs include simulated deep percolation, Figures 3-26 and 3-27 (Exhibits 10.6e and 10.6f), annual diversions, Figures 3-19 and 3-20 (Exhibits 10.6a and 10.6b), and relative percentages of surface water to groundwater supplies, Figure 3-29 (10.6g).

The NCWA technical supplement report (2014b) notes in Sections 3.8 and 3.8.4 that negative changes in groundwater storage

> *... suggest that the groundwater basin is under stress and experiencing overdraft in some locations. Review of the Sacramento Valley water balance, as characterized based on C2VSim R374 and summarized in Tables 3-6 through 3-8 reveals substantial changes in water balance parameters over time that affect overall groundwater conditions. ... Over time, it appears that losses from surface streams have increased as a result of declining groundwater levels. The declining levels result from increased demand for groundwater as a source of supply without corresponding increases in groundwater recharge. (page 41) A contributing factor to the decrease in accretions to rivers and streams over the last 90 years is that deep percolation of surface water supplies (and other forms of recharge) has not increased in a manner that offsets increased groundwater pumping. (page 48)*

The simulated groundwater pumping graph in NCWA Figure 3-22 and stream accretion graph in NCWA Figure 3-24 were combined into one graph by scaling and adjusting their axes (Exhibits 10.7). The vertical scales of these two graphs were adjusted so that a zero value of stream accretion aligned with 1.5 million acre-feet (MAF) of annual groundwater pumping. This alignment was done to reflect the fact that in the early 1920s, groundwater pumping was approximately 0.5 MAF per year (MAFY) while stream accretion was approximately 1.0 MAFY. As shown in the combined graph, stream accretion generally decreases at approximately the same rate as groundwater pumping increases. Thus, at a point of no appreciable groundwater pumping, pre-1920s, the total long-term average annual stream accretion was likely 1.5 MAF, based on the C2VSim simulations.

Drawn on top of the stream depletion and groundwater pumping graphs are several visually fit, straight trend lines. These lines, which run from 1940 to the mid-1970s and the late 1980s to mid-1990s, are mirror images reflected around the horizontal 0 accretion axis. Information provided at the bottom of the composite graph was taken from NCWA Tables 3-7 and 3-8 (Exhibits 10.5b and 10.5c). The slope of the trend line from 1940 to the mid- 1970s is approximately (+-)27,000 AFY, and (+-)85,000 AFY in the late 1980s to the mid- 1990s; a 3-fold increase in slope. After the mid-1990s the slope of groundwater pumping flattens to be similar to that of the 1940s–mid-1970s, while the stream depletion line became almost flat, ie., no change in rate of accretion. The reason for the stream depletion rate being flat is unknown, but there are several factors that could contribute to a fixed rate of stream accretion.

First, after depleting 1.5 MAFY from the Sacramento Valley streams, the surface waters may not be able to provide much more, at least no increase to match the pumping. Second, this may also be a consequence of the model design because the number of streams simulated was limited. Third, the model's grid may not extend out far enough to encompass all of the streams that contribute to groundwater recharge. More information on the areas of where streams gain and lose in the Sacramento Valley is needed to determine if there are any sections of stream, gaining or losing, that might still have the ability to interact at a variable rate in the future, ie., during and after the 10-year groundwater substitution transfer project.

A third graph is drawn on the composite accretion-pumping graph in Exhibit 10.7 that shows the C2VSim simulated cumulative change in groundwater storage for the Sacramento Valley from 1922 to 2009. This graph was taken from Figure 35 of Brush and others, 2013b (Exhibit 10.4). A straight trend line with a negative slope of approximately -163,417 AFY is drawn on top of the third graph, which is the value for average annual change in storage from 1922 to 2009 given in Table 10 of Brush and others (2013a; Exhibit 6.3a) for the seven subregions of the Sacramento Valley. The selected graph of the cumulative change in groundwater storage is one of three available.

The graph of cumulative change in groundwater storage for the Sacramento Valley in Figure 35 differs from the graph in Figure 83 in Brush and others (2013a; Exhibit 10.3) and in Figure B9 of Faunt (ed., 2009; Exhibit 10.2a). Both of Figure 83 and Figure B9 show a gain in groundwater storage with their Sacramento Valley graphs lying generally above the horizontal line of zero change in storage. The cumulative change in groundwater storage graph from Figure 35 (Exhibit 10.4) was selected because:

- *its slope is a close match for the average annual change in storage from 1922 to 2009 of -163,417 AFY given in Table 10,*
- *the values for change in groundwater storage in the three selected decades are all negative (Table 3-8, NCWA, 2014b), which the other two graphs don't clearly indicate,*
- *the calculation of average annual change in groundwater storage from 1962 to 2003 shown in Table B3 and Figures B10-A and B10-B of Faunt (ed., 2009) are negative, which conflicts with Figures B9 and 83, and*
- *change in DWR groundwater elevation maps from spring 2004 to spring 2014 (Exhibit 3.1, 3.2 and 3.3) suggest that there are significant regions of the Sacramento Valley that have lost groundwater storage, which suggests that the current condition is one of a loss in storage rather than a gain.*

Additional review and analysis of the changes in groundwater storage in the Sacramento Valley is needed. Any additional review of changes in groundwater storage in the Sacramento Valley should consider the recent changes in groundwater elevations such as those shown in DWR (2014b) for WYs 2004 to 2014, and Figures 2-4 and 2-5 of NCWA, 2014b (Exhibit 10.8 and 10.9), as well as other studies such as the support documents for the regional IRWMPs. [Supporting material found in AquAlliance's Tables 1 and 2 above.]

The deficiencies in the SDEIS/RDEIR and DEIS/EIR strike at the core of our critique, which views the CVP and the SWP as once-upon-a-time operating within the law, albeit with more water on paper than could ever be available, until the limits of hydrology caused the Agencies and some

of their contractors to look for tools to exploit the law – and the hydrology - of California. The CVP and SWP have extended water far from the areas of origin for agricultural, urban, and industrial uses. In so doing, particularly with paper water,[31] the state and federal governments have facilitated a destructively unrealistic demand for water. Ever willing to destroy natural systems to meet demand for profit, the San Joaquin River dried up and subsidence caused by groundwater depletion in the San Joaquin Valley is even cracking water conveyance facilities.[32] Added to this are conjunctive use water sales and programs where the Agencies facilitate and their contractors implement river water sales and pump groundwater to continue crop production. The continual, long-term groundwater overdraft in the San Joaquin Valley, the expansion of new permanent crops in both the San Joaquin and Sacramento valleys, and groundwater substitution transfers by CVP and SWP contractors *all* cause streamflow depletion (also see Groundwater Section below). Failing to disclose how the CVP and SWP have historically caused streamflow depletion is a major omission that must be corrected and included in a recirculated DEIS/EIR.

8. <u>The SDIE/RDEIR fails to correct deficiencies in the DEIS/EIR that vastly understated the extent of groundwater depletion in the San Joaquin Valley.</u>

In regards to the San Joaquin groundwater basin, the DEIS/DEIR stated that, "Long-term groundwater production throughout this basin has lowered groundwater levels beyond what natural recharge can replenish." (p. 7-4) It is no surprise that the relentless extraction of groundwater in the San Joaquin Valley has halted natural recharge, but this mild under-statement of fact masks the tremendous devastation that has occurred there. "Mining" would provide a more accurate depiction of what has transpired over 80+ years instead of "production." The USGS exposes this form of groundwater exploitation in the San Joaquin and Santa Clara Valleys (1999) in Circular 1182 entitled Part I, "Mining Ground Water." Current research by Michelle Sneed expands on the impacts from groundwater mining in the San Joaquin by disclosing the extent of historic and current subsidence levels[33] as does work by Devin Galloway and Francis S. Riley.[34]

Without explanation or apology, the DEIS/EIR omitted current and historic analysis, mentioned "overall subsidence" in the Mendota area of 28 feet (without a citation or timeframe), and then recounted older research: "Most San Joaquin Valley subsidence is thought to have been caused primarily by deep aquifer system pumping during the 1950s and 1960s, but is considered to have largely abated since 1974 because of the development of more reliable agricultural surface water supplies from the Delta-Mendota Canal and Friant-Kern Canal (U.S. Geological Survey 1999)."

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[31] C-WIN, et al, 2012. Testimony on Water Availability Analysis for Trinity, Sacramento, and San Joaquin River Basins Tributary to the Bay--Delta Estuary.

[32] Sneed, et al., 2012. Abstract: *Renewed Rapid Subsidence in the San Joaquin Valley, California*.
"The location and magnitude of land subsidence during 2006–10 in parts of the SJV were determined by using an integration of Interferometric Synthetic Aperture Radar (InSAR), Global Positioning System (GPS), and borehole extensometer techniques. Results of the InSAR measurements indicate that a 3,200-km^2 area was affected by at least 20 mm of subsidence during 2008–10, with a localized maximum subsidence of at least 540 mm. Furthermore, InSAR results indicate subsidence rates doubled during 2008. Results of a comparison of GPS, extensometer, and groundwater-level data suggest that most of the compaction occurred in the deep aquifer system, that the critical head in some parts of the deep system was exceeded in 2008, and that the subsidence measured during 2008–10 was largely permanent." Conference presentation at *Water for Seven Generations: Will California Prepare For It?*, Chico, CA.

[33] Sneed, Michelle et al. 2013. *Land Subsidence along the Delta-Mendota Canal in the Northern Part of the San Joaquin Valley, California*. http://pubs.usgs.gov/sir/2013/5142/

[34] Galloway, Devin and Francis S. Riley, unknown date. *San Joaquin Valley: Largest human alteration of the Earth's surface.*

The absence of current scientific research regarding groundwater mining and subsidence in the DEIS/EIR and the failure to correct it in the SDEIS/RDEIR leaves the documents exceedingly deficient under CEQA and NEPA and the agencies exposed to charges of incompetence.

B. Cumulative Impacts

The Ninth Circuit Court makes clear that NEPA mandates "a useful analysis of the cumulative impacts of past, present and future projects." *Muckleshoot Indian Tribe v. U.S. Forest Service*, 177 F.3d 800, 810 (9th Cir. 1999). "Detail is required in describing the cumulative effects of a proposed action with other proposed actions." *Id.* CEQA further states that assessment of the project's incremental effects must be "viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." (CEQA Guidelines § 15065(a)(3).) "[A] cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts." (CEQA Guidelines § 15065(a)(3).)

An EIR must discuss significant cumulative impacts. CEQA Guidelines §15130(a). Cumulative impacts are defined as two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. CEQA Guidelines § 15355(a). "[I]ndividual effects may be changes resulting from a single project or a number of separate projects. CEQA Guidelines § 15355(a). A legally adequate cumulative impacts analysis views a particular project over time and in conjunction with other related past, present, and reasonably foreseeable future projects whose impacts might compound or interrelate with those of the project at hand. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time. CEQA Guidelines § 15355(b). The cumulative impacts concept recognizes that "[t]he full environmental impact of a proposed . . . action cannot be gauged in a vacuum." *Whitman v. Board of Supervisors* (1979) 88 Cal. App. 3d 397, 408 (internal quotation omitted).

In assessing the significance of a project's impact, the Bureau must consider "[c]umulative actions, which when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact statement." 40 C.F.R. §1508.25(a)(2). A "cumulative impact" includes "the impact on the environment which results from the incremental impact of the action when added to *other past, present and reasonably foreseeable future actions* regardless of what agency (Federal or non-Federal) or person undertakes such other actions." *Id.* §1508.7. The regulations warn that "[s]ignificance cannot be avoided by terming an action temporary or by breaking it down into small component parts." *Id.* §1508.27(b)(7).

An environmental impact statement should also consider "[c]onnected actions." *Id.* §1508.25(a)(1). Actions are connected where they "[a]re interdependent parts of a larger action and depend on the larger action for their justification." *Id.* §1508.25(a)(1)(iii). Further, an environmental impact statement should consider "[s]imilar actions, which when viewed together with other *reasonably foreseeable or proposed agency actions*, have similarities that provide a basis for evaluating their environmental consequences together, such as common timing or geography." *Id.* §1508.25(a)(3) (emphasis added).

As discussed above, the Project is dependent on the hydrology of the Delta watershed to implement the Draft Plan. We pointed out in comments on the DEIS/EIR and again here because

the issue hasn't been corrected in the SDEIS/RDEIR, that the cumulative impact analysis is abysmal as it fails to consider other past, present and reasonably foreseeable future actions in the Delta watersheds by deferring analysis to a future day.

AquAlliance again submits a partial list of Sacramento River Watershed programs, plans, and projects in which the agencies have participated or funded, that, at a minimum, should have been presented in the DEIS/EIR or corrected in the SDEIS/RDEIR for cumulative impact discussion, and better yet, analyzed to comply with CEQA and NEPA:

- In 2009, the Bureau approved a 1 year water transfer program under which a number of transfers were made. Regarding NEPA, the Bureau issued a FONSI based on an EA.
- In 2010, the Bureau approved a 2 year water transfer program (for 2010 and 2011). No actual transfers were made under this approval. Regarding NEPA, the Bureau again issued a FONSI based on an EA.
- The Bureau planned 2012 water transfers of 76,000 AF of CVP water all through groundwater substitution.[35]
- In 2013, the Bureau approved a 1 year water transfer program, again issuing a FONSI based on an EA. The EA incorporated by reference the environmental analysis in the 2010-2011 EA.
- The Bureau and SLDMWA's 2014 Water Transfer Program proposed transferring up to 91,313 AF under current hydrologic conditions and up to 195,126 under improved conditions. This was straight forward, however, when attempting to determine how much water may come from fallowing or groundwater substitution during two different time periods, April-June and July-September, the reader was left to guess.[36]

These closely related projects impact the same resources, are not accounted for in the environmental baseline, and must be considered as cumulative impacts.

Yuba Accord

The relationship between the Projects and the Lower Yuba River Accord is not found in the DEIS, but is illuminated in a 2013 Environmental Assessment. "The Lower Yuba River Accord (Yuba Accord) provides supplemental dry year water supplies to state and Federal water contractors under a Water Purchase Agreement between the Yuba County Water Agency and the California Department of Water Resources (DWR). Subsequent to the execution of the Yuba Accord Water Purchase Agreement, DWR and The San Luis & Delta- Mendota Water Authority (Authority) entered into an agreement for the supply and conveyance of Yuba Accord water, to benefit nine of

[35] USBR 2012. Memo to the Deputy Assistant Supervisor, Endangered Species Division, Fish and Wildlife Office, Sacramento, California regarding Section 7 Consultation.

[36] The 2014 Water Transfer Program's EA/MND was deficient in presenting accurate transfer numbers and types of transfers. The numbers in the "totals" row of Table 2-2 presumably should add up to 91,313. Instead, they add up to 110, 789. The numbers in the "totals" row of Table 2-3 presumably should add up to 195,126. Instead, they add up to 249,997. Both Tables 2-2 and 2-3 have a footnote stating: "These totals cannot be added together. Agencies could make water available through groundwater substitution, cropland idling, or a combination of the two; however, they will not make the full quantity available through both methods. Table 2-1 reflects the total upper limit for each agency."

the Authority's member districts (Member Districts) that are SOD [south of Delta] CVP water service contractors." [37]

In a Fact Sheet produced by the Bureau, it provides some numerical context and more of DWR's involvement by stating, "Under the Lower Yuba River Accord, up to 70,000 acre-feet can be purchased by SLDMWA members annually from DWR. This water must be conveyed through the federal and/or state pumping plants in coordination with Reclamation and DWR. Because of conveyance losses, the amount of Yuba Accord water delivered to SLDMWA members is reduced by approximately 25 percent to approximately 52,500 acre-feet. Although Reclamation is not a signatory to the Yuba Accord, water conveyed to CVP contractors is treated as if it were Project water." [38] However, the Yuba County Water Agency ("YCWA") may transfer up to 200,000 under Corrected Order WR 2008-0014 for Long-Term Transfer and, "In any year, up to 120,000 af of the potential 200,000 af transfer total may consist of groundwater substitution. (YCWA-1, Appendix B, p. B-97.)." [39]

Potential cumulative impacts from the Project and the YCWA Long-Term Transfer Program from 2008 - 2025 are not disclosed or analyzed in the SDEIS/RDEIR or the DEIS/EIR. Moreover, the *2015-2024 Water Transfer Program* could transfer up to 600,000 AF per year through the same period that the YCWA Long-Term Transfers are potentially sending 200,000 AF into and south of the Delta. How these two projects operate simultaneously could have a very significant impact on the environment and economy of the Feather River and Yuba River's watersheds and counties as well as the Delta. The involvement of Browns Valley Irrigation District and Cordua Irrigation District in both long-term programs must also be considered. This must be analyzed and presented to the public in a revised DEIS/EIR.

Also not available in the DEIS/EIR or corrected in the SDEIS/RDEIR is disclosure of any issues associated with the YCWA transfers that have usually been touted as a model of success. The YCWA transfers have encountered troubling trends for over a decade that, according to the draft Environmental Water Account ("EWA") EIS/EIR, are mitigated by deepening domestic wells (2003 p. 6-81). While digging deeper wells is at least a response to an impact, it hardly serves as a proactive measure to avoid impacts. Additional information finds that it may take 3-4 years to recover from groundwater substitution in the south sub-basin[40] although YCWA's own analysis fails to determine how much river water is sacrificed to achieve the multi-year recharge rate. None of this is found in the EWA EIS/EIR. What is found in the EWA EIS/EIR is that even the inadequate SACFEM2013 modeling reveals that it could take more than six years in the Cordua ID area to recover from multi-year transfer events, although recovery is not defined (pp, 3.3-69 to 3.3-70). This is a very significant impact that isn't addressed individually or cumulatively.

1. <u>The Lead Agencies Have Failed to Consider the Cumulative Impacts of Other Groundwater Development and Surface Water Diversions Affecting the Sacramento Valley</u>

[37] Bureau of Reclamation, 2013. *Storage, Conveyance, or Exchange of Yuba Accord Water in Federal Facilities for South of Delta Central Valley Project Contractors*.
[38] Bureau of Reclamation, 2013. *Central Valley Project (CVP) Water Transfer Program Fact Sheet*.
[39] State Water Resources Control Board, 2008. ORDER WR 2008 - 0025
[40] 2012. *The Yuba Accord, GW Substitutions and the Yuba Basin*. Presentation to the Accord Technical Committee. (pp. 21, 22).

In addition to the improper segmentation evident in the DEIS/EIR and continuing through the SDEIS/RDEIR, the assessment of environmental impacts is further deficient because the Bureau has failed to consider the cumulative impacts of area of origin extraction when taken in conjunction with other projects proposed for the development of groundwater and surface water.

i. General Plans

The General Plans of the counties and cities in the Sacramento Valley must be considered as well as the agricultural crop and land use changes that have taken and are taking place. Lastly, we must emphasize again that existing conditions in the Sacramento River Watershed, that is so crucial to California's population, economy, and environment, and therefore the Project, must be more accurately understood and described, so that impacts may be more accurately assessed from the Project.

The DEIS/EIR and SDEIS/RDEIR also fail to reveal many more programs, plans and projects to develop water transfers in the Sacramento Valley, to develop a "conjunctive" system for the region, and to place water districts in a position to integrate the groundwater into the state water supply. BDCP, now the Water Fix or Twin Tunnels Project, is one of those plans that the Lead Agencies, water districts, and others have been pursuing and developing for many years.

ii. Biggs-West Gridley

The *Biggs-West Gridley Water District Gray Lodge Wildlife Area Water Supply* Project, a Bureau project, is not mentioned anywhere in the Vegetation and Wildlife or Cumulative Impacts sections. [41] This water supply project is located in southern Butte County where Western Canal WD, Richvale ID, Biggs-West Gridley WD, and Butte Water District actively sell water on a regular basis, yet impacts to GGS from this project are not disclosed. This is a serious omission that must be remedied in a recirculated DEISEIR.

iii. Other Projects

a) Court settlement discussions between the Bureau and Westlands Water District over provisions of drainage service. Case # CV-F-88-634-LJO/DLB will further strain the already over allocated Central Valley Project with the following conditions:

- A permanent CVP contract for 890,000 acre-feet of water a year exempt from acreage limitations.
- Minimal land retirement consisting of 100,000 acres; the amount of land Westlands claims it has already retired (115,000 acres) will be credited to this final figure. Worse, the Obama administration has stated it will be satisfied with 100,000 acres of "permanent" land retirement.
- Forgiveness of nearly $400 million owed by Westlands to the federal government for capital repayment of Central Valley Project debt.

b) Five-Year Warren Act Contracts for Conveyance of Groundwater in the Tehama-Colusa and Corning Canals – Contract Years 2013 through 2017 (March 1, 2013, through February 28, 2018).

[41] http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=15381

c) Additional past, current, and future projects with cumulative impacts upon groundwater and surface water resources affected by the Project:

- The DWR Dry Year Purchase Agreement for Yuba County Water Agency water transfers from 2015-2025 to SLDMWA.[42]
- GCID's *Stony Creek Fan Aquifer Performance Testing Plan* to install seven production wells in 2009 to extract 26,530 AF of groundwater as an experiment that was subject to litigation due to GCID's use of CEQAs exemption for research.
- Installation of numerous production wells that are used to facilitate water transfers in the area of origin, many with the use of public funds such as Butte Water District,[43] GCID, Anderson Cottonwood Irrigation District,[44] and Yuba County Water Authority [45] among others.
- GCID's 10-Wells Project proposes to install five new production wells and continue operating five additional production wells during dry and critically dry years for 8.5 months from approximately February 15-Marh 15 and April 1-November 15. The annual, maximum, cumulative total pumping is 28,500 af and is more water than the annual use of the Chico district of California Water Service Company that serves over 100,000 people.[46]

C. Conclusion

The SDEIS/RDEIR and DEIS/EIR are seriously deficient as noted here, in the coalition comments of C-WIN, CSPA, and AquAlliance, CSPA comments, and EWC comments. AquAlliance requests that you incorporate these comments into another re-circulated DEIS/EIR.

Sincerely,

B. Vlamis

Barbara Vlamis
AquAlliance's Executive Director

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[42] SLDMWA Resolution # 2014 386
http://www.sldmwa.org/OHTDocs/pdf_documents/Meetings/Board/Prepacket/2014_1106_Board_PrePacket.pdf

[43] Prop 13. Ground water storage program: 2003-2004 Develop two production wells and a monitoring program to track changes in ground.

[44] "The ACID Groundwater Production Element Project includes the installation of two groundwater wells to supplement existing district surface water and groundwater supplies."
http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=8081

[45] Prop 13. Ground water storage program 2000-2001: Install eight wells in the Yuba-South Basin to improve water supply reliability for in-basin needs and provide greater flexibility in the operation of the surface water management facilities. $1,500,00;

[46] California Water Service Company *2010 Urban Water Management Plan Chico-Hamilton City District*, p. 32.

Attachment 4
California Water Research Citations Presented to State Water Board

The following documents are referred to in Deirdre Des Jardins' testimony for PCFFA/IFR. Deirdre Des Jardins' testimony provides the full citations. The documents were submitted as exhibits by PCFFA/IFR and are posted on the State Water Resources Control Board website with the associated hyperlinks. This is sufficient for the documents to be accepted into the administrative record. [14]

1. Graphs and documents obtained from the United States Army Corps of Engineers' Sea Level Rise Calculator:

   Exhibit PCFFA-78, Graphs, Deirdre Des Jardins, Climate Change Modeling for the BDCP / WaterFix, Figures 1-21. Available at

   http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/PCFFA&IGFR/PCFFA_78_DDJg.pdf

   Exhibit PCFFA-64, United States Army Corps of Engineers, table of regionally corrected sea level rise estimates for Port Chicago. August 16, 2016. Available at

   http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/PCFFA&IGFR/PCFFA_64_table.pdf

   Exhibit PCFFA-65, United States Army Corps of Engineers, graph of regionally corrected sea level rise estimates for Port Chicago. August 16, 2016. Available at

   http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/PCFFA&IGFR/PCFFA_65_graph.pdf

   Exhibit PCFFA-66, United States Army Corps of Engineers, Port Chicago sea level gauge data. August 16, 2016. Available at

   http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/PCFFA&IGFR/PCFFA_66_guage.pdf

2. Technical reports, scientific journal articles, and letters from the Delta Independent Science Board:

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[14] *Consolidated Irrigation District v. Superior Court of Fresno County* (2012) 205 Cal.App.4th 697, 724, ("the burden placed on lead agency personnel is minimal when a commenter provides the URL to the specific Web page containing the document")

Exhibit PCFFA-8, September 6, 2007 Letter from Mike Healey to John Kirlin Re: Projections of Sea Level Rise for the Delta P Projections of Sea Level Rise for the Delta. Available at

http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/PCFFA&IGFR/PCFFA_08_Healey.pdf

Exhibit PCFFA-9, May 15, 2014 Letter from Delta Independent Science Board to Randy Fiorini Re: Review of the Draft EIR/EIS for the Bay Delta Conservation Plan. Available at

http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/PCFFA&IGFR/PCFFA_09_ISB.pdf

Exhibit PCFFA-10, National Oceanic and Atmospheric Administration Technical Report: Global Sea Level Rise Scenarios for the United States National Climate Assessment. Available at
http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/PCFFA&IGFR/PCFFA_10_NOAA.pdf

Exhibit PCFFA-63, Sutterley, T. C., I. Velicogna, E. Rignot, J. Mouginot, T. Flament, M. R. van den Broeke, J. M. van Wessem, and C. H. Reijmer, Mass loss of the Amundsen Sea Embayment of West Antarctica from four independent techniques, 41 Geophys. Res. Lett. 8421–8428. Available at

http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/PCFFA&IGFR/PCFFA_63_Sutt.pdf

Exhibit PCFFA-67, J. Hansen, M. Sato, P. Hearty, R. Ruedy, M. Kelley, V. Masson-Delmotte, G. Russell, G. Tselioudis, J. Cao, E. Rignot, I. Velicogna, E. Kandiano, K. von Schuckmann, P. Kharecha, A. N. Legrande, M. Bauer, and K.-W. Lo, Ice melt, sea level rise and superstorms: evidence from paleoclimate data, climate modeling, and modern observations that 2 °C global warming is highly dangerous. Available at

http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/PCFFA&IGFR/PCFFA_67_Hansen.pdf

Exhibit PCFFA-68, Gregory Flato et. al., Climate Change 2013 The Physical Science Basis, Chapter 9: Evaluation of Climate Models. Available at

http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/PCFFA&IGFR/PCFFA_69_Cayan.pdf

Exhibit PCFFA-69, Climate Change Scenarios And Sea Level Rise Estimates for the California 2009 Climate Change Scenarios Assessment, A Paper From the California Climate Change Center. Dan Cayan, Mary Tyree, Mike Dettinger, Hugo Hidalgo, Tapash Das, Ed Maurer, Peter Bromirski, Nicholas Graham, and Reinhard Flick. Available at

http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/PCFFA&IGFR/PCFFA_69_Cayan.pdf

Exhibit PCFFA-72, Sarah Null and Josh Viers, Water and Energy Sector Vulnerability to Climate Warming in the Sierra Nevada: Water Year Classification in Non-Stationary Climates, July 31, 2012. Available at

http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/PCFFA&IGFR/PCFFA_72_Null.pdf

Exhibit PCFFA-74, David M. Meko, Matthew D. Therrell, Christopher H. Baisan, and Malcolm K Hughes, Sacramento River Flow Reconstructed To Ad. 869 From Tree Rings, Journal Of The American Water Resources Association, VOL. 37, NO.4, August 2001. Available at

http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/PCFFA&IGFR/PCFFA_74_Meko01.pdf

Exhibit IFR-1, David M. Meko, Central Valley Droughts Over Last 1,000 Years, 2009 California Extreme Precipitation Symposium (UC Davis, June 24, 2009). Available at

http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/PCFFA&IGFR/IFR-1_Meko.pdf

3. Technical reports from the Bay Delta Conservation Plan process and the California Department of Water Resources

Exhibit PCFFA-62, March 2013, Revised Administrative Draft, Bay Delta Conservation Plan, Appendix 2.C, Climate Change Implications and Assumptions. Available at http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/PCFFA&IGFR/PCFFA_62_BDCP2C.pdf

Exhibit PCFFA-70, Department of Water Resources, Perspectives and Guidance for Climate Change Analysis. Available at

http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/PCFFA&IGFR/PCFFA_70_DWRcc.pdf

Exhibit PCFFA-71, Francis Chung et. al., Using Future Climate Projections to Support Water Resources Decision Making in California, California Climate Change Center, Final Report, May 2009

http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/PCFFA&IGFR/PCFFA_71_Chung.pdf

Exhibit PCFFA-73, Abdul Khan and Andrew Schwarz Climate Change Characterization and Analysis in California Water Resources Planning Studies, Final Report, Department of Water Resources December 2010. Available at

http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/PCFFA&IGFR/PCFFA_73_Khan.pdf

4. External reviews of CALSIM by the CALFED Bay-Delta Authority Science Program and the response by the Department of Water Resources and the U.S. Bureau of Reclamation:

   Exhibit PCFFA-20, Close et. al., 2003, A Strategic Review of CalSim II and its Use for Water Planning, Management, and Operations in Central California. Available at

   http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/PCFFA&IGFR/PCFFA_20_review.pdf

   Exhibit PCFFA-79, Review Panel Report San Joaquin River Valley CalSim II Model Review, 2006. Available at

   http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/PCFFA&IGFR/PCFFA_79_PR2006.pdf

   Exhibit PCFFA-80, PEER REVIEW RESPONSE: A Report by DWR/Reclamation in Reply to the Peer Review of the CalSim-II Model Sponsored by the CALFED Science Program in December 2003. Available at

   http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/PCFFA&IGFR/PCFFA_80_PR2004.pdf