VII. Specific Comments on the EIR/EIS

The Bay Delta Conservation Plan EIR/EIS is an essential component of the application package to be submitted for federal incidental take permits, together with an implementing agreement and habitat conservation plan (or natural communities conservation plan in the case of application for such a permit from the California Department of Fish and Wildlife). Without an adequate EIR/EIS, the application package is incomplete and statutory findings cannot be met, issuance of the incidental take permits may be delayed or denied.

The BDCP EIR/EIS is plagued by its length and complexity. With nine alternatives and eight operational scenarios besides the No Action Alternative, every chapter of this document is at least 100 pages long, far longer than most lay readers have the time for, and far longer than most busy professional reviewers have time to parse and analyze.

Several of the chapters have lengthy and/or numerous technical appendices containing supporting detailed analyses. Similar topics can be scattered throughout six or eight different sections or appendices or chapters of the EIR/EIS. This dispersion of information and analysis creates multiple needles in multiple haystacks, easily defeating the full disclosure of accessible information about the proposed action as required by CEQA and NEPA. The EIR/EIS's Fish and Aquatic Species Chapter 11 just by itself contains 3,055 pages—4,700 pages when four related appendices are included. Review of this in tandem with the fish related appendices of the EIR/EIS's "project description"—the Bay Delta Conservation Plan in its full entirety—runs the total page count for reviewing just for fish issues into the vicinity of 10,000. Of necessity, lay readers must be strategic if they are to gain any insight into the environmental effects of the Bay Delta Conservation Plan.

The EIR/EIS's Executive Summary and index helps to a limited degree with this, but the former is not a complete summary.[279] ***It omits summaries of the impacts and mitigation measures on the last chapters of Environmental Justice and Growth Inducement. It contains no summary of cumulative impacts in the EIR/EIS.***

In order to fulfill its paramount policy requirement under both the National Environmental Policy Act and the California Environmental Quality Act, the EIR/EIS should at a minimum be revised to include summaries at the opening of every chapter that enable readers to ascertain rapidly the key findings for impacts and mitigation measures, by alternative. The summary should also state in what sections the key analyses are located, since BDCP groups narrative content under certain alternatives because effects might be similar across alternatives. This should be identified up front in each chapter. But these documents (BDCP and its EIR/EIS), by their sheer size and complexity, still defy and defeat CEQA and NEPA requirements. Readers must be able to understand it so that public decision makers may make well-informed decisions about the Plan and its Alternatives within. The EWC had one person working nearly full-time since the documents were released in December 2013 and could not review its entirety. The BDCP documents' size, complexity, and dispersion of information make this impossible, despite the six-month-long comment period.

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[279] BDCP's EIR/EIS does include a general topic index, but it is not detailed enough to make its use efficient for a reader seeking specific information—one must track down each specific index page in different files. We estimate that a complete volume, hard copy of the BDCP documents costs between $3,000 to $6,000 to print and bind.

BDCP778

A. The EIR/EIS and Bay Delta Conservation Plan documents are incomplete because the California Department of Water Resources has been unable to collect necessary environmental survey and geotechnical data from Delta lands directly related to habitat restoration and Conservation Measure 1 facilities.

Delta landowners have successfully resisted having to permit entry to professional scientists and engineers representing the California Department of Water Resources to conduct surveys and gather data on environmental and cultural resource conditions, and surface and subsurface geotechnical conditions.[280]

Because DWR has been unable to complete the environmental, cultural, and geotechnical studies it needs to perform an adequate project-level setting and impact analysis of all biological, cultural and geotechnical/engineering resources in the Delta, the setting and impact analyses concerning these resources are necessarily deficient from the standpoint of providing full disclosure of affected environmental conditions and project effects, whether beneficial or adverse. Therefore, the BDCP Draft EIR/EIS will need to be revised, once these data are obtained, and recirculated as a Draft EIR/EIS in order to ensure the public and relevant decision makers receive full disclosure of these resources and potential impacts of BDCP.

The BDCP Applicants' presentation in Chapter 18, *Cultural Resources*, is intended to reassure lay readers and decision makers that they have performed due diligence in their efforts to document and report on cultural resources in the EIR/EIS.

> A number of standard methods such as record searches and site visits were used to determine the types and location of known cultural resources that could be affected by BDCP alternatives. Record searches were conducted and aerial photography was used for the entire study area. In addition, *surveys were conducted in accessible areas.*[281]

But to their credit, they acknowledge that "for numerous practical reasons...not all potential cultural resources in the study area could be identified."[282] This is a fatal flaw of the EIR/EIS because it means that the BDCP Applicants fail to discharge all of their duties to identify and analyze all cultural resources under NEPA, CEQA, and state and federal cultural resource laws like the National Historic Preservation Act and the Native American Graves Protection and Repatriation Act, which

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[280] The California Department of Water Resources acknowledges that it "has been unable, despite diligent efforts, to gain access to all of the private properties within the Delta on which it would like to conduct ground surveys, Environmental Site Assessments, and engineering, biological, geotechnical, archaeological, floral and faunal studies. Although DWR has been able to conduct some of the geotechnical studies it contemplated originally [by doing them off-site in neighboring river channels], it has not been able to conduct all such studies because of the court order issued April 8, 2011. DWR has challenged that court decision and is currently seeking access to land in the Delta for the purpose of conducting the geotechnical activities through the use of eminent domain. In short, DWR has done all that is reasonably feasible under the circumstances to conduct thorough investigation of all of the BDCP alternatives." BDCP EIR/EIS, Chapter 4, Appendix 4A, *Summary of Survey Data Collection Efforts*, p. 4A-11, lines 2-10. DWR lost its challenge, however, in the appellate court. See California Court of Appeal, Third Appellate District (San Joaquin), *Property Reserve, Inc. v. The Superior Court of San Joaquin County and the California Department of Water Resources*, (2014) 224 Cal.App.4th 828.

[281] BDCP, EIR/EIS, Chapter 18, *Cultural Resources*, p. 18-1, lines 25-27.

[282] *Ibid.*, p. 18-2, lines 20-21.

they must do for the EIR/EIS to be considered adequate with respect to cultural resource characterization and analysis.

> A primary reason is the fact that, in order to evaluate whether particular sites were "historic resources" or "unique archeological resources," invasive and even destructive techniques would have had to be used. Another factor was the sheer size of the study area, which made it impossible to evaluate every potential resource within any reasonable timeframe and at any reasonable cost. Moreover, the professional cultural resource specialists concluded that reasonable samples, combined with record searches and analyses of aerial photographs, would allow them to sufficiently characterize the nature of the resources and the likely effect within the footprint of the BDCP alternatives. In addition, every effort is made to avoid and minimize effects on significant cultural resources, including historic properties and historical resources. Finally, much of the Plan Area—particularly portions that could be affected by BDCP alternatives—was not legally accessible.[citation][283]

In other words, in translation: "It's probably better that we didn't have access to particular sites because our sampling methods might have harmed the resources. The Plan Area, made up of the legal Delta, Suisun Marsh, and Yolo Bypass, was too big for us to inventory all the cultural resources therein because we didn't have enough time and enough budget to do it. So, we relied on remote sensing techniques and archival records research to try to make up for that. We promise to try to avoid and minimize harm to cultural resources in the Plan Area. But (pesky) Delta landowners wouldn't let us on the lands where the alternatives would actually go, so we don't have everything we're supposed to have to comply with CEQA and NEPA. But we tried really hard to overcome these limitations." (We note in passing that this is the first time we have heard BDCP complain about its own self-inflicted Study Area.)

In court with the Delta landowners, however, California Department of Water Resources witness related a different story in testimony during the recent *Property Reserve* case.

> 7. Environmental studies, evaluations and assessments described herein are required to gather information to assess project feasibility, investigate project design alternatives, prepare the appropriate environmental documents, obtain information to identify necessary permits and define the appropriate mitigation for project impacts. Temporary entry onto the subject properties is necessary to define the current environmental setting and to perform general environmental reconnaissance of the area, as well as biological, archaeological and hydrological assessments. Assessments are surveys that are carried out within the study area of proposed project footprints and alignments that include alternative routes and projected feature sites associated with the alignments being studied. In addition, assessments must be carried out within the proposed alignments, up to five-hundred (500) feet on either side of the center-lines of alignments studied, and within and along proposed temporary right-of-ways, access roads and construction lay-down areas studied for future project alignments.[284]

DWR's environmental manager makes a compelling case that the absence of information otherwise obtainable from on-site surveys, including of archaeological resources, is vital to DWR's objective of designing, permitting, constructing, and operating the facilities called for in Conservation 1 of BDCP. Yet the BDCP Applicants (of which DWR is the lead applicant) try to put the best face on the lack of complete cultural resources information due to the lack of access to lands along the alignments of BDCP alternatives. DWR wants it both ways, depending on the context in which it is speaking. However, ***it remains true that they need the survey information for properly designing, permitting, constructing and operating the project, which the EIR/EIS must disclose, yet does***

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[283] *Ibid.*, p. 18-2, lines 21-31.

[284] *Declaration of DWR Environmental Program Manager Derrick Adachi in Support of DWR's Petition for Right of Entry*, signed September 1, 2010, provided to the trial court in the case under penalty of perjury.

not. The EIR/EIS is fatally inadequate on these grounds, in addition to other reasons we supply in our comments.

We describe additional issues with Delta cultural resources and the conduct of this EIR/EIS below in our comments on setting and impacts issues.

B. The EIR/EIS and Bay Delta Conservation Plan documents were not noticed, let alone properly noticed to or translated for the Delta's environmental justice communities.

Federal and state laws require agencies to consider environmental justice and to prohibit discrimination in their decision making processes. Title VI of the Civil Rights Act of 1964 and related statutes require that there be no discrimination in Federally assisted programs on the basis of race, color, national origin, age, sex, or disability (religion is a protected category under the Fair Housing Act of 1968). Federal Executive Order (EO) 12898 (1994) requires Federal agencies, including the United States Bureau of Reclamation, to make environmental justice part of their mission and to develop environmental justice strategies. The Presidential Memorandum accompanying the Executive Order specifically singles out NEPA, and states that "[e]ach Federal agency must provide opportunities for effective community participation in the NEPA process, including identifying potential effects and mitigation measures in consultation with affected communities and improving the accessibility of public meetings, crucial documents, and notices."

The Bureau of Reclamation has put meager administrative resources into preparing guidance for its activities on environmental justice. The Bureau relies for cover on this issue by taking US Department of the Interior goals as its own. Interior Department Goal 1 states that "The Department will involve minority and low-income communities as we make environmental decisions and assure public access to our environmental information."

Interior Department Goal 3 states:

> The Department will use and expand its science, research, and data collection capabilities on innovative solutions to environmental justice-related issues (for example, assisting in the identification of different consumption patterns of populations who rely principally on fish and/or wildlife for subsistence).[285]

In other words, the Department of the Interior, and by extension the Bureau of Reclamation and the US Fish and Wildlife Service appear to expect to foster adaptation of environmental justice communities to federal actions. However, BDCP and its EIR/EIS take no responsibility for meeting either the first goal or the third goal in the Department's Environmental Justice plan.

The State of California has defined "environmental justice" as: "the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies." Additionally, California has enacted Government Code 11135(a), which states:

> No person in the State of California shall, on the basis of race, national origin, ethnic group identification, religion, age, sex, sexual orientation, color, genetic information, or disability, be unlawfully denied full and equal access to the benefits of, or be unlawfully subjected to discrimination under, any program or activity that is conducted, operated, or administered by the state or by any state agency, is funded directly by the state, or receives any financial assistance from the state.[286]

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[285] "Environmental Justice" web on the Bureau of Reclamation's web site, accessible online at http://www.usbr.gov/cro/sub_ej.html.

[286] California Government Code Section 11135(a)

NEPA regulations define impacts or effects to be analyzed as including "ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative."[287]

Over 35 percent of the people directly affected by negative socio-economic and environmental impacts described in the Bay Delta Conservation Plan, and commented on herein, are members of environmental justice communities, a majority of whose first-spoken language is not English. Figure 28-1 of the EIR/EIS maps the location of census tracts whose populations have significant percentages of Hispanic/Latino population in them. They reside throughout the Delta. Figure 28-2 of the EIR/EIS shows the geographic distribution of Delta residents whose incomes are below the poverty line in 2010. These Delta-area residents include farm workers within the Delta, poor residents living in rural Delta communities and town and cities of the legal urban Delta, and subsistence fishing communities found within the legal Delta and its surrounding areas.

Impacts from BDCP are expected to include relocation from their homes, loss of jobs, inability to fish for nutrition, higher water rates as urban municipal water systems will be forced to upgrade their water treatment systems, exposure to increased water contaminants like methylmercury, selenium, salt, pesticides, and other chemical toxins when recreating at county and state parks within the Delta, and inability to navigate water ways when fishing or to reach communities in a timely fashion during the 10-year construction period.

These same residents of the Plan Area and the greater Delta region have not been made aware of the project or its potential impacts on their lives and communities.

BDCP recognized that it needed to perform outreach to environmental justice communities as early as 2008 when it was preparing for a series of public workshops throughout the Delta's communities. Unfortunately, BDCP has left few traces of what EJ outreach it may have done in its extensive archive of meetings and plan documents online and in its meeting schedule involving other stakeholders.

We find only these documents that have been translated into Spanish. BDCP documents, as far as we can tell, were translated into no other languages besides English and Spanish. But where there were over 40,000 pages in English, there were just 22 pages generated by BDCP in Spanish, including one web page (which printed to two pages). The pages made available in Spanish were promotional/ informational brochures. The image in Figure 14 indicates the Spanish archive of BDCP documents at www.baydeltaconservationplan.com as of April 29, 2014.

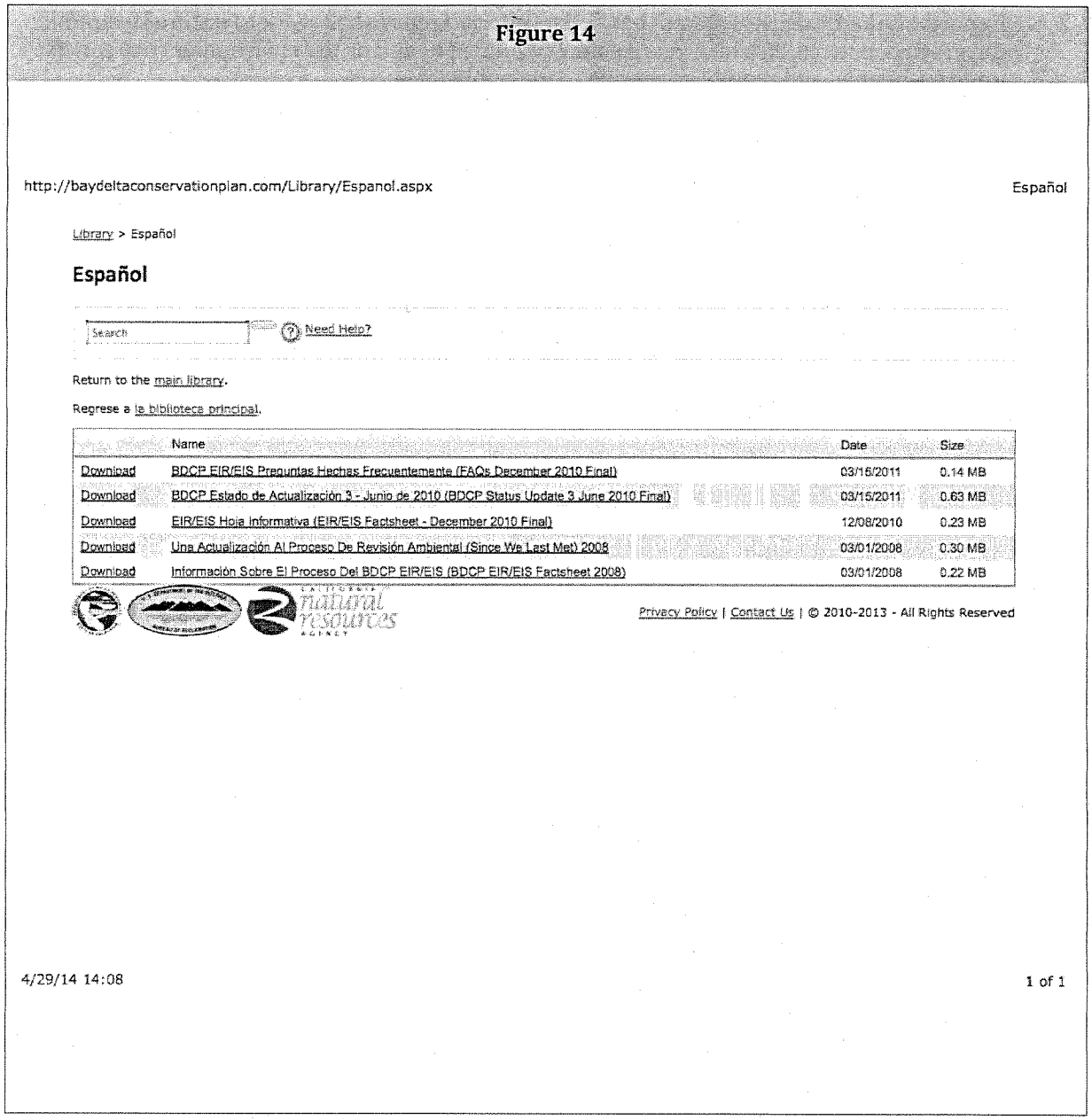
EWC member groups Restore the Delta (RTD), the Environmental Justice Coalition for Water (EJCW), and EWC consultants have researched this situation further. Our research finds that:

- Title VI of the federal Civil Rights Act of 1964 requires that "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participating in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." While BDCP's funding assurances are far from clear, its funding plan in Chapter 8 of BDCP clearly indicates it anticipates obtaining at least some Federal financial assistance.

[287] 40 CFR Section 1508.8(b).

BDCP778

Figure 14



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4/29/14 14:08 1 of 1

- Executive Order 12898 states in pertinent part that "Each Federal agency shall conduct its programs, policies, and activities that substantially affect human health or the environment, in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons (including populations) from participation in, denying persons (including populations) the benefits of, or subjecting persons (including populations) to discrimination under, such programs, policies, and activities because of their race, color, or national origin."[288] This Executive Order further requires that each Federal agency may, whenever practicable and appropriate, translate crucial public documents, notices, and hearings relating to human health or the environment for limited English speaking populations. As

[288] Executive Order, 12898, published in *Federal Register* 59(32): February 16, 1994, section 2-2. Accessible online 13 May 2014 at http://www.archives.gov/federal-register/executive-orders/pdf/12898.pdf.

important, the Order also states that "Each Federal agency shall work to ensure that public documents, notices, and hearings relating to human health or the environment are concise, understandable, and readily accessible to the public."[289]

- There have been no notices of Bay Delta Conservation Plan community meetings or on the release of the project in any foreign language during 2014. (The official public review draft was released in December 2013.)

- An EWC request via email made through www.baydeltaconservationplan.com on April 8, 2014, to receive a copy of the Environmental Justice Community Survey Summary Report prepared by DWR and cited in the Draft EIR/EIS, Chapter 28, went unanswered until April 25, 2014. BDCP consultant's reply stated that the report "is available electronically at the DWR repository located at 3500 Industrial Blvd., Room 117, West Sacramento, CA 95961. The DWR document repository is open during regular business hours and closed on State and Federal holidays." Thus, even a request to receive a copy of the report, in a day and age when email and online file-sharing can provide nearly instantaneous transmittal of information, and is widely and often freely available, was met with an invitation to visit DWR's West Sacramento repository where an electronic version could be made available. Modern communication conveniences were apparently unavailable at the repository to fulfill this environmental justice related request until May 2nd.

- Hispanic and Asian community groups throughout the Delta region report no outreach to them concerning BDCP.

- Hispanic publications in San Joaquin County report that they received no media releases concerning community meetings on BDCP, on the release of BDCP-related documents, nor on how to participate in the comment period on BDCP documents.

- Regarding BDCP public community meetings held around the state: it appears there were no translators present, as BDCP claims. If they were, signage was not provided, nor was there indication that members of the public could ask for an interpreter at these meetings. This, combined with absence of BDCP-related media outreach to non-English language publications in the Delta region, means that as much as 40 percent of the Delta's population was precluded from participating in the comment period through May 30th, when the period was extended to July 29th.

With BDCP anticipating it would receive federal funds, the Applicants, despite being either agencies of the State of California or subdivisions of the State, must comply with Executive Order 12898. DWR has dragged its feet providing requested documents that relate to EJ issues during this comment period. Adding insult to the project's likely injuries to EJ communities, BDCP organizers made no effort that our member groups could find to reach out to EJ communities upon release of the December 2013 Plan and EIR/EIS documents in violation of standard environmental justice procedures during state and federal environmental review. This record represents a complete failure to fully inform the interested Delta region's public in violation of the spirit and letter of both the National Environmental Policy Act and the California Environmental Quality Act.

[289] *Ibid.*, Section 5-5(b) and (c).

BDCP778

C. The EIR/EIS is incomplete because the project description and description of alternatives fails to include analysis of the role and significance of the Implementing Agreement that is required for the incidental take permit application package by the fishery agencies.

The BDCP Implementing Agreement was released on May 30, 2014, very late in the overall BDCP public review process. This document represents the "current thinking" about that project from its proponents, according to BDCP officials. The Agreement is an essential part of implementing the governance of BDCP, which means that it must reach into every aspect of its 22 conservation measures and be accounted for in most if not all of the Draft EIR/EIS on BDCP. However, the current EIR/EIS does not "benefit" from the current thinking on BDCP, and the EWC's comments on the Draft IA will reflect the myriad ways the EIR/EIS fails to account for the role played in the BDCP framework by the Draft IA. Still unavailable to this public review process of the Bay Delta Conservation Plan are separate memoranda of understanding between the US Bureau of Reclamation and the California Department of Water Resources, which are intended to execute terms of Reclamation's extra-legal participation in and commitment to the policies and programs of the Bay Delta Conservation Plan, and the operational aspects of the Twin Tunnels project. ***Because these three agreements have not been reviewed or evaluated in the Draft EIR/EIS, the EIR/EIS should be revised to reflect their inclusion and recirculated as a draft document for further public comment.***

The Natural Community Conservation Planning Act requires each conservation plan to include an IA which contains, among other things, "provisions for establishing the long-term protection of any habitat," "provisions ensuring implementation of the monitoring program and adaptive management program," and "mechanisms to ensure adequate funding to carry out the conservation actions . . . ."[290]

For purposes of the BDCP, the IA commemorates commitments from each party under the BDCP specifying their contribution to the cost, construction, governance, and operation of the proposed project. The IA is an integral and indispensable necessity to the development and function of the BDCP. However, the BDCP Applicants who expect to benefit from the BDCP, have failed to establish each party's contribution to the cost, construction, and operation of the BDCP. Without the draft IA, it is not possible for the public to meaningfully review the draft BDCP and EIR/EIS. Accordingly, the absence of the draft IA has resulted in a violation of the National Environmental Policy Act (NEPA).[291] Our supplemental comments will examine this matter further.

Critical information is missing from the review process. For example, the BDCP proponents have been been internally admitting the obvious to the State, that "The cost of the BDCP is high, and there is significant concern that it will increase. Recent experience shows that the cost of large public works projects tends to increase during construction. The cost of the BDCP is so high there is no room for any increase in cost."[292] Another example is that the BDCP proponents seek a level of "water supply reliability of approximately 75% for both SWP and CVP water service contractors."[293]

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[290] Cal. Fish & G. Code § 2820(b).

[291] NEPA regulation 40 C.F.R. § 1502.25, Endangered Species Act (ESA) regulations 50 CFR § 17.22(b)(1)(i); § 222.307(b)(4), the California Environmental Quality Act (CEQA), and the Natural Communities Conservation Planning Act (NCCPA).

[292] Anonymous, "Critical Issues" memorandum, January 27, 2014, a one-page document obtained via a Freedom of Information Act request made to and released from the US Fish and Wildlife Service. Cited hereafter as "Critical Issues."

[293] "Critical Issues."

The water contractors also seek "Strong regulatory assurances [to] increase the willingness of local public agencies to fund the BDCP and construction of the new conveyance facilities [tunnels]."[294] Commitments like these would significantly worsen the already horrendous impacts on endangered fish species, the Sacramento River, and the San Francisco Bay-Delta resulting from operations of the massive Twin Tunnels. And they are not examined in the EIR/EIS.

It is also not possible for the public to meaningfully review the draft BDCP and EIR/EIS because of the failures, violating both the ESA and NEPA, of the federal agencies to have prepared the Biological Assessments and Biological Opinions required by the ESA relating the Bureau's Section 7 "participation" in BDCP.[295]

This absence of the critical information for public review and review by the decision-makers that would be found in the tardy Implementing Agreement, the missing MOUs between the Bureau and DWR, Biological Assessments, and Biological Opinions makes a mockery of the environmentally informed public and decision-maker review provisions and purposes of NEPA, CEQA, and the ESA. In addition, ***absence of this essential information unlawfully segments and postpones the review of those documents from the current review of the Draft BDCP Plan and Draft EIR/EIS.***

1. The late release of the Draft BDCP Implementing Agreement violates NEPA and its implementing regulations.

Under NEPA, each EIS must contain a discussion of the "environmental impacts of the proposed action . . . ." 42 U.S.C. § 4332(C)(i). An EIS "shall provide full and fair discussion of significant environmental impacts and shall inform decision-makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts . . . ." 40 C.F.R. § 1502.1.
The Draft BDCP Chapters 6, 7, and 8 frequently refer to the IA as a regulatory force of the BDCP operations, ensuring that the project will operate in accordance with law. Nowhere does the Draft BDCP or EIR/EIS list the terms or specific provisions that the IA will contain. Thus, the IA's terms and requirements are not integrated and analyzed in the EIR/EIS for the public or decision makers to review. Because the IA will directly relate to impacts and mitigation, it is a critically important component of the environmental review mandated by NEPA. Without the IA, it is impossible for the EIR/EIS to provide a "full and fair discussion" of the impacts and mitigation measures. Consequently, the EIR/EIS is incomplete and insufficient to provide meaningful public review of BDCP impacts and mitigation measures.

Under NEPA regulations, "To the fullest extent possible, agencies shall prepare draft environmental impact statements concurrently with and integrated with environmental impact analyses and related surveys and studies required by the . . . Endangered Species Act . . . ."[296] Thus, agencies must prepare environmental impact review documents concurrently.

Because the BDCP is expected to result in the take of endangered and threatened species, the parties must acquire an incidental take permit (ITP) before implementing the BDCP.[297] A party

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[294] "Critical Issues."

[295] These violations have been pointed out to you previously in comment letters by Friends of the River dated June 4, August 13, September 25, and November 18, 2013, their comment letters of January 14, and March 6, 2014, and at Friends of the River's meeting with federal agency representatives in Sacramento on November 7, 2013.

[296] 40 C.F.R. § 1502.25.

[297] 16 U.S.C. § 1539(a)(1).

applying for an ITP must submit a conservation plan that specifies, among other things, "what steps the applicant will take to *minimize and mitigate such impacts*, and the *funding that will be available to implement such steps* . . . ."[298] The Draft BDCP and EIR/EIS lack this information and suggest that it will appear in the IA.

Accordingly, the BDCP is incomplete without the IA because the BDCP does not specify any commitments the parties have made to fund and promote mitigation measures. As an impact analysis, the IA was required to have been prepared concurrently with the EIS. Nevertheless, the parties to the BDCP have failed to produce even a draft IA specifying their individual commitments to ensuring the integrity of the project. This has resulted in the staggered or piecemeal environmental review that NEPA Regulation 40 C.F.R. § 1502.25 prohibits.

2. The late release of the Draft BDCP Implementing Agreement violates ESA Regulations.

The BDCP is the heart of an application for an ITP. All applications for ITPs must include a "complete description of the activity sought to be authorized. . . ."[299] Further, all conservation plans must include "steps . . . that will be taken to monitor, minimize, and mitigate [the] impacts, and the funding available to implement such measures . . . ."[300] Before approving a conservation plan, the government must provide notice of the application and an opportunity for the public to review the application.[301]

The Draft BDCP fails to provide a complete description of the project because it does not specify the steps that will be taken to mitigate impacts and fund such mitigation. Instead, it insists that the IA will clarify details concerning mitigation measures and funding, which at present the IA does not. Consequently, the Draft BDCP and EIR/EIS lack critical information concerning how the conservation plan will address mitigation and funding requirements, rendering the review period inadequate under ESA Regulations.

3. The late release of the Draft BDCP Implementing Agreement violates CEQA.

Under CEQA, California agencies must make draft EIRs available for public review and comment.[302] An EIR "shall include a detailed statement setting forth . . . [a]ll significant effects on the environment of the proposed project" and "[m]itigation measures proposed to minimize significant effects of the environment . . . ."[303] Regulations define *project* to mean "the *whole of an action*, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment . . . ."[304] Before approving a proposed project, the "lead agency shall determine whether a project may have a significant effect on the

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[298] 16 U.S.C. § 1539(a)(2)(A)(ii) (emphasis added).

[299] 50 C.F.R. § 17.22(b)(1)(i).

[300] 50 C.F.R. § 222.307(b)(5)(iii).

[301] 16 U.S.C. § 1539(c).

[302] 14 CCR § 15087.

[303] Cal. Pub. Res. Code § 21100(b).

[304] 14 CCR § 15378(a). Emphasis added.

environment based on *substantial evidence* in light of the whole record."[305] *Substantial evidence* does not include "speculation" or "unsubstantiated opinion"; on the contrary, *substantial evidence* includes "facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts."[306] Courts applying CEQA have held over and over that:

> An accurate, stable and finite project description is the sine qua non [absolutely indispensable requirement] of an informative and legally sufficient EIR. [Citation]. However, a curtailed, and enigmatic or unstable project description draws a red herring across the path of public input. [citation] Only through an accurate view of the project may the public and interested parties balance the proposed project's benefits against its environmental cost, consider appropriate mitigation measures, assess the advantages of terminating the proposal and properly weigh other alternatives.[307]

The IA is part of the project but was not even placed before the public for review until late during the Draft EIR/EIS public review period. Because the IA will contain critical project information that is not in the Draft EIR/EIS, the Draft EIR-EIS does not describe the *whole of the action*. Consequently, the EIR-EIS fails to provide an "accurate view of the project" and the public is prevented from understanding how the proposed project will operate. Further, this missing information demonstrates that the incomplete EIR/EIS fails to support its conclusions as to the impacts of the project. Whereas CEQA requires environmentally informed agency decisions, the absence of the IA prevents the agencies from forming decisions based on fully available information. Instead, the agencies rely on speculation as to what the terms of the IA might include.

4. The late release of the Draft BDCP Implementing Agreement violates NCCPA.

The NCCPA requires that any draft documents associated with an NCCP are made available for public review and comment.[308] As mentioned above, the NCCPA requires the NCCP to include an IA.[309] The Act further imposes a "requirement to make available in a *reasonable and timely manner* . . . planning documents associated with a natural community conservation plan that are subject to public review."[310]

Because the impact and mitigation analyses in the EIR/EIS must rely on the IA for full disclosure, the government agencies needed to make the draft IA available at the same time as the draft EIR/EIS in order to meet the *reasonable and timely manner* requirement. ***Releasing the draft IA months after the Draft EIR/EIS is neither reasonable nor timely because the government could have waited for completion of the draft IA before releasing the draft EIR/EIS.***

The government's plans to hold a 60-day public comment period for the draft IA after the Draft BDCP and Draft EIR/EIS comment period closes will not cure this defect in the overall review process. Staggering the release and comment periods for BDCP documents deprives the public of adequate review opportunities in two ways. First, once the government releases the Draft IA

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[305] Cal. Pub. Res. Code § 21082.2(a). Emphasis added.

[306] Cal. Pub. Res. Code § 21082.2(c).

[307] *San Joaquin Raptor Rescue Center v. County of Merced*, 149 Cal.App.4th 645, 672 (2007). Internal citations omitted.

[308] Cal. Fish & G. Code § 2815.

[309] Cal. Fish & G. Code § 2820(b).

[310] Cal. Fish & G. Code § 2815. Emphasis added.

containing specific details concerning BDCP operation, interested parties' understanding of the project will change. ***New information released in the IA can and is expected by BDCP officials to supersede comments received during the Draft BDCP and EIR/EIS comment period, undermining the integrity of the comment period. To ensure that interested parties have an adequate opportunity to review and comment on the project, all documents relating the BDCP need to be available for comment at the same time, and for the same length of time.***

Second, a 60-day comment period is drastically insufficient to provide interested parties enough time to review the IA and use the EIR/EIS to understand its effects on BDCP operations. Interested parties will need to both review the draft IA and determine how it alters 40,000+ pages of BDCP documents. Accomplishing this type of review in a mere 60 days is impossible. Limiting the draft IA comment period to 60 days will effectively ensure that interested parties are incapable of meaningfully reviewing the totality of the BDCP.

In order to provide meaningful public review, the BDCP federal and State agencies need to hold a new Draft BDCP comment period with *every* BDCP document—Implementing Agreement, Biological Assessments and Biological Opinions, the draft MOUs between DWR and the Bureau, and Draft BDCP Plan and Draft BDCP EIR/EIS-- available for public review and comment during the same time period. Additionally, the new comment period must remain open for at least four months. NEPA regulation 40 C.F.R. 1502.7 declares that the text of an EIS for "proposals of unusual scope or complexity shall normally be less than 300 pages." Here, there are already 40,214 pages of released documents which represent 20% more pages than the 32 volumes of the last printed edition of the Encyclopedia Britannica. The government's original four month comment period and subsequent two-month extension effectively conceded that extended public review periods are necessary for a project as massive as the BDCP.

Conclusion

The absence of the Draft IA during the Draft BDCP and Draft EIR/EIS comment period has violated NEPA, CEQA, ESA, and NCCPA. These violations have rendered the comment period inadequate to support meaningful public review and comments. In order to remedy these violations, the government must release the Draft IA and open a new, four-month Draft BDCP comment period with every BDCP document available for public review and comment. Beyond these violations of law, the government must open a new public comment period to restore any public confidence in the integrity of the BDCP. It is absurd to expect the public to trust the BDCP process without full disclosure of the project's impacts, costs, contractual relationships, and who will pay those costs.

5. Omission of needed biological assessments and biological opinions from the package of BDCP documents for public review violates NEPA.

As a result of discussion between representatives of EWC member group Friends of the River at a November 7, 2013 meeting with federal agency BDCP representatives, it was confirmed that the factual matters set forth in Friends of the River's September 25, 2013, comment letter are correct. ***First,*** it is correct that the Sacramento River Winter-Run Chinook Salmon is listed as an endangered species under the ESA. Likewise, it is correct that the Central Valley Spring-Run Chinook Salmon, Central Valley Steelhead, Southern Distinct Population Segment of North American Green Sturgeon, and Delta Smelt, are listed as threatened species under the ESA. ***Second,*** it was confirmed that the reaches of the Sacramento River, sloughs, and the Delta that would lose significant quantities of freshwater and freshwater flows through operation of the proposed Twin Tunnels are designated critical habitats for each of these five listed endangered and threatened fish species. ***Third,*** it was confirmed that no Biological Assessment has been prepared and issued by the federal Bureau of Reclamation with respect to the Twin Tunnels project. ***Fourth,*** it was confirmed that no final or

even draft Biological Opinion has yet been prepared by NMFS or USFWS with respect to the impacts of the operation of the Twin Tunnels on the five listed fish species or their critical habitats.

NMFS reiterated its previous "Red Flag" comment in 2013 that the Twin Tunnels threaten the "potential extirpation of mainstem Sacramento River Populations of winter-run and spring-run Chinook salmon over the term of the permit. . . ."[311] In comments on the Administrative Drafts, the EPA explained that "many of these scenarios of the Preferred Alternative 'range' appear to decrease Delta outflow[312], despite the fact that several key scientific evaluations by federal and State agencies indicate that more outflow is necessary to protect aquatic resources and fish populations."[313]

Legal precedent underscores this need: "The goal of the ESA is not just to ensure survival but to ensure that the species recover to the point it can be delisted."[314] Pursuant to the commands of the ESA, each federal agency "shall . . . insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered or threatened species *or result in the destruction or adverse modification of [critical] habitat of such species*. . . ."[315]

And: "[T]he purpose of establishing 'critical habitat' is for the government to carve out territory that is not only necessary to the species' survival but also essential for the species' recovery."[316]

Also: "existing or potential conservation measures outside of the critical habitat cannot properly be a substitute for the maintenance of critical habitat that is required by Section 7 [of the ESA, 16 U.S.C § 1536]."[317]

The failure to prepare the ESA and National Environmental Policy Act (NEPA) required Biological Assessments and Opinions analyzing the threatened adverse modification of critical habitats renders the draft EIR/EIR essentially worthless as an environmental disclosure and informational document under NEPA. The draft EIR/EIS is also premature and unlawful under the ESA.

The ESA Regulations require that "Each Federal agency shall review its actions *at the earliest possible time* to determine whether any action may affect listed species or critical habitat. If such a determination is made, formal consultation is required. . . ."[318] The Biological Assessments and Biological Opinions are the written documents that federal agencies must prepare during the ESA consultation process. The NEPA Regulations require that "To the fullest extent possible, agencies shall prepare draft environmental impact statements concurrently with and integrated with

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

[312] BDCP EIR/EIS, Chapter 5, *Water Supply*, p. 5-82.

[313] EPA Comments on Administrative Draft EIR/EIS, III Aquatic Species and Scientific Uncertainty, Federal agency Release, July 18, 2013.

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

[315] 16 U.S.C. § 1536(a)(2)(emphasis added).

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

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

[318] 50 C.F.R. § 402.14(a); and *Karuk Tribe of California v. U.S. Forest Service*, 681 F.3d 1006, 1020 (9th Cir. 2012) (en banc)(emphasis added), *cert. denied*, 133 S.Ct. 1579 (2013).

environmental impact analyses and related surveys and studies required by the... Endangered Species Act...."[319] "ESA compliance is not optional," and "an agency may not take actions that will tip a species from a state of precarious survival into a state of likely extinction."[320]

The Biological Opinion is to determine "whether the action, taken together with cumulative effects, is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat."[321]

Consequently, against this threat of extinction, conducting the draft EIR/EIS public review and comment stage without Biological Opinions or even Biological Assessments and draft Biological Opinions, leaves the public in the dark and violates both the ESA and NEPA. Conducting the NEPA environmental draft process prior to and in a vacuum from the ESA consultation process violates the ESA command to carry out the ESA process "at the earliest possible time" and violates the NEPA command to conduct the NEPA and ESA processes "concurrently" and in an "integrated" manner.

The public and the decision-makers now have what they do not need: 40,000 pages of advocacy from the consultants including self-serving speculation that the adverse effects of reducing flows in the Sacramento River, sloughs, and Delta will be offset. ***The public and the decision-makers do not have what they do need and are entitled to by law***: the federal agency Biological Assessments and Biological Opinions required by the ESA and NEPA.

This draft EIR/EIS circulated prior to preparation and circulation of federal agency prepared Biological Assessments and Biological Opinions is "so inadequate as to preclude meaningful analysis,"[322] because the public and decision-makers do not have the basic federal agency analyses required by the ESA to determine whether DWR's preferred alternative—the Twin Tunnels—is even a lawful alternative, let alone an environmentally acceptable alternative.[323]

D. The EIR/EIS fails to properly explain and justify the underlying purpose and need for the Bay Delta Conservation Plan.

An Environmental Impact Statement must explain the "*underlying* purpose and need" to which the lead agency responds in proposing alternatives, including the proposed action.[324] It is important because it explains why the agency and the Applicants here undertake the proposed action and what they hope to achieve by doing it.

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[319] 40 C.F.R. § 1502.25(a).

[320] *National Wildlife Federation v. National Marine Fisheries Service,* 524 F.3d 917, 929-30 (9th Cir. 2008).

[321] 50 C.F.R § 402.14(g)(4).

[322] 40 C.F.R. § 1502.9(a).

[323] The Environmental Water Caucus further incorporates by reference letters of E. Robert Wright, Senior Counsel, Friends of the River, to Bay Delta Conservation Plan officials with the dates of November 18, 2013; August 13, 2013, and June 19, 2013. They are Attachments 3, 4, and 5 to these EWC Comments. These letters indicate low little substantive change in the quality of documents released by and about BDCP during 2013 occurred by the December 2013 release of the public review draft documents.

[324] 40 CFR 1502.13. Emphasis added.

Getting the purpose and need statement[325] right is crucial in and of itself. It also shapes the definition, screening and selection of alternatives. Review of a "reasonable range" of alternatives is vital under both CEQA and NEPA because meaningful comparisons between different courses of action that address the purpose and need statement are essential for good decision making.

The EIR/EIS states:

> One of the primary challenges facing California is how to comprehensively address the increasingly significant and escalating conflict between the ecological needs of a range of at-risk Delta species and natural communities that have been and continue to be adversely affected by a wide range of human activities, while providing for more reliable water supplies for people, communities, agriculture, and industry.[326]

BDCP EIR/EIS's purpose and need statement then moans and groans: Conflicts between species protection and Delta water exports have become more pronounced, says EIR/EIS Chapter 2. Recent outcomes of "continuing court decisions" over CVP/SWP operations criteria (apparently a reference to the string of decisions coming from the federal Eastern District Court in Fresno over the Delta smelt and salmonid biological opinions. Other factors affect the Delta—continuing land subsidence, "seismic risks and levee failures," and "sea level rise"exacerbate these conflicts, claim the Applicants, rendering conditions in the Delta "unsustainable." And so, "fundamental system change to the current system is necessary" to achieve the two co-equal goals of providing a more reliable water supply for California and protecting, restoring and enhancing the Delta ecosystem.

This bluster and hand-waving vents the Applicants' frustrations with recent court decisions, but does little to advance understanding of the project or justify BDCP's purpose and need. These decisions increased needed protections for endangered Delta smelt and salmonids, protections, actions that were not otherwise forthcoming from the State Water Resources Control Board (whose fiduciary responsibility it is to protect public trust resources in the state's water ways). These decisions ultimately aim to make the CVP and SWP operations better able to comply with the California Constitution's ban on wasteful and unreasonable uses and methods of diversion of water. The purpose and need statement resorts to unsubstantiated assertions about seismic risks to spread fear of earthquakes and of adaptation to sea level rise. It fails utterly to consider whether the legislatively-established co-equal goals can be achieved ***without*** resorting to further alterations of Delta hydrology and ecology. As noted in Section VI above, it provides no analysis of how and whether the Applicants have acted to reduce reliance on Delta imports.

The Purpose and Need statement incorrectly and inaccurately conflates the Applicants' desires for a more reliable water supply from the Delta with California's diverse water supply needs. The analysis of California's future water supply needs must rely on a more detailed and careful evaluation of supply, demand, cost of alternative water supplies, and price (i.e., water rates). Neither

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[325] "Purpose and need" and "purpose and need statement" are NEPA-related terms. The similar concept is the statement of project objectives referred to in CEQA. Our comments intend that the NEPA terms mean both "purpose and need" as well as project objective statements that are required in these environmental review documents.

[326] BDCP EIR/EIS, Chapter 2, *Project Objectives and Purpose and Need*, p. 2-1, lines 12-16. See also footnote 251 above.

Appendix 1C of the EIR/EIS, nor the EIR/EIS chapters, nor the Bay Delta Conservation Plan provide such an analysis.[327]

What is BDCP's underlying purpose? At this point in our comments, we have long since documented why BDCP will fail to "restore, enhance, and protect" the Delta ecosystem: salinity will increase, residence time of water will increase, modeling results for toxic contaminants in fish tissues like methylmercury and selenium increase, Delta outflows will decrease, the low salinity zone measured by X2 will migrate further east (after climate change effects are accounted for), rates of entrainment for Delta smelt in the north Delta are likely to increase, and at least four different races of salmonid smolts are expected to have decreased survival rates through the Delta over the course of North Delta diversion operations through 2060.

The statements of purpose and need and project objectives fail to explain *why* some kind of conveyance is needed, emotional bluster aside. Must *more reliable supplies* have to mean *more supplies?* Why is greater reliability of Delta supplies needed, and must they come from the Delta? Are there more supplies BDCP is not directly disclosing in its Plan and EIR/EIS? Reliable water supplies can have engineering, climatic, legal, technological, and economic (in terms of supply, demand and price) meanings. With so many ways to interpret the phrase "water supply reliability," BDCP's purpose and need statement obscures the underlying purpose and need for BDCP and the Twin Tunnels project.

BDCP fails to adequately inform lay readers and decision makers alike about what alternative approaches to water supply reliability may entail, whether some are more ecologically effective, more cost-effective, more technologically and climatically workable, or have more senior water rights to support more reliable water development.

The BDCP indicates in its economic analysis on one hand that the project would maintain and restore the ability of the state and federal water projects to divert and export similar levels of water over time. The No Action Alternative is expected to yield average Delta exports of about 4.4 million acre-feet annually, which is lower than current average Delta exports of the last 15 years of about 5.5 million acre-feet. BDCP EIR/EIS's nine alternatives would have annual Delta exports ranging between 3.1 to 5.5 million acre-feet on average.[328] Alternative 4's four operational scenarios would range from 4.4 to 5.4 million acre-feet.

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[327] *Ibid.*, Chapter 1, Appendix 1C, *Demand Management Measures.* This appendix concludes: "Demand for water continues to be much greater than available supplies if only because many groundwater basins south of the Delta are in overdraft. Aggressive implementation of [demand management measures] could contribute towards reducing this imbalance, but the reductions from even the most aggressive conservation programs will not be enough to eliminate the water supply deficit....[M]eeting the water supply and environmental objectives of the BDCP will require the implementation of a wide range of environmental and water management programs. Water conservation is a critical element in the portfolio programs, and the objectives of the BDCP will only be achieved through implementing a comprehensive water supply and environmental management, not solely through water conservation." The appendix fails to consider cost and price issues associated with water usage. And its characterization of the limitations of conservation is an argument employing a straw man: no one seriously believes that we can conserve our way out of the state's future water demand issues, just as no one seriously believes that we can build enough storage and conveyance to eliminate those same issues.

[328] *Ibid., Executive Summary,* Table ES-11, p. ES-55.

BDCP 778

Figure 14

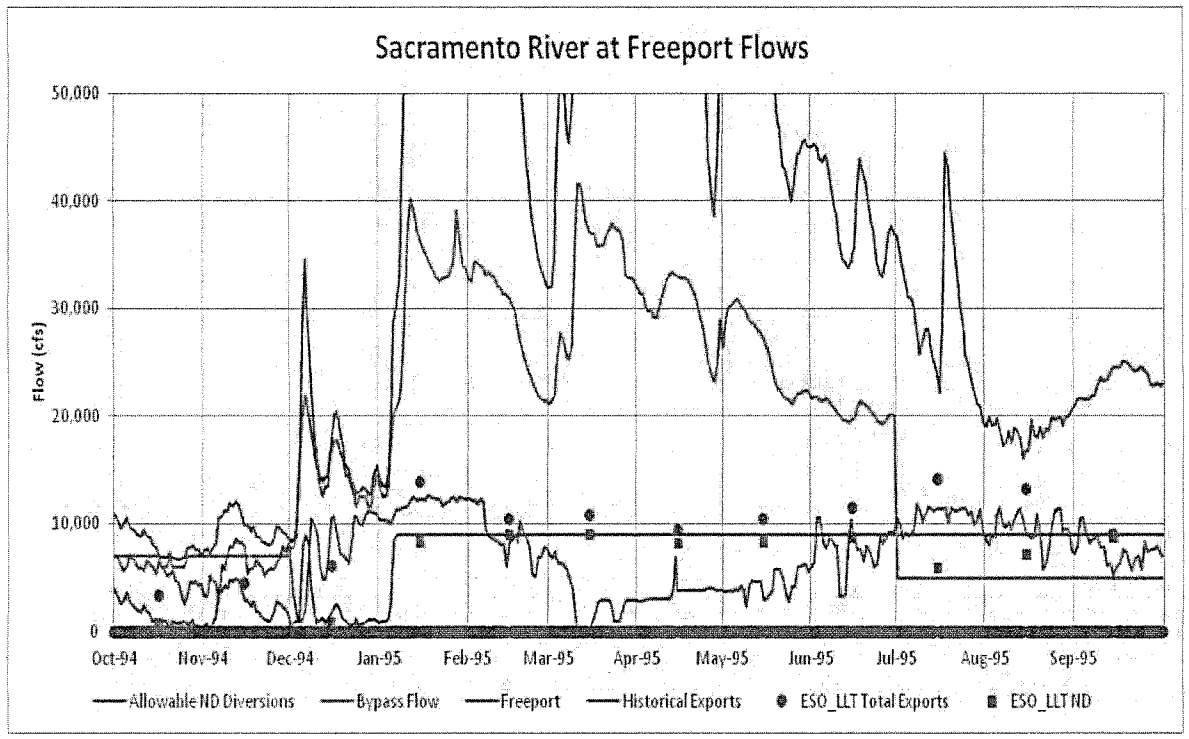

Figure C.A-58. Sacramento River at Freeport Daily Flow and Allowable BDCP North Delta Diversions for ESO (9,000 cfs capacity) with Bypass Flow Requirements in WY 1995

Figure 5.B.4-4 in Figure 1 of Section III showing average total BDCP exports by water year type, indicates that the Twin Tunnels' North Delta diversions will significantly increase total exports in wet and above normal years. In the Chapter 5, *Effects Analysis*, Appendix 5C, Attachment 5C.A, BDCP illustrates (Figure 14 above) how North Delta diversions could be routinely used to export *more* supplies during wet and above normal years than it now does. This appendix uses water year 1995 to describe how, had the North Delta Diversions been in operation that year with its attendant bypass and operational flow criteria, full capacity diversions of 9,000 cfs (red line at left) could occur from early January through September of that year, while without the tunnels, south Delta exports (blue line at left) were considerably less than that capacity from March through May.[329]

BDCP's purpose and need statement fails to clarify, disclose, and distinguish that one *underlying* purpose of BDCP's North Delta Diversions is to *retain* average exports over time compared with today while another purpose is to actually *increase* exports in wet and above normal years). We further examine this confusion in BDCP's purpose and need statement below.

BDCP also fails to disclose as an underlying purpose its intention to use the Twin Tunnels facility (the facilities identified in "Conservation Measure 1") to increase water market transfer activity whenever tunnels and pumping capacity permits. This will be especially operable, as appendices to

[329] BDCP, Appendix 5, Attachment 5C.A, *CALSIM and DSM2 Modeling Results for the Evaluated Starting Operations Scenarios*, Figure C.A-58, p. 5C.A-113.

Chapter 5 (EIR/EIS) acknowledge, when State Water Project allocations are 50 percent of Table A amounts or below, or CVP agricultural allocations are 40 percent or below, or when both projects' allocations are at or below these levels. Below these thresholds, according to BDCP, "supplemental demand" occurs among state and federal water contractors, indicating that a water transfer program for cross-Delta transfers will be inaugurated by the Bureau of Reclamation and the Department of Water Resources. We comment later about related omissions from the EIR/EIS's setting/affected environment and impact/effect analyses that follow from BDCP omitting this as a key purpose of the Twin Tunnels project and Conservation Measure 1. These omissions affect Chapters 5 (water supply) and 7 (groundwater) of the EIR/EIS chiefly.

Also, as we have pointed out above in our discussion of entrainment risk and fish screens related to the North Delta intakes, that the BDCP and its Twin Tunnels project fails to meet the stated purpose of "reducing the adverse effects on certain listed species due to diverting water." Placement of the North Delta intakes in the lower Sacramento River places a large amount of pumping and diversion capacity in the midst of both listed salmonids' migratory corridor and in close proximity to the Low Salinity Zone, which provides important habitat for listed pelagic species like Delta smelt and longfin smelt. None of these species fare better under BDCP, according to BDCP modeling results.

In our discussion of funding assurances, we also pointed out that the economic demand for Twin Tunnels water, which will be costly, may be much less than the Applicants anticipate. Their purpose and need statement have, in particular, failed completely to evaluate the need for the project by conducting a comprehensive economic analysis of future demand for Twin Tunnels water from both the municipal/industrial and agricultural water-user sectors. To the contrary, we have cited sources from among Metropolitan Water District of Southern California member agencies that indicate demand may not be nearly as strong as the Applicants hope.

Economist Jeffrey Michael of the University of the Pacific has also made a detailed critique of the BDCP economic analysis' treatment of demand for Twin Tunnels water. Dr. Michael found that BDCP employed outdated growth forecasts for southern California counties to overestimate water shortages that BDCP proposes to address.[330] Our review of the November 2013 documents find no changes to the BDCP purpose and need that would significantly change Dr. Michael's view.

E. The EIR/EIS fails to provide an adequate and reasonable range, descriptions, and justifications of alternatives.

Fundamental threshold violations of the National Environmental Policy Act (NEPA), California Environmental Quality Act (CEQA), and the Endangered Species Act (ESA) are being carried out right now by the Bay Delta Conservation Plan (BDCP) process. The lead federal and State agencies have failed to develop a range of reasonable alternatives to new upstream conveyance such as the massive Twin Tunnels. The Twin Tunnels would increase rather than decrease the capacity for exports from the San Francisco Bay-Delta by diverting enormous quantities of freshwater from the lower Sacramento River upstream from the Delta near Clarksburg.

1. The EIR/EIS fails to provide a reasonable range of alternatives.

Both CEQA and NEPA require that environmental review provide a reasonable range of alternatives in light of the purpose and need for the project. The BDCP EIR/EIS's screening process over several years eventually settled on nine alternatives besides the No Action Alternative. The Applicants also created eight separate operational scenarios, A through H, reflecting different operational modeling

[330] Jeffrey Michael, "New BDCP Economic Studies Use Outdated Growth Forecasts to Project an Artificial Water Shortage," *Valley Economy* (blog), June 4, 2013. Accessible online 11 April 2014 at http://valleyecon.blogspot.com/2013/06/new-bdcp-economic-studies-use-outdated.html.

assumptions for each of the nine alternatives. To complicate matters more, Alternative 4 (the NEPA-preferred alternative) has four distinct operational modeling scenarios H1 through H4. So, there are really 12 alternatives total, and 11 operational scenarios overall.

Of these alternatives, just one is for a "through-Delta" approach to conveyance. One relies on an operational scenario that attempts to meet a Delta inflow criterion of 55 percent of unimpaired flow, instead of the 75 percent of unimpaired flow Delta outflow criterion called for by the State Water Resources Control Board in its 2010 Delta flow criteria report.[331] Another alternative contains just one North Delta intake and one tunnel, but excises the other water program innovations called for in the original "Portfolio Alternative" concept which would take the difference in cost with Alternative 4 (the preferred alternative) and invest it in a comprehensive set of statewide water conservation, recycling, storm water capture, desalination, and other water supply investments that reduce reliance on the Delta for imported water.

A reasonable and feasible alternative that should have been considered is one that reduces reliance significantly on the Delta for imported supplies ***without relying on new conveyance schemes.*** Alternative 8 (the dual conveyance design with Scenario F operational modeling criteria including 55 percent of unimpaired flow for Delta outflow) does not meet this criterion because it relies on investment in an expensive dual conveyance approach but its operational modeling scenario restricts Delta exports.

The EWC offered that its Reduced Exports Plan could serve as an alternative that did not rely on new conveyance. It would limit Delta exports to much the same level (about 3 million acre-feet on average annually) as that of Alternative 8 but would not include investment in a dual conveyance (Twin Tunnels) scheme. EWC staff transmitted the request for consideration twice to BDCP director Jerry Meral on December 17, 2012, and again on February 11, 2013.

Moreover, as we established in Sections III and VI of our comments, the Bay Delta Conservation Plan does not "improve the conveyance system" in the Delta. "Improvement" should improve not only water supply reliability but also protect, enhance, and restore Delta ecosystems as co-equal in legal status.

2. The EIR/EIS provides only "slight" differences in operational scenarios for the BDCP alternatives.

The BDCP EIR/EIS itself acknowledges that the differences among most of the alternatives are slight. The basis for the operational scenarios is the fact that the State Water Resources Control Board regulates existing Delta facilities of the CVP and SWP according to water quality and operational objectives. In addition, the US Fish and Wildlife Service and National Marine Fisheries Service issued biological opinions that require additional operational regulations on Delta facilities. BDCP's operational scenarios (as modifications to alternatives) would "require additions to, modification of, or elimination of some of the existing Delta operational rules." Changes in the operational rules may cause changes in Delta channel flows, outflows and exports, as well as to the fate of fish and ecosystems and other human and non-human beneficial users in the Delta. BDCP EIR/EIS's Executive Summary further states:

> Because each alternative has a *slightly different* set of applicable rules...and varying north Delta intake capacities, each BDCP alternative would have *slightly different* Delta operations in many months. Although the monthly Delta inflows, Delta channel flows, Delta outflow, and Delta exports may be *slightly different*

331

for each BDCP alternative (as simulated using the CALSIM model), the basic changes in flow (patterns)...would likely cause differences in the aquatic habitat conditions for covered species..."[332]

And indeed, ***those differences are relatively slight when it comes to measures like Delta outflow.*** Table ES-11 shows that for Alternatives 1 through 9 (inclusive), Delta outflow would vary only within the range of a 7 percent decrease to a 9 percent increase. The highest outflow registers from Alternative 8, which applies a 55 percent of unimpaired flow criterion to achieve this modest 9 percent increase in Delta outflow, well below the 75 percent of unimpaired flow called for in the Delta Flow Criteria Report of 2010. No attempt is made in the Executive Summary to summarize what effect on fish these "slight" changes in Delta outflow would have.

While the percent increases for Delta exports that would result for each alternative are in the double digits, a more meaningful measure is the near zero-sum relationship that visible in a comparison of the magnitudes of Delta outflow and Delta export change. Table ES-11 also reveals that for most dual conveyance alternatives, the decrease in Delta outflow is nearly all accounted for by the increase in Delta exports, ***again with slight exceptions*** (Table 1).

Table 1

Alternative	Change in Delta Outflow (1,000s of Acre-feet)	Change in Delta Exports (1,000s of Acre-feet)
1	(1,081)	1,025
2	(647)	636
3	(985)	938
4-H3	(516)	505
4-H1	(982)	821
4-H2	(463)	269
4-H4	(123)	(27)
5	(347)	346
7	683	(682)
8	1,447	(1,329)

Source: BDCP, *Executive Summary*, Table ES-11, p. ES-55. Values in parentheses represent decreases in flow or exports.

We recognize that Alternative 9 would change existing Delta flow patterns dramatically. However, the EIR/EIS (understood as the totality of the BDCP conservation plan, appendices, etc.) does not study this alternative and its effects on fish nearly to the degree that the dual conveyance or isolated conveyance alternatives are studied. Even BDCP acknowledges, in summarizing Table ES-11 that

[332] BDCP, *Executive Summary*, p. ES-50, lines12-18. Emphasis added.

BDCP 778

"Although there were some larger changes in monthly reservoir release flows or Delta outflows and exports, *these annual average values show that the BDCP alternatives would result in only moderate changes in Delta outflow or south Delta exports.*"[333]

In our view, BDCP Applicants have not complied with the CEQA and NEPA requirements to consider and evaluate a reasonable range of alternatives. BDCP has instead come up with a number of alternatives that for the most part accomplish their stated purpose and need through narrowly optimizing operational scenarios among a dozen largely similar designs off of three primary conveyance alignments (West Delta, tunnel, and isolated eastern Delta). ***They have accomplished a feat of engineering optimization, but failed to meet CEQA and NEPA requirements to select and analyze a reasonable range of alternatives.***

3. The EIR/EIS provides no substantive variation in either biological goals and objectives or conservation measures 2 through 22 as part of assembling reasonable alternatives to the proposed action alternative.

The lack of alternatives on the habitat restoration and other stressors side of the Bay Delta Conservation Plan is the same sort of CEQA and NEPA failure, if not even worse. The same twenty other conservation measures (numbers 2 through 21) are essentially retained throughout the consideration of BDCP alternatives. Table ES-8 in the Executive Summary of the EIR/EIS demonstrates that, like the BDCP operational scenarios, ***there are only slight differences between alternatives when it comes to the habitat restoration ("conservation") elements of BDCP.*** Variations in the extent of tidal habitat, seasonally inundated floodplain, and channel margin habitat affecting Alternatives 5 and 7 only are noted in this table. Alternative 9, the "through-Delta" alternative, would make no alteration in the alignment of water ways, so its conservation elements are uniformly "similar but expected different locations for restoration or enhancement actions could be chosen."[334]

The success of tidal wetland habitat restoration depends on the likelihood of tidal processes advecting food from shoreline locations out into open water to provide benefits to Delta smelt, and longfin smelt. As we showed in Section III above, BDCP's optimistic level of food export is not supported by most Delta estuarine ecologists. One important reason is the presence of the nonnative invasive overbite clam population, which filter feeds the open water column intensively every day and can strip it free of pelagic foodstuffs on which the smelts rely.

Given that BDCP fails utterly to protect, restore and enhance populations of listed species, nor can it be certain that its habitat restoration conceptual plans will work as intended, its approach to habitat conservation plan alternative elements is even narrower than the operational scenarios concocted for conveyance alignment alternatives that are only "slightly different" from each other.

In addition to this extremely narrow range of "conservation" elements in the alternatives, the "other stressors" conservation measures are similarly straitjacketed. These "conservation measures" address:

- Methylmercury management
- Nonnative submerged and floating aquatic vegetation in tidal habitat restoration
- Dissolved oxygen levels in the Stockton Deep Water Ship Channel
- Predator control on covered fish at hot spots

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[333] *Ibid.*, p. ES-54, lines 27-29. Emphasis added.

[334] *Ibid.*, Table ES-8, p. ES-37.

- Nonphysical fish barriers
- Reduction of "illegal harvest" of covered fish species
- Smelt hatchery
- Urban storm water pollution control
- Reduction of invasive species from recreational vessels
- Fish screen installation on non-project diversions

These are all apparently unchanged across the range of BDCP alternatives. A reasonable range of "other stressor" alternatives, given the scientific uncertainties identified earlier in these comments, would at least include provisions for using flow to manage the overbite clam (*Potamocorbula amurensis*) and manage selenium in the Plan Area and the Delta's Central Valley watershed (mainly the western San Joaquin Valley). This would entail developing a conservation measure containing different levels of flow variation aiming to consider which would reduce habitat suitability for the overbite claim while also creating hydrologic conditions in which selenium partitioning would be less likely to occur.

No range of such reasonable alternatives are developed, let alone considered, in the BDCP EIR/EIS. This is deficiency is fatal to the adequacy of the EIR/EIS.

4. The EIR/EIS process failed to Develop any Alternatives Increasing Flows by Reducing Exports

Of the 15 "action alternatives" evaluated in the Draft EIR/EIS, all save one alternative, Alternative 9 —Through-Delta—would construct, and then operate for decades new upstream conveyance ranging from a diversion capacity of 3000 cubic feet per second (cfs) to 15,000 cfs.[335] Nine of the so-called "alternatives" have a North Delta diversion capacity of 15,000 cfs.[336] The Preferred Alternative 4 is claimed to have a capacity of 9000 cfs but as we have pointed out previously, that claim is false as the Twin Tunnels have the capacity of 15,000 cfs or greater and it would be relatively easy to add two new intakes down the road to use the full capacity of the Tunnels.[337]

The BDCP process also claims to have considered 11 "alternatives" as "take" alternatives pursuant to the ESA. (BDCP Plan, Chapter 9, Alternatives to Take, table 9-7, p. 9-20). Of the 11 "take alternatives" all save one, alternative F, Through Delta, would construct, and then operate for decades new upstream conveyance by way of Twin Tunnels similar to the descriptions of the "alternatives" contained in the Draft EIR/EIS. The Preferred Alternative 4 from the Draft EIR/EIS is referred to as the BDCP Proposed Action in Chapter 9 of the Plan.

To be clear, 14 of the so-called 15 "alternatives" in the Draft EIR/EIS and 10 of the so-called 11 "take alternatives" are not true alternatives at all. They are all peas out of the same pod that would create new upstream conveyance to divert enormous quantities of freshwater away from the lower Sacramento River, sloughs, and San Francisco Bay-Delta for export south. There is nothing new in this blinding of the BDCP process to development or at least consideration of a range of reasonable alternatives to construction and operation of new upstream conveyance. Three years ago the National Academy of Sciences declared in reviewing the then-current version of the draft BDCP that: "[c]hoosing the alternative project before evaluating alternative ways to reach a preferred outcome

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[335] Draft EIR/EIS, Executive Summary, Table ES-5, pp. ES 28-30.

[336] *Ibid.*

[337] Friends of the River (FOR) August 13, 2013 BDCP comment letter, Attachment 2 to FOR January 14, 2014 BDCP comment letter.

BDCP 778

would be post hoc rationalization—in other words, putting the cart before the horse. Scientific reasons for not considering alternative actions are not presented in the plan."[338]

5. The EIR/EIS failed to consider alternatives developed for the BDCP lead agencies.

In addition to failing to develop a range of reasonable alternatives, the BDCP lead agencies have also failed to even consider reasonable alternatives handed to the State on a silver platter. Friends of the River is a California nonprofit public interest organization devoted to river protection, conservation and restoration. Friends of the River is also a member of the Environmental Water Caucus (EWC). The EWC is a coalition of over 30 nonprofit environmental and community organizations and California Indian Tribes. In our November 18, 2013 comment letter we urged those carrying out the BDCP to review the "Responsible Exports Plan" proposed by the EWC:

> [A]s an alternative to the preferred tunnel project. This Plan calls for reducing exports from the Delta, implementing stringent conservation measures but no new upstream conveyance. This Plan additionally prioritizes the need for a water availability analysis and protection of public trust resources rather than a mere continuation of the status quo that has led the Delta into these dire circumstances. Only that alternative is consistent with the EPA statements indicating that more outflow is needed to protect aquatic resources and fish populations. The EWC Responsible Exports Plan is feasible and accomplishes project objectives and therefore should be fully analyzed in a Draft EIS/EIR."[339]

We specifically pointed out that the plan was online.[340] The failure in the BDCP process to consider the Responsible Exports Plan alternative is inexplicable given that a similar, earlier version of the plan, EWC's "Reduced Exports Plan" of December 2012 was presented by Nick Di Croce, Co-Facilitator of the EWC to then-California Resources Agency Deputy Secretary Jerry Meral and other BDCP agency officers in December 2012 and presented to then-Deputy Secretary Meral again in person on February 20, 2013, in his office in the Resources Agency building. The Reduced Exports Plan had previously been presented in May of 2012 at the Federal/State/NGO meeting in San Francisco. As stated by Co-Facilitator Di Croce in his December 2012 message to Deputy Secretary Meral:

> Now that the project is nearing its EIR/EIS stage, we feel it is important to formally present it [Responsible Exports Plan] to you and request that you get it on the record as an alternative to be evaluated. We have done this with the Delta Stewardship Council and it is included as one of the Delta Plan alternatives being evaluated. As you know, CEQA and NEPA both require a full range of reasonable alternatives to be evaluated. And as far as we know, there are no alternatives being evaluated that do not include new conveyance, except for the No Action alternative; this is certainly not a No Action alternative.[341]

We attached (for BDCP.Comments@noaa.gov) and incorporated by this reference a copy of the 39-page "Responsible Exports Plan" of May 2013 (as well as a copy of the "Reduced Exports Plan" of December 2012) to this comment letter as setting forth a feasible alternative that must be considered in the BDCP process.

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

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

[340] *Ibid.*, p. 3, footnote 1. The EWC Responsible exports Plan was and still is online at http://www.ewccalifornia.org/reports/resonsibleexpltsplanmay2013.pdf.

[341] December 15, 2012 email from Di Croce to Meral.

Actions called for by the Responsible Exports Plan alternative include no development of new upstream conveyance; reducing exports to no more than 3,000,000 acre-feet in all years in keeping with State Water Resources Control Board (SWRCB) flow criteria; water efficiency and demand reduction programs including urban and agricultural water conservation, recycling, storm water recapture and reuse; reinforced levees above PL 84-99 standards; installation of improved fish screens at existing Delta pumps; elimination of irrigation water on drainage-impaired farmlands south of the Bay-Delta; return the Kern Water Bank to State control; restore Article 18 urban preference; restore the original intent of Article 21 surplus water in SWP contracts; conduct feasibility study for Tulare Basin water storage; provide fish passage above and below Central Valley rim dams for species of concern; and retain cold water for fish in reservoirs.

The Responsible Exports Plan alternative calls for a statewide benefit-cost analysis to determine economic desirability of any plan or alternative; water availability analysis to align water needs with availability; protecting the Delta ecosystem pursuant to public trust obligations; and meeting NCCP recovery standards for listed fish species. Other obvious alternatives would include actions ranging from meeting ESA recovery standards for listed fish species to halting the planting of almond orchards that cannot be fallowed in dry years on desert lands receiving export waters to consideration of the development of desalinated water supplies as is being done in the San Diego County Water Authority.[342]

Instead of enthusiastically embracing the duties mandated by our environmental laws to develop and consider a range of reasonable alternatives the BDCP proponents have concealed or misrepresented reasonable alternatives presented to them. The EWC Responsible Exports Plan has simply been concealed from the public and ignored. It is invisible in the alternatives chapters in the BDCP Plan and Draft EIR/EIS, nor is its consideration and rejection recorded in Appendix 3A of the EIR/EIS.

In addition to the EWC alternative, the Natural Resources Defense Council (NRDC) and several other environmental organizations and public agencies presented and requested consideration of the conceptual "Portfolio" alternative in December 2012. Like the EWC Plan, the Portfolio alternative emphasizes investment in such modern measures as

> local water supply tools including conservation, water recycling, and other approaches, [that] can provide reliable, sustainable and plentiful new sources of supply that will also be cost-effective over the long run. These sources can also be provided rapidly through additional investments. There is approximately as much new water available from these new water supply sources as is currently exported from the Delta." (Portfolio alternative).

Unlike the EWC Plan, the Portfolio alternative also proposes a new 3,000 cfs tunnel conveyance. The California Resources Agency began disparaging the Portfolio alternative almost immediately on its website. Then, after the release of the 40,000 pages of BDCP documents in December 2013, the government agencies running the BDCP website stopped posting any correspondence or comments from the public. The overt hostility of the State BDCP agencies to any evaluation and explanation of alternatives to the Twin Tunnels is revealed by the spectacle of the February 19, 2014 letter and its attachment from Resources Secretary John Laird to NRDC Litigation Director Kate Poole disparaging the Portfolio alternative. What is ludicrous about this is that the Resources Agency posted its anti-Portfolio advocacy on its website without also posting the Portfolio alternative itself that the Resources Agency complains about.

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[342] BDCP, Chapter 9, p. 9-43.

Like the EWC Responsible Exports Plan alternative, the Portfolio alternative is hidden from public view in the Draft BDCP Plan and Draft EIR/EIS. The logical conclusion is that the Twin Tunnels proponents are afraid of the appeal of the Responsible Exports Plan alternative and the Portfolio alternative if these alternatives are fairly and openly presented in the BDCP documents out for public review and comment.

6. Crashing Fish Populations Cry Out for Evaluation of Alternatives Increasing Flows

There should be a range of alternatives in the BDCP Draft EIR/EIS starting with the Responsible Exports Plan and related variants of that alternative. As pointed out in our previous comment letters several listed fish species are already in catastrophic decline in the subject area.[343] The reaches of the Sacramento River, sloughs, and the Delta that would lose significant quantities of freshwater and freshwater flows through operation of the proposed Twin Tunnels are designated critical habitats for listed endangered and threatened fish species including Winter-Run Chinook Salmon, Central Valley Spring-Run Chinook Salmon, Central Valley Steelhead, Southern Distinct Population Segment of North American Green Sturgeon, and Delta Smelt.

As explained last year by the U.S. Fish and Wildlife Service (USFWS) "There is clear evidence that most of the covered fish species have been trending downward."[344] The National Marine Fisheries Service (NMFS) has pointed out that the Twin Tunnels threaten the "potential extirpation of mainstem Sacramento River Populations of winter-run and spring-run Chinook salmon over the term of the permit. . ."[345] As explained by EPA in its 2013 letter to the SWRCB, "The State Board. . . has recognized that increasing freshwater flows is essential for protecting resident and migratory fish populations."[346] The EPA has also explained with respect to Administrative Drafts of the BDCP documents that "many of these scenarios of the Preferred Alternative 'range' appear to decrease Delta outflow (p. 5-52), despite the fact that several key scientific evaluations by federal and State agencies indicate that more outflow is necessary to protect aquatic resources and fish populations."[347]

The Delta Reform Act requires that:

> For the purpose of informing planning decisions for the Delta Plan and the Bay Delta Conservation Plan, the board [SWRCB] shall, pursuant to its public trust obligations, develop flow criteria for the Delta ecosystem necessary to protect public trust resources. In carrying out this section, the board shall review existing water quality objectives and use the best available scientific information. The flow criteria for the Delta ecosystem shall include the volume, quality, and timing of water necessary for the Delta ecosystem under different conditions.[348]

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[343] March 6, 2014 letter, January 14, 2014, letter and its four attachments.

[344] USFWS Staff BDCP Progress assessment, Section 1.2, p. 4, April 3, 2013.

[345] NMFS Progress Assessment, Section 1.17, 12, April 4, 2013.

[346] EPA letter to SWRCB re: EPA's comments on the Bay-Delta Water Quality Control Plan; Phase 1; SED, pp. 1-2, March 28, 2013.

[347] EPA Comments on Administrative Draft EIR/EIS, III Aquatic Species and Scientific Uncertainty, Federal Agency Release, July 18, 2013.

[348] California Water Code § 85086(c)(1).

The SWRCB did develop flow criteria, published online.[349] The criteria include:

75% of unimpaired Delta outflow from January through June;
75% of unimpaired Sacramento River inflow from November through June; and
60% of unimpaired San Joaquin River inflow from February through June.

These recommendations have not been the basis for the BDCP Twin Tunnels preferred project and would preclude development of the preferred alternative making that alternative infeasible pursuant to water quantity and quality considerations. In contrast, EWC's Responsible Exports Plan alternative reduces exports to increase flows and is designed to comply with SWRCB flow criteria. On the one hand, the BDCP Draft EIR/EIS used but rejected on spurious grounds the SWRCB flow criteria to evaluate alternatives. And on the other hand, the BDCP process does not await completion of pending SWRCB proceedings to update flow objectives.

The basic, flawed BDCP premise that taking water away from the fish and their habitats will be good for them is both nonsensical and contrary to science. As the EPA has noted, "[t]he benefits of increasing freshwater flows can be realized quickly and help struggling fish populations recover."[350] But in any event, it is necessary that the BDCP process develop and consider a range of reasonable alternatives that instead of decreasing Delta outflow, increase Delta outflow. Fair evaluation and consideration of a range of alternatives reducing exports would be a required first step in that process.

Alternatives reducing exports are consistent with the claimed project purpose of "Reducing the adverse effects on certain listed species due to diverting water."[351] Such alternatives are also consistent with findings that "the Delta is now widely perceived to be in crisis. There is an urgent need to improve the conditions for threatened and endangered fish species within the Delta."[352] On the other hand, the stated purpose to "restore and protect the ability of the SWP and CVP to deliver up to full contract amounts"[353] is contrary to the prevalence of "paper water" reflected by "information indicating that quantities totaling several times the average unimpaired flows in the Delta watershed could be available to water users based on the face value of water permits already issued."[354] Alternatives such as the Responsible Exports Plan alternative are 21st century alternatives focused on efficient, cost-effective measures to establish a more reliable water supply such as conservation and recycling as opposed to costly huge new delivery projects further depleting our rivers and the San Francisco Bay-Delta.

Alternative 9, through-Delta, is ***not*** the Responsible Exports Plan alternative. Alternative 9 comes from the BDCP Steering Committee back in 2010.[355] Without new upstream conveyance, Chapter 9 of the BDCP Plan discussing Alternatives to Take does concede that Take alternative F (similar to Draft EIR/EIS alternative 9) would result in less take over the decades of project operations than the BDCP Proposed Action—the Twin Tunnels—of Central Valley fall and late fall-run Chinook Salmon (p. 9-90); Central Valley Steelhead (p. 9-98); Sacramento Splittail (p. 9-104); White and

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[349] See footnote 59 above.

[350] EPA comments on the Bay-Delta Water Quality Control Plan; Phase 1; SED, March 28, 2013 at 1.

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

[352] *Ibid.*

[353] *Ibid.*

[354] *Ibid.*, p. ES-11.

[355] BDCP Draft EIR/EIS Executive Summary, p. ES -30; Chapter 3, p. 3-6

Green Sturgeon (p. 9-112); and Pacific and River Lamprey (p. 9-121). But as we stated in Section III of our comments above, these are relative take assessments, not absolute take amounts. The appendix to Chapter 9 also concedes that the through-Delta alternative would result in greater net economic benefits to the water exporters than would result from development of the Twin Tunnels. (Chapter 9, appendix A, Table 9.A-2 at p. 9.A-4). The BDCP proponents, however, load up their so-called through-Delta alternative with construction features not included in the Responsible Exports Plan and then label the through-Delta alternative as resulting in greater take than the BDCP Proposed Action during construction.

Likewise, Draft EIR/EIS alternative 5 which includes a 3000 cfs Tunnel is not the Portfolio alternative. Alternative 5 (Take alternative D) comes from the BDCP Steering Committee back in 2010.[356]

None of the useful and implementable water supply availability action measures in the Responsible Exports Plan alternative or the Portfolio alternative have been included as alternatives or portions of alternatives in the BDCP Draft EIR/EIS currently out for public review and comment. The BDCP Applicants have "tunnel vision" confined to the sole alternative of developing new upstream conveyance. Moreover, there is no consideration of the opportunity cost that would result from construction and operation of the Twin Tunnels costing many billions of dollars. Those billions of dollars would be lost to developing such modern water supply measures as conservation and recycling.

7. The Absence of a Range of Reasonable Alternatives Violates CEQA, NEPA and the ESA

The failure to include a range of reasonable alternatives violates CEQA. An EIR must " describe a range of reasonable alternatives to the project... which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives."[357] "[T]he discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly."[358] Recirculation of a new Draft EIR/EIS will be required by CEQA Guidelines section 15088.5(a)(3) because the Responsible Exports Plan alternative and other alternatives that would reduce rather than increase exports have not been previously analyzed but must be analyzed as part of a range of reasonable alternatives.

In addition, EIR conclusions must be supported by substantial evidence. "Argument, speculation, unsubstantiated opinion or narrative" "does not constitute substantial evidence."[359] All that the BDCP Draft EIR/EIS contains to support the Preferred Project alternative is argument, speculation, unsubstantiated opinion, narrative and saying "we don't know." For example, the Draft EIR/EIS made "no determination (ND)" findings under NEPA as to whether the Twin Tunnels, even after "mitigation," would have adverse impacts on spawning, incubation habitat, and migration

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[356] BDCP Draft EIR/EIS Executive Summary, p. ES-29.

[357] 14 Code Cal. Regs (CEQA Guidelines) § 15126.6(a).

[358] CEQA Guidelines, § 15126.6(b).

[359] CEQA Guidelines, § 15384.

conditions for winter-run Chinook salmon[360] and spring-run Chinook salmon[361]; and migration conditions for fall-run Chinook salmon[362], steelhead[363], green sturgeon[364], and white sturgeon.[365] A new Draft EIR/EIS must be prepared and recirculated because "the draft EIR[/EIS] was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded."[366]

The rules under NEPA are similar. Under the NEPA Regulations, "This [alternatives] section is the heart of the environmental impact statement. The alternatives section should "sharply" define the issues and provide a clear basis for choice among options by the decision-maker and the public.[367] The EIS alternatives section is to "Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated."[368] Moreover, if "a draft statement is so inadequate as to preclude meaningful analysis, the agency shall prepare and circulate a revised draft of the appropriate portion. The agency shall make every effort to disclose and discuss at appropriate points in the draft statement all major points of view on the environmental impacts of the alternatives including the proposed action."[369]

Instead of discussing all major points of view, lost in the 40,000 pages of BDCP Plan and Draft EIR/EIS advocacy and speculation by the consultants who prepared the documents are any alternatives reducing exports and increasing flows instead of constructing and operating expensive new upstream diversions with the capacity to increase exports and reduce flows. Under NEPA as well as CEQA, recirculation of a new Draft EIR/EIS will be required because of the extreme deficiencies in the Draft EIR/EIS out for public review at this time. The deficiencies in the Draft EIR/EIS cannot and will not be evaded by responses to comments in a Final EIR/EIS.

With respect to the ESA, we have repeated several times over the past year that the failure of the federal agencies to have prepared the ESA required Biological Assessments and Opinions violates both the ESA Regulations[370] "at the earliest possible time" requirement and the NEPA Regulations[371] "concurrently with and integrated with" requirement.[372] The missing Biological Assessments and

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[360] Draft EIR/EIS, Executive Summary p. ES-73.

[361] *Ibid.*, p. ES-75.

[362] *Ibid.*, p. ES-77.

[363] *Ibid.*, p. ES-79.

[364] *Ibid.*, p. ES-81.

[365] *Ibid.*, p. ES-83.

[366] CEQA Guidelines § 15088.5(a)(4).

[367] 40 C.F.R. § 1502.14.

[368] § 1502.14(a).

[369] § 1502.9(a).

[370] 50 C.F.R. § 402.14(a).

[371] 40 C.F.R. § 1502.25(a).

[372] FOR January 14, 2014 comment letter and its four attachments.

Biological Opinions would be essential to any meaningful public review and comment on a project claimed to be responsive to crashing fish populations.

As conceded by BDCP Chapter 9, Alternatives to Take, the analysis of take alternatives must explain "why the take alternatives [that would cause no incidental take or result in take levels below those anticipated for the proposed actions] were not adopted."[373] Here, the lead agencies failed to even develop let alone adopt alternatives reducing exports and increasing flows to eliminate or reduce take. The agencies ignored the Responsible Exports Plan (Reduced Exports Plan version) alternative and the Portfolio alternative that were handed to them on a silver platter a full year ***before*** they issued the Draft Plan and Draft EIR/EIS for public review and comment.

In short, the fundamental flaws in the alternatives sections in the BDCP Draft EIR/EIS and Chapter 9 of the BDCP plan have led to a Draft EIR/EIS and Alternatives to Take analysis so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment is precluded."

The most important and fundamental planning decision in the history of the Delta will be whether or not to on the one hand finally begin to reduce Delta export reliance on the Delta so its ecosystems and listed fish species may recover, or on the other hand to develop massive, new Twin Tunnels conveyance. An epic choice will be made between those two basic options. The BDCP Plan and Draft EIR/EIS are at this time fatally deficient for informing this epic choice. At stake is whether five or more endangered and threatened species of fish go extinct just to increase Delta exports. Delta exports may come and go, but extinction is forever.[374]

8. The EIR/EIS fails to provide alternative descriptions at an equal level of detail.

The Bay Delta Conservation Plan *is* the proposed action description for the EIR/EIS. It contains about 9,000 pages, including appendices and attachments. Chapter 8 discusses alternatives to take, but these alternatives to take differ from the alternatives to the EIR/EIS. These differences are briefly described and summarized. But the bulk of the 9,000 pages is spent describing and analyzing the proposed action alternative, which is the Bay Delta Conservation Plan with its Twin Tunnels project as "Conservation Measure 1." By contrast, the entirety of EIR/EIS Chapter 3, Description of Alternatives is 212 pages. While Alternative 4 (the proposed, preferred action) is provided with a "project-level" analysis that amounts to nearly 9000 pages, the other alternatives are provided only with what is contained in Chapter 3 and a sequence of Map Books for each alternative's alignment. There is no effects analysis or similar list of covered actions. This violates NEPA's requirement that alternatives be considered at an equal level of detail.

9. The EIR/EIS fails in its "project-level" analysis of Conservation Measure 1 (the Twin Tunnels project) because it omits important details.

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[373] BDCP Plan, Chapter 9, pp. 9-1, 9-2.

[374] Comments to this point on the inadequacy of BDCP alternatives being inadequate are also reported in the letter from E. Robert Wright, Senior Counsel, Friends of the River to BDCP officials, "Comment Letter re Failure of BDCP Draft Plan and Draft EIR/EIS to Include a Range of Reasonable Alternatives Including the Responsible Exports Plan Submitted by the Environmental Water Caucus," May 21, 2014. Accessible online at http://www.friendsoftheriver.org/site/DocServer/Cmt_814.pdf?docID=8701.

Despite being listed in specifications in Chapter 4 of the BDCP, fish screens are not shown on either schematic site plans or conceptual renderings of North Delta intake structures[375], though general specifications are described in the project description (that is, Chapter 4 of the BDCP) and the fish screens are claimed by BDCP to be important mitigations of the Intakes' potential effects on covered species.[376]

Moreover, the "project-level" designs that are provided are typically "schematic" or "conceptual" and do not represent near-construction phase treatments of the Twin Tunnels project in "Conservation Measure 1." Public statements by BDCP and DWR officials regularly still indicate that even after eight years in the planning stages, the Twin Tunnels project portion of BDCP is only 5 to 10 percent designed at this point. The map books showing alignment for each action alternative fails to provide sufficient detail for use of the BDCP EIR/EIS in obtaining various other permits besides incidental take permits, such as streambed alteration permits from the California Department of Fish and Wildlife, or the wetlands alteration permits that would be needed from the US Army Corps of Engineers.

The EIR/EIS also fails to provide adequate project-level detail about neighboring water right holders in the immediate vicinity of the North Delta Intakes and at various points along the alignment. The State Water Board will require information like this in order to make findings as to whether other water right holders in the Delta may be injured or not by construction and operation of the Twin Tunnels project of "Conservation Measure 1." This is needed to show that the project complies with the "no injury rule" of California water rights law. BDCP must comply with all applicable laws, as required in the Implementing Agreement.

10. The EIR/EIS lacks information sufficient to satisfy statutory findings needed to issue incidental take permits for any of the alternatives.

Despite its 9,000 page proposed action description and a 30,000 page EIR/EIS, the EIR/EIS lacks information that demonstrates it can make statutory findings under the ESA and Natural Communities Conservation Planning Act required of the fishery agencies that the Bay Delta Conservation Plan can meet its ecological and funding assurances over the 50-year term of the plan. See our comments in Sections III, IV, and VI above. It fails to provide incidental take thresholds for covered and listed fish species, essential information for fishery agencies relying on these documents to issue incidental take permits. It lacks an evaluation of whether adequate ecological and funding assurances are provided in BDCP to satisfy statutory finding requirements under the state and federal endangered species acts.

11. The EIR/EIS fails to provide an adequate project description under CEQA and violates the equal level of detail analysis required under NEPA.

What constitutes the project description for the BDCP and its EIR/EIS? We are confused. Chapter 1 of the BDCP EIR/EIS contains footnote 3 which states:

> The full Draft EIR/EIS should be understood to include not only the EIR/EIS itself and its appendices but also the proposed BDCP documentation including all appendices. For example, the Chapter 5, *Effects Analysis*, and its associated appendices are repeatedly referred to herein and include much of the

[375] BDCP Chapter 4, *Covered Activities and Associated Federal Actions*, Figure 4-6.

[376] *Ibid.*, Table 4-2, p. 4-9.

BDCP 778

> substantial evidence supporting the environmental analysis and conclusions herein, and Chapter 3, *Conservation Strategy,* more fully describes the proposed project.

However, footnote 3 in Chapter 3, *Description of Alternatives,* of the EIR/EIS states:

> As described in Chapter 1...the full Draft EIR/EIS should be understood to include not only the EIR/EIS itself and its appendices but also the proposed BDCP documentation including all appendices.

This footnote is appended to a textual statement that Alternative 4 is the CEQA preferred alternative and is consistent with the proposed BDCP published concurrently with the EIR/EIS. The footnote in Chapter 3 thus strongly implies that Chapter 5, Effects Analysis, and its associated appendices are part of the project description of the EIR/EIS.

This contrasts with footnote 3 of Chapter 1 of the EIR/EIS which indicates that Chapter 5, *Effects Analysis* supports much of the substantial evidence supporting the EIR/EIS's environmental analysis and conclusions. It also singles out Chapter 3 as really representing the proposed project description, since it contains the Conservation Strategy in its entirety. Attentive readers may be left confused whether the entire BDCP is also part of the EIR/EIS or whether certain portions serve the EIR/EIS in parallel, while other sections, such as the governance, implementation, alternatives to take, benefit cost analysis, and existing conditions are not given direct relevance in the EIR/EIS proper. It is possible that one must think of the EIR/EIS's project description as containing the effects analysis, which blurs the categories of analytic legal requirements under both CEQA and NEPA.

Is one of these footnotes more correct than the other? How should readers understand the BDCP as the project description that also contains an effects analysis? If as the preferred alternative, it contains an effects analysis, then the NEPA alternatives analysis of this EIR/EIS fails to incorporate the same level of detail for each alternative, particularly when it comes to having robust effects analyses of alternatives like Alternative 5 (the single intake, 3000 cfs alternative), Alternatives 8 (with its 55 percent of unimpaired flow operational modeling scenario) and 9 (the through-Delta alternative providing a fish-freeway along Old River for salmonid migration). None of these three alternatives can be construed as having received the same level of analysis and scrutiny for NEPA purposes as the other six (or nine, depending on how one counts) alternatives.

12. The project description fails as a habitat conservation plan under Section 10 of the federal Endangered Species Act and Section 2820 of the state Natural Communities Conservation Planning Act.

Refer to comments above on the Bay Delta Conservation Plan about how BDCP fails to contribute to the survival and recovery of listed species, in Section III above.

We also incorporate by reference the Delta Science Program Independent Review Panel's Phase 3 review of of the BDCP Effects Analysis. This review finds in pertinent parts that:

- The Effects Analysis was difficult to review and comprehend because its presentation is "fragmented" and its main conclusions are "sometimes inconsistent with the technical appendices." The EWC has pointed out this problem occurs in several key areas of the BDCP.

- There is an "apparent disconnect between the assessments of the levels of scientific uncertainty presented in Chapter 5 [the Effects Analysis, which is part of the proposed action description] versus what is characterized in the technical appendices."

- There is a "lack of an integrated or quantitative assessment of net effects..." which results in BDCP conclusions in Chapter 5 resembling sales pitches about "potential effects" or "intended effects" stemming from someone's professional judgment or preference rather than projected or forecasted effects derived from a reproducible methodology.[377]

13. The project description relies improperly on adaptive management to paper over gaps in how the BDCP would be implemented, thereby improperly defeating the requirement of providing in the EIR/EIS a stable project description and alternatives analysis.

Refer to comments above on the Bay Delta Conservation Plan and how it employs adaptive management to excess, in Section III above.

The Delta Science Program Independent Review Panel states that while adaptive management is identified as a needed component of BDCP, "it remains characterized as a silver bullet but without clear articulation about how key assumptions will be vetted or uncertainties resolved to the point that the BDCP goals and objectives are more assured."[378]

F. The EIR/EIS fails to provide adequate disclosure of the Setting and Affected Environment of the Bay Delta Conservation Plan and its Twin Tunnels Project.

The EIR/EIS fails to provide adequate setting and affected environment disclosure in several key areas:

- ***Environmental Justice:*** Failure to identify the human right to water, the Delta common pool resource and the state constitutional protection of fishing rights for all Californians in the state's public water ways.

- ***Water Supply:*** Over-appropriation of water rights claims in the Central Valley watershed of the Delta.

- ***Water Quality Regulatory Regime Change and Violation Priors:*** BDCP operational modeling criteria will require new water quality objectives in the Delta. The California Department of Water Resources and the US Bureau of Reclamation have chronically violated South Delta salinity objectives since 2006, when a cease and desist order was first issued by the State Water Resources Control Board.

- ***Land Use and the Delta as Place.***

- ***Cultural Resources.***

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[377] Independent Review Panel, *op. cit.*, footnote 41, pp. 5-6.

[191] *Ibid.*, p. 9.

BDCP 778

1. The EIR/EIS fails to disclose the full environmental justice setting, including California's human right to water, the Delta common pool resource recognized in area of origins water rights law, and the state constitutional right to fish in state water ways in the setting/affected environment of Chapter 28, or any other chapter.

Chapter 28, Environmental Justice is over 100 pages long, and is mired in the complexity of the nine/twelve BDCP alternatives without any kind of summary of impacts.

The maps in Chapter 28 identify census blocks, block groups or tracts as raster data but fail to show the location and place names of specific communities where environmental justice communities are concentrated. This obscures where these communities are arrayed spatially, despite many of them being mentioned in the setting/affected environment description. It is like a data dump lacking any interpretive framework.

Moreover, Chapter 28 fails to identify the Delta common pool resource and the beneficial uses it supports as evidence of environmental justice-related area of origin water rights. They are an integral part of the demand for water as instream flows needed to sustain the fisheries on which subsistence fishers rely. See our discussion above in Section VI.

The EIR/EIS also fails to incorporate into Chapter 28 any reference in the regulatory setting to Assembly Bill 685, the "Human Right to Water" law in California.[379] This law established, first, that "every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes." It then requires that all relevant state agencies shall consider this state policy when "revising, adopting, or establishing policies, regulations and grant criteria when those policies, regulations, and criteria are pertinent to the uses of water described in this section.

Environmental justice communities are present throughout the Delta. Their members fish, swim, work and live in and near Delta waters. Delta waters are useful and beneficial to them for naturally propagating and enhancing fish and other species which they cook for human consumption, despite their often low-income or impoverished social and economic status. Among the BDCP Applicants is the California Department of Water Resources. AB 685 requires DWR as a state agency to incorporate low-income and disadvantaged communities in the Plan Area into its Bay Delta Conservation Plan. It does not.

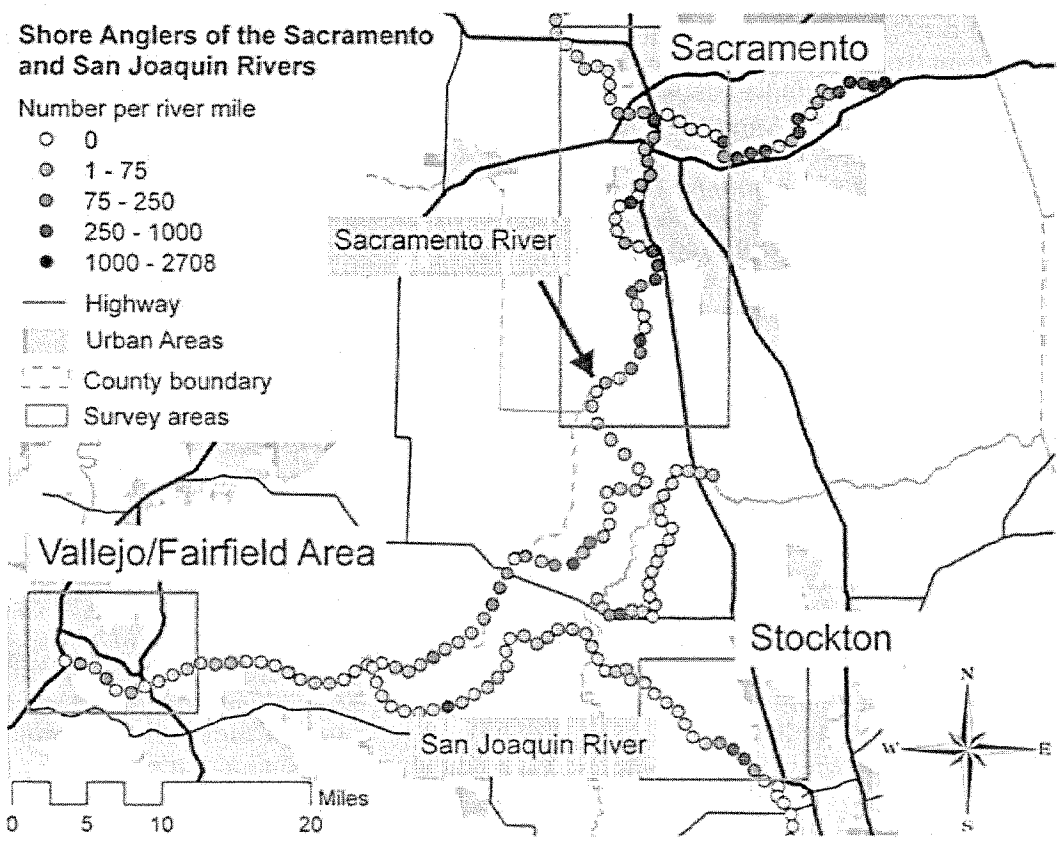
Chapter 28 of the BDCP EIR/EIS contains no description of AB 685 and fails to incorporate into the scope of the EIR/EIS a description of whether there are any environmental justice communities in the Plan Area which have inadequate water supplies or are otherwise reliant on the waters of the Delta for human consumption, cooking, and sanitary purposes. This omission renders the EIR/EIS inadequate to meet NEPA and CEQA requirements for full disclosure in order to fully inform decision makers and the public.

Chapter 28 of the EIR/EIS fails to correlate environmental justice communities' locations with environmental inequality burdens of hazards in the Delta. The maps in Chapter 28 show only the relation of environmental justice communities to the grouped alignments of the BDCP alternatives. This fails to disclose existing and potential vulnerabilities and inequalities of these communities in the Delta in relation to the Bay Delta Conservation Plan alternatives. See Attachment 1 to these comments for a more in-depth analysis of the ***social vulnerabilities and the environmental***

[379] California Water Code Section 106.3. Signed into law by Governor Jerry Brown, September 25, 2012.

inequalities in the Delta Region (i.e., the Plan Area). Some of these hazards include mercury contamination of fish and levee vulnerability to flood hazards.

Figure 15



Chapter 28 of the EIR/EIS also fails to adequately characterize the geographic and social extent of subsistence fishing activity available from recent academic environmental justice literature (Figure 15). Shilling and others have recently addressed the lack of data correlating fish consumption, subsistence fishing, and public health consequences of mercury contamination and other toxins.[380]

Shilling, et al (2010) found that subsistence fishers commonly caught and consumed Chinook salmon, Sacramento splittail, steelhead, and sturgeon (among the listed and covered species of the Bay Delta Conservation Plan). They also consumed a wide variety of introduced nonnative fish common in the Delta, several of which are not addressed by BDCP, including shad, bluegill, carp, catfish, crappie, largemouth bass, striped bass, pike minnow, Sacramento sucker, and sunfish. In a recent survey, these commonly eaten fish contained measurable concentrations of mercury in their tissues.[381] Hmong, Vietnamese, and Lao community members were found by Shilling, et al, among

[380] Fraser Shilling, Aubrey White, Lucas Lippert, and Mark Lubell, "Contaminated fish consumption in California's Central Valley Delta," *Environmental Research* (2010), doi:10.1016/j.envres.2010.02.002.

[381] *Ibid.*, Table 1.

the most active subsistence fishers among environmental justice communities, but also include African-Americans, Latinos, and people of Russian descent. Few were aware of health advisories issued by state agencies warning that people should limit their consumption of fish caught in the Delta due to mercury contamination.[382]

In addition to mercury contamination concerns, sturgeon and catfish are among the benthic fish predators in the Delta. Sturgeon are well-known to feed on *Potamocorbula amurensis*, the invasive nonnative clam that bioaccumulates selenium intensively, in addition to concerns about mercury consumption. Are there studies showing whether catfish consume the nonnative invasive overbite clam, *Potamocorbula*? ***BDCP should research this question and report back on this subject in the recirculated Draft EIR/EIS. This will be needed because of other serious omissions and deficiencies of the BDCP documents. The hydrodynamic conditions and the uncertainties involved with future selenium loading to the Delta, could lead to greater selenium contamination through benthic food web pathways to bioaccumulation.*** See our comments about selenium and methylmercury, in Sections II and III. This increased contamination, regardless of water year type, could have significant public health consequences for environmental justice communities in the Plan Area, of which the EIR/EIS fails to take account, including in Chapter 25, Public Health.

2. The EIR/EIS fails to acknowledge the over-appropriation of water rights in the Setting and Affected Environment.

Please refer to our comments above, Section II. The absence of the over-appropriation of water from the Setting/Affected Environment of Chapters 5, 6, and 7 means that members of the public cannot form a clear picture of current affairs with water rights in the Central Valley watershed of the Delta. The Setting/Affected Environment section of Chapter 5 fails to disclose that the North Delta intakes would be new points of diversion requiring review and approval of new water rights permits by the State Water Resources Control Board. Without this context, the EIR/EIS improperly defeats its own purpose under NEPA and CEQA to disclose fully the setting as a baseline for evaluating water rights and water supply impacts of alternatives and recommending mitigation measures.

3. The EIR/EIS fails to disclose as a point of controversy DWR and the Bureau's continuing failure to conduct program-level environmental review of cross-Delta water transfers, preferring instead to conduct project-level review under alleged "emergency" conditions on a year-by-year basis.

The California Department of Water Resources conducted a program EIR on its cross-Delta water transfer program in 1993, but apparently never certified it. In 2000, DWR issued a Drought Contingency Plan in which it promised to prepare a program EIR for a long-term approach to water transfers that went from the Sacramento Valley to the San Joaquin Valley, across the Delta. That EIR was never prepared. The DWR and the Bureau of Reclamation have since 2008 prepared annual environmental documents that address "emergency" water supply situations that they have failed to plan adequately for despite the fact that the state and federal governments have known since the 1930s that California's climate delivers three to six year droughts with some regularity.

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[382] *Ibid.*, Table 3. See also J.A. Davis, B.K. Greenfield, G. Ichikawa, and M. Stephenson, "Mercury in sport fish from the Sacramento-San Joaquin Delta region," California, USA," *Science for the Total Environment* 391 (2008): 66-75. Accessible online 14 April 2014 at http://www.researchgate.net/publication/223890520_Mercury_in_sport_fish_from_the_SacramentoSan_Joaquin_Delta_region_California_USA/file/79e4150b531bc58db0.pdf.

Paleoclimatologists have assembled evidence, cited earlier in this comment letter, that indicate that dry periods can last on the scale of centuries in California's recent geologic history. DWR and the Bureau have promised orally since 2009 to prepare a program-level environmental document for cross-Delta water transfers, but have deferred completing it for at least another year this year. None of this history is recounted in the Setting/Affected Environmental section of Chapter 5 even though it is vital to understanding the project's purpose and need and water supply impacts.

EWC members groups have actively commented on and successfully challenged "emergency" bases for these transfers and won in recent years.[383] DWR and the Bureau acknowledge their intention to continue arranging cross-Delta water transfers using Delta export facilities as best they can, but continue to shirk their responsibility to refrain from serial projects under NEPA and CEQA when it is clear they operate as long-term, recurring water transfer programs. BDCP would continue this chronic misbehavior, however. The EIR/EIS states:

> This EIR/EIS provides project-level CEQA/NEPA coverage for the flow of water in-Delta and south-of-Delta associated with all project and non-project water transactions. There is no maximum on the amount of water that can be conveyed through or delivered from the Delta as long as it is consistent with the operational criteria described in [Conservation Measure 1 of BDCP and the Chapter 5 Effects Analysis], and it is not limited by other factors including hydrological, regulatory and contacts [*sic*] conditions. *Because specific agreements have not been identified for water transfers and other non-project voluntary water market transactions, project-level analysis of impacts upstream of the Delta is highly speculative and this EIR/EIS does not constitute the CEQA/NEPA coverage required for any specific transaction. Rather, it provides an analysis of how transfers relate to the BDCP facilities.* Any future water transfers will require separate approvals as outlined below. *The analysis of any potential upstream impacts 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.*[384]
>
> Any transfers conveyed through BDCP facilities will need to satisfy all of the applicable requirements in force at the time of the transfer's approval. This EIR/EIS does not comprise the CEQA/NEPA coverage required for any specific transfer approval. Rather, it provides an analysis of how transfers relate to the operation of BDCP facilities and covers the movement of water once it has been brought to the Delta through transfers and other types of transactions. *Any future water transfers will require separate approvals, including separate coverage of any upstream source area impacts.*[385]

This is faulty reasoning under NEPA and CEQA. It constitutes piece-mealing of BDCP with respect to its water transfer role and the recurring annual character of DWR's and the Bureau's water transfer programs. Piece-mealing is illegal under CEQA and NEPA.

The California Environmental Quality Act defines a "project" to mean "an activity which may cause either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment, and which is" undertaken by any public agency, supported through monetary or contractual arrangements from one or more public agencies, or involves issuance to a person of a lease, permit, license, certificate or other such entitlement by one or more public

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[383] *Butte Environmental Council, California Sportfishing Protection Alliance, and California Water Impact Network v. California Department of Water Resources, et al*, Superior Court of State of California, Alameda County, RG09446708, filed March 15, 2010. Accessible online 12 May 2014 at http://www.c-win.org/sites/default/files/OR010%20Order%20and%20Decision%20on%20Petition%20for%20Writ.pdf.

[384] BDCP EIR/EIS, Chapter 5, *Water Supply*, p. 5-28, lines 30-42. Emphasis added.

[385] *Ibid.*, p. 5-41, lines 27-33.

agencies.[386] The CEQA Guidelines further define a "project" to mean the "whole of an action" that would cause direct or reasonably foreseeable indirect physical environmental changes.[387]

CEQA case law has resulted in the definition of "project" receiving a broad interpretation in order to maximize environmental protection. Plans or programs are typically schemes in which multiple actions are coordinated or facilitated within a framework of policies that govern the sequence or series of those actions. In performing CEQA analysis of a plan or program, then, agencies should not "piecemeal" or "segment" a project by splitting it into two or more segments.[388] CEQA prohibits piece-mealing because to segment a project can submerge the cumulative impact of individual environmental impacts. In *Laurel Heights Improvement Association v. Regents of the University of California* (1988) 47 Cal. 3d 376, 396 [253 Cal. Rptr. 426] the court declared that environmental reviews must "include an analysis of the environmental effects of future expansion or other action if: (1) it is a reasonably foreseeable consequence of the initial project; and (2) future expansion or action will be significant in that it will likely change the scope or nature of the initial project or its environmental effects."

Under NEPA, federal agencies may not chop or segment a proposed action into small pieces to avoid the application of NEPA or to avoid a more detailed assessment of environmental effects of an overall action.[389] In this instance, it is clear from our analysis (see below) on water supply impacts of the proposed Twin Tunnels project that ***expanding water transfers is an important unrevealed yet underlying purpose and need for the proposed Bay Delta Conservation Plan.*** Enlarging the conveyance capacity of the Delta facilities through construction and operation of the North Delta Intakes and Twin Tunnels project is part and parcel of expanding the ability of DWR and the Bureau to arrange and carry out more cross-Delta water transfers in the future. This purpose is not revealed in BDCP's purpose and need statement.

> The Delta pumps are currently unlikely to have available capacity for transfers at the start of the irrigation season under conditions imposed by the Biological Opinions. *This constraint may be removed, however, if the transfer water is moved in BDCP facilities.*[390]
>
> Under the BDCP alternatives, if export conveyance capacity were available constantly throughout the period of April through October, then the reservoir elevations would remain at their without-Transfer levels.

This second statement in particular signals that the North Delta Intakes and Twin Tunnels project would increase capacity to deliver water (see Figure 14 above), and the EIR/EIS asserts that groundwater substitutions for foregone surface water from senior water rights holders in the Sacramento Valley would reduce or remove the need to release precious surface water from CVP and SWP upstream reservoirs. Groundwater substitution transfers have been the preferred type of transfers in recent California water market transfers experience. The primary source of

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[386] California Environmental Quality Act, §21065.

[387] CEQA Guidelines, §15378.

[388] "This approach ensures 'that environmental considerations not become submerged by chopping a large project into many little ones, each with a potential impact on the environment, which cumulatively may have disastrous consequences." *Burbank-Glendale-Pasadena Airport Authority v. Hensler* (2d Dist. 1991) 233 Cal. App. 3d 577, 592 [284 Cal Rptr. 498], cited in Michael Remy, Tina A. Thomas, James G. Moore, and Whitman F. Manley, *Guide To CEQA*, 11th ed., Point Arena, CA: Solano Press Books, 2007, p. 89.

[389] 40 CFR 1508.25(a)(1).

[390] BDCP EIR/EIS, Chapter 5, *Water Supply,* Appendix 5C, p. 5C-17, lines 34-36.

groundwater available to substitute for foregone surface water supplies from "willing sellers" is the Sacramento Valley's aquifers.

Indeed, Appendix 5C reads quite a lot like a marketing brochure for DWR's and the Bureau's expanding water transfer market:

> Agencies could engage in groundwater substitution transfers with Anderson Cottonwood Irrigation District, Glenn-Colusa Irrigation District, Maxwell Irrigation District, Natomas Central Mutual Water Company, River Garden Farms, Reclamation District 108, other Sacramento River Settlement Contractors, Butte Water District, Garden Highway Water District , Sutter Extension Water District, Western Canal Water District, Yuba County [Water Agency], and Merced [Irrigation District].[391]

> As noted elsewhere, the availability of cross-Delta transfer capacity is frequently an issue under existing conditions. The potential cross-Delta transfer volume may be limited by the capacity of the export facilities, by regulatory constraints, and by the availability of water for transfer from willing sellers upstream of the Delta. *The provision of added capacity to the export pumps through BDCP facilities [i.e., the North Delta Intakes and Twin Tunnels project] would ease the through-Delta and timing constraints of moving the transfer water.* There would still need to be remaining capacity in the export pumps beyond that required for project water to move the transfer water south from that point, capacity that would generally be available in the dry year types but problematic in other year types.[392]

All of these potential "willing sellers" are located in the Sacramento Valley, except for Merced Irrigation District.

Failure to disclose this controversy over program-level environmental review bears on the piece-mealing issue. Every year since 2008, DWR and the Bureau have proposed and prepared to implement cross-Delta water transfers and now BDCP proposes to increase cross-Delta water transfer activity. Regardless of whether "project-level" individual transfer agreements occur, the EIR/EIS is deficient for failing to disclose the environmental review controversy involved in cross-Delta water transfers, and consequently failing to include DWR and USBR water transfer program review at the program level of specificity. BDCP should review the likely effects of cross-Delta water transfers on the Plan Area and the study area of the Sacramento Valley watershed from which most transfers originate based on how BDCP would facilitate such increased activity.

This is a serious deficiency of the EIR/EIS and requires revision of the document and eventual recirculation to the public. It compromises full disclosure of purpose and need, setting/affected environment, and impacts of the proposed action.

4. The EIR/EIS fails to disclose present and recent past groundwater conditions in the Sacramento Valley and in the Delta.

The setting section of Chapter 7, *Groundwater*, fails to include a map of recent groundwater elevations throughout the Central Valley watershed of and in the Delta. This would be the *existing condition* of groundwater and it goes undisclosed. Maps of DWR-defined sub-basins, while descriptive of what DWR thinks are significant groundwater regions, do not provide this information. Maps of such sub-basins are insufficient for lay readers and decision-makers to learn of the existing groundwater elevations so they may evaluate the true significance of the groundwater elevation impact maps that come later in the EIR/EIS. Even Figure 7-6 is insufficient. It records the "forecasted peak groundwater level *changes* in the San Joaquin and Tulare Export

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[391] *Ibid.*, p. 5C-18, lines 9-15.

[392] *Ibid.*, p. 5C-23, lines 22-29.

Service Areas" for the No Action Alternative "as compared to existing conditions," but this too is not the same as simply mapping existing groundwater elevations throughout the Central Valley (including the Sacramento Valley and Delta as well). This map portrays the *difference* between existing conditions and no action by 2060. Thus, no CEQA-mandated baseline information on groundwater elevations is provided in Chapter 7. This impairs understanding of current groundwater conditions by the public and decision-makers, and violates CEQA and NEPA

Similarly, the No Action Alternative groundwater elevation condition (projected to 2060 without BDCP) is not provided. Chapter 7 thus fails to give readers and decision makers a clear sense of what could be expected as to where Central Valley and Delta groundwater elevations would be found in 2060 if no action was taken.

None of the maps in Chapter 7 include the Sacramento Valley. The chapter claims this Valley's aquifers are "full." but this does not show us the geographical extent of the Sacramento Valley groundwater basin and its relationship to the Delta and San Joaquin Valley.

The word "overdraft" is not employed in the setting description of groundwater production and use in the descriptions of the San Joaquin River Basin. This is so despite the fact that the San Joaquin River Basin setting discussion does discuss "land subsidence," which is an effect of overdraft. It obscures the reality of overdraft there:

> The majority of land subsidence in the southern portion of the San Joaquin Valley [which is the Tulare Lake Basin] groundwater basin is considered to have been caused by groundwater pumping where the Corcoran Clay is present. *Groundwater withdrawal has lowered groundwater levels*, which allows the compression of the Corcoran Clay and other fine-grained units where groundwater supports the aquifer framework, resulting in inelastic subsidence and causing the overlying ground to lower. Once the inelastic compression occurs, it cannot be restored.[393]

As we understand groundwater withdrawals, if they lower groundwater levels or elevations, that means they exceed the *safe yield* of the groundwater basin. This is the definition of when a basin is considered overdrafted. This definition appears to be applied to the Tulare Lake Basin, however:

> Most groundwater subbasins in the Tulare Lake watershed are in a state of overdraft as a consequence of groundwater pumping that exceeds the basin's safe yield [citation]. As a result the aquifers in these groundwater basins contain a significant amount of potential storage space that can be filled with additional recharged water. Groundwater banking is the storage of excess water supplies into aquifers during wet periods for later withdrawal and use during dry periods [citation]. The stored water is used through conjunctive use programs by users directly overlying the basin, or it is conveyed to users in regions outside of the groundwater basin. Water for storage may be imported from other regions or agencies for temporary or long-term storage and subsequent export from the basin.[394]

This disclosure about conjunctive use and storing water underground is relevant to the water transfer market to which we allude earlier. This information is important to the setting but has no context associated with the underlying purpose and use of water supplies to be delivered by BDCP. In fact, this empty storage space is generated by overdraft of naturally occurring groundwater supplies, which were once abundant in the San Joaquin Valley and Tulare Lake Basin regions.

Chapter 7 of the EIR/EIS provides a brief descriptive overview of groundwater resources and conditions in the Sacramento Valley. It fails to mention that in recent years when the Bureau of

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[393] *Ibid.*, Chapter 7, *Groundwater*, p. 7-18, lines 15-20. Emphasis added.

[394] *Ibid.*, p. 7-20, lines 38-44, and p. 7-21, lines 1-2.

Reclamation and the California Department of Water Resources operated water transfer programs (e.g., in 2009, 2010, and 2013) groundwater substitution transfers were employed to a large degree to replace surface water supplies sold by senior water right holders in the Sacramento Valley.

It also fails to disclose that the Sacramento Valley is the focus of considerable planning, engineering, and hydrogeological research into the Valley's potential for use as the state's largest reservoir for conjunctive use water management. In recent years, the Glenn Colusa Irrigation District and the Natural Heritage Institute are studying this potential in hopes of positioning Glenn Colusa Irrigation District as a major broker of water transfers and groundwater substitution sources for "willing sellers" of water from the Sacramento Valley.

In its history of cross-Delta water transfers, BDCP also fails to identify just how many, or what percentage (by number and by transferred volume) of water transfers involved groundwater substitutions. Such information is important for gaining insight into potential future cross-Delta water transfer activity by transfer type (i.e., groundwater substitution).

The setting/affected environment portion of Chapter 7 also fails to acknowledge the Delta-wide practice of "sub-irrigation." It is a conscious Delta farming practice that manages salt and sustains their lands fertility. It is practiced from the lower lands of the southern Delta to the south banks of the Sacramento River,

The extent reaches from the lower lands of the southern Delta to the south banks of the Sacramento River (as shown in the 1991 map below). The Department of Water Resources studied application of irrigation water and associated drainage in the Delta in 1954 and 1955 prior to the State Water Project. It found that salt in Delta lowlands (a substantial portion of which occur in the South Delta) varied widely by month, with most of it accruing in Delta island soils during the irrigation season. By applying water to Delta island fields during winter months, however, farmers leached salts out of Delta soils. Department of Water Resources engineers concluded at the time that:

> The Delta Lowlands act as a salt reservoir, storing salts obtained largely from the channels during the summer, when water quality in such channels is most critical and returning such accumulated salts to the channels during the winter when water quality there is least important. Therefore agricultural practices in that area enhanced rather than degraded the good quality Sacramento River water en route [*sic*]to the [Central Valley Project's] Tracy Pumping Plant.[395]

The Board's own 1978 Water Quality Control Plan comments on this irrigation practice. High groundwater table conditions in Delta lowlands coupled with the erodible and settling organic soils there

> Make subirrigation a desirable method of water application for crop production. Subirrigation is the delivery of water to plant roots by capillary action from the underlying saturated soil strata, and is the primary method of irrigation in the Delta organic soils. (RT Vol. XX, pp. 112-115) *As practiced in the Delta, subirrigation may be the most efficient irrigation process in California from the standpoint of net water consumption.* (RT Vol. XIII, pp. 107-108). *However, because of soil and crop management constraints, this form of irrigation must be tied to a winter leaching program to remove salts accumulated in the root zone.* (RT Vol. XII, p. 47).

The Board's 1991 Water Quality Control Plan for the Bay-Delta Estuary also mentions Delta organic soils and the practice of subirrigation to maintain them, stating that "subirrigation is an irrigation

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[395] California Department of Water Resources, *Investigation of the Sacramento-San Joaquin Delta. Report No. 4, Quantity and Quality of Waters Applied to and Drained from the Delta Lowlands*, July 1956, p. 30.

technique by which water is delivered to the crop root zone by horizontal flow through the soil from the spud ditches."[396] The Board adds in a footnote about winter ponding that:

> Winter ponding, currently in use in the Delta, is the practice of flooding large agricultural field areas for the purpose of controlling weeds, and reducing salt in the upper region of the soil profile. Other benefits are recreation, and possibly salt leaching.[397]

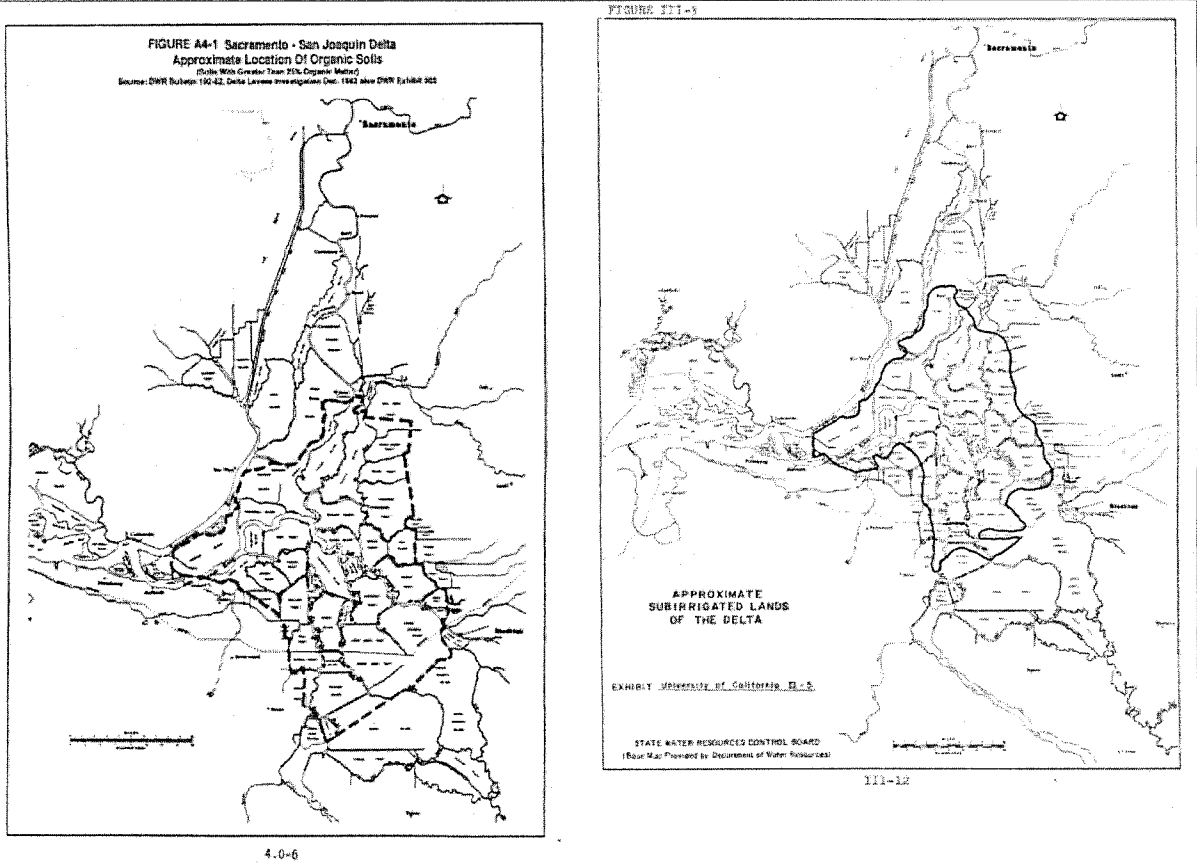

Figure 5: Maps of Delta areas employing subirrigation techniques. Map from 1991 Bay-Delta Plan at left; map from 1978 Bay-Delta Water Quality Control Plan at right.

Both the 1978 and 1991 Water Quality Control Plans present maps showing where subirrigation practice were applied. Dante Nomellini of Central Delta Water Agency confirmed to Tim Stroshane, consultant to the California Water Impact Network, that subirrigation practices continue in the water agency's service area today.[398]

The BDCP EIR/EIS fails to include a description of this irrigation practice involving subsurface flow of water in the Delta and where it occurs. Indeed it is the subirrigation and winter leaching

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[396] State Water Resources Control Board, *Water Quality Control Plan for San Francisco Bay/Sacramento-San Joaquin Delta Estuary Technical Appendix*, 91-16WR, May 1991, p. 4.0-5.

[397] *Ibid.*

[398] Nomellini to Stroshane, personal communication to Tim Stroshane, February 15, 2013.

practices that sustain irrigated cultivation there. BDCP must analyze the occurrence and locations at a project level with respect to construction and operational activities of its Conservation 1 and Twin Tunnel Delta facilities. Without such detailed treatment, BDCP fails to account for the full nature of the agricultural beneficial use and irrigation practice.

5. The EIR/EIS fails to disclose that operational modeling criteria scenarios used for alternatives analysis and evaluation would have to be adopted as new water quality objectives for the Bay-Delta Estuary by the State Water Resources Control Board, and further fails to disclose comparison of what objectives exist now in the Delta with each of the eight operational scenarios.

As we noted above, there are eight/eleven operational modeling scenarios applied to the nine/twelve design alternatives in the EIR/EIS analysis. A large but wholly implicit assumption through the BDCP and its EIR/EIS is that any one of these alternatives would require wholesale revision to the water quality control objectives of the Bay Delta estuary, now the responsibility of the State Water Resources Control Board. The setting sections of Chapter 5, 6, 7, and 8 (comprising water supply, surface water, groundwater, and water quality) contain no descriptions of the existing water quality objectives as they apply to flow and operational actions by the state and federal water facilities in the Delta. The Executive Summary only hints at this matter, titling one section "New Rules for North Delta Diversions." However, this section also makes no mention of the regulatory regime change that would apparently be required of the State Water Board.[399]

This is necessary for the public and decision makers to understand because addition of North Delta intake diversions will change hydrodynamics and water quality throughout the Delta. ***The Delta's hydrologic regime will change fundamentally, as we noted above in Section III.*** The State Water Board will be forced to take up not only whether and how to approve any change in the point of diversion (i.e., BDCP's water rights), but how and whether to utilize any or all of the operational modeling criteria used to structure and describe the impacts of the North Delta diversions on the entire Delta and beyond (i.e., its water quality objectives). ***As a result, the Delta's water quality regulation regime will be forced to change fundamentally.*** This obvious and logical result is entirely ignored by the EIR/EIS. As currently described, there is no legal reason why the North Delta diversions will be operated in the manner described in these documents ***except that the operational modeling criteria that the Applicants apply to its analysis and description become the water quality objectives of the BDCP-dominated regulatory regime.*** This appears to be BDCP's arrogant assumption about what happens to Delta water quality regulation. But it is nonetheless just an assumption, and to comply with NEPA and CEQA full-disclosure requirements, the required action for "regime change" by the State Water Board must be acknowledged and analyzed.

Further complicating this picture is the role and regulation by SWRCB of "Real-Time Operations [RTOs]." The quality of real-time operations forces, we believe, a fundamental issue: are society's actions managing Delta listed fish species to remain under the rule of law, or will they become ruled by carefully selected individuals?

Yet these operating criteria, when applied in BDCP's massive modeling effort, demonstrably fail to meet basic assurances for the federal and state habitat conservation planning and incidental take permit requirements, as we have shown earlier in these comments. RTOs, BDCP Applicants

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[399] *Ibid., Executive Summary*, Section ES.9.1.4, "New Rules for North Delta Diversions," pp. ES-52 to ES-53.

acknowledge, cannot be modeled.[400] The EIR/EIS fails to disclose the existing regulatory setting, the likelihood that dramatic change in the water quality/flow/rights regulatory framework will be necessary to accommodate BDCP, and consequently defeats NEPA and CEQA requirements to fully inform the public and decision-makers on such crucial issues.

6. The EIR/EIS fails to disclose in the regulatory setting of Chapter 8, *Water Quality*, that interior Delta salinity objectives are chronically violated by the Bureau of Reclamation and the Department of Water Resources. These objectives are routinely waived by the State Water Resources Control Board in drought years.

The regulatory baseline of water quality control of DWR and Bureau past practice with Delta salinity regulation is ignored in the regulatory setting of Chapter 8, *Water Quality*, in the Draft EIR/EIS. The Bureau of Reclamation and the Department of Water Resources are responsible under D-1641 for achieving Delta water quality objectives (for both flow and salinity). The Board does not review available data to determine whether the Bureau and the Department meet water quality objectives. The State Water Board has never evaluated its water quality control plans or its water right decisions in the Delta, although the Legislature compelled the Department to do so in 2006 before its responsibility kicked in under D-1641.[401] The Bay Delta Conservation Plan and its EIR/EIS Chapter 8 fails to describe how the Plan and the Twin Tunnels project would affect the Bureau and DWR's ability to meet ongoing Delta salinity and flow objectives.

Table 2 is based on salinity data from Old River near Tracy Boulevard. It reveals a consistent pattern of the Bureau and DWR violating the salinity standard at station P-12: Since August 2006, ***the Bureau and DWR have violated the salinity standard at this station for nearly 2.8 years out of the last 8, about one-third of the time.*** And it does not matter whether the objective in force is during the irrigation season (April 1 to August 31) or during the winter season (September 1

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

[401] California Department of Water Resources, *Description of Department of Water Resources Compliance with State Water Resources Control Board Water Right Decision 1641*, Response to Senate Bill 1155 Enacting California Water Code Section 138.10, January 2006, 67 pages. Accessible online 8 May 2014 at http://baydeltaoffice.water.ca.gov/announcement/D1641_final.pdf.

through March 31). The irrigation season objective of 700 mS/cm EC[402] (on a 30-day running average) has been violated about 1⅓ years (501 days) since 2006. The winter season objective of 1000 mS/cm EC (also on a 30-day running average) has been violated almost exactly for a year's worth of days.

Table 2

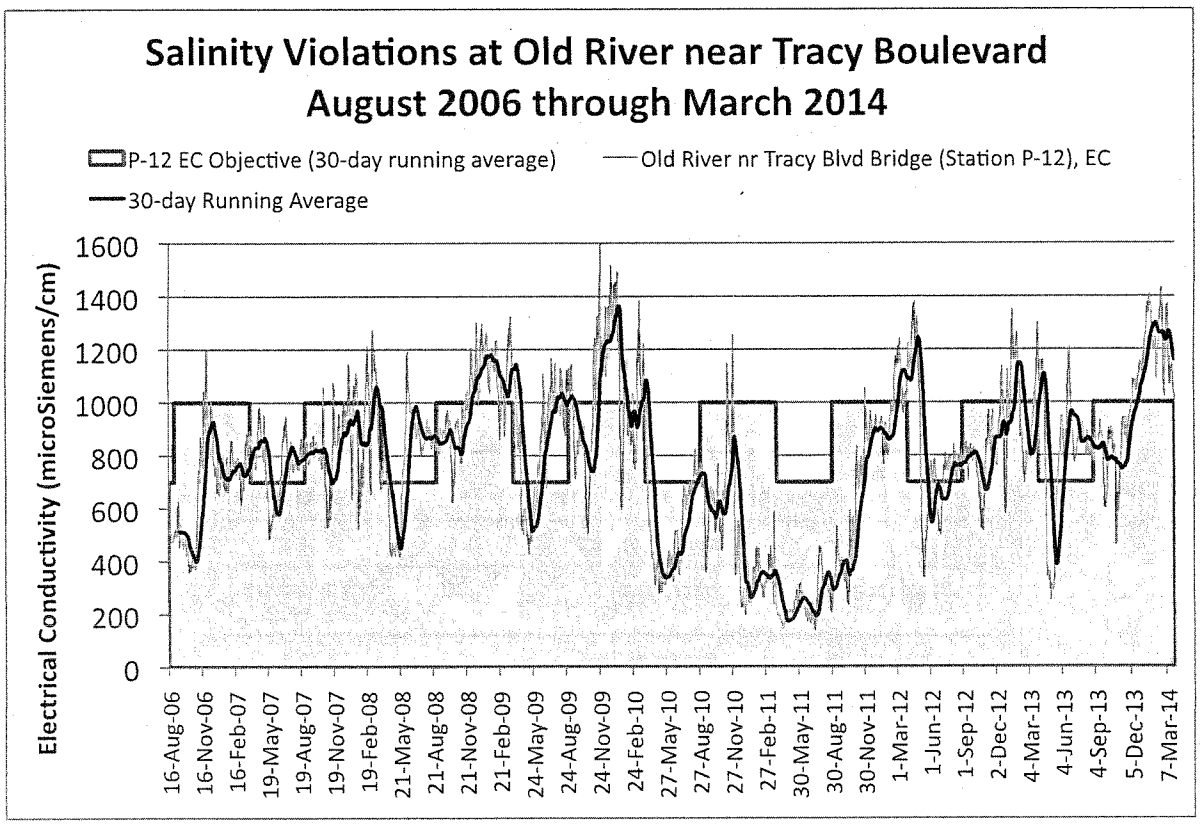
Interior South Delta Salinity Violations - Old River near Tracy Boulevard Bridge			
From	**To**	**Number of Days (inclusive of dates)**	**Salinity Standard Violated (EC = microSiemens/cm)**
April 1, 2007	May 30, 2007	60	700 EC
July 6, 2007	**August 31, 2007**	57	700 EC
March 8, 2008	March 28, 2008	21	1000 EC
April 1, 2008	April 26, 2008	26	700 EC
June 15, 2008	**August 31, 2008**	47	700 EC
December 10, 2008	May 9, 2009	151	1000 EC
June 22, 2009	**August 31, 2009**	72	700 EC
September 2, 2009	September 20, 2009	19	1000 EC
November 26, 2009	February 12, 2010	79	1000 EC
March 24, 2010	April 25, 2010	32	1000 EC/700 EC as of April 1
August 25, 2010	**August 31, 2010**	6	700 EC
March 5, 2012	May 27, 2012	23	1000 EC/700 EC as of April 1
July 30, 2012	**August 31, 2012**	33	700 EC
January 27, 2013	February 23, 2013	28	1000 EC
April 1, 2013	May 7, 2013	37	700 EC
June 12, 2013	**August 31, 2013**	81	700 EC
December 25, 2013	March 31, 2013	96	1000 EC
Total Violation Days Since 2007 by Bureau of Reclamation and the Department of Water Resources		868	501 days 700 EC standard violated; 367 days 1000 EC standard violated.
Source: California Data Exchange Center, Station = OLD; AquAlliance.			

[402] "mS/cm" means "micro-Siemens per centimeter," a measure of electrical conductivity.

In addition, this table indicates that the irrigation season violations routinely occur during dry years (2007 through 2009) often beginning June to early July and lasting all the way to August 31, when the salinity objective at this station rises from 700 EC to 1000 EC. This pattern recurred in July 2012 and again in 2013.

Violations also occur at the transition from the winter season objective to the spring objective. Although dry years are when the bulk of their salinity violations occur, there were two winter-period violations totaling 111 days (nearly four months) in the fall and winter of Water Year 2010, a comparatively normal year.

Figure 16



Source: California Data Exchange Center, Station: OLD; Environmental Water Caucus.

Figure 16 indicates the frequent pattern of salinity violations at this station by the Bureau and DWR since August 2006. The EIR/EIS omits from disclosure the fact that the State Water Resources Control Board issued a Cease and Desist Order (CDO) in 2006 when DWR and the Bureau informed the Board that they anticipated violating salinity objectives in the Delta. In that CDO, the Board gave the Bureau and DWR three years, until June 30, 2009, to come into compliance by choosing from a menu of options that would help them meet the salinity objectives. Instead, the state and federal water agencies delayed action, preferring instead to continue violating the objectives as they attempted to design and construct operable agricultural and fish gate systems (originally proposed in the South Delta Improvements Program) in the interior Delta to facilitate water flows from the

central Delta to the area of the South Delta pumps.[403] In June 2009, DWR and the Bureau petitioned the Board to modify the CDO, and the Board agreed to do so, extending the compliance date to 2016.

The EIR/EIS fails to describe the setting of chronic salinity violations, and fails to analyze how the Bay Delta Conservation Plan would affect enforcement of the modified Cease and Desist Order. Without this information, decision makers and the public are unable to form an informed viewpoint on the water quality effects of the Twin Tunnels project and the Bay Delta Conservation Plan, and DWR's and the Bureau's responsibility for them especially during dry and drought years. Therefore the BDCP EIR/EIS is legally inadequate. It should be revised and recirculated as a Draft EIR/EIS because of having to add new information.

However, the EIR/EIS does provide modeling results that help us visualize the Delta's saline future. BDCP's EIR/EIS provides ample modeling results to indicate that this pattern of sustained, wanton, and profligate Delta salinity violations will continue under BDCP construction and operation. These results are summarized in Figure 17 below. The EIR/EIS employs a 16-year time series (1975-1991) to model electrical conductivity in the Delta under Twin Tunnels (Alternative 4) operations. The modeling method focuses on the number of days salinity objectives are exceeded. Salinity objectives are based on 30-day running average values at each monitoring station. The modeling effort determines the number of individual days that flows in the Delta exceed the nominal salinity objectives at these stations. It also estimates the number of days during which Delta flows are out of compliance with the 30-day running average value salinity objective. The effort presented results averaged over all 16 years and for drought years (of which there were six in the period studied).

Implementation of the BDCP will require CWA Section 401 Certification. BDCP must be accountable to the Clean Water Act. The BDCP EIR/EIS fails to provide an analysis of what requirements exist under Clean Water Act Section 401. BDCP's Delta facilities (i.e., the North Delta Intakes and Twin Tunnels, which will be owned by DWR) must demonstrate they comply with water quality objectives and criteria authorized under the Clean Water Act. Therefore, sound planning dictates that consideration of the CWA's requirements must be made ***now***, to prevent violations arising from the implementation phase of the BDCP.

One CWA requirement that will arise during BDCP implementation is CWA Section 401 certification, which is necessary for any "[f]ederal license or permit to conduct any activity ... [that] may result in any discharge into navigable waters."[404] A key federal license or permit that will trigger the 401 certification process is a CWA Section 404 permit. This will be needed from the Army Corps of Engineers because implementation of the BDCP will result in discharges of dredged or fill material into waters of the United States.[405] Section 401 requires that the California SWRCB certify that the

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[403] Meanwhile, the National Marine Fisheries Service refused to approve interior agricultural operable gates of the South Delta Improvement Program because they would increase predation opportunities against listed fish species.

[404] 33 U.S.C. § 1341(a)(1).

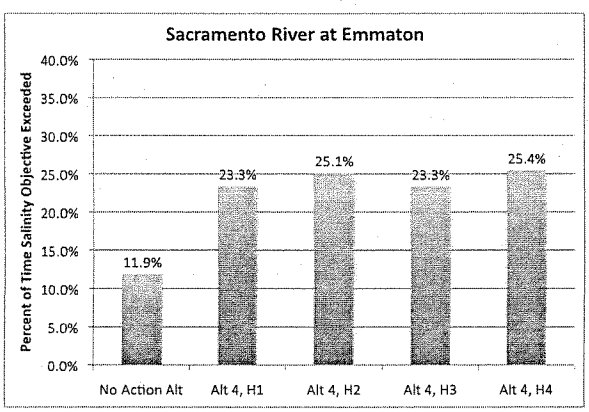
[405] "Many of the actions that will be implemented under the BDCP will result in the discharge of dredged or fill materials into waters of the United States and will need to be authorized by USACE." Public Draft Plan § 1.3.7.1 (Nov. 2013), available at: http://baydeltaconservationplan.com/Libraries/Dynamic_Document_Library/Public_Draft_BDCP_Chapter_1_-_Introduction.sflb.ashx.

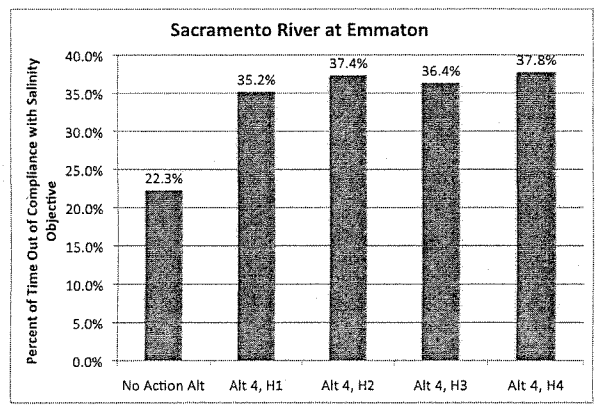
Corps' Section 404 permit meets CWA requirements before the necessary Section 404 permit may be legally issued.[406]

Figure 17
Projected Salinity Effects by 2060
of the Twin Tunnels Project/Bay Delta Conservation Plan
Percentage of Time Salinity Exceedances and Violations Would Occur

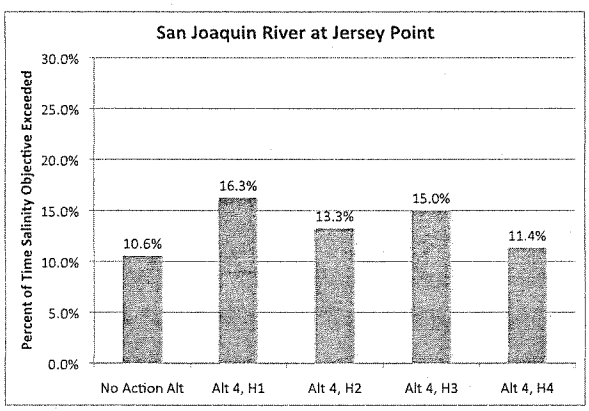
Exceeding Water Quality Objectives **Out of Compliance with Water Quality Objectives**

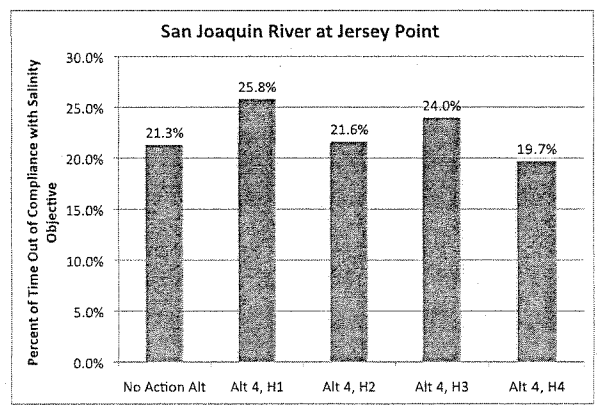
Delta Agricultural Beneficial Use Water Quality Objectives





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





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

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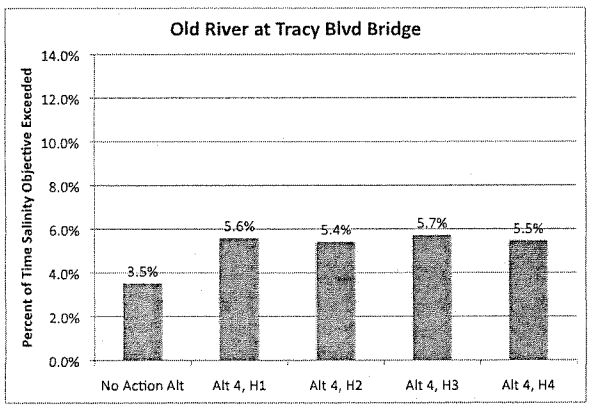
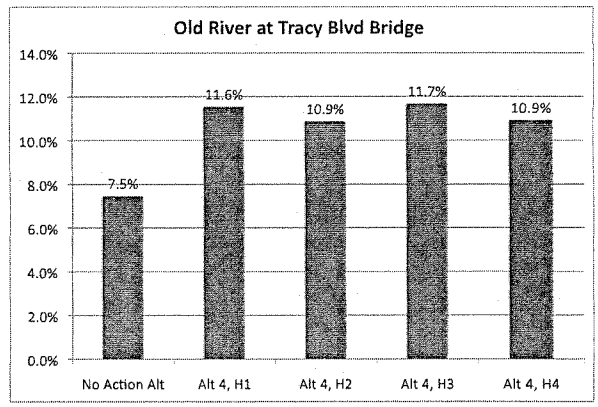
[406] "No license or permit shall be granted until the certification required by this section has been obtained or has been waived as provided in the preceding sentence. No license or permit shall be granted if certification has been denied by the State, interstate agency, or the Administrator, as the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

BDCP 778

Figure 17
Projected Salinity Effects by 2060
of the Twin Tunnels Project/Bay Delta Conservation Plan
Percentage of Time Salinity Exceedances and Violations Would Occur

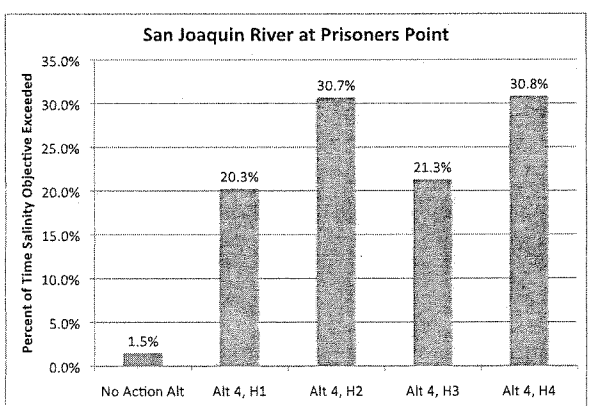
Exceeding Water Quality Objectives **Out of Compliance with Water Quality Objectives**

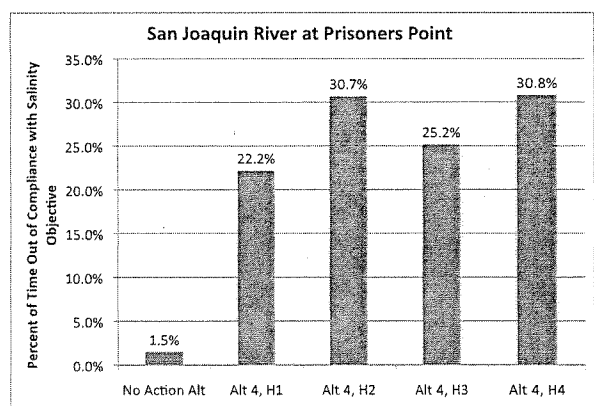




- **Old River at Tracy Blvd Bridge:** Exceedances increase by about two-thirds typically over the No Action Alternative. Noncompliance with the objective would increase by one-third to 40 percent. These percents are lower because as shown above (Table 2) the existing rate of violations is already high.

Delta Fish and Wildlife Water Quality Objective





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

Source: Bay Delta Conservation Plan EIR/EIS, Appendix 8H, *Electrical Conductivity,* Table EC-4, p. 8H-5.

Note: Percentage of time is based on a 16-year hydrology modeled using DSM2 in Appendix 8H. Being "out of compliance" is the number of days that the 30-day running average at the monitoring site registers violations of the salinity objective. "Exceeding Water Quality Objective" refers to the number of days that the monitoring equipment actually registers salinity exceeding the threshold level the objective.[224]

BDCP 778

State and federal agencies have already recognized the importance of this requirement, meeting several times to discuss it in the context of the preparation of the EIR/EIS.[407] As reflected by U.S. EPA in its comments on these discussions:

> [a]lthough there is no statutory requirement that the NEPA document prepared for an HCP under the Endangered Species Act be used as the basis for permits and certifications required under CWA §404 to authorize and implement the project, EPA recognizes the importance of coordination in federal review. Toward this end, EPA and the Corps have met with the project proponent on numerous occasions over the past several years in the interest of using the BDCP EIS/EIR to inform the Corps' 404 regulatory decisions. Despite these efforts, significant unresolved issues remain about the scope of analysis for the proposed project, the level of detail required to trigger the consultation process and federal permitting, and the structure of a comprehensive permitting framework for the proposed project.[408]

Among other concerns that have arisen during this consultation process, EWC contends that the inadequate flow proposals contained in the EIR/EIS alternatives will ensure that implementation of the BDCP violates mandatory compliance with the Clean Water Act. Inclusion and evaluation of flow regimes that fully protect Delta ecosystems and species are necessary to avoid this result.

To obtain 401 certification, the project at issue must meet several CWA requirements,[409] including the requirement to meet water quality standards under CWA Section 303.[410] If these requirements are met, then either the Regional Water Quality Control Boards (RWQCB) or the SWRCB[411] may grant Section 401 certification.

As implementing U.S. EPA regulations assert,[412] Section 401 certification "shall" include "a statement that there is a reasonable assurance that the activity will be conducted in a manner which will not violate applicable water quality standards."[413] In other words, the state *cannot* grant Section 401 certification to a project if there is no reasonable assurance that it will meet water quality standards. The examination of whether a project violates water quality standards does not include "balancing" factors such as economic considerations—a project either meets water quality

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[407] U .S. EPA, "EPA's Comments on BDCP ADEIS," p. 6 (July 03, 2013), available at: www2.epa.gov/sites/production/files/documents/july3-2013-epa-comments-bdcp-adeis.pdf.

[408] *Ibid.*

[409] 33 U.S.C. § 1341(a)(1), (d). A state agency may also condition, deny or waive certification under certain circumstances. 33 U.S.C. § 1341(a)(1)-(2).

[410] 33 U.S.C. § 1341(d). According to § 401(d), certification "*shall* set forth any effluent limitations and other limitations ... necessary to assure that any applicant" complies with certain provisions of the CWA. The Supreme Court in *PUD No.1* held that this includes CWA § 303, since § 301 incorporates it by reference. *PUD No. 1* at 713-715.

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

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

[413] 40 CFR § 121.2(a)(3); *PUD No. 1* at 712.

standards, or it does not.[414] Furthermore, as confirmed by the U.S. Supreme Court in *PUD No. 1 of Jefferson County v. Washington Department of Ecology* (*PUD No. 1*), CWA Section 401 certification considers the impacts of the *entire* activity – not just the impacts of the particular discharge that triggers Section 401.[415] ***Therefore, for the BDCP to receive Section 401 certification, the entire BDCP project must be conducted in such a way as to meet all water quality standards. This it does not do, as water quality standards cannot be met given BDCP's modeling results based on currently-proposed BDCP flow regimes.***

The CWA states that water quality standards "shall consist of the designated uses of the navigable waters involved *and* the water quality criteria for such waters based upon such uses."[416] In other words, "a project that does not comply with a designated use of the water does not comply with the applicable water quality standards."[417] This fundamental CWA mandate does not change when the impact on beneficial uses arises from altered flow. The CWA was established specifically to "restore and maintain the chemical, *physical*, and biological integrity of the Nation's waters"—not solely to regulate "pollutants."[418] The U.S. Supreme Court addressed this issue directly in *PUD No. 1*, stating that:

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

In *PUD No. 1*, Supreme Court took up the question of whether Washington state had properly issued a CWA Section 401 certification imposing a minimum stream flow requirement to protect fish populations. The Supreme Court held that conditioning the certification on minimum stream flows was proper, as the condition was needed to enforce a designated use contained in a state water quality standard.[419] In reaching this decision, the court noted that the project as proposed did not comply with the designated use of "[s]almonid [and other fish] migration, rearing, spawning, and harvesting," and so did not comply with the applicable water quality standards.[420] Similar reasoning

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[414] 40 CFR § 131.11 ("For waters with multiple use designations, the criteria shall support the most sensitive use"); *see also* 40 CFR § 131.6. As noted by the state Supreme Court, Porter-Cologne "cannot authorize what federal law forbids"; that is, California cannot allow for the "balancing away" of the most sensitive beneficial uses in a reliance on Porter-Cologne rather than the Clean Water Act. *City of Burbank v. State Water Resources Control Bd.*, 35 Cal.4th 613, 626, 108 P.3d 862 (2005).

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

[416] 33 U.S.C. 1313(c)(2)(A) (emphasis added); *PUD No. 1* at 704. In addition to the uses to be protected and the criteria to protect those uses, water quality standards include an anti-degradation policy to ensure that the standards are "sufficient to maintain existing beneficial uses of navigable waters, preventing their further degradation." *PUD No. 1* at 705; 33 U.S.C. 1313(d)(4)(B); 40 CFR § 131.6. EPA regulations add that "[e]xisting instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected." 40 CFR § 131.12.

[417] *PUD No. 1*, 511 U.S. at 715. *See also* 40 CFR § 131.3(b) (U.S. EPA stating that "[w]hen criteria are met, water quality will *generally* protect the designated use," (emphasis added) indicating that numerical criteria do not always by themselves protect a designated use).

[418] 33 U.S.C. § 1251(a) (emphasis added).

[419] *PUD No. 1*, 511 U.S. at 723.

[420] *Id.* at 714.

must be applied to open water beneficial uses like Delta smelt and longfin smelt, as well as other listed, covered, and non-covered species alike.

The U.S. Supreme Court specifically took note of CWA Sections 101(g) and 510(2), which address state authority over the allocation of water as between users. The Court found that these provisions "do not limit the scope of water pollution controls that may be imposed on users who have obtained, pursuant to state law, a water allocation."[421] This conclusion is supported by the "except as expressly provided in this Act" language of Section 510(2), which conditions state water authority; and by the legislative history of Section 101(g), which allows for impacts to individual water rights as a result of state action under the CWA when "prompted by legitimate and necessary water quality considerations."[422] Accordingly, these CWA provisions are not impediments to California's implementation of its CWA mandate to ensure compliance with water quality standards, *including* within the context of flows.

As noted above, in its August 2010 flow criteria report, the State Water Board found that "[t]he best available science suggests that current flows are insufficient to protect public trust resources," and that "[r]ecent Delta flows are insufficient to support native Delta fishes for today's habitats."[423] However, the flow regimes incorporated by the current BDCP are largely equivalent to those that have been failing to protect Delta ecosystems and species for years. These include: Water Right Decision 1641 (D-1641)[424]; the 2006 San Francisco Bay/Sacramento-San Joaquin Delta Estuary Water Quality Control Plan; the 2009 NMFS Biological Opinion (BiOp)[425]; and the 2008 USFWS BiOp.[426]

The BDCP not only fails to increase flows, it actually on average ***reduces*** Delta outflow and ***increases*** exports when compared to both the No Action alternative and existing conditions (see Sections II and VII above). The U.S. EPA expressed serious concerns about the EIR/EIS Administrative Draft's (ADEIS) proposed decrease in outflow "despite the fact that several key

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[421] *Id.* at 720.

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

[423] SWRCB, 2010 Flow Report, pp. 2, 5.

[424] Public Draft EIR/EIS, § 5B.1.1.2 (Nov. 2013), available at: http://baydeltaconservationplan.com/Libraries/Dynamic_Document_Library/Public_Draft_BDCP_EIR-EIS_Appendix_5B_-_Responses_to_Reduced_South_of_Delta_Water_Supplies.sflb.ashx. D-1641 requires the SWP and CVP to meet flow and water quality objectives, including specific outflow requirements, an export/import ratio, spring export reductions, salinity requirements, and, in the absence of other controlling restrictions, a limit to Delta exports of 35 percent total inflow from February through June and 65 percent inflow from July through January. Public Draft EIR/EIS § 5B.1.1.2.

[425] Public Draft EIR/EIS § 5.3.3.1 (Nov. 2013), available at: http://baydeltaconservationplan.com/Libraries/Dynamic_Document_Library/Public_Draft_BDCP_Chapter_5_-_Effects_Analysis.sflb.ashx.

[426] *Id.*.

scientific evaluations by the federal and State agencies indicate that more outflow is necessary to protect aquatic resources and fish populations."[427]

Further, the BDCP notably incorporates "bypass flows" that ostensibly establish the minimum amount of water that must flow downstream of the planned north Delta intake; this "minimum" amount, however, falls well below that needed to meet beneficial uses. Rather than protecting Delta flow, the BDCP reduces Sacramento River flow south of the North Delta intakes by up to 9,000 cfs for parts of the year.[428] Chinook salmon, Central Valley steelhead, sturgeon and lamprey all migrate and spawn in this area, with Delta smelt and longfin smelt likely spawning in the lower Sacramento River, as well.[429]

In sum, because it fails to put needed flows back into failing waterways, the BDCP will violate water quality standards by failing to protect sensitive beneficial uses. These include "rare, threatened or endangered species habitat," "estuarine habitat," "spawning, reproduction, and/or early development," and other sensitive beneficial uses.[430] The State Water Board has indicated tentative interest in designating subsistence fishing as a beneficial use statewide, including in the Delta.[431] It will thus fail as a set of flow regimes that could support Section 401 certification for necessary Section 404 permits.

Without this regulatory context, the EIR/EIS improperly defeats its own purpose under NEPA and CEQA to disclose fully the setting as a baseline for evaluating water quality impacts and recommending mitigation measures for BDCP alternatives.

7. The EIR/EIS fails to include an adequate description of state and federal water quality anti-degradation policies in Chapter 8, *Water Quality.*

National water quality policy since 1972 obligates the states, including California, to improve water quality, whatever its current condition, and since 1987 requires satisfaction of anti-degradation requirements that EPA established in Clean Water Act regulations.[432] US EPA established a regulatory framework for anti-degradation policy that requires states to develop anti-degradation policies. The heart of EPA anti-degradation criteria includes existing instream water

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

[428] Public Draft Plan § 5.3.1.1, available at: http://baydeltaconservationplan.com/Libraries/Dynamic_Document_Library/Public_Draft_BDCP_Chapter_5_-_Effects_Analysis.sflb.ashx.

[429] *Id.* § 3.4.1.3.5, available at: http://baydeltaconservationplan.com/Libraries/Dynamic_Document_Library/Public_Draft_BDCP_Chapter_3_-_Part_2_-_Conservation_Strategy.sflb.ashx.

[430] SWRCB, "Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary," p. 9 (Dec. 13, 2006), available at: http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/wq_control_plans/2006wqcp/docs/2006_plan_final.pdf.

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

[432] 33 U.S.C. 1313 (d)(4)(B).

uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.

Lowering of water quality may only be tolerated in instances where it "is necessary to accommodate important economic or social development in the area in which the waters are located...after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning processes." The Bay Delta Conservation Plan will worsen water quality in the Delta, as the EIR/EIS shows (more on this in Section VII of these comments). BDCP's modeling of operating conditions for the Tunnels assumes that the State Water Board acts to adopt BDCP modeling assumptions. The Board can only proceed with lowering water quality objectives where it provides and sustains a clearly supported and convincing argument about the economic and social development in the area. The EIR/EIS indicates there will be adverse effects on water quality, agriculture, land use, socioeconomics, recreation, public health and environmental justice. The Board will have difficulty supporting such an argument; it is never necessary to destroy a region's water quality in order to supposedly improve it.

Moreover, the state must still assure water quality adequate to protect existing agricultural uses fully even if it proceeds with relaxing the South Delta salinity objectives. Further, the state shall assure that there shall be achieved the "highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control."[433]

Anti-Degradation analysis under federal policy must assure that "existing instream water uses and the level of water quality necessary to protect the existing uses" is "maintained and protected."[434]

The State Water Resources Control Board's own "Statement of Policy with Respect to Maintaining High Quality of Waters in California" states:

> Whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality will be maintained until it has been demonstrated to the State that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies."[435]

By failing to disclose state and federal anti-degradation policies adequately in the regulatory setting section of BDCP's EIR/EIS, Chapter 8, the EIR/EIS improperly defeats its own purpose under NEPA and CEQA to disclose fully the regulatory setting as a baseline for evaluating water quality impacts of BDCP alternatives and recommending appropriate mitigation measures. The EIR/EIS must be recirculated to ensure BDCP complies with this legal requirement.

8. The BDCP EIR/EIS fails to describe adequately the land use, agricultural, and socio-economic setting in the Delta.

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[433] 40 CFR Part 131.12(a)(1) and (2).

[434] 40 CFR 131.12(a)(1). This *only* allows consideration of lowering water quality "where it is necessary to accommodate important economic or social development *in the area in which the waters are located.*"

[435] State Water Resources Control Board, Resolution No. 68-16 (Oct. 28, 1968), Part 1. Accessible online at http://www.waterboards.ca.gov/centralvalley/water_issues/salinity/laws_regs_policies/rs68-016.pdf.

BDCP 778

There is confusion in BDCP's setting description of lands that would become part of the BDCP. It claims anticipated benefits to habitat and species under the plan, specifying activities involving over 148,000 acres within four Restoration Opportunity Areas (ROAs). The ROAs include Suisun Marsh. The EIR/EIS treats the Marsh as separate from the statutory Delta while including it in the Plan Area.[436] BDCP's proposed activities must be considered within the context of how much land in the Delta and Suisun Marsh is already dedicated to habitat and to restoration projects that will go forward even if BDCP is not permitted. ***The EIR/EIS in Chapter 13 fails to describe this ongoing record of habitat restoration activity adequately.*** Taking these activities into consideration, BDCP offers readers and decision makers who would use the EIR/EIS little or nothing in the way of conservation that cannot be accomplished by other means.

It is difficult to recognize the land use setting that Chapter 13 assembles in the actual Delta.

The BDCP EIR/EIS defines a total area of 872,000 acres in seven counties for its study area,[437] including parts of Sutter (for Yolo Bypass areas) and Alameda counties that are not part of the statutory Delta or Suisun Marsh. BDCP asserts that the statutory Delta alone has 538,000 acres of "agricultural land uses" but does not define "agricultural land uses."[438] Using classifications by the California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP), BDCP identifies 585,000 acres in its total study area used for agricultural purposes.[439]

This picture contrasts with the Delta Stewardship Council's *Draft Delta Plan Environmental Impact Report*, Section 4, Biological Resources, Table 4-4, which lists the area of natural community types in the Delta and Suisun Marsh. This 2013 report gives a total of 838,250 acres for the whole region (which includes 106,620 acres for Suisun Marsh), of which 480,320 acres are agricultural lands (57 percent) and 81,910 are identified as "developed" (10 percent). The remainder—276,020 acres, 33 percent of the Delta and Suisun Marsh—are already open water and natural community areas.

These numbers are similar to those used in the Delta Protection Commission's 2012 *Economic Sustainability Plan (ESP)*, which identified 738,000 acres in the statutory Delta (*ESP* page 20) and found agricultural acreage in production in 2010 to be 461,380 acres, out of a total of 500,383 acres of available farmland.[440]

The principal land use in the Delta is agriculture. FMMP surveys are updated every two years, so one explanation for these discrepancies is that BDCP and the ESP used surveys from different years. However, it is worth noting that BDCP's estimate of acreage for "agricultural land uses" in the statutory Delta alone is 77,000 acres greater than the estimate in the *ESP* of land actually in agricultural production. This is significant because BDCP's habitat proposals depend to a significant degree on taking agricultural land out of production. After all, the percentage impact of conservation measures on land use appears to be less if the amount of agricultural land available is asserted to be greater.

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[436] BDCP EIR/EIS, Chapter 13, *Land Use*, Section 13.1.1.1, p. 13-2, lines 2-4 and page 13-3, lines 18-40. See also Figure 13-1.

[437] *Ibid.*, Chapter 14, *Agriculture*, Section 14.1.1, page 14-2, lines 4-6.

[438] *Ibid.*, Chapter 13, *Land Use*, Section 13.1.1.1, page 13-2, line 2.

[439] *Ibid.*, Chapter 14, *Agriculture*, Section 14.1.1, page 14-2, lines 7-8.

[440] Delta Protection Commission, *Public Draft Economic Sustainability Plan*, October 10, 2011, page 115.

BDCP 778

9. The EIR/EIS fails to describe economic conditions of the Delta adequately.

From the perspective of Delta as Place, the fundamental weakness in the socioeconomic analysis arises from a decision not to distinguish, or to distinguish inconsistently, between the statutory Delta (sometimes referred to in the document as the interior Delta) and the five-county Delta region. The rationale for this decision is that "socioeconomic conditions [. . .] would potentially affect not only the statutory Delta, but also a larger area that covers parts of the Delta counties surrounding the statutory Delta."[441] However, conflating the statutory Delta with the larger Delta region misrepresents the situation in the statutory Delta -- the Delta as Place.

The EIR/EIS notes that the Delta Reform Act of 2009 specifically identified the following unincorporated "Legacy Communities" as exemplifying the Delta's unique cultural history and contributing to the sense of the Delta as a place: Bethel Island, Clarksburg, Courtland, Freeport, Hood, Isleton, Knightsen, Rio Vista, Ryde, Locke, and Walnut Grove.[442] "In addition to recognized cities and communities, the Delta also includes numerous small, recreational areas (including campgrounds, marinas, recreational vehicle parks, and vacation homes) that are popular throughout the spring and summer months."

The EIR/EIS distinguishes between "small towns and dispersed rural residences in the interior of the Delta, and large urban areas on the periphery." "The population in the interior of the Delta is centered around several rural communities, including Clarksburg, Courtland, Hood, Isleton, and Walnut Grove/Locke/Ryde (Delta Protection Commission 2012)."[443]

However, for several important socioeconomic indicators (Table 16-4, Housing Units; Table 16-5, Housing Type Trends; and Table 16-6, Housing Vacancy Rates), the EIR/EIS uses data from the California Department of Finance that is available for incorporated communities only; of the eleven communities identified above as exemplifying the Delta as Place, only Isleton and Rio Vista, neither of them in the primary zone, are included in the table. For other important indicators of socioeconomic well-being (including employment trends, income and poverty levels, and revenues and expenditures), Delta as Place communities are subsumed under Delta counties.

As a consequence, the analysis fails to capture data that the EIR/EIS itself identifies as important. For example, the EIR/EIS says that the economy of the interior Delta generally revolves around agriculture and tourism/recreation.[444] But because the analysis uses data for the Delta counties, the importance of agriculture and tourism are not reflected in Annual Employment and Shares by Industry, which shows Government to have the largest employment share and Agriculture to have the smallest.[445]

Regarding tourism/recreation, the EIR/EIS uses AECOM data for SICs (standard industrial classifications) for its Table 6-11, Employment Conditions for Delta Region Recreation-Related Industries.[446] The EIR/EIS has not included the SIC code for marinas or boat-building and repair,

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[441] BDCP EIR/EIS, Chapter 16, 16.1.1.1, lines 6-9.

[442] *Ibid.*, page 16-2, lines 21-27.

[443] *Ibid.*, page 16-3, lines 2-3; lines 8-10.

[444] *Ibid.*, page 16-4, line 2.

[445] *Ibid.*, Table 16-8, page 16-16.

[446] *Ibid.*, page 16-22.

although it has included the code for zoos, of which there are none in the interior Delta. According to the comment letter prepared by the Delta Protection Commission, the BDCP undercounts recreation spending in the Delta by $76 million as compared to recreational spending estimated in the Commission's *ESP* ($236 million in the EIR/EIS versus $312 million in the *ESP*).

In the interest of evaluating impacts of BDCP on the Delta as Place, the EIR/EIS should have made a greater effort to address the challenge of separating data regarding the statutory Delta from data for the five counties that include the Delta region. This task was tackled in the *Economic Sustainability Plan for the Sacramento-San Joaquin Delta* (ESP), published in January 2012, which was produced by the Delta Protection Commission for the Delta Stewardship Council in response to the Delta Reform legislation. The EIR/EIS appears not to have taken full advantage of this resource for its socioeconomic analysis.

The EIR/EIS alludes to the difficulty of doing justice to the socioeconomic role of Delta agriculture.

> Agriculture is one of the more important sectors of the Delta economy. [. . .] the aggregate employment data presented earlier in this section (see Table 16-8) suggest that agriculture is a fairly small employment sector relative to other sectors at the county level, such as government and retail trade. Part of the explanation for this is that the counties include cities such as Sacramento, Stockton, and Antioch. By their nature, cities are concentrations of non-rural economic activity. County-level data summaries that include the cities tend to diminish the important role of agriculture in more rural areas of the counties, such as the statutory Delta. Commercial agriculture and the associated agricultural services, packing, processing, marketing, insuring, and transportation activities are critical components of the Delta region's economic and social character.[447]

But recent agricultural data for the statutory Delta was available to the EIR/EIS. The *Economic Sustainability Plan* shows total Delta farmland acreage in 2008 (500,383 acres), as distinct from farmland acreage in the Delta counties.[448] It identifies the top 20 Delta crops by acreage in 2009, with the top five being corn, alfalfa, processing tomatoes, wheat, and wine grapes.[449] It identifies the top 20 Delta crops by value in 2009, with the top five being processing tomatoes, wine grapes, corn alfalfa, and asparagus and calculates a total of $702 million in revenues from Delta agriculture in 2009. It estimates the total animal output in the Delta at $93,388,000. It forecasts growth in truck, deciduous, and vineyard crops and decline in grain and pasture crops, with an increase in revenue resulting from the planting of more high-value crop.[450] The *Economic Sustainability Plan's* estimates of crop revenues and animal output together total over $795 million.

Using California Department of Food and Agriculture crop reports for the five Delta counties, the EIR/EIS looks at crop yields, prices, and value per acres and finds the top crops to be corn, alfalfa, grain and hay, safflower, and pasture.[451] Tomatoes, asparagus, and grapes—major crops for the statutory Delta and crops for which growth is forecast—are farther down the list. This is significant because it is farmland in the statutory Delta, not farmland in the five-county region generally, that is targeted for conversion to habitat by BDCP. The EIR/EIS thus gives a misleading picture of the likely impact of farmland conversion.

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[447] *Ibid.*, page 16-23, line 4, lines 7-15.

[448] *Draft Economic Sustainability Plan*, page 115.

[449] *Ibid.*, Table 8, page 116.

[450] *Ibid.*, Table 10, page 119, page 121, and page 130.

[451] BDCP EIR/EIS, Chapter 16, Table 16-13, page 16-25.

BDCP 778

Moreover, the EIR/EIS estimates the combined value of crops and livestock "in the Delta" (using the controversial *Delta Risk Management Strategy Phase 1 Report*) as $697 million—almost $100 million less than the *Economic Sustainability Plan* estimates.[452] Since BDCP is including the Yolo Bypass in the Plan Area, the BDCP Applicants ought to be including its agricultural contributions to the Delta economy. We suspect they may not be.Plan

Having relied on data at the level of the five-county region for its background analysis of socioeconomics, the EIR/EIS switches to a focus on the statutory Delta for its evaluation of environmental consequences, including effects on community character and cohesion, population, housing employment and income.[453] "This assessment [of environmental consequences] focused on communities in the statutory Delta, where the direct effects of the BDCP would occur and where social and community effects would be greatest. Social and community effects elsewhere in the larger five-county Delta region are anticipated to be minor because they would be spread over a large, heavily populated area and among many communities."[454]

In other words, the EIR/EIS uses a region-focused analysis to effectively minimize the socioeconomic role of the Delta as Place, and it uses an analysis focused on the statutory Delta to minimize environmental effects of BDCP on the wider region.

10. The EIR/EIS fails to disclose adequately the cultural resource setting of the Delta Plan Area.

We find the EIR/EIS is unclear whether the reconnaissance conducted on cultural resources of the Plan Area (consisting of the legal Delta in the Water Code, Suisun Marsh, and Yolo Bypass) is focused on just the alignments of the BDCP alternatives within the Plan Area, or whether it is really generalized to the Plan Area as a whole. It should be both. Chapter 18 should have a set of location maps that show locations and densities of cultural resources by type: archaeological, historic, potential sites for human remains, and the like. This forms the initial basis for estimating the number and types of impacts to cultural resources.

We also note that the regulatory setting of Chapter 18 has identified Section 106 of the National Historic Preservation Act as an important regulatory framework for the identification, treatment, and protection of historic and archaeological resources that might merit inclusion in the National Register of Historic Places. Section 106 requires Applicants to declare an "area of potential effect" within which potential cultural resources are to be identified for treatment in the Section 106 process. The setting/affected environment section of the BDCP EIR/EIS fails to describe in map form or via narrative the size and vicinity of the area of potential effects of the Bay Delta Conservation Plan as an "undertaking" under Section 106. This is a serious deficiency because it is the basis for determining impacts on resources that may be ripe for inclusion in the NRHP.

Chapter 18 also fails to just summarize the number and type of cultural resources by alternative. A simple table that characterized how many of which type of cultural resource, sorted by BDCP alternative alignment and habitat restoration conservation measure/Conservation Zone/ Restoration Opportunity Area, would suffice and assist lay readers and decision makers greatly.

We also support the County of Sacramento's comments on the incomplete discussion of Chapter 18's regulatory setting section. The EIR/EIS omits regulatory information regarding special

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[452] *Ibid.*, page 16-24, line 29.

[453] *Ibid.*, page 16-38, lines 20-21.

[454] *Ibid.*, page 16-40, lines 9-13.

planning and neighborhood preservation areas found in the Zoning Code of Sacramento County, and the EIR/EIS should be revised and recirculated to include regulatory information regarding these areas, which are subject to additional protective measures because of their unique historic and cultural resources.[455]

11. The EIR/EIS fails to disclose land subsidence problems associated with normal activities of state and federal aqueducts in relation to groundwater overdraft in the San Joaquin Valley.

Land subsidence along the Delta Mendota Canal (DMC) is well-documented. The intertie between the DMC and the California Aqueduct became necessary because subsidence from groundwater overdraft reduced the capacity of the DMC. Groundwater overdraft continues rampantly along and near the route of the DMC and California Aqueduct. However, BDCP and its DEIS/EIR do not disclose this risk in the "Subsidence" section nor are there any policies or recommendations or plans to regulate the risk of aqueduct failure or reduced capacity from subsidence as a result of ongoing groundwater overdraft (**need to verify this**).

How can it be that the risk section of the BDCP completely omits the risks of San Luis Dam failure and aqueduct subsidence to central and southern California's Delta water supply reliability? We can only conclude that the focus on earthquake risk to Delta levees is part of the scare tactics to promote the Twin Tunnels. However, it is not supported by existing scientific information.

The Geology Chapter of the EIR/EIS must include the relative risks to reliable water supplies from hazards such as San Luis Dam failure and aqueduct subsidence. We also recommend policies and recommendations to reduce those risks such as mandatory groundwater regulation for areas adjacent to important water conveyance facilities such as the DMC and California Aqueduct.

Overall the seismic risk analysis of the EIR/?EIS is woefully inadequate. This is exemplified by its omission of evaluating all risks to Delta water supplies, failure to consider in any alternative a minimum PL 84-99 levee standard and a reduced emphasis on levee protection for many Delta lands. We conclude that BDCP and its EIR/EIS are not intended to evaluate and reduce Delta risks, but instead is intended to promote the Twin Tunnels project. To do so, the Plan relies on unsubstantiated scare tactics about Delta levee failure from earthquakes and flooding from sea level rise. The real risks to south of Delta water supplies are not disclosed. They are inconvenient truths that might distract from the push to build the Twin Tunnels.

Omission of these other risks from the BDCP EIR/EIS means the EIR/EIS fails to fulfill its purpose of providing adequate context for lay public readers and decision makers to understand relative and absolute seismic and other risks California's CVP and SWP systems beyond Delta levees.

G. The EIR/EIS fails to provide adequate impact analysis and analysis of effects and consequences.

The enormous size of the EIR/EIS is an obstacle to finding impact analyses, let alone discerning whether any given impact analysis provides adequate disclosure of project and plan impacts of the Bay Delta Conservation Plan. In addition to the Executive Summary table of impacts (Table ES-9, which in Chapter ES is itself 62 pages long) there should be at the opening of each environmental

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[455] Comments of Sacramento County on Bay Delta Conservation Plan and Draft EIR/EIS, May 28, 2014, p. 69 to 74.

issue chapter an executive summary of the chapter that summarizes the impacts of the proposed project by alternative and identifies the key areas of controversy. This is especially important when the issue chapters can be themselves hundreds or, truly, thousands of pages long—as long as any typical project-specific EIS/EIR on a discreet project. BDCP's water quality chapter exceeds 800 pages. Fish and Aquatic Systems exceeds 3,000 pages; Recreation exceeds 400 pages. Other chapters routinely exceed 100 to 200 pages. Careful review for lay and professional readers alike is burdensome, time-consuming, and ultimately, frustrating and off-putting. The consequence of such a review burden is that BDCP and its documentation confound the purposes of NEPA and CEQA, and in the confounding, violate these two laws.

Lost in this conflict are the impacts that Delta water policy decisions are having on low-income communities of color. Some of the hydraulic effects of enclosure will affect people and communities that rely on subsistence fishing in Delta channels.

1) Sacramento River inflow below Freeport (a few miles south of the city of Sacramento) will decrease with operation of the Twin Tunnels. This decreased flow will extend from Freeport through Walnut Grove all the way to Suisun Bay. This means that water flows will slow down and there will be water quality problems, including the potential for increased selenium contamination. To the extent that people fishing the river shores catch sturgeon or other fish species that feed on bottom-dwelling organisms, e.g., invasive clams which biomagnify selenium or mercury and other contaminants, they could experience increased exposures, if and when the Twin Tunnels go into operation.

2) Related to this, residence times of water in the west Delta and other parts of the Delta increase under the BDCP by about 25 percent. This means that any contaminants will persist in the water longer and will therefore increase human exposure and public health consequences of the operation of the Twin Tunnels.

3) The land use, noise, circulation/transportation, and air quality issues associated with construction of the Twin Tunnels are significant locally in the Delta, due to periodic intensive use of roads and land for a decade. Chapter 28 of the BDCP EIR/EIS documents the location of racial/ethnic minority residents of the area as well as low income/poverty rate populations in the Delta on which there would be imposed a significant impact.

4) The water rights of Delta farming enterprises are the economic foundation of the Delta's modern agricultural economy, and farm workers participate in that economy. To the extent that the Twin Tunnels may harm existing Delta water rights, particularly along the lower Sacramento River, there is an environmental justice impact if businesses and their employees, even temporary laborers, are harmed by the loss of water for producing crops in the Delta.

5) The loss of agricultural land to conversion to habitat restoration may also be an environmental justice impact for reasons similar to point #4, above. This involves the loss of land for economic production in the Delta. Habitat restoration impacts, both construction and inundation of formerly dry land areas, also could mobilize legacy methyl mercury and selenium in sediments into food webs that could directly affect human health.

6) Cumulative upstream reservoir operations will likely work to maximize storage. In terms of cumulative impacts of the BDCP and Twin Tunnels, this prospect links the BDCP and Twin

Tunnels to the proposal to raise Shasta Dam and expand Shasta Lake, and all the consequence that would follow from that expansion.[456]

The EIR/S must acknowledge and evaluate the effects of expanding storage supplies at Shasta, Sites Reservoir, and Temperance Flat, all of which are on the state and federal governments' drawing boards and are reasonably foreseeable projects and must therefore be analyzed. The Winnemem Wintu Tribe has expressed its concerns about the impact of raising Shasta Dam on the McCloud River and the inundation of its last remaining sacred cultural sites. Construction of Temperance Flat reservoir on the San Joaquin River would likely flood the Western Mono Tribe's communities and lands upstream of Millerton Lake near Fresno.

1. The EIR/EIS fails to disclose environmental justice impacts of enclosing the Delta common pool, reduced salmonid survival rates, and increased risks to environmental justice communities of subsistence fishing when mercury and selenium in fish tissues are projected in BDCP modeling results to increase by 2060.

Subsistence fishing is an important beneficial use of water in the Delta common pool. Subsistence fishers do so informally but frequently. Flows for fish and fish habitat are crucial to the ongoing health and protection of the public trust resources that support this beneficial use. Many are low-income residents of the Delta from a variety of racial and ethnic backgrounds. Many members of these environmental justice communities may speak English only to a limited degree. It is already unfortunate and well known that these communities are poorly served by state-issued health advisories about contaminants, particularly mercury, in the tissue of fish commonly caught in the Delta.[457]

As showed elsewhere in our comments, BDCP modeling results report that salmon smolt survival rates are expected to decrease by 2060 as a result of BDCP Twin Tunnels operations. With regard to EWC's Indian Tribe members, the Bay Delta Conservation Plan's modeling results show the project will decrease long-term survival rates of salmon smolts through the Delta, when habitat conservation plans are supposed to contribute to survival and recovery of listed species. Salmonids are central to the religion and cosmology of the Winnemem Wintu, Hoopa, Karuk, and Yurok Tribes of northern California. Threats to the survival of salmon are threats to the cultural survival of these Indian Tribes. In addition, the omission of long-planned major storage projects like the raising of Shasta Dam to expand that reservoir and the proposed Temperance Flat storage project from the BDCP EIR/EIS obscures the cumulative impact of BDCP from the public and decision makers. Both projects would flood sacred sites and lands that are vital to the Winnemem Wintu's and Western Mono's connections to the Earth and to their religion. These effects are adverse, and must be avoided. But they are ignored by the EIR/EIS's cumulative impacts analysis.

There are adverse effects associated with methylmercury contamination of fish, increases of selenium concentration in fish tissues long-term in sturgeon, and subsistence fishers along the lower Sacramento River will have to find other places to fish. These impacts are indicated by the

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[456] Environmental Water Caucus Response Letter to the U.S. Bureau of Reclamation for the Shasta lake Water Resources Investigation Draft Environmental Impact Statement, September 30, 2013, 48 pages, Accessible online 8 May 2014 at http://ewccalifornia.org/reports/shastadeiscomments.pdf.

[457] Jay A. Davis, Ben K. Greenfield, Gary Ichikawa, and Mark Stephenson, "Mercury in sport fish from the Sacramento-San Joaquin Delta region, California, USA," *Science of the Total Environment* 391(2008) 66-75; and Fraser Shilling, Aubrey White, Lucas Lippert, and Mark Lubell, "Contaminated fish consumption in California's Central Valley Delta," *Environmental Research* (2010), doi:10.1016/j.envres.2010.02.002.

modeling results presented in BDCP documents on top of the cumulative contamination that already exists, but are not analyzed adequately in the EIR/EIS.

2. The EIR/EIS fails to disclose fully the water supply benefits of North Delta Intake diversions by focusing on wet and above normal year reliability benefits and failing to analyze water transfer benefits of the diversions in drier types of water years.

BDCP's true underlying purpose and need is not only to increase diversions for Delta export from the North Delta Intake diversions in wet and above normal years, but also to increase the supply reliability of cross-Delta water transfers (i.e., from north of Delta to south of Delta locations) in drier and drought years. This is not disclosed in the Purpose and Need Statement of Chapter 2 in the EIR/EIS. The underlying purpose and need of BDCP and its North Delta Intake diversions is more fully disclosed in the modeling results in EIR/EIS Chapter 5, *Water Supply*, and in accompanying analysis of water transfers in that chapter and related appendices.

All nine/twelve BDCP alternatives will have little to no effect on federal Central Valley Project reservoirs relative to the No Action Alternative condition, according to BDCP EIR/EIS modeling results.[458]

The operational modeling criteria for BDCP, however, have noteworthy effects on Oroville reservoir storage, the State Water Project's largest reservoir located on the Feather River. Figures 5-9 and 5-10 show real differences in exceedance probabilities for the BDCP alternatives relative to the No Action Alternative (essentially a with/without BDCP comparison in 2060). With few changes occurring in the federal reservoirs, it appears that most if not all operational changes of the North Delta Diversions are "paid for" with flow releases from Oroville. In Figure 5-9, Alternative 4 H2 and H4 scenarios reveal that in about 60 percent of all years, spring X2 flows will be supplied ("paid for") from Lake Oroville, as reflected in their "end of May" storage levels falling below those of the No Action Alternative. By the end of September (Figure 5-10), Oroville storage levels are nearly all above the No Action Alternative (with limited exceptions for Alternative 4/H4 [i.e., the operational scenario paying extra Delta outflow for *both* Delta smelt and longfin smelt]. Alternative 4 for scenarios H2 and H4 would lower Oroville storage relative to the No Action Alternative levels in the range of years between 20% and 80% exceedance probability—the middle 60 percent of all water years. At the drier end of the spectrum, however, most alternatives differ little from conditions under the No Action Alternative at Oroville at the end of September.

Figures 18 and 19 below illustrate the manner in which BDCP anticipates employing the North Delta intakes (shown in red) primarily in wet years, when they will divert the majority of Delta exports. During dry and critical years, on the other hand, North Delta diversions would decrease dramatically, relative to South Delta export diversions.[459]

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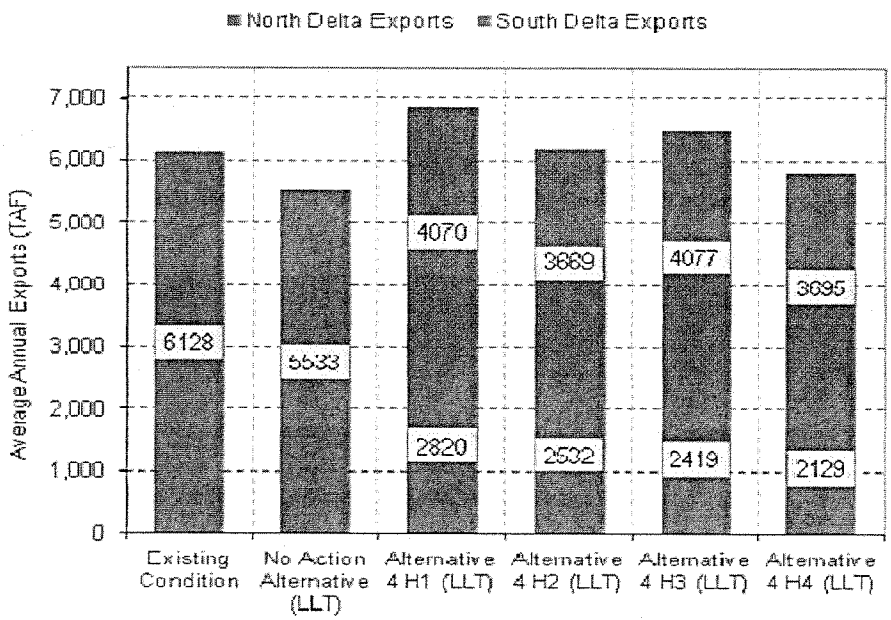
[458] See Figures 5-6, 5-7, 5-8, 5-11, and 5-12 for modeling results showing effects of BDCP alternatives on storage levels on Trinity, Shasta, and Folsom reservoirs.

[459] The need to protect "bypass flows" in the lower Sacramento are the ostensible reason, according to BDCP operational modeling assumptions/criteria, though the North Delta Intakes' prospective but as yet unapproved junior diversion rights on the lower Sacramento may be another.

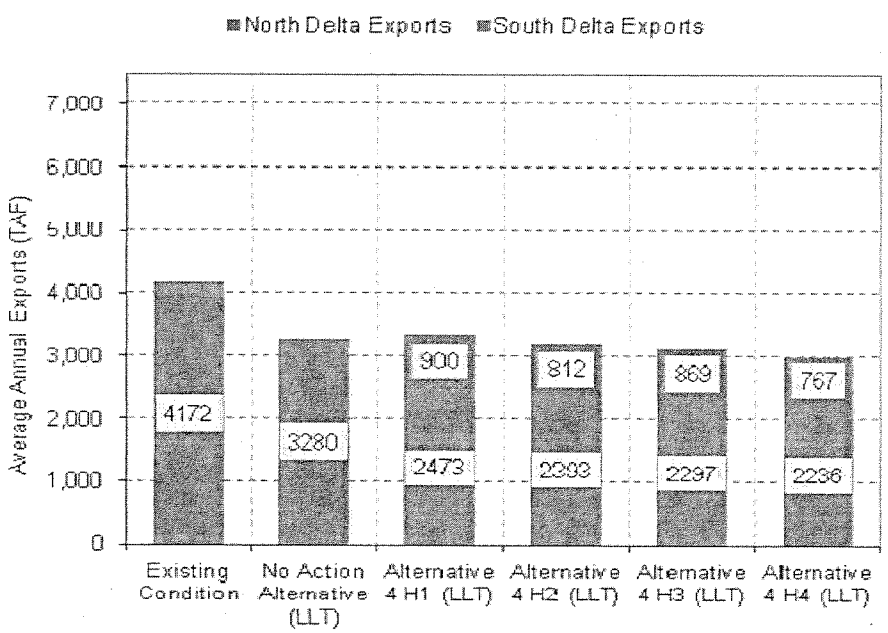
BDCP 778

Figure 18
North and South Delta Exports
Wet Year Average



Source: BDCP EIR/EIS, Chapter 5, *Water Supply*, Figure 5-18.

Figure 19
North and South Delta Exports
Dry and Critical Year Average



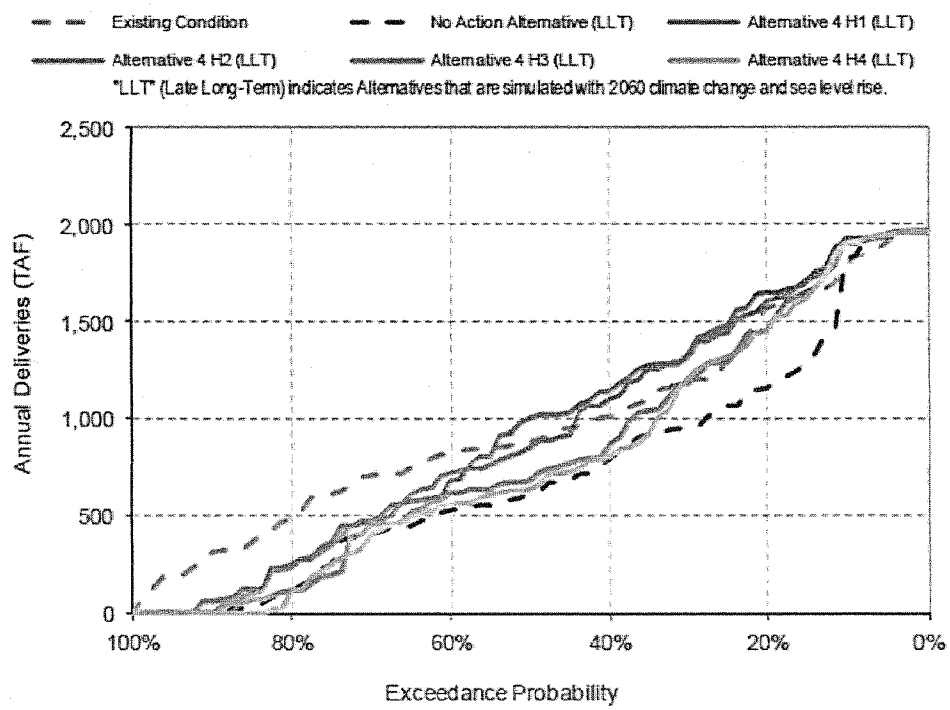
Source: BDCP EIR/EIS, Chapter 5, *Water Supply*, Figure 5-19.

This makes some sense when we recall that the North Delta Diversions are to be owned and operated by the California Department of Water Resources as part of the State Water Project, which will have lower priority water rights at the North Delta Diversions.[460]

Below we excerpt in Figure 20 three figures showing modeling results for water supply effects of Alternative 4, the proposed action alternative. According to the excerpt from Figure 5-31 of the EIR/EIS, Alternative 4's scenarios all "out-deliver" the No Action Alternative for South of Delta agricultural water service contractors, except for having to deliver increased outflows in the driest 15 percent of years. With Westlands Water District being the largest CVP agricultural south-of-Delta contractor, this chart surely keeps Westlands interested in the North Delta Intakes and Tunnels project.

Figure 20
BDCP Water Supply
Beneficial Effects

Excerpt from Figure -5-31.

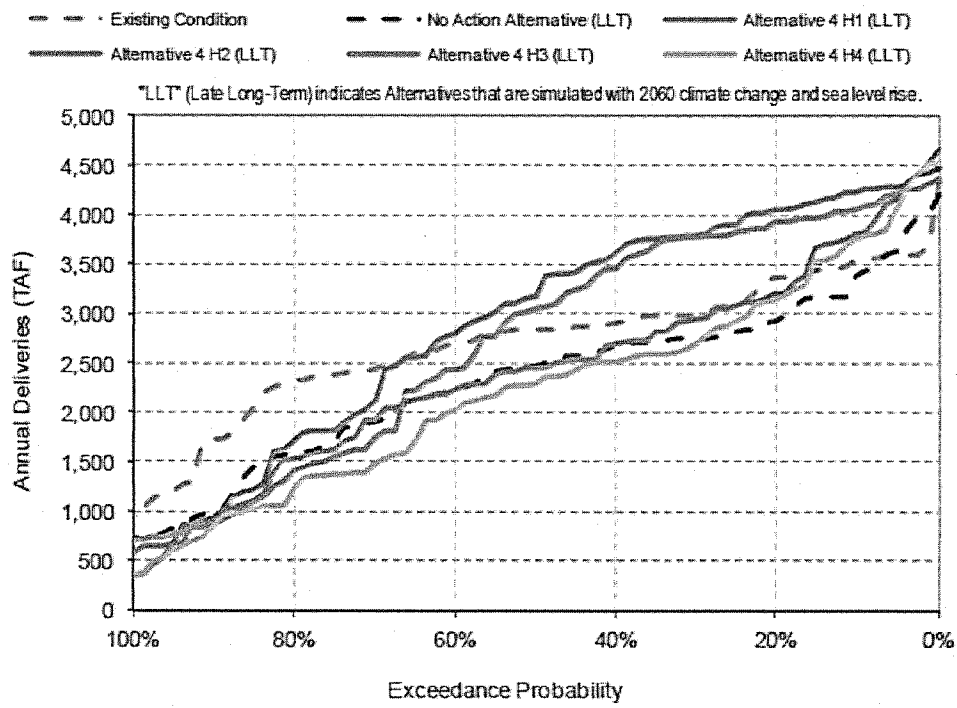


[460] BDCP, Chapter 7, *Implementation Structure*, Section 7.1.2.1.1, p. 7-10, lines 2-6.

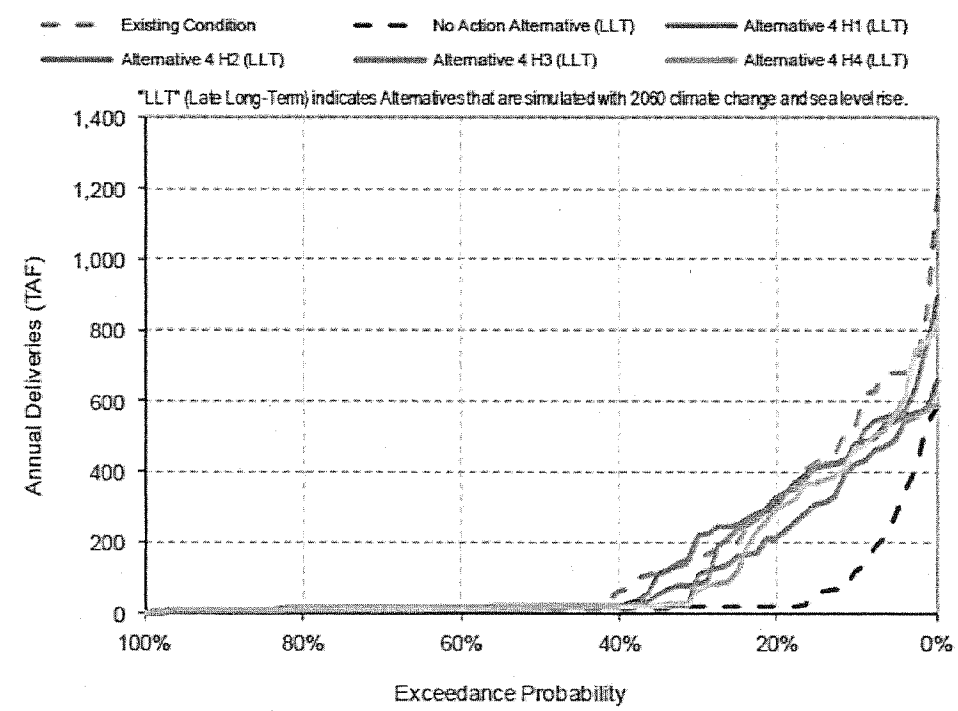
BDCP 778

Figure 20
BDCP Water Supply
Beneficial Effects

Excerpt from Figure 5-34.



Excerpt from Figure 5-36.



Source: BDCP EIR/EIS, Chapter 5, *Water Supply.*

The excerpt from Figure 5-34 depicts a similar analysis for annual south of Delta SWP deliveries (including Table A contract amounts as well as potential "surplus waters" via Articles 21 and 56 of SWP contracts). This chart shows that for Alternative 4's scenarios South of Delta deliveries perform no worse (and some better) than the No Action Alternative. Only the Alternative 4/H4 scenario benefiting both longfin smelt and Delta smelt with extra spring and fall Delta outflows provides deliveries lower than the No Action Alternative in almost 70 percent of years (including all of the driest). The other alternatives are lower than the No Action Alternative in only about 20 to 35 percent of the driest years.

The excerpt from Figure 5-36 illustrates SWP Article 21 surplus water deliveries for all BDCP Alternatives. We show the frame for each of the four Alternative 4 scenarios. It is important to note that SWP Article 21 deliveries to South of Delta contractors nearly approximates "existing conditions, and greatly exceeds the No Action Alternative. ***It is an underlying purpose of BDCP to use conveyance changes to "restore" surplus Article 21 water deliveries to South of Delta SWP contractors relative to their reduced No Action Alternative prospect.*** The No Action Alternative envisions near zero Article 21 deliveries except in about the wettest 15 to 20 percent of years in the future. The Twin Tunnels project (Alternative 4) would about double the frequency of Article 21 deliveries to State Water Project south-of-Delta water contractors.

Table ES-9 of the EIR/EIS in Impact WS-2 coyly designates water supply changes in SWP and CVP deliveries as "no determination," when clearly they are beneficial. This is one manner in which BDCP's underlying purpose and need statement obscures its likely benefits. The water supply benefits in wet and above normal years extend to additional Article 21 supplies for SWP contractors, and a generally more consistent increased supply of imported Delta water for CVP contractors (primarily Westlands Water District) most of the time with a Tunnels project in place.

The Twin Tunnels' benefit to water transfers is also obscured from the BDCP purpose and need statement. We read in Chapter 7, *Implementation Structure*, of the Bay Delta Conservation Plan that "Reclamation will likely enter into an agreement with DWR to "wheel" CVP water through a new conveyance facility."[461] Why is it that the CVP would want to "wheel" water from the North Delta Intakes when it may do so already at Banks Pumping Plant?

In drier years, BDCP expects there will be extra capacity in North Delta Intakes and Tunnels.[462] In drier years, full CVP contract amounts and SWP Table A amounts will not be available to contractors. While these "contractual" supplies may not be available, the contractors may still have what BDCP refers to as "supplemental demand" for water.

Many of the numerous, similar BDCP alternatives will have intakes sized to carry 15,000 cfs, not just 9,000 cfs as with Alternative 4's intake design. Water transfers[463] are often "wheeled" at times when one project's pumping capacity is insufficient while the other may have extra capacity to divert and lift water out of the Delta for the other. An expanded Clifton Court Forebay will also be able to store extra waters awaiting pumping capacity prior to export to complete such transfers. Indeed, currently, the "Four Pumps Agreement" between the California Department of Water Resources and the California Department of Fish and Wildlife idles four Banks Pumping Plant units so that the

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[461] *Ibid.*, lines 11-12. "Wheeling" water occurs when one water project's water—say deliveries to be made by the Central Valley Project—is actually pumped from the Delta by the State's facilities near Tracy (currently). Under BDCP, "wheeling" could occur further north, at the North Delta Intakes, where water quality is better.

[462] *Ibid.*, Chapter 5, *Water Supply*, p. 5-29, lines 1-2; Appendix 5D, p. 5D-1, lines 28-31; pp. 5D-2, lines 18-23; and p. 5D-3, lines 29-33.

[463] Water transfers are defined by BDCP EIR/EIS in Appendix 1E, *Water Transfers in California: Types, Recent History and General Regulatory Setting*, p. 1E-1, lines 13-18.

BDCP778

State Water Project complies with both fishery mitigations for DFW and navigability limits under US Army Corps of Engineers Public Notice 5820A (from October 1981). Will these pumps be rendered usable in proportion to water arriving at Banks Pumping Plant directly from the North Delta Intakes via the Twin Tunnels?[464]

The EIR/EIS fails to provide a quantitative analysis in Chapter 5 of water transfer behavior even though CalSIM II is perfectly capable of modeling it. But the EIR/EIS does provide a "spreadsheet model" analysis in Appendix 5D that brackets two potential water market volumes in periods of "supplemental demand," one of up to 600,000 acre-feet, and the other of up to 1 million acre-feet, each for single-year time spans.[465]

Chapter 5 claims that "any transfers conveyed through BDCP facilities will need to satisfy all of the applicable requirements in force at the time of the transfer's approval" and states that

> 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 regulatory constrains including BDCP permit terms discussed in Alternative 1A.[466]

The decision to omit quantitative analysis of water transfers in Chapter 5 is not for lack of data or modeling methodologies. EIR/EIS Appendix 5D provides ample data cataloguing historic water transfers back into the 1990s. Appendix 5D specifically notes that "supplemental demand" for water transfers is triggered typically when SWP allocations go below 50 percent, and CVP allocations below 40 percent.[467] Such insights are the very stuff of modeling assumptions. BDCP's Chapter 5 Effects Analysis proudly catalogues and totals up its use of models assembled to create these 40,000

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[464] *Agreement Between the Department of Water Resources and the Department of Fish and Game To Offset Fish Losses In Relation To the Harvey O. Banks Pumping Plant*, p. 4, Recital E. which states that USACE Public Notice 5820A "limits exports to the amount of water that can be diverted by the existing [seven] pumps, except during winter months when additional amounts can be diverted during high San Joaquin River flow periods." Executed December 30, 1986. Accessible online 7 June 2014 at http://www.water.ca.gov/environmentalservices/fourpumps.cfm. See also California Department of Water Resources, *California State Water Project Atlas*, 1999, p. 80, where it states, "During [Banks] construction (1963-1969) seven pumps were installed. In 1986, four more were added to divert and pump more water during the wet months to fill offstream storage reservoirs and groundwater basins south of the Delta to improve water supply reliability." The four newer pumps, according to the *Atlas*, have a combined capacity to pump 4,368 cfs, and at full throttle could export nearly 780,000 acre-feet during the summer irrigating season (July 1 through September 30) for water transfers potentially independent of USACE constraints. The source of water to the pumps via the Twin Tunnels would be the Sacramento River and not the San Joaquin.

[465] See also BDCP EIR/EIS, Appendix 5C, *Historical Background of Cross-Delta Water Transfers and Potential Source Regions.*

[466] *Ibid.*, Chapter 5, *Water Supply*, p. 5-108, lines 32-39. Emphasis added.

[467] "Comparing the years when cross-Delta transfer activity picks up with allocations, and considering Delta export constraints on transfers, SWP demand for cross-Delta transfers increases noticeably at allocations below 50 percent and DVP demand for cross-Delta transfers increases below 40 percent." *Ibid.*, EIR/EIS, Appendix 5D, *Water Transfer Analysis Methodology and Results*, p. 5D-3, lines 29-33.

pages of spew on BDCP—68 different models in all.[468] But ***the lack of a modeling effort on water transfers is disingenuous, and ultimately renders the water supply impact analysis deficient and incomplete, and betrays an underlying desire among the BDCP Applicants to make cross-Delta water transfers an unspoken purpose and need for BDCP Delta facilities.***

Chapter 5, *Water Supply*, of the EIR/EIS fails to disclose that the Twin Tunnels project could increase deliveries of "surplus" water relative to the No Action Alternative, not merely "restore" such deliveries; and fails to disclose that the Twin Tunnels project would increase "wheeling" activity to support water transfers during most if not all drier years, which presently occur at least 60 percent of the time. Drier years are likely to increase under conditions of climate change. ***These omissions of impact analysis render the EIR/EIS fatally deficient and misleading. If the project continues, the Draft EIR/EIS must be revised and recirculated.***

3. The EIR/EIS fails to disclose groundwater impacts to the Sacramento Valley that would result from expanded cross-Delta water transfer activity involving groundwater substitution.

Chapter 7 is lengthy and would benefit from a summary of impacts and anticipated mitigation measures. Such a meaningful summary would be helpful when BDCP states:

> There could be minor decreases in water supply availability to CVP water users in the Sacramento Valley service area due to the implementation of the alternatives. These minor changes have been estimated at approximately 50,000 acre-feet per year, which is approximately 2% of the current annual average groundwater production quantity in the Sacramento Valley.[469]

However one slices it, 50,000 acre-feet is still a great deal of water. At current levels of water use for rice production in the Sacramento Valley, This section of the EIR/EIS does not disclose why this 50,000 acre-feet would be the general impact on the valley's groundwater. This much surface water would irrigate 10,000 to 15,000 acres for much of the year. Depending on the crop grown this much groundwater substitution would affect 300 to 400 farmers, depending on average farm size of those affected (e.g., at 40 to 50 acre production units). Withdrawing it from particular locations (such as in the Sacramento Valley's rice districts between Yuba City and Chico) could cause significant local effects on groundwater elevations in the regions. Many smaller and larger towns and cities in this area are dependent on groundwater supplies for municipal and domestic use, as well as irrigation. We believe for this reason that the impacts to groundwater of the Bay Delta Conservation Plan are significant and the EIR/EIS is deficient in excluding the Sacramento Valley from its impact analysis.

Expansion of the water transfers market as an underlying purpose and need for the Twin Tunnels Project and its associated Delta facilities in BDCP would expand the number and frequency of groundwater substitution transfers in a large number of years. Since 1996, the State Water Project allocation has been at 50 percent of less of Table A contract amounts for contractors. Over that same period, the federal Central Valley Project has seen just two years where agricultural allocations of contract maximums have been 40 percent or less. (These two thresholds were identified by BDCP as triggers for "supplemental demand" to be met by cross-Delta water transfers by the state and federal projects.) BDCP also identifies three types of transfers: crop fallowing, crop shifting, and groundwater substitution transfers. Most transfers in recent years have involved groundwater substitution transfers. Despite this inchoate feature of the Bay Delta Conservation Plan (that is, disclosed in Chapter 5 appendices but not elsewhere in the BDCP documents) Chapter 7 attempts to justify omission of groundwater impact discussions of the Sacramento Valley in the following way:

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[468] BDCP, Chapter 5, *Effects Analysis*, Table 5.2-5, pp. 5.2-17 through 5.2-21.

[469] BDCP EIR/EIS, Chapter 7, *Groundwater*, p. 7-32, lines 30-33.

> The Sacramento Valley Groundwater Basin is "full" in most areas, except during drought and in a few locales where drawdown has been observed over the years. In most areas groundwater levels recover to pre-irrigation season levels each spring. A 2% increase in groundwater use in the Sacramento Valley to make up for any shortfalls in surface water supply is not anticipated to substantially impact the groundwater resources as long as the additional pumping is not concentrated in a particular area of the valley. Therefore the Sacramento Valley Groundwater Basin is not included in the groundwater analysis presented in this chapter.[470]

BDCP's claim that the Sacramento Valley is "full" is inaccurate. According to DWR's Northern District Branch Chief Dan McManus,

> The above statement characterizing the Sacramento Valley Groundwater Basin as being "full" in most areas is not accurate. Our work on the CWP 2013 Update indicates that groundwater storage in the Sacramento Valley groundwater basin was reduced by approximately 700 – 1,700 TAF, between 2005 and 2010. In many areas of the Sacramento Valley groundwater levels are at all-time lows and preliminary information from our Spring 2014 groundwater level measurements indicate that groundwater level declines are continuing.[471]

BDCP would directly obtain surface water sold by "willing sellers" as part of water transfers occurring when there is conveyance capacity in the Twin Tunnels Delta facilities. That capacity would reasonably be expected to occur in below normal, dry, and critically dry water years. These water year types can reasonably be expected to occur about 60 percent of the time in the future. It is likely that a significant fraction of these water year types will result in SWP allocations at or below 50 percent, and CVP agricultural allocations at or below 40 percent of contractual amounts. BDCP also indicates that in the first years of a series of dry years, water transfers could be arranged in aggregate amounts up to between 600,000 and 1,000,000 acre-feet. (Second and third years of drought sequences, probably less.) It is also reasonable to expect that a significant portion of those water transfers that could be arranged would include groundwater substitution by willing sellers in order to bring crops in and avoid local and regional economic dislocations from water transfer activity. BDCP has, but has not disclosed, what percentage of water transfers involved groundwater substitution in the Sacramento Valley in recent experience.

Groundwater substitution risks reducing surface river flow in the Sacramento Valley. Additional pumping to fulfill surface supplies foregone to transfers would have a direct and significant impact on instream Sacramento River and other tributary flows. Depletion factors vary with hydrology and geology of specific areas in the Valley. DWR places this passage beneath a subheading that reads: "Potential Increase in Water Supply":

> Reoperation of the existing groundwater storage system could significantly increase annual water deliveries throughout California. Conservative estimates of potential conjunctive management indicate that average annual water deliveries could be increased by 0.5 MAF (DWR 2009). More aggressive estimates indicate a potential increase in annual water deliveries by 2 MAF. However, more aggressive estimates of potential increases in water deliveries depend upon predictable and reliable exports of surface water from the Delta to provide a source of groundwater recharge.[472]

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[470] *Ibid.*, p. 7-32, lines 33-40.

[471] Email of Don McManus, Branch Chief in DWR's Norther Region Office, to BDCP.comments@noaa.gov, March 25, 2014. Accessible online 8 June 2014 at http://www.friendsoftheriver.org/site/DocServer/Cmt_698.pdf?docID=8475.

[472] *BDCP.*, Chapter 1, *Introduction*, Appendix 1B, *Water Storage*, p. 1B-6, lines 19-24.

This statement in BDCP's EIR/EIS is vague about what comprises the "existing groundwater storage system" but we suspect it refers to a combination of the Sacramento Valley and the San Joaquin Valley. One valley has groundwater naturally recharging from streams that still flow to the sea (the Sacramento Valley), while the other imports allegedly surplus supplies from the Sacramento Valley to spread water for percolation into "conjunctive use" facilities like the Kern Water Bank, Semitropic Water Storage District, and potentially others.

We conclude that the Twin Tunnels project of BDCP's Conservation Measure 1 is intended to facilitate the potential increase in water supplies to Kern Water Bank and Semitropic as well as expanding California's cross-Delta water transfers market. The overall strategy of using the Sacramento Valley to continue boosting conjunctive use of groundwater basins and increasing Delta exports is outlined in DWR's Bulletin 160-98, *California Water Plan Update*:

> This section reviews *the potential for groundwater development and conjunctive use as elements of statewide water management*, concentrating on the potential for augmenting supplies of the major State or federal water projects....
>
> ***Sacramento Valley.*** *...[T[he Sacramento River Basin constitutes most of the potential for additional water development to meet statewide demands.* Just as surface storage reservoirs are being evaluated to develop a portion of the basin's surplus runoff (about 9 maf), managed conjunctive use programs are being evaluated to the same end.
> ...
> ...In concept, *Sacramento Valley conjunctive use programs would operate by encouraging existing surface water diverters to make greater use of groundwater resources during drought periods. The undiverted surface water would become available for other users, and groundwater extractions would be replaced during subsequent wetter periods through natural recharge, direct artificial recharge, or in-lieu recharge (supply of additional surface water to permit a reduction of normal groundwater pumping).*
>
> The [Drought Water Bank] provides an example of conjunctive use in the Sacramento Valley. In 1991, 1992, and 1994, the DWB executed contracts to compensate Sacramento Valley agricultural water districts for reducing their diversions of surface water. *Most of the reduced surface water diversions were made up by increased groundwater extractions from existing wells.* The 1994 program in this area was the largest, amounting to approximately 100 taf. The DWB program included a groundwater monitoring component to evaluate the effects of increased extractions on neighboring non-participating groundwater users. Such monitoring programs would be an important component of future conjunctive use programs.[473]

The question that results from this chain of effects is, ***what would be the near-term and long-term impacts of groundwater substitution transfers? BDCP has failed to identify, disclose, and analyze the potential impacts of cross-Delta groundwater substitution water transfers on the Sacramento Valley and its groundwater resources. This is a serious deficiency of the BDCP EIR/EIS.***

4. The EIR/EIS fails to analyze whether Delta lands employing sub-irrigation techniques would be affected, or adversely affected, by construction and operation of the proposed Twin Tunnels Facilities of Conservation Measure 1.

As noted above, the BDCP EIR/EIS included no description of subirrigation practices by Delta farmers on Delta lands. These lands do occur in the vicinity of all types of alignments (see maps

[473] California Department of Water Resources, *Bulletin 160-98: California Water Plan Update,* p. 6-22. "taf" refers to "thousands of acre-feet" and "maf" refers to "millions of acre-feet." Emphasis added.

from water quality control plans, above) of BDCP alternatives. No analysis of the effects of Twin Tunnels facilities described in Conservation Measure 1 of BDCP has been performed or disclosed in the EIR/EIS.

This is a serious deficiency of the EIR/EIS. Failure to analyze and recognize this water management practice in the Delta could lead to adverse effects like locally-specific rising water tables and salinization of soil horizons that could damage crops or force premature retirement of land from agricultural production.

5. **The EIR/EIS fails to adequately disclose and analyze the potential impacts of methylmercury disturbance, bioaccumulation, and its entry into the Delta's benthic food web and connect them to public health and environmental justice impacts.**

Please refer to our analysis of methylmercury, Section III above.

6. **The EIR/EIS fails to adequately disclose and analyze the potential impacts of changes in Delta water quality and interior flow regime on selenium partition, sediment disturbance, bioaccumulation, and selenium's entry into the Delta's benthic food web.**

Please refer to our analysis of selenium issues concerning the mechanisms by which selenium becomes bioavailable and bioaccumulates in the benthic pathway of the Delta's aquatic food web, Section III, above.

7. **The EIR/EIS fails to integrate for impact analysis purposes water quality impacts from habitat restoration actions and Twin Tunnels construction and operation with impacts on predators, food webs, and invasive bivalves.**

Please refer to our discussion of predators, food webs, and invasive nonnative clams in the Delta Section III, above.

8. **The EIR/EIS fails to disclose that the BDCP will violate water quality standards established for flow, preventing necessary Clean Water Act 401 certification.**

As described above in Sections VI and VII, implementation of the BDCP will require a CWA Section 404 permit from the Army Corps of Engineers, which it cannot receive unless the state issues a CWA Section 401 certification, which in turn cannot be legally issued unless the BDCP project as a whole (i.e., rather than the individual discharge mandating the 404 permit) meets water quality standards, including by meeting beneficial uses designed to protect Delta species and ecosystems. As written, the BDCP modeling results show it will fail this test, since designated uses cannot be met under the proposed flow scenarios. ***Accordingly, to be implemented, the BDCP must include alternatives' flow regimes that will ensure that beneficial uses protecting Delta ecosystems and species are met.***

To obtain CWA Section 401 certification for the necessary Section 404 permit, implementation of the BDCP must not violate applicable water quality standards under the Clean Water Act.

The fishery agencies would abuse their discretion under Section 10 of the federal Endangered Species Act and the California Natural Communities Conservation Planning Act to issue incidental take permits for BDCP when it demonstrably fails to comply with federal water quality control law.

The EIR/EIS fails to analyze this impact of the Bay Delta Conservation Plan and is therefore inadequate under the National Environmental Policy Act and the California Environmental Quality Act.

9. The EIR/EIS fails to disclose that if BDCP is integrated into the Bay-Delta Water Quality Control Plan, the resultant flow regime modeled under the current BDCP will fail to protect the most sensitive beneficial uses, as required by the Clean Water Act.

In addition to the BDCP not meeting requirements for Section401 certification, the EIR/EIS's Chapter 8, *Water Quality*, contains a "regulatory setting" discussion that omits description of actual water quality objectives adopted by the State Water Resources Control Board in the Bay-Delta Water Quality Control Plan. This is important because BDCP modeling criteria presume some of these water quality objectives as Twin Tunnels operational criteria, and employ other newly designed and operationalized criteria to model the performance of the North Delta intakes and related facilities. In short, ***to model the effects of BDCP, the EIR/EIS presumes—but fails to disclose the presumption—that the State Water Board will adopt and implement BDCP's modeling criteria as legal water quality objectives for the Bay-Delta Estuary, fails to describe the degree to which Delta water quality regulation would be altered by such an action, and fails to analyze whether these amendments could be legally accomplished under the federal Clean Water Act and Porter-Cologne Water Quality Control Act.***

Some of the key modeling criteria for BDCP options that fit this description are Old and Middle River/San Joaquin River inflow-export ratio; North Delta Bypass flows; Head of Old River gate operations; new spring outflow criteria for March through May; new fall outflow criteria for September through November; and a thoroughly revised calculation for determining export to inflow ratio. For the Delta facilities contained in Conservation Measure 1 of BDCP to legally operate in the Delta, the State Water Board would have to amend the Bay-Delta Plan.

The State Water Board is in the process of updating the Bay-Delta Water Quality Control Plan, last updated eight years ago. As noted above, the CWA requires the state to adopt water quality standards that "shall consist of the designated uses of the navigable waters involved and the water quality criteria for such waters based upon such uses."[474] In setting criteria to protect the beneficial uses, U.S. EPA regulations require states to "*protect* the designated use."[475] ***Actions that "reasonably protect"[476] rather than "protect" the beneficial use are insufficient. If multiple beneficial uses are at stake, adopted flow criteria must protect the most sensitive beneficial***

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[474] 33 U.S.C. 1313(c)(2)(A); *PUD No. 1* at 704.

[475] 40 CFR § 131.11 (emphasis added); *see also* 40 CFR § 131.6.

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

use (i.e., they cannot "balance" away uses) and must be based on science.[477] As the state Supreme Court found, Porter-Cologne balancing provisions[478] "cannot authorize what federal law forbids."[479] The more protective federal CWA water quality standard requirements take precedence over weaker Porter-Cologne language; ecosystem and species needs cannot be balanced away.

As described earlier, the BDCP is based on levels of instream flow that are widely considered to be inadequate for Delta fish and habitat. For example, the Department of Interior stated that it "remains concerned that the San Joaquin Basin salmonid populations continue to decline and believes that flow increases are needed to improve salmonid survival and habitat."[480] A comparison of flow regimes established under the BDCP, current flows, the State Water Board's August 2010 flow criteria report, and other flow data demonstrates that flow regimes proposed under the BDCP are at best similar to existing, deeply inadequate flows—and often less than that, particularly in the Sacramento River below the North Delta intakes.

10. The EIR/EIS fails to comply with federal and state anti-degradation policy to protect beneficial uses in the Delta from unjustified degradation of salinity conditions, and failure to provide an anti-degradation analysis at all.

The EIR/EIS fails to provide an analysis of the Bay Delta Conservation Plan's compliance (or likely noncompliance) with state and federal anti-degradation policies.

The BDCP and its EIR/EIS acknowledges (factoring in climate change effects) that residence time of water in the Delta will increase under Tunnels operations, Delta outflow will decrease, mercury and selenium in fish tissues will increase, raising public health concerns as a consequence of BDCP and Twin Tunnels project implementation, as we describe elsewhere in Section VII. Salinity levels will increase throughout the Delta, creating water quality problems for boaters, agricultural irrigators, sport fishing anglers, and subsistence fishers. ***In this light, under state and federal Clean Water Act anti-degradation policy the fishery agencies would abuse their discretion by signing the Implementing Agreement and issuing incidental take permits for activities that would decrease water quality throughout the Delta.***

US EPA Region 1, consistent with *PUD No. 1 of Jefferson County v. Washington Department of Ecology*, 511 U.S. 700 (1994), has found that a state's anti-degradation program "must obviously address

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

[478] Calif. Water Code § 13000.

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

[480] U.S. FWS, "Comments on the Revised Notice of Preparation and Notice of Additional Scoping Meeting for the State Water Resources Control Board Review of the Southern Delta Salinity and San Joaquin River Flow Objectives in the 2006 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary," p. 1 (May 23, 2011). Accessible online 9 June 2014 at http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/bay_delta_plan/water_quality_control_planning/cmmnts052311/amy_aufdemberge.pdf. . See above for other statements of scientists and agencies on Delta flow.

water withdrawals" as well as discharges.[481][1] California's anti-degradation policy (Resolution 68-16, Oct. 1968) contemplates the policy's application to water rights permits, reading in part:

> WHEREAS the California Legislature has declared that it is the policy of the State that *the granting of permits and licenses for unappropriated water* and the disposal of wastes into the waters of the State *shall be so regulated as to achieve highest water quality consistent with maximum benefit to the people of the State*....[482]

Anti-Degradation analysis of water withdrawals has particular importance in California given a recent decision of the Third Appellate Court. In the *Asociacion de Gente Unida* decision, the Court found that "[t]he anti-degradation policy measures the baseline water quality as that existing in 1968 and defines high quality waters as the *best quality achieved since that date.*"[483] It further finds that any actions to lower water quality below that level trigger the anti-degradation policy, unless those levels are consistent with state-adopted water quality objectives.[484] By this definition, the proposed actions trigger preparation of an adequate anti-degradation analysis, which must include findings to support the above requirements if lowering of water quality is to be legally allowed. Water quality lowering almost invariably accompanies water diversions, in the form of changes in flow-related parameters such as dissolved oxygen, temperature, sediment, bacteria, and other pollutants.

As summarized by US EPA, all three water quality law components—designated uses, criteria to protect the designated uses, and the state's anti-degradation requirements—are "relevant and vital tools to protect and restore healthy hydrology."[485] BDCP and the Twin Tunnels' EIR/EIS must consider hydrology impacts in its anti-degradation analysis, and perform the assessments necessary to justify any concomitant degradation consistent with state and federal anti-degradation policies. Their absence in this EIR/EIS means this document must be revised to include anti-degradation analysis. The EIR/EIS should then be recirculated, should the project continue.

11. The EIR/EIS fails to analyze adequately impacts of the habitat conservation elements of BDCP on Delta Plan Area land use, agriculture, and the Delta economy.

In 2012, the Delta Protection Commission's *ESP* found several economic impacts from those BDCP proposals. (): The potential impact of policy changes on Delta salinity is highly uncertain at this time. Water supply in the Delta is a direct consequence of water quality. The better the quality, the more reliable are in-Delta water supplies. Potential changes to Delta salinity depend on decisions on water quality objectives and the resulting effect of isolated conveyance from BDCP. A preliminary estimate of losses due to increased salinity of Delta waters is between $20 million and

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[481] Letter from John DeVillars, US EPA Region 1, to Timothy Keeney, Rhode Island Department of Environmental Management (June 25, 1996), p. 3 (available upon request).

[482] State Water Board Resolution No. 68-16, *op. cit.*, note 73 above.

[483] *Asociacion de Gente Unida por el Agua v. Central Valley Regional Water Quality Control Board* (Cal. App. 3d, Nov. 6, 2012), No. C066410, p. 22. Emphasis added.

[484] *Ibid.*, pp. 21-22.

[485] Letter from James Giattina, US EPA Region 4 to Lance LeFleur, Alabama Department of Environmental Management, "Alabama Water Agencies Working Group: EPA Region 4 Stakeholder Comments," p. 9 (Nov. 19, 2012) (available upon request).

$80 million per year. The loss of farmland to construct the conveyance facility is estimated to generate an additional $10 to $15 million in crop losses per year.

The agricultural impacts of most of the BDCP conservation measures are difficult to quantify due to the lack of precision in site specification and other details, a direct result of the restoration conservation measures being pitched at only a "program" or conceptual level in the Bay Delta Conservation Plan. Broad ranges of still more potential annual crop losses have been estimated from the land requirements and descriptions of easement costs in the draft BDCP.

- Tidal habitat restoration losses range from $18 to $77 million annually with losses at the lower end of the range occurring when restoration is targeted to Suisun Marsh.
- Natural Communities Protection losses are estimated to range from $5 to $25 million annually.
- San Joaquin River Floodplain crop losses are estimated at $5 to $20 million annually and could be reduced significantly by implementing an alternative proposal to expand an exiting bypass at Paradise Cut.
- Yolo Bypass Fishery Enhancements could generate crop losses between $7 and $10 million annually.[486]

In addition to reduced opportunities for agricultural production and the potential for increased salinity due to habitat restoration, the *ESP* identified the following negative effects on land use (*ESP* page 39):

- Increased mosquito/vector problems from marsh restoration increases the risk of disease and creates a nuisance that makes the Delta less desirable for living, recreation, and tourism.
- Some marsh restoration could increase seepage and risk for levees on nearby islands.

The BDCP EIR/EIS itself identifies four Significant and Unavoidable Adverse Impacts to agriculture in the Delta as a result of constructing and operating the proposed water conveyance facility and implementing the proposed conservation measures.[487] The EIR/EIS Executive Summary indicates that all or most impacts on agriculture from the BDCP alternatives are adverse. The mitigation proposed is a "stewardship program." This appears to be wholly inadequate to the damage BDCP will cause to the Delta's agricultural economy.

The EIR/EIS also acknowledges that salinity will increase in Delta waters, discussed above in Section VII of these comments, which is an adverse water quality impact and injury to Delta water rights which depend on adequate water quality. Along with the land conversion planned with the other 21 "conservation measures" the EWC regards BDCP as an attack on Delta agriculture. The lack of levee investments, the potential to disrupt drainage patterns of the islands by introducing a tunnel, dewatering of lands around Delta facilities—they all amount to death to Delta agriculture by a thousand cuts.

The EWC is also concerned that BDCP, through its Implementation Office, will consolidate control over various DWR and DFW and other conservation/restoration projects under its umbrella. Would DWR turn the conservation easement on Staten Island over to BDCP? Would DFW durn the Yolo Bypass Wildlife Area over to BDCP? Is it the Resource Agency's intention that everything related to habitat will become part of BDCP?

The EIR/EIS also notes that "Implementation of CM2-CM21 would take place on land governed by policies designed to avoid or mitigate environmental effects, as identified in the Delta Protection

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[486] *ESP* pages 112-113.

[487] BDCP EIR/EIS, Chapter 31, *Growth Inducement*, Table 31-1, page 31-10.

BDCP 778

Commission Land Use and Resources Management Plan and in the Delta Stewardship Council draft Delta Plan." Among Delta Plan policies associated with land use, the EIR/EIS mentions DP P2 (Respect Local Land Use When Siting Water or Flood Facilities or Restoring Habitats). "Policy DP P2 requires that parties responsible for proposed action avoid or reduce incompatibilities with existing or planned uses **when feasible**"[488] "However, avoidance of all incompatibilities is likely to be considered infeasible; thus activities associated with CM2-CM21 would be compatible with Policy DP P2."[489]

We find there is poor definition of the BDCP Natural Reserve System. There already is a Delta Conservancy. There are other local conservancies in the region. We are very concerned too that having the Implementation Office run a reserve system will likely give it a low priority relative to Delta water operations, real-time fish protection operations, and the inevitable adaptive management dustbin where, we fear, challenging problems will be sent to die. We are concerned that BDCP uses bureaucratic commitment to "consensus" and other governance ploys to strangle the Delta region, and push its ecosystems and listed fish species over the edge.

We find this statement Orwellian. It claims for DWR and BDCP Applicants an implicitly authorized discretion over what is "feasible" for purposes of determining land use compatibility. BDCP arrogates to itself the power to determine under Delta Plan policy DP P2 that land uses of BDCP that may be incompatible would be conveniently found compatible. The EWC and its member groups demand that BDCP define how the Applicants define "feasible" in this land use context, and by what authority it would make such a determination.

BDCP's habitat proposals are redundant. Compared with several types of existing habitat identified in the Delta Plan EIR's Table 4.4, BDCP's habitat proposals seem redundant at best and therefore difficult to justify in view of the costs to existing land uses associated with their implementation.

BDCP says that CM4 would *restore* 65,000 acres of freshwater and brackish tidal habitat.[490] Table 4.4 of the Delta Plan EIR identified over ***83,000 acres of existing*** *tidal and nontidal brackish and freshwater marsh*: 8,330 acres of tidal brackish marsh; 6,980 acres of tidal freshwater marsh; 50, 180 acres of managed nontidal brackish marsh; 3,260 acres of unmanaged nontidal freshwater marsh; and 14,300 acres of managed nontidal freshwater marsh.

BDCP says that CM7 would restore 5,000 acres of riparian forest and scrub. Table 4.4 identified over **16,000 acres** of **existing** riparian forest (8,980 acres) and riparian scrub (7,180 acres).[491]

BDCP says that CM8 would restore 2,000 acres of grassland and protect 8,000 additional acres.[492] Table 4.4 identified **69,200** acres of **existing** grassland.

BDCP says that CM9 would restore vernal pool complexes and alkali seasonal wetlands within a larger matrix of grasslands; no acreage is specified.[493] Table 4.4 identified **15,610 acres** of **existing** grasslands with vernal pools (10,080 acres) and alkali seasonal wetlands (5,530 acres).

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[488] *Ibid.*, lines 24-26. Emphasis added.

[489] *Ibid.*, Chapter 13, page 13-64, lines 10-16 and lines 30-31.

[490] BDCP, Chapter 3, *Conservation Strategy*, Section 3.4.4.

[491] *Ibid.*, Section 3.4.7.

[492] *Ibid.*, Section 3.4.8.

[493] *Ibid.*, Section 3.4.9.

BDCP's CM3 proposes to acquire 69,275 acres to establish a habitat reserve system to protect existing natural communities and covered species habitat.[494] Major portions of the Delta are already owned or managed by public agencies or conservancies for the benefit of natural communities. Identifying and quantifying areas set aside for these purposes is complicated by the fact that land changes hands, collaborative efforts are continually being undertaken, and projects are initiated in response to changing conditions. Following is a discussion of some of the projects currently underway and land set aside primarily for habitat purposes, along with estimates of acreage. This list is by no means comprehensive. Where a project lists ranges of acreage, the most conservative numbers are listed here.

In the area identified by BDCP as Suisun Marsh ROA, the California Department of Fish and Wildlife (CDFW) oversees a long-term joint state-federal plan to restore ecological health and improve water management on non-tidal and tidal wetlands and grassland. The primary management zone alone is 89,000 acres, and a 30-year-plan now in place covers **52,000 acres** of wetland and upland habitats.

In the area identified by BDCP as Cache Slough ROA, a Fish Restoration Program Agreement (FRPA) is already in place to satisfy requirements of the Biological Opinions for SWP and CVP operations. FRPA is a joint effort between DWR and CDFW to implement habitat restoration in partial mitigation for the State Water Project's (SWP) impacts on sensitive fish species in the Delta. FRPA is also intended to address the habitat restoration requirements of the 2009 CDFW Longfin Smelt Incidental Take Permit (ITP) for SWP Delta operations (an incidental take permit separate and distinct from those sought by BDCP Applicants).

A variety of activities are associated with FRPA, including restoration and enhancement work on over **14,000 acres** in Yolo and Solano Counties.[495] It includes land formerly owned by the Trust for Public Land (Liberty Island) and The Nature Conservancy (McCormack-Williamson Tract). It incorporates several earlier efforts, including Prospect Island Tidal Habitat Restoration Project and the Cache Slough Complex project. DWR awarded a grant for the Cache Slough Complex project to support a conservation vision jointly devised by the Solano Resource Conservation District, Dixon Resource Conservation District, Reclamation District 2068, and the local landowners. The project has two main components: non-native invasive species removal and habitat enhancement and restoration.

The Department of Fish and Wildlife's Yolo Bypass Wildlife Area encompasses **17,770 acres**. BDCP CM2, Yolo Bypass Fisheries Enhancement (3.4.2), proposes to modify operations of the Yolo Bypass to benefit covered fish species. (No proposed acreage is specified.)

Already underway in the Yolo Bypass is the Knaggs Ranch Agricultural Floodplain Study, a collaborative effort of landowners, UC Davis, and CalTrout that has already shown some success providing salmon habitat on seasonally flooded agricultural land. The long-term goal is to expand the project to 2,500 acres.

Substantial amounts of agricultural acreage are managed for habitat. For example, Staten Island, over **9,100 acres**, is owned by The Nature Conservancy, which is required under a conservation easement owned by DWR to protect wildlife-friendly agriculture on the island. Staten Island is managed in particular for the protection of sandhill cranes. Additional sandhill crane

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[494] *Ibid.*, Section 3.4.3.

[495] "FRPA and Other Habitat Restoration Projects for BiOps and ITP Compliance in the Delta and Suisun Marsh." Map edited by DWR, May 2013.

habitat is provided by the **147-acre** Woodbridge Ecological Reserve (also known as the Isenberg Crane Reserve) in San Joaquin County. The California Department of Fish and Wildlife (CDFW) manages this reserve consisting of low freshwater marsh, grassland, and flooded pasture. BDCP says that CM10[496] would restore 1,200 acres of nontidal freshwater wetlands and create 500 acres of managed wetlands for greater sandhill cranes.

The Delta Wetlands Project, a public-private partnership between Kern County's Semitropic Water Storage District and Delta Wetlands, a private landowner, owns four islands in the Central Delta that it manages for water supply and habitat restoration: Bacon Island (5,625 acres), Webb Tract (5,490 acres), Bouldin Island (6,006 acres) and Holland Tract (about 3,500 acres). Total: **20,621 acres.**

Portions of the 46,000 acre Cosumnes River Preserve (parts of which are in BDCP's Cosumnes/ Mokelumne ROA) and the USFWS's Stone Lakes National Wildlife Refuge (the latter with about 11,500 acres currently owned or managed) lie within the statutory Delta.

The Dutch Slough Tidal Marsh Restoration Project in eastern Contra Costa County is a joint state-local-nonprofit project to restore **1,200 acres** of tidal marshland, riparian, and upland habitats. Sherman Island, 9,937 acres almost entirely owned by DWR, includes the **3,115 acre** Lower Sherman Island Wildlife Area in Sacramento County, managed by DFW; Decker Island Wildlife Area in Solano County, managed by DFW, is **33 acres.** Miner Slough Wildlife Area, also in Solano County and managed by DFW is **37 acres.**

All five Delta counties have their own habitat conservation plans that include Delta lands. In addition, local land conservancies have several hundred acres of land within habitat easements. And although exact information about owners and acreage is not available, the USDA's Natural Resources Conservation Service provides technical assistance on habitat projects to private landowners in the Delta.

Clearly, there is no lack of land currently owned and already managed for habitat in the Delta by a variety of project sponsors. These activities represent an evolution of land uses that is already underway in the Delta in response to concerns about the adequacy of habitat. Intensive farming of the Delta islands goes back over 100 years. Island configuration and new land converted to farms have essentially not changed since the early 1900s, while habitat acreage has increased significantly over time.

Precipitous species decline began in the 1960s, concurrently with increased project exports. If habitat were the solution to species declines, then we would not be seeing the collapse of Delta fisheries that has occurred since the state and federal export facilities began operating, reducing freshwater flows. Habitat restoration efforts have in some cases made matters worse by inadvertently creating habitat for undesirable species, predators, and noxious weeds.

Existing habitat could be managed far more efficiently as a more interconnected system to improve fishery benefits. There are amounts of land already in habitats of various types that are benefiting covered fish already. For fish species, however, whether covered by BDCP or not, Delta inflows are a crucial component of Delta habitat values. BDCP cannot meet its primary goal of export reliability without removing water that fish need. Adding more wetland and other natural community habitat by taking agricultural land out of production will not compensate for this loss of flows.

The disconnect between BDCP's advertised habitat goals, its water supply reliability purposes, and its deletion of flows to benefit fish is on full display in BDCP's designs for the South Delta ROA.

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[496] BDCP, Chapter 3, Conservation Strategy, Section 3.4.10.

The Problem Statement for CM5 acknowledges that "[c]hannel straightening and levee construction have disconnected river channels from their historical floodplain over much of the Plan Area, resulting in the reduction, degradation, and fragmentation of seasonally inundated floodplain and its associated natural communities."[497] This has resulted in a decline in the abundance of species including Sacramento splittail, Chinook salmon, and slough thistle.[498] A few lines later, this assertion is moderated: "This loss of foraging and rearing habitat **may** have contributed to reduction in the abundance and distribution of all anadromous salmonids in the Plan Area."[499] Nevertheless, we see here the crux of BDCP's case for habitat restoration: Loss of habitat, rather than dramatic changes in quality and timing of flows of water due to increased water exports, is the pre-eminent cause of species declines.

Despite this Problem Statement's focus on seasonally inundated floodplains in the north and east portions of the Plan Area, BDCP says that "the most promising opportunities for large-scale floodplain restoration are in the south Delta."[500]

Selection of the south Delta for the creation of new floodplain habitat only makes sense if the Delta is viewed entirely from the perspective of topography, without respect to existing land use, which is agriculture.

The South Delta ROA is not subsided land; BDCP identifies it as "intertidal" (2 to 5.5 feet in elevation), "sea level rise accommodation" (5.5 to 8.5 feet in elevation), and two levels of "transitional habitat" (8.5 to 15 feet in elevation) (BDCP Figure EA.2.1.1: South Delta Physical Setting, page EA.2-2). Thus, built into the identification of this as a Restoration Opportunity Area is the assumption that subsided areas adjacent to it will become tidal as a consequence of sea level rise. The terminology used to describe this ROA represents an implicit policy decision NOT to commit to maintaining existing land uses in the area.

Significantly, the habitat project on four south Delta corridors that is described in Chapter 3 as "Conservation Measure 5 Seasonally Inundated Floodplain Restoration" is described in Appendix 5E Habitat Restoration (Attachment 5E.A) as "BDCP South Delta Habitat and Flood Corridor Planning." This difference in description represents an accommodation to the South Delta Habitat Working Group, which insisted that flood management objectives be integrated into habitat objectives.[501]

EWC does not expect that flood management will be a guiding principle in implementation of CM5. BDCP is straightforward about the primary goal of CM5: "Restored floodplains may maintain

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[497] Bay Delta Conservation Plan, Chapter 3, *Conservation Strategy*, Section 3.4.5.2, page 3.4-146, lines 28-30.

[498] *Ibid.*, lines 32-33.

[499] *Ibid.*, p. 3.4-147, lines 10-12. Emphasis added. The Problem Statement continues with discussion of changes to habitat for splittail in floodplains in the Yolo and Sutter Bypasses and along the Cosumnes River (lines 38-39), as well as loss of splittail habitat and floodplain connectivity downstream from Sacramento as a result of USACE projects to decrease flooding in the lower Sacramento River (lines 1-5). Emphasis added.

[500] *Ibid.*, 3.4.5, page 3.4-145, lines 16-17. Any floodplain restoration in the Sacramento or Cosumnes-Mokelumne basins would involve channel margin enhancement (CM6) and would be ***in addition to*** the 10,000 acres planned for the South Delta (3.4.5, page 3.4-150, lines 12-15).

[501] *Ibid.*, Chapter 5, *Effects Analysis*, Attachment 5E.A, page EA.1-2, lines 13-14.

existing agricultural uses that are compatible with the primary goal of restoring habitat for covered fish and wildlife species."[502]

In terms of siting and design, flood conveyance and risk reduction benefits are just one of five considerations. A restoration site must have the "potential to meet or contribute to the applicable biological goals and objectives"; must be adjacent to a channel important "for use by covered species, especially by rearing/migrating juvenile salmonids"; and must have the "potential to provide ecologically relevant flood inundation [to benefit native species] given the anticipated range of flow regimes and sea level conditions influenced by climate change and potential management changes."[503]

This last point encompasses several major uncertainties: the range of BDCP flow regimes, the effects of climate change, and management of the San Joaquin River Restoration Program. In particular, flows in the South Delta will be heavily influenced by how flows in the San Joaquin River are managed for restoration.

Despite the uncertainties, the conservation strategy for CM5 combines hypothesis with resolute optimism: "We think this will work and we're going to try it, and if it doesn't work, we'll try something else." The "something else" may also be dramatically disruptive.

> Contingency measures to be implemented if floodplain restoration is unsuccessful may include, but are not limited to, removal of breached levees or recontouring floodplain topography.[504]

This is the essence of adaptive management. It is offensive because it seeks to justify a situation where the proposal is to disrupt existing well-functioning land uses to create new habitat. The habitat restoration conservation measures would strive to "break" the Delta (through conversion of economically and socially productive agriculture) in order to "save" it through habitat restoration that the EWC has shown elsewhere in these comments to be fraught with BDCP optimistic intentions that are not backed by credible readings of the supporting science cited. In the South Delta, the factors most damaging to both habitat and agriculture are poor water quality and inadequate flows of water as a result of the operation of the state and federal water projects, both on the San Joaquin River and in the Delta itself. Nor does CM5 propose to adaptively manage that situation.

Details about the Adaptive Management and Monitoring that is proposed (3.4.5.4) confirm what for the south Delta would be essentially an experiment on a grand scale.

> "Compliance monitoring for this conservation measure will consist of documenting in a GIS database the extent of floodplain *successfully restored*. . . ."[505]

This assumes, rather than demonstrates, that restoration actions will be successful. If they are not, more extensive "recontouring" may be called for; rinse, repeat.

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[502] *Ibid.*, page 3.4-149, lines 16-18.

[503] *Ibid.*, Section 3.4.5.3.2, page 3.4-148, lines 20-26

[504] *Ibid.*, p. 3.4-151, lines 20-22. See also 3.4.5.3.3 on the relationship of CM5 to other conservation measures, pages 3.4-149 to 3.4-150.

[505] *Ibid.*, page 3.4-151, lines 5-6. Emphasis added.

> "Effectiveness monitoring will consist of *verifying* that restoration sites are performing the *expected* ecological functions as prescribed by *success* criteria in the site-specific restoration plans."[506] If they are not, "These monitoring elements may be modified, as necessary . . . ."[507]

If the criteria don't provide the results desired, the criteria can be changed.

> "...[O]ne key uncertainty is associated with seasonally inundated floodplain restoration: How is predation affecting covered fishes in the restored floodplain? The distribution and abundance of covered fish species and predators at restoration sites will be evaluated to resolve this uncertainty."[508]

At least those doing the monitoring will not have to be uncertain about the ineffectiveness of the conservation measure.

BDCP attempts to reassure readers that we can count on "the Implementation Office [to] address scientific and management uncertainties and ensure that...biological goals and objectives are met" through "effectiveness monitoring, research and adaptive management....."[509] Alas, this too is not reassuring. Description of the Implementation Office at Section 7.1.1.3 makes it clear that "the implementation Office staff will work closely with the Authorized Entity Group on a range of matters, particularly with respect to actions that affect water operations, and will be responsive to the Authorized Entity Group...."[510] "The Authorized Entity Group will consist of the Director of DWR, the Regional Director for Reclamation, and a representative of the participating state contractors and a representative of the participating federal contractors."[511] ***The long experience of people in the Delta suggests that under these circumstances, it is unlikely that implementation of any conservation measure will be allowed to take precedence over water operations.***

It is likely that under CM5, the South Delta will be reconfigured for floodplains, with attendant adverse impacts on land use, mainly through conversion of agricultural land., Then it can be operated exclusively instead for exports.

Note regarding water for wetlands: BDCP proposes 65,000 acres of Tidal Wetland Restoration.[512] However, Table 5.4-3 of the Effects Analysis shows a net *reduction* in "Managed Wetland" acreage over the whole planning area. This is due to the loss of 13,278 acres of managed wetlands in Suisun Marsh, which will become "Tidal Natural Communities." Table 5.4-3 shows a net increase in "Tidal Freshwater Emergent Wetland" of 23,991 acres (a 487% increase over the current acreage for that natural community type). The EIR/EIS is vague regarding where the water for these wetlands—6-7 acre feet for each acre—will come from.

This uncertainty about how and where habitat will be engineered or re-engineered and how much water it will need is particularly troubling given the additional uncertainty about how much water

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[506] *Ibid.*, lines 12-13.

[507] *Ibid.*, lines 16-17. Emphasis added.

[508] *Ibid.*, page 3.4-151, lines 33-35.

[509] *Ibid.*, Section 3.4.5.5, page 3.4-152, lines 6-8.

[510] Bay Delta Conservation Plan, Chapter 7, *Implementation Structure*, page 7-7, lines 8-11.

[511] *Ibid.*, 7.1.3, page 7-10, lines 38-40.

[512] BDCP EIR/EIS, page 3-22.

will actually be available if the system is also being managed for export reliability. BDCP will disrupt existing land uses in the Delta for habitat restoration that is in fact highly speculative.

12. The EIR/EIS fails to analyze socioeconomic impacts of BDCP adequately, especially for environmental justice communities.

Having relied on data at the level of the five-county region for its background analysis of socioeconomics, the EIR/EIS switches to a focus on the statutory Delta for its evaluation of environmental consequences, including effects on community character and cohesion, population, housing employment and income.[513] "This assessment [of environmental consequences] focused on communities in the statutory Delta, where the direct effects of the BDCP would occur and where social and community effects would be greatest. Social and community effects elsewhere in the larger five-county Delta region are anticipated to be minor because they would be spread over a large, heavily populated area and among many communities."[514]

In other words, the EIR/EIS uses a region-focused analysis to effectively minimize the socioeconomic role of the Delta as Place, and it uses an analysis focused on the statutory Delta to minimize environmental effects of BDCP on the wider region.

(Another example of selecting an analytical focus that favors BDCP occurs with Commercial Fishing Effects: "Commercial salmon fishing effects are not addressed for individual alternatives in this chapter because, while speculative, these effects are anticipated to be positive overall and would be spread among coastal regions where commercial lands occur." "As discussed in the *Statewide Economic Impact Analysis*, the overall impacts of the implementation of the BDCP are expected to be positive for both the populations and commercial landings of fall-run chinook salmon." While alluding to uncertainties, the EIR/EIS says "The overall effects, however, are anticipated to be positive." [515] Not mentioned are runs of salmon other than fall-run Chinook or the effect on coastal regions if speculations about positive effects turn out to be wrong.)

The Delta as Place is threatened by the whole range of BDCP conservation measures, from CM1 through CMs associated with habitat restoration. "[Construction] activities, along with the long-term placement of the conveyance facilities, could . . . alter the character of [Delta communities] by reducing the extent of undeveloped land in proximity to communities and by changing the viability or desirability of leading economic and social pursuits, including agricultural activities and water-based recreation." "Implementation of habitat restoration could have some similar effects during the construction period by introducing conditions that would alter and potentially detract from the rural characteristics of Delta communities."[516]

Of particular interest in any consideration of Delta as Place is the NEPA analysis of Changes in Community Character as a Result of Constructing the Proposed Water Conveyance Facilities (Alternative 4).

NEPA effects for Alternative 4 include expansion of population and employment throughout the five-county Delta region as a result of construction but decline of agricultural contributions to the character and culture of the Delta. Agriculture-dependent businesses or those catering to

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[513] *Ibid.*, Chapter 16, page 16-38, lines 20-21.

[514] *Ibid.*, page 16-40, lines 9-13.

[515] *Ibid.*, page 16-47, lines 26-28, lines 33-35, and lines 38-39.

[516] *Ibid.*, page 16-41, lines 21-25 and page 16-61, lines 28-30.

agricultural workers are expected to close. A shift from agriculture toward construction is expected to result in more men and fewer women in the labor force (98 percent men for construction versus 84 percent men for agriculture). More agricultural workers than construction workers in the five-county area report Hispanic origin, (87 percent agricultural versus 54 percent construction), so a shift toward fewer Hispanic workers in the labor force seems likely.[517]

For legacy communities in the Delta, "particularly for those communities in proximity to water conveyance structures, including Clarksburg, Hood, and Walnut Grove",

> Effects associated with construction activities could . . . result in changes to community cohesion if they were to restrict mobility, reduce opportunities for maintaining face-to-face relationships, or disrupt the functions of community organizations or community gathering places (such as schools, libraries, places of worship, and recreational facilities).[518]

The "total population and employment base of the study area would expand during water facility construction," but any benefits from investment in the "study area" are speculative (and would in any case be likely to be temporary for the 8-year construction period). "[Property] values may decline in areas that become less desirable in which to live, work, shop, or participate in recreational activities."[519]

Underlying the discussion of Environmental Setting/Affected Environment in Chapter 15, Recreation, is the assumption that fishing is best classified as a leisure pursuit. Categorizing fishing as a recreational activity obscures its importance as a means of acquiring food for low income residents, and especially for some cultures, including Southeast Asian cultures such as Hmong and Cambodian, which are well-represented in the Delta region.

Table 15-1, "Boat Owners' Participation in Water- and Land Based Recreation Activities in the Delta" (page 15-3) shows that 67% of small-boat owners report fishing as one of their "recreation" activities – the largest percentage for any small-boating activity. Chapter 15 notes that "Shoreline anglers may gain access to Delta waterways at numerous locations along Delta roads," (page 15-5, lines 12-13); "Bank fishing is a year-found activity, with peak seasons varying by fish species" (page 15-5, lines 15-16). Angling (fishing with a hook and line) sounds like a leisure activity, but with the exception of fly fishers, fishermen typically eat what they catch.

Given the acknowledged importance of fishing in the Delta, it is clear that any BDCP activities that make it more difficult for people to fish interfere with their ability to feed themselves.

This will disproportionately impact low-income communities, and in the Delta itself, there is an overlap between low-income and non-White communities. According to the *Economic Sustainability Plan*,

> The residents of the Legacy Communities are primarily White, although other racial groups and ethnicities are also well-represented. Eastern Walnut Grove and Locke are quite diverse, with Asians making up 38 percent of the population and Hispanics making up 40 percent of the population. Courtland also has a notable Hispanic population, with about 66 percent of the population reporting that ethnicity.
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> Across the Legacy Communities, the Census Bureau reports wide disparities in household income, with average household incomes ranging from less than $30,000 to over $90,000 per year. The highest average

[517] *Ibid.*, page 16-163, lines 36-40, lines 40-41, and page 16-164, lines 8-15.

[518] *Ibid.*, page 16-164, lines 24-29.

[519] *Ibid.*, page 16-164, lines 38-39 and lines 45-46.

> income is found around Ryde (including western Walnut Grove), where the Census Bureau reports an average household income of $92,200 (well above the average of $79,200 in the Legal Delta). However, directly across the Sacramento River in eastern Walnut Grove and Locke, the Census Bureau finds that average household income is significantly lower, at about $28,500.[520]

To the extent that "Recreation Sites" are sites where people fish, impacts from BDCP construction or operation on Recreation must be viewed as having potential environmental justice impacts that have not been fully analyzed.

The Delta as Place is in many ways an aesthetic construct. Chapter 17, Aesthetics and Visual Resources, provides a useful indicator of the predisposition of EIR/EIS consultants to view BDCP as a solution to problems that are by no means universally acknowledged. Description of the No Action Alternative incorporates the various disaster scenarios used to justify BDCP. It illustrates the bias that is fundamental to this whole analysis.

> Land subsidence, sea level rise, catastrophic levee failure, or a combination thereof should they occur, would result in flooding and inundation that could significantly damage existing facilities and infrastructure, uproot and damage vegetation to an unknown extent, permanently flood Delta islands, and drastically alter the visual landscape. Should such events occur, as anticipated, natural processes and vegetative succession would restore the visual environment to a certain degree over time. However, permanent scarring or visual remnants of damaged infrastructure could remain on the landscape.[521]

"Catastrophic," as is usual in discussions of the Delta, is undefined, and the assumption that these events are inevitable goes unexamined.

The discussion continues with descriptions of scenic views damaged by permanently flooded islands, and so on. It is significant that BDCP does not propose to correct land subsidence or reinforce levees against levee failure. Therefore, all these adverse aesthetic impacts could happen anyway.

EIR/EIS Chapter 28, Environmental Justice, provides a discussion of subsistence fishing among various cultures and low-income populations. The focus is on health risks associated with mercury contamination of fish. However, recreation impacts, including impacts on fishing, are not analyzed in Chapter 28 relative to Alternative 4. Therefore, the issue of access to fishing for environmental justice communities is not fully addressed.

13. The EIR/EIS fails to disclose potential cultural resource impacts from both BDCP alternative alignments and BDCP habitat restoration measures that would disturb ground surfaces.

We note that the recent case of *Madera Oversight Coalition* clarifies proper treatment in EIRs of archaeological and historic resources under CEQA rules.[522] We found no mention of it in BDCP's EIR/EIS in Chapter 18.

In our comments on Chapter 18, *Cultural Resources*, of the BDCP EIR/EIS above, we noted that the the setting should include a series of maps that show locations of cultural resources identified using the techniques described early in the chapter for the entire Plan Area.

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[520] *Draft Economic Sustainability Plan*, page 234.

[521] BDCP EIR/EIS, Chapter 17, p. 17-46, lines 9-15. Emphasis added.

[522] *Madera Oversight Coalition, Inc. v. County of Madera* (2011) 199 Cal.App.4th 48.

Such a series of map then must be cross-correlated not only with BDCP alternative alignments but with potential areas where habitat restoration conservation measures will be implemented—that is, areas where construction activities related to creating habitat sites could intersect and overlap with cultural resources in the Plan Area. This needs to be conducted even at a "program level" given that the "program" for habitat restoration identifies not only conservation "zones" but also "restoration opportunity areas" throughout the Plan Area. The absence of this is critical, because it provides the basis for lay readers and decision-makers alike to see at a glance the potential for impacts to cultural resources stemming from habitat restoration actions. This is critical information

A subset of these maps must also be generated to reflect the cultural resources that may qualify under Section 106 for inclusion in the National Register of Historic Places. Currently, Chapter 18 fails to disclose even these basic types of impact analysis, making it difficult for readers to quickly understand BDCP's cultural resource effects.

BDCP attempts to turn setting/affected environment deficiencies owing to a lack of direct on-site survey information of cultural resources into "mitigation measures," but this reflects a conceptual confusion: mitigation measures are not allowed to be "studies" and "surveys." They must be actions that actively reduce the effects of a proposed project or undertaking on, in this instance, cultural resources. Time and again, the EIR/EIS in Chapter 18, in Alternative 1A and Alternative 4 at least, implies in discussions of mitigation of the adverse effects of the project on cultural resources that prior to construction, the necessary surveys and studies of cultural resources will be completed.[523] Given the limited seasonal construction schedule of BDCP, we fail to see how this can be accomplished without BDCP's construction schedule slipping, especially if the studies have not been completed as part of a recirculated Draft EIR/EIS for the BDCP. By slipping these surveys and studies into "mitigations" BDCP implies that ***the public should "trust us" to conduct their historic and archaeological due diligence after the incidental take permits, 404 permits and other construction permits are issued for the project. This is illegal and unacceptable.*** Thorough study of cultural resources must be completed ***prior to authorization of the undertaking***, according to CEQA, NEPA, and the National Historic Preservation Act, Section 106. Only recovery of human remains may be allowed and conducted once the project is under construction.

It is only in Table ES-9 of the Executive Summary that one can quickly ascertain that seven of eight impacts identified for the BDCP alternatives are adverse/significant and unavoidable not just for the proposed action alternative (Alternative 4), ***but for all BDCP alternatives. These impacts cannot be reduced to less than significant levels. These effects would be irretrievable, irreversible losses of cultural resources to California's pre-history and history of the Delta Plan Area region. Such losses would be compounded to veritable looting of the Delta's heritage as an evolving place when we recall that DWR has been unsuccessful at obtaining access to Delta lands along the BDCP alternative alignments and that it has failed to disclose the locational proximity of known cultural resources to conservation zones and restoration opportunity areas. At a minimum, this Draft EIR/EIS must be withdrawn as inadequate, new information obtained and analyzed, and the Draft EIR/EIS recirculated for public review and comment.***

14. The EIR/EIS reports a large and unacceptable number and variety of significant unavoidable impacts and adverse effects that would result from the Bay Delta Conservation Plan, including some affecting environmental justice communities.

BDCP EIR/EIS's Executive Summary reports in excess of 55 of adverse effects resulting from BDCP implementation. The range of adverse effects is highly varied, ranging from adverse local and

[523] *Ibid.*, Chapter 18, *Cultural Resources*, p. 18-128, lines 14-41 and 1-11, and p. 18-129, lines 1-11.

regional groundwater effects to adverse effects on water quality, public health, agriculture, land use, recreational, economic, cultural resource, air quality, fish and aquatic ecosystem.

This list does not include the adverse cumulative public health effects identified in Chapter 25 of the EIR/EIS. ***The array of adverse effects identified is a strong indicator that Bay Delta Conservation Plan remains poorly planned after eight years.*** This list includes increased adverse effects of bromide concentrations, particularly at the North Bay Aqueduct Intake, increased mercury concentrations (an adverse cumulative condition that could be disturbed by BDCP construction and operation activities, which could increase mercury bioaccumulation), and potentially increased selenium contamination from reduced Delta outflow, increased residence times of water, and changes in upstream management of selenium sources in the western San Joaquin Valley. None of these cumulative public health effects were included in the Executive Summary of the EIR/EIS, making it more difficult for even the English-speaking public and decision makers to learn of these potential impacts.

15. The EIR/EIS improperly weights seismic risks to the state water system in the setting and affected environment discussions. This bias emphasizing seismic risks in the Delta prevents lay readers and decision makers from arriving at informed judgments and decisions about such risks.

We find the BDCP to be completely inadequate when it comes to reducing risks. Because of the lack of Delta levee improvements in Alternative 4, the Proposed Project does not meet the requirements or intent of Water Code Section 85305(a) to "reduce risks to people, property and state interests in the Delta"... "by promoting"...."strategic levee investments." Economist Rodney T. Smith, after conducting an extensive and meticulous analysis of BDCP's economics and financing in the summer of 2013, concluded:

> *As I think about California's future, I am surprised that the risk and consequences of levee failure in the Delta hasn't received more attention.*[524]

For example, despite a recommendation from the Delta Protection Commission and a policy from CALFED, BDCP does not include a policy, recommendation or proposal for Delta levees to meet the PL 84-99 levee standard, nor does it provide the measures to address seismic risks to levees..

The description of risks includes neither seismic and ground subsidence threats to the California Aqueduct and Delta-Mendota Canal. For instance, the January 2009 Newsletter of the International Water Resources Association[525] stated the following regarding B.F. Sisk Dam (San Luis Dam):

> *"The dam and reservoir are located in an area of high potential for severe earthquake forces from identified active faults, primarily the Ortigalita Fault that crosses the reservoir. It is also near two major seismic faults: 45 kilometers (28 miles) from the San Andreas Rift Fault, and 36 kilometers (23 miles) from the Calaveras-Hayward Fault. Reclamation has identified several conditions that require action to reduce risks. Studies and deformation analysis conducted indicated that during a major earthquake, crest settlement greater than freeboard, or cracking associated with embankment deformation, could occur and lead to dam failure.*

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[524] Rodney T. Smith, "Hydrowonk's Take on the BDCP," *Hydrowonk Blog* 9 October 2013. Emphasis in original. Accessible online 11 April 2014 at http://hydrowonk.com/blog/2013/10/09/hydrowonks-take-on-the-bdcp/. Emphasis added.

[525] "IRWA Update" Newsletter of the International Water Resources Association, January 2009, Volume 22, Issue 1, page 15. http://www.iwra.org/doc/iwraupdatejanuary2009.pdf

Failure of the dam could inundate hundreds of square kilometers including the town of Santa Nella and numerous farms and houses along the San Joaquin River, including some areas of Stockton."

Geologic Fault Maps by the California Geologic Survey[526] clearly show greater fault risks to San Luis Reservoir/Dam and the California Aqueduct than are the fault risks in the Delta.

Catastrophic failure of San Luis Dam would inundate the California Aqueduct, Clifton Court Forebay, the Delta Mendota Canal and other water conveyance facilities. The San Joaquin County Dam Emergency Plan[527] inundation timeline for San Luis Dam failure estimates that it will reach Clifton Court Forebay in 50 hours and Brannan and Staten Islands in 100 hours. It describes the area affected as "San Joaquin River Areas, West Stockton and Delta Islands" with an estimated 165,000 people threatened.

A map of the entire San Luis Dam inundation area[528] shows an inundation zone extending throughout most of the southern and central Delta.

The threat to reliable water supplies from earthquakes causing massive levee failure is greatly overstated and not supported by the BDCP and Draft EIS/EIR. Just as the alleged benefits of habitat restoration have been inflated in the BDCP documents, so has the risk of levee failure from seismic activity been inflated without justification. The case for seismic levee failure does not pass the red-face test and is not supported by the best available information on Delta levees.

The Draft EIS/EIR analysis relies on the discredited Delta Risk Management Study Phase 1 report and utterly fails to mention or reference the most current information on Delta levees, which is the Delta Protection Commission's Delta Final Economic Sustainability Report[529].

The DEIS/EIR's faulty reliance on the DRMS Phase 1 report is further undermined by the EIS/EIR's claim that it could take up to 3 years to flush salt out of the Delta following massive levee failure, yet failing to reference...

"DWR's own findings regarding the time that it would take to flush out the Delta as reported by Dr John McGeorge to a meeting of the BDCP Steering Committee on July 28, 2010, and subsequent studies conducted for the DWR by Dr McGeorge and Dr Martin McCann. These studies suggest that even in a 20 flooded islands scenario, a worse than worst case scenario with an exceedingly low probability of occurrence, the Delta would likely flush out within several months, and at worst within six months. The failure of this draft EIR /EIS to reference these studies is an egregious omission which must cast doubt on" the legal adequacy of the entire document.[530]

We agree that the "Earthquake Bogey" as described by Robert Pyke in his May 26 comments on

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[526] http://www.conservation.ca.gov/cgs/cgs_history/Pages/2010_faultmap.aspx

[527] Page 21 http://www.sjgov.org/oes/getplan/Dam_Emergency_PLAN.pdf

[528] http://www.cityofripon.org/DisasterManagement/Figures/Ripon%20Inundation%20Fig%208A%20A%20size.pdf

[529] http://www.delta.ca.gov/Economic%20Sustainability%20Plan.htm

[530] Comments of Dr. Robert Pyke on BDCP Draft EIS/EIR, May 26, 2014, page 39-49; accessed at http://www.centralvalleybusinesstimes.com/links/Pyke%20comments%20on%20BDCP%20PDEIR-EIS%20-%20Final.pdf

BDCP 778

BDCP's DEIS/R is not supported by fact or analysis in the Draft EIS/EIR

The CEQA purpose contains three project objectives and then five "additional project objectives" including this one:

"To make physical improvements to the conveyance system that will minimize the potential for public health and safety impacts resulting from a major earthquake that causes breaching of Delta levees and the inundation of brackish water into the areas in which the SWP and CVP pumping plants operate in the southern Delta.

However, there is a disconnect between the CEQA purpose in Section ES.2.1 and Earthquake risk listed as one of state CEQA objectives, but earthquake risk is not listed as part of the NEPA Purpose and Need in Section ES.2.2.

Section ES-9.2 Land-based Resources and Impact Mechanisms

Table ES-9 on page 61 et seq. does not identify earthquake impacts of any alternatives on water supply, water quality. Are earthquakes then not a problem? If earthquake risk to levees is a key CEQA project objective, then why is it not listed in the summary of impacts table?

References in ES.10 do not include Delta Protection Commission's Delta Sustainability Plan that is necessary for analysis of Delta levee vulnerability to earthquake failure. The DEIS/R does not include the best available information and in this case, it appears that information contradicting the need for new conveyance is not included so as to unfairly exaggerate the "Earthquake Bogey".

The Executive Summary relies improperly on Delta Risk Management Study Phase 1 as stated above.

Chapter 2- While seismic risk and catastrophic levee failure are listed as conflicts between species protection and a reliable water supply, earthquakes are not mentioned in Section 2.5.2 (water supply reliability) and 2.5.3 (Delta Hydrology and Water Quality). There is inadequate justification to support the Earthquake Bogey.

The Delta Independent Science Board also pointed out the lack of adequate justification for the Earthquake Bogey in its May 15, 2014 comments (page 9).[531]

"Second, although levees receive considerable attention in both documents (as befits their importance to what goes on in the Delta), the coverage is disconnected and incomplete. In particular, neither the consequences of levee failures on the effectiveness of BDCP actions nor the financial implications of demands for levee maintenance receives adequate attention. The assumption that most levee breaches will be repaired seems unrealistic."

Page A-6 from DISB review:

"Effects of and on levees. Although the DEIR/DEIS cites the threat of levee failures as a justification for new pipelines or canals, the reviewed documents offer no detailed analysis of how levee failures could affect the various alternatives, or of how the alternatives may affect the economics of levee maintenance. We found no part of the DEIR/DEIS, or of the Draft BDCP, that relates Delta levees to the BDCP in more than a piecemeal fashion. We discuss these concerns in our review of Chapter 9 (Appendix B).

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[531] http://deltacouncil.ca.gov/sites/default/files/documents/files/Item_9_Attachment_3.pdf

It can be argued that CEQA guidelines do not identify levees as resources; that BDCP is not a flood-control project; and that levee failure is too speculative for analysis. However, few Delta facilities are more important to its current functions than are its levees, and levee failure has happened too often (and the threat of future failures is invoked too much) to be excluded from thorough analysis in the DEIR/DEIS."

On page B-18, the DISB further recommends a "comprehensive levee chapter" because the Draft EIS/EIR as it currently stands inadequately portrays the levee hazards and the existing information is scattered throughout the document.[532]

The DISB points out on page B-27:

"The depiction of hazard in Figure 9-6 contrasts with that by the DRMS study. For instance, Figure 9-6 of Chapter 9 shows all Sherman Island levees as having high potential for damage from liquefaction, while DRMS Figure 6-37c assigns a majority of Sherman Island's levees to the lowest of three categories of vulnerability to earthquakes (URS Corporation and Jack R. Benjamin & Associates Inc., 2008)."

The EWC agrees with Pyke where he points out that the description of Delta levees in Section 3.5.1 is grossly inaccurate in portraying Delta levees as fragile. He points out that the EIS/EIR should have used Chapter 5 and Appendices C, D and E of the Economic Sustainability Plan for a more correct description of the Delta levee system, but did not.

The BDCP EIS/EIR did not analyze an alternative to bring all Delta levees to the PL 84-99 standard as stated in the Economic Sustainability Plan and the EWC's Responsible Exports Plan, yet Pyke states:

"In fact, improvement of the entire Delta levee system to meet the Delta-specific PL 84-99 standard is now within reach."

Furthermore, we agree with Pyke where he points out that the DPC's Delta Economic Sustainability Plan is the most authoritative accurate and peer-reviewed work to date on the status of Delta levees and what it would take to improve them to the PL 84-99 level, yet the BDCP and its Draft EIS/EIR do not even mention it!

EWC agrees with Pyke (page 39) where he points out the inadequacies of the DRMS Phase 1 assessment and the poor peer reviews.

The EWC agrees with Pyke (page 40) where he states: "The failure of this draft EIR /EIS to reference these studies is an egregious omission which must cast doubt on the validity of the entire document."

The EWC incorporates by reference Appendix B of the May 26 comments on the BDCP Draft EIS/ EIR, including, but not limited to Mr. Pyke's analysis of the following:

- Erroneous information in EIS/EIR about the status of existing Delta levees
- Inadequate emphasis on emergency preparedness to limit interruption of Delta exports due to seismic and flooding events
- Inadequate description of levees in No Action Alternative, including an inflated levee failure

[532] The DISB review comments on B-25/26 are critical of the EIS/EIR not having a "comprehensive assessment of levee-related impacts" and states that " Chapter 9 provides little information, however, about the basis for its liquefaction analysis."

rate
- Lack of seismic risk benefit analysis for the alternatives
- Overstatement of liquefaction risks in Chapter 9 and elsewhere
- Complete failure to mention seismic risks in Chapter 8, Water Quality
- Failure to address risk of levee failure from ground settlement due to tunneling activities
- Unsupported conclusions that levees cannot be protected from sea level rise

H. The EIR/EIS improperly excludes many programs and well-known storage projects from its list of projects considered for cumulative impact analysis of the Bay Delta Conservation Plan.

BDCP wishes to consider the North Delta Intakes and Twin Tunnels facilities as a "stand-alone project" for purposes of CEQA and NEPA "just as future storage projects would be."[533] ***The trouble is, neither type are stand-alone projects.*** Legally, the Twin Tunnels would be owned by the California Department of Water Resources.[534] The facilities in Conservation Measure 1 would become part of the State Water Project, which is itself legally titled the State Water Resources Development System[535], a water storage and conveyance system designed to integrate water supplies from northern California with "supplemental demand" (to which we alluded earlier in our discussion of water transfers above) south of the Delta through use of Delta export pumps at Banks pumping plant and the California Aqueduct system (which includes the State-owned storage space at San Luis Reservoir near Los Banos).

While the State Water Project could theoretically operate by itself, the State of California and the US Bureau of Reclamation (via the US Department of the Interior) have agreed that the SWP and the Central Valley Project, with its own numerous reservoirs, canals and Delta export pumping capacity, shall and do engage in coordinated operations of the two projects together. Both Congress and the California Legislature authorized the projects to coordinate their operations.[536]

Functionally, reservoir storage and water conveyance facilities need each other. Without conveyance facilities, water stored in reservoirs, once released, may not be delivered efficiently or directly to its intended customers. Without storage reservoirs, conveyance facilities may not have enough water to transport to make the investment in conveyance pay off if there are no, or insufficient storage facilities to control surplus flows for diversion, storage, and delivery. Scheduling of deliveries can only be efficiently conducted when both storage and conveyance are directly and efficiently managed. Storage and conveyance are the yin and yang of coordinated water resource development systems.

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[533] BDCP EIR/EIS, Chapter 1, Appendix 1B, *Water Storage*, p. 1B-1, lines 16-18.

[534] BDCP, Chapter 7, *Implementation Structure*, p. 7-10, lines 3-6. "The State of California owns, and DWR manages and operates, the existing SWP Delta facilities, including the Clifton Court Forebay and the Banks Pumping Plant. PUrsuant to the BDCP, DWR seeks state and federal regulatory authorizations to continue to operate such facilities. The State of California, through DWR, will construct, own, and operate any new diversion and conveyance facilities described in this plan."

[535] California Water Code Sections 12930 through 12944, enacted 1959.

[536] *Agreement Between the United States of America and the State of California for Coordinated Operations of the Central Valley Project and the State Water Project*, executed November 24, 1986. Accessible online 12 May 2014 at https://archive.org/details/agreementbetween00wash. Coordinated operations were legislated by Congress in PL 99-546, accessible online 12 May 2014 at http://www.usbr.gov/mp/cvp/docs/pl_99-546.pdf. Coordinated operations may be viewed online http://www.usbr.gov/mp/cvo/vungvari/coanew.pdf.

Despite this reality, BDCP's EIR/EIS argues in Appendix 1B that "while storage is a critically important tool for managing California's water resources, it is not a topic that must be addressed in the EIR/EIS for the BDCP."[537]

> This is because the BDCP, as a proposed habitat conservation plan and natural community conservation plan, does not, and need not, propose storage as a project component. Although the physical facilities contemplated by the BDCP, once up and running, would be part of an overall statewide water system of which new storage could someday be a part, the BDCP is a stand-alone project for purposes of CEQA and NEPA, just as future storage projects would be. *Similarly, although new storage projects are the subject of ongoing discussions, and may well someday be formally proposed and subjected to environmental review, such projects have not reached the stage of planning that would make the "probable future projects for purposes of CEQA or "reasonably foreseeable future actions" for purposes of NEPA.* Any such potential future projects therefore need not be addressed as part of the cumulative impacts analyses in the BDCP EIR/EIS. Nor would additional storage qualify as a viable stand-alone alternative for implementation of the BDCP because it is not capable of meeting the established purpose and need for the BDCP [ ]. In short, this appendix is not required by either CEQA or NEPA, but was prepared for informational purposes.[538]

We certainly appreciate that BDCP prepared Appendix 1B. Essentially this statement argues that BDCP is a "stand-alone project" because it is a habitat conservation plan, not simply a conveyance project. It also argues that storage need not be considered in this EIR/EIS because of this stand-alone character of BDCP and because other storage projects, even if they might someday interact in a cumulative fashion with the Delta facilities described in BDCP's Conservation Measure 1 (what we have called here the North Delta Intakes and Twin Tunnels project), they too should be treated as "stand-alone projects." Storage projects would be inappropriate, the argument goes, for consideration as a BDCP alternative because it fails to meet the purpose and need in the Delta, and they should be excluded from cumulative impact analysis for BDCP as "stand-alone projects."

BDCP offers extraordinarily weak justification for excluding planned or conceptual storage projects from consideration in BDCP's EIR/EIS, particularly from cumulative impacts analysis. Two founders of Jones and Stokes Associates (the company long since absorbed into the major BDCP consultant/ contractor ICF International) Albert Herson and Ronald Bass have written about NEPA compliance that:

> According to EPA, *considering past, present, and reasonably foreseeable future actions provides a needed context for assessing cumulative impacts.* The cumulative analysis should adequately consider whether the environment has been degraded and to what extent ongoing activities in the area are causing impacts. It should also consider trends for activities and impacts in the area. Federal agencies should identify activities occurring outside of their jurisdiction that are affecting the same resources as their own actions are affecting and should consult with other agencies potentially affecting the resources in question. In addition, the federal agency should consider private activities.
>
> The analysis should include the use of trends information and interagency analyses on a regional basis to determine the combined effects of past-present, and future actions. *NEPA documents should only consider those past, present, and future actions that incrementally contribute to the cumulative effects on resources affected by the proposed action....*
>
> To successfully assess cumulative impacts, NEPA documents should consider:
>
> - The proximity of the projects to each other either geographically or temporally.

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[537] BDCP EIR/EIS, Chapter 1, Appendix 1B, *Water Storage*, p. 1B-1, lines 7-9.

[538] *Ibid.*, lines 10-32. Emphasis added.

- The probability of actions affecting the same environmental system, especially systems that are susceptible to development pressures.
- The likelihood that the project will lead to a wide range of effects or to a number of associated projects.
- Whether the effects of other projects are similar to those of the project under review
- The likelihood that the project will occur.[539]

Planned reservoir projects like Sites, Shasta's expansion, and Temperance Flat meet at least four of these five criteria on their faces. The problem with cumulative projects' impacts is that while their individual impacts may be less significant if conceived as a "stand-alone project," their significance may lie in their incremental contribution to impacts from other related, coordinated, and/or similar projects.[540] Similar reasoning applies under the California Environmental Quality Act.[541]

Below we list projects, programs, and other actions that have been omitted from cumulative impact consideration in the BDCP EIR/EIS. No explanations specific to each individual project, program or other action was offered in the Appendix in which the list appears.

Projects, Programs and Other Actions Omitted from Bay Delta Conservation Plan Draft EIR/EIS Cumulative Impact Analysis Consideration

Project, Program, or Other Action	Page Number	Type of Action
Delta Risk Management Strategy	3D-41	Levee Plan
Cache Slough Area Restoration	3D-49	Restoration Plan
Delta Islands and Levees Feasibility Study	3D-88	Levee Plan
Shasta Lake Water Resources Investigation	3D-90	USBR Storage Project - expansion
Sacramento Valley Water Management Plan (Phase 8)	3D-91	Water supply allocation agreement subsequent to D-1641 in 2000
Upper San Joaquin River Basin Storage	3D-92	USBR Storage Project - Temperance Flat Reservoir

[539] Ronald E. Bass, Albert I. Herson, and Kenneth M. Bogdan, *The NEPA Book: A Step-by-Step Guide on How to Comply with the National Environmental Policy Act*, 2nd edition, Point Arena, CA: Solano Avenue Press, 2001, pp. 108-109.

[540] "According to EPA guidance, the combined, incremental effects of human activities, referred to as "cumulative impacts" under NEPA, pose a serious threat to the environment. While they may be insignificant by themselves, cumulative impacts accumulate over time, from one or more sources, and can result in the degradation of important resources." *Ibid.*, p. 105.

[541] "Cumulative impact analysis assesses cumulative damage as a whole greater than the sum of its parts." Michael H. Remy, Tina A. Thomas, James G. Moose, and Whitman F. Manley, *Guide to CEQA: California Environmental Quality Act*, 11th edition, Point Arena, CA: Solano Avenue Press, 2007, p. 466.

BDCP 778

Projects, Programs and Other Actions Omitted from Bay Delta Conservation Plan Draft EIR/EIS Cumulative Impact Analysis Consideration		
Project, Program, or Other Action	**Page Number**	**Type of Action**
San Luis Low Point Improvement	3D-98	USBR Storage Project - to address water quality and dead pool issues for San Felipe Unit contractors of CVP, including Santa Clara Valley Water District
California Water Plan - 2013 update	3D-39	state water plan
DWR's FloodSAFE California Program	3D-42	Flood control plan
South Delta Temporary Barriers Project	3D-47	Recurrent installation of temporary channel barriers to improve flow for fish and water levels for agricultural irrigators
CalFED Levee System Integrity Program	3D-56	Levee Plan
Upper Yuba River Studies Program	3D-56	Storage plan
Element2: Release Site Predation Study	3D-57	Predator study
EBMUD Camanche Permit Extension	3D-69	Storage project water rights
Bay Area Regional Desalination Project	3D-70	Desalination supply project in which many Bay Area water agencies participate, including CVP/SWP contractors like Santa Clara Valley Water District
El Dorado Water and Power Agency Supplemental Water Rights project	3D-71	storage and power generation project
Folsom Lake Temperature Control Device	3D-71	Storage project for cold water pool management on American River
South Sacramento Habitat Conservation Plan	3D-77	Restoration Plan
Alameda Watershed Habitat Conservation Plan	3D-80	Restoration Plan
San Joaquin County General Plan Update	3D-82	County General Plan
Delta Wetlands Project	3D-83	Storage project in Plan Area
Lower San Joaquin Feasibility Study	3D-87	Flood Control Study
Delta Mendota Canal Recirculation Study	3D-90	Water operations and water quality study
Water Year 2010 San Joaquin River Restoration Interim flows	3D-93	Restoration Plan and San Joaquin River water rights adjustments by SWRCB
Two-Gates Project	3D-95	In-Delta water flow management project

BDCP 778

Projects, Programs and Other Actions Omitted from Bay Delta Conservation Plan Draft EIR/EIS Cumulative Impact Analysis Consideration		
Project, Program, or Other Action	**Page Number**	**Type of Action**
Lower American River Temperature Reduction	3D-105	Storage study for cold water pool management on American River
Delta Smelt Permanent Refuge	3D-106	Restoration Plan for Delta Smelt refugia
Yolo County Habitat Conservation Plan/Natural Communities Conservation Plan	3D-109	Restoration Plan
Source: BDCP EIR/EIS, Chapter 3, *Description of Alternatives*, Appendix 3D, Attachment 3D-A, pages 3D-27 to 3D-110.		

We find it implausibly remarkable that BDCP's justification of itself as a "stand-alone project" extends not only to storage projects but also to other restoration plans and recent levee studies. In concept, without the storage plans and projects that are foreseeable (having been studied at least since the days of the CalFED Record of Decision[542]) ***numerous habitat conservation plans are omitted from cumulative impact consideration, including plans that extend into county-jurisdiction portions of the Delta's BDCP Plan Area. From this list of omissions it is natural for a reader to wonder whether many of BDCP's proposed restoration sites in various Restoration Opportunity Areas are redundant or conflictual with existing habitat conservation plans in the region. We have indicated elsewhere that they are.***

Levee studies and plans are omitted from cumulative impact analysis despite BDCP's professed concerns for seismic risks to levees and water quality resulting from allegedly feared levee breaks. ***It is both unexplained by BDCP and inexplicable to the reader why omission from the EIR/EIS cumulative impacts analysis of levee studies, including the 2008 Delta Risk Management Strategy, occurred. This makes it difficult for readers of BDCP to take the Plan's (and its EIR/EIS's) expressed fears of levee failures seriously since BDCP Applicants propose no relevant mitigating remedies.***

The issue of omitting storage projects like Shasta Dam's raising, Temperance Flat, and Sites Reservoirs are important because their omission flies in the face of BDCP's underlying purpose and need for the Twin Tunnels project to increase not only Table A and CVP contract amounts of water supply deliveries, but also to increase supplies potentially available via water transfers in dry and drought years (i.e., years of low SWP and CVP contract allocations). BDCP makes clear that the "Delta facilities" will increase the state and federal projects capacity to arrange and implement cross-Delta water transfers. Yet, inexplicably, the increased storage that has been planned for at least 14 years is omitted from both the Water Supply analysis of Chapter 5 and here the cumulative impacts analysis.

BDCP's cumulative impact analysis is deficient because it omits many storage, restoration, and levee remediation and improvement studies and plans, and because it fails to explain why so

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[542] CalFED Record of Decision, 2000, pp. 42-46. Shasta and upper San Joaquin River storage projects are included at this time as well as Sites Reservoir. Accessible online 12 May 2014 at http://calwater.ca.gov/content/Documents/ROD.pdf. These projects are also spotlighted in recent DWR editions of the California Water Plan.

many key individual projects are omitted from the cumulative impacts analysis, despite being reasonably foreseeable. They are present in already-existing plans developed, approved and implemented in many instances. The BDCP Draft EIR/EIS is therefore deficient in fully disclosing reasonably expected cumulative projects and their cumulative impacts in relation to BDCP. The Draft EIR/EIS should be revised to correct this fatal flaw and then, as a Draft EIR/ EIS, recirculated for public comment.

I. The EIR/EIS fails to properly consider the effects of climate change.

The EIR/EIS modeling results suffer the same limitations as those we identified for the Bay Delta Conservation Plan itself, Section III above.

J. The EIR/EIS fails to properly mitigate impacts of the BDCP and its Twin Tunnels project.

Ecological "assurances" are mitigation measures that are ironclad. Our comments here have identified many reasons why the Bay Delta Conservation Plan and its EIR/EIS fail to provide sufficient mitigations to make the Plan and its Twin Tunnels project worthy of statutory findings justifying issuance of incidental take permits.

1. The EIR/EIS fails to mitigate significant adverse effects resulting from methylmercury disturbance, bioavailability, and bioaccumulation in Delta foodwebs resulting from construction and operational activities of BDCP.

Please refer to our discussion of methylmercury management, Section III.

2. The EIR/EIS fails to mitigate and manage nonnative invasive clams who are likely to capitalize on habitat restoration activities, increasing salinity conditions, and low Delta outflows resulting from BDCP implementation.

Please refer to our discussions of these issues, Section III.

3. The EIR/EIS fails to mitigate potential selenium contamination resulting from BDCP construction and operational activities, as well as continued delivery of Delta exports to western San Joaquin Valley irrigated lands containing high levels of selenium.

Please refer to our discussions of these issues, Section III.

4. The EIR/EIS fails to mitigate seismic and sea level rise risks to the facilities of Conservation Measure 1, particularly the Twin Tunnels project by adding Delta levee investments to the BDCP conservation strategy investments.

Please refer to our discussions of these issues, Section VII.

5. The EIR/EIS fails to mitigate the Bay Delta Conservation Plan's clear objective of increasing reliance on the Delta, contrary to the Delta Reform Act.

Please refer to our discussions of these issues, Section VI.

K. The EIR/EIS fails to employ and consider the best available science.

1. The EIR/EIS fails to employ the best available science in its use of CalSIM II operations modeling.

Please refer to our discussions of these issues, Section III

2. The EIR/EIS fails to include among the best available science sources the 2010 Delta Flow Criteria report by the State Water Resources Control Board for what fish need, and ignores State Water Board determinations on the significance of flow versus habitat in listed species recovery.

Please refer to our discussions of these issues, Sections III and VI.

3. The EIR/EIS fails to employ best available science when evaluating the effects of North Delta Intake fish screens on Delta smelt and salmonid smolts.

Please refer to our discussions of these issues, Section III.

BDCP 778

Attachment 1 - Social Vulnerability and Environmental Inequality in the California Delta-Suisun Region

by the Environmental Justice Coalition for Water

A recent national level reassessment of the relationship between race, hazardous waste, and a number of economic, political, and land use factors have only reaffirmed what environmentally overburdened communities and environmental justice advocates have been claiming for years. That is, when controlling for other factors, those factors "uniquely associated with race, such as racial targeting, housing discrimination, or other race-related factors are associated with the location of the nation's hazardous waste facilities" (Mohai and Saha 2007). This "continuing significance of race" in the distribution of environmental benefits and burdens has been argued by communities throughout California (http://www.invisible5.org/) and documented in academic literature on "environmental inequality" in the San Francisco Bay Area, Silicon Valley, San Joaquin Valley, and Southern California (Cole and Foster 2001; Morello-Frosch et al. 2002; Pastor et al. 2005; Pellow and Park 2002; Pulido 1996, 2000; Harrison 2008, 2006; and London et al. 2008).

The California data are particularly alarming since California is arguably ahead of many states in the U.S. in developing environmental justice-related legislation, policy and programs. The legislative component of California's approach to environmental justice consists of over 20 laws that have been passed since 1999 that direct state agency practice (London et al. 2008). The first of these measures came in 1999, defining environmental justice in the state as:

> [T]he fair treatment of people of all races, cultures and income with respect to development, adoption and implementation of environmental laws, regulations and policies. Fair treatment means that no population, due to policy or economic disempowerment, is forced to bear a disproportionate share of the negative human health or environmental impacts of pollution or environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal program and policies (CLCD 1999).

While this definition has been incorporated into the workings of numerous state agencies addressing pesticides, air quality, and environmental and public health, it is unclear the extent to which agencies charged with protecting water quality *and* public health have developed environmental justice-related policies, programs, and research agendas. This has been particularly so in the case of the Sacramento-San Joaquin Delta and Suisun area of the state (the "Delta-Suisun" region). This area of California is argued to be the "hub" of the state's water supply, while facing considerable threats to its economic, cultural, and environmental qualities in the face of global warming-induced impacts to its water supply and quality (Lund et al. 2007).

Scientific studies, law suits and court decisions, and restrictive legislative mandates have sought to change the way water is managed in California, particularly the manner in which water is pumped in and

through the Delta-Suisun region south to San Joaquin Valley and to Southern California due to its associated impact on the region's ecosystem.

The current status of environmental justice in the Delta is reminiscent of its treatment in CALFED about which a Little Hoover Report on CALFED concluded that the process was an utter failure when it came to Environmental Justice (Little Hoover Commission, 2006). Perhaps this can be expected, as water policy in California has been controlled by what some claim to be the "Water Industry"—private and public water supply agencies and corporations, who have historically made their decisions about water distribution at the cost of environmental quality and the concerns for equity in decision making and the distribution of benefits and burdens (Gottlieb 1988; EJCW 2005).

We take a different approach in these comments. While informative and important, the traditional approach to Delta policy and research tends to focus on water supply and export policy in relationship to global warming, fish declines, levee failures, flood risk, and economic cost and benefits to businesses from such policy decisions (DWR & DFG 2008; Lund et al. 2007; Lund et al. 2008). These studies, in general, do not attend to how low income communities and communities of color, and other socially vulnerable groups, are experiencing environmental inequality in the region. To contribute a first look at how environmental justice communities are faring in Delta water politics we begin by introducing the concepts of social vulnerability and environmental inequality which help to explicate the specific elements of environmental justice on which we focus this analysis. Once clarified, they will allow the reader to better understand how we constructed our research and why. We turn to these two concepts now.

KEY CONCEPTS: SOCIAL VULNERABILITY AND ENVIRONMENTAL INEQUALITY

In disaster and environmental health research, "vulnerability" is often used to describe places and social groups that are more susceptible to experience some type of loss or adverse impact from some environmental threat because of their social location (Cutter 2003). Some have commented that there are three main premises to vulnerability research (Cutter et al. 2003; Houston et al. 2007):

1. An *exposure* model that seeks to identify conditions that make certain social groups or places vulnerable to environmental threats. An example of this angle of research would be to ask, "Of the people who live near a facility that releases toxic air emissions or near a freeway, what social groups are more at risk to develop asthma or some form of cancer?" (Pastor et al. 2005).

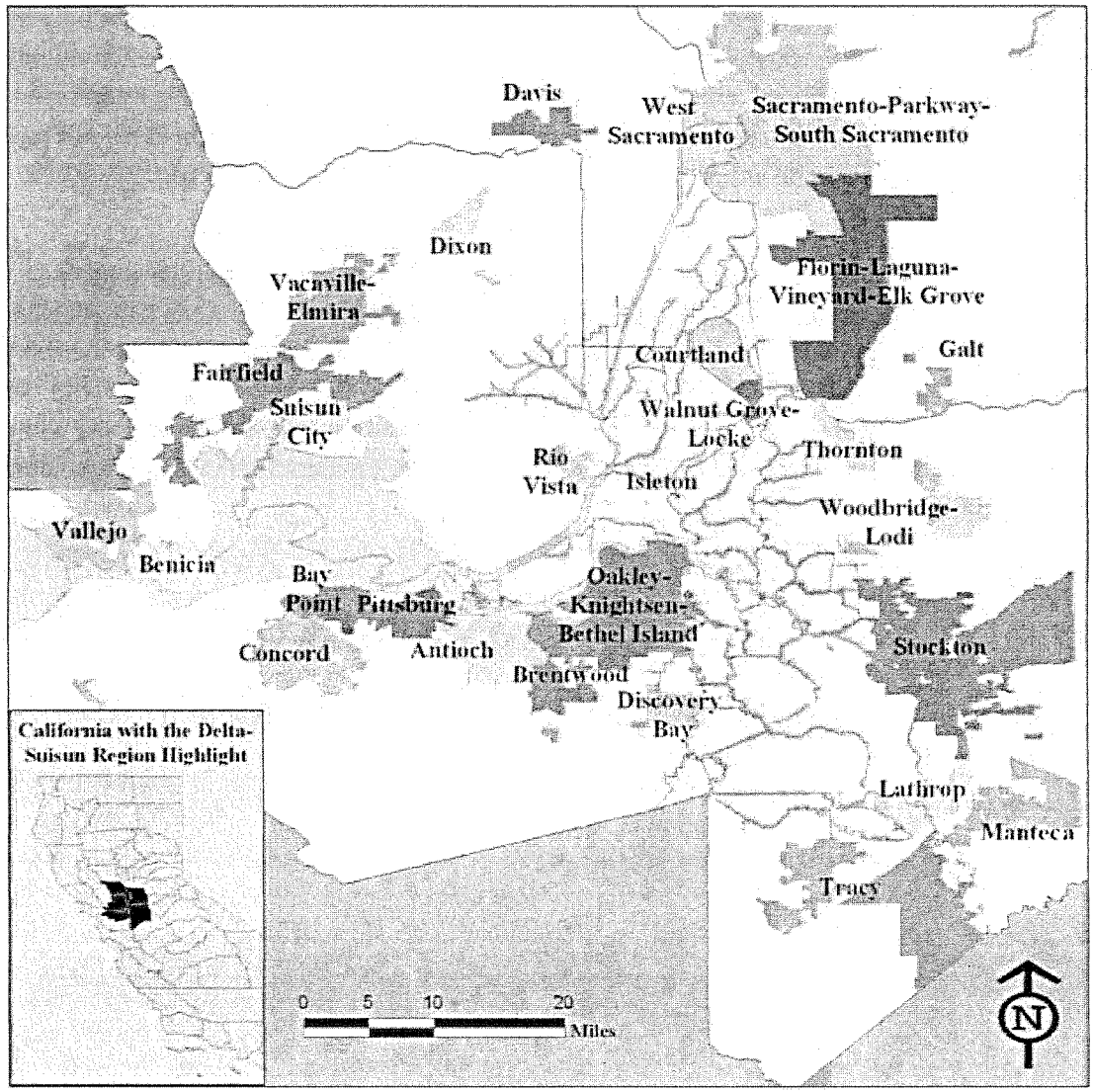
2. A *resistance* model that assesses how potentially impact people and places can withstand an environmental threat. For example, this focus asks, "What characteristics of a community, such as the socioeconomic status and/or the age of their buildings and their standard of upkeep, will allow them to be resistant to a flood?" (Fielding and Burningham 2005)

3. A *resilience* model, which attempts to show how likely people are to recover from some environmental threat. For instance, what type of financial reserves and emergency response measures are in place for an impacted community to recover from a hurricane?" (Houston et al. 2007).

As documented in the introduction, environmental justice advocacy and research have shown that low income communities, people of color, and immigrants are often the disproportionate recipients of environmental burdens and those same communities fail to benefit equitably from environmental policies and programs. Some have called this, "environmental inequality," which seeks to not only show which people and places are vulnerable to an environmental threat, but to identify those communities that already bear a heavier burden. It also "addresses more structural questions that focus on social inequality (the unequal distribution of power and resources in society) *and* environmental burdens...[E] nvironmental inequalities include any form of environmental hazard that burdens a particular social group" (Pellow 2000:582).

In these comments, we are concerned with identifying the socially vulnerable groups (low income, people of color, and immigrants) more likely to be exposed to poor water quality in the Delta-Suisun region. We focus on socially vulnerable groups with high concentrations of contaminants in the fish they eat, the water and land they live near, and in the water they drink, as well as how they cope with these relatively high concentrations of contaminants. While this study establishes social vulnerability without resolving the question of environmental inequality, glimpses of environmental conditions are evident in the words of study participants.

Figure 1
Reference Map of 28 Water Service Areas in the Delta and Suisun Marsh



Reference Map of Water Service Areas in the Delta and Suisun Marsh. Source: Environmental Coalition for Water.

SOCIAL VULNERABILITY AND ENVIRONMENTAL INEQUALITY

IN THE DELTA-SUISUN REGION

There are four broad themes that emerge from research on social vulnerability and environmental inequality in the Delta-Suisun region. The first subsection below describes the toxins that have been accumulating in the region, their impact on fish, and how people who fish for subsistence in the region

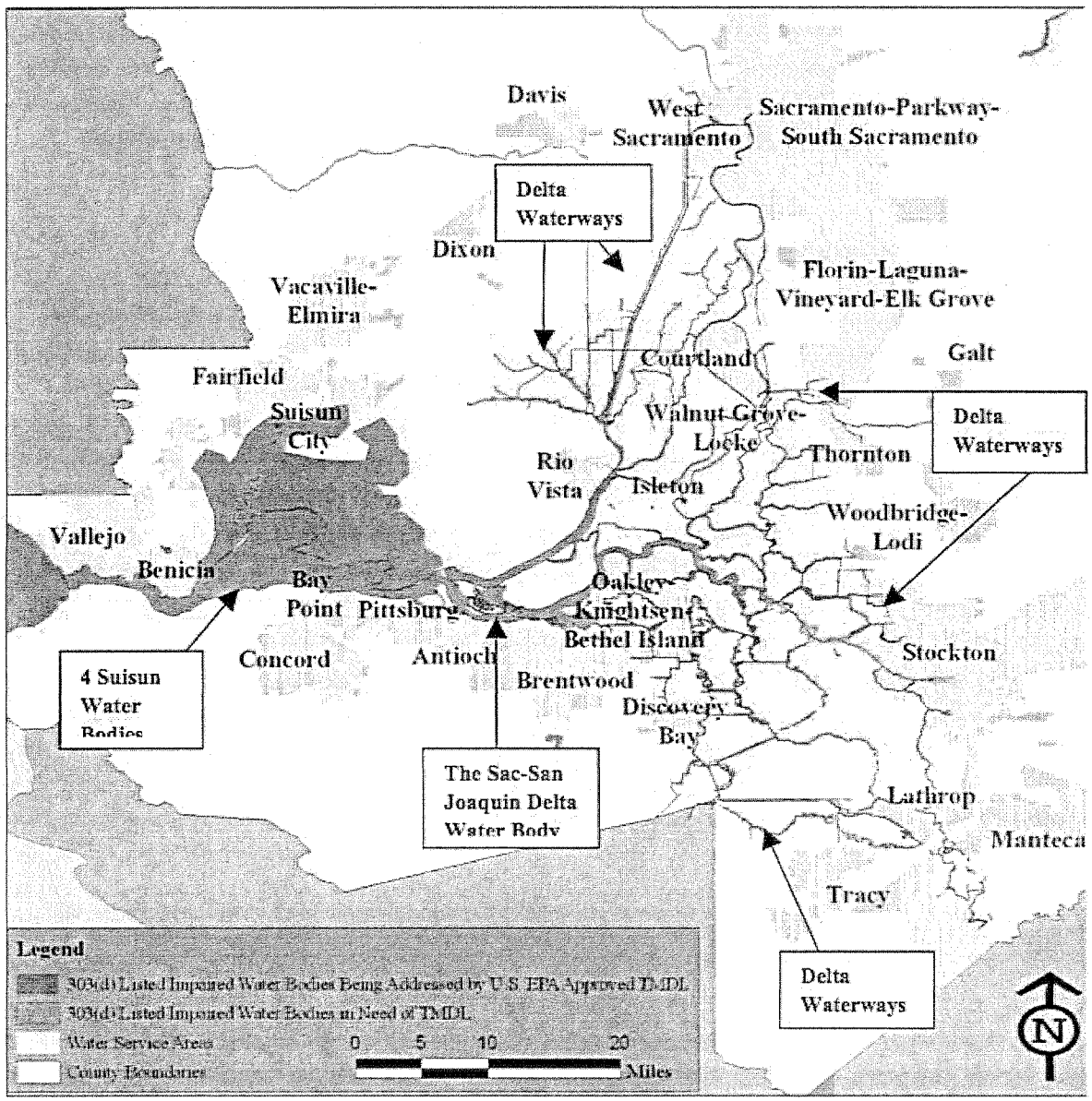
are forced to negotiate these legacies of toxins. The following two sections look at the relationship between social vulnerability and environmental inequality in the local environment and public drinking water systems of water service areas in the Delta-Suisun region. Both sections document the continuing significance of race as a predictor of poor water quality among socially vulnerable groups, as expressed by water contaminant concentration measures we use in our analyses. We then close with an overview of our findings and a discussion of the potential policy implications from our research. First, however, we turn to how socially vulnerable groups are negotiating a legacy of toxins in the Delta-Suisun region.

Negotiating a Legacy of Toxins: Living and Fishing in Impaired Water Bodies

There is an extensive body of literature on the problem of legacy toxins in the Delta-Suisun region. It documents how this decades of gold and mercury mining, agricultural production and the use of harmful pesticides, global trade and shipping patterns, and industrial and urban wastewater is impacting the region's ecosystem (Davis et al. 2003; Davis et al. 2008; Lydy and Austin 2004; O'Neill 2006; Silver et al. 2007; Shilling 2003). Further research suggests there is a potential compounding effect that water diversions from the region have had on the estuary's ability to counteract these legacy toxins, as well as the increasingly high levels of salinity found in the area's surface water (Lund et al. 2007). Few studies have sought to understand what this legacy of toxins means for socially vulnerable communities in the region (Shilling 2003; Silver et al. 2007). We seek to shed some light on the impacts accruing in socially vulnerable delta communities. In this section, we describe the known contaminants that have been accumulating in the region, their potential impact on fish and human health, regulatory responses to this contamination, and how socially vulnerable groups we met in our sample are forced to negotiate these legacies of toxins while they fish for pleasure and subsistence.

BDCP 778

Figure 2
Impaired Water Bodies and Water Service Areas in the Delta and Suisun Marsh



Sources: Maps created by lead author with data from the U.S. Census (2000), SWRCB (2008a), and SWRCB (2008b).

Figure 2 shows the impaired water bodies in the Delta-Suisun region, the water service areas near these bodies, and the two water bodies that are being addressed by a U.S. EPA approved TMDLs. The Suisun impaired water bodies include the Suisun Bay, Suisun Marsh, Suisun Slough (highlighted in Figure 2), and the Carquinez Strait. The primary water service areas near the Suisun water bodies are Benicia, Fairfield, Suisun City, Bay Point, and Pittsburg. The Sacramento-San Joaquin Delta impaired water body is primarily located next to Antioch and the Oakley-Knightsen-Bethel Island areas. The Delta waterways run north-to-

south from West Sacramento and Sacramento areas to Tracy and Manteca. They also run west-to-east from portions of Antioch to Woodbridge-Lodi and Stockton.

Table 1: Pollutants found in 303(d) Listed Impaired Water Bodies in the Delta-Suisun Region and Issued Fish Contaminant Goals and Advisory Tissue Levels

Pollutant	Potential Source	Water Bodies Hosting Pollutant	TMDL Status as of 2006	OEHHA Fish Contaminant Goals (FCG) and Advisory Tissue Levels (ATL) in Place for Sport Fish?[1]
Chlordane	Unspecified Nonpoint Source	Suisun Bay, Carquinez Strait; Sacramento-San Joaquin Delta	TMDLs Required	Yes
DDT	Agriculture	Suisun Bay, Carquinez Strait; Sacramento-San Joaquin Delta; all Delta Waterways	TMDLs Required	Yes
Dieldrin	Unspecified Nonpoint Source	Carquinez Strait; Suisun Bay; Sacramento-San Joaquin Delta	TMDL Required	Yes
Mercury	Atmospheric Deposition; Industrial Wastewater; Municipal Wastewater; Unspecified Nonpoint Source; Resource Extraction	Suisun Bay; Carquinez Strait; Sacramento-San Joaquin Delta; all Delta Waterways	TMDLs Required	Yes, for Methylmercury
Polychlor-inated Biphenyls ("PCBs")	Unspecified Point Source	Carquinez Strait; Suisun Bay; Sacramento-San Joaquin Delta; Delta Waterways (Stockton Ship Channel and northern portion, moving towards West Sacramento)	TMDLs Required	Yes
Selenium	Agriculture; Industrial Wastewater; Exotic Species; Natural Sources	Carquinez Strait; Suisun Bay; Sacramento-San Joaquin Delta	TMDL Required	Yes

Source: Water Board (SWRCB 2008a) and OEHHA (2007; 2008). 1 = See OEHHA (2008) for the FCGs and ATLs put in place by OEHHA.

There are a total of 21 pollutants found in these impaired water bodies. Table 1 shows 6 pollutants found in these impaired waters and their potential sources (as identified by U.S. EPA and the Water Board). The table also shows the water bodies where these pollutants are found, their TMDL status, and whether or not they have been assigned fish contaminant goals (FCGs) and advisory tissue levels (ATLs) for fish contamination in the Delta-Suisun region. FCGs were developed by the Office of Environmental Health Hazard Assessment (OEHHA) to estimate the "contaminant levels in fish that pose no significant health risk to individuals consuming sport fish at a standard consumption rate of eight ounces per week [32 grams per day], prior to cooking, over a lifetime" (OEHHA 2008:iii). This goal takes into account cancer and non-cancer risks of each contaminant. The ATLs are set to provide advice on what levels of fish consumption, based on cancer and non-cancer risks of a given contaminant, would provide a benefit to the consumer over a lifetime. Rather than documenting each goal and advisory level in Table 1, we show whether there has been an FCG and/or ATL set for each pollutant found in the impaired water bodies. We encourage the reader to see OEHHA (2008, pages 42 and 61) for more on the specifics of each advisory level put in place by the agency.

It is noteworthy here, however, that there are 15 other contaminants listed in section 303(d) of the Federal Clean Water Act and in the Water Board's TMDL program that have not been assessed by OEHHA for their potential impact on fish or the food chain in the Delta-Suisun region. This list includes high concentrations of several pesticides, organic compounds, metals, nutrients, and contaminants that contribute to high levels of salinity, and unspecified pathogens and toxic substances. The sources of these contaminants range from unspecified nonpoint sources and unknown sources, to agriculture, urban runoff and storm sewers, atmospheric deposition, contaminated sediments, water flow regulation and modification, and non-boating recreational and tourism activities. Two of these pollutants have a U.S. EPA approved TMDLs in place as of 2006. These water bodies are highlighted in green in Figure 2. The first is the pesticide, diazinon, which comes from agriculture and urban runoff and storm sewers. It is being addressed in Suisun Slough, which runs into Suisun City. The second TMDL in place is for high levels of nutrients (organic enrichment and low dissolved oxygen). It is highlighted in green in the Stockton Ship Channel, which extends from Stockton into the center of the Delta waterways. Both of these impaired water bodies have been assigned a TMDL due to a combination of political and scientific pressure because of their adverse effects on ecological and human health (Harnly et al. 2005; Schmieder et al. 2008). The massive amounts of contaminants in the Delta-Suisun region have received an uneven treatment from regulatory agencies, as evident in the relative lack of TMDLs designed and implemented in the region and the sparse amount of fish contaminant goals and advisory tissue levels that have been set for pollutants in the impaired water bodies.

Studies are just starting to understand what this legacy of toxins and regulatory ineptitude means for socially vulnerable communities in the region (Shilling 2003; Silver et al. 2007). Silver et al (2007:417) have shown that "fish contamination may have disproportionate impacts on low-income, non-white groups in the Delta." Their study highlighted that this is cause for concern as such groups could be more likely to be disproportionately exposed to the neurodevelopmental problems associated with the highly toxic methylmercury found in the impaired water bodies shown in Figure 2 and Table 1. Silver et al. came

to this conclusion by collecting demographic information and fish consumption patterns at a welfare health clinic in Stockton, California to assess the ethnic differences among low-income women in the Stockton area in their fish consumption rates and their awareness of fish advisories. The typical advisories under scrutiny in the study were similar to the "EAT DELTA FISH SAFELY" sign shown on the front cover to this report. Ultimately, Silver et al. found that African Americans and Asians (Vietnamese and Cambodians) and others not aware of fish advisories in the region are potentially at the highest risk for eating contaminated fish from the Delta. In other research along these lines, Shilling (2003) mapped the zip codes of the Delta-Suisun region that had the highest frequencies of anglers in river locations with high mercury concentrations (those that exceeded the U.S. EPA-recommended 0.3 parts per million) in fish tissue.

Table 2: Selected Demographics of Zip Code Areas with the Highest Frequencies of Anglers in River Locations with High Mercury Concentrations (>0.3 ppm) in Fish Tissue.

Selected Demographic	
People of Color	37.93%
Black or African American	11.76%
Native American	0.95%
Asian/Pacific Islander	15.04%
Some Other Race	10.18%
Hispanic or Latino	21.38%
Linguistically Isolated Households	7.07%
Foreign Born Immigrated to U.S. 1980-2000	73.40%
Below Poverty Level	14.92%
Median Household Income	$42,500

Source: Shilling (2003) and U.S. Census (2000)

Note: Percentages are of the total population for each zip code except for linguistic isolation, foreign born immigrants, and those below poverty level. Linguistic ally isolated households is a percent of households, foreign born immigrated to U.S. 1980-2000 is a percent of foreign born individuals, and below poverty level is of those whose 1999 poverty status has been determined by the Census, which most, but not every time, is equal to the total population in the zip code areas.

Table 2 summarizes the demographics of the zip code areas Shilling found to be the origins of the anglers fishing in high risk areas. The zip codes selected here come from Antioch, Oakley and Pittsburg in the southwest portion of the Delta-Suisun region; and Vacaville in the northwest; Sacramento and Elk Grove in the northeast; and Lodi and Stockton in the southeast. It is not possible to analyze the demographics of the zip codes that are not at risk for high concentrations of mercury contamination to determine if there is disproportionate risk born on these anglers at this time. This is particularly the case since we do not have data on the actual anglers and estimates on how much contaminated fish they are consuming, which contrasts to the Silver et al study. But, it is noteworthy that by deriving the zip codes of origin from

the at risk anglers, Shilling is able to begin painting a picture of the demographics of at risk areas: about 38% are people of color (mostly Black or African American and Asian/Pacific Islander), 21.38% Hispanic or Latino, 7.07% linguistically isolated, 14.92% recent immigrants, about 15% whose 1999 income was below the poverty level, and a median household income of $42,500. These statistics help us understand who might be disproportionately at risk of eating contaminated fish and what areas are associated with high concentrations of mercury and its breakdown products, such as the neurotoxin, methylmercury. But, we have gained little in understanding some of the perspectives of socially vulnerable communities in how they negotiate such potential disproportionate risks.

Social science research into fishing behavior has shown that there are racial, gender, and class meanings behind recreational fishing (Togh and Brown 1997). This was the case in our interviews and focus groups where individuals from a variety of backgrounds attributed their fishing activities to recreation and relaxation. Some describe their fishing spots as "my place of solace out there in that water," where they "sit there...relax and take time away from everybody" (Personal Interview, 2008). Others described their fishing activities in terms of subsistence: 'If you have less money to buy food, you fish more. If you have less work and money, then you will go to the dollar store for food which has food that is worse for you' (Focus Group, 2008). Whether for recreation or subsistence, the people we met in our sample commented on how local polluting sources are responsible for the declining water quality. As an individual who immigrated to the Delta-Suisun during the 1990s told us, "Water affects us when the factories send waste into the river and ocean. This affects fish and all of us because it contaminates the water. There is a drain next to where I fish with liquid that comes I don't know where. I don't know what factories are around there" (Focus Group, 2008).

Some describe this change as an impact on their cultural practices, and wonder what will come of future decisions to export water from the region. As one Native American representative, and long-time resident from San Joaquin County, shared with us:

> [I]t makes my family and I feel sad that our elders and our youth will no longer be able to enjoy the clean water that our ancestors did. My brothers no longer fish to eat as they have seen the deformities and sickness come from the water. Now they fish for the sport of it...[Whatever] Sacramento's decision[s] are on the State's water management will impact our people in many ways. It will impact fishing areas if the water is diverted to other areas, it will dry up our sloughs, gathering areas, and much more. (Personal Communication, 2008)

This individual elaborated on what it means to negotiate the heavily engineered environment, with all its supposed unintended consequences of environmental degradation that has come to characterize the Delta-Suisun region and other industrializing areas. This heavily engineered setting does not resonate with how this individual makes sense of the world. Instead, it is another example of the 'other' world that this person is forced to inhabit:

> [I]t's not an easy thing to live in two different worlds...I leave [home]. I go to work. I'm in their world. I live by their rules. I act like them, ok, to a certain extent. I go out the door, I come home, I'm in my own *world*, you know? I do what *native* people do. I *act* like a Native. I *feel* like a Native. I *eat* like a Native,

> you know? And, it's not easy juggling my life like that, but that's how I have to live because...most people...cannot relate (Personal Interview, 2008)

The statements above resonate throughout our focus groups and interviews: Socially vulnerable groups —racial and ethnic minorities, low income individuals, and immigrants—are being impacted by the water quality of the Delta-Suisun region in a way that forces them to compartmentalize their lives.

How effective have the fish advisories been in addressing the issue of fish contamination in the region? Silver et al. (2007:418) claim that in the Delta-Suisun, it will likely take decades to address the sources of the legacy toxins that permeate the impaired water bodies, so "outreach and education are the only viable methods of immediate exposure reduction," and this must be done in a manner that is sensitive to the different cultures and linguistic capabilities of at risk populations. We interviewed individuals who told us that the fish advisories currently in place are not enough because people who have to choose between starving or eating contaminated fish will eat the contaminated fish (recall the paraphrased quote above: 'If you have less money to buy food, you fish more'). Summing up this point of view, one individual shared with us the following critique of solely relying on outreach, education, and advisories:

> [R]ight now, the only policy option is to tell people to eat different fish or less of the contaminated fish. So, it's totally on the consumer, and it's their personal responsibility to not accumulate toxins. And that's pretty much where it stands. And that's not acceptable. (Personal Interview, 2008)

Instead, advocates working in the region argue that the contamination needs to be cleaned up at the source *while* new exposure reduction strategies are developed and funded. It is not enough to educate people who have no other alternatives or options. Those alternatives and options must be developed to provide these communities with the resources they need to survive both physically and culturally.

What can be done? A publication prepared for the California Department of Public Health and the Central Valley Regional Water Quality Control Board by researchers at UC Davis and staff at the Southeast Asian Assistance Center has proposed some "community-based strategies to reduce mercury exposure in Delta fishing communities" (Shilling et al. 2008). While the strategies identified do not address the socio-economic pressures creating the need for subsistence fishing, the researchers did identify five strategies that resonate with the community perspectives conveyed in this study. The five strategies are:

1. *Monitoring fish and fish consumption:* community organizations lead the design and implementation of fish tissue and fish consumption monitoring, aided by academic and agency scientists.

2. *Assessing mercury exposure:* community organizations, in partnership with agency and academic health professionals calculate or measure actual mercury exposure and community organizations lead communication of findings to communities and individuals.

3. *Effective education and outreach*: community organizations lead the design and implementation of education and outreach programs to communities and individuals eating large amounts of locally-caught fish, aided by academic and agency scientists.

4. *Consumption advisories:* community organizations, in partnership with agency and academic health professionals and scientists, design fish-consumption guidelines that are accessible to the diverse cultures and communities in the Delta region.

5. *Decision-making & implementation model:* to improve the effectiveness of strategic decision-making and implementation, a new model should be developed that moves away from state agencies being funders, recipients of funding, and the primary decision-makers in matters of fish contamination and implementing exposure reduction measures. Rather, the new model should feature organizations from impact communities at the center of decision-making and implementation, partnering with state institutions in support roles (Shilling et al. 2008:5-7).

These recommendations generally depart from what has been a regulatory approach that includes a Water Board that has admitted to not being as efficient in enforcement of water quality standards as it should (Cal/EPA 2008) and a focus on outreach and education as the primary vehicles for exposure reduction because they put the impacted community in a leadership role in making decisions about exposure reduction. If the community perspectives we outlined here resonate with other impacted communities in the region, then perhaps a sixth key strategy for reducing exposure to contaminated fish should be to fully address the source of the contaminants in the Delta-Suisun. We believe the next section provides a step in that direction. It also explores the relationship between socially vulnerable groups and water quality in the region.

Exploring the Murky Waters: Demographics and Water Contaminant Concentration

"The taste of water has changed. I try to use filters. Years ago it felt good to drink water from the spigot or the hose, but not now."

—Focus Group, 2008

This section begins our deeper look at the relationship between social vulnerability and environmental inequality in the local environment and public drinking water systems of water service areas in the Delta-Suisun region. We narrow our focus to using two water contaminant concentration indices to assess the average exposure levels of socially vulnerable groups to poor water quality from 1998-2003. To do so, we draw on data from the Environmental Working Group's national tap water quality study, and data from the Department of Toxic Substance Control's EnviroStor database on water-contaminated hazardous sites to see why, as one of our low income, minority project participants put it, "the taste of water has changed" in the region. We start by providing a map in Figure 4 that shows a visual relationship between the proportion of people of color in each water service area and the presence and frequency of water quality violations. We have retained the layer on the map from the previous section of the impaired water bodies, so that one can also see the visual relationship between the number of water quality violations and the impaired waters.

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Figure 4
Water Contaminated Sites, Impaired Water Bodies, and Percent of People of Color of Water Service Areas in the Delta-Suisun Region

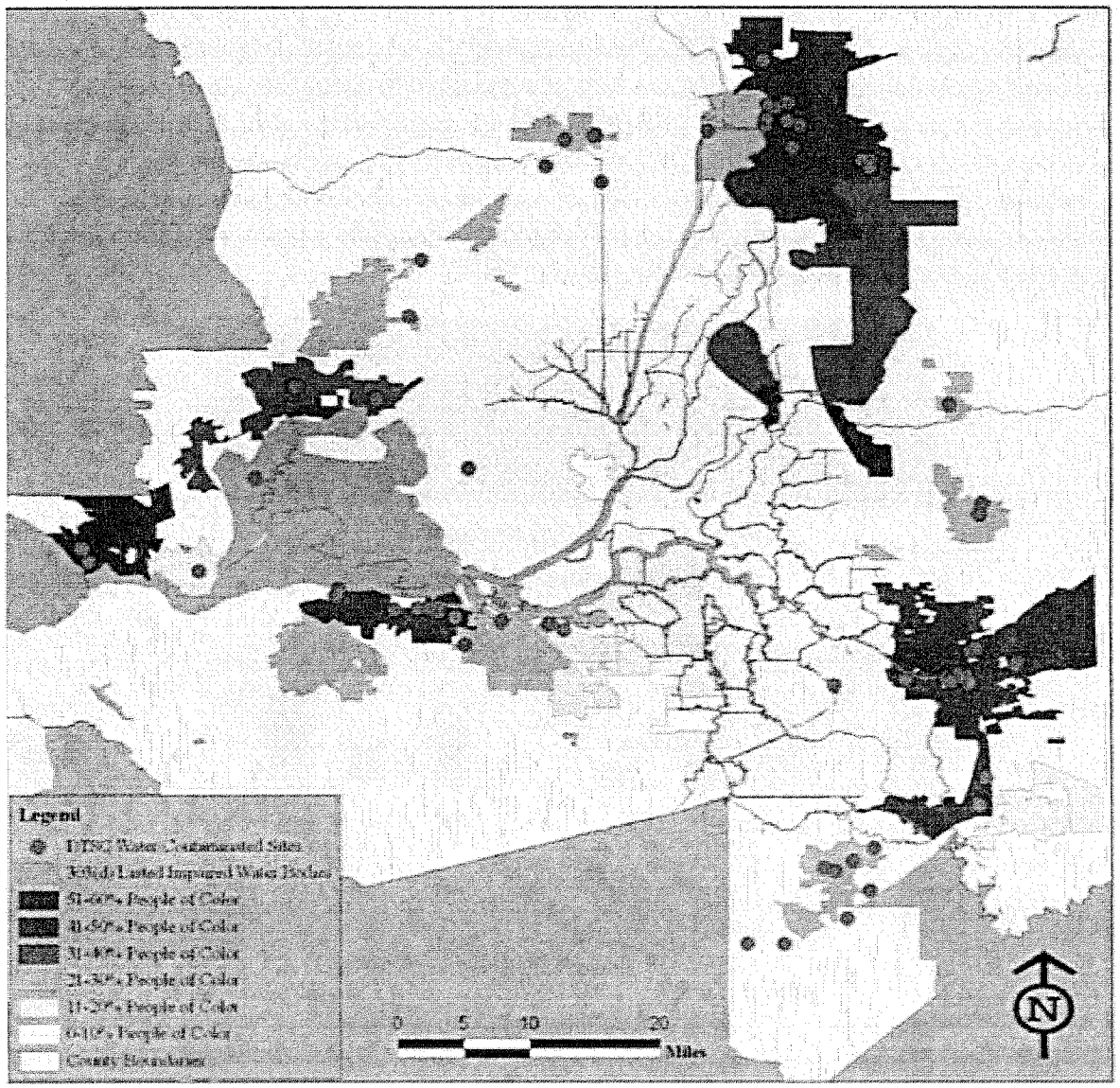


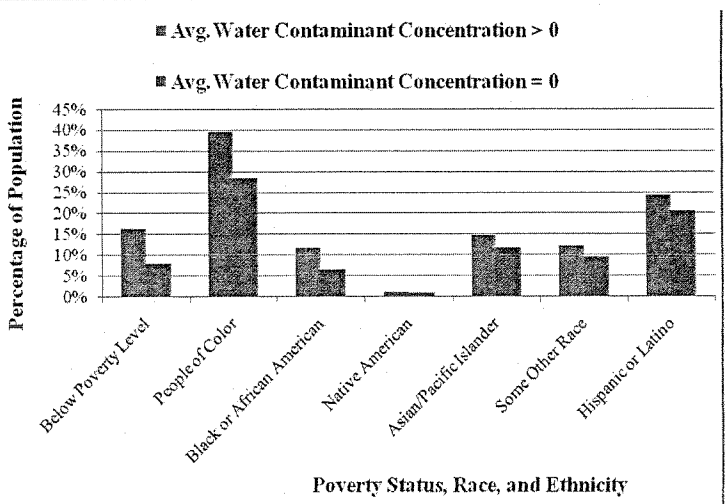
Figure 4: Source: US Census (2000); SWRCB (2008a); SWRCB (2008b); the California Department of Toxic Substances Control EnviroStor Database; and Environmental Justice Coalition for Water.

Figure 4 also shows a visual relationship between race in each water service area and the number of water quality violations: places like Rio Vista, Discovery Bay (both 0-10% people of color), Brentwood, Oakley-Knightsen-Bethel Island, and Manteca (both with 11-20% people of color) have little to no presence of water quality violations. Meanwhile, places that are predominantly people of color (Stockton, Pittsburg, Bay Point, Vallejo, and the Sacramento—Parkway-South Sacramento water service areas) have relatively high numbers of water quality violations.

To further investigate the visual relationships emerging from the data, we examined the level of contamination at each site. Doing so allows for a reflection on the severity of the water quality problem and therefore the likelihood that the water quality problem would negatively impact those being exposed to the water.

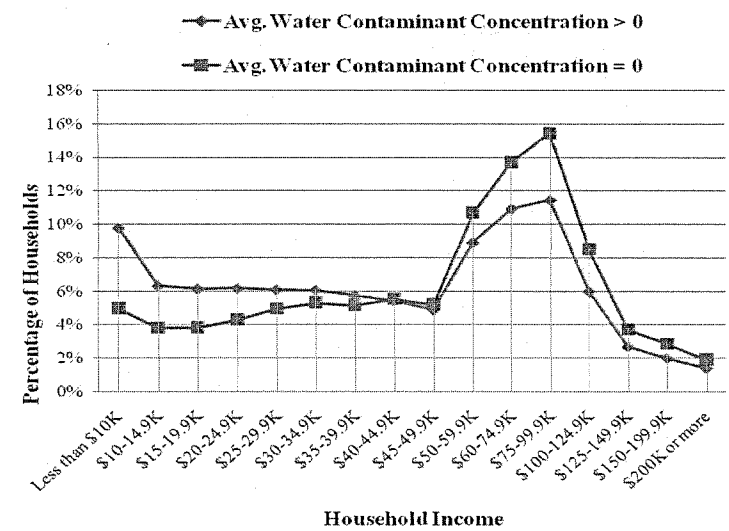
The level of contamination was determined by construction of a new variable we call the "average water contaminant concentration" (WCC). Briefly, the WCC was calculated by taking the sum of potential contaminants of concern from the water-contaminated sites for each water service area, dividing that by the sum of water contaminated sites, then dividing that number by 6 to get the average water contamination concentration from 1998-2003 for each water service area. A high score on the WCC means higher levels of contamination, which suggests worse water quality is present in a water service area's surface, ground, and, potentially, drinking water.

Figure 5: Demographics of Water Service Areas that have an Average Water Contaminant Concentration Level Greater Than Zero versus those Equal to Zero in the Delta-Suisun Region



(a) Poverty Status, Race, and Ethnicity and Average Water Contaminant Concentration

Figure 5: Demographics of Water Service Areas that have an Average Water Contaminant Concentration Level Greater Than Zero versus those Equal to Zero in the Delta-Suisun Region



(b) Percentage of Households and Average Water Contamination Concentration

Source: US Census, 2000.

As seen in Figure 5a, water service areas with an average water contaminant concentration greater than zero differ notably from those whose score equals zero. More specifically, water services areas with a higher proportion of socially vulnerable groups—those below the poverty level, people of color, and Hispanic or Latino— tend to score higher on the WCC. Figure 5b also identifies a relationship between household income and the WCC Score. The median household income of water service areas with an average water contaminant concentration greater than zero is $42,500, while that of the water service areas with a zero WCC score is $55,000.

In isolation, the social vulnerability measures we use thus far suggest that a number of factors are associated with high scores on the WCC. We conducted a regression analysis to explore predictors of poor water quality as measured by the WCC. In Table 3, we report the coefficient signs and their significance levels for each independent variable we use to predict the WCC.[543] As seen in the table, when controlling for the number of water contaminated sites, poverty, percent Hispanic or Latino, linguistic isolation, and percent of foreign born who immigrated to the U.S. between 1980 to 2000, race (as expressed in the percent people of color) is a statistically significant and positive predictor of the

[543] The format we use in Table 3 is modified from Pastor et al. (2007), in which they attempted to provide regression statistics in an accessible manner for the lay reader. Appendix A reports the statistics from this ordinary least squared regression analysis for the technical reader.

WCC. In simpler terms, the higher the proportion of people of color in a water service area the higher the score on the WCC.

Table 3: Coefficient Signs and Significant Levels of a Regression Analysis of the Average Water Contamination Concentration of Water Contaminated Sites on Selected Demographics of 28 Water Service Areas in the Delta-Suisun Region

Model Variables	Coef. Sign	Sig. Level	Coef. Sign	Sig. Level	Coef. Sign	Sig. Level	Coef. Sign	Sig. Level
Number of Water Contaminated Sites	+	*	+		+		+	
% Below Poverty Level	—		—		—		—	
% People of Color			+	*	+	*	+	*
% Hispanic or Latino			—		—		—	
% Linguistically isolated households					—		—	
% Foreign Born Immigrated to U.S. 1980-2000							+	
	N=28		N=28		N=28		N=28	

Notes: * Significant at the p <.05 level

These findings suggest the continuing significance of race in determining environmental inequality. Yet, they are based on a small sample size of only 28 water service areas. Usually this type of statistical analysis is reserved for sample sizes greater than 100 or even 200. To guard against accepting a statistically significant finding when it is actually insignificant, we chose to only report significant levels for our coefficients at the .05 level or higher.

Assessing Vulnerability to Drinking Water Contamination

For this portion of the analysis, we constructed what we call an average drinking water contaminant concentration index (DWCCI). It is similar to the index used in the previous section, except the average DWCCI integrates four characteristics of public drinking water systems found in water service areas (the type of contaminants found and the different violations issued to each system), as well as the number of water-contaminated sites that are known to contaminate drinking water supplies in each water service area. It also averaged over six years and standardized by population of each area, then multiplied by 1000. We then took the natural log of the index, which helped us evenly distribute the index across water service areas (more about this methodology is in Appendix A). This provided us with the opportunity breakdown the index into four rankings classifications, based on standard deviations away from the mean of the transformed average DWCCI. "Low" denotes areas more than one standard deviation below the mean, while "mid-low" signifies that an area was between -1 and zero standard deviations below the mean. "Mid-high" stands for water service areas zero to one standard deviation above the mean, while "high" means that an area was greater than one standard deviation above the mean.

Table 4 describes the demographics of water service areas which fall into each estimated ranking in the average DWCCI. As the table shows, most demographic characteristics of each estimated ranking follow four patterns. First, as is the case for people of color, Native American, Asian/Pacific Islander, linguistically isolated households, and poverty level, we see that percentages of these socially vulnerable groups decrease as we move from low to mid-low rankings or low to mid-high rankings, then they increase across the board at the high ranking level. This pattern breaks, however, for other races and Hispanic or Latino, which steadily increase from low to high ranking levels. This relationship between other race and Hispanic or Latino can be explained by their correlation with each other: the "some other race" category includes people who identify as having some sort of Hispanic origin.

Table 4: Selected Demographics (2000) of Water Service Areas by Their Estimated Rank in the Drinking Water Contaminant Concentration Index (1998-2003)

	Estimated Ranking in the Drinking Water Contaminant Concentration Index			
Selected Demographic	**Low**	**Mid-Low**	**Mid-High**	**High**
People of Color	41.67%	36.21%	25.41%	37.00%
Black or African American	14.41%	9.34%	4.66%	0.48%
Native American	1.14%	0.88%	0.77%	1.49%
Asian/Pacific Islander	15.34%	14.09%	6.30%	13.89%
Some Other Race	10.77%	11.90%	13.69%	21.14%
Hispanic or Latino	21.90%	23.79%	27.51%	39.55%
Linguistically Isolated Households	7.48%	7.04%	5.09%	11.86%
Foreign Born Immigrated to U.S. 1980-2000	73.36%	70.61%	63.65%	59.45%
Below Poverty Level	17.23%	13.95%	7.08%	12.14%
Median Household Income	$42,500	$47,500	$60,000	$37,500

Source: U.S. Census (2000)

Note: Percentages are of the total population for each zip code except for linguistic isolation, foreign born immigrants, and those below poverty level. Linguistically isolated households is a percent of households, foreign born immigrated to U.S. 1980-2000 is a percent of foreign born individuals, and below poverty level is of those whose 1999 poverty status has been determined by the Census, which most, but not every time, is equal to the total population in the zip code areas.

Another small pattern that arises is how the percent foreign born who immigrated to the U.S. between 1980 and 2000 decrease steadily, moving from low to high ranking levels in the average DWCCI. Finally, there is the pattern in which the median household income decreases as we move from low to mid-high ranking, then drops off drastically as we move from mid-high to high rankings. It is difficult to discern from Table 4 if there is any correlation between socially vulnerable groups and the drinking water

contaminant concentration index. Thus, we need to explore this question through another multiple regression analysis, the results of which are displayed in Table 5.

Table 5: Coefficients Signs and Significant Levels from the Regression of the Average Drinking Water Contaminant Concentration Index (1998-2003) on Selected Demographics (2000) of 28 Water Service Areas in the Delta-Suisun Region

Model Variables	Coeff. Sign	Sig. Level	Coeff. Sign	Sig. Level
% Below Poverty Level	—	*	—	*
% Black or African American	—	**	—	**
% Native American	+		+	
% Asian/Pacific Islander	+	*	+	
% Hispanic or Latino	+	**	+	
% Linguistically Isolated Households			+	*
	N=28		N=28	

Note: Standard errors in parentheses, * Significant at the p <.05 level; ** Significant at the p < .01 level

Table 5 shows that, once again, race matters. On average and when controlling for percent below poverty level, percent Black or African American, and percent Native American; an increase in the Asian/ Pacific Islander and in the Hispanic or Latino population is statistically significantly associated with a an increase in the DWCC in water service areas in the Delta-Suisun region. Curiously, on average and when controlling for other demographics in the analysis, the less poverty and the fewer Black or African American residents result in worse water quality conditions as measured by the DWCC.

Finally, linguistic isolation, on average and when holding all other variable constant in the table, becomes a statistically significant predictor of poor drinking water quality for water service areas in the Delta-Suisun region. Interestingly, linguistic isolation is a more powerful predictor of DWCC than Hispanic or Latino population levels and Asian/Pacific Islander population levels as these variables lose their significance once linguistic isolation is added to the model. This finding, paired with the finding about percent below poverty and percent Black or African American suggests households that are linguistically isolated (and most likely speak Spanish or some Asian American or Pacific Islander language) may be those most disproportionately at risk to poor drinking water quality in the Delta-Suisun region.[544] Like the regression results in the previous section, this statistical test used a small sample size of only 28 water service areas. Again, we were conservative and chose to only report significant levels for our coefficients at the .05 level or higher.

DISCUSSION

[544] Once the recent immigrant variable was added to the model, the significance of each variable decreased to not be statistically significant.

The community of Bay Point, California, located on the northeastern edge of Contra Costa County has high percentage of people of color (47.67%), Hispanic or Latinos (39.33%), linguistic isolation (11.79%), poverty (17.23%), and recently-arrived foreign born individuals (78.81%). People from these demographics have been organizing to force a private water company, who has exceeded permissible levels of water treatment chemicals, such as total trihalomethanes, in the water it serves to the community. The community applied and was one of 48 communities in the nation to receive a Community Action for Renewed Environment (CARE) grant from the U.S. EPA in partnership with the University of San Francisco, the Centers for Disease Control and Prevention, and the Contra Costa Health Services' Healthy Neighborhoods Project. The grant has helped them organize and force community hearings to have the private water provider purchase higher quality water treated by the Contra Costa County Water District to provide them with the same drinking water quality enjoyed by the rest of the county's public and privately owned drinking water suppliers. This report has shown that socially vulnerable groups like those in Bay Point are present all throughout the Delta-Suisun region and fighting various forms of environmental inequality: some are forced to fish for subsistence in the impaired water bodies of the region, others are living in communities that have high levels of water contamination in the groundwater and surface water, and others are exposed to high concentrations of contaminants in their drinking water.

Climate science literature suggests that sea level rise will be a result from global warming and that will hit vulnerable groups the hardest. The Delta-Suisun region is an area particularly at risk to such a hazard, as well as at risk to a considerable seismic event that could force flooding throughout the region.

Researchers with the Environmental Justice and Climate Change Initiative and Redefining Progress observe that "[c]limate change is not only an issue of the environment; it is also an issue of justice and human rights, one that dangerously intersects with race and class...An effective policy to address the challenges of global warming cannot be crafted until race and equity are part of the discussion from the outset and an integral part of the solution" (Hoerner and Robinson 2008:1). Research suggests that the global warming could have harmful consequences for drinking water quality, particularly for those already exposed to poor quality water such as Latinos and other vulnerable groups (Levin et al. 2002; Metzger et al. 1995). Recent research on the Delta-Suisun region is vulnerable to a seismic event and global-warming-induced sea level rise that could result in flooding throughout the region, starting in the west and hitting communities like Bay Point first, then cascading to hit other socially vulnerable areas with disastrous consequences for public health and surface and drinking water quality (DWR & DFG 2008; Lund et al. 2007; Lund et al. 2008). In this section, we share some of the perspectives on climate justice in the Delta-Suisun from those we encountered in our research in relation to what they view as equitable flood protection.

Attachment 1, APPENDIX A: TECHNICAL REMARKS

Data Collection and Transformation

Census Data

Environmental justice studies have identified a number of demographic variables that are strong predictors of environmental inequality. We used data from the 2000 U.S. Census Summary File 3, which gives estimates for small groups and areas on a wide variety of topic areas. The goal of this data is to identify large differences among areas or large changes over time. The socio-demographic variables selected allowed us to look at social class, race, ethnicity, linguistic isolation (i.e., households with no household member older than 14 that can speak English "very well"), and immigration status. We downloaded this data electronically from the Census for various geographically-defined areas in the Delta. We also obtained a list of what Census geographies (block groups) reside in the legally-defined Delta and Suisun Marsh to build a sample of "water service areas" used in this analysis (see Figure 1).

Characterizing Water Service Areas

Figure 1 shows the water service areas we constructed for this analysis. We drew on the following to construct a total of 28 water service areas. We started with the systems as they were listed by the EWG database. Water service providers that were specified with fixed populated places in each county were assigned to their corresponding Census populated places by name. For example, the water system for the City of Pittsburg as assigned to the census place, Pittsburg City. We followed this procedure for every system, except for those in jails, correctional facilities, and military operations because much of the Census data we use are not generalizable to these types of exclusive institutions. After each system was initially assigned to a place, we verified that each system actually exists in each place by consulting maps and descriptions of municipal water service providers in the five counties of the Delta; internet searches for systems associated with mobile home parks, businesses, and recreational areas in the Google search engine and in address matching searches for these areas with U.S. Census geographically-coded data in the Census' "American FactFinder" and the list of census geographies that are associated with the legally-defined Delta and Suisun Marsh. We then consulted U.S. EPA's Safe Drinking Water Information System/Federal Version (SDWIS/FED), Census maps of the five counties in the Delta; and geographic information systems software (ArcGIS version 9.2) to select our final set of public water systems (N=144) to assign to water service areas in this analysis.

We were conservative in carrying out this method. We only kept water systems in the analysis if they were located in three of the four following sources: the EWG study, the U.S. EPA SDWIS/FED database, the Google search engine, and county water service provider maps and descriptions. This method provided us the best estimate of what the public drinking water systems and socio-demographics of each service area with the available data. We found that there is considerable discrepancy between these four sources that should be rectified in the future to better facilitate analyses like the one carried out in this report.

Using a Snowball Sampling Method to Explore Community Perspectives

These participants were identified using a "snowball" sampling technique. This is typically used in exploratory social science research in which one starts out with initial contacts and interviewees and builds out to understand a specific group of interest (Lofland et al. 2006). We started with the few contacts EJCW had in the Delta region and eventually spread out to key individuals who had extensive knowledge about the local conditions in environmentally burdened and poor and minority communities. Since this is a non-probability sampling method, we cannot generalize our findings from the sample to the general public of the five counties of the Delta-Suisun Region. But, we do claim that what they shared with us about the water quality and human health concerns are *suggestive* of how socially vulnerable groups cope with such issues.

Selecting Water-Contaminated Sites

The California Environmental Protection Agency's (Cal/EPA) Department of Toxic Substance Control (DTSC) recently created the "EnviroStor" database. It is publicly available[545] and contains data on *known and suspected* contamination and histories for sites located throughout California. We used a number of selection criteria to select sites for this analysis. First, we selected those sites whose longitude and latitude were in the water service areas we constructed for this analysis that are in the legally-defined Delta and Suisun Marsh (discussed below). We then selected sites that were suspected to contribute to some form of water contamination (e.g., an aquifer used for drinking water, ground water not used for drinking water, and surface water). We then obtained our final number of water-contaminated sites (N=82) after an analysis of each site history revealed that some form of water contamination occurred and was being addressed during or before 1998-2003 to ensure that we kept a common time frame for analysis with the drinking water quality data with the EWG drinking water study. Finally, we coded the EnviroStor data on the 82 sites to identify the "potential contaminants of concern"[546] for each site for subsequent analysis of water contamination concentration in the water service areas. We also use contamination data from this database in our analysis of the Drinking Water Contamination Concentration Index, as well as an analysis of what demographics are most strongly associated with the concentration of water-contaminated sites in the Delta-Suisun region.

Data Analysis

Water Contaminant Concentration

We presented simplified versions of the regression results in the text to make the text more accessible to the lay reader. The equation used to derive the average water contaminant concentration is shown below:

Average Water Contaminant Concentration = (Sum of Potential Contaminants of Concern from Water Contaminated Sites / Sum of Water Contaminated Sites) / 6

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[545] The DTSC EnviroStor database is found at www.envirostor.dtsc.ca.gov.

[546] DTSC defines these contaminants as potential contaminants that "include hazardous substances that may be present at the site" and cause for concern to human and environmental health (DTSC 2008).

BDCP 778

Table A1: Regression of the Average Water Contaminant Concentration of Water Contaminated Sites on Selected Demographics of 28 Water Service Areas in the Delta and Suisun Marsh

Independent Variables	Class Model	Race & Ethnicity Model	Communication Model	Immigration Model
Number of Water Contaminated Sites	0.121* (0.047)	0.082 (0.045)	0.074 (0.049)	0.078 (0.051)
% 1999 income level below the poverty line	- 0.042 (0.030)	- 0.043 (0.032)	- 0.036 (0.036)	- 0.037 (0.037)
% People of Color		0.038* (0.015)	0.040* (0.016)	0.040* (0.016)
% Latino		- 0.033 (0.017)	- 0.026 (0.023)	- 0.024 (0.025)
% Linguistically isolated households			- 0.041 (0.086)	- 0.052 (0.096)
% Foreign born individuals who immigrated to the United States in 1980 or later				0.004 (0.013)
Constant	0.965* (0.386)	0.779 (0.478)	0.720 (0.502)	0.506 (0.866)
R-Squared	0.215	0.402	0.408	0.411
Adjusted R-Squared	0.152	0.298	0.273	0.242
F-Statistic	3.4253* N=28	3.8638* N=28	3.0305* N=28	2.4372 N=28

Notes: Standard errors in parentheses; * Significant at the $p < .05$ level

In Table 3, we report the coefficient signs and their significance levels for each independent variable we use to predict the average water contaminant concentration.[547] As seen in the table, when controlling for the number of water contaminated sites, percent of people the population below poverty, percent Hispanic or Latino, percent households linguistically isolated, and percent of foreign born who immigrated to the U.S. between 1980 to 2000, race (as expressed in the percent people of color) is a statistically significant and positive predictor of the average water contaminant concentration levels experienced by water service areas in the sample. That is, an increase in the percent of people of color in a water service area, on average and when controlling for all other variables in the table, is associated with an increase in the level of water contaminant concentration in water service areas in the Delta-

[547] The format we use in Table 3 is modified from Pastor et al. (2007), in which they attempted to provide regression statistics in an accessible manner for the lay reader. Appendix A reports the statistics from this ordinary least squared regression analysis for the technical reader.

Suisun region. Also, while not statistically significant, the on average, increases in the number of water contaminated sites and the percent foreign born who have immigrated to the U.S. between 1980 and 2000 are also associated with increases in a water service area's water contaminant concentration.

Drinking Water Contaminant Concentration

To look at which social groups are associated with poor drinking water quality, we constructed a similar water contaminant concentration index to what we used in the previous section. It differs in that it sums the following characteristics of public drinking water systems in the water service areas of the Delta-Suisun region: the average amount of total contaminants; the average amount of health-limit-exceeding contaminants; the average health-based EPA violations; and the average EPA monitoring, reporting, and other non-health-based EPA violations. It also adds to this sum the number of water-contaminated sites that have been identified to pollute drinking water supplies in each water service area. These summed elements are divided by six to construct an average measure from 1998 to 2003. Finally, this average figure is divided by the population of water service areas then multiplied by 1000 to derive a standardized drinking water contaminant concentration index to compare across water service areas in the region. We then take the natural log value of this index to make it more evenly distributed and ready to conduct another multivariate regression analysis similar to the section on water-contaminated sites.

DWCCI = ((Average Total Contaminants in Public Water Systems + Average Health-Limit-Exceeding Contaminants in Public Water Systems + Average Health-Based EPA Violations in Public Water Systems + Average EPA Monitoring, Reporting, and Other Non-Health-Based EPA Violations in Public Water Systems + DTSC_DW/6) / Population of Water Service Areas) * 1000

Table A2: Coefficients from the Regression of the Average Drinking Water Contaminant Concentration Index (DWCCI) (1998-2003) on Selected Demographics (2000) of 28 Water Service Areas in the Delta-Suisun Region

Independent Variables	Class, Race, Ethnicity Model	Communication Model
% Below Poverty Level	-0.095*	-0.099*
	(0.034)	(0.036)
% Black or African American	-0.147**	-0.145**
	(0.041)	(0.042)
% Native American	0.433	0.382
	(0.434)	(0.453)
% Asian/Pacific Islander	0.091*	0.085
	(0.038)	(0.041)
% Hispanic or Latino	0.066**	0.054
	(0.018)	(0.029)
% Linguistically Isolated Households		0.052
		(0.103)

Table A2: Coefficients from the Regression of the Average Drinking Water Contaminant Concentration Index (DWCCI) (1998-2003) on Selected Demographics (2000) of 28 Water Service Areas in the Delta-Suisun Region		
Constant	-2.091**	-1.979**
	0.641	0.689
R-Squared	0.653	0.657
Adjusted R-Squared	0.574	0.559
F-Statistic	8.2806***	6.7111***
	N=28	N=28
Note: Standard errors in parentheses		
* Significant at the p <.05 level; ** Significant at the p < .01 level; *** Significant at the p < .001 level		

The table shows that, once again, race matters again: on average and when controlling for percent below poverty level, percent Black or African American, and percent Native American; a percent increase in Asian/Pacific Islander and in percent Hispanic or Latino is statistically significantly associated with a percent increase in the average drinking water contaminant concentration levels of water service areas in the Delta-Suisun region. Curiously, on average and when controlling for other demographics in the analysis, a percent *decrease* in percent below poverty level and in percent Black or African American are associated with percent increases in average drinking water contaminant concentration levels. This suggests that as we add the linguistic isolation measure to the analysis, we see that linguistic isolation, on average and when holding all other variable constant in the table, becomes a statistically significant predictor of poor drinking water quality for water service areas in the Delta-Suisun region. In addition, the significance level for percent Hispanic or Latino and percent Asian/Pacific Islander go away. This finding, paired with the finding about percent below poverty and percent Black or African American suggests households that are linguistically isolated (and most likely speak Spanish or some Asian American or Pacific Islander language) may be those most disproportionately at risk to poor drinking water quality in the Delta-Suisun region.[548] Like the regression results in the previous section, this statistical test used a small sample size of only 28 water service areas. Again, we were conservative and chose to only report significant levels for our coefficients at the .05 level or higher.

[548] Once the recent immigrant variable was added to the model, the significance of each variable decreased to not be statistically significant.

REFERENCES

Cal/EPA. 2008. *State Announces Proposal to Improve Water Boards' Enforcement and Efficiency*. California Environmental Protection Agency. http://www.calepa.ca.gov/PressRoom/Releases/2008/PR7-052808.pdf (accessed November 25, 2008).

Cole, L.W. and S.R. Foster. 2001. *From the Ground up: Environmental Racism and the Rise of the Environmental Justice Movement.* New York: New York University Press.

CLCD. 1999. SB 115 bill 19991010 chaptered. California Legislative Counsel's Digest. http://www.leginfo.ca.gov/pub/99-00/bill/sen/sb_0101-0150/sb_115_bill_19991010_chaptered.html (accessed June 20, 2007).

Cutter, S.L., B.J. Boruff, W.L. Shirley. 2003. "Social Vulnerability to Environmental Hazards." *Social Science Quarterly* 84(2): 242-261.

Davis, J. A., B. K. Greenfield, G. Ichikawa, M. Stephenson. 2008. "Mercury in Sport Fish from the Sacramento-San Joaquin Delta Region, California, USA." *Science of the Total Environment* 391:66-75.

Davis, J. A., D. Yee, J. N. Collins, S. E. Schwarzbach, and S. N. Luoma. 2003. "Potential for Increased Mercury Accumulation in the Estuary Food Web." *San Francisco Estuary and Watershed Science* 1(1) (Available at http://repositories.cdlib.org/jmie/sfews/vol1/iss1/art4).

DTSC. 2008. "EnviroStor Database Glossary." Department of Toxic Substances Control. http://www.envirostor.dtsc.ca.gov/public/EnviroStor%20Glossary.pdf (accessed May 20, 2008).

DWR & DFG. 2008. *Risks and Options to Reduce Risks to Fishery and Water Supply Uses of the Sacramento/San Joaquin Delta*. Sacramento, CA: The Department of Water Resources & the Department of Fish and Game. http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/docs/AB1200_report.pdf (accessed March 18, 2008).

EJCW. 2005. *Thirsty for Justice: A People's Blueprint for California Water*. Oakland, CA: The Environmental Justice Coalition for Water.

EJCW. 2008. *Public Comment from the Environmental Justice Coalition for Water Submitted on the Third Draft Staff Draft Strategic Plan of the BDCP.* BDCP. http://deltavision.ca.gov/StrategicPlanningProcess/StaffDraft/Comments/Comment_from_Environmental_Justice_9-2-08.pdf (accessed September 5, 2008).

Fielding, J. and K. Burningham. 2005. "Environmental Inequality and Flood Hazard." *Local Environment* 10(4): 379-395.

Frickel, S. 2006. "Our Toxic Gumbo: Recipe for a Politics of Environmental Knowledge." *Understanding Katrina: Perspectives from the Social Sciences* http://understandingkatrina.ssrc.org/Frickel/ (accessed January 15, 2008).

Gottlieb, R. 1988. *A Life of Its Own: The Politics and Power of Water*. New York: Harcourt Brace Jovanovich, Publishers.

BDCP 778

Harnly, M., R. McLaughlin, A. Bradman, M. Anderson, and R. Gunier. 2005. "Correlating Agricultural Use of Organophosphates with Outdoor Air Concentrations: A Particular Concern for Children." *Environmental Health Perspectives* 113(9): 1184-1189.

Harrison, J.L. 2006. "'Accidents' and Invisibilities: Scaled Discourses and the Naturalization of Regulatory Neglect in California's Pesticide Drift Conflict." *Political Geography* 25: 506-529.

---------. 2008. "Abandoned Bodies and Spaces of Sacrifice: Pesticide Drift Activism and the Contestation of Neoliberal Environmental Politics in California." *Geoforum* 39: 1197-1214.

Hoerner, J.A. and N. Robinson. 2008. *A Climate of Change: African Americans, Global Warming, and a Just Climate Policy for the U.S.* Oakland, CA: Environmental Justice and Climate Initiative and Redefining Progress.

Houston, D., A. Werritty, T. Ball, A. Tavendale, and A. Black. 2007. "Environmental Vulnerability and Environmental Justice: The Case of Flooding and Flood Risk in Scotland." Paper presented at the RGS-IBG Annual Conference, London Session: *The Spaces of Hazard, Risk and Resilience*, organized by the Planning and Environmental Research Group.

Levin, R. B., P. R. Epstein, T. E. Ford, W. Harrington, E. Olson, and E. G. Reichard. 2002. "U.S. Drinking Water Challenges in the Twenty-First Century." *Environmental Health Perspectives* 110(1): 43-52.

Little Hoover Commission, 2005. "Still Imperiled, Still Important." Accessed at http://www.lhc.ca.gov/lhcdir/183/report183.pdf.

Lofland, J., D. Snow, L. Anderson, and L. H. Lofland. 2006. *Analyzing Social Settings: A Guide to Qualitative Observation and Analysis,* 4th ed. Belmont, CA: Wadsworth/Thompson Learning.

London, J. K., J. Sze, and R. S. Liévanos. 2008. "Problems, Promise, Progress, and Perils: Critical Reflections on Environmental Justice Policy Implementation in California." *UCLA Journal of Environmental Law and Policy* 26(2): 255-289.

Lund, J., E. Hanak, W. Fleenor, R. Howitt, J. Mount, and P. Moyle. 2007. *Envisioning Futures for the Sacramento-San Joaquin Delta.* San Francisco, CA: Public Policy Institute of California.

Lund, J., E. Hanak, W. Fleenor, W. Bennett, R. Howitt, J. Mount, and P. Moyle. 2008. *Comparing Futures for the Sacramento-San Joaquin Delta*. San Francisco, CA: Public Policy Institute of California.

Lydy, M. J. and K. R. Austin. 2004. "Toxicity Assessment of Pesticide Mixtures Typical of the Sacramento-San Joaquin Delta Using Chironomus Tentans." *Archives of Environmental Contamination and Toxicology* 48(1):49-55.

Metzger, R., J.L. Delgado, and Robert Herrell. 1995. "Environmental Health and Hispanic Children." *Environmental Health Perspectives* 103(6): 25-32.

Mohai, P. and R. Saha. 2007. "Racial Inequality in the Distribution of Hazardous Waste: A National-Level Reassessment." *Social Problems* 54(3):343-370.

Morello-Frosch, R.A., M. Pastor, C. Porras, J. Sadd. 2002. "Environmental Justice and Regional Inequality in Southern California." *Environmental Health Perspectives* 110(2): 149-154.

O'Neill, K. 2006. *Rivers by Design: State Power and the Origins of U.S. Flood Control*. Durham, NC: Duke University Press.

OEHHA. 2007. *Water Bodies with Fish Consumption Advisories*. Office of Environmental Health Hazard Assessment. http://www.oehha.ca.gov/fish/pdf/fishmap2007.pdf (accessed August 22, 2008).

OEHHA. 2008. *Development of Fish Contaminant Goals and Advisory Tissue Levels for Common Contaminants in California Sport Fish: Chlordane, DDTs, Dieldrin, Methylmercury, PCBs, Selenium, and Toxaphene*. Office of Environmental Health Hazard Assessment. http://www.oehha.ca.gov/fish/gtlsv/pdf/FCGsATLs27June2008.pdf (accessed August 13, 2008).

Pastor, M., J.L. Sadd, R. Morello-Frosch. 2005. "The Air is Always Cleaner on the Other Side: Race, Space, and Air Toxics Exposures in California." *Journal of Urban Affairs* 27(2): 127-148.

Pastor, M., J. Sadd, R. Morello-Frosch. 2007. *Still Toxic After All These Years: Air Quality and Environmental Justice in the San Francisco Bay Area*. Santa Cruz, CA: University of California, Santa Cruz, Center for Justice, Tolerance & Community.

Pellow, D. N. 2000. "Environmental Inequality Formation: Toward a Theory of Environmental Injustice." *American Behavioral Scientist* 43(4): 581-601.

Pellow, D.N. and L.S. Park. 2002. *The Silicon Valley of Dreams: Environmental Injustice, Immigrant Workers, and the High-Tech Global Economy*. New York: New York University Press.

Pulido, L. 1996. *Environmentalism and Economic justice: Two Chicano Struggles in the Southwest.* Tucson, AZ: The University of Arizona Press.

Schmieder, P.J., D.T. Ho, P. Schlosser, J.F. Clark, S.G. Schladow. 2008. "An SF_6 Tracer Study of the Flow Dynamics in the Stockton Deep Water Ship Channel: Implications for Dissolved Oxygen Dynamics." *Estuaries and Coasts* 31: 1038-1051.

Shilling, F. 2003. *Background Information for a Central Valley Fish Consumption Study: Geographic Information System and Relational Database for Fish Tissue Mercury and Creel Survey Data*. Sacramento, CA: Delta Tributaries Mercury Council.

Shilling, F., S. Sommer, L. Leonelli, and D. Shimoum. 2008. *Community-Based Strategies to Reduce Mercury Exposure in Delta Fishing Communities*. Sacramento, CA: California Department of Public Health & Central Valley Regional Water Quality Control Board.

Silver, E., J. Kaslow, D. L., S. Lee, M. L. Tan, E. Weis and A. Ujihara. 2007. "Fish Consumption and Advisory Awareness among Low-income Women in California's Sacramento-San Joaquin Delta." *Environmental Research* 104(3):410-419.

BDCP 778

SWRCB. 2008a. "List of Water Quality Limited Segments – All Portions." State Water Resources Control Board. http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/303dlists2006/gis/state_06_303d_combined_wcat_rev.xls (accessed September 10, 2008).

SWRCB. 2008b. "Geographic Information System (GIS) Shapefiles for 2006 303(d) List of Water Quality Limited Segments." http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/303dlists2006/gis/all303d_06_stwde.zip (accessed September 10, 2008).

Sze, J. 2006. "Toxic Soup Redux: Why Environmental Racism and Environmental Justice Matter after Katrina." *Understanding Katrina: Perspectives from the Social Sciences.* http://understandingkatrina.ssrc.org/Sze/ (accessed August 8, 2008).

Togh, J.F. and R.B. Brown. 1997. "Racial and Gender Meanings of Why People Participate in Recreational Fishing." *Leisure Sciences* 19: 129-146.

U.S. Census Bureau. 2002. Census 2000 Summary File 3—California. Washington, DC: U.S. Census Bureau. http://factfinder.census.gov/servlet/DatasetMainPageServlet?_program=DEC&_submenuId=&_lang=en&_ts=.

Attachment 2 - Estimating Costs of BDCP Alternatives

BDCP's economic analysis has not presented such an analysis, but it provides the building blocks for it in Table 9.A-2, Appendix 9.A of the plan. This table shows at the bottom that the "existing" high and low-outflow scenarios are assumed to yield total average annual water deliveries of 3.446 million acre-feet and 3.889 million acre-feet, respectively. The differences between these levels are due to divergent Decision Tree results. Note too that the range of average annual water deliveries of the proposed scenarios and the other alternatives to take are between 3.399 and 5.591 million acre-feet. These represent levels of "preserved water supplies" resulting from the Twin Tunnels, and are thus the difference between these "existing" high and low outflow scenario exports without the Twin Tunnels and the exports expected under the high and low outflow BDCP proposed actions, which include the Twin Tunnels. That difference may be used to calculate the annualized cost of water for purposes of comparison.

Using data and financial assumptions employed in BDCP's analysis of bond financing, Table 6 shows compares a number of incremental cost scenarios for water with and without the proposed Twin Tunnels and for both outcomes of the Decision Tree. This table illustrates the strong effect that baseline water export assumptions have on the perception of BDCP new water costs. First, it presents two "without Tunnels" scenarios, the "Existing Conditions" and "No Action Alternative" from the BDCP Environmental Impact Report/Statement (EIR/S). No capital costs of BDCP are associated with these two alternatives.

Where costs are indicated in Table A2-1, they represent the incremental cost of Twin Tunnels water averaged across all water contractors, regardless of sector (i.e., urban and agricultural water contractors).

BDCP's High Outflow scenario (in Table A2-1) "preserves" a Delta exports level of about 1.26 million acre-feet annually over the "Existing" no-BDCP high-outflow exports scenario (comparing columns B and C) at a per acre-foot annualized cost of $723. The BDCP Low Outflow scenario represents a 1.70 million acre-foot annual average increase over its "Existing" no-BDCP exports scenario at a per acre annualized-foot cost of $536. The difference between these two incremental costs is $187 per acre-foot. This figure represents the cost difference to the Twin Tunnels' Applicants of "winning" or "losing" the Decision Tree processes. Put another way, there is a $187 per acre-foot incentive (i.e., a cost savings of $187 per acre-foot) for the Applicants to have the incidental take permits implement the Low Outflow Scenario. [compare with Rodney T Smith's Hydro Wonk numbers.]

Table A2-1 also shows that several moderate and low-export Twin Tunnels project scenarios become infeasible if lower and very plausible estimates of "preserved" export levels are used. If the existing modeled water cost of the biological opinions is subtracted from average south-of-Delta exports the last 15 years or so, the future without Twin Tunnels' exports could average about 4.66 million acre-feet. This "preserves" about 45,000 acre-feet worth of exports. ***At that reduced level of "supply preservation" the incremental cost of Twin Tunnels water skyrockets from $723 to over $20,200 per acre-foot.*** Other scenarios fail to preserve exports and become infeasible as a result (that is, they have negative incremental costs). In Table A2-1, the low outflow (that is, high average exports of 5.591 million acre-feet per year) without-Twin-Tunnels scenario would have an annualized cost per acre-foot of about $979. This is nearly twice the per unit cost of water from the Twin Tunnels project using BDCP assumptions for future exports.

Table A2-1
Sensitivity of Twin Tunnels Costs
to Alternative Increments of "Preserved" Delta Export Levels

Scenario	BDCP Proposed Action Costs ($Millions)	Annualized Capital Cost of Twin Tunnels ($ Millions) (A)	Average Annual BDCP Proposed Action South of Delta Exports (MAF) (B)	Average Annual BDCP "Existing Scenario" South of Delta Exports (MAF) (C)	Annualized Cost per Acre-foot of Delta Exports Under BDCP Assumptions ($/AF) (D = A/(B-C)]	Average Annual South of Delta Exports Status Quo (MAF) (E)	Annualized Cost of Delta Exports Preserved Under Status Quo ($/AF) [F = A/(B-E)}
1. Existing Conditions	$0	$0	5.100	NA	NA	NA	NA
2. No Action Alternative	$0	$0	4.400	NA	NA	NA	NA
3. High Outflow BDCP Twin Tunnels	$13,472	$910	4.705	3.446	$723	4.660	$20,232
4. Low Outflow BDCP Twin Tunnels	$13,487	$911	5.591	3.889	$536	4.660	$979
5. Alternative 4 - Tunnel & Through-Delta	$13,472	$910	4.400	3.889	$1,782	4.660	($3,502)
6. Alternative 8 - Tunnel & Through-Delta	$13,472	$910	3.100	3.889	($1,154)	4.660	($584)

Source: Draft Bay Delta Conservation Plan, November 2013; Dayflow. State Water Resources Control Board, *Comments on the Second Administrative Draft Environmental Impact Report/Environmental Impact Statement for the Bay Delta Conservation Plan*, July 5, 2013, Attachment 2. Annualizing assumptions: Bond term = 40 years; interest rate = 6.133 percent per annum. "AF" = acre-feet; "MAF" = million acre-feet. Negative cost figures mean project would be infeasible. Cost figures include capital costs, but annualized capital cost includes interest in annual payment. Both Twin Tunnels scenarios include "through Delta" operation of South Delta pumps.

Suppose the Twin Tunnels project was built, but the Applicants also won their "bet" that regulators would protect the Bay-Delta Estuary to recover listed fish species and protect them as public trust resources: If it was constructed but forced to operate with regulations fully protecting the estuary over Delta exports the State Water Board projected in its Alternative 8 scenario that full protection for the Bay-Delta estuary would result in average annual exports of just 3.1 million acre-feet.[549] The negative incremental cost of water signals the project would quickly become a bad investment in

[549] See footnote 200, above; and BDCP EIR/EIS, Executive Summary, Table ES-11.

BDCP778

that future scenario. Under this circumstance, Table X indicates that the Twin Tunnels would become a stranded asset.

At these incremental cost levels for Twin Tunnels' new water, there will be strong economic incentive for regulators, water contractors, and the owners of the state and federal projects to have the scientific research in the Decision Tree processes come down on the side of low outflow and high exports in order for the Twin Tunnels reduce risk and uncertainty.

The need to make an expensive investment in the Twin Tunnels could create a compelling incentive on the part of water contractors and regulators (both the fishery agencies and the State Water Resources Control Board) alike to avoid protecting the Bay-Delta Estuary. Protecting the Estuary would be contrary to the exposed financial position of water contractors and bondholders. Regulators would be exposed to intense political pressure to support policies that protect these financial commitments, likely at the Bay-Delta Estuary's expense. ***Such a situation would place water and species protection policies for the Delta Estuary secondary to the financial obligations of Twin Tunnels' Applicants.***

In sum, the "business case" for the Twin Tunnels project (CM1) erodes rapidly when other plausible scenarios for future Delta export levels are applied to project incremental cost calculations, such as when continuation of annual export levels under the current biological opinions are used as the baseline to evaluate the project's cost and feasibility. The analysis in Table A2-1 shows that there is tremendous uncertainty about the incremental cost of the Twin Tunnels project given risks associated with the future of Delta export levels. The pressure to undertake such a risky investment —and make it pay off—will be intense.

BDCP 778

The following Environmental Water Caucus affiliated organizations support the comments and recommendations shown in the attached letter.

Sara Aminzadeh
Policy Director
California Coastkeeper

Dan Bacher
Editor
Fish Sniffer

Colin Bailey
Executive Director
Environmental Justice Coalition for Water

Barbara Barrigan-Parrilla
Executive Director
Restore the Delta

Lloyd Carter
President
California Save Our Streams Council

Jennifer Clary
Water Policy Analyst
Clean Water Action

Jim Cox
President
California Striped Bass Association

Robyn DiFalco
Executive Director
Butte Environmental Council

Siobahn Dolan
Director
Desal Response Group

Marty Dunlap
Citizens Water Watch

Conner Everts
Executive Director
Southern California Watershed Alliance
Co-Facilitator, Environmental Water Caucus

Konrad Fisher
Executive Director
Klamath Riverkeeper

Zeke Grader
Executive Director
Pacific Coast Federation of Fisherman's Associations

Diana Jacobs
Chair, Board of Directors
Sacramento River Preservation Trust

Bill Jennings
Executive Director
California Sportfishing Protection Alliance

Carolee Krieger
Executive Director
California Water Impact Network

Adam Keats
Senior Attorney
Center for Biological Diversity

Patrick Koepele
Executive Director
Tuolumne River Trust

Roger Mammon
President
Lower Sherman Island Duck Club

BDCP778

Jonas Minton
Senior Water Policy Advisor
Planning and Conservation League

Gary Graham Hughes
Executive Director
Environmental Protection Information Center

Pietro Parravano
President
Institute for Fisheries Resources

Lynne Plambeck
Executive Director Santa Clarita for Planning and the Environment

Kathryn Phillips
Director
Sierra Club California

Lowell Ashbaugh
Vice President, Conservation
Northern California Council Federation of Fly Fishers

Adam Scow
California Campaign Director
Food and Water Watch

Linda Sheehan
Executive Director
Earth Law Center

Chief Caleen Sisk
Spirtual Leader
Winnemen Wintu Tribe

Cecily Smith
Executive Director
Foothill Conservancy

Esmeralda Soria
Legislative Advocate
California Rural Legal Assistance Foundation

Craig Tucker
Karuk Tribe

Barbara Vlamis
Executive Director
AquAlliance