Section	Page	Line	Type	Key Document Text	Comment
8.4.3.1	8-222	17-21	WQ	Because of such a relationship, the changes in mean monthly average river flows under the No Action Alternative are not expected to cause river TSS concentrations or turbidity levels (highs, lows, typical conditions) to be outside the ranges occurring under Existing Conditions. Consequently, this alternative is expected to have minimal effect on TSS concentrations and turbidity levels in the reservoirs and rivers upstream of the Delta, relative to Existing Conditions.	This assessment does not account for other reservoir operations that may affect the turbidity of the ambient water quality, as noted in previous comments on Section 8.2.3.17. Also, climate change conditions may result in increased fire risk and storm intensity that could contribute increased solids loading to the waterbodies.
8.4.3.9	8-408	19-30	WQ	Under Alternative 4, over the long term, average annual delta exports are anticipated to range from an increase of 112 TAF under scenario H1 to a decrease by 730 TAF under scenario H4 relative to Existing Conditions, and an increase by 815 TAF under scenario H1 to a decrease of 27 TAF under scenario H4 relative to the No Action Alternative. Since, over the long-term, between 47 (scenario H1) and 49% (scenario H4) of the exported water will be from the new north Delta intakes, average monthly diversions at the south Delta intakes would be decreased because of the shift in diversions to the north Delta intakes (see Chapter 5, Water Supply, for more information). The result of this is increased San Joaquin River water influence throughout the south, west, and interior Delta, and a corresponding decrease in Sacramento River water influence. This can be seen, for example, in Appendix 8D, ALT 4, H3–Old River at Rock Slough for ALL years (1976–1991), which show increased San Joaquin River (SJR) percentage and decreased Sacramento River (SAC) percentage under the alternative, relative to Existing Conditions and the No Action Alternative.	The analysis should report and evaluate in more detail the effects on hydrodynamics in the Sacramento River up to the I Street Bridge, due to the fact that the significant reduction in Sacramento River flows downstream of Hood will certainly increase tidal influences on the upstream reach. The evaluation should include points between Emmaton and I Street.
8.4.3.9	8-416	17-19	WQ	Bromide loading in these watersheds would remain unchanged and resultant changes in flows from altered system-wide operations under Alternative 4 would have negligible, if any, effects on the concentration of bromide in the rivers and reservoirs of these watersheds.	Similar to the comment on the No Action Alternative, there needs to be further assessment of the potential for reverse flow to propagate further upstream on the Sacramento River, increasing seawater intrusion upstream of the Delta (due to both CM1 and CM2) and increasing seasonal, peak bromide levels.
8.4.3.9	8-422	39-43	ERROR	Modeling scenarios included assumptions regarding how certain habitat restoration activities would affect Delta hydrodynamics (CM2 and CM4), and thus such hydrodynamic effects of these restoration measures were included in the assessment of CM1 facilities operations and maintenance (see Impact WQ-1).	The reference to Impact WQ-1 does not appear correct. This needs to be reviewed and revised.
8.4.3.9	8-423	37-40	WQ	Consequently, the Alternative 4 H1–H4 Scenarios would not be expected to cause exceedances of chloride objectives/criteria or substantially degrade water quality with respect to chloride, and thus would not adversely affect any beneficial uses of the Sacramento River, the eastside tributaries, associated reservoirs upstream of the Delta, or the San Joaquin River.	There needs to be further assessment of the potential for reverse flow to propagate further upstream on the Sacramento River, increasing seawater intrusion upstream of the Delta (due to both CM1 and CM2) and increasing seasonal, peak chloride levels.

Section	Page	Line	Type	Key Document Text	Comment
8.4.3.9	8-424	21	ERROR	More discussion of this phenomenon is included in Section 8.3.1.3.	This section reference is incorrect and needs to be reviewed and revised.
8.4.3.9	8-436	14-17	WQ, WS	Based on these considerations, EC levels (highs, lows, typical conditions) in the Sacramento River and its tributaries, the eastside tributaries, or their associated reservoirs upstream of the Delta would not be expected to be outside the ranges occurring under Existing Conditions or the No Action Alternative.	Similar to the comment on the No Action Alternative, there needs to be further assessment of the potential for reverse flow to propagate further upstream on the Sacramento River, increasing seawater intrusion upstream of the Delta (due to both CM1 and CM2) and increasing seasonal, peak EC levels.
8.4.3.9	8-439	36-44	WQ	River flow rate and reservoir storage reductions that would occur under Alternative 4, Scenarios H1–H4, relative to Existing Conditions, would not be expected to result in a substantial adverse change in EC levels in the reservoirs and rivers upstream of the Delta, given that: changes in the quality of watershed runoff and reservoir inflows would not be expected to occur in the future; the state's aggressive regulation of point-source discharge effects on Delta salinity-elevating parameters and the expected further regulation as salt management plans are developed; the salt-related TMDLs adopted and being developed for the San Joaquin River; and the expected improvement in lower San Joaquin River average EC levels commensurate with the lower EC of the irrigation water deliveries from the Delta.	It is unclear if the regulatory programs and water quality policies described are intended as a mitigation measure. Regulatory programs like CV-SALTS will be dramatically affected by the BDCP and will likely require a "grand" solution to prevent the continued accumulation of salts in the Central Valley. Operation of the water exports has amplified the problem, and the BDCP should also address this long-term issue. It is insufficient to assume that salt accumulation will resolve itself through regulatory programs. Further, the proposed mitigation measures are continued assessment and investigative approaches that do not commit to actual reductions in salinity.
8.4.3.9	8-446	17-21	WQ	BDCP Conservation Measure 12 (CM12) addresses the potential for methylmercury bioaccumulation associated with restoration activities and acknowledges the uncertainties associated with mitigating or minimizing this potential effect. CM12 proposes project-specific mercury management plans for restoration actions that will incorporate relevant approaches recommended in Phase 1 Methylmercury TMDL control studies.	As a bioaccumulate, the load of methylmercury should be considered as well in the evaluation of impacts, including detailed assessments at locations in the Delta and upstream. The effects of the restoration areas are not adequately characterized in the water quality analysis. The effects should be estimated to provide a better sense of the uncertainty and potential range of loads and concentrations associated with the BDCP actions. At a minimum, the EIR/EIS should evaluate consistency with the Delta Methylmercury TMDL allocations for each of the subregions and how the BDCP would impact compliance with the TMDL targets for each area.
8.4.3.9	8-446, 8-447	3-42, 1-2	WQ	Impact WQ-14: Effects on Mercury Concentrations Resulting from Implementation of CM2–22	The evaluation concludes that there are adverse impacts and significant uncertainties, but it does not propose mitigation measures to reduce methylmercury loads or concentrations. The Delta is impaired for methylmercury with no available assimilative capacity. The evaluation should consider mitigation measures to reduce the potential load increase. Numerous mitigation measures (e.g., offset in other historic source locations) should be considered as part of the TMDL Phase 1 evaluation.

Section	Page	Line	Type	Key Document Text	Comment
8.4.3.9	8-447	3-8	WQ	There would be no substantial, long-term increase in mercury or methylmercury concentrations or loads in the rivers and reservoirs upstream of the Delta or the waters exported to the CVP and SWP service areas due to implementation of CM2–CM22 relative to Existing Conditions. However, in the Delta, uptake of mercury from water and/or methylation of inorganic mercury may increase to an unquantified degree as part of the creation of new, marshy, shallow, or organic-rich restoration areas.	The Sacramento River reach between Veterans Bridge and Emmaton is not adequately characterized and is not consistent with the previous NEPA finding of adverse effects due to uncertainty, since this reach would be affected by the restoration areas that introduce the uncertainty. Throughout this assessment, this reach is not evaluated sufficiently.
8.4.3.9	8-451	27-31	CM19, WQ	Because urban stormwater is a source of nitrate in the affected environment, CM19, Urban Stormwater Treatment, is expected to slightly reduce nitrate loading to the Delta, thus slightly decreasing nitrate-N concentrations relative to the No Action Alternative. Implementation of CM12–CM18 and CM20–CM22 is not expected to substantially alter nitrate concentrations in any of the water bodies of the affected environment.	Urban wet weather runoff is generally low in nitrates, and the conclusion that CM19 would reduce nitrate concentrations is unfounded. A reference should be provided that demonstrates that urban wet weather runoff is high in nitrates should be provided. In some cases, especially in the San Joaquin River, urban runoff dilutes river concentrations. Many CM19 and current low impact development (LID) control measures are intended to reduce flows. Restoration areas use groundwater that is higher in nitrates for habitat flows.
8.4.3.9	8-452	11-18	WQ, WS	Thus changes in system operations and resulting reservoir storage levels and river flows under the various operational scenarios of Alternative 4 would not be expected to cause a substantial long-term change in DOC concentrations in the water bodies upstream of the Delta. Any negligible changes in DOC levels in water bodies upstream of the Delta under Scenarios H1–H4 of Alternative 4, relative to Existing Conditions and the No Action Alternative, would not be of sufficient frequency, magnitude and geographic extent that would adversely affect any beneficial uses or substantially degrade the quality of these water bodies, with regards to DOC.	Similar to the previous comment on the No Action Alternative. There needs to be further assessment of the other factors potentially influencing organic carbon concentrations in the source water quality, both in the Delta and upstream of the Delta. Factors that should be assessed include changes due to revised reservoir operations, increase in diverted flows at Yolo Bypass, and climate change impacts.
8.4.3.9	8-456	12-20	CM19, WQ	Implementation of CM12–CM22 would not be expected to have substantial, if even measurable, effect on DOC concentrations upstream of the Delta, within the Delta, and in the SWP/CVP service areas. Consequently, any negligible increases in DOC levels in these areas of the affected environment are not expected to be of sufficient frequency, magnitude and geographic extent that they would adversely affect the MUN beneficial use, or any other beneficial uses, of the affected environment, nor would potential increases substantially degrade water quality with regards to DOC.	This conclusion statement is inaccurate and misleading, and the assessment is insufficient. The conclusion seems in contrast to some conclusions in CM2-CM5 and CM7-CM12 that could affect organic carbon. In some cases, increases of 0.5 mg/L were projected that could impact MUN beneficial uses by requiring additional water treatment. This increase is a substantial fraction of current concentrations. A more detailed assessment should be performed to evaluate the impact on beneficial uses.
8.4.3.9	8-456	21-24	WQ, WS	Change in Delta hydrodynamics involves a two part process, including the conveyance facilities and operational scenarios of CM1, as well as the change in Delta channel geometry and open water areas that would occur as a consequence of implementing tidal wetland restoration measures such as that described for CM4.	Since CM2 results in significant flows diverted from the Sacramento River seasonally, this can also impact the hydrodynamics and thus should have been included in the evaluation on the impact to DOC, both in the Delta and upstream of the Delta.
8.4.3.9	8-457	32-33	WQ	Furthermore, DOC is not bioaccumulative, therefore changes in DOC concentrations would not cause bioaccumulative problems in aquatic life or humans.	While DOC is not bioaccumulative, the effect on human health is as a disinfection byproduct precursor, such that it should essentially be considered bioaccumulative, depending on the context of the analysis.

Section	Page	Line	Type	Key Document Text	Comment
8.4.3.9	8-458	8-38	WQ	The BDCP proponents will also establish measures to help guide the design and creation of the target wetland habitats. At a minimum, the measures should limit potential increases in long-term average DOC concentrations, and thus guide efforts to site, design, and maintain wetland and riparian habitat features, consistent with the biological goals and objectives of the BDCP. For example, restoration activities could be designed and located with the goal of preventing, consistent with the biological goals and objectives of the BDCP, net long-term average DOC concentration increases of greater than 0.5 mg/L at any municipal intake location within the Delta.	As presented, mitigation measure WQ-18 notes that it may not be possible to include the measure in light of other BDCP goals. Furthermore, there are insufficient assurances in place on how the BDCP will monitor future changes in DOC and causes of impairments to municipal drinking water intakes. The EIR/EIS should evaluate the impact on drinking water intakes and treatment if mitigation is not implemented or effective.
8.4.3.9	8-458	39-40	WQ, WS	Impact WQ-19, Effects on Pathogens	See other comments on pathogen text in the No Action Alternative.
8.4.3.9	8-462	21-26	WQ	Because of a great deal of scientific uncertainty in the loading of coliforms from these various sources, the resulting change in coliform loading is uncertain, but it is anticipated that coliform loading to Delta waters would increase. Based on findings from the Pathogens Conceptual Model that pathogen concentrations are greatly influenced by the proximity to the source, this could result in localized increases in wildlife-related coliforms relative to the No Action Alternative.	Mitigation should be required based on the uncertainty of coliform and pathogen source changes from new restoration areas and the conclusion that restoration areas would increase concentrations of pathogens. The July 2013 Basin Plan Amendment includes narrative objectives for Giardia and Crytosporidium and trigger levels for investigative action. The CEQA and NEPA impact assessment is insufficient because these triggers are not properly evaluated and the finding of "not adverse" is inconsistent with the Basin Plan if drinking water intakes are impacted.
8.4.3.9	8-464	11-14	WQ	Monitoring for pyrethroid insecticides in main-stem rivers is limited and detections are rather few. With the replacement of many traditionally OP related uses, however, it is conservatively assumed that pyrethroid incidence and associated toxicity could ultimately take a pattern of seasonality similar to that of the chlorpyrifos or diazinon.	There is much data in the Sacramento Delta collected in the last five years by the CMP (15-20 data points). Pyrethroids have a different transport mechanism, decay rate, effect levels, and application pattern, and it is not reasonable to assume that "toxicity patterns" would be similar to OP Pesticides.
8.4.3.9	8-464	40-42	WQ, WS	However, summer average flow reductions of up to 19% are not considered of sufficient magnitude to substantially increase in-river concentrations or alter the long-term risk of pesticide-related effects on aquatic life beneficial uses.	More information is needed to support the lack of sufficiency of flow reductions to impact ambient water concentrations of pesticides. The reliance upon assimilative capacity may not be valid if discharging to a high quality waterbody, since it may show a trend of degradation
8.4.3.9	8-467	25-28	WQ	Because long-term average pesticide concentrations are not expected to increase substantially, no long-term water quality degradation with respect to pesticides is expected to occur and, thus, no adverse effects on beneficial uses would occur. This impact is considered to be less than significant. No mitigation is required.	The EIR/EIS does not adequately nor sufficiently discuss the uncertainty of this broad conclusion. There are a number of factors that may require additional pesticide use such as invasive weed productivity interfering with CM1 or CM2 operation due to climate change, increased agricultural applications due to climate change, and the unknown effect of the changes in flow patterns that may alter "scour" and dilution of pesticides already in the system. This finding is inaccurate since a number of the conservation measures may increase pesticide concentrations, and it is not clear whether or when each conservation measure will be completed.

Section	Page	Line	Type	Key Document Text	Comment
8.4.3.9	8-467	25-28	WQ	Because long-term average pesticide concentrations are not expected to increase substantially, no long-term water quality degradation with respect to pesticides is expected to occur and, thus, no adverse effects on beneficial uses would occur. This impact is considered to be less than significant. No mitigation is required.	The uncertainty with the broad conclusion is not sufficiently evaluated. There are reasonable conditions which may lead to increases in pesticides that should be evaluated. It is misleading to draw this broad conclusion based only on qualitative assessments when quantitative approaches are feasible and data are available. The EIR/EIS should perform a quantitative computational modeling effort to evaluate pesticide concentrations.
8.4.3.9	8-479	10-13	WQ, WS	Facility operations could have an effect on these sources if concentrations of dissolved metals were closely correlated to river flow, suggesting that changes in river flow, and the related capacity to dilute these sources, could ultimately have a substantial effect on long-term metals concentrations.	Reservoir operation will control the elevation, thus storage volume, in the reservoirs. These volumes could result in stratification of the reservoir and impacts to the concentration of dissolved metals in the water discharged to downstream rivers and should be evaluated. The USGS NAWQA program has identified upstream reservoirs and mines as sources of trace metals (http://ca.water.usgs.gov/user_projects/sac_nawqa/study_description.html) Metals evaluations need to be conducted on total metals fraction relationship to storage volumes, to account for impacts to drinking water treatment requirements and treated water levels.
8A	8A-1	Table 8A-1	WS, ERROR	1,1,1-trichlorobenzene MCL 0.2 mg/L	This is incorrect. No standard exists for this constituent. http://www.cdph.ca.gov/certlic/drinkingwater/Documents/DWdocuments/EPAandCDPH-2-13-2014.pdf
8A	8A-1	Table 8A-1	WS, ERROR	1,1,1-trichloroethane	There is an MCL of 0.2 mg/L which should be shown in the last column. http://www.cdph.ca.gov/certlic/drinkingwater/Documents/DWdocuments/EPAandCDPH-2-13-2014.pdf
8A	8A-1	Table 8A-1	WS, ERROR	1,1,2-trichloro-1,2,2-trifluoroethane MCL 0.12 mg/L	This is incorrect. The MCL is 1.2 mg/L for this constituent. http://www.cdph.ca.gov/certlic/drinkingwater/Documents/DWdocuments/EPAandCDPH-2-13-2014.pdf
8A	8A-1	Table 8A-1	WS, ERROR	1,1,2-trichlorobenzene MCL 0.005 mg/L	This is incorrect. No standard exists for this constituent. http://www.cdph.ca.gov/certlic/drinkingwater/Documents/DWdocuments/EPAandCDPH-2-13-2014.pdf
8A	8A-1	Table 8A-1	WS, ERROR	1,1,2-trichloroethane	There is an MCL of 0.005 mg/L, which should be shown in the last column. http://www.cdph.ca.gov/certlic/drinkingwater/Documents/DWdocuments/EPAandCDPH-2-13-2014.pdf
8A	8A-1	Table 8A-1	WS, ERROR	1,2-dichloropropene MCL 0.005 mg/L	This is incorrect. No standard exists for this constituent. http://www.cdph.ca.gov/certlic/drinkingwater/Documents/DWdocuments/EPAandCDPH-2-13-2014.pdf
8A	8A-1	Table 8A-1	WS, ERROR	1,2-dichloropropane	There is an MCL of 0.005 mg/L, which should be shown in the last column. http://www.cdph.ca.gov/certlic/drinkingwater/Documents/DWdocuments/EPAandCDPH-2-13-2014.pdf
8A	8A-2	Table 8A-1	WS, ERROR	Arsenic MCL 0.01 mg/L	This is incorrect. The MCL is 0.010 mg/L for this constituent. http://www.cdph.ca.gov/certlic/drinkingwater/Documents/DWdocuments/EPAandCDPH-2-13-2014.pdf

Section	Page	Line	Type	Key Document Text	Comment
8A	8A-5	Table 8A-1	WS, ERROR	Sulfate	There is an MCL of 250 mg/L for this constituent, and it should be added to the table. http://www.cdph.ca.gov/certlic/drinkingwater/Documents/Recentlyadoptedregulations/R-21-03-finalregtext.pdf
8A	8A-5	Table 8A-1	WS, ERROR	Thiobencarb MCL 0.001 mg/L	This is incorrect. There is a primary and a secondary MCL for this constituent, and it should be represented by both 0.07/0.001 mg/L. http://www.cdph.ca.gov/certlic/drinkingwater/Documents/DWdocuments/EPAandCDPH-2-13-2014.pdf
8A	8A-5	Table 8A-1	WS, ERROR	Toxaphene MCL 0.003 and 0.005 mg/L	There should only be one line for toxaphene, and the correct MCL is 0.003 mg/L. http://www.cdph.ca.gov/certlic/drinkingwater/Documents/DWdocuments/EPAandCDPH-2-13-2014.pdf
8A	8A-14	Table 8A-3	WS, ERROR	Chemical Constituents Narrative	This narrative water quality objective needs to be included as it applies to the Region 5 Basin Plan and includes organic carbon as per the Drinking Water Policy. http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/resolutions/r5-2013-0098_res.pdf
8B	8B-1 to 8B-5	Table B-1	WQ, WS, SCOPE	Summary of Data Availability for Use in Environmental Setting	Four sites are located upstream of the Delta in the North (Sacramento River at Keswick, Feather River at Oroville, American River at WTP, and Sacramento River at Verona). The table needs additional footnotes explaining the specific programs and sources of data for each constituent. Many constituents of interest for drinking water do not have any data evaluated at any of these four sites. The limited data do not support that a complete assessment has been conducted for the area upstream of the Delta, and this data should have been supplemented with available data from existing MUN users in the Sacramento metropolitan area.
8C.1	8C-1	4-5	WQ	A constituent "screening analysis" was performed as the first portion of the overall analysis of water quality effects of implementing the Alternatives.	This process is fundamentally flawed as it was focused on evaluating only the data that was readily available at the few sites selected for ease of data acquisition. As noted in the comment on Appendix 8B, there was limited data available at the selected sites upstream of the Delta in the Sacramento River system. There is significantly more data readily available in the Sacramento Valley, as presented in other comments herein. The process should have identified water quality constituents of concern, based on the applicable beneficial uses, and then targeted data collection on those constituents in order to determine the water quality effects of the BDCP.
8C.1	8C-1	20	WQ, WS, ERROR	This screening analysis evaluated 182 water quality constituents/parameters.	The list of constituents provided in Step 1 (Table SA-6) is missing 36 constituents with primary or secondary MCLs in drinking water. All of those regulated constituents should have been placed on an initial screening list (perhaps as part of Step 4) to determine if they needed to be evaluated and if data was readily available to assess.

Section	Page	Line	Type	Key Document Text	Comment
8C.1.1	8C-1	35-38	WQ, SCOPE	However, for consistency and due to data availability concerns, the input data for the screening analysis was limited to two data sets that were publically available via the web and managed by a public agency (i.e., data from the DWR Water Data Library and the Bay Delta and Tributaries Project [BDAT]).	Although these data sets do provide ease of obtaining and consistency in evaluation, neither program is focused on evaluating the MUN beneficial use; therefore, the data sets are insufficient in terms of the number of constituents and the number of data points to assess the water quality impacts to that and other beneficial uses. The data collection should have targeted key constituents and geographic areas where additional data should have been obtained from other reliable programs such as CDPH compliance monitoring and Central Valley Regional Water Board WDR and NPDES permit monitoring.
8C.1.1.1	8C-2	5	WQ, SCOPE	Table SA-1	The Sacramento River upstream of the Delta is solely represented by five sites located within the Delta (at Hood and Greene's Landing) and therefore not representative of upstream conditions. For example, there are significant differences in water quality, such as presence and detectability of pesticides from upstream agriculture, which cannot be assessed at the Delta sites for potential impacts to upstream water quality from reduced dilution. This analysis was too limited in scope and should have been expanded to target key geographic areas upstream of the Delta.
8C.1.2	8C-3	2-4	WQ	Because modeling performed in support of the Environmental Consequences impact assessments assumed no new sources of water quality constituents, water quality concerns arise primarily through altered mixing of Delta source waters.	The broad statement is misleading and should be corrected. New sources may exist in the restoration wetlands and other conservation measures. What is the basis for assuming that there are no new sources? Pathogens, methylmercury, organic carbon, and potentially increased use of groundwater to offset upstream supply restrictions during droughts are all constituents where new sources (restoration areas, water supply changes, etc.) should be considered as part of the EIR/EIS.
8C.1.3.1.2	8C-6	14-18	WQ	Available tools were considered appropriate for modeling only those constituents that could be assumed to be conservative (i.e., not transformed into a new constituent or lost as water flows through the system). Constituents of concern that could not be analyzed through quantitative modeling, or for which it was determined that quantitative modeling was not necessary for an environmental impacts determination, were carried forward for qualitative analysis.	This is an unnecessary limitation. The BDCP should be required to collect additional data and develop modeling tools for all constituents of concern.
8C.1.3.2	8C-6	21	WS, ERROR	Summary of Source Water Data (Step 1) -	This process is missing 36 constituents with primary or secondary MCLs in drinking water. There are five constituents that we recommend be added to the screening analysis, at a minimum, including aluminum, perchlorate, 1,1,2-trichloro-1,2,2-trifluoroethane, di (2-ethylhexyl) adipate, and di (2-ethylhexyl) phthalate based on potential risk to source water quality.
8C and 8C.1.3.2.1	8C-6	28-30	ERROR	In addition to the 28 summary characteristics identified in Section 4.4.2.1 and Section 4.4.2.2, the following were 29 determined across all source water locations.	This section reference is incorrect and needs to be reviewed and revised.

Section	Page	Line	Type	Key Document Text	Comment
8C.1.3.3	8C-7	18	WQ, ERROR	Determine if maximum detect exceeds minimum applicable criterion	The primary drinking water standards for metals are based upon the total fraction of the metal in analysis, not the dissolved fraction as per SDWA. Drinking water treatment provides variable levels of metals reduction, depending on the process, other water quality criteria, and the fraction total/dissolved metals present. It is incorrect to apply the metals MCLs to the dissolved fraction for analysis, and this needs to be revised.
8C.1.3.3	8C-7	20	WQ	Determine if constituent is of concern based on professional judgment	It is unclear what is the basis for professional judgment to carry *E. coli* forward for Step 5 evaluation. If this is based on impacts to the MUN beneficial use, E. coli is only used as a surrogate to represent potential risk to human health from pathogens. Source water concentrations of E. coli can be used by the California DPH if direct monitoring of Giardia and viruses is not available to determine the level of treatment required at a water treatment plant (based on the SWTR and its USEPA and California DPH guidance documents). This needs to be clarified and specified for what trigger levels will be used.
8C.1.3.4	8C-8	6	WQ	Determine if constituent is of concern based on professional judgment	It is unclear what is the basis for professional judgment related to total and fecal coliform and Giardia and Cryptosporidium evaluations. The concentrations of these constituents in the source water are what determine the level of treatment required in the source water, as per the SWTRs, and therefore they are of significant concern to the MUN use. These constituents are not carried forward for evaluation for the MUN use; this needs to be reevaluated, based on limited data and the significance of the constituents.
8C.1.3.5	8C-8	14-16	WQ	Non-detect constituents carried forward from screening in Step 3 and additional constituents of concern not analyzed for in the dataset (e.g., pyrethroids and dioxins) were assessed against the following triggers for potential detailed assessment.	The process for selecting additional constituents of concern needs to be described. There are many drinking water constituents with regulatory standards that were not included and should have been evaluated and considered for inclusion that are not included in Table SA-9 (See comment on Step 1 evaluation).
8C.1.3.6	8C-8	30-31	WQ	Determine if adequate modeling tools, relative to the physical/chemical properties of the constituent, exist to perform a quantitative assessment in the Delta	Please provide a basis for making this determination of adequate modeling tools and which tools were evaluated and why they were not found to be adequate. Certainly, such tools should be available for adaptive management, and beginning with these tools now would provide much needed information.
8C.1.3.6	8C-8	32-34	WQ	Determine if a quantitative assessment is necessary to determine the potential environmental impact (e.g., when all source water concentrations are similar, then the mixed condition is predictable without quantitative modeling)	The suggested approach that modeling is only necessary for hydrodynamics (i.e., blended sources of the same magnitude are essentially 'mixed') does not consider non-conservative processes or the additive effects of some toxicants. All assessments should be based on quantitative approaches.

Section	Page	Line	Type	Key Document Text	Comment
8C.1.4.4	8C-11	12-13	WQ	Decreasing the thresholds to nine would trigger quantitative analysis of iron and manganese. Further threshold reductions to six would trigger chromium.	This finding of the Sensitivity Analysis supports that iron, manganese, and chromium need to be carried forward in the Screening Analysis and examined in more detail in Chapter 8.
8C.1.5.2	8C-12	38-40	WS, ERROR	Secondary MCLs are established only as guidelines to assist public water systems in managing their drinking water for aesthetic considerations.	This statement is incorrect. Secondary MCLs are enforceable standards for public water systems in California as per Title 22, Chapter 15, Article 16. The text needs to be revised accordingly and the evaluation reconsidered.
8C.1.5.2	8C-13	5-7	WS	Coagulation/flocculation and filtration remove metals like iron, manganese, and zinc. Aeration removes iron and manganese. Granular activated carbon removes most of the contaminants which cause color (U.S. EPA 2012b).	The efficiency of conventional filtration to remove metals is highly variable (AWWA Water Quality and Treatment, 4th Ed., Table 3.1) and should not be represented as consistent. Also, aeration and GAC are not standard treatment processes implemented by most MUN users and should not be identified as typically available treatment.
8C	8C-22	Table SA-6.	WQ	*Error*	The basis for calculation of means and standard deviations for constituents with non-detects or not detected in any samples is not provided.
8C	8C-22	Table SA-6.	WQ, CM19	*Observation*	Very limited chlorpyrifos, diazinon, and bacteria data were included in the screening process, and most all data were reported as non-detect. No pyrethroid data were included. The use of this limited dataset conflicts with assertions made throughout the EIR/EIS and the BDCP that pesticides are present. The data used for the EIR/EIS is misleading, inconsistent, and inadequate.
8C	8C-22 to 8C-27		WQ	Table SA-6	A review of this data set shows that there are numerous constituents with results that are obviously out of range. This data needs to be inspected further to identify inconsistent data points. Examples at the SAC site include high results for asbestos, chloride, bromide, and sulfate. Other issues recommended for review include high detection limits for Giardia and Cryptosporidium, non-detectability for total and fecal coliform and E. coli (which are ubiquitous), and the lack of total fraction metals for nickel and selenium.
8C	8C-28 to 8C-31		WQ, WS	Table SA-7	All metal constituents with primary drinking water MCLs need to have the criteria revised so that the MCL does not apply to the dissolved fraction, and applies only to the total fraction.
8C	8C-29		WQ	Table SA-7	It is unclear why chromium was not carried forward when a trend of degradation is identified in the table. Also, since there is a proposed MCL of 10 ug/L, the constituent should have been carried forward based on professional judgment. This evaluation needs to be reconsidered and revised.
8C	8C-29		WQ, ERROR	Table SA-7	Total iron is shown as being forwarded to the Step 5 evaluation, but it is not included in Table SA-10. This error needs to be corrected, and the constituent needs to be moved forward in the evaluation.

Section	Page	Line	Type	Key Document Text	Comment
8C	8C-34 and 8C-36		WQ	Table SA-8	1,3-dichloropropene has an MCL of 0.5 ug/L. This needs to be applied to its two isomers: cis-1,3-dichloropropene and trans-1,3-dichloropropene.
8C	8C-38		WQ	Table SA-10	Iron needs to be included in this table as per Step 2 analysis in Table SA-7. Also, it should be noted that water temperature is carried forward for a qualitative analysis but that the analysis provided is limited to the aquatic life beneficial use and does not apply to drinking water. Temperature is a key parameter for drinking water treatment and quality, and the evaluation should be expanded to address the MUN beneficial use.
8C	8C-39 to 8C-40		WQ	Table SA-11	The list of trace metals is not complete since iron was not carried forward in the Step 5 analysis (Table SA-10). In addition, any revised evaluation for chromium should be considered before finalizing this table.
8L.1	8L-2 to 8L-3		WQ, SCOPE	Tables 2, 3, and 4	Pesticide use in the Central Valley varies greatly by crops produced and geographic distribution. Splitting the flow analysis for dilution into two seasons is insufficient to evaluate the range of potential impacts. The evaluation should have included four seasons (winter, spring, summer, and fall) to more accurately relate dilution potential to seasonal applications of pesticides.
8N.1	8N-1	6	WQ	Tables and figures below support the trace metals assessment.	The appendix needs to be expanded to include an assessment of available aluminum data. The assessment of dissolved metals should consider impacts of the upstream reservoir storage levels and the potential relationship to peak levels, especially of iron and manganese in the Sacramento River. Also, a companion assessment of the total fraction of each metal needs to be presented as well.
25.1.1	25-2	13-14	WQ, WS	For the purposes of this analysis, the study area (the area in which impacts may occur) for public health is defined as the Plan Area (the area covered by the BDCP) and Areas of Additional Analysis.	This evaluation is very limited, to only the Plan Area or Delta Region, in scope and therefore does not account for impacts to upstream diverters related to the MUN beneficial use. This evaluation is not complete, as it should have evaluated the impacts to the MUN users upstream caused by changes in reservoir storage and river flow conditions.
25.1.1.1	25-3 to 25-4		WQ, WS	Drinking Water - Constituents of Concern	The evaluation is focused on constituents of concern related to Delta users only. The evaluation should consider a complete list of constituents of interest for all upstream MUN users. The list of constituents is limited to disinfection by-products, trace metals, and pesticides. There is no clarification why this does not match the evaluations conducted as part of Chapter 8 and its appendices. The list of trace metals and pesticides is incomplete and should be explained or expanded.

Section	Page	Line	Type	Key Document Text	Comment
25.1.1.3	25-12	18-21	WQ	Furthermore, sediment disturbance would be limited to localized areas under the alternatives since, based on the pathogen conceptual model (discussed in Section 25.3.1.2, Pathogens and Water Quality), pathogen concentrations experience a rapid die-off the farther they travel from their source; thus, this issue is not discussed further.	As noted in the comments in Chapter 8, this statement on pathogen die-off is incorrect and needs to be revised and included in the discussion.
25.1.1.3	25-12	24-26	WQ	Although transport rates are initially increased during wet weather events, the increased availability of water to the Delta helps to reduce pathogen viability during these instances.	This statement is not a general knowledge in the water industry, and a reference for this statement needs to be provided which supports the reduced pathogen viability.
25.1.1.3	25-12	29-32	WQ	In most instances, pathogens in drinking water sources are removed by filtration or bio-membranes, or are destroyed by disinfection. Infections in humans may arise from pathogens that break through standard treatment processes implemented at drinking water sources. Infection in humans may also result from food ingestion or the ingestion of untreated water during recreation.	This section focuses on the recreational risk associated with increased pathogen concentrations. Therefore, it is incorrect to discuss drinking water treatment in this section. The first two sentences should be deleted and the third sentenced revised accordingly to focus on recreation.
25.1.1.3	25-12	33-35	WQ	Although there are many potential pathogens that enter Delta waterways, the presence of pathogens identified in Table 25-33 is tested by wastewater treatment service districts, public drinking water service districts, and other public agencies as needed (e.g., Department of Public Health).	The Table reference is incorrect and needs to be reviewed and revised. Also, if the reference is to Table 25-3, then it is unlikely that the reference public agencies monitor for these specific constituents at any regular frequency. This statement and the table need to be reviewed, confirmed, and corrected as appropriate. See CIWQS Database to confirm - https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/CiwqsReportServlet?inCommand=reset&reportName=esmrAnalytical
25.1.1.3	25-13 to 25-14	3-13, 1-10	WQ	Water Treatment	Since the pathogen discussion focuses on the recreational impacts, it is inappropriate to include a discussion on water treatment in this section. This entire subsection needs to be deleted.
25.1.1.3	25-14	33-38	WQ, ERROR	Data for Cryptosporidium and Giardia along the Sacramento River showed that these parameters were often not detected, and when detected the concentrations were generally low, typically less than one organism per liter (Tetra Tech 2007). The incidence of these pathogens could be caused by the presence of natural or artificial barriers that limit transport to water and by the significant die-off of oocysts that do reach the water, as well as by limitations in the analytical detection of Cryptosporidium oocysts in natural waters (Tetra Tech 2007).	As noted in the comments in Chapter 8, these statements on pathogen die-off, significance of detection, and relative frequency of detection are incorrect and need to be revised and included in the discussion.
25.1.1.3	25-15	10-12	WQ, ERROR	It was determined in the report by Tetra Tech (2007) that the data are inadequate to assess if the sites examined exceeded these standards. California drinking water MCLs do not exist for pathogens.	The reference to the Tetra Tech Conceptual Model is inappropriate because its focus was evaluation of the data for drinking water risk, which is not the purpose of this section - it is stated that this is focused on pathogen risk from recreation. This text should be deleted.

Section	Page	Line	Type	Key Document Text	Comment
25.2.2.4	25-25	22-28	WS	The Safe Drinking Water Act (SDWA) was established to protect the public health and quality of drinking water in the United States, whether from aboveground or underground sources. The SDWA directed EPA to set national standards for drinking water quality. It required EPA to set MCLs for a wide variety of potential drinking water pollutants (see Appendix 8A of Chapter 8, Water Quality). The owners or operators of public water systems are required to comply with primary (health-related) MCLs and encouraged to comply with secondary (nuisance- or aesthetics-related) MCLs. SDWA drinking water standards apply to treated water as it is served to consumers.	This text needs to be clarified to indicate that these are federal standards only, and that the applicable regulations in California are provided in Section 25.2.3.2.
25.2.2.5	25-25	37-39	WS, ERROR	The SWTR applies to all drinking water supply activities in California and its implementation is overseen by the California Department of Public Health (CDPH).	The text is incorrect and needs to be revised to clarify that the SWTR applies to drinking water systems utilizing surface water or groundwater under the direct influence of surface water. Also, it should be clarified that CDPH implementation is based on the California adopted versions of the SWTRs.
25.2.3.2	25-26	14-20	WQ	EPA has designated CDPH as the primary agency to administer and enforce the requirements of the federal SDWA in California. Public water systems are required to be monitored for regulated contaminants in their drinking water supply. California's drinking water standards (e.g., MCLs) are the same as or more stringent than the federal standards, and include additional contaminants not regulated by EPA. Like the federal MCLs, California's primary MCLs address health concerns, while secondary MCLs address aesthetics, such as taste and odor. The California SDWA is administered by CDPH, primarily through a permit system.	CDPH is the "primacy" agency for the SDWA in California. For water agencies, California's secondary MCLs are enforceable standards, unlike federal regulations, and this needs to be clarified in the text. See Title 22, Chapter 15 - http://www.cdph.ca.gov/certlic/drinkingwater/Documents/Lawbook/dwregulations-2013-07-01.pdf
25.2.4.5	25-28	15-21	WQ	Primary MCLs are established for the protection of environmental health and secondary MCLs are established for constituents that affect the aesthetic qualities of drinking water, such as taste and odor. Both the Central Valley and San Francisco Bay Basin Plans incorporate by reference the CDPH numerical drinking water MCLs. The incorporation into the Basin Plans of the MCLs, which are normally applicable to treated drinking water systems regulated by CDPH, makes the MCLs also applicable to ambient receiving waters regulated by the Regional Water Boards.	The text needs to be modified to add language clarifying that both primary and secondary MCLs are enforceable regulations in California for public water systems. Also, the text needs to be modified to clarify that MCLs do not "normally apply" to treated water, see specific comments on Section 8. See Title 22, Chapter 15 - http://www.cdph.ca.gov/certlic/drinkingwater/Documents/Lawbook/dwregulations-2013-07-01.pdf
25.3.1.2	25-35	24-28	WQ, ERROR	As described in Chapter 8, Water Quality (Section 8.3.3), the findings of the Pathogen Conceptual Model state that pathogen concentrations are greatly influenced by proximity to the pathogen-generating source, and pathogen concentrations in the study area are generally not influenced by flow rates or inputs from the Sacramento and San Joaquin Rivers because of travel time and rapid pathogen die-off rates.	As noted elsewhere, the statement regarding rapid pathogen die-off rates is incorrect and needs to be deleted. The discussion should be reviewed and revised appropriately.

Section	Page	Line	Type	Key Document Text	Comment
25.3.1.2	25-35	29-32	WS	Human exposure to pathogens primarily occurs through drinking water or contact with pathogen sources in water. The removal of pathogens in drinking water happens prior to distribution and treatment techniques generally have a greater than 99% removal rate, as described in Section 25.1.1.33; therefore, pathogens would have a very limited effect on drinking water quality.	This section was focused on the pathogen risk to recreators. The explanation as to why the drinking water risk was not evaluated and presented here should have been included earlier in the Chapter to clarify its exclusion. Also, the section reference is incorrect and needs to be reviewed and revised.
25.3.1.3	25-36	12-18	WQ	Therefore, this analysis summarizes the qualitative and quantitative results presented in Chapter 8 to identify whether the construction and operation of the facilities associated with the alternatives would exceed water quality standards for pesticides that do not bioaccumulate (for this assessment, only present use pesticides for which substantial information is available, namely diazinon, chlorpyrifos, pyrethroids, and diuron, are addressed); trace metals of human health and drinking water concern (i.e., arsenic, iron, and manganese); DBPs, including HAA5, bromated, chlorite, and THMs via the THM formation potential5 (THMFP).	This summary is incomplete as compared with the analysis presented in Chapter 8 and needs to be reviewed and revised accordingly and updated to include any revised analysis in response to public comments on the draft EIR/EIS. Also, there is reference to trace metals (arsenic, iron, and manganese) which were not presented in Section 25.1.1.1, and this needs to be reviewed and corrected.
25.3.2	25-39	16-23	WQ	Exceedance(s) of water quality criteria for constituents of concern such that an adverse effect would occur to public health from drinking water sources. This analysis is based on the qualitative and quantitative results presented in Chapter 8, Water Quality, to identify whether the construction and operation of the alternatives would exceed water quality standards for pesticides that do not bioaccumulate (present use pesticides for which substantial information is available, namely diazinon, chlorpyrifos, pyrethroids, and diuron); trace metals of human health and drinking water concern (i.e., arsenic, iron, and manganese); DBPs, including HAA5, bromated, chlorite; and THMs via the THMFP.	This criteria for significance should be reevaluated based on any changes to the water quality analysis presented in Chapter 8 based on comments received on the Draft EIR/EIS.
25.3.3.1	25-45	1-6	WQ	However, under the No Action Alternative, existing exceedances would not increase above baseline conditions (see Chapter 8) to levels that adversely affect any beneficial uses or substantially degrade water quality. Furthermore, drinking water from the study area would continue to be treated prior to distribution into the drinking water system. Therefore, there would be no adverse effect on drinking water due to new water conveyance facilities.	This determination should be revised based on any changes to the water quality evaluation analysis presented in Chapter 8 based on comments received on the Draft EIR/EIS.
25.3.3.9	25-112	3-6	WS	Changes to DOC and bromide concentrations and, by extension, DBPs, under Alternative 4 operational scenarios (H1–H4) suggest that there would not be exceedances of DBP criteria due to operations, because long-term average DOC and bromide concentrations would be only slightly higher under this alternative relative to the No Action Alternative.	Similar to another comment on Chapter 8, the use of long term average concentrations of bromide and DOC should be reconsidered. The treatment technique for TOC removal is based on a running annual average, calculated quarterly, so shorter-term impacts could occur quickly due to seasonal variability in TOC levels of the source water. Also, future conditions from both climate change and reservoir operations could result in more frequent and expanded reverse flow scenarios on the Sacramento River, which could impact the detectability of bromide in the source water periodically.

Section	Page	Line	Type	Key Document Text	Comment
25.3.3.9	25-113	5-11	WS	Mitigation Measure WQ-5 is available to reduce these effects (implementation of this measure along with a separate, non-environmental commitment as set forth in EIR/EIS Appendix 3B, Environmental Commitments, relating to the potential increased treatment costs associated with bromide-related changes would reduce these effects). Further, DWR issued a Notice of Preparation on December 2, 2009 to construct and operate the AIP that would establish an alternative surface water intake on the Sacramento River upstream of the Sacramento Regional Wastewater Treatment Plant discharge.	It is unclear if the NBA AIP operations defined in the Mitigation Measure have been sufficiently included in the modeling and evaluations. This additional diversion could impact the likelihood, frequency, and duration of reverse flow scenarios on the Sacramento River and could require additional modifications to the upstream reservoir release requirements, impacting source water quality between the upstream reservoirs and the Delta. This should be clarified and confirmed.
25.3.3.9	25-113	21-28	WQ, WS	Water quality modeling results indicate that water conveyance facilities operations would not substantially change concentrations of metals of primarily human health and drinking water concern (arsenic, iron, manganese) in Delta waters relative to the No Action Alternative. The arsenic criterion was established to protect human health from the effects of long-term chronic exposure, while secondary maximum contaminant levels for iron and manganese were established as reasonable goals for drinking water quality. Average concentrations for arsenic, iron, and manganese in the primary source water (Sacramento River, San Joaquin River, and the bay at Martinez) are below these criteria.	Consideration of impacts to trace metals from reservoir reoperation should be included in the assessment, as commented on Chapter 8. This summary may need to be revised accordingly. Also, it needs to be clarified that secondary MCLs for iron and manganese are not goals in California, rather they are enforceable standards for water agencies. Finally, only average concentrations of the dissolved fraction of iron and manganese are lower than the MCLs, so a revised assessment of the total fraction, as requested in Chapter 8, could result in a revised summary in this section.
25.3.3.9	25-114	20-25	WQ, WS	Furthermore, drinking water from the study area would continue to be treated prior to distribution into the drinking water system, and water treatment plants are required to meet drinking water requirements set forth in the California Safe Drinking Water Act (Health and Safety Code Section 116275 et seq.) and the regulations adopted by CDPH. Therefore, it is not anticipated that there would be adverse effects on public health related to pesticides from drinking water sources.	Conventional filtration is not effective at treatment and removal of organic compounds, such as pesticides and herbicides (See AWWA's Water Quality and Treatment, A Handbook of Community Water Systems. American Water Works Association,4th Ed. Table 3-1 General Effectiveness of Water Treatment Processes for Contaminant Removal (p 184-185). Advanced treatment processes would be required, such as granular activated carbon, and would need to be implemented at additional cost to most of the current MUN users. If water treatment is being depended on to reduce or minimize the impact to public health, then the associated costs for advanced treatment should be evaluated and incorporated into the assessment. Attachment A provides treatment cost information from the 2012 ACWA Public Health Goal Survey, which demonstrates the significant costs to water agencies and their customers for contaminant removal.
25.3.3.9	25-114	28-32	WQ, WS	Water quality modeling results (Chapter 8, Water Quality, Section 8.3.3.9) indicate that changes in flows under Alternative 4 operational scenarios would not, for the most part, result in increased exceedances of water quality criteria for constituents of concern (DBPs, trace metals and pesticides) in the study area.	Similar to the NEPA Effects comments above, the CEQA conclusion should be reconsidered if revisions are made to the water quality assessment in Chapter 8.

Section	Page	Line	Type	Key Document Text	Comment
25.3.3.9	25-114	44-46	WQ, WS	The increase in long-term average bromide concentrations predicted for Barker Slough would result in a substantial change in source water quality to existing drinking water treatment plants drawing water from the North Bay Aqueduct.	The use of long term average concentrations of bromide should be reevaluated, as noted in comments on Chapter 8
25.4.1.1	25-183	23-25	WQ, WS	This cumulative impact analysis considers past, present, and reasonably foreseeable future projects that could affect the same resources and, where relevant, occur within the same time frame as the BDCP action alternatives.	As mentioned in other comments on Chapters 5 and 6, the list of projects should have included state and federal climate change adaptation and mitigation strategies, as well as the Joint Federal Project and associated Water Control Manual at Folsom Dam. Has the North Bay Aqueduct Alternative Intake Project been included in the modeling of the BDCP or should it be included in this cumulative impact analysis?
25.4.1.1	25-189	38-45	WQ, WS	However, drinking water from the study area would continue to be treated prior to distribution into the drinking water system, and water treatment plants are required to meet drinking water requirements set forth in the California Safe Drinking Water Act and the regulations adopted by CDPH. Therefore, it is not anticipated that there would be a cumulatively considerable contribution to adverse effects on public health from pesticides in drinking water due to implementation of BDCP action alternatives; nor would implementation of the BDCP action alternatives in combination with any of the projects listed in Table 25-10 be expected to result in a cumulative adverse effect on public health with regards to pesticides in drinking water in the study area associated with DOC.	As noted in the previous comment, conventional filtration is not effective at treatment and removal of organic compounds, such as pesticides and herbicides. Advanced treatment processes would be required, such as granular activated carbon, and would need to be implemented at additional cost to most of the current MUN users. If water treatment is being depended on to reduce or minimize the impact to public health, then the associated costs for advanced treatment should be evaluated and incorporated into the assessment.
25.4.1.1	25-190	2-6	WQ, WS	Implementing the projects listed in Table 25-10 in combination with any of these BDCP alternatives is not anticipated to result in the potential for increases in public health concerns because changes in existing concentrations of DBPs, trace metals, or pesticides affecting water quality could occur from cumulative project actions that affect the location, timing, and amount of water diversions; but the changes in flows would not be considerable.	This statement appears to be based on a qualitative judgment and needs to be supported with technical information. It appears that dilution associated with river flows is the main basis for the impacts, but there are other factors, such as sea level rise and reservoir storage, that could be attributed to impacts.
25.4.1.1	25-194	1-3	WQ	the cumulative water quality condition in the study area for the pathogens and trace metals is not considered to be adverse.	This determination does not account for any in-reservoir or in-river generation of these constituents. This evaluation needs to be broadened and include the total fraction of trace metals.
25.4.1.1	25-194	16-18	WQ, ERROR	However, the localized nature of pathogen generation and the quick die-off of pathogens once released into water bodies would generally prevent substantial pathogen exposure to recreationists and the cumulative effect would not be considerable or adverse.	This statement regarding the quick die-off of pathogens is technically incorrect and needs to be removed. See comments on Chapter 8. This text needs to be reviewed and revised.

Section	Page	Line	Type	Key Document Text	Comment
29.2	29-1	33-35	WQ, WS	How will the impacts of the BDCP alternatives on the study area for each resource (the area in which impacts may occur) be affected by climate change? i.e., are future changes in climate likely to exacerbate project impacts?	This question was only addressed in the BDCP by identifying potential changes to sea level rise and hydrologic variations, but the BDCP did not address or incorporate planned mitigation/adaptation strategies which are being developed by DWR/USBR/USACE (as discussed in previous comments on Chapters 5 and 6) to address the impacts. This evaluation should be revised to include this information.
29.2	29-1	36-37	WQ, WS	How will the BDCP alternatives affect the resiliency and adaptability of the Plan Area (the area covered by the BDCP) to the effects of climate change?	Since the BDCP alternatives rely on operations of upstream storage reservoirs as part of the solution for meeting Delta outflow requirements, the resilience and adaptation analysis conducted in this Chapter should have been expanded to include the impacts from revisions to upstream reservoir operation changes. This evaluation should be expanded to evaluate the resiliency and adaptability of other portions of the Project Area, such as the upstream reservoirs and the rivers below them to the Delta.
29.2	29-3	5	WQ, WS	Table 29-1	This table is missing several linkages. Water Quality (Ch. 8) should be linked to increased fire risk since wildfires have a great impact on the watershed conditions and the runoff from the area. Public Health (Ch. 25) should be linked to increased water temperature, reduced precipitation/runoff volume, shift from snowfall to rainfall, early snowmelt, and changes in erosion/sedimentation rates since all of these effects could result in an impact to the source water quality that enters the drinking water treatment plants, potentially impacting public health; this is especially concerning for direct users directly upstream of the Delta.
29.6.1	29-15	7-8	WS	Resiliency and Adaptability to Sea Level Rise and Hydrology Changes	This section focuses only on the resiliency and adaptability of the BDCP to meet Delta export demands in the face of sea level rise and other climate changes. The waters supply reliability is largely based on the ability to divert Sacramento River water in lieu of the current diversion locations. All evaluations are focused on the Plan Area (Delta) and do not make consideration of the changes in resiliency or adaptability of other Project Areas, such as upstream of the Delta. It should be clarified why these were excluded or expand the evaluations to consider those areas as well.
29.6.1.1	29-15	27-29	WS	While these change metrics represent long-term averages, modeling results for the BDCP 2060 period also indicate that droughts will increase in severity and duration—resulting in periods of critical dryness.	This statement supports the need to look at short-term periods, which would allow identification of periods of increased vulnerability to water supply and quality, such as during droughts.
29.6.1.1	29-16	6-10	WS	DWR's modeling of future conditions suggests that with current management and operations, level of demand, and current climate, major CVP and SWP reservoirs could reach dead storage levels (the level below which water cannot be released) and that the likelihood of these critical conditions will increase substantially as the climate warms.	The dead storage levels for each of the major CVP and SWP reservoirs should be identified in this section.

Section	Page	Line	Type	Key Document Text	Comment
29.7.1.2	29-24	25	WS	State (Applicable Plans and Policies)	The DWR Reoperation Program should be included in this evaluation, since one of the goals of the program is to revise CVP/SWP operations to provide adaptation and mitigation for climate change impacts. http://www.water.ca.gov/system_reop/
29A.1	29A-1	5-6	WQ, WS	This appendix contains a summary of projected climate change modeling analyses of Delta tidal flows and salinity conditions conducted for Chapter 6, Surface Water and Chapter 8, Water Quality.	Previous comments on Chapters 6 and 8 indicate why the City recommends that this evaluation be expanded up the Sacramento River to determine if climate changes, on their own or in combination with CMs 1 and 2, have the potential to cause reverse flow or backwater effects just upstream of the Delta.
29B.8	29B-4	31-33	WQ, WS	The projected inflows to Folsom Reservoir are therefore the combination of projected changes in rainfall and snowmelt runoff together with possible changes in the operations of these upstream storage projects.	It is unclear if the modeling analysis included any changes in the operations of upstream storage reservoirs. Since these are a key function on the inflow to Folsom Reservoir, future changes in operations should have been investigated. Given the hydropower dominance in the watershed, it is reasonable to assume that future storage levels will change to meet the projected future power demand increases during summer months. An evaluation of the Federal Energy Regulatory Commission (FERC) relicensing for Placer County Water Agency, Sacramento Municipal Utility District, Pacific Gas and Electric, and El Dorado Irrigation District should be conducted to identify climate change adaptation and mitigation strategies or plans.
29C.1	29C-1	5-6	WQ, WS, SCOPE	This appendix contains a summary of projected climate change modeling of water temperature analyses conducted for Chapter 8, Water Quality, and Chapter 11, Fish and Aquatic Resources.	Temperature was not evaluated in Chapter 8 as an impact to water quality of interest to the MUN beneficial use. This constituent is of concern and should have been included in that evaluation, as commented previously.
29C.2	29C-1	17-18	WQ, WS	Temperature Effects from Reservoir Operations and Climate Change	This section needs to be expanded to include general information on how temperature relates to the MUN beneficial use, especially regarding its impact on associated source water quality, water treatment efficiencies, and treated water quality.
29C.2.9	29C-12	12-13	WQ, WS	Folsom reservoir is operated to meet water temperature objectives at the Watt Avenue Bridge, about 13 miles downstream from Nimbus Dam (68°F from June 1 to September 30).	Watt Avenue Bridge is located just upstream of the E.A. Fairbairn WTP and provides a good estimate of the source water temperature at the EA Fairbairn WTP, which could be used in an assessment for the impact to the MUN beneficial use.
29C.2.9	29C-13	26-28	WQ, WS	The simulated effects of climate change on the Folsom Dam and Nimbus Dam release temperatures were quite large (5–10°F) in September and October.	An increase of 5–10°F in a drinking water supply can significantly affect operations and treated water quality. A similar increase in temperature was evaluated when the Temperature Control Device was installed at Folsom Dam as part of the 2013 Update to the American River Watershed Sanitary Survey. A 5–7°F increase in temperature resulted in an increase in disinfection by-products in the distribution system ranging from 13 to 45 percent. These temperature increases are significant and need to be included in the analysis for impact to the MUN beneficial use upstream of the Delta.

Section	Page	Line	Type	Key Document Text	Comment
29C.2.9	29C-13	30-33	WQ, WS	The simulated effects of climate warming should be confirmed with more detailed temperature modeling of Folsom Reservoir that includes potential changes in temperature panel operations. The Folsom temperatures were simulated to increase more than any other reservoir, because of the very limited cold water storage and very low carryover storage in most years.	The recommendation for more specific modeling in the American River system does not appear to be carried out anywhere else in the Adaptive Management program or in the Environmental Commitments. This is a very significant impact to MUN beneficial users and needs to be addressed more thoroughly.

List of Acronyms	
ACWA	Association of California Water Agencies
AWWA	American Water Works Association
BDAT	Bay Delta and Tributaries Project
BDCP	Bay Delta Conservation Plan
BiOp	biological opinion
BMP	Best management practice
CALSIM II	California Water Resources Simulation Model
CDPH	California Department of Public Health
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CIWQS	California Integrated Water Quality System
CM	Conservation Measure
COA	Coordinated Operation Agreement
CTR	California Toxics Rule
CVFPB	Central Valley Flood Protection Board
CVP	Central Valley Project
CVSALTS	Central Valley Salinity Alternatives for Long-term Sustainability
CWA	Clean Water Act
DOC	Dissolved Organic Carbon
DBPs	disinfection by-products
DPH	Department of Public Health
DPR	Department of Pesticide Regulation
DSM	Delta Simulation Model
DWR	Department of Water Resources
EC	Electrical Conductivity
EDCs	endocrine-disrupting compounds
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FERC	Federal Energy Regulatory Commission
HAAs	haloacetic acids
HSPF	Hydrological Simulation Program-FORTRAN
MCL	Maximum Contaminant Level
MS4	Municipal separate storm sewer system
MUN	Municipal and Domestic Supply
NAA	No Action Alternative
NBA AIP	North Bay Aqueduct Alternative Intake Project
NCCP	Natural Community Conservation Plan
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NPS	Non-point source
NTU	Nephelometric Turbidity Units
OP	Organophosphate
POC	Particulate Organic Carbon
PPCPs	pharmaceutical and personal care products

List of Acronyms (continued)	
SJR	San Joaquin River
SSQP	Sacramento Stormwater Quality Partnership
SWP	State Water Project
SWRCB	State Water Resources Control Board
SWTR	Surface Water Treatment Rule
TAF	thousand acre-feet
THMs	trihalomethanes
THMFP	THM formation potentials
TOC	Total Organic Carbon
TMDL	Total maximum daily load
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WARMF	Watershed Analysis Risk Management Framework
WCM	Water Control Manual
WDL	Water Data Library
WDR	Waste Discharge Requirements
WTP	Water Treatment Plant

ATTACHMENT NO. 3
Table 1
Reference: 2012 ACWA PHG Survey

COST ESTIMATES FOR TREATMENT TECHNOLOGIES
(INCLUDES ANNUALIZED CAPITAL AND O&M COSTS)

No.	Treatment Technology	Source of Information	Estimated Unit Cost 2012 ACWA Survey ($/1,000 gallons treated)
1	Ion Exchange	Coachella Valley WD, for GW, to reduce Arsenic concentrations. 2011 costs.	1.84
2	Ion Exchange	City of Riverside Public Utilities, for GW, for Perchlorate treatment.	0.89
3	Ion Exchange	Carollo Engineers, anonymous utility, 2012 costs for treating GW source for Nitrates. Design souce water concentration: 88 mg/L NO_3. Design finished water concentration: 45 mg/L NO_3. Does not include concentrate disposal or land cost.	0.67
4	Granular Activated Carbon	City of Riverside Public Utilities, GW sources, for TCE, DBCP (VOC, SOC) treatment.	0.45
5	Granular Activated Carbon	Carollo Engineers, anonymous utility, 2012 costs for treating SW source for TTHMs. Design souce water concentration: 0.135 mg/L. Design finished water concentration: 0.07 mg/L. Does not include concentrate disposal or land cost.	0.32
6	Granular Activated Carbon, Liquid Phase	LADWP, Liquid Phase GAC treatment at Tujunga Well field. Costs for treating 2 wells. Treament for 1,1 DCE (VOC). 2011-2012 costs.	1.36
7	Reverse Osmosis	Carollo Engineers, anonymous utility, 2012 costs for treating GW source for Nitrates. Design souce water concentration: 88 mg/L NO_3. Design finished water concentration: 45 mg/L NO_3. Does not include concentrate disposal or land cost.	0.72
8	Packed Tower Aeration	City of Monrovia, treatment to reduce TCE, PCE concentrations. 2011-12 costs.	0.39
9	Ozonation+ Chemical addition	SCVWD, STWTP treatment plant includes chemical addition + ozone generation costs to reduce THM/HAAs concentrations. 2009-2012 costs.	0.08
10	Ozonation+ Chemical addition	SCVWD, PWTP treatment plant includes chemical addition + ozone generation costs to reduce THM/HAAs concentrations, 2009-2012 costs.	0.18

COST ESTIMATES FOR TREATMENT TECHNOLOGIES

(INCLUDES ANNUALIZED CAPITAL AND O&M COSTS)

No.	Treatment Technology	Source of Information	Estimated Unit Cost 2012 ACWA Survey ($/1,000 gallons treated)
11	Coagulation/Filtration	Soquel WD, treatment to reduce manganese concentrations in GW. 2011 costs.	0.68
12	Coagulation/Filtration Optimization	San Diego WA, costs to reduce THM/Bromate, Turbidity concentrations, raw SW a blend of State Water Project water and Colorado River water, treated at Twin Oaks Valley WTP.	0.77
13	Blending (Well)	Rancho California WD, GW blending well, 1150 gpm, to reduce fluoride concentrations.	0.64
14	Blending (Wells)	Rancho California WD, GW blending wells, to reduce arsenic concentrations, 2012 costs.	0.52
15	Blending	Rancho California WD, using MWD water to blend with GW to reduce arsenic concentrations. 2012 costs.	0.62
16	Corrosion Inhibition	Atascadero Mutual WC, corrosion inhibitor addition to control aggressive water. 2011 costs.	0.08

ATTACHMENT NO. 3
Table 2
Reference: Other Agencies

COST ESTIMATES FOR TREATMENT TECHNOLOGIES

(INCLUDES ANNUALIZED CAPITAL AND O&M COSTS)

No.	Treatment Technology	Source of Information	Estimated Unit Cost 2012 Other References ($/1,000 gallons treated)
1	Reduction - Coagulation-Filtration	Reference: February 28, 2013, Final Report Chromium Removal Research, City of Glendale, CA. 100-2000 gpm. Reduce Hexavalent Chromium to 1 ppb.	$1.47 - $9.23
2	IX - Weak Base Anion Resin	Reference: February 28, 2013, Final Report Chromium Removal Research, City of Glendale, CA. 100-2000 gpm. Reduce Hexavalent Chromium to 1 ppb.	$1.50 - $6.29
3	IX	Golden State Water Co., IX w/disposable resin, 1 MGD, Perchlorate removal, built in 2010.	$0.46
4	IX	Golden State Water Co., IX w/disposable resin, 1000 gpm, perchlorate removal (Proposed; O&M estimated).	$1.00
5	IX	Golden State Water Co., IX with brine regeneration, 500 gpm for Selenium removal, built in 2007.	$6.57
6	GFO/Adsorption	Golden State Water Co., Granular Ferric Oxide Resin, Arsenic removal, 600 gpm, 2 facilities, built in 2006.	$1.72 -$1.84
7	RO	Reference: Inland Empire Utilities Agency : Chino Basin Desalter. RO cost to reduce 800 ppm TDS, 150 ppm Nitrate (as NO3); approx. 7 mgd.	$2.25
8	IX	Reference: Inland Empire Utilities Agency : Chino Basin Desalter. IX cost to reduce 150 ppm Nitrate (as NO3); approx. 2.6 mgd.	$1.25
9	Packed Tower Aeration	Reference: Inland Empire Utilities Agency : Chino Basin Desalter. PTA-VOC air stripping, typical treated flow of approx. 1.6 mgd.	$0.38

10	IX	Reference: West Valley WD Report, for Water Recycling Funding Program, for 2.88 mgd treatment facility. IX to remove Perchlorate, Perchlorate levels 6-10 ppb. 2008 costs.	$0.52 - $0.74
11	Coagulation Filtration	Reference: West Valley WD, includes capital, O&M costs for 2.88 mgd treatment facility- Layne Christensen packaged coagulation Arsenic removal system. 2009-2012 costs.	$0.34
12	FBR	Reference: West Valley WD/Envirogen design data for the O&M + actual capitol costs, 2.88 mgd fluidized bed reactor (FBR) treatment system, Perchlorate and Nitrate removal, followed by multimedia filtration & chlorination, 2012. NOTE: The capitol cost for the treatment facility for the first 2,000 gpm is $23 million annualized over 20 years with ability to expand to 4,000 gpm with minimal costs in the future. $17 million funded through state and federal grants with the remainder funded by WVWD and the City of Rialto.	$1.55 - $1.63

ATTACHMENT NO. 3
Table 3
Reference: 2010 ACWA Cost of Treatment Table, Costs Revised for 2012

COST ESTIMATES FOR TREATMENT TECHNOLOGIES
(INCLUDES ANNUALIZED CAPITAL AND O&M COSTS)

No.	Treatment Technology	Source of Information	Estimated 2012* Unit Cost ($/1,000 gallons treated)
1	Granular Activated Carbon	Reference: Malcolm Pirnie estimate for California Urban Water Agencies, large surface water treatment plants treating water from the State Water Project to meet Stage 2 D/DBP and bromate regulation, 1998	0.53-1.00
2	Granular Activated Carbon	Reference: Carollo Engineers, estimate for VOC treatment (PCE), 95% removal of PCE, Oct. 1994,1900 gpm design capacity	0.24
3	Granular Activated Carbon	Reference: Carollo Engineers, est. for a large No. Calif. surf. water treatment plant (90 mgd capacity) treating water from the State Water Project, to reduce THM precursors, ENR construction cost index = 6262 (San Francisco area) - 1992	1.16
4	Granular Activated Carbon	Reference: CH2M Hill study on San Gabriel Basin, for 135 mgd central treatment facility for VOC and SOC removal by GAC, 1990	0.45-0.66
5	Granular Activated Carbon	Reference: Southern California Water Co. - actual data for "rented" GAC to remove VOCs (1,1-DCE), 1.5 mgd capacity facility, 1998	2.08
6	Granular Activated Carbon	Reference: Southern California Water Co. - actual data for permanent GAC to remove VOCs (TCE), 2.16 mgd plant capacity, 1998	1.35
7	Reverse Osmosis	Reference: Malcolm Pirnie estimate for California Urban Water Agencies, large surface water treatment plants treating water from the State Water Project to meet Stage 2 D/DBP and bromate regulation, 1998	1.56-2.99
8	Reverse Osmosis	Reference: Boyle Engineering, RO cost to reduce 1000 ppm TDS in brackish groundwater in So. Calif., 1.0 mgd plant operated at 40% of design flow, high brine line cost, May 1991	3.69
9	Reverse Osmosis	Reference: Boyle Engineering, RO cost to reduce 1000 ppm TDS in brackish groundwater in So. Calif., 1.0 mgd plant operated at 100% of design flow, high brine line cost, May 1991	2.27
10	Reverse Osmosis	Reference: Boyle Engineering, RO cost to reduce 1000 ppm TDS in brackish groundwater in So. Calif., 10.0 mgd plant operated at 40% of design flow, high brine line cost, May 1991	2.46
11	Reverse Osmosis	Reference: Boyle Engineering, RO cost to reduce 1000 ppm TDS in brackish groundwater in So. Calif., 10.0 mgd plant operated at 100% of design flow, high brine line cost, May 1991	1.90
12	Reverse Osmosis	Reference: Arsenic Removal Study, City of Scottsdale, AZ - CH2M Hill, for a 1.0 mgd plant operated at 40% of design capacity, Oct. 1991	6.17

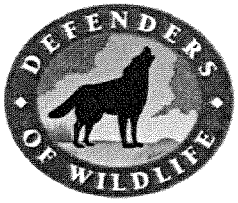
COST ESTIMATES FOR TREATMENT TECHNOLOGIES

(INCLUDES ANNUALIZED CAPITAL AND O&M COSTS)

No.	Treatment Technology	Source of Information	Estimated 2012* Unit Cost ($/1,000 gallons treated)
13	Reverse Osmosis	Reference: Arsenic Removal Study, City of Scottsdale, AZ - CH2M Hill, for a 1.0 mgd plant operated at 100% of design capacity, Oct. 1991	3.64
14	Reverse Osmosis	Reference: Arsenic Removal Study, City of Scottsdale, AZ - CH2M Hill, for a 10.0 mgd plant operated at 40% of design capacity, Oct. 1991	2.73
15	Reverse Osmosis	Reference: Arsenic Removal Study, City of Scottsdale, AZ - CH2M Hill, for a 10.0 mgd plant operated at 100% of design capacity, Oct. 1991	1.69
16	Reverse Osmosis	Reference: CH2M Hill study on San Gabriel Basin, for 135 mgd central treatment facility with RO to remove nitrate, 1990	1.70-2.99
17	Packed Tower Aeration	Reference: Analysis of Costs for Radon Removal... (AWWARF publication), Kennedy/Jenks, for a 1.4 mgd facility operating at 40% of design capacity, Oct. 1991	0.98
18	Packed Tower Aeration	Reference: Analysis of Costs for Radon Removal... (AWWARF publication), Kennedy/Jenks, for a 14.0 mgd facility operating at 40% of design capacity, Oct. 1991	0.52
19	Packed Tower Aeration	Reference: Carollo Engineers, estimate for VOC treatment (PCE) by packed tower aeration, without off-gas treatment, O&M costs based on operation during 329 days/year at 10% downtime, 16 hr/day air stripping operation, 1900 gpm design capacity, Oct. 1994	0.26
20	Packed Tower Aeration	Reference: Carollo Engineers, for PCE treatment by Ecolo-Flo Enviro-Tower air stripping, without off-gas treatment, O&M costs based on operation during 329 days/year at 10% downtime, 16 hr/day air stripping operation, 1900 gpm design capacity, Oct. 1994	0.27
21	Packed Tower Aeration	Reference: CH2M Hill study on San Gabriel Basin, for 135 mgd central treatment facility - packed tower aeration for VOC and radon removal, 1990	0.42-0.69
22	Advanced Oxidation Processes	Reference: Carollo Engineers, estimate for VOC treatment (PCE) by UV Light, Ozone, Hydrogen Peroxide, O&M costs based on operation during 329 days/year at 10% downtime, 24 hr/day AOP operation, 1900 gpm capacity, Oct. 1994	0.51
23	Ozonation	Reference: Malcolm Pirnie estimate for CUWA, large surface water treatment plants using ozone to treat water from the State Water Project to meet Stage 2 D/DBP and bromate regulation, *Cryptosporidium* inactivation requirements,1998	0.12-0.24
24	Ion Exchange	Reference: CH2M Hill study on San Gabriel Basin, for 135 mgd central treatment facility - ion exchange to remove nitrate, 1990	0.57-0.74

Note: *Costs were adjusted from date of original estimates to present, where appropriate, using Engineering News Record (ENR) building costs index (20-city average) from Dec 2012.

Attachment 2. Letter from NRDC Dated January 16, 2013



Secretary Ken Salazar
Department of the Interior
1849 C St, N.W.
Washington DC 20240

Secretary John Laird
California Natural Resources Agency
1416 Ninth Street, Suite 1311
Sacramento, CA 95814

Commissioner Michael Connor
Bureau of Reclamation
1849 C Street NW
Washington DC 20240

Deputy Secretary Jerry Meral
California Natural Resources Agency
1416 Ninth Street, Suite 1311
Sacramento, CA 95814

January 16, 2013

Re: **A Portfolio-Based Conceptual Alternative for BDCP**

Dear Secretary Salazar, Secretary Laird, Deputy Secretary Meral and Commissioner Connor,

We represent a coalition of business and environmental organizations. We are writing to request that the attached conceptual alternative be considered in the BDCP process, including as a stand-alone alternative in the required CEQA/NEPA analyses and Clean Water Act Section 404 alternatives analysis. Our constituents believe strongly in the need for a science-based, cost-effective BDCP plan to help achieve the co-equal goals of restoring the Bay-Delta ecosystem and salmon fishery, and improving water supply reliability for California. None of us believes that the status quo in the Delta is acceptable.

Although many stakeholders have recommended that BDCP consider certain elements that are included in the attached document, we thought it would be most helpful at this point in the BDCP process to offer a *package* of actions and investments that, taken together, represent an alternative that could attract support from a diverse coalition of interests. This is a conceptual alternative, not a proposed BDCP preferred project. We believe that analysis of this alternative will assist BDCP in developing the most cost-effective, environmentally beneficial final BDCP project with the best chance of implementation.

At the heart of the conceptual alternative are two simple principles. First, BDCP must be grounded in the best available science regarding ecosystem management. This approach is essential to designing a successful, long-term plan for a water supply system and ecosystem as complex and dynamic as the Bay-Delta. This approach is also essential to ensure that the BDCP plan can meet legal requirements and receive permits. We applaud Governor Brown and Secretary Salazar for emphasizing their commitment to a science-based approach to BDCP in their July 25, 2012 announcement.

The second core principle is that the BDCP make fiscal sense. The final BDCP plan must be both affordable and financeable or it will ultimately fail. We believe it is imperative at this point in the BDCP process to avoid the economics and financing issues that plagued CALFED and contributed to its eventual failure.

This conceptual alternative was also developed with two practical realities in mind. First, the conceptual alternative has been developed based on the reality that many California water suppliers are looking closer to home to meet their long-term water supply needs and are planning to reduce their demand for water imported from the Bay-Delta. The second reality is that cities and water agencies, as well as federal, state and local budgets are facing significant financial constraints. We believe that it is critically important to balance the timing and need for investments in the Delta with a strategy that also advances continued water agency investments in local water supply development.

This "portfolio-based' approach reflects the real world desire of water suppliers and the public to evaluate the relative benefits of investments both within and outside of the Delta, and is consistent with the increased discussion in BDCP, over the past six months, of South of Delta water supply alternatives.

One of the cornerstones of the conceptual alternative is a proposal to evaluate a 3,000 cfs, single-bore North Delta diversion facility. This facility would produce significant financial savings, in comparison with a larger conveyance facility, while still providing water reliability benefits. In fact, we believe it could produce greater overall benefits at a lower cost, with some of the savings invested in local water supply sources, new South of Delta storage, levee improvements and habitat restoration. For example, investments in proven, cost-effective local water supply strategies can both increase export area water supplies and reduce the risk of disruption from earthquakes and other disasters. Southern California 2010 Urban Water Management Plans have already identified 1.2 MAF of potential additional local supply projects, only a small fraction of which have been factored into Delta planning.

Many of these local investments could provide significant, broad and long-term benefits. For example, a relatively small investment (in comparison with the cost of a new Delta facility) in Delta levees would provide significant water supply benefits beyond those achievable by the BDCP as currently conceived. The BDCP currently anticipates that, even with a large facility, on average, approximately half of the water exported from the Delta would still be pumped by the South Delta facilities (with more than three quarters of exported water pumped from the

South Delta in critically dry years). Therefore, reducing the vulnerability of Delta levees would provide significant water supply reliability benefits for South of Delta water users, particularly in dry years. Such an investment, in combination with local and public funds, would provide additional local benefits in the Delta. We believe that BDCP should include such "win-win" opportunities to collaborate with in-Delta interests.

It is essential not to delay an evaluation of the likely yield of a new Delta facility. The conceptual alternative also calls for the careful analysis of the best science available today regarding water project operations with a new facility. In particular, this approach calls for the analysis of an operations proposal developed by state and federal biologists to conserve and manage a full range of covered Delta fish species, including consideration of the need to protect upstream fisheries resources. We understand that state and federal biologists have undertaken an extensive effort to prepare such an operational scenario. The signatories to this letter have not endorsed these proposed operations. Rather, given that this operational scenario represents an important effort by state and federal biologists, it should be analyzed in the BDCP EIR/EIS, the Effects Analysis and the 404 analysis.

This conceptual alternative includes initial cost estimates that suggest that this approach could provide superior environmental results, increased water supply and greater reliability at a reduced cost. By expanding benefits and lowering costs, this portfolio approach could assist with project financing. We encourage BDCP to include this approach in its analysis of economics and financing issues, and to refine the cost estimates included in this conceptual alternative.

We sincerely believe that this conceptual alternative has the potential to produce superior benefits at a similar or lower cost to water users and the public. Because it is based on the best available science, we believe it would be more readily permittable. It also promises to deliver benefits more rapidly. And, finally, we believe that this approach will be helpful in attracting broader support for BDCP, both within and outside of the Delta.

We request that this conceptual alternative be analyzed as a stand-alone alternative in BDCP's environmental documents. In addition, we recommend that BDCP use this portfolio approach to compare the potential benefits and impacts of multiple alternatives, including a full range of different conveyance facility capacities. Such comparisons are needed so decision-makers can fully understand the choices they face and can select the optimum portfolio of actions that will best serve the state.

Thank you for your hard work to design an effective plan to meet the challenges we face in the Delta. We hope that this conceptual alternative will continue to advance the discussion. We look forward to an opportunity to discuss the conceptual alternative with you, including how it may best be incorporated into BDCP's analysis.

Sincerely,

Barry Nelson, Senior Policy Analyst
Natural Resources Defense Council

Tony Bernhardt
Environmental Entrepreneurs

Linda Best, President and CEO
Contra Costa Council

Gary Bobker, Program Director
The Bay Institute

Kim Delfino, California Program Director
Defenders of Wildlife

Jonas Minton, Water Policy Advisor
Planning and Conservation League

Attachment 3. City of Sacramento Specific Comments on Bay Delta Conservation Plan

Section	Page	Line	Type	Reference Document Text	Comment
1.1	1-3	15-33	SCOPE	The Plan Area covers the Sacramento San Joaquin Delta, as defined by California Water Code Section 12220 (statutory Delta), as well as certain areas in which conservation measures will be implemented such as Suisun Marsh and the Yolo Bypass (Section 1.4.1, Geographic Scope of the BDCP) (Figure 1-1). The infrastructure of the state and federal water projects form an integrated system that extends beyond the boundaries of the Delta; as such, the BDCP will affect water operations, species, and habitat both inside and outside of the Delta. While the Plan Area generally does not include areas upstream and downstream of the Delta, the Plan addresses the upstream and downstream effects of covered activities (Chapter 5, Effects Analysis)	The statement implies that the project is confined to the legal Delta area; however, a number of the conservation measures, including CM19, include areas outside of this area. The description of the project area should clearly define the actual areas or describe the implication to areas not within the Delta, but included in conservation measures or other BDCP actions. Only a small fraction of the Sacramento urban area is within the legal Delta.
1.6.2	1-40	1-7	WQ, AM	The BDCP is built on and reflects the extensive body of scientific investigation, study, and analysis of the Delta compiled over several decades, including the results and findings of numerous studies initiated under the CALFED Bay-Delta Science Program and the Ecosystem Restoration Program, the long-term monitoring programs conducted by the Interagency Ecological Program (IEP), research and monitoring conducted by state and federal resource agencies resource agencies, water contractor scientists, and research contributions of academic investigators.	The BDCP should identify the known science shortcomings and propose a means to fill these data gaps. Given the uncertainty in causes of covered species effects, a clear assessment of data gaps and necessary tools should be included in the BDCP.
2.3.2.1.5	2-18	6-17	WQ, AM	Other sources of flows of toxic substances in the ecosystems of the Plan Area include wastewater treatment plants, urban runoff, and upstream sources. Although there is considerable uncertainty regarding the effects of some of these toxics on fish, at least three mechanisms have been identified through which toxics could affect fish. First, direct exposure to toxics could have negative impacts on fish, especially to more vulnerable life stages such as eggs and larvae. Second, toxic substance-induced mortality of zooplankton, a source of food for nearly all fish species at one or more life stages, could limit food to fish species and result in reduced growth rates, reproductive output, and survival rates. Third, the bioaccumulation of toxics such as mercury and selenium by Potamocorbula is well documented, and likely occurs in other organisms as well. Because some fish (e.g., sturgeon and splittail) and aquatic birds (e.g., surf scoter, American coot, and scaup) forage on organisms that bioaccumulate mercury and/or selenium, their tissue can bioaccumulate these toxics, thus reducing growth, reproduction, and survival (Luoma and Presser 2000).	The statement regarding the uncertainty of the effects of toxics on fish should be expanded to identify where the uncertainty exists and broadened to include the uncertainty in fate and transport between sources and Delta effects. It will be important to understand the entire physical model from sources, fate and transport, and exposure period in order to improve conditions, provide effective conservation measures, and evaluate conservation measure effectiveness. Identifying these data and understanding the gaps is important to improving the science.
3.1; 3.3; 3.4	3.1-4; 3.4-326	7-8; 17-18	CM19	The BDCP Page 3.1-4 states, 'The conservation measures comprise the specific actions to be taken to meet the biological goals and objectives.' And, the Conservation Strategy (Section 3.4) specifies 22 Conservation Measures (CM). Urban Stormwater Treatment is Conservation Measure 19 (CM 19) and page 3.4-326 Line 17-18 states, 'The primary purpose of CM 19 is to contribute to Objective L2.5, which calls for water quality conditions within the Delta that help restore native fish habitat.	Page 3.4-326 provides an improper reference. CM19 is included in Objective L2.4 not L2.5 (page 3.3-7).

Section	Page	Line	Type	Reference Document Text	Comment
3.2.1.2	3.2-3	36-38	CM19, WQ	The BDCP is not intended to encompass the entire range of the covered species (except in the case of Delta smelt), nor is it intended to address all of the stressors that have contributed to the decline of these species. Rather, it is focused on stressors that can be addressed feasibly within the Plan Area.	The BDCP does not provide sufficient review of all of the stressors to demonstrate that all of the feasible measures have been considered.
3.2.3	3.2-6	36-39	WQ	Changes in water quality have important direct and indirect effects throughout the estuarine ecosystem. Water quality in the Delta is affected by a variety of discharges from agricultural, industrial, and urban sources that have been linked to ecological changes (e.g., Thompson et al. 2000; Glibert 2010).	The BDCP does not present a stressor source evaluation when developing the aquatic resources component of conservation measures. While several types of potential sources with "direct or indirect" effects are identified, only urban runoff was identified for inclusion as a conservation measure. In particular, the cited source for urban runoff impacts, (Thompson et al, 2000), was written prior to the use regulation changes to pesticides. Since the registration changes, incidences of aquatic species mortality related to urban runoff have declined as observed by the SSQP and others statewide (Schiff, Kenneth; Bax, Beth; Markle, Phil; Fleming, Terry; and Newman, Jennifer (2007) "Wet and Dry Weather Toxicity in the San Gabriel River," Bulletin of the Southern California Academy of Sciences: Vol. 106: Iss. 3.). The BDCP should include a more extensive evaluation of the sources, fate and transport, and the impact on aquatic life beneficial uses for all sources, including diversion flows, atmospheric deposition, point sources, and nonpoint sources to determine if load reductions are feasible and would improve Delta conditions.
3.2.3	3.2-6	36-38	CM19, WQ	Changes in water quality have important direct and indirect effects throughout the estuarine ecosystem. Water quality in the Delta is affected by a variety of discharges from agricultural, industrial, and urban sources that have been linked to ecological changes (e.g., Thompson et al. 2000; Glibert 2010).	This statement does not include all of the sources and activities that can result in changes in water quality. The BDCP will result in reduced dilution in the Delta, which should be considered in the discussion of water quality.
3.2.3	3.2-7	28-29	WQ	Improve passage of fish within and through the Delta by improving hydrodynamic and water quality conditions that can create barriers to movement and high susceptibility to predators.	This statement should be clarified as to the water quality parameters of concern.
3.2.3	3.2-7	40-41	WQ	In addition, it addresses specific stressors on covered fishes, such as impediments to fish passage, sources of unnatural mortality, and water quality impairments.	This statement discusses that the BDCP addresses water quality impairments, but the BDCP does not provide sufficient evaluation of this topic.
3.2.3.3	3.2-10	18-27	CM19, WQ	Other measures include actions to increase dissolved oxygen in specific problem areas important to salmonid migration (CM14 Stockton Deep Water Ship Channel Dissolved Oxygen Levels), to contribute to overall Delta water quality improvements (CM12 Methylmercury Management, CM19 Urban Stormwater Treatment) to reduce illegal harvest of covered fishes (CM17 Illegal Harvest Reduction), to reduce the number of small water diversions in the Plan Area (CM21 Nonproject Diversions), to develop new and expanded conservation hatcheries for delta smelt and longfin smelt for the purpose of establishing refugial populations that will not impair the genetic fitness of the wild stocks (CM18 Conservation Hatcheries), and to reduce the risk of new invasive species appearing in the Plan Area (CM20 Recreational Users Invasive Species Program).	Based on the presented evaluation summary, CM12 and CM19 are included as conservation measures to "contribute to the overall Delta water quality improvements". While CM12 is focused on evaluating the effects of restoration areas created by the BDCP, there is no specific justification provided for inclusion of CM19. The benefit of CM19 to downstream water quality is not well established. The BDCP should provide a justification for inclusion of CM19 based on known or reasonably expected quantified downstream benefits compared to total implementation costs.

Attachment 3. City of Sacramento Specific Comments on Bay Delta Conservation Plan

Section	Page	Line	Type	Reference Document Text	Comment
3.2.3.3	3.2-10	21-22	CM19, WQ	to contribute to overall Delta water quality improvements (CM12 Methylmercury Management, CM19 Urban Stormwater Treatment)	Other feasible measures to contribute to overall Delta water quality improvement should be included in this discussion.
3.2.3.3	3.2-10	22	ERROR	... to contribute to overall Delta water quality improvements (CM12 Methylmercury Management, CM19 Urban Stormwater Treatment) to reduce illegal harvest of covered fishes ...	Missing comma between "(Stormwater Treatment)" and "to reduce illegal harvest of covered fishes".
3.3.1	3.3-2	2-5	AM	Failure to achieve a biological goal or objective will not be a basis for a determination by the fish and wildlife agencies of noncompliance or for the suspension or revocation of the permits as long as the Permittees are properly implementing the BDCP and in compliance with the Implementing Agreement and the permit terms and conditions.	The BDCP does not incentivize meeting biological goals to minimize degradation. For example if the BDCP is unable to fund CM3-CM22, how would the program change and what would the export limitations be? If climate change amplifies the effect of the BDCP and ecological strain on covered species, what incentive would be in place to implement changes to offset the amplified impacts?
3.3.2	3.3-3	3-8	CM19	Biological objectives are expressed as specific outcomes that are expected to be achieved by the Plan for ecosystems, natural communities, covered species or species' habitat, or stressor attributes. Biological objectives are "SMART" - specific, measurable, achievable, relevant, and time-bound - to the maximum extent possible. Where a high level of uncertainty is associated with the measurability or achievability of an objective, that uncertainty is explicitly acknowledged in the objective, its associated rationale, or in both locations.	CM19 does not sufficiently address SMART objectives as stated. There is not a specific linkage to specific water quality improvement needs and goals for urban stormwater. Since there's uncertainty in sources and goals for contaminant related stressor impacts and solutions, the BDCP should provide for additional research, evaluations, and modeling to provide a basis for urban stormwater treatment or other source reduction efforts.
3.3.4	3.3-7	Table 3.3-1	CM19, WQ	Objective L2.4: Support improved ecosystems function in aquatic natural communities by implementing actions to improve water quality, including reducing dissolved oxygen impairments in the Stockton Deep Water Ship Channel, reducing pollutant loading by urban stormwater, and minimizing mobilization of methylmercury from lands in the reserve system.	The basis for the urban runoff loading reduction objective is not provided in an assessment that evaluates sources of pollutants, their fate and transport, and benefits to Delta aquatic life. The objective combines the lack of preciseness in the potential benefits of the measure with a precise identification of one source. While pollutant reductions are an existing goal of MS4 programs, inclusion as a conservation measure is not necessary, provides no new benefits, and is not evaluated against other source control efforts. The general reference to urban runoff in this text should be removed.
3.3.4	3.3-5 to 3.3-34		CM19, WQ	*various*	There are many references to CM19 and justification based on pollutant loading, which is not supported in the BDCP. See previous comments on Objective L2.4 and its rationale.
3.3.4	3.3-15 to 3.3-23	Table 3.3-1	CM19	Table 3.3-1. Conservation Strategy Goals and Objectives with Associated Conservation Measures	CM 19 also is listed as being applicable to ten (10) 'Species-Specific Goals and Objectives' between pages 3.3-15 and 3.3-23. Because the listed contaminants were selected based on, '...the types of contaminants that have effects on fish.' (page 5.D-5), and stormwater (as shown in Table 5.D.2-1 and the rationale provided above) is not a significant source of those contaminants, CM19 should be deleted from each/all of the 'Species-Specific Goals and Objectives' namely: DTSM1.1, DTSM2.1, LFSM1.1, WRCS1.1, SRCS1.1, FRCS1.1, STHD1.1, GRST1.1, WTST1.1, and WTST3.1.

Section	Page	Line	Type	Reference Document Text	Comment
3.3.5.2	3.3-43	10-28	CM19, WQ	As stormwater runoff flows to the Delta, it accumulates sediment, oil and grease, metals (e.g., copper and lead), pesticides, and other toxic chemicals. Unlike sewage, stormwater is often not treated before discharging to surface water. Despite stormwater regulations limiting discharge volumes and pollutant loads, many pollutants still enter Delta waterways in stormwater. Of particular concern for fish species is the overuse of pesticides, some of which can have deleterious effects on the aquatic food chain (Weston et al. 2005; Teh et al. 2005). Pyrethroid chemicals used as pesticides on suburban lawns are of particular concern and are delivered to the Delta system by runoff. These chemicals at very low concentrations can have lethal effects on low trophic levels of the food chain (plankton), and mainly sublethal effects on covered fish species (Weston and Lydy 2010). Other urban pollutant sources, which can be transported directly or indirectly by stormwater runoff to the Delta, include nutrients from failing septic systems, and viruses and bacteria from agricultural runoff. As described in CM19 Urban Stormwater Treatment, the Implementation Office will provide a mechanism for implementing stormwater treatment measures that are intended to result in decreased discharge to the Delta of contaminants derived from urban stormwater, which is intended to improve water quality conditions in the Plan Area to the benefit of covered species.	The provided rationale for the objective does not link urban runoff to downstream effects in the Delta, but rather the effect of pesticides on aquatic species. A more complete computational rationale is feasible and should be required before identifying one source of pollutants or pesticides for a conservation measure. Much of the Weston et. al. work is limited to upstream tributaries that primarily convey urban runoff; study work downstream did not identify the same magnitude of effects. Again, there is a lack of precision on the understanding of the sources, fate and transport, and impact to aquatic life that does not support the source focus of CM19. Also, as stated, the objective accurately describes that MS4 NPDES permits already include provisions for pollutant reduction requirements and then states that CM19 will "help local jurisdictions ... achieve compliance with NPDES Permits". Please provide additional information on which parts of NPDES permits CM19 will assist compliance efforts. Please also provide a specific designation of the areas to which CM19 is intended to apply.
3.3.5.2	3.3-43	10-28	CM19, WQ	(continued from above reference text) The stormwater treatment measures to be implemented as part of CM19 Urban Stormwater Treatment will help the local jurisdictions within the Plan Area achieve compliance with NPDES MS4 Phase I and Phase II permit conditions, which is expected to reduce pollutant loads of point and non-point source effluent discharged within the Plan Area.	
3.3.7.6	3.3-165	14-20	CM19, WQ	Exposure to toxins. Toxic chemicals are widespread throughout the Delta and may be present at a more localized scale in response to episodic events (e.g., stormwater runoff, point-source discharges). These toxic substances include mercury, selenium, copper, pyrethroids, and endocrine disruptors with the potential to affect fish health and condition and negatively affect steelhead distribution and abundance directly or indirectly. Sublethal concentrations may interact with other stressors (e.g., seasonally elevated water temperatures, predation, or disease) to increase vulnerability of steelhead to mortality.	As described, a number of contaminant sources are present and act in a complex fashion. While reductions in the toxins noted are likely beneficial to downstream species, a better understanding of how the benefits of control programs can be measured is necessary to best understand the opportunities for effectively protecting covered species and other beneficial uses. More comprehensive evaluations should be performed by the BDCP prior to initiating actions with unknown benefits and high costs.
3.3.7.8.3	3.3-195	10-13	CM19	Reducing pollutants in the Plan Area will be accomplished by implementing CM12 Methylmercury Management and CM19 Urban Stormwater Treatment, which will contribute to improving water quality and physical habitat parameters within the Plan Area, thus contributing to an increase to the extent of habitat potentially suitable for green sturgeon.	The pollutant reduction strategy should be more carefully considered, especially as it relates to source control in CM12 and CM19. The relative benefit of reduction of any source categories to covered species was not performed. A detailed assessment should be performed to establish benefits to costs for a variety of sources.

Section	Page	Line	Type	Reference Document Text	Comment
3.4.12.3	3.4-264	Table 3.4.12-1	WQ	Effectiveness Monitoring Relevant to CM12	The conservation measure only evaluates the wasteload leaving the restoration areas and not the effect on downstream methylmercury concentrations in the water column or fish tissue. An additional assessment is necessary to support the BDCP and evaluate the effect on fish tissue concentrations.
3.4.19.1	3.4.327	4-6	ERROR, CM19	Stormwater runoff is a leading source of water pollution in the United States and is a large contributor to toxic loads present in the Delta (Weston et al. 2005; Amweg et al. 2006; Werner et al. 2008).	The Weston and Amweg studies cited neither evaluate the pesticide loading to the Delta nor conclude stormwater as a "leading source of water pollution". These initial studies looked at creek sediments outside of the Delta. Additional studies by the same researchers that evaluated instream water column concentrations did not find the same toxicity signal in the downstream Delta. To date, the connection between urban runoff pyrethroid concentrations and toxicity in the Delta has not been well understood. It is an unfounded technical leap to assume that urban runoff is a large contributor to toxic loads in the Delta. The 2004 EPA 305(b) (EPA 2009) report, which is likely the basis for the assertion that stormwater runoff is a leading source, though it is not specifically cited, is inappropriately used. The report does not show urban stormwater runoff as the leading source for any of the receiving water types.
3.4.19.1	3.4.327	11-12	ERROR, CM19	Pyrethroid chemicals used as pesticides on suburban lawns are of particular concern, and are delivered to the Delta system by runoff.	No reference is provided for the statement. Pyrethroid transport over long distances is not established in current literature. Pyrethroids are legal for consumers to use as regulated by EPA and the Department of Pesticide regulation. It is not clear what studies identified this source as an impact to the Delta and why lawn use is described to be of more concern.
3.4.19.1	3.4.327	14-16	ERROR, CM19	Other urban pollutant sources, which can be transported directly or indirectly by stormwater runoff to the Delta, include nutrients from failing septic systems, and viruses and bacteria from agricultural runoff.	The last sentence incorrectly incorporates non-urban and non-runoff sources into urban runoff. A more effective approach would be to evaluate all contaminant sources to develop an approach that could effectively improve Delta conditions and protect beneficial uses. Source control should be strategic and informed rather than arbitrarily focused on limited data and generalizations. The Sacramento Stormwater Quality Partnership participated in the Central Valley Drinking Water Policy development that included the modeling, downstream benefit, and cost of control measures. This approach is recommended for the BDCP to characterize contaminants and their sources and to identify opportunities for effective management.
3.4.19.1	3.4.327	21-24	SCOPE	These permits require municipalities to develop and implement a stormwater management plan or program with the goal of reducing the discharge of pollutants to the maximum extent practicable under Section 402(p) of the Clean Water Act. CM19 will be implemented within the context of these comprehensive plans. Phase II of the regulations that established MS4 permits requires smaller municipalities and construction sites, referred to as Small MS4s, to comply with similar requirements.	MS4 permitted agencies already have management programs and contaminant reduction programs in place, and CM19 is not necessary. An evaluation of the benefit to downstream covered species for a variety of source control measures is necessary to prioritize actions before they are required for any source types.

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3.4.19.2.1	3.4-327	27-36	CM19	Proposed actions will be reviewed by technical staff in the Implementation Office or by outside experts supporting the Implementation Office. Projects will be funded if the Implementation Office determines that they are expected to benefit covered species.	CM19 does not provide any detail on how the determination would be made that an action could benefit covered species. A major concern is that CM19 could lead to actions required in NPDES permits that are not beneficial or are inconsistent with existing water quality policies and permits. Such control measures may be costly with little effect, and there is no process discussed in the BDCP to make these cost/benefit assessments for control measures. Moreover, local agencies (stormwater entities) are not specifically represented in the Implementation Office and would not be able to directly participate in identification of the most effective control options. This essentially adds another layer of regulation for NPDES dischargers. Expertise in urban runoff control and a sophisticated understanding of local drainage systems is necessary to effectively manage control measures.
3.4.19.2.1	3.4-327	27-36	CM19	*Omission from text*	The conservation measure does not specify whether it is intended to be a retrofit of existing development or new construction. The MS4 can only affect land use through new building permits and new land development. CM19 does not provide enough detail on how it would be implemented by a MS4 agency area such that a reasonable cost estimate could be prepared. Large scale retrofit is costly and does not always provide a water quality benefit. These costs can be better developed with available information such as the Central Valley Drinking Water Policy Workgroup urban runoff report (http://www.waterboards.ca.gov/central valley/water_issues/drinking_water_policy/dwp_urban_sources_study.pdf)
3.4.19.3	3.4-329	1-7	CM19	Effectiveness monitoring will be conducted to evaluate progress toward advancing the biological objectives discussed below in Section 3.4.19.4, Consistency with the Biological Goals and Objectives. Individual stormwater entities will be responsible for conducting the monitoring necessary to assess the effectiveness of BDCP-supported elements of their stormwater management plans.	The Conservation Measure requires the stormwater agencies to perform the effectiveness assessments without funding support from the BDCP proponents or the State of California and without a direct means to evaluate the effect of projects on covered species. The BDCP only suggests evaluating decreases in loads and improving urban runoff water quality. These assessments are too general to understand more complex downstream effects. Before conservation measures are initiated, a more detailed fate and transport model and a beneficial use assessment tool are necessary and should be developed by the BDCP to establish baseline conditions and effects. It is unreasonable to expect that one source group would develop these tools.
3.4.19.3	3.4-329	9-12	CM19	The Implementation Office will provide ongoing review of monitoring, progress, and other relevant reports from the stormwater entities and will coordinate with the stormwater entities to adjust stormwater pollution reduction strategies and annual funding levels through the adaptive management process, as appropriate, based on this review.	The role of the Implementation Office includes recommending changes to the stormwater entity programs. Further, the Adaptive Management Team provides the analysis of the stormwater entity-collected data. As stated, the burden of further data collection falls on the stormwater agencies, while the decision making and conclusion drawing power is elsewhere. Local agencies should be allowed meaningful advisory or oversight roles within the Implementation Office for those issues that affect them.

Section	Page	Line	Type	Reference Document Text	Comment
3.4.19	3.4-330	Table 3.4.19-1	CM19, LOCAL	Implement BMPs for urban stormwater runoff through local jurisdictions within the Plan Area (e.g., cities and towns) to achieve compliance with NPDES MS4 and Phase II NPDES MS4 permit conditions.	The description of the Conservation Measure references "NPDES" requirements several times, which suggests and could be interpreted by Regional Water Quality Control Board permit writers and enforcement staff to mean that the Conservation Measure participation is not voluntary. We agree that NPDES MS4 programs have successfully improved urban runoff quality and request that no new requirements be implemented within NPDES permits as they have not been justified.
3.4.19	3.4-330	Table 3.4.19-2	CM19, ERROR	Reduction of pollutant loads in stormwater discharges will reduce a substantial source of nonpoint source pollutant loading in Delta tributary watersheds.	Urban runoff (MS4 NPDES) is not part of the non-point source (NPS) classification. Even if urban runoff load sources are reduced, it is not established that there would be a downstream Delta benefit as degradation, dilution, and other fate and transport process may sufficiently reduce the net effect. Moreover, for many aquatic life impacts, it is the concentration rather than the load that is "experienced," and urban runoff may dilute some pollutants or cause only an intermittent exposure period.
3.4.19	3.4-332	2-16	CM19	Delta Regional Ecosystem Restoration Implementation Plan (DRERIP) analysis indicates that actions to reduce the amount of pollution in stormwater runoff entering Delta waterways will be of high benefit to delta smelt, white sturgeon, steelhead, and Chinook salmon (Essex Partnership 2009).	The cited DRERIP documents were reviewed, and there was no indication that "reductions in the amount of pollution in stormwater runoff entering Delta waterways will be of high benefit". Those documents discuss the potential impacts to some aquatic life, but they do not evaluate the fate and transport from urban areas to the Delta. Much of the Sacramento urban runoff does not directly enter the Delta, and the conclusion does not consider the fate and transport to points where impacts to covered species are of concern. While reductions in pollutant and improvements to water quality are generally beneficial, this summary oversimplifies the discussion in the referenced document. Some of the Table 3.4.19-2 information references dissolved oxygen depression as the water quality impact; however, urban runoff likely does not contribute significantly to the downstream oxygen impairments (http://water.epa.gov/scitech/wastetech/guide/stormwater/upload/2006_10_31_guide_stormwater_usw_b.pdf). The reference documents also refer to a number of other pollutants that are not known to be significant effects from urban runoff or those that have other sources.
3.4.23.3	3.4-356	10-15	AM	Conservation measures that have been funded and implemented properly and, nonetheless, are not achieving their intended outcomes may be considered less than effective and not worth continuing to implement (or continuing at a reduced effort). Funding dedicated for conservation measures that later prove less than effective could be reallocated to further support more effective conservation measures, within the scope of the Plan commitments and consistent with available funding.	The process of review and reallocation of funding seems reasonable and pragmatic. However, additional language is necessary to protect the agencies and programs that are implementing programs such as CM19. Given the potential costs for CM19 implementation, a more substantial role in oversight of adaptive management is reasonable for those issues that affect local agencies. The BDCP should provide conservation measure funding assurances for the take permit period or assurances to fund the cost to remove or demobilize a conservation measure that is identified as not worth continuing.

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3.6.3.2	3.6-11	38-45 and 3.6.12 line 1	COST	The BDCP includes adequate budget for and assurances that sufficient funds will be available to carry out the monitoring and research activities necessary to implement the adaptive management and monitoring program (See Chapter 8, Implementation Costs and Funding Sources, for an accounting of costs and funding assurances). Integration of the BDCP monitoring and research program, where practicable, with the common activities of the IEP, Delta Science Program and other relevant programs has been factored into the cost estimates. The funding structure and integration efforts are important elements of this Plan. Inadequate funding for the ecological monitoring needed to compare the outcomes of the alternative policies has proven to be a common impediment to successful implementation of other adaptive management programs (Walters 2007).	We support that the BDCP should provide adequate funding of science programs that will develop independent and reliable science and assessments. We recommend including a detailed discussion of the role of the Delta Science Program and processes anticipated for evaluating BDCP assessments and adaptive management. The proposed budget is inadequate to properly manage adaptive management and be inclusive to local agencies. Commitment to funding and providing funding opportunities to groups like the Delta Regional Monitoring Program are critical to successful adaptive management and science programs.
3.6.3.4.8	3.6-18	entire	Local	Step 8: Communicate Current Understanding	We appreciate the approach discussed in this section to provide unbiased study products to be made available to the public. We note that the organizational structure does not provide for local agency participation in review of the products, and the process does not provide a clear description of how the scientific peer review will be objective and coordinated with other programs related to Delta science.
3.D	3.D-2	Table 3.D-1	CM19	Compliance Monitoring Actions	The table does not indicate that there are existing stormwater programs to address contaminants. Stormwater programs already include a wide range of program elements such as construction, industrial, illicit discharge, municipal operations, public outreach, and new development post construction standards and programs to control pollutant sources.
3.D	3.D-9		AM	Precise details of each of the effectiveness monitoring actions are not presented here and will be developed and then periodically updated through the adaptive management and monitoring program (Chapter 3, Section 3.6).	While precise details may not be possible at this time, the discussion should include a range of possible effectiveness monitoring actions to present an anticipated level of effort and outcomes.
3.D	3.D-10	Table 3.D-2.	WQ	Effectiveness Monitoring Actions	The BDCP should monitor and assess downstream methylmercury concentrations and fish tissue concentrations to assess the effectiveness of the control measure meeting the regional wasteload allocations and the TMDL fish tissue targets.
3.D	3.D-25	Table 3.D-2.	CM19	Metric: Decreases in stormwater constituents/pollutant loads such as total suspended sediment, oil and grease, total and dissolved metals (i.e., copper and zinc), pesticides and other toxic chemicals	Decreases in urban runoff loads of these constituents already occurs through existing programs. What would the baseline be for the comparisons? How would the metric account for year-to-year differences in rainfall? What tools would be used for calculation of loads and assessment of trends? The BDCP should provide the assessment funding and tools, as well as address both in Adaptive Management.
3.D	3.D-25	Table 3.D-2.	CM19	Implement BMPs for urban stormwater runoff through local jurisdictions within Plan Area (e.g., cities and towns) to achieve compliance with NPDES MS4 and Phase II NPDES MS4 permit conditions.	It is not clear what specific areas are included. The Plan Area only intersects with a relatively small urban area, especially in the Sacramento urban area. Also, BMPs for stormwater are already implemented; how would the BDCP affect BMP implementation requirements?

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3.D	3.D-26	Table 3.D-2.	CM19	Annual effectiveness monitoring and reporting, performed by the individual stormwater entities, for the duration of the BDCP permit term	The effectiveness of stormwater programs is already determined as part of NPDES permit requirements, though the methods and approach continue to adapt and evolve to allow for better assessments. This should not be required as part of the BDCP as it is an overall activity of the MS4 agency that is not tied to specific BDCP activities.
3.D	3.D-26	Table 3.D-2.	CM19	Individual stormwater entities will be responsible for performing annual monitoring of BMPs implemented at the local level for the duration of the BDCP permit term.	Requirements for BMP monitoring may unnecessarily restrict agency resources over the BDCP permit term, as the performance of individual BMPs may be less important than the extent of implementation, an understanding of how the BMPs benefit downstream beneficial uses, or how the BMP affects covered species. MS4 agencies already know much about the effectiveness of these activities and need flexibility over the next 50 years to adapt to changing conditions and improve programs. Strict annual reporting schedules should be removed as they will constrain resources and slow the adaptive management of stormwater. Because of the variability of stormwater quality and quantity, 5-10 year time frames are necessary to implement effective programs. The 50 year term is unreasonable to apply to these MS4 programs that do not benefit from the BDCP.
3.D	3.D-26 (Table 3.D-2)	CM-19, first occurrence in table	CM-19, AM	Effectiveness Monitoring Actions: Conduct ongoing review of monitoring progress, and other relevant reports from the stormwater entities. Metric: Decrease in stormwater constituents/pollutant loads such as total suspended sediment, oil and grease, total and dissolved metals (i.e., copper and zinc), pesticides and other toxic chemicals. Success Criteria: Reductions in stormwater constituents and pollutant loads within the Plan Area over time. Timing and Duration: Annual effectiveness monitoring and reporting, performed by the individual stormwater entities, for the duration of the BDCP permit term.	The specified "monitoring action" is a review of reporting by others. The metric is vague and cannot be directly tied to effects on covered species. More robust tools and assessment methods are necessary to adequately assess changes in loads, improvements in water quality, and downstream benefits to covered species. The required monitoring and reporting over the entire BDCP permit term is a significant cost liability for local agencies and is not guaranteed to have benefits. Sacramento has only a small area in the Plan Area, and it is not clear how this requirement would be applied to just that area. The BDCP should perform a detailed evaluation of the benefit of all contaminant source controls on the covered species so that control actions can be prioritized relative to their cost.
3.D	3.D-26 (Table 3.D-2)	CM-19, second occurrence in table	CM-19, AM	Effectiveness Monitoring Actions: Fund individual stormwater entities in the Plan Area to implement best management practices (BMPs). Metric: Implement BMPs for urban stormwater runoff through local jurisdictions within the Plan Area (e.g., cities and towns) to achieve compliance with NPDES MS4 and Phase II NPDES MS4 permit conditions. Success Criteria: Reductions in pollutant loads in urban stormwater effluent generated by local jurisdictions. Timing and Duration: Individual stormwater entities will be responsible for performing annual monitoring of BMPs implemented at the local level for the duration of the BDCP permit term.	The BMPs would be implemented for the 50 year BDCP permit term, but the funding plan only covers 15 years and is insufficiently scoped and funded. The description does not acknowledge the issue of modifying privately owned land. The vagueness of the success criteria does not acknowledge the lack of nexus with benefits to covered species in the Delta. CM19 should be removed and replaced with a program to better identify contaminant management actions that can cost effectively benefit covered species.

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3.D	3.D-35	Table 3.D-3	CM19	Does reducing stormwater pollution loads result in measurable benefits to covered fish species or their habitat?	The BDCP does not specify how the measurable benefits to covered species will be evaluated. This evaluation process should be performed before implementation of the BDCP to understand the current effect of urban runoff and other sources on current species. If this cannot be performed before implementation of the BDCP, what guarantees will be made to ensure that an adequate assessment is made beyond the current non-specific BDCP finding that "lower contaminant loads are better?" The BDCP should provide the assessment funding and tools, as well as address both in Adaptive Management.
4.2.4.8	4-82	2-7	CM19	CM19 funds local projects that improve treatment of urban stormwater, but does not permit or authorize such projects. A project that requires in-water work is required to secure appropriate permits, including appropriate ESA consultation for any action with a federal nexus. Projects that do not require in-water work are expected to occur in developed areas that do not provide habitat for covered species. Accordingly, this conservation measure is not expected to result in incidental take of covered species or adverse modification of critical habitat.	CM19 would further burden local agencies with additional environmental documentation and permitting costs. If CM19 is not removed, it should be significantly modified to require an evaluation of all contaminant sources and the cost/benefit of control strategies. For any identified control strategies, the BDCP should provide funding.
4.2.6	4-89	9-14	CM19, AM, WQ	All BDCP monitoring activities undertaken by the Implementation Office are covered activities. All covered monitoring activities will be carried out in a manner consistent with protocols recommended by the Adaptive Management Team and approved by the fish and wildlife agencies. Monitoring activities currently proposed are detailed in Appendix 3.D, Monitoring and Research Actions.	CM19 appears in Table 3.D-2. This excerpt implies that the Adaptive Management Team will have oversight over the monitoring and effectiveness assessments for CM19 and its "covered activities". Much of the Sacramento and Stockton urban areas are outside of the Plan Area, though the definition of a covered activity specifies that it must be in the Plan Area. Moreover, covered activities refer to actions for which "take is authorized". Overall, the wording and document structure have these kinds of confusing ambiguities that should be fixed to ensure that the MS4 agencies are not obligated to participate in the take permit.
5.2.7.1	5.2-14	Table 5.2-4	CM19, WQ	Covered Action: Conservation Hatcheries Facilities Facilities construction Relevant Conservation Measure(s): CM19 Urban Stormwater Treatment Appendix: 5.H	It is unclear why CM19 is the only conservation measure listed under this covered activity. It is an imbalanced approach to only consider one of many effects, especially when the relative impact of the selected source is not known compared to others.
5.2.7.2	5.2-15	41-43 & Table 5.2-4	CM19, AM, WQ	Models used in the BDCP are listed and described in Table 5.2-5 along with a reference to the appendix where the models are applied. The models are categorized based on their general scope and intent. In addition, benefits and limitations of each model are listed in Table 5.2-5.	Pollutant concentrations and loading from watershed areas where CM19 is proposed are not included in the modeling domain. Watershed sources and fate and transport are not adequately addressed in the selected models. WARMF or HSPF type model is necessary to understanding at least relative impacts from sources and fate and transport of the key pollutants addressed by this conservation measure.
5.2.7.4	5.2-16	16-19	CM19, AM, WQ	Environmental models set the stage for the analysis of biological effects by describing key physical and chemical conditions across the Study Area. These conditions include flow, temperature, salinity, and turbidity. In the Delta, the analysis of physical conditions and biological effects is most often based on CALSIM II and Delta Simulation Model (DSM) 2 (Figure 5.2-3).	The environmental and biological models should consider the effects of pollutants referenced by the conservation measures as stressors, including metals, pesticides, and others.

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5.2.7.5	5.2-23	2-14	CM19, AM, WQ	Biological models are often linked to environmental models and characterize a biological change expected from the modeled change in physical conditions. Figure 5.2-4, for example, shows the biological models used to assess entrainment effects on delta smelt and the relationship to CALSIM II and DSM2. This figure also shows how biological models relate to specific life stages and reflect unique hypotheses about stressors and biological performance. Models used to evaluate entrainment (Appendix 5.B, Entrainment) and the effects of flow, temperature, salinity, and turbidity (Appendix 5.C, Flow, Passage, Salinity, and Turbidity) on biological performance fall into this category.	The environmental and biological models should consider the effects of pollutants referenced by the conservation measures as stressors, including metals, pesticides, and others.
5.2.7.10	5.2-29	8-10	CM19, AM, WQ	Although noting that assessing or ranking attributes (stressors) is very complex, the (2011) suggested that the relative importance of stressors cannot be assessed, or prioritized, independent of the relative importance of the objective that is stressed.	It should be noted that although the Delta Independent Science Board concluded that the ranking of stressors is feasible, this implies that contaminant control measures can be evaluated for at least their relative importance to water quality and for effects to the covered species. The Effects Analysis should evaluate any contaminant control measures before they are implemented as part of the BDCP.
5.2.7.10.3	5.2.35	14-22	WQ, AM	The overall conclusions regarding the effect of the conservation measures on covered fish species was made by weighting the conclusion regarding the environmental effects of conservation measures by the assumed importance of environmental change to the species. The logic of this process is illustrated in the following example: On the basis of quantitative and qualitative analyses in the appendices to this chapter, it is concluded that the BDCP will result in a positive (toward natural) change in an attribute, and, on the basis of the species attribute importance, change in that attribute is important to one or more life stages of a species. Therefore, it is concluded that the BDCP has an high change on that species/life stage. This conclusion is documented by computing a simple score: BDCP effect on an attribute times the importance of the attribute to the species/life stage.	The proposed weighted scoring system is insufficiently described. A transparent and understandable evaluation process should be presented in the BDCP. The BDCP should develop computational water quality models for the cumulative effect of all combinations of conservation measures. The outputs of the models can be used for effect modeling on the covered species. The effects should then be compared to a baseline of current conditions without the take permit.
5.2.7.11	5.2-47	Table 5.2-8	WQ, AM	Qualitatively discussed in Appendix 5.D, Contaminants. Some uncertainty regarding white sturgeon sensitivity to water quality and whether current water quality conditions negatively affect white sturgeon. Thus, evaluating the response of white sturgeon to improved water quality conditions is difficult, and may be somewhat negative (low potential for effect). However, certain conservation measures to be implemented as part of BDCP will contribute to improved water quality, including CM19 Urban Stormwater Treatment, CM12 Methylmercury Management, and CM14 Stockton Deep Water Ship Channel Dissolved Oxygen Levels. So while the BDCP has a low potential for negative effects, certain conservation measures will be implemented to provide a benefit to covered fish species.	The conclusion that the BDCP has a low potential for negative effects does not consider the area-specific impacts of the increased influence of the San Joaquin River and effects near to the BDCP intakes on the Sacramento River.

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5.D.0	5.D-ii	14-20	CM19, AM, WQ	Modeling results presented in Appendix 5.C, Flow, Passage, Salinity, and Turbidity, indicate that reduced dilution capacity in the Sacramento River at the Sacramento WWTP will result from changes in upstream reservoir operations associated with the ESO, not from diversion of water to the Yolo Bypass or from north Delta intakes located downstream of the WWTP. Quantitative analysis presented in this appendix indicates that the Sacramento River will have sufficient dilution capacity under the ESO for both ammonia and pyrethroids to avoid adverse effects from these contaminants on the covered fish.	The BDCP should look at water quality impacts due to changes in reservoir operations associated with operation of the Delta water diversions for the BDCP water agencies. The last sentence in essence states that pyrethroids will not be an issue.
5.D.0	5.D-ii	21-26	CM19, AM, WQ	Restoration actions will result in some level of mobilization and increased bioavailability of methylmercury, copper, and pesticides (including organophosphate, organochlorine, and pyrethroid pesticides). Given current information, it is not possible to estimate the concentrations of these constituents that will become available to covered fish species, but review of the conceptual models for each of these contaminants indicates that the effects should be limited both temporally and spatially. The most problematic of these potential effects is methylmercury. To address this issue, the Plan includes Conservation Measure (CM) 12 Methylmercury Management.	This discussion demonstrates the insufficiency of evaluation of the multiple sources of contaminants that should be considered, including the potential for restoration activities to contribute towards contaminant related issues for covered fish species. Conservation measures should be considered for other potential water quality impacts from the restoration projects, in addition to methylmercury.
5.D.1	5.D-1	11-12	CM19, AM, WQ	This analysis focuses only on changes in contaminants that are directly attributable to the covered activities that could affect covered fish species.	The analysis should include reservoir operational changes for the ESO.
5.D.2.1	Table 5.D.2-1	27	CM19	Table 5.D.2-1 Land Use and Typically Associated Containment Issues	The inclusion of urban stormwater as a CM in the absence of the other contaminant sources (e.g. historic mining, agriculture, and wastewater) discussed in Appendix 5.D implies that urban stormwater is the only significant source of contamination impacting native fish habitat; and, that improving urban runoff (in the absence of control strategies for other sources) will improve water quality sufficient to obtain the Objective (L2-4). In that significant water quality improvements for the selected contaminants of concern (listed below) cannot be effected by local stormwater programs (see rationale below), the rationale for inclusion of CM 19 in Objective L2.4 needs to be re-evaluated. As supported by literature and Table 5.D.2-1 'Land Use and Typically Associated Containment Issues' (page 5.D-2, Line 27): · Mercury and methylmercury: Legacy mining sources are recognized as the primary source, and reductions in stormwater concentration would have negligible benefit. · Selenium: Agricultural sources from areas with certain geologies are recognized as primary sources, and reductions in stormwater concentration would have negligible benefit.

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5.D.2.1	Table 5.D.2-1	27	CM19	Table 5.D.2-1 Land Use and Typically Associated Containment Issues	(continued from above comment) · Copper: Agricultural pesticides are recognized as a key source. Brake pads, which were identified as the primary source of copper in urban stormwater discharges, have been effectively addressed by the State of California through passage of SB 346. This legislation requires brake pad manufacturers to reduce the use of copper in brake pads sold in California to no more than 5% by 2021 and no more than 0.5% by 2025. · Ammonia/um: Agricultural and wastewater sources are recognized as the primary sources. Reductions in stormwater concentrations would have a negligible benefit.
5.D.2.1	5.D-3	24-25	CM19, WQ	Historically, polychlorinated biphenyls (PCBs) often were associated with urban discharge, and these contaminants have been detected in fish tissues in San Francisco Bay, although there is little research on PCB levels in the Delta	In Sacramento, PCBs are rarely detected in urban runoff, but are more frequently found in creek sediment from legacy sources. Urban runoff is not the current known source in the region, and any control measures would need to consider the clean-up issues in the creeks more than assessing urban runoff.
5.D.3	5.D-6	13-22	CM19, AM, WQ	Where available field data and quantitative modeling tool were deemed sufficient to capture the relevant aspects of the constituent in estimating impacts, quantitative model results are presented along with a full discussion of the conceptual model for each constituent. Where quantification would lead to results with very high margins of error and uncertainty and would not appropriately inform or define the effects on covered fish species, effects were discussed only qualitatively with the objective of determining the probability of effects on covered fish species.	Regardless of margin of error, relative impacts can be assessed between alternatives and the baseline. The BDCP should include a more detailed discussion of the modeling including the basis for finding quantitative modeling "inappropriate".
5.D.3.2.2	5.D-9	7-8	WQ	Reduction of flows in the Sacramento River downstream of the north Delta intakes also may result in decreased dilution of contaminants in the Delta.	We appreciate inclusion of this statement. This issue should be further evaluated in the BDCP.
5.D.3	5.D-10	Figure 5.D.3-1	CM19, AM, WQ	Generic Conceptual Model to Evaluate BDCP Contaminant Effects	The conceptual model does not evaluate the degradation of contaminants or their binding to organic carbon. For example, copper and trace organics are known to bind in such a way that removes their bioavailability.
5.D.4.3.1	5.D-38	14-20	WQ	Bruns et al. (1998) conducted water sampling between 1993 and 1995, compared both dissolved and total copper results against EPA AWQC and other criteria, and reported concentrations below criteria from almost all locations, including the Sacramento River. Because the criteria are dependent on sample-specific water quality measurements (including hardness), the criteria varied between sampling episodes. Significantly higher copper levels (at least an order of magnitude higher than all other results) that exceeded criteria were reported for Prospect Slough at the head of the Yolo Bypass.	Per the EPA objective, the copper water quality objective also considers dissolved organic carbon.
5.D.4.5.2.2	5.D-46	16-20	CM19, WQ	Given their affinity for soils, pyrethroids are not expected to spread far from the source area, and any suspension into the water column should be localized.	This conclusion also applies to the urban runoff loading, which is predominantly outside of the Plan Area. When considering the benefit of urban runoff treatment (CM19), this highly attenuated effect on downstream areas should be considered.

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5.D.4.5.2.3	5.D-46	12-14	CM19, WQ	Pyrethroid chemicals are used as pesticides in urban areas for pest control, and stormwater runoff has become an important source of pyrethroids in the Delta system. The purpose of CM19 Urban Stormwater Treatment is to provide treatment for stormwater to reduce input of contaminants. Thus, CM19 will result in decreased loading of pyrethroids to the Delta, although the level of this decrease cannot be defined at this time.	There is not a clear connection between effects on covered species and urban runoff sources of pyrethroids; however, the inclusion of CM19 is based on the potential benefit. A more detailed assessment of the benefit is necessary compared to control of other sources. This assessment should also consider the cost of control measures.
5.D.4.7.1	5.D-48	18-35	WQ	Surface water data indicate that concentrations are high for both diazinon and chlorpyrifos in back sloughs and small upland drainages, and concentrations are lower in both the main channels and main inputs to the Delta. High concentrations of chlorpyrifos also are found in Delta island drains, but concentrations of diazinon remain low in the same drains (McClure et al. 2006). In the past, elevated concentrations of diazinon and chlorpyrifos have been detected in the Sacramento and San Joaquin Rivers and in the Delta during particularly wet springs and after winter storm events (McClure et al. 2006). This could suggest that increased flow with accompanying increased suspended loads will result in increased mobilization of both diazinon and chlorpyrifos. Alternatively, the elevated concentrations may be attributable to irrigation or stormwater runoff from late winter/early spring dormant season spraying of orchard crops.	Characterization of OP pesticides based on data collected prior to 2005 should not be considered as representative of current conditions due to the fact that urban use bans have been effective since 2005. Numerous studies have characterized the lack of urban sources and absence of aquatic life effects from urban source OP pesticides.
5.D.4.9	5.D.50	21-23	CM19, WQ	Major sources of EDCs in the Central Valley are thought to be pyrethroid pesticides from urban runoff (Oros and Werner 2005; Weston and Lydy 2010), WWTPs (Routledge et al. 1998), and rangelands (Kolodziej and Sedlak 2007).	Previously, the document stated that pyrethroids are not mobile from the source site, and the sentence subject is the Central Valley rather than the Plan Area. Because this section is discussing fate and transport, the discussion should clearly discuss the location of the sources relative to the effect area of interest.
5.D.4.9.1.1	5.D.51	3-5	AM	Endocrine disruptors are a diverse group of chemicals, and it is not possible to evaluate fully the potential effects on the distribution and bioavailability of these chemicals from ESO water operations.	If a quantitative assessment cannot be performed, a relative assessment that alternatives introduce should be performed. This relative assessment would evaluate the direction and rough magnitude of impacts and present results in a format that is easy to discern.
5.D.4.10	5.D.51	18-21	CM19	Lead, PCBs, and hydrocarbons (typically oil and grease) are common urban contaminants that are introduced to aquatic systems via nonpoint-source stormwater drainage, industrial discharges, and municipal wastewater discharges.	MS4 systems are typically considered point sources, and it is unclear what is meant by non-point stormwater. Provide clarification of the intended source category.
5.D.5.1	5.D.52	41, 1-3	WQ	Important to this picture is that taking lands out of agricultural use will result in an overall reduction of agriculture-related contaminant loading, including pesticides, copper, and in some cases, concentrated selenium in irrigation drainage.	The net benefit of this land conversion should be better quantified and discussed.
5.D.5.1	5.D-53	5	WQ	ESO water operations will have few to no effects on contaminants in the Delta.	The evaluation should consider the impact of removing higher quality Sacramento River water and the increased contribution from lower quality San Joaquin River water, especially in the areas downstream from and near to the proposed intakes.

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5.D.5.3	5.D.59	4-11	WQ, AM	As discussed throughout this appendix, the amount of contaminants that will be mobilized and made more bioavailable to covered fish species due to inundation of ROAs is uncertain. This uncertainty is most critical for methylmercury, and to a lesser extent for pesticides and other metals. For each of the contaminants, the chemical-specific and site-specific factors that will determine resultant effects vary. CM12 is included in the BDCP to support site specific evaluation and monitoring of methylmercury production in restored areas. Data from this monitoring will assist in evaluating the effects of restoration actions and reduce the uncertainty associated with the potential exposure of covered fish to methylmercury mobilized by these actions.	The evaluation should specify the uncertainties and how they can be evaluated through data collection and analysis. It is within the scope of the BDCP to develop computational models for this analysis and future assessments. Moreover, the BDCP should fully fund a substantial monitoring program for the term of the BDCP to evaluate the unknowns. No evaluation of contaminants was presented in this section or the BDCP that justifies inclusion of CM19. The uncertainties of CM19 were not evaluated, and a comprehensive evaluation of the benefit of contaminant reductions from a range of sources was not presented.
5.D.5.3	5.D-59	4-11	AM, WQ	5.D.5.3 Uncertainties and Information Needs	This section is insufficient. The BDCP should have a commitment to the research needed to address mobilization of contaminants due to inundation of ROAs and other activities. A comprehensive assessment of the uncertainties and information needs should be prepared so that the efforts can be prioritized for the purpose of inclusion in the BDCP.
7	7-1	37-39	LOCAL	In addition, a Stakeholder Council will be created and regularly convened to enable public agencies, nongovernment organizations, interested parties, and the general public to provide ongoing input into the BDCP implementation process.	Local public agencies will have costs associated with the BDCP and will be in the area of greatest impact and, thus, should have a more primary role in the Permit Oversight and/or Adaptive Management Team in cases where assessments or decisions affect these agencies.
7.1	7-2	15-17	LOCAL	Various other parties, including the state and federal fish and wildlife agencies, other public agencies, nongovernment organizations, interested parties, and the public will be integral to the process of shaping decisions and effectuating actions set out in the BDCP.	This broad statement and usage of "integral" suggests a level of influence that is not supported by the rest of the section. For example, many of the listed entities would only be permitted interaction through the Stakeholder Council. While the Stakeholder Council can comment on BDCP actions, they are not give authority to "effect actions". This sentence should be reworded to specify the authority that these entities are granted in the process (e.g., contribute to, provide non-binding feedback, etc.)
7.2.8	7-26	5-9	LOCAL	[Note to reader: At the time of this Public Draft, the California Natural Resources Agency is working with representatives from Delta counties to identify an appropriate mechanism to involve Delta counties in Plan implementation. It is the intention of the agency to incorporate revisions to the implementation structure set forth in this chapter that address further Delta county participation in a final plan].	Because of its planning area size and proximity, the City of Sacramento and other local cities should also be further incorporated, like the counties, into the implementation structure.
8.1	8-1	39	LOCAL	This public contribution is further justified by the fact that there are stressors contributing to the decline of the Delta ecosystem and dependent species that are not directly related to operations of the SWP and Central Valley Project (CVP).	The benefit of the BDCP to the local public is not clear and should be better quantified. It has not been demonstrated that local stressors would be significant in the absence of the SWP and Central Valley Project (CVP). This statement should be justified based on established science.
8.2.3.12	8-36	11-12	WQ, LOCAL	The cost estimate for site characterization and soil sampling is $2.2 million. Costs are summarized in Table 8-17.	The costs should consider restoration area management costs to minimize methylmercury discharges. CM12 is intended as a methylmercury management action, but the costs only cover initial assessments. For example, compliance with the TMDL wasteload allocation will incur costs to implement control actions.

Section	Page	Line	Type	Reference Document Text	Comment
8.2.3.19	8-46	14-15	CM19	Estimated costs for urban stormwater treatment are $50 million (Table 8-24)	The proposed cost is not adequate to implement wide-scale stormwater treatment and would likely have a negligible impact on Delta water quality. MS4 agencies would only be legally allowed to implement projects on municipal properties. New development and redevelopment local requirements already generally conform to the requirements in CM19, and the cost is passed on to land developers and homeowners. Effectiveness assessment monitoring in downstream waters would be difficult and expensive. The assessment monitoring for CM19 should be funded by the BDCP.
8.2.5	8-56	Table 8-30	CM19, LOCAL	Cost Estimate for Effectiveness and Compliance Monitoring	The projected costs for methylmercury monitoring and assessments are too low. The BDCP should contribute to wider methylmercury assessments and fish tissue surveys to confirm that restoration areas are not contributing to elevated concentrations and the impairment. Because this is a long-term water quality problem, long term monitoring costs are likely, and an estimate of $2.2M over 50 years is insufficient. If the intent is to consider "potential" research if loading problems are identified, there should be better discussion of the conditions that would trigger these additional research actions.
8.2.5	8-56	Table 8-30	CM19	*Omission of monitoring costs for CM19*	Demonstration of the effectiveness of stormwater treatment and related benefits to downstream receiving waters can be difficult and expensive. The BDCP should provide funding to support CM19 assessments.
8.2.5	8-57	Table 8-31	ERROR, AM	Cost Estimate for Potential Research	The commitment to "potential" research is not explained. The research program should show a firm commitment to funding studies to support filling current and future information needs. This is important to ensure implementation actions during the near-term implementation period are invested where there is most benefit, and to support adaptive management for later implementation actions.
9.1.3	9-3	1-29	ALT, WQ	BDCP development began in 2006. During the development of the BDCP, the participants carried out a focused effort to identify and consider a range of alternative approaches to water conveyance infrastructure and operating criteria (CM13), as well as a number of different approaches to natural community restoration and enhancement. Development and evaluation of a range of alternatives was also guided by the Delta Reform Act. California Water Code Section 85320(b)(2) specifically requires including a comprehensive review and analysis of seven factors.	The California Water Code Delta Reform Act provides minimum guidance for alternatives to evaluate, and the BDCP alternatives are too narrow. Additional alternative evaluation is required for the EIR/EIS to sufficiently evaluate the impacts of the BDCP. While the CWC requirements seem narrow in evaluating the alternatives to take, it is reasonable to evaluate additional alternatives to conveyance. For example, the Alternatives to Take section does not investigate developing and evaluating other means of increasing water supply in the system, which includes more off-line storage, treatment of waste streams for reclamation, and development of regionally independent solutions (seawater filtration, reuse, etc.). In particular, the latter two are much hindered by water rights law, territorial ownership and water agreements, and the complexity of the water quality laws with the Basin Plan, Title 22, and Porter Cologne. Streamlining of the water quality and planning components will better encourage these regionally independent alternatives to take.

Section	Page	Line	Type	Reference Document Text	Comment
10.3.1	10-5	4-12	AM	For example, recommendations related to the development of new planning tools (e.g., hydrodynamic, ecosystem, species models) were not deemed practical because they could not be developed to a usable form within the timeframe of BDCP development. These planning tools, however, could be designed during BDCP implementation to inform development and implementation of specific actions in fulfillment of the conservation measures. The BDCP adaptive management program (Chapter 3, Section 3.6, Adaptive Management and Monitoring Program) calls for the development and use of such models	The determination that development of the tools was not feasible should be better explained. By delaying development of these tools and deferring characterization of baseline conditions later, the uncertainty of impacts can be extended until the BDCP impacts cannot be undone. There are existing efforts in the Drinking Water Policy, CVSALTS, and others that could be used at least as a basis for some of the evaluations. If these tools can be developed for projects with smaller scopes, they should be required for the BDCP to remove uncertainty.
10.3.7.3	10-14	19-28	WQ, WS, LOCAL	The report also suggests that a broader array of alternatives and options for managing water is needed in Delta water planning efforts, including improvements in water-use technology, reuse technology, economizing on water use, and various degrees of long-term species protection. Clearly, the full resolution of these issues lies beyond the purview of the BDCP, but the BDCP can make important contributions by clearly defining water allocations (as is done in CM1 Water Facilities and Operation), by setting performance goals for conservation of affected species and natural communities (as is done in Chapter 3, Section 3.3 Biological Goals and Objectives), and by active participation in regional decision-making processes (as addressed in many sections addressing cooperation with neighboring HCPs and NCCPs, the BDCP's relationship to the Delta Plan, and the BDCP's relationship with other scientific efforts in the Delta).	The role of the BDCP and the water exports is fundamental to California water supply and support of all beneficial uses. The BDCP should evaluate the broader array of the alternatives; this evaluation and funding of additional technology and policy programs should in the least be coordinated with the California Water Plan or other state efforts to ensure that there are not oversights or gaps in the needed solutions to California's water challenges.

List of Acronyms

AWQC	Ambient Water Quality Criteria
BDCP	Bay Delta Conservation Plan
BMP	Best management practice
CALSIM II	California Water Resources Simulation Model
CM	Conservation Measure
CVP	Central Valley Project
CVSALTS	Central Valley Salinity Alternatives for Long-term Sustainability
CWC	California Water Code
DO	Dissolved oxygen
DRERIP	Delta Regional Ecosystem Restoration Implementation Plan
DSM	Delta Simulation Model
EDCs	endocrine-disrupting compounds
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESO	evaluated starting operations
HCP	habitat conservation plan
HSPF	Hydrological Simulation Program-FORTRAN
IEP	Interagency Ecological Program
MS4	Municipal separate storm sewer system
NCCP	Natural Community Conservation Plan
NPDES	National Pollutant Discharge Elimination System
NPS	Non-point source
OP	Organophosphate
PCBs	Polychlorinated biphenyls
ROA	restoration opportunity areas
SMART	specific, measureable, achievable, relevant, and time-bound
SSQP	Sacramento Stormwater Quality Partnership
SWP	State Water Project
TMDL	Total maximum daily load

From: Noelle Mattock <NMattock@cityofsacramento.org>
Sent: Friday, October 30, 2015 11:58 AM
To: BDCPcomments
Cc: Jim Peifer; M Lennihan; Joe Robinson; Randi Knott; Bill Busath; Elissa Callman
Subject: City of Sacramento Comment Letter on the RDEIR/SDEIS on the Bay Delta Conservation Plan/California Water Fix
Attachments: City of Sacramento Comment Letter on the RDEIR-SDEIS BDCP and CA Water Fix 10292015.pdf; Attachement A-City of Sacramento Specific Comments on CA Water Fix Documents.pdf; Attachment B - City of Sacramento Comment Letter on Draft BDCP and BDCP DEIR-EIS 7-22-14.pdf

The City of Sacramento appreciates the opportunity to provide comments on the July, 10, 2015 California Water Fix RDEIR/SDEIS.
Please find attached the City of Sacramento's comment letter and attachments A – City of Sacramento Specific Comments on the California Water Fix Documents, B – City of Sacramento Comment Letter on the Draft BDCP and BDCP DEIR/EIS.

Thank you,

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