[SCDA_219]

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October 30, 2015

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BDCP/California WaterFix Comments
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Subject: Comments on the Bay Delta Conservation Plan/California WaterFix Partially Recirculated Draft Environmental Impact Report/Supplemental Draft Environmental Impact Statement

The San Luis & Delta-Mendota Water Authority and State Water Contractors (collectively "Public Water Agencies" or "PWA") represent those who have been funding the Bay Delta Conservation Plan/California WaterFix environmental review and planning process; a process intended to protect and restore water supplies for the state while allowing for improvements in the health of the Delta estuary.[1] The Public Water Agencies appreciate the opportunity to provide comments on the Partially Recirculated Draft Environmental Impact Report/Supplemental Draft Environmental Impact Statement (RDEIR/SDEIS) at this crucial stage in this process. More than 9 years, well over $240 million, and millions of hours have been expended to identify and study a workable solution through an unprecedented level of transparency and outreach. More crucial work lies ahead. While our detailed comments (attached) provide the necessary line-item feedback on the recirculated analysis, the following summarizes broader comments that merit your attention in the weeks and months ahead, as you prepare the final environmental documentation.

Overall, the proposed physical solution – creating dual conveyance by adding intakes on the Sacramento River and a twin tunnel pipeline system to transport the supply – remains a viable platform to achieve the fundamental purpose, need, and objectives for the project. It restores the ability to capture surplus flows when they are available; it provides the necessary operational flexibility; and it protects public water supplies from seismic events, sea level rise, and other natural threats. It also provides public benefits by improving conditions for fish and wildlife, and by restoring and protecting reliable water supplies, it supports multiple sectors of the statewide economy.

Despite the improvements the additional infrastructure provides, a final plan must include operational criteria that result in meeting the fundamental purpose of the project to protect and

[1] The lists of member agencies of the San Luis & Delta-Mendota Water Authority and State Water Contractors are included in Attachment 1.

restore water supply – which includes doing so in a stable regulatory environment. That is imperative for the Public Water Agencies to have a financial justification for supporting this magnitude of investment in public infrastructure. Under the preferred California WaterFix alternative, the regulatory assurances available under BDCP would not be available. However, if DWR and Reclamation pursue that alternative, we urge DWR and Reclamation to seek the strongest terms available under state and federal law that provide for reliability in water supply and predictability in financial costs.

As explained in our more detailed comments, the analysis of the BDCP/California WaterFix relies, in many cases, on science that has a high degree of uncertainty.[2] Most hypotheses in the science focus on flow-abundance relationships and do not address the effect of non-Central Valley Project or non-State Water Project related stressors on the ecosystem. And, none of the hypotheses in the science consider effects with dual conveyance. Thus, any operational criteria proposed at this time will be policy decisions made in the face of scientific uncertainty. The uncertain and limited science is why a commitment to a robust and collaborative process to study and identify the future operations of this modernized water system to maximize supply while avoiding jeopardy of listed fish is essential. The Final EIR/EIS should include this type of collaborative science and decision-making process between the state and federal agencies and the PWAs. We are confident that under such an approach, sufficient supplies can be safely captured in a manner that does not jeopardize fish species in the Delta or adversely modify critical habitat.

Under the California WaterFix, the Collaborative Science and Adaptive Management Program would include coordinating, monitoring, and research to test hypotheses and assess the efficacy of operational criteria for existing facilities and the new facilities, and alternative criteria that may maximize the goal of protecting and restoring water supplies up to full contract amounts in a manner that does not jeopardize fish species or adversely modify critical habitat.[3] Thus, an agreed-upon process to adaptively manage the future water system in light of the best available science is as important as the physical improvements themselves. Such a process must include a decision-making structure that includes the Public Water Agencies.

Overall, the environmental analysis in the RDEIR/SDEIS and 2013 Draft Environmental Impact Report/Draft Environmental Impact Statement (Draft EIR/DEIS) provide sufficient information on a broad array of alternatives in terms of water system improvements, ecosystem improvements, and regulatory approaches to achieving the project's fundamental purpose, need, and objectives. The addition of the California WaterFix responds to public and agency comments received during extensive outreach, and the California WaterFix has the potential to lessen impacts on both the ecosystem and Delta communities. The Draft EIR/EIS and RDEIR/SDEIS comply with the letter and intent of the California Environmental Quality Act and the National Environmental Policy Act, and give DWR, Reclamation, and other responsible and cooperating agencies the information needed to make an informed decision in light of the environmental impacts and relative merits of 18 project alternatives.

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[2] The SWC sent a cover letter and disc postmarked October 28, 2015 that includes the studies referenced in Attachment 2.

[3] Under this approach, if, at the time the new conveyance facilities become operational, newly developed science or changes to the Delta ecosystem indicate that criteria that restrict operations are not required, or if less restrictive operational flow criteria suffice to meet the federal Endangered Species Act (ESA) section 7 and California Fish and Game Code section 2081 standards, the appropriate agency would likely need to reinitiate consultation under ESA section 7 or commence a section 2081 permit amendment process to modify the operating criteria, as appropriate.

We hope the attached comments will help you advance a final plan and agreements that will lead to a successful project. Thank you for your efforts.

Sincerely,

Daniel G. Nelson
Executive Director
San Luis & Delta-Mendota Water Authority

Stefanie Morris
Acting General Manager
State Water Contractors

Attachment

cc: Mark Cowin, Director, California Department of Water Resources
David Murillo, Regional Director, U.S. Bureau of Reclamation

Attachment 1

San Luis & Delta-Mendota Water Authority Member Agencies:

Banta-Carbona Irrigation District
Broadview Water District
Byron Bethany Irrigation District (CVPSA)
Central California Irrigation District
City of Tracy
Del Puerto Water District
Eagle Field Water District
Firebaugh Canal Water District
Fresno Slough Water District
Grassland Water District
Henry Miller Reclamation District #2131
James Irrigation District
Laguna Water District
Mercey Springs Water District
Oro Loma Water District
Pacheco Water District
Panoche Water District
Patterson Irrigation District
Pleasant Valley Water District
Reclamation District 1606
San Benito County Water District
San Luis Water District
Santa Clara Valley Water District
Tranquility Irrigation District
Turner Island Water District
West Side Irrigation District
West Stanislaus Irrigation District
Westlands Water District

State Water Contractors Member Agencies:

Alameda County Flood Control and Water Conservation District Zone 7
Alameda County Water District
Antelope Valley-East Kern Water Agency
Casitas Municipal Water District
Castaic Lake Water Agency
Central Coast Water Authority
City of Yuba City
Coachella Valley Water District
County of Kings
Crestline-Lake Arrowhead Water Agency
Desert Water Agency
Dudley Ridge Water District
Empire-West Side Irrigation District
Kern County Water Agency
Littlerock Creek Irrigation District
Metropolitan Water District of Southern California
Mojave Water Agency
Napa County Flood Control and Water Conservation District
Oak Flat Water District
Palmdale Water District
San Bernardino Valley Municipal Water District
San Gabriel Valley Municipal Water District
San Gorgonio Pass Water Agency
San Luis Obispo County Flood Control and Water Conservation District
Santa Clara Valley Water District
Solano County Water Agency
Tulare Lake Basin Water Storage District

San Luis & Delta-Mendota Water Authority and State Water Contractors Joint Comments on the Recirculated DEIR and Supplemental DEIS

No.	Section/ Page	Comment
		Section 1: Introduction
1	§ 1.1; 1-4	The Final EIR/EIS should better explain the development and rationale for the "alternative implementation strategy" and the new alternatives and how these relate to the prior strategy and alternatives in the previous Draft EIR/EIS. As the RDEIR/SDEIS notes, the Lead Agencies, in response to comments on the prior Draft EIR/EIS, decided to revise the project to allow for an alternative implementation strategy for consideration of new alternatives. In general, the strategy presented in the Draft EIR/EIS of a long-term, comprehensive conservation plan for the Delta raised concerns in issuing permits with desired assurances because of (1) perceived difficulties in assessing the status of species over 50 years given uncertainties such as climate change, (2) perceived difficulties in assessing the benefits over 50 years of conservation measures, and (3) uncertainties expressed over the ability to implement large-scale habitat restoration, enhancement, and preservation. To address these and other concerns, we understand that the Lead Agencies decided as a policy matter to consider an alternative implementation strategy and new alternatives associated with that strategy. As explained in Section 4.1.1, of the recirculated draft, the inclusion of these new alternatives in the RDEIR/SDEIS is entirely appropriate. CEQA clearly contemplates the addition of alternatives to a recirculated EIR that are "considerably different" from the project alternatives analyzed in a DEIR. (See Cal Code. Regs., tit. 14, § 15088.5, subd. (a)(3).) Similarly, the Council on Environmental Quality regulations require preparation of a supplemental EIS to analyze substantial changes to the proposed action and significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts. (40 C. F.R., § 1502.9, subd. (c)(1) - (c)(2).) In this alternative approach, DWR and Reclamation would implement a conveyance-focused project that retains the same elements of CM1 and with appropriate mitigation for impacts of construction and operation. As part of the proposed project, conservation measures not needed for mitigation would not be implemented or could be implemented provided public money is available. The project would not be implemented as an HCP/NCCP, but rather authorized under Section 7 of the ESA and Section 2081 of CESA. Planning of actions that provide for conservation of sensitive species will be continued separately under the umbrella of California EcoRestore or elsewhere and considered and approved on a case-by-case basis. The alternative implementation strategy maintains the State's commitment to the restoration strategy and the coequal goals for the Delta, but provides flexibility in implementing specific restoration projects. This alternative implementation strategy also helps respond to environmental, social, and other concerns with large-scale habitat restoration as expressed by Delta interests. The new alternatives 4A, 2D, and 5A represent subalternatives within the alternative implementation strategy, and their impacts are analyzed in the RDEIR/SDEIS along with the impacts of Alternative 4, which was refined to include updated construction assumptions and design changes to reduce community impacts. The previous Draft EIR/EIS analyzes the alternatives for the original HCP/NCCP implementation strategy. It should be noted that the previous Draft EIR/EIS also contains the environmental analysis for the entire extent of the program regardless of the implementation strategy chosen. That is, the environmental effects of conservation actions that are now contemplated under California EcoRestore or elsewhere have been evaluated as components of the original alternatives in the previous Draft EIR/EIS.

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		Because of the fundamental difference between the original implementation strategy and the alternative implementation strategy, we recognize that analytical and other differences in the evaluation of the original Draft EIR/EIS alternatives and the new alternatives are necessary and appropriate. The NEPA baselines and No Action Alternatives must be different because of two different project time periods – one for the original set of alternatives and one for the new set of alternatives. The No Action Alternative is intended to provide a benchmark, enabling decision makers to compare the magnitude of environmental effects of the action alternatives. (Council on Environmental Quality, *Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations*, 46 Fed. Reg. 18026 (Mar. 23, 1981); s*ee also Mont. Wilderness Assn. v. McAllister* (9th Cir. 2011) 460 Fed. Appx. 667, 671 [upholding use of two no-action alternatives in an EIS].) We understand that the Lead Agencies will ultimately make the policy decision on which implementation strategy to pursue, and then select a corresponding alternative. It should be noted that despite the concerns expressed with the original preferred alternative 4 (i.e., the BDCP) in comments on the Draft EIR/EIS, it remains a viable and feasible alternative.
2	§ 1.1.4	The Final EIR/EIS should explain that the Project Objectives and Purpose and Need were slightly revised as part of the Lead Agencies' decision to revise the project to allow consideration of the alternative implementation strategy and new alternatives. As explained in Section 4.1.1, of the recirculated draft, such revisions are consistent with the very purpose of public review under CEQA and NEPA to enhance the proposed project to address environmental issues raised in the course of analysis and public comment. (See, e.g., *City of Carmel-by-the-Sea v. United States Department of Transportation* (9th Cir. 1997) 123 F.3d 1142, 1156 ["That the Final Environmental Impact Statement/Report was 'changed' or altered from its draft version to more clearly articulate its 'Purpose and Need' is not inappropriate. To the contrary, the very purpose of a draft and the ensuing comment period is to elicit suggestions and criticisms to enhance the proposed project. [Citation omitted.]"].)
3	§.1.1.5; 1-12	Throughout the document, it is noted that additional CEQA/NEPA review will be required for certain project components. Wherever the document includes a more programmatic or conceptual level of analysis, it is appropriate to expressly state that it is and explain why. Further, it would be helpful to provide a section in Chapter 1 that summarizes which project components have been evaluated at the project level and which are evaluated at the program level. This "Scope of CEQA/NEPA Analysis" summary could be included as part of section 1.1.5.
4	§ 1.1.5	The RDEIR/SDEIS states that DWR is the lead agency for CEQA compliance purposes and Reclamation is the lead agency for NEPA purposes. While this is correct with respect to the alternative implementation strategy and the new alternatives, the RDEIR/SDEIS does not explain that the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) are serving as co-lead agencies for NEPA purposes in the event that the original Alternative 4 or one of the other HCP/NCCP alternatives were ultimately selected. In this case, a decision by FWS and NMFS would be required along with accompanying NEPA compliance and intra-service section 7 consultation. The Final EIR/EIS should clarify these roles and that this remains a possibility. Further, the Final EIR/EIS should clarify that for the alternative implementation strategy and new alternatives, FWS and NMFS would serve as cooperating agencies for NEPA purposes. It would be helpful to add a footnote to Table 1-1 that states the list is a potential listing of agencies dependent on which alternative or sub-alternative is selected.

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5	§ 1.1.5.7; 1-22 1-24-1-25	The Introduction includes several mischaracterizations of the requirements of the Delta Reform Act and the Delta Plan that should be corrected in the Final EIR/EIS to properly reflect the legislative language of the Delta Reform Act. At a minimum, the text should be revised to state the substantial evidence standard of review for any administrative appeal of a certification of consistency.
Section 2 Substantive DEIR/EIS Revisions (as applied to Air Quality, HRA, Traffic, and Noise)		
6	§ 2.2.1; 2-7	The compliance point for the Sacramento River EC objective is at Emmaton for Alternative 4, 4A, 2D, and 5A and at Threemile Slough for the other alternatives. The Final EIR/EIS should better explain why the compliance points are different for the two groups of alternatives. It is our understanding that sensitivity analysis modeling for the two groups of alternatives confirms that the impacts on EC are comparable notwithstanding the two compliance points.
Section 4: New Alternatives: Alternatives 4A, 2D, and 5A		
7	Global comment on Section 4	For Alternative 4A (as well as the other conveyance-focused alternatives, 2D and 5A), several of the BDCP's non-conveyance Conservation Measures (CMs) have been re-sized and re-labeled as Environmental Commitments (EC) and are retained in order to provide mitigation for certain environmental effects of the project. The rationale for the acreages of the ECs is not clearly documented, and doing so in the Final EIR/EIS would be helpful. Mitigation ratios for specific natural community and species impacts are disclosed but it is difficult to discern whether the ECs exceed mitigation requirements when accounting for all natural community and species' requirements. A table that documents mitigation requirements by natural community and species would make it easier to determine the extent to which the ECs and mitigation acreages meet or exceed the acreages required to ensure that effects on terrestrial resources are not adverse/less-than-significant, or meet or exceed ESA/CESA regulatory standards. Given the PWA's responsibility to pay for the costs of water conveyance facilities and mitigation, it is reasonable that they should be provided with appropriate summary information. The purpose of Table 4.1-8: **Terrestrial Biology Resource Restoration and Protection Principles for Implementing Environmental Commitments** is unclear. Most of the information in the table is conceptual and can be interpreted as guiding principles for the implementation of the actions intended to mitigate project impacts. However, some information in the table is specific and quantitative, but has no clear relationship to specific mitigation requirements. Furthermore, source(s) of the Principles for Implementing Environmental Commitments presented in Table 4.1-8 should be made clearer, especially regarding specific quantitative requirements regarding certain species. Although characterized as mitigation, it does not appear that the CM-based Environmental Commitments have been formulated in response to specific significant environmental effects of the proposed conveyance facility. Rather, those Environmental Commitments have been analyzed together with the Proposed Project as a single package for the Early Long Term (ELT) year 2025 analysis period. Why the Environmental Commitments were formulated and evaluated in this manner should also be clarified. It appears that the methodology was to determine the appropriate extent of the BDCP's non-conveyance Conservation Measures that would provide habitat-based mitigation for the overall impacts of the Proposed Project. Because the appropriate extent of these Conservation Measures together with conveyance are closely related to the ELT modeling assumptions for Alternative 4, it is appropriate that ELT analyses was adapted and used for evaluating the impacts of Alternative 4A. Additional mitigation was then developed to mitigate any identified residual significant environmental effects of Alternative 4A. This methodology would explain why the resulting proposed project contains the new CM-based Environmental Commitments as well as

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		separate mitigation and a separate suite of environmental commitments that are presented in Appendix 3B. While the approach taken should be better explained, we do not disagree with it. Using the framework of the comprehensive conservation strategy developed for the BDCP, rather than to develop impact-by-impact mitigation for each resource area, is appropriate and proper given the overall objectives for the Project. The approach also allows the mitigation framework for Alterative 4A to be fully consistent with the broader conservation strategy that is intended to be implemented under California EcoRestore, and allows project mitigation to help jump start implementation of the broader conservation strategy. Further, there are other "environmental commitments" for the project that are summarized and analyzed in Appendix 3B. The Final EIR/EIS should better explain the rationale for the development of the CM-based Environmental Commitments and their relationship to other mitigation and other environmental commitments.
8	§4.1.2.2; 4.1-7 - 4.1-10; Table 4.1-2	The operational criteria define maximum export restrictions. As set out in the table, however, the south delta OMR criteria is stated as a minimum export restriction, suggesting that there are no limits on water export restrictions. Specifically, for OMR flows the criteria is stated as "OMR flows will not be more negative than…", implying that the fishery agencies could require that OMR flows be less negative, or more restrictive, than the stated criteria. Presentation of the criteria should be revised to clarify that the criteria do in fact establish maximum export restrictions, and that less restrictive operations could be realized through real-time operating adjustments as conditions permit. For example, the OMR criteria could be clarified by adding the underlined words in the following: "<u>Maximum export limit such that</u> OMR flows will not be more negative than…"
9	§ 4.3.3.2	The CEQA analysis of groundwater impacts in SWP/CVP export service areas (§ 4.3.3.2) concludes that Alternative 4A could result in a significant and unavoidable impact on groundwater resources in Southern California. This conclusion is unfounded for urban areas in Southern California. First, under Alternative 4A as modeled, long-term average deliveries would be comparable to those made under existing conditions. Thus, the premise that groundwater pumping in Southern California may increase over the long term because of a decrease in SWP supplies is unfounded. Second, urban water agency managers in export areas in Southern California would take action, and in fact have a duty to take action, to develop alternative water supply sources and programs to avoid and mitigate water supply shortfalls. The UWMP Act (Wat. Code, §§ 10610 –10657), for example, requires urban water providers to comprehensively plan for the water supplies needed to support growth. Fittingly, the Metropolitan Water District of Southern California's mission is to "provide its service area with adequate and reliable supplies of high quality water to meet present and future needs in an environmentally and economically responsible way." (Metropolitan Water District of Southern California Administrative Code, § 4201.) While urban water agencies in Southern California would take actions to avoid supply shortfalls, the precise actions that may be pursued cannot be determined at this time. Therefore additional analysis of the effects of those actions is not possible and would amount to speculation. Third, the analysis should also take into account the fact that many groundwater basins in Southern California are adjudicated, and are already subject to strict management requirements to maintain their safe yields. In addition, with the passage of SGMA, local and regional agencies throughout the state will be required to establish groundwater sustainability plans that would

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		lessen or avoid unreasonable groundwater impacts. In addition to correcting the CEQA conclusion, the Final EIR/EIS should also correct references to "Southern California" where reference to the SWP/CVP export service areas generally is intended.
10	§ 4.3.7; Global	Scientific uncertainty and dispute between experts should be discussed in the Final EIR/EIS. On July 28, 2014, Metropolitan Water District of Southern California ("MWD") provided detailed comments on the Bay Delta Conservation Plan (BDCP) and the public Draft EIR/EIS, Chapter 11, aquatic species. Those comments included a discussion of the uncertainty of the science, and highlighted the legal requirements that scientific uncertainty and disputes between experts be disclosed.[1] In MWD's 2014 comments it provided a list of published and peer reviewed papers that had not been discussed in the BDCP planning documents, and described the relevance of each. The Final EIR/EIS should discuss the uncertainty of the science and disputes between experts, and should discuss the same body of highly relevant literature identified in MWD's July 28, 2014, comments. The Final EIR/EIS should explain that the analyses performed and conclusions it reaches regarding impacts to sensitive aquatic species are uncertain because the underlying hypotheses are uncertain; and the hypotheses are uncertain because there is a body of published and peer reviewed literature that is not discussed in the planning documents that support a different set of hypotheses and interpretation of the data. The uncertainty of the science and disputes between experts highlights the importance of a BDCP/California WaterFix Collaborative Science and Adaptive Management Program that is needed to investigate, among other things, whether the proposed initial project operational criteria are required to avoid jeopardy to federally listed species and adverse modification of critical habitat, and meet the requirements of section 2081 of the California Endangered Species Act with respect to state-listed species. There is little evidence to support the conclusion that the full range of proposed project operations is required to meet the section 7/2081 requirements. Indeed, because the same scientific uncertainty underlies some current operational criteria included in reasonable and prudent alternatives of the 2008 and 2009 BiOps, the Collaborative Science and Adaptive Management Program is needed to investigate and re-consider those criteria as well. In addition to the issues described in MWD's 2014 comments, the uncertainty of the science extends to so-called "Scenario 6" operations, which is generally defined as south Delta project pumping operations. Scenario 6 was developed within a multi-species planning regulatory framework when a much larger project was being contemplated, including a 15,000 cfs capacity proposed project. The Scenario 6 operations have not been revisited since the shift to a much smaller 9,000 cfs proposed project and the recent shift to Alternative 4A, under an ESA section 7/CESA 2081 regulatory framework. The following comment on Scenario 6 identifies a number of scientific uncertainties related to the nature and magnitude of any potential species benefit. This scientific uncertainty and disagreement between experts should have been acknowledged in the partially recirculated public Draft EIR/EIS. Since the 2014 public comment period closed, several additional studies have been published or presented at science conferences that should also be discussed in the Final EIR/EIS.

[1] See Comment 9 of Metropolitan's Focused Comments on the BDCP EIR/S, Letter from Jeffrey Kightlinger, General Manager, Metropolitan Water District of Southern California, to Ryan Wulff, National Marine Fisheries Service (July 28, 2014). The Public Water Agencies incorporate that comment by reference here.

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		Specifically, the PWAs would like to highlight the work of Blankenship *et al.,* 2015,[2] which is a preliminary analysis of the genetic diversity of the Delta Smelt. The authors concluded that, as of the 2014 year class, the Delta Smelt gene pool is expected to retain quantitative genetic diversity at its present size. The implication is that a large number of Delta Smelt remain in the San Francisco Estuary system. The disparity between the Delta Smelt abundance indices and the N_E (i.e., effective population size) were noted by the authors, which may call into question the adequacy of the monitoring programs used to estimate abundance, distribution and habitat needs. Other relevant studies include:[3] • Acuna *et al*., Delta Science Conference, 2014 (Longfin Smelt trends analysis). • Bennett, W.A., Burau, J.R. 2014. Riders on the storm: selective tidal movements facilitate the spawning and migration of threatened Delta Smelt in the San Francisco Estuary. *Estuaries and Coasts*. pub. online. DOI 10.1007/s12237-014-9877-3. • Buchanan, R. 2015. OCAP 2012 Steelhead Tagging Study: Statistical Methods and Results. Prepared for Bureau of Reclamation, Bay Delta Office, Sacramento CA. December 18, 2014. 114 pages. • Buchanan, R., P. Brandes, M. Marshall, J. S. Foott, J. Ingram, D. LaPlante, T. Liedtke, and J. Israel. 2015. 2012 South Delta Chinook Salmon Survival Study: Draft report to USFWS. Ed. by P. Brandes. 139 pages. • California Department of Water Resources. 2015. An Evaluation of Juvenile Salmonid Routing and Barrier Effectiveness, Predation, and Predatory Fishes at the Head of Old River, 2009–2012. April 2015. • Delaney, D., P. Bergman, B. Cavallo, and J. Malgo. 2014. Stipulation Study : Steelhead Movement and Survival in the South Delta with Adaptive Management of Old and Middle River Flows. • Fox, P., Hutton, P.H., Howes, D.J., Draper, A.J., Sears, L. 2015. Reconstructing the natural hydrology of the San Francisco Bay-Delta watershed. *Hydrol. Earth Syst. Sci*. 19: 4257-4274. • Gordon, E., and B. Greimann. 2015. San Joaquin River Spawning Habitat Suitability Study. Pages 1415-1426 *in* Proceedings of the 3rd Joint Federal Interagency Conference on Sedimentation and Hydrologic Modeling, April 19-23, 2015, Reno, Nevada. • Grimaldo, Delta Science Conference presentation, 2014 (Longfin Smelt Studies). • Harvey, B. N., D. P. Jacobson, and M. A. Banks. 2014. Quantifying the Uncertainty of a Juvenile Chinook Salmon Race Identification Method for a Mixed-Race Stock. North American Journal of Fisheries Management 34:1177-1186. • Hendrix, N., A. Criss, E. Danner, C. M. Greene, H. Imaki, A. Pike, and S. T. Lindley. 2014. Life cycle modeling framework for Sacramento River winter-run Chinook salmon. NOAA Technical Memorandum NOAA-TM-NMFS-SWFSC 530. • Howes, D.J., Fox, P., Hutton, P. 2015. Evapotranspiration from Natural Vegetation in the Central Valley of California: Monthly Grass Reference-Based Vegetation Coefficients and

[2] Blankenship, S., Schumer, G., Weisenfeld, J. 2015. Delta Smelt Effective Population Size, Preliminary Report, Prepared for the State & Federal Contractors Water Agency. (Final Report expected early 2016. IEP also doing related work.)

[3] Due to file size, copies of these studies are provided on a Supplemental CD transmitted under a separate cover letter from the State Water Contractors and San Luis & Delta-Mendota Water Authority dated October 28, 2015.

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		the Dual Crop Coefficient Approach. Journal of Hydrologic Engineering. DOI: 10.1061/(ASCE)HE.1943-4484.0001162. • Hutton, P.H. Rath, J.S., Chen, L., Ungs, M.J., Roy, S.B. (*In Review*) Nine Decades of Salinity Observations in the San Francisco Bay and Delta: Modeling and Trend Evaluation. *ASCE Journal of Water Resources Planning and Management.* • Latour, R. 2015. Explaining patterns of pelagic fish abundance in the Sacramento-San Joaquin Delta. *Estuaries and Coasts.* Published online. DOI 10.1007/s12237-01509968-9. • Maunder, M.N. Deriso, R.B., Hanson, C.H. 2014. Use of state-space population dynamics models in hypothesis testing: advantages over simple log-linear regressions for modeling survival, illustrated with application to longfin smelt (*Spirinchus thaleichthys*). Fisheries Research, 164, pp. 102-111. • Parker *et al.*, IEP Poster, 2014 (Longfin Smelt studies). • Perry, R. W., P. L. Brandes, J. R. Burau, P. T. Sandstrom, and J. R. Skalski. 2015. Effect of Tides, River Flow, and Gate Operations on Entrainment of Juvenile Salmon into the Interior Sacramento–San Joaquin River Delta. Transactions of the American Fisheries Society 144:445-455. • Perry, R. W., J. G. Romine, A. C. Pope, N. S. Adams, A. Blake, J. R. Burau, S. Johnston, and T. Liedke. 2014a. Using acoustic telemetry to assess the effect of a floating fish guidance structure on entrainment of juvenile salmon into Georgiana Slough. Presentation at the 2014 Bay-Delta Science Conference. • Romine, J. G., R. W. Perry, S. V. Johnston, C. W. Fitzer, and S. W. Pagliughi. 2014. Identifying when tagged fishes have been consumed by piscivorous predators: application of multivariate mixture models to movement parameters of telemetered fishes. Animal Biotelemetry 2:3. • Sabel, M. 2014. Interactive effects of non-native predators and anthropogenic habitat alterations on native juvenile salmon. Master's thesis. University of California, Santa Cruz. • Zeug, S. C. and B. J. Cavallo. 2014. Controls on the entrainment of juvenile Chinook salmon (*Oncorhynchus tshawytscha*) into large water diversions and estimates of population-level loss. Plos One 9:e101479. In addition, the BDCP/California WaterFix Collaborative Science and Adaptive Management Program should be discussed in the Final EIR/EIS. It is required to address the scientific uncertainty, and will ensure that operations criteria are established and adjusted based on the best available science. The RDEIR/SDEIS does acknowledge at p. 11-33 that the CSAMP process is investigating the uncertainty of the science stating: *The appreciable uncertainty related to the significance of the LSZ and fall outflow management for delta smelt have led to research efforts to be initiated under a Collaborative Science and Adaptive Management Program (CSAMP) … the investigations resulting from this work would directly inform the uncertainty surrounding fall outflow management for delta smelt.*

<table>
<tr><th>No.</th><th>Section/ Page</th><th>Comment</th></tr>
<tr><td></td><td></td><td>However, this description of CSAMP should have also explained that the identified scientific uncertainty extends beyond the LSZ to include methods used to estimate Delta Smelt entrainment and issues surrounding the effects of project operations on salmonids.

Similarly, the RDEIR/SDEIS at p. 11-52 acknowledges the Longfin Smelt Settlement Agreement studies which have a goal of reducing uncertainty. The Final EIR/EIS should discuss the initial results of those studies (citations provided above).

More importantly, the Final EIR/EIS should clearly explain that the BDCP/California WaterFix includes a collaborative science program and adaptive management program that will be investigating whether the project's proposed operations are necessary to meet ESA section 7 and CESA section 2081 requirements. The RDEIR/RDEIS acknowledges that a CSAMP is being developed, and that the details of this program will be addressed by the state and federal agencies, including the PWAs, through the development of an MOA. (RDEIR/RDEIS § 4.1.2.4 at p. 4.1-18.) We look forward to being part of the development of this program.</td></tr>
<tr><td>11</td><td></td><td>Scenario 6 was developed within a multi-species planning regulatory framework when a much larger project was being contemplated, including a 15,000 cfs capacity proposed project. The Scenario 6 operations have not been revisited since the pivot to a much smaller proposed project, including a smaller 9,000 cfs capacity project, under a section 7 regulatory framework.

As explained in the table below, the Final EIR/EIS should include a discussion of the uncertainty underlying each of the components of Scenario 6.</td></tr>
</table>

Time Period	Operation	Agency Rationale	Uncertainty
October-November (All water-year types)	<u>OMR</u>: No south Delta exports during the D-1641 San Joaquin River 2-week pulse, no Old and Middle River (OMR) flow restriction during 2 weeks prior to pulse, and a monthly average of −5,000 cfs in November after pulse. <u>HORB</u>: HORB will be closed approximately 50% during the time immediately before and after the SJR pulse and that it will be fully closed during the pulse unless new information suggests alternative operations are better for fish.	OMR and HORB operations are to protect and enhance the D-1641 pulse flow designed to attract upstream migrating San Joaquin River adult Fall-Run Chinook Salmon.	The only salmonids returning to the San Joaquin River at this time are fall-run Chinook salmon, which are not listed, and a small number of steelhead in the Stanislaus. The BiOp indicates that the peak migration period for the small number of Stanislaus River steelhead is December - January. Few, if any, adult Stanislaus steelhead would be expected to be migrating in October and November. In a tidal system, it is unclear how much flow is required to provide adult attraction flows (Olson and Quinn, 1993). Since D-1641 already provides fall attraction flows, it is unknown if more flow would improve attraction of returning adults. It is further unclear how much San Joaquin River flow would reach Chipps Island even if the CVP/SWP project pumps were shut off entirely as there are many other gauged and ungauged diverters in the Delta and the available supply is limited because fall San Joaquin River flows upstream of Vernalis are generally low.

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Time Period		**Operation**	**Agency Rationale**	**Uncertainty**
December (all water-year types)		OMR: Flows will not be more negative than an average of −5,000 cfs when the Sacramento River at Wilkins Slough pulse triggers, and no more negative than an average of −2,000 cfs when the delta smelt action 1 triggers. No OMR flow restriction prior to the Sacramento River pulse, or delta smelt action 1 triggers.	This OMR action appears to mix actions for Delta Smelt and salmon. Delta Smelt: FWS BiOp at p. 280: Action 1 is designed to protect adult Delta Smelt that have migrated upstream and are residing in the Delta prior to spawning. Salmon: The Wilkens Slough requirement is actually for navigation. The basis for linking actions to Wilkens Slough is not described in available BDCP documents. However, the EWA salmon decision document (appendix to BiOp) describes a first alert action at Wilkens Slough based on a temperature less than 13.5C and flow of 7,500 cfs. The purpose is detecting movement of juveniles to determine when to close DDC gates to prevent entrainment in the interior Delta.	The Delta Smelt biological opinion already contains OMR actions to protect Delta Smelt. The recent success of the early warning monitoring for turbidity and species presence suggests that this monitoring program is quite effective in managing and avoiding Delta Smelt entrainment events. There is no indication that more restrictive and hardwired OMR requirements would reduce entrainment any further. Moreover, no relationship between exports and Delta Smelt abundance has been established. Even though Kimmerer 2008 estimated that the percent of the Delta Smelt population taken at the export facilities could be between 0-50%, Kimmerer also acknowledged that "no effect of export flow on subsequent midwater trawl abundance is evident." We are not aware of any data supporting flows at Wilkens Sough being a meaningful indicator of salmon moving into the zone of influence of the south Delta project pumping facilities. There is no evidence that salmon near Wilkens Slough, or anywhere else in the northern Delta, are affected by OMR flows or project pumping. Monitoring and trigger locations closer to the central or south Delta (for example, the 2014 early warning monitoring locations at Prisoners Point and/or Jersey Point) would be more useful in predicting when salmon may be entering areas that could be influenced by OMR flows. The 2009 BiOp already contains OMR requirements for the protection of out-migrating salmon. The existing salvage of winter-run salmon is a fraction of the permitted incidental take. Anderson et al. 2014 (Delta Science Program RPA review) observed that even if the 2014 winter-run salmon JPE overestimated the total population by a factor of three, the actual take was only 4% of the annual take limit. Thus, winter-run

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				is not likely endangered by water export operations, which suggests that more restrictive OMR are not required to meet ESA section 7 requirements.
Time Period		**Operation**	**Agency Rationale**	**Uncertainty**
January-February (Below normal, Dry, Critically dry)		Jan.-Feb.**:** OMR flows will not be more negative than an average of 0 cfs during wet years, −3,500 cfs during above-normal years, or −4,000 cfs during below-normal to critical years, except −5,000 in January of dry and critical years. March: OMR flows will not be more negative than an average of 0 cfs during wet or above- normal years or −3,500 cfs during below-normal and dry year and −3,000 cfs during critical years. HORB: When salmon fry are migrating, (determined based on real time monitoring), initial operating criterion will be to close the gate subject to real time operations for purposes of water quality, stage, and flood control considerations.	OMR reflects a general concern for entrainment of listed and unlisted species by "…maintain[ing] the benefits of dual conveyance."[4] HORB operation is to protect out-migrating salmonids by blocking Old and Middle River route and by increasing flow in the San Joaquin River.	The idea of "maintain[ing] the benefits of dual conveyance" for multiple species originated when the proposed project had a 15,000 cfs capacity and was a multispecies conservation plan. Actions for non-listed species are not relevant to a section 7 regulatory approach. Moreover, some of the benefits of dual conveyance are not realized with a 9,000 cfs facility included in the BDCP (Alt. 4) and California WaterFix (Alt. 4A) . With respect to the protection of out-migrating salmon, please see the statements above regarding percent of winter-run salmon salvaged. The effectiveness of the HORB is uncertain. The Delta Science Program's 2012 ("LOBO") review of the performance of the RPAs considered HORB operations. They concluded that the relative survival of smolts in Old and Middle River verses the San Joaquin River flow is unclear, supporting a conclusion that the HORB is ineffective at increasing survival.[5] The LOBO Panel cited several reasons why the effects of the HORB may be detrimental to smolt survival: 1.) Acoustic tag study results indicate that smolt survival is substantially greater when smolts are transported to Chipps Island from the CVP holding tank, so routing smolts to the CVP would seem the best option for increasing survival; 2.) The HORB increases negative OMR flows and potential opportunities for smolts to become entrained along routes in the south Delta where survival is considerably lower; and, 3.) It is simply assumed that the HORB does not increase predation mortality, which has not been tested and is possibly untrue since the non-

[4] See Summary of Proposed Modifications to the Initial Project Operations for Analysis, BDCP 5-Agency Draft, March 29, 2011.

[5] 2012 LOBO Panel Report at 30-31; see also, Newman 2008 (no statistically significant relationship between exports and smolt survival).

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				physical barrier was associated with significantly increased predation. See comments, above, regarding Delta Smelt.
Time Period		**Operation**	**Agency Rationale**	**Uncertainty**
June (Wet and Above Normal)		OMR: Similar to April, allowable flows depend on gaged flow measured at Vernalis. However, if Vernalis is less than 3,500 cfs, OMR flows will not be more negative than −3,500 cfs. If Vernalis exceeds 3,500 cfs and up to 10,000 cfs, OMR flows will be at least 0 cfs. If Vernalis exceeds 10,000 cfs and up to 15,000 cfs, OMR flows will be at least +1,000 cfs. If Vernalis exceeds 15,000 cfs, OMR flows will be at least +2,000 cfs. HORB: Initial operating criterion will be to close the gate subject to real time operations for purposes of water quality, stage, and flood control considerations. The agencies will actively explore the implementation of reliable juvenile salmonid tracking technology which may enable shifting to a more flexible real time operating criterion based on the presence/absence of covered fishes.	OMR flow criteria is to provide entrainment protection and minimize adverse indirect effects, particularly for San Joaquin River fall-run Chinook salmon and steelhead. As the proposed June OMR are based on Vernalis flow triggers, the operation is to provide more flow on the San Joaquin River, and thereby increase out-migrating salmonid survival. HORB operation is to protect out-migrating salmonids by blocking Old and Middle River route and by increasing flow in the San Joaquin River.	June is not a peak salmon migration month. See statements, above, regarding percent of winter-run salmon salvaged. Researchers have not identified a negative relationship between CVP/SWP exports and out-migrating salmonid survival. Newman *et al.* 2010 investigated the effect of exports on winter-run Chinook salmon using a Bayesian modeling approach and their model performed equally well regardless of whether exports were included in his model. Newman 2008 analyzed the VAMP experimental data for San Joaquin River fall-run Chinook salmon and found a weak but positive relationship between exports and survival meaning that CVP/SWP exports improve survival. This outcome seems counter-intuitive but is supported by the recent tagging studies as reported by Buchanan *et al.* 2013 who found that survival was better for salmon salvaged at the CVP as compared to any other through Delta route. Previously identified relationships between flow and out-migrating San Joaquin River fall-run Chinook salmon survival have broken down in recent years. Newman 2008 found a positive association between flow and survival from Dos Reis to Jersey Point. However, the more recent tagging studies have not identified a positive relationship between San Joaquin River flow and salmonid survival. In 2006 and 2011, survival did not increase even though these were wet years. Previously identified relationships between flow on the San Joaquin River at Vernnalis and

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		improved returns of adults 2.5 years later have also broken down; but even before that relationship broke down, the relationship was difficult to interpret. The number of returning adults 2.5 years after the wet years if 2006 and 2011 did not increased relative to dry years. Even in years where there was an increase in adult escapement 2.5 years after a wet year, it is unclear how many of those returning adults were strays from the Sacramento River. (See Kormos et al. 2010 and 2011.) See section, above, re uncertainty of the HORB's effectiveness.
12	§§ 4.3.4 – 4.5.4; starting on page 4.3.4-1	The analysis of new alternatives, including Alternative 4A (the California WaterFix) in the RDEIR/SDEIS Water Quality sections includes a detailed description of the revised water quality modeling for salinity constituents, including: • Sensitivity analyses to identify the main factors affecting modeling results, such as tidal restoration areas, operation of salinity control gates, and operation of the Head of Old River barrier • Modeling adjustments and corrections • Identification of modeling artifacts As a result of the updated modeling, many fewer impacts were found for EC, and all potential impacts for chloride and bromide were found to be less than significant. Mitigation is also identified to reduce EC impacts to less than significant. Mitigation measure WQ-11 focuses on real time management of project operations. We appreciate the efforts of DWR and Reclamation to address the modeling of salinity constituents in detail, and we recommend further revisions addressing analysis of potential bromide impacts. As described on page 4.3.4-1, the modeling approach greatly overestimates the increases in bromide concentrations under Alternative 4A. It appears that this overestimate results from the use of modeling of Early Long Term for Alternative 4, which included 25,000 acres of tidal marsh restoration in the Delta and Suisun Marsh. While we do not believe that revised modeling or sensitivity analysis is necessary in the Final EIR/EIS for CEQA/NEPA purposes, more refined modeling would more fully document that the impacts of Alternative 4A on bromide concentration will be less than significant.
13	§ 4.3.4	In response to comments received on the Draft EIR/EIS, DWR and Reclamation included the assessment of *Microcystis* in the RDEIR/SDEIS. The *Microcystis* information is presented in a balanced manner referencing current scientific information. The assessment finds that because the new alternatives contain a lower acreage of tidal restoration, residence times are not expected to increase as substantially as under the other alternatives, and therefore significant impacts with respect to *Microcystis* are not expected for the new alternatives as compared to the No Action Alternative. We find the assessment of *Microcystis* impacts to be reasonable and well

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		supported.
Section 5: Revisions to the Cumulative Impact Analysis		
14	Section 5 Global	The discussion of the California Water Action Plan and California EcoRestore, among other potential actions, in the cumulative impact analysis is appropriate and gives the public and decision makers enough information to foster public participation and informed decision making. However there are places in many impact analysis sections where the analytic route from evidence to conclusion could be improved, and where the evidence appears to support a not adverse NEPA conclusion, or a less-than-significant or not cumulatively considerable CEQA conclusion, but the document reaches a very conservative adverse/significant conclusion. In the Final EIR/EIS, DWR should revise Section 5 as needed to clarify each cumulative impact discussion. There is substantial evidence for each impact discussion, but in places the analytic route from the evidence to the conclusion should be explicitly stated. In other places, the CEQA determination is implicit, but should be explicitly stated, both in terms of whether there will be a cumulative significant impact and whether the project alternatives will make a cumulatively considerable contribution to the cumulative impact. This will assist the decision makers and public when reviewing the Final EIR/EIS.
15	§ 5.2.1.16 and § 5.2.11.1.8	In some subsections of Section 5, the three new sub-alternatives are specifically called out and analyzed; in others it is not clear whether they are being analyzed among all project alternatives or not, e.g., in sections 5.2.1.16 and 5.2.1.18. In the Final EIR/EIS, please clarify whether the analysis of concurrent GHG impacts covers all alternatives, including the new alternatives, or just the alternatives in the Draft EIR/EIS (2013). If the latter, the final document should note, consistent with other subsections, that the new alternatives would have much lower impacts, and determine the significance or lack thereof of the concurrent impacts.
16	§ 5.2.1.13; starting at page 5-26	This statement appears as the conclusion for most of the environmental resource categories: "Concurrent visual resource [or whatever environmental resource discussed] effects of Alternatives 4A, 2D, and 5A would likely be much less than under other alternatives because restoration actions under these alternatives would be reduced compared to other action alternatives." While this conclusion is supported by common sense in light of the dramatically smaller footprints and impacts of Environmental Commitments in the California WaterFix (Alternative 4A), 2D and 5A that derive from Conservation Measures in the BDCP, the analysis could be improved by stating the order of magnitude difference between the BDCP alternatives, and the new sub-alternatives relative to their BDCP analogs.
17	§ 5.2.2; 5-36	The rationale for inclusion of some projects in the updated list of cumulative projects should be expressly stated where their relationship to the project and impact in question is not apparent. For example, it is unclear what, if any, cumulative impact the State Water Project Contract Extension could have on covered fish species (page 5.96), how construction of Sites Reservoir, far outside the Delta, could have a cumulatively significant impact on conversion of agricultural land in the Delta, why the Fresno to Merced Section of the High Speed Rail and Salton Sea Species Conservation Habitat Project are included in socioeconomics (page 5-152), or why Salton Sea, Sites Reservoir, and Poseidon's Carlsbad Seawater Desalinization Plant are included in the list of projects for aesthetic impacts (pages 5-170-171).
Appendix A: Chapter 8 – Water Quality		
18	§ 8.1.3.18; starting page 8-45	*Microcystis*. In response to comments on the Draft EIR/EIS, *Microcystis* was added to the water quality assessment. The RDEIR/SDEIS presents the *Microcystis* information in a balanced manner referencing current scientific information to support the analysis. We request that on page 8-46, the discussion of existing conditions for *Microcystis* be updated in the Final EIR/EIS to include

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		more recent data on microcystin concentrations in the SWP. Data from the last five years show levels of microcystin above the WHO advisory and the USEPA health advisories.
19	§ 8.3.1.1; starting page 8-46	Modeling Salinity Constituents. Previous comments on the Draft EIR/EIS submitted by the Metropolitan Water District of Southern California (Metropolitan) in July 2014 expressed concern that the water quality modeling of salinity constituents indicated many exceedances of Delta water quality standards, and that there was very little explanation for the results.[6] Those comments recommended that Chapter 8 be revised to include information that properly qualifies the modeling and analysis of salinity constituents. The RDEIR/SDEIS includes new detailed explanations of the water quality models, including model limitations, uncertainty and sources of error. Section 8.3.1.1 also includes descriptions of sensitivity analyses performed to evaluate reasons for modeling results showing exceedance of water quality standards, and to determine whether exceedances were modeling artifacts or were potential project-related impacts. This section also includes a description of the DWR and Reclamation process to monitor Delta water quality conditions and adjust operations of the SWP and CVP in real time as necessary to meet water quality objectives. These revisions to section 8.3.1.1 are helpful and necessary for proper interpretation of the water quality modeling results and effects analysis.
20	§ 8.3.3.9; starting page 8-215	Bromide. The July 2014 comments also expressed concern with the bromide modeling results for Barker Slough because the DSM2 model does not accurately model the Barker Slough region. That comment requested that the evaluation of potential water quality impacts at Barker Slough specifically acknowledge the important influence of the local watershed on water quality. The RDEIR/SDEIS includes new language in § 8.3.1.7 that explains DSM2 is known to not account well for local diversions and return flows in the Barker Slough region, and assumed modeled pumping schedule for Barker Slough Pumping Plant may not accurately reflect actual operations, both of which can affect hydrodynamics of Barker Slough. The language in § 8.3.1.7 describing these model limitations should be carried forward to the Alternatives assessment, such as that in § 8.3.3.9 for Alternative 4 (the BDCP). The RDEIR/SDEIS also includes new language describing modeling sensitivity analyses. The sensitivity analyses support the determination that habitat restoration is the driving factor in the modeled bromide increases at Barker Slough. The new language goes on to state that due to uncertainties in the timing and location of tidal marsh restoration activities, the estimates are not predictive of the bromide levels that would actually occur at Barker Slough. The new language is helpful; however, we remain concerned because the RDEIR/SDEIS still relies on the modeled changes in bromide at Barker Slough to find that Alternative 4 may cause adverse effects under NEPA and significant impacts under CEQA. We request that the Final EIR/EIS more fully explain why DSM2 does not accurately model the Barker Slough region for the reasons described in § 8.3.1.7 and why the modeling results are only a rough approximation of the potential impacts. We also request that Mitigation Measure WQ-5 include refinement of DSM2 or development of another analytical approach to evaluate the causes of water quality changes in the Barker Slough region.
21	§8.3.3.9; starting page 8-	EC and Chloride. The 2014 comments expressed concern about the evaluation of potential water quality impacts for chloride and EC based on modeling studies. They included a request that the assessment of potential chloride and EC impacts be revised to clarify that the project will be

[6] See Comment 3, Chapter 8 Water Quality in Metropolitan's Focused Comments on the BDCP EIR/S, Letter from Jeffrey Kightlinger, General Manager, Metropolitan Water District of Southern California, to Ryan Wulff, National Marine Fisheries Service (July 28, 2014).

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	220 to 8-230, and 8-236 to 8-246	operated to comply with regulatory standards, and to explain where chloride and EC changes are due to modeling anomalies. The RDEIR/SDEIS includes substantial revisions in the EC and chloride sections that explain the modeling, sensitivity analyses, modeling anomalies and corrections, and provide explanations of the modeling results and potential reasons for results that indicate exceedance of EC and chloride objectives. Modeling sensitivity studies were conducted to evaluate the effect of salinity control gate operations and habitat restoration areas on EC levels. The sensitivity analyses indicated that increases in EC are primarily related to the changes in Delta hydrodynamic conditions associated with tidal habitat restoration. The RDEIR/SDEIS also includes language that given the uncertainty in the chloride modeling approach it is likely real time operations of the SWP and CVP will achieve compliance with water quality objectives. We appreciate that this information was used to revise the mitigation measures to make them more specific.
Appendix G: Alternative 4A Compatibility with the Delta Plan		
22	App. G	Appendix G should be revised to properly reflect the legislative language of the Delta Reform Act.