SACRAMENTO
STORMWATER
QUALITY
PARTNERSHIP

July 24, 2014
140250:EC

BDCP Comments
Ryan Wulff, NMFS
650 Capitol Mall, Suite 5-100
Sacramento, CA 95814
BDCP.Comments@noaa.gov

Subject: Transmittal of Sacramento Stormwater Quality Partnership Comments on BDCP and BDCP DEIR/EIS

Dear Mr. Wulff:

Please find attached the Sacramento Stormwater Quality Partnership (SSQP) comments on the Bay Delta Conservation Plan (BDCP) and BDCP DEIR/EIS. If you have any questions or anything you would like to discuss, please contact Sherill Huun of the City of Sacramento at 916-808-1455 or Dana Booth of Sacramento County Department of Water Resources at 916-874-4389.

Sincerely,

Dave Brent
Director
City of Sacramento
Department of Utilities

SACRAMENTO STORMWATER QUALITY PARTNERSHIP

July 18, 2014

140208:EC

BDCP Comments
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Dear Mr. Wulff:

The Sacramento Stormwater Quality Partnership (Partnership) appreciates this opportunity to provide comments on the December 13, 2013 Bay Delta Conservation Plan (BDCP) Public Review Draft and the associated Draft Environmental Impact Report/Environmental Impact Study (EIR/EIS), which incorporates the BDCP (EIR/EIS, page 1-2, footnote 3). The Partnership's review and comments focus on items that will affect operation of the Partnership's stormwater management programs, including those that impact water quality and the science and governance entities that would play an important role in protecting the Sacramento River – San Joaquin River Delta (Delta).

The Partnership is comprised of the County of Sacramento and the incorporated municipalities that are co-Permittees in the municipal separate storm sewer system (MS4) National Pollutant Discharge Elimination System permit (NPDES No. CAS082597, Order No. R5-2008-0142). Many of these agencies are also submitting comments in separate letters; however, this letter specifically addresses the proposed Conservation Measure 19 (urban stormwater treatment) and other issues that would have significant impacts on our municipal stormwater programs. Comments in this letter are applicable to the BDCP document and the supporting EIR/EIS. Attachments 1 and 2 are specific comments on the BDCP and EIR/EIS, respectively, which are included and incorporated in our comments.

The high quality of the American and Sacramento Rivers is a primary reason why the proposed BDCP intakes are located in the Sacramento River, which is adjacent to the Partnership permitted area. The Partnership's management programs described in our

Stormwater Quality Improvement Plan (SQIP)[1] are highly effective in improving urban runoff quality. The partnering agencies have strong working collaborations with each other as well as with neighboring communities. Examples of this cooperative regional approach include the Partnership's participation in the development of the region-wide municipal separate storm sewer system (MS4) permit, the Delta Regional Monitoring Program (RMP), the Central Valley Drinking Water Policy, and numerous other regional programs and information sharing. For example, the Partnership supports and participates in initiatives to address regional pesticides issues, including support of the "Our Water, Our World" program to provide integrated pest management resources to our residents and leading CASQA's efforts to encourage USEPA Office of Pesticide Programs and the California Department of Pesticide Regulation to improve pesticide regulation and protect water quality.

While we recognize that a project of this size is complex and resource intensive, we have identified several presumptions and assertions within the BDCP and EIR/EIS documents, especially related to urban runoff and water quality, which are inaccurate or insufficiently supported. These issues could have profound effects on our stormwater management programs and local communities. The following key comments are discussed in this letter and are supported and expanded upon with the detailed attached comments:

1. Insufficient Justification for Conservation Measure 19 (CM19)
2. Insufficient Commitments for Adaptive Management and Monitoring Programs to Protect Upstream and Delta Water Quality (AM)
3. Insufficient Evaluation of Water Quality Impacts (WQ)
4. Inconsistency with Antidegradation Policy and Water Quality Regulation (WQ)
5. Lack of Meaningful Role for Local Agencies in BDCP Governance (LOCAL)
6. Technical Errors and Omissions (ERROR)

COMMENT 1 - INSUFFICIENT JUSTIFICATION FOR CONSERVATION MEASURE 19 (CM19)

CM19 is described in seven pages of the BDCP with little detail, with numerous inaccuracies on urban runoff contaminants and water quality regulations, and without any evidence that CM19 control measures could provide any measurable benefits to the covered species. Conservation Measure 19 (CM19, BDCP Section 3.4.19) intends to decrease urban runoff contaminant discharge to support Objective L2.4 to provide water quality to "help restore native fish habitat". However, there is no technical analysis demonstrating the potential benefits of CM19 aside from incomplete descriptions of pyrethroid research in upstream urban tributaries; this research has *not* demonstrated relevance to impacts on covered species in the Delta. No technical justification is provided for the primary inclusion of urban runoff sources as a Conservation Measure over all other contaminant stressor sources that are described throughout the BDCP and EIR/EIS but are absent as Conservation Measures. As proposed, CM19 provides no new

[1] Sacramento Stormwater Quality Partnership. Stormwater Quality Improvement Plan. Submitted to Central Valley Regional Water Quality Control Board. November 2009. http://waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/sacramento/r5-2010-0017_2009sqip.pdf

benefits to downstream covered species. Furthermore, CM19 proposes measures that are already generally implemented by stormwater management programs and local planning departments with new development requirements.

CM19 should be removed, because it is not justified as an action that would reasonably improve the covered species populations in the Delta. The proposed conservation measure fails to meet a reasonable expectation of beneficial impacts for the following reasons:

- The BDCP and EIR/EIS do not provide sufficient detail to reasonably conclude that the CM19 suggested best management practices (BMPs) would have any adverse or beneficial impact on water quality in the Delta.[2] Pesticides are identified as the primary "concern for fish" (BDCP page 3.4-327, lines 9-10) and as the basis for the need for CM19. The studies cited in the BDCP (Weston et al. 2005, Teh et al. 2005) do not show linkages between urban runoff and effects on covered species and therefore should not be used as justification for CM19.

  Most Sacramento urban runoff does not directly enter the Delta. As such, the conclusion 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) does not consider the fate and transport to points where impacts to covered species are of concern (BDCP page 3.4-332). Even if contaminant load sources are reduced, it is not established that there would be a downstream Delta benefit since contaminant degradation, dilution, adsorption to particulates, and other fate and transport processes would reduce any aquatic life effects (Werner, et al. 2008, page 32), which is consistent with pyrethroid experimental studies downstream. Urban runoff dilutes some pollutants and is only an intermittent exposure during the higher flow wet season.

- CM19 does not consider pesticide and other contaminant source control by the entities that manufacture, regulate, and control their use in urban and non-urban areas. The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) gives the U.S. Environmental Protection Agency (EPA) authority to determine which pesticides can be used in the United States and how they can be used. The application and approval of pesticides are regulated by both the EPA and the California Department of Pesticide Regulation (DPR). Local agencies do not have the authority to limit the use of pesticides when applied according to these rules. If retained, CM19 should propose actions to better regulate and approve pesticide formulations and applications so that they will not have effects on covered species when used legally. The Central Valley Regional Water Quality Board recently adopted Basin Plan amendments that better acknowledge state and federal government responsibility. *The Partnership requests that references to pesticide source control acknowledge that municipalities are statutorily prohibited from regulating the use of pesticides, and that existing state and*

[2] Delta Stewardship Council. *Final Delta Plan. Page 230 recommendations "*WQ R2. Identify Covered Action Impacts. *Covered actions should identify any significant impacts to water quality."*

federal statutory authority for regulation of pesticides is sufficient only when it is properly exercised to prevent water quality impacts.

- The BDCP does not acknowledge that the most effective "source control" approach to control many contaminants in urban runoff is product control by manufacturers and regulators. In particular, lead and pesticides have been controlled through product reformulation or discontinuation. Recent legislation (SB346) will phase out copper in brake pads, a significant contributor to urban runoff loads.

- The BDCP and EIR/EIS do not comprehensively evaluate all sources of contaminants and therefore cannot adequately evaluate how to control contaminants through CM19. The BDCP does not present an analysis that evaluates the downstream covered species benefit of any contaminant source controls. As discussed in the EIR/EIS (Table 5.D.2-1 'Land Use and Typically Associated Containment Issues' (EIR/EIS page 5.D-2, Line 27), urban runoff is only one source of contaminants in the Delta and is an insignificant source for most of the identified contaminants of concern. However, other sources identified as significant have not been specifically included in the conservation measures. The reference documents refer to a number of other pollutants that are attributed to other sources and for which urban runoff is not known to be a significant contributor. For example, BDCP Table 3.4.19-2 references dissolved oxygen depression as a water quality impact; however, urban runoff likely does not contribute significantly to the downstream oxygen impairments. Another example is that CM19 is the only conservation measure identified with the Conservation Hatcheries Facilities covered activity for facilities construction (BDCP page 5.2-14); the role that urban stormwater (MS4) programs that are part of CM19 would have in mitigating construction of these facilities is not clear in the Effects Analysis and the referenced Appendix (5H). Only considering one of many sources without making direct connections between activities and outcomes is an imbalanced and flawed approach, especially when the relative impact of the selected source is not known or may be insignificant when compared to others. A computational model assessment of the benefits of all source control measures for all sources should be performed to examine the effect of sources on the downstream covered species. This evaluation should be conducted before determining the scope of a conservation measure on contaminant reduction.

- Contaminant sources, as a whole, and the entities that regulate and control their use and discharge, should be considered so that the most significant and cost-effective removal strategies are prioritized and addressed first. While we agree that continued reductions of discharged urban runoff contaminants is an important environmental effort (which is already underway), it is unrealistic to assume that reductions of one intermittent source would cost effectively result in significant or even measurable downstream changes. For example, the Central Valley Drinking Water Policy Workgroup evaluated urban and non-urban source control for multiple drinking water constituents of concern. The drinking water constituents of concern were then quantitatively modeled in hypothetical future conditions to evaluate the potential

impact on the municipal water supply beneficial use. Hypothetical urbanization of the Central Valley did not cause significant changes to downstream water quality.[3]

- The effectiveness of urban runoff BMPs in terms of specific urban runoff quality changes and Delta impacts was not evaluated. For example, typical structural control benefits vary between contaminants, and while a particular BMP may decrease urban runoff loading for one contaminant, it may increase the urban runoff loading for another contaminant. In the case of pesticides, a BMP designed to remove sediment bound pesticides might be completely ineffective for removing pesticides that remain in the dissolved phase. The BDCP should evaluate urban runoff BMPs for potential benefits to downstream Delta water quality. Without a sufficient understanding of the downstream benefits, widespread implementation of additional BMPs is not justified.
- The BDCP does not adequately define the physical area of the expected urban land use changes and the spatial extent of CM19 control strategy implementation. The BDCP refers only to restoration areas outside of the statutory Delta as included in the Plan Area and makes no references to the urban areas in the periphery outside of the statutory Delta. The control strategies listed in CM19 are generally the type of best management practices already included in new urban development, but the conservation measure does not acknowledge the legal and logistical challenges of large scale changes to already developed urban areas. The great preponderance of MS4 drainage property is not municipally owned, and it is unclear how CM19 intends to implement private land use changes.
- There is no justification provided for the cost estimate for CM19 implementation, maintenance, or monitoring. The BDCP estimates approximately $50 million in CM19 stormwater treatment for all MS4 programs over the 50 year plan. This level of funding significantly underestimates the scope of urban stormwater treatment that would be necessary to provide detectible downstream benefits. The two rounds of Proposition 84 funding totaled approximately $86 million in stormwater projects covering a much smaller area than the urban areas inside and upstream of the Delta. For a rough comparison, this funding covered not more than hundreds of acres of "stormwater treatment", and the urban area in the Delta and tributary watersheds are hundreds of thousands of acres. Moreover, no funding is proposed for the BDCP required effectiveness monitoring, and this can also be costly. The BDCP states that CM19 funding would come from existing Proposition 84 or 1E bonds and future water bonds. Because CM19 is inadequately described, it is not possible to evaluate the potential financial liability to local stormwater management agencies.
- Because the area of CM19 implementation is unclear, it is not possible to accurately estimate its cost. Based on the results of previous Proposition 84 low impact development (LID) project funding and known costs of retrofit of existing development, $50 million would only fund improvements for a small fraction of the total urban or municipal area. The Central Valley Drinking Water Policy Workgroup estimated that best management practices (BMP) "treatment" for the entire urban area

[3] Central Valley Drinking Water Policy Workgroup Synthesis Report. February 2012.

within the Central Valley would cost $14.9 billion by 2030.[4] The discrepancy in cost and scope is significant and suggests that the proposed CM19 would be insufficient in scope and resources to demonstrate benefits to covered species. This large discrepancy in the uncertainty of benefits and cost to local agencies is indicative of the inadequate evaluation and insufficient justification for CM19.

- Additional costs imposed on local agencies by CM19 may have potentially significant impacts that should be evaluated as part of the BDCP effects analysis and EIR/EIS water quality assessment (Chapter 8). For example, to the extent that the proposed CM19 places a significant fiscal burden on local agencies, those agencies may be forced to defer or forego other improvements or programs designed to improve water quality or protect the environment.

Comprehensive Evaluation of Contaminant Sources and Prioritization of Contaminant Bases Conservation (Control) Measures

The urban runoff-focused CM19 is not justified. CM19 does not sufficiently address SMART, "specific, measurable, achievable, relevant, and time-bound," biological objectives as stated (BDCP page 3.3-3, lines 3-8). The BDCP provides no means to assess the effectiveness of meeting the goals for CM19. Impacts to covered species from contaminant sources should be sufficiently understood to result in cost effective benefits before implementing control measures. The evaluation of contaminant-based control measures in the BDCP and EIR/EIS should include a robust evaluation through a stakeholder process with consideration to the following components:

- Technical evaluations of all reasonable contaminant control measures for all source categories, implementation methods, and their resulting water quality performance should be performed to characterize benefits and costs.
- A computational fate and transport model that incorporates the technical source evaluations should be performed to examine the effect of sources and source control on downstream water quality. The evaluation should consider downstream Delta locations of interest to the covered species and the potential water quality impacts of the examined control measures.
- An appropriate characterization of the impacts and uncertainty of impacts of all sources on the covered species should be performed. The BDCP chapter identifies pesticides as the contaminant of particular concern (page 3.4-.27, line 11) and bases its general characterization of urban runoff quality and pesticide impacts on pyrethroid pesticide research. The cited Weston research does not demonstrate that upstream urban runoff sources cause Delta covered species toxicity miles downstream from stormwater outfalls, but this research instead shows a decreasing toxicity signal from upstream sources.[5] Once the existing and potential water quality conditions are

[4] Geosyntec. *Urban Runoff Source Control Evaluation for Central Valley Drinking Water Policy*. Prepared for California Urban Water Agencies. March 2011. http://www.waterboards.ca.gov/rwqcb5/water_issues/drinking_water_policy/dwp_urban_sources_study.pdf

[5] Weston DP1, Lydy MJ. *Urban and agricultural sources of pyrethroid insecticides to the Sacramento-San Joaquin Delta of California.* Environ Sci Technol. 2010 Mar 1;44(5):1833-40. doi: 10.1021/es9035573..

known at the downstream Delta locations of interest, an evaluation of the specific benefits to the covered species should be performed.

- Following the complete evaluation of contaminant sources and control effects on the covered species, the control measures should be prioritized based on the known benefits and costs of the control measures.

This approach would also generate alternative contaminant control measures that could be used to better perform specific evaluations in the EIR/EIS.

This evaluation of source controls and downstream benefits should be performed prior to including CM19 within the BDCP. The BDCP should designate funding to support stakeholder research, evaluations, and modeling so that any identified contaminant conservation measures can be appropriately evaluated.

Monitoring and Assessment Cost to Local MS4 Agencies

Local agency participation in planning conservation measures and other activities is vital to successful collaboration to restore and maintain the ecological health of the Delta. Further, implementation of the conservation measures to meet the Plan's goals will undoubtedly result in increased costs to local agencies to monitor and assess the effectiveness of the water quality improvement related activities. Local agencies' ability to generate funding to conduct these additional activities is subject to potentially significant limitations, including Proposition 218 and Proposition 26. For example, the operation, maintenance, and improvement of MS4s typically is funded by storm drainage rates, and under Proposition 218, a local agency can only increase storm drainage rates after (1) conducting a notice and protest process with a protest rate below 50%, and (2) obtaining voter approval for the increase from a majority of the ratepayers subject to the rate or from two-thirds of the electorate. Thus, the BDCP should include developing relationships among agencies, mobilizing the flow of technical information, and providing sufficient funding and resources to support water quality outcomes.

The BDCP should commit to participation with, and funding for, the Delta Plan, Delta Science Plan, and the Delta Regional Monitoring Program (RMP) and provision of additional resources (e.g., funding, monitoring, modeling, technical evaluation tools, etc. for local agencies) as a required action (i.e., not an additional action) with a known schedule. Source evaluation and effectiveness monitoring requirements should also be specifically funded by the BDCP, because the assessments are specific to covered species benefits.

COMMENT 2 - INSUFFICIENT COMMITMENTS FOR ADAPTIVE MANAGEMENT AND MONITORING PROGRAMS TO PROTECT UPSTREAM AND DELTA WATER QUALITY (AM)

The BDCP will be one of the most divisive and resource intensive public policy and infrastructure projects in recent California history. Already, hundreds of millions of dollars have been spent on planning, engineering, and technical assessments. However, the Partnership believes that the BDCP and EIR/EIS do not adequately commit, in level of detail or resources, to an ongoing assessment program that will provide quantitative assessments of effectiveness and evaluate the identified uncertainties of the BDCP. The

BDCP Effects Analysis does not compute the baseline effect of the pollutant stressors that are the basis of a conservation measure; therefore, how will the Adaptive Management Team evaluate effects and effectiveness of the conservation measures?

The BDCP admits that the Plan and its conservation measures (CMs) have considerable uncertainty with regard to ecosystem benefits and likely outcomes.[6] Adaptive management is implemented to allow conservation measure flexibility, and the focus is defined as assessing achievement in meeting the biological goals and objectives. There will be opportunity for revising conservation measures and biological objectives.[7] This places a critical role and powerful importance on adequately monitoring and assessing the system. Much of the monitoring and modeling in the BDCP, however, is relegated to a research action that should instead be discussed explicitly within the Effects Analysis with a mandated schedule. The adaptive management approach needs to have a transparent and comprehensive monitoring, modeling, and assessment program that can adequately quantify biological and water quality changes due to changes in flows, climate change, contaminant sources, physical changes, and reasonably anticipated beneficial use impacts. This should include verification of the effects analysis and an evaluation of the identified uncertainties. This assessment framework is not provided, even for the evaluation of current conditions, and there is no monetary commitment to provide such tools, data, and resources for the Stakeholder Council. The Science Program should allow bottom-up participation from local agencies; this is important so that joint solutions can be evaluated and implemented, as well as to avoid "serial engineering" by which one 'solution' causes another ecological or public policy problem. Local agencies should have a clear and significant role in BDCP decisions if modifications are considered to the CMs that will impact local agencies.

The EIR/EIS also identifies significant issues and mitigation activities that rely on adaptive management. However, the EIR/EIS does not identify or commit to follow-up actions in cases where mitigation measures are not effective or water quality conditions degrade further and cause impacts to beneficial uses.

The BDCP should include a clear, expanded description of the Adaptive Management program framework and the monitoring components and tools that will be used to make assessments, address uncertainties, identify unintended consequences of the BDCP, and propose changes to system operations. For example, a decision tree should be developed for interpreting scientific information relative to the management action and evaluating the certainty of the relationships, the benefit to covered species, and information needs and priorities. Within this decision tree, local agencies should have the ability to provide input and make management decisions when the outcomes affect them. Adaptive management can then be more effectively used in the EIR/EIS to describe mitigation activities.

There has not been a clear prioritization of management actions (conservation measures) to optimize available resources and mitigate effects to the covered species or other aquatic life impairments. Also, it is not clear from the BDCP whether CM1 can proceed

[6] BDCP, Chapter 3, 3.4.23, page 3.4-354, lines 8-12

[7] BDCP, Chapter 3, 3.4.23, page 3.4-354, lines 21-27

with or without the other conservation measures, if they are not completed or fully funded.

Additional information should be provided regarding the minimum number of conservation measures that are required to be implemented in order for CM1 to be operated, the course of action if funding is not secured for all the conservation measures, and whether CM1 exports can or will be restricted if other conservation measures are not successfully implemented.

The existing Interagency Ecological Program (IEP) structure is not thoroughly reviewed and justified in the BDCP to improve assessments. Other BDCP cited documents[8] have suggested formation of a Joint Powers Authority (JPA) that includes local agencies to develop the appropriate Delta science and assessments. For example, page 3.4-329, line 13 states that "The Adaptive Management Team will use results of effectiveness monitoring to determine if reducing stormwater pollution loads result in measurable benefits to covered fish species or their habitat and to identify adjustments to funding levels, control methods, or other related aspects of the program that will improve the biological effectiveness of the program." The form and technical basis for the assessment is not provided, and means of establishing relationships amongst sources, contaminant reductions and covered species is not identified

The BDCP should include development of a collaborative monitoring and assessment framework to support adaptive management. The BDCP also should be updated to include development of the baseline for assessments ***prior to implementation*** *of any/all conservation measures.*

COMMENT 3 - INSUFFICIENT EVALUATION OF WATER QUALITY IMPACTS (WQ)

The BDCP evaluation of water quality impacts is insufficient and lacks clear methods and summaries of effects. The BDCP Effects Analysis does not provide sufficient justification for CM19, and the EIR/EIS does not sufficiently evaluate BDCP water quality impacts. Several of the key inadequacies in the BDCP and EIR/EIS water quality assessments are described below and in the attached detailed comments. The inadequacies include failure to consider detailed quantitative impacts for all constituents of concern, failure to consider impacts at locations on the Sacramento River near to and upstream of the proposed CM1 North Delta intakes, and failure to sufficiently evaluate temperature effects on the municipal drinking water (MUN) supply beneficial use. In general, the presentation of the Chapter 5 effects is highly fragmented and is based on cross-references to appendices. This inefficient organization makes it difficult to interpret results.

The BDCP fails to assess water quality impacts on other beneficial uses (e.g., domestic and municipal drinking water) at areas just outside the Plan Area that will be impacted by CM1, CM2, and the related operational modifications to upstream reservoirs. In addition, the BDCP fails to assess the impacts of operational modifications to upstream reservoirs,

[8] Public Policy Institute of California. Stress Relief. Prescriptions for a Healthier Delta Ecosystem. April 2013

including water storage and release patterns. Water storage and release patterns have a great impact on the river hydrology and Delta outflow[9]. Furthermore, water storage and release patterns can have a significant effect on the quality of the water discharged to the downstream rivers (such as the Lower American River and Lower Sacramento River), as has been identified by the BDCP[10] and by Watershed Sanitary Surveys for those water bodies. Impacts to these rivers downstream of the reservoirs are evident in the BDCP temperature model runs of the project and alternatives; temperature impacts are projected to be even more significant in the future due to climate change impacts. The BDCP alternatives could also affect clarity (turbidity), organic carbon, metals, nutrients, and pathogens levels, as well as fate and transport impacts on other organics like pesticides[11]. The BDCP did not conduct an assessment of contaminant sources to prioritize where conservation measures would be best implemented. Finally, there is no apparent evaluation of cumulative impacts and synergistic effects of water quality constituents acting simultaneously.

These inadequacies should be addressed before implementation of the BDCP. The BDCP water quality evaluation should be expanded to include areas outside of the Plan Area that will be impacted by CM1, CM2, and the related operational modifications to upstream reservoirs; a broader scope of water quality constituents of interest; an assessment of sources of contamination; and an evaluation of cumulative and synergistic effects on water quality.

Lack of Quantitative Water Quality Assessments

There was a very limited water quality evaluation conducted as part of the BDCP. Temperature evaluations focused on species survival with no consideration of other beneficial uses, such as drinking water (disinfection by-product (DBP) formation in treated water)[12]. Salinity, dissolved oxygen, and turbidity[13] were evaluated as well as other constituents related to survival of the impacted species, including mercury, selenium and ammonia; however, these constituents were only evaluated in the Delta.[14] The BDCP does not adequately evaluate the water quality impacts of the BDCP in the action area[15], especially in the reach of the Sacramento River from Emmaton to Veterans Bridge. Computational watershed and surface water quality modeling for all constituents of concern should be performed to quantify potential changes and establish a monitoring program that can detect changes below impact or effect levels. An understanding of diversions, exports, and upstream sources and their relative contribution to downstream ecological issues is lacking. Modeling of sources and system dynamics, as was done in

[9] BDCP, Chapter 2, 2.3.3.3.1, page 2-26, lines 18-20

[10] BDCP, Appendix 5C, 5C.0, page 5C.0-1, lines 4-11

[11] Sacramento River Watershed Sanitary Survey 2010 Update, Section 3

[12] BDCP, Attachment 5.C.C.

[13] BDCP, Attachment 5.C.D.

[14] BDCP, Appendix 5D

[15] BDCP, Chapter 1, 1.4.1, page 1-21, lines 21-25

the Central Valley Drinking Water Policy, should be supported and further developed to plan activities and evaluate contaminant stressor impacts and controls.

The BDCP should use more robust and widely accepted assessment tools to assess the potential impacts and evaluate performance of conservation measures through the permit term. These tools should be made available by the BDCP implementing agencies for use by all stakeholders.

Incomplete Analysis in Areas Adjacent to CM1 and CM2

The BDCP does not substantially evaluate the effects of CM1 and CM2 in the "near-field" action area where these projects are proposed, specifically the Lower Sacramento River between Fremont Weir and the northern boundary of the statutory Delta. The BDCP concludes that the evaluated starting operations (ESO) water operations will have few to no effects on contaminants in the Delta (page 5.D-53). However, the evaluation should consider the impact of removing higher quality Sacramento River water and the increased contribution from lower quality San Joaquin River water into the Delta, especially in the areas adjacent to the proposed North Delta intakes and diversions. The area-specific impacts of the increased influence of the San Joaquin River on the Delta and effects near to the proposed BDCP North Delta intakes on the Sacramento River should be considered.

The BDCP should be revised to include a more detailed water quality assessment of the impacts of CM1 and CM2 on the Lower Sacramento River and the North Delta.

EIR/EIS Water Quality Impact Assessment

The EIR/EIS asserts that it has conducted a comprehensive review and analysis of the effects of the proposed Delta conveyance alternatives on water quality (BDCP EIR/EIS Highlights, page 5); however, it is incomplete. There are numerous errors and omissions in the evaluation. The focus of the study is largely limited to select locations and did not sufficiently assess the impacts to water quality below the major reservoirs and upstream of the Delta, as well as the areas in the vicinity of the CM1 intakes and CM2 diversion. The water quality impacts described in EIR/EIS Chapter 8 have the following inadequacies:

- Insufficient characterization of water quality impacts in the Lower Sacramento River from Veterans Bridge to Emmaton.
- Insufficient use of available computational models to assess impacts on constituent concentrations rather than just hydrodynamics.
- Inadequate summaries of water quality impact findings for baseline and alternatives.
- Insufficient and erroneous characterization of several key constituents.

Adequate water quality assessments should be performed to correct these insufficiencies and inadequacies so that the impacts can be correctly understood and it can be determined whether the proposed mitigation is adequate to minimize impacts to water quality. The Partnership is providing specific comments on the EIR/EIS in Attachment 2 related to the sufficiency of the water quality analysis and supporting evaluations.

Assessment Locations and Analysis of Impacts

The evaluation in the EIR/EIS water quality assessment (Chapter 8) needs to be expanded to provide an accurate and more complete assessment. Chapter 8 primarily bases water quality impact conclusions on a limited number of sample locations and does not perform a detailed analysis of impacts in the area around the proposed North Delta intakes on the Sacramento River, specifically between Emmaton and Veterans Bridge.

Computational Models and Water Quality Evaluation

The EIR/EIS states (page 8-130, lines 28-30) that the analysis is quantitative only where "modeling tools were developed and were available, and qualitatively assesses effects where appropriate modeling tools were unavailable". Many such computational models exist for many of the constituents and river reaches not evaluated in the EIR/EIS. A project of this scope and potential impact has the resources to develop and utilize these tools necessary for adequate analyses.

The water quality evaluation presented in Chapter 8 of the EIR/EIS, and supported by numerous appendices, is insufficient in several ways:

- Inadequate definition of constituents of interest and collection of adequate data (36 constituents with drinking water standards were not included in the Screening Analysis),
- Inadequate assessment of contributions from various sources in the watersheds, and
- Insufficient representation of all areas impacted by BDCP operations (specifically the areas upstream of the Delta and on the Sacramento River up to all major water intakes).

In addition, the water quality analysis methodology utilized inappropriate data evaluation procedures, and the supporting water supply modeling is flawed in numerous assumptions, such as not including the hydrodynamic impacts of CM2 on the water quality of the Lower Sacramento River.

Inadequate Summaries of Water Quality Impact Findings for Baselines and Alternatives

EIR/EIS Section 8.1.6 refers to two different baselines (the CEQA and NEPA baselines), and the evaluation of water quality impacts in 2060 yields information that is extremely difficult to understand or verify. A simple analysis of near term water quality changes from existing ambient water quality is needed to provide the public with understandable information, to provide context/grounding for the long term impacts that are presented, and to allow a proper assessment of compliance with state and federal antidegradation policies.

The BDCP Chapter 5 Effects Analysis and its appendices are difficult to review due to organization problems, inconsistencies, and inadequate cross-referencing. For example, Chapter 5 includes many cross-references to other large documents without specific page numbers and sections. It is then a significant effort to review thousands of pages of appendices to try to find the referenced information with little assurance that it is the correct reference. The chapter makes the interpretation of net effects of BDCP

implementation difficult at best. The Independent Panel charged with review of the Effects Analysis has stated that it "universally believes that by itself, Chapter 5... inadequately conveys the fully integrated assessment that is needed to draw conclusions about the Plan…" [Delta Science Program Independent Review Panel Report (DSP-IRP Report), BDCP Effects Analysis Review, Phase 3, March 2014, page 5]

Selected Constituents with Insufficient or Erroneous Assessments in BDCP EIR/EIS

The specific technical issues with the findings for the preferred alternative (Number 4) impact assessment on water quality (Chapter 8) for nine constituents, or classes of constituents, is discussed below.

Pesticides and Herbicides

Assessment Type	*CEQA Assessment Finding for Alternative 4*	
Qualitative	*CM1 (WQ-21)*	*Less than significant*
	CM13 (WQ-22)	*Significant and Unavoidable*

Technical Issues with Finding

Insufficient analysis of sources affecting Delta aquatic life

Page 8-83 lists a number of sources to the Delta, but it does not evaluate the relative contribution from these sources and the fate and transport of pesticides and herbicides in the Delta. The Weston, *et. al.* research cited in the EIR/EIS primarily examines urban tributaries and locations near urban runoff outfalls and POTW effluent. Data collected by the Partnership show significant concentration decreases of pyrethroids from the source to the Delta, such that river concentrations are lower than known effect levels. This is also consistent with the Department of Pesticide Regulation (DPR) findings in similar work.[16]

Inaccurate time period characterization

In several instances (page 8-83 line 40, Table 8-23, Table 8-24, Table 8-25, page 8-86 lines 12-19, page 8-164 lines 8-11), organophosphate (OP) pesticides data are evaluated prior to the 2005 California ban of urban uses (all diazinon and most chlorpyrifos uses). The use of this data may lead to inaccurate characterization of current concentrations. More recent data (i.e., 2005-2014) should be used to provide an accurate representation of existing conditions. It is not sufficient to say that pyrethroid pesticides will affect aquatic species in the same way as OP pesticides, since it is known that their environmental toxicity, half-life, and transport modes are different.

[16] http://www.cdpr.ca.gov/docs/emon/surfwtr/presentations/ensminger_2014_jan_13_pyrethroid_trends.pdf

Inaccurate and insufficient characterization of available data

Page 8-85 states that "Limited data and studies are available for characterizing the existing conditions of pesticide concentrations in the study area," which is misleading and inaccurate. This statement is repeated elsewhere and is not substantiated or investigated further (page 8-163, lines 35-37, page 8-165 lines 8-9). Data gaps should be clearly stated and prioritized such that they can be addressed through better research or collected as part of the BDCP Adaptive Management.

This inaccurate and insufficient characterization is reinforced by the readily available data from a number of public sources. For example, the Partnership collects Sacramento River data through the Coordinated Monitoring Program, USGS has an active Delta pesticide monitoring program[17], DPR also has active monitoring programs and available data in and around the Delta[18], and areas upstream of the Delta are monitored through the Regional Water Quality Control Board's Irrigated Lands Regulatory Program[19].

Failure to recognize the role of the California Department of Pesticide Regulation and EPA in regulating pesticide usage

Page 8-84 lines 23-33 describe DPR activities, but do not recognize that DPR and EPA approve pesticides for usage that local agencies are statutorily prohibited from restricting.

State of knowledge regarding pesticide effects on the Pelagic Organism Decline (POD)

The EIR/EIS summary of the Johnson, et. al. report (2010) omitted a key finding regarding contaminants and the Pelagic Organism Decline (POD):

> *Consequently, the results of the six comparisons for chemistry, toxicity, and histological data were placed into a weight of evidence context. The conclusion that is drawn from the analyses is that while contaminants are unlikely to be a major cause of the POD, they cannot be eliminated as a possible contributor to the decline.* [20].

While this conclusion is not specific to pesticides, pesticides were the focus of the evaluation and predominate the robust dataset. Furthermore, it is inaccurate to characterize the state of knowledge on pesticides as insufficient for the purposes of the EIR/EIS. Certainly, there are adequate data and information to make meaningful and quantitative assessments. Even the "dynamic state of the pesticide market" (page 8-164, line 23) can be well-quantified with detailed use, sales, and application rates that are reported every year.

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[17] http://ca.water.usgs.gov/projects/PFRG/CurrentProjects.html

[18] http://www.cdpr.ca.gov/docs/emon/surfwtr/surfcont.html

[19] http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/water_quality_monitoring/index.shtml

[20] http://www.waterboards.ca.gov/rwqcb5/water_issues/delta_water_quality/comprehensive_monitoring_program/contaminant_synthesis_report.pdf

Inaccurate and insufficient assessment of impact of State Water Project (SWP) and Central Valley Project (CVP) on pesticide use

Any changes in the available water for agriculture will change the timing and extent of pesticide application. Moreover, Impact WQ-21 (page 8-275 lines 26-29, page 8-463 lines 11-23, etc.) is considered a non-adverse impact though there is no evaluation of how decreases in flow (see Appendix 8L, Table 2) in the upstream areas will concentrate pesticides.

Insufficient assessment of additive toxicity

The assessment also does not evaluate the additive toxicity component of pesticides that is included in current and proposed Total Maximum Daily Loads (TMDLs) and Basin Plan Amendments affecting the Plan and Study areas[21,22].

The aforementioned omissions and inaccuracies should be addressed and the EIR/EIS should include a quantitative assessment of changes in pesticide concentrations for the baseline and BDCP alternatives. A reasonable range of known pesticides should be considered in the context of additive toxicity as described in the Sacramento River Basin and San Joaquin River Basin Plan (page IV-34.00).

Methylmercury (WQ-13)

Assessment Type	*CEQA Assessment Finding for Alternative 4*	
Quantitative (limited to the Delta)	*CM1*	*Less than significant*

Technical Issues with Finding

Insufficient assessment of the effect of reservoir level on methylmercury and mercury concentration Page 8-443, lines 9-15, states that there were not strong correlations between methylmercury concentrations and flow; however, a more relevant relationship might be with reservoir stage and/or inputs and operations of wetlands or wetland-like facilities. Since detailed modeling was not performed on the sources, sinks, and fate and transport of methylmercury, a broader range of analyses should be conducted to assess the impacts of the BDCP operations of CM1 as well as other conservation measures.

Insufficient assessment of compliance with Delta Methylmercury TMDL

The EIR/EIS does not address how CM1 would meet the requirements of the TMDL to decrease methylmercury concentrations in the Delta.

Impact WQ-13 should be reevaluated based on other operational relationships (e.g., reservoir stage, turbidity, pH, etc.). Consistency with the TMDL should also be evaluated.

[21] http://www.waterboards.ca.gov/rwqcb5/water_issues/tmdl/central_valley_projects/central_valley_pesticides/20140103_cv_dc_bpa_stfrpt.pdf

[22] http://www.waterboards.ca.gov/rwqcb5/water_issues/tmdl/central_valley_projects/central_valley_pesticides/pyrethroid_tmdl_bpa/index.shtml

Methylmercury (WQ-14)

Assessment Type	*CEQA Assessment Finding for Alternative 4*	
Quantitative (limited to the Delta)	*CM2-CM22*	*Significant and unavoidable*

Technical Issues with Finding

Insufficient assessment of mitigation measures

While several possible control approaches are discussed (page 8-446, lines 24-38), they are not evaluated in sufficient detail to assess the potential benefits or negative outcomes (e.g., reduced flow, secondary contaminants due to chemical dosing for methylmercury control, etc.).

Insufficient assessment of compliance with Delta Methylmercury TMDL

The EIR/EIS does not address how CM2 through CM22 would meet the requirements of the TMDL to decrease methylmercury concentrations in the Delta or meet subarea wasteload allocations.

Additional assessments of mitigation measures should be performed as part of the EIR/EIS water quality evaluation. Consistency with the TMDL should also be evaluated.

Pathogens (WQ-19 and WQ-20)

Assessment Type	*CEQA Assessment Finding for Alternative 4*	
Qualitative	*CM1*	*Less than significant*
	CM2-CM22	*Less than significant*

Technical Issues with Finding

Insufficient analysis of the effect of temperature increases on pathogen and surrogate concentrations and growth

Temperature modeling identified increases in several areas, including the upstream reservoirs and rivers; however, impacts to drinking water intakes were not specifically evaluated.

Inaccurate and incomplete general statements regarding pathogen decay rates

In multiple cases (page 8-208, lines 9-14), it is stated that pathogens may not be historically detected because of rapid die-off"; while this may be true for some bacteria, this broad statement does not adequately recognize the significantly lower decay rates of protozoa, such as Giardia and Cryptosporidium.

Insufficient analysis of the impact of restoration areas on pathogen concentrations

Restoration areas are potential sources of pathogens from wildlife that are not considered and could pose an impact to beneficial uses. The Central Valley Drinking Water Policy

(July 2013 Basin Plan Amendment) concluded that current conditions were supportive of the MUN beneficial use; however, the trigger values in the Policy could be exceeded with only small increases in observed intake concentrations from the proposed restoration areas.

Incomplete analysis of the impact of CM2 on pathogen concentrations

CM2 will impact the hydrologic conditions in the Lower Sacramento River and, thus, may impact the concentration of pathogens and surrogates in that area.

An additional assessment of pathogens and surrogates related to restoration area impacts, decay rates, the effect of temperature, and the effect of CM2 should be performed as part of the EIR/EIS water quality evaluation.

Dissolved Organic Carbon (WQ-17 and WQ-18)

Assessment Type	*CEQA Assessment Finding for Alternative 4*	
Quantitative (limited to the Delta)	*CM1*	*Less than significant*
	CM4-CM7 and CM10 (with Mitigation Measure WQ-18)	*Significant and unavoidable impacts*

Technical Issues with Finding

Insufficient assessment CM1 effects on TOC based on reservoir operation

The EIR/EIS assumes that the lack of correlation of flows with organic carbon concentrations is a basis to conclude that CM1 will not change organic carbon concentrations (page 8-452, lines 8-14). However, if this correlation approach is used, a broader range of factors and more detailed examinations should be performed in critical areas. In the larger system, certain factors may offset each other, and the timing of effects over the larger system can also make these correlation evaluations less powerful.

Insufficient scope of quantitative assessment

The quantitative assessment of organic carbon was limited to the Delta and does not provide any meaningful evaluation of impacts to other areas adjacent to the Delta, such as the Lower Sacramento River that may be significantly impacted by CM1 and CM2.

Mitigation measure WQ-17 is insufficient and vague

The proposed mitigation measure (page 8-458, lines 8-38) suggests means to reduce export of organic carbon from restoration areas and then concludes that this may be in conflict with the stated goals of the BDCP. While the BDCP provides limited environmental commitments to upgrade selected water treatment facilities located in the Delta, the assessment should be broader and provide a method to more specifically identify which treatment plants will require upgrades and how this approach is consistent with the Basin Plan and water quality regulations. The Central Valley Drinking Water

Policy Workgroup prepared a detailed computational model of organic carbon in the Central Valley and Delta, which may assist with the needed evaluations.

Incomplete analysis of the impact of CM2 on organic carbon concentrations

CM2 will impact the hydrologic conditions in the Lower Sacramento River and thus may impact the concentration of organic carbon in that area.

The BDCP should provide additional assessments of the effects of CM2 and related reservoir operations on organic carbon in localized areas; expansion of the quantitative assessment area is also necessary.

The cumulative effects from CM1-CM22 should be evaluated for impacts to MUN beneficial uses. The Central Valley Drinking Water Policy Workgroup developed models of the organic carbon system that should be used as examples of an adequate approach for assessment. That group also evaluated the drinking water treatment requirements based on changes in source water that should be used for assessment of beneficial uses.[23]

EC, Chloride, and Bromide (WQ-5, WQ-6, WQ-7, WQ-8, WQ-11, and WQ-12)

Assessment Type	*CEQA Assessment Finding for Alternative 4*
Quantitative (limited to the Delta)	*Varies by constituent and CM* *Less than significant to Significant and Unavoidable with Mitigation Measures*

Technical Issues with Finding

Inaccurate assessment of climate change impacts

The BDCP asserts (page 8-184, lines 9-12, page 8-187, lines 19-22, and page 8-194, lines 40-43) that the concentration of these constituents in the Sacramento River would not be impacted by climate change in the No Action Alternative. This is incorrect as EC, chloride, and bromide could all increase in the Sacramento River in the event of sea level rise, increased tidal amplitude, or increased reverse flow events.

EC, chloride, and bromide assessments should be revised with shorter-term averaging and account for the potential impacts caused by climate change.

[23] http://www.waterboards.ca.gov/centralvalley/water_issues/drinking_water_policy/dwp_trtmnt_eval_rpt.pdf , Chapter 5

Temperature

Assessment Type	*CEQA Assessment Finding for Alternative 4*
Quantitative	*Not considered in Chapter 8 water quality impacts*

Technical Issues with Finding

Insufficient assessment of temperature changes on drinking water treatment

The analysis focuses on effects on aquatic life and does not include temperature as part of the water quality impact assessment for other beneficial uses, such as MUN (page 8-129, lines 17-20).

The EIR/EIS should address the insufficient assessment of temperature effects on MUN beneficial uses.

Metals (WQ-27 and WQ-28)

Assessment Type	*CEQA Assessment Finding for Alternative 4*	
Qualitative	*CM1*	*Less than significant*
	CM2-CM22	*Less than significant*

Technical Issues with Finding

Insufficient assessment of the effect of reservoir level on metals concentrations

Page 8-219, lines 34-42, state that there were no strong correlations of dissolved metals concentrations and river flow; however, a more relevant relationship might be between the reservoir stage and dissolved metals.

The EIR/EIS should evaluate metals concentrations and correlations with other operational parameters, such as reservoir stage, to fully evaluate impacts.

Aluminum

Assessment Type	*CEQA Assessment Finding for Alternative 4*
None	*Not evaluated*

Technical Issues with Finding

Insufficient assessment of aluminum impacts to beneficial uses

Aluminum was not included in the analysis; however, aluminum concentrations in the Delta can sometimes exceed relevant aquatic life and drinking water objectives. This constituent is especially important to drinking water treatment since it is a primary coagulant used to remove solids, and changes in source water concentrations can impact

treatability. Any projects disturbing soil, increasing turbidity, or using coagulants have the potential to increase aluminum concentrations and potentially impact beneficial uses.

Aluminum should be evaluated for impacts through available modeling of the BDCP and alternatives.

Selenium (WQ-25 and WQ-26)

Assessment Type	*CEQA Assessment Finding for Alternative 4*	
Quantitative (limited to the Delta)	*CM1*	*Less than significant*
	CM2-CM22	*Less than significant*

Technical Issues with Finding

Insufficient analysis of unknowns and potential increases in selenium

The CM2-CM22 analysis concludes that selenium biotic uptake may be increased by the increased residence time in the restoration areas (8-286 lines 1-3) and then suggests that the restoration areas should be designed and operated as flow-through to minimize impacts. However, such operation may be inconsistent with the wetland needs and in some cases could result in the increased discharge of methylmercury and organic carbon while minimizing the habitat benefits of the restoration areas.

The EIR/EIS's analysis of CM2 through CM22 should consider the cumulative impacts on each of the constituents and constraints for restoration area operation.

COMMENT 4 - INCONSISTENCY WITH ANTIDEGRADATION POLICY AND WATER QUALITY REGULATION (WQ)

The BDCP and EIR/EIS assert that the documents are consistent with state and federal water quality regulations, because EPA and the State Water Resources Control Board (State Water Board) were given the opportunity to contribute and review these documents.[24] However, the BDCP and EIR/EIS do not provide any documentation of this compliance assessment, and the BDCP and EIR/EIS do not clearly demonstrate consistency with state and federal antidegradation policies.

Antidegradation policies have been issued at both the federal and state level. These policies are intended to protect existing water quality and associated beneficial uses. The federal policy is expressed as a regulation in 40 CFR § 131.12. The federal antidegradation policy requires protection of existing in-stream uses and water quality necessary to protect those uses. The federal policy also requires maintenance and protection of water quality beyond that required to support propagation of fish, shellfish and wildlife, and recreation (i.e. meet "fishable, swimmable" standards) when high water quality exists, unless a state finds that lower water quality is necessary to accommodate important economic and social development. The State of California (State) policy,

[24] BDCP, Section 1.3.7.10, page 1-20, lines 27-30

adopted in 1968 as a resolution of the State Water Board (Resolution 68-16), addresses the need to maintain high quality waters in California consistent with maximum benefit to the people of the State. USEPA Region 9 also provided guidance on implementing the antidegradation provisions.[25] These guidance documents clearly suggest that projects like BDCP are required to meet antidegradation requirements. However, the BDCP does not explicitly state how the BDCP is consistent with the federal and state policies.

Applicability of Antidegradation

The USEPA Region 9 guidance document specifies that actions subject to antidegradation requirements include "3. Other "major Federal actions" (pursuant to NEPA and the Endangered Species Act)" and "4. Water quantity/water rights actions which affect water quality."

Waters are classified in three "tiers" relative to the existing beneficial uses that are supported. Antidegradation is applied on a parameter-by-parameter basis.[26] Tier 1 (Section 131.12(a)(l)) waters are the minimum acceptable level where beneficial uses are protected. It is inconsistent with the antidegradation regulations to further degrade conditions such that the beneficial use is not supported. Tier 2 "high-quality waters" are those whose quality exceeds that necessary to protect the section 101(a)(2) goals of the Clean Water Act, regardless of use designation. Classification as a "Tier 2 high quality water" is assessed on a parameter-by-parameter basis and does not have to be a general condition for the water body. In "high-quality waters," under 131.12(a)(2), before any lowering of water quality occurs, there must be an antidegradation analysis. Water quality may not be lowered to less than the level necessary to fully protect the "fishable/swimmable" uses and other existing uses. Tier 3 waters are Outstanding National Resource Waters (ONRWs) that are provided the highest level of protection under the antidegradation policy. Section 131.12(a)(3) does not allow degradation of these waters. Tier 1 and Tier 3 waters cannot be degraded.

Specific Findings in EIR/EIS Supporting Need for Complete Antidegradation Analysis

The EIR/EIS performs a screening on a constituent-by-constituent basis to identify problematic constituents, but it does not follow with findings on antidegradation or justification for not considering it. For this screened subset of constituents, the EIR/EIS CEQA and NEPA findings are based on quantitative or qualitative assessment comparisons to water quality objectives. The constituent-by-constituent evaluation and screening process do not sufficiently address antidegradation analysis requirements.

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[25] USEPA Region 9. *Guidance on Implementing the Antidegradation Provisions of 40 CFR 131.12*. June 3, 1987. http://water.epa.gov/scitech/swguidance/standards/adeg/upload/Region9_antideg_guidance.pdf

[26] State Water Resources Control Board. *Federal Antidegradation Policy*. October 7, 1987. http://water.epa.gov/scitech/swguidance/standards/wqslibrary/upload/2009_16_3_waterscience_standards_wqslibrary_ca_ca_9_fed_anti_pol.pdf

There are numerous instances where the BDCP should trigger a detailed antidegradation analysis, which would evaluate whether the proposed project is to the benefit of the people of the State compared to an alternative. The BDCP, however, fails to adequately do so.

For example, the EIR/EIS California Environmental Quality Action (CEQA) finding for methylmercury states that (page 8-447, lines 8-12):

> *Methylmercury is 303(d)-listed within the affected environment, and therefore any potential measurable increase in methylmercury concentrations would make existing mercury-related impairment measurably worse. Because mercury is bioaccumulative, increases in waterborne mercury or methylmercury that could occur in some areas could bioaccumulate to somewhat greater levels in aquatic organisms and would, in turn, pose health risks to fish, wildlife, or humans.*

The EIR/EIS CEQA finding for dissolved organic carbon states that (page 8-457, lines 37-40):

> *The potential for substantial increases in long-term average DOC concentrations related to the habitat restoration elements of CM4 through CM7 and CM10 could contribute to long-term water quality degradation with respect to DOC and, thus, adversely affect MUN beneficial uses.*

These are but two specific examples of statements that occur throughout the EIR/EIS (see Attachment 2 for other examples) that document that concentrations will increase and worsen existing impairments or cause new impairments, which is inconsistent with both the Delta Methylmercury TMDL and Basin Plan water quality objectives.

The EIR/EIS does not directly address consistency with the antidegradation policies, but it instead implies consistency through the evaluation of water quality criteria (page 8-17, line 7):

> *Each Regional Water Board's Basin Plan identifies numeric and narrative water quality objectives, together with the beneficial uses assigned to water bodies and the state antidegradation policy.*

It is not clear from this statement how the antidegradation determination and analysis were performed. No supplemental information is provided to demonstrate consistency with the antidegradation policies, which are codified regulations.

Antidegradation Tests and Analysis Components

The antidegradation policies require that existing (Tier 2) high quality waters be maintained to the maximum extent possible unless certain antidegradation findings are made. The requisite three pronged test includes demonstrating that any changes to water quality are: (1) consistent with the maximum benefit to the people of the State; (2) will not unreasonably affect beneficial uses; and (3) will not violate water quality standards. Additionally, the proposed project should consider the best practicable treatment or control (BPTC) necessary to assure that no pollution or nuisance will occur and that the highest water quality consistent with the maximum benefit to the people of the State will be maintained. This analysis of whether a proposed activity will degrade high quality waters needs to be completed prior to proceeding with the proposed project.

The antidegradation analysis should make specific determinations of impacts to water quality and beneficial uses, as well as consistency with TMDLs and water quality regulations. If there are non-negligible impacts, it is necessary to evaluate alternatives that would mitigate or correct the impacts. Any impacts must be in the best interests for the people of the State as demonstrated through a socioeconomic impact analysis.

The State Water Resources Control Board issued guidance (APU 90-04) to all Regional Water Quality Control Boards regarding the implementation of antidegradation policies in NPDES permits. While APU 90-04 is specific to NPDES discharges, the analysis requirements provide guidance for structuring the minimum BDCP antidegradation analysis for these Tier 2 waters.

The BDCP document, at a minimum, should be revised to include the applicable components of the "complete" analysis recommended in APU 90-04:

- *Determination of whether the project will produce minor effects which will not result in a significant reduction of water quality; and*
- *Determination of whether proposed load increases are substantial.*

Factors to be considered in determining whether a project is necessary to accommodate important economic or social development and is consistent with maximum public benefit are:

- *Past, present, and probable beneficial uses;*
- *Economic and social costs to maintain water quality compared to the benefits;*
- *Environmental aspects of the proposed discharge; and*
- *Consideration of feasible alternative control measures which might reduce, eliminate or compensate for negative impacts of the project.*

Total Maximum Daily Load Compliance

The BDCP does not specifically evaluate compliance with the Delta Methylmercury TMDL, which specifies load allocations for subareas of the Delta. Several of the proposed conservation measures (2, 3, 4, 5, 7, 8, 9, 10, and 11) are restoration or habitat enhancement activities that have the potential to increase methylmercury concentrations within, or tributary to, the TMDL area. The BDCP does not propose how these activities will affect the subarea load allocations or the allocations for wetlands in the TMDL. Other TMDLs, such as those for pesticides, also are not specifically addressed and should be included in the evaluations when activities may not support the TMDL goals.

The appropriate antidegradation analysis should be conducted with specific determinations of impacts to water quality, beneficial uses, and consistency with Total Maximum Daily Loads (TMDLs) and water quality regulations.

COMMENT 5 - LACK OF MEANINGFUL ROLE FOR LOCAL AGENCIES IN BDCP GOVERNANCE (LOC)

The Partnership recognizes and supports the proposal to include a Stakeholder Council for municipalities, non-governmental organizations, and the general public (page 7-1,

lines 37-39), as this provides outreach and opportunities to respond to decisions by the Program Manager, Adaptive Management Team, and Permit Oversight Group. However, the Partnership and the ratepayers we represent have a significant financial and natural resource stake in the outcomes of the BDCP and therefore need to be afforded a more significant role in BDCP implementation and assessments. As noted on BDCP (page 7-26, lines 5-9), the California Natural Resources Agency is working with counties to develop a program with more significant county involvement in BDCP implementation. The local municipalities have a similar stake as counties in water supply, land use, NPDES regulation, and water quality issues and should be included in discussions regarding this implementation role.

For example, the BDCP describes the implementation of CM19 for urban runoff treatment through NPDES permits (page 3.4-327, lines 17-24), which include comprehensive stormwater management and pollutant reduction programs. However, the BDCP does not provide technical development of a baseline for urban runoff effects on the covered species or a description of how future assessments of effectiveness would be made by the Adaptive Management Team (e.g., quantitative benchmarks, modeling tools, etc.). The far-reaching assertion of "implementation of CM19 through the NPDES permits" suggests an active role in permitting by the Implementation Office and direct tie-ins between the BDCP and MS4 permits. In this scenario, local agencies input of their scientific assessments is limited to their respective NPDES permit renewals, which is potentially well after the Adaptive Management Team has published its effectiveness assessments.

Local government should be given a more significant role in management of the BDCP to the extent that the BDCP will impact local water supply, water quality, and land use planning. The role should allow local agencies representation on the adaptive management issues that impact them.

COMMENT 6 - TECHNICAL ERRORS AND OMISSIONS (ERROR)

The BDCP and EIR/EIS inaccurately characterize several issues as general knowledge. Characterization of urban runoff and its impacts on the Delta, the use of outdated orthophosphate (OP) pesticide data, and the ambiguity around the Plan Area are three issues that necessitate better clarity and justification.

Characterization of Urban Runoff

On page 3.4.327, the BDCP states that "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, et. al. and Amweg studies neither evaluate the pesticide loading to the Delta nor conclude that stormwater is the "leading source of water pollution". On page 3.4.327, it is stated that "Pyrethroid chemicals used as pesticides on suburban lawns are of particular concern, and are delivered to the Delta system by runoff." The Werner et al. (2008, page 8) conceptual model report cites a Weston (2007) paper when stating that "Urban use of pyrethroid insecticides and subsequent transport into surface waters may be a significant contributor to the contamination of rivers with pyrethroids." However, the conclusion is actually not that such contamination has been confirmed through observational studies in

the Delta, but rather that it may be possible. Characterization of the cited work as definitive is inaccurate. A better understanding of how urban runoff and pesticides affect covered species is necessary before designing and piloting control measures. A prioritization of control measures is necessary before their implementation.

These Weston and Amweg studies evaluated upstream creek sediments, primarily 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, which is consistent with the Partnership's assessment through the SSQP and Coordinated Monitoring Program (CMP). To date, the connection between toxicity to covered species in the Delta and Sacramento urban runoff pyrethroid concentrations has not been established. It is a scientifically-unfounded technical leap to assume that urban runoff is a large contributor to covered species toxic loads in the Delta. In addition, this also ignores the significant benefits of water quality management programs upstream of the Delta, as noted at the beginning of these comments.

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. That report does not show urban stormwater runoff as the leading source for any of the receiving water types. The assessments in the EIR/EIS are primarily based on 303(d) impairment listing causes, which can be biased by more frequent sample collection and targeted source sample collection.

The BDCP should provide more specific (e.g., primary source, page number, etc.) references to the general and definitive statements regarding urban runoff as a water quality issue and provide a more balanced evaluation to include the benefits of existing municipal stormwater management programs.

Historic Organophosphate Pesticide Data Not Relevant

Data from 2006, and before, are consistently used through the analysis and discussion to draw conclusions on pesticides. Page 5.D-48 the BDCP states:

> *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 the urban use bans have been effective since 2005 and improved dormant orchard spray application guidance

was implemented in 2000. More recent data is readily available to confirm the improved conditions for OP pesticide concentrations and should be referenced.

The pesticide evaluation should be performed with a more recent data set that reflects current conditions. The BDCP and EIR/EIS should use robust datasets and evaluations that are available from DPR, USGS, local agencies, and regional partnerships.

Definition of the Plan Area and Inclusion of Conservation Measure Areas

The scope of the Plan Area is ambiguous with regards to areas directly impacted by conservation measures, and it is unclear if the omission of most of the urban Sacramento area is intentional. On page 1-3, the BDCP Plan Area is defined as covering "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 and Figure 1-1). The referenced map does not identify significant upstream areas, but the use of "such as" implies "but not limited to." This statement and Figure 1-1 appear to confine the Plan Area to the legal Delta area and some restoration areas and suggests that the urban areas used for stormwater treatment in CM19 and the Lower Sacramento River downstream of Fremont Weir (CM2) are not included in the Plan Area. The description of the Plan 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.

The Partnership requests that the BDCP provide precise definitions of the Plan Area and justification for inclusion of the areas selected for the Plan Area.

Errors and Omissions

The Partnership understands that a document the size and scope of the BDCP would have technical and editorial errors. Various errors and omissions are identified in Attachment 1 (BDCP) and Attachment 2 (EIR/EIS).

These errors and omissions should be reviewed and addressed.

In closing, we once again appreciate the opportunity to provide comments on the BDCP Public Review Draft and the associated Draft EIR/EIS.

Sincerely,

Sacramento Stormwater Quality Partnership

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Attachment 1. Sacramento Stormwater Quality Partnership 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.
1.3.7.10	1-20	27-30	WQ, AM	The State Water Board's participation in the development of the BDCP and in the environmental review process is intended to ensure consistency between the actions described in the BDCP and those required by the State Water Board as part of its water quality control planning and implementation activities.	The BDCP document does not explain how the State Water Resource Control Board's participation ensures compliance with the Basin Plan, TMDLs, or other laws and water quality requirements that include the State Antidegradation Policy. The BDCP should include a detailed analysis and assessment of compliance with water quality policy.
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).
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.

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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.
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?

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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.
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.

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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.	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.
3.3.7.6	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.
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.

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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.
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.

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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.
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		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.
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.

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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.
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.

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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.
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.

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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	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.
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.

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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.
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.

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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.
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.

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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 Antidegradation and the EIR/EIS. 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.
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.

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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.

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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
WARMF	Watershed Analysis Risk Management Framework
WWTP	Wastewater Treatment Plant

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Section	Page	Line	Type	Key Document Text	Comment
Highlights	5		WQ, WS	The environmental review process has the following key objectives:Identify environmental impacts. Identify economic impacts. Evaluate reasonable alternatives that could avoid or minimize those impacts. Develop mitigation (ways to reduce or avoid environmental impacts). Provide information for public review and comment. Disclose to decision makers the project impacts, mitigation, and public comments.	The BDCP asserts that the environmental review process has identified environmental and economic impacts; however, this is not provided in the EIR/EIS. Also, it states that it has evaluated reasonable alternatives to avoid or minimize those impacts or provided mitigation, which is also not provided in the EIR/EIS.
Highlights	5		WQ, WS	Provided a comprehensive review and analysis of the following: … The effects of Delta conveyance alternatives on water quality.	The BDCP asserts that the water quality review was comprehensive. However, there are many errors and omissions in the data assessment and a complete focus on Delta water quality for exporters, with very limited evaluation of upstream of Delta.
ES	1	19-21	WQ, CM19	The BDCP EIR/EIS has been prepared for the purpose of analyzing and disclosing the potential environmental effects and effects on the human environment associated with the alternatives and to identify potentially feasible ways to avoid, minimize, or mitigate adverse effects.	While there are options available to manage stormwater (e.g., pollutant source control, runoff treatment, and maintenance of conveyance systems), some elements are beyond local agencies' control, including the timing, duration, and magnitude of rainfall or the air deposition of pollutants, such as mercury and some pesticides. Furthermore, some best management practices are effective on only some pollutants. Identifying a local management program as a mitigation for the BDCP provides the potential for inconsistent goals between the regulatory programs and those of CM19, which are focused on protection of the two smelt species of fish and green sturgeon by generally reducing stormwater loading.
ES	1	26-27	WQ, WS	The conservation strategy is designed to restore and protect ecosystem health, water supply, and water quality within a stable regulatory framework.	The EIR/EIS states that the conservation strategy is to restore and protect water quality. Water quality should be protected upstream of the proposed North Delta intake, including all beneficial uses.
ES	1,3	19-21, 3-5	WQ, CM19, WS	The BDCP EIR/EIS has been prepared for the purpose of analyzing and disclosing the potential environmental effects and effects on the human environment associated with the alternatives and to identify potentially feasible ways to avoid, minimize, or mitigate adverse effects. Impacts on human, physical, and biological resource areas (see Section ES.8.1 for a list of resource areas/topics included in the evaluation) are presented in the document.	The EIR/EIS has significant omissions on analysis and disclosure of the potential environmental effects and the effects on the human environment, and on identification of potentially feasible ways to avoid, minimize, or mitigate adverse effects.
ES.1.1	3	37-40	LOCAL, CM19	For BDCP CM2–CM22, the EIR/EIS intends to present a program-level analysis consistent with the level of detail provided in the BDCP. Therefore, for CM2–CM22, the potential exists for additional CEQA/NEPA environmental review and associated permit actions to be required prior to implementing these conservation measures.	The BDCP unfairly shifts environmental documentation costs to agencies performing conservation measures. As a program-level analysis, the BDCP should evaluate these costs and develop funding plans.
ES.1.1	4	8-9	LOCAL, CM19	The degree of specificity in a program EIR s impact analysis need only to be as detailed as the description of the elements in the program (State CEQA Guidelines Section 15146).	The EIR/EIS insufficiently assesses the impacts CM19 . Examples of stormwater treatment are specific, but omit a number of current preferred means of managing stormwater. A detailed assessment would quantitatively evaluate the benefits and impacts of CM19 for a wide range of constituents and conditions.

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ES.1.1	4	14-16, 17-24	WQ, CM19, WS	NEPA and the CEQ's regulations for implementing NEPA (40 CFR 1502.14) require federal agencies to prepare an EIS for major federal actions that could significantly affect the quality of the human environment. The EIS must rigorously explore and objectively evaluate (CEQ 40 questions) the environmental effects of an action, including a range of reasonable alternatives, and identify mitigation measures to minimize adverse effects for the range of impacts of the proposal when they propose to carry out, approve, or fund a project that may have a significant effect on the environment. To ensure environmental effects of a proposed action are fairly assessed, the probability of the mitigation measures being implemented must also be discussed and the EIS and Record of Decision should indicate the likelihood that such measures will be adopted or enforced, and when they might be available (40 CFR 1502.16[h] and 1505.2).	The EIR/EIS has significant omissions for the proposed actions that could significantly affect the quality of the human environment, the environmental effects of an action (including a range of reasonable alternatives), and identification of mitigation measures to minimize adverse effects for the range of impacts. The EIR/EIS should have a clear discussion of the means of compliance with these statutory requirements, including an assessment of the likelihood of implementation of each conservation measure and how the project would be modified if a conservation measure is not implemented.
ES.2.2.2.1	10-11	37-41, 1-2	WQ, CM19	In addition, urban development, large upstream dams and storage reservoirs, water diversions, hydraulic mining, and the development of a managed network of navigation, flood control, and irrigation canals have all affected water flow patterns and altered fish and wildlife habitat availability. These changes, coupled with higher water exports, declines in water quality from urban and agricultural discharges, and changes in the dilution capacity from managed inflows and diversions, have led to a decline in ecological productivity in the Delta.	This broad statement is misleading and not entirely correct. Urban runoff quality has improved since the implementation of municipal stormwater management programs as demonstrated by the Sacramento Stormwater Quality Partnership. Agricultural interests could likely make the same assertion based on improved control measures. Moreover, the Central Valley Drinking Water Policy modeling, as summarized in a variety of reports suggests that urban development actually has a net benefit on a number of water quality constituents. The statement should be revised to match conclusions from other groups, including the Contaminant Synthesis Report (http://www.swrcb.ca.gov/centralvalley/water_issues/delta_water_quality/comprehensive_monitoring_program/contaminant_synthesis_report.pdf) and the Delta Science Program.
ES.4.4	17	20	CM19	Provide, where feasible, quantitative targets and timeframes for achieving the desired outcomes	There are insufficient quantitative targets in CM19. The grant program should provide funding where there is most benefit for reducing contaminant related impacts to the specific species.
ES.4.4	17	23-25	CM19	Provide metrics for the monitoring program by which to evaluate the effectiveness of the conservation measures and, if necessary, provide a basis to adjust the conservation measures to achieve the desired outcomes.	There are insufficient metrics for effectiveness and basis for adjustments in CM19.
ES.4.5	18	26-28	WQ, CM19	Species. Species-specific conservation measures are designed to reduce the adverse effects of various stressors on one or more covered species. These include measures addressing toxic contaminants, nonnative predators, illegal harvest, and genetic threats.	CM19 should be more specific in addressing the sources of the contaminants impacting the specific covered species affected by urban runoff. It is not appropriate to include CM19 to generally see if reducing stormwater pollutant loading will help the two species or their habitats. A detailed assessment of the benefits of control measures to covered species from a range of source types should be performed before implementation of any contaminant-based control measure. This evaluation should prioritize actions and consider the cost of the control measure compared to the established benefit to the covered species.
ES.4.5	18	34-36	WQ, CM19	The remaining conservation measures, CM12–CM21, are intended to reduce the adverse effects of various stressors, including but not limited to, environmental contaminants, nonnative predators, and illegal harvest on covered species.	The evaluations provided in the BDCP and EIR/EIS are insufficient. Environmental contaminant reduction should look at all sources and prioritize efforts and resources where there will be most benefit.

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ES.8.3.2	48	35-38	CM19	In general, mitigation related to restoration and other activities in CM3-CM22 will be the responsibility of a larger group of agencies as set forth in relevant portions of the BDCP. Responsiblities for particular measures will be described in the Mitigation Monitoring and Reporting Program to be issued in connection with the Final EIR/EIS.	The mitigation, monitoring, and reporting details are critical pieces that local agencies should have a chance to review. The cost of these activities is potentially significant. The BDCP proponents and the State should fund these efforts, not local agencies. The benefit of these studies is to evaluate the success with regard to covered species, which is a direct benefit to the BDCP proponents and the State and is not a direct benefit to the local agency ratepayers.
1.5.1	1-12		SCOPE	1.5.1 Upstream of the Delta Region The Upstream of the Delta region is shown in Figures 1-5 through 1-8. This region comprises those areas in the SWP and CVP system upstream of the Delta. Operational changes at SWP facilities in this area may be necessary to move fresh water through and/or around the Delta consistent with operations of CM1.	The project area does not consider the land area tributary to the Plan Area or Project Area affected by the BDCP. In particular, the communities where CM19 is performed and upstream watersheds need to be addressed.
1.5.1	Figure 1-7		SCOPE	Project Area definition	The project area does not consider the land area tributary to the Plan Area or Project Area affected by the BDCP conservation measures. The Plan Area and Study area are not sufficiently described in the EIR/EIS. Areas should be defined with specific boundaries.
1.6	1-13	3-9	WQ, WS	In assessing environmental effects associated with CM1, the EIR/EIS also refers to environmental commitments and other BDCP conservation measures that are intended to reduce, avoid, or minimize these effects. Additional site-specific environmental compliance documents, however, will likely be required for implementation of some conservation measures (including, for example, wetland permitting actions by the Corps of Engineers). Additional information and/or documentation may be necessary during consideration of related permit application and decision-making processes.	This statement indicates that the overall assessment of CM1 was completed assuming implementation of the other environmental commitments and CMs. It is unclear how CM1 can get project-level approval without the guaranteed implementation of the supporting conservation measures. If the other commitments and CMs are not implemented, the assessment environmental effects of CM1 will not be accurate and would need to be re-evaluated.
3.2	3-4, 3-5	31-2	SCOPE	Under these principles, the EIR needs to describe and evaluate only those alternatives necessary to permit a reasonable choice and "to foster meaningful public participation and informed decision making" (State CEQA Guidelines Section 15126.6[f]). Consideration of alternatives focuses on those that can either eliminate significant adverse environmental impacts or substantially reduce them; alternatives considered in this context may include those that are more costly and those that could impede to some degree the attainment of the project objectives (Section 15126.6[b]). CEQA does not require the alternatives to be evaluated at the same level of detail as the proposed project.	A wider range of alternatives would be more meaningful, especially broader options such as offline storage and regionally independent supplies.
3.3.1	3-17	Table 3-2	SCOPE	BDCP Covered Activities	Please clarify why some conservation measures are not considered covered actions or activities and if there are future implications if a particular conservation measure was found to have an impact on covered species.
3.3.1	3-18	8-12	SCOPE	Consequently, the project area encompasses a larger geographic area than the Plan Area, comprising three defined regions: the Upstream of the Delta Region, the Delta Region (as defined in Chapter 1, Section 1.5, BDCP EIR/EIS Project Area—generally referred to as the Plan Area), and the SWP and CVP Export Service Areas (Figure 1-4).	The definition and justification for the Plan Area are insufficient. Some areas affected by the BDCP directly or indirectly through conservation measures are not included.
3.3.2	3-18	38-40	SCOPE	The covered activities outlined in Table 3-2 are included in the conservation measures (Table 3-3) and are discussed in detail in Section 3.6, Components of the Alternatives: Details.	There is an unclear correspondence between covered actions and the conservation measures; however, it is implied that all conservation measures are covered actions.
3.3.2.2	3-23	1-31	WQ	Adaptive Management and Monitoring Program	See comments on BDCP as it is referenced in this Section.

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3.4.3	3-39	29-31	SCOPE	BDCP will implement measures intended to address the effects of other stressors (CM12–CM21; Tables 3-3 and 3-4) under all alternatives except the No Action Alternative. Section 3.6.3 provides a detailed description of these components.	It is not clear if these conservation measures are considered "covered actions". Urban stormwater treatment, in particular, is not in the referenced table (Table 2 3-2).
3.5.9.3	3-68	38-41	CM19, SCOPE	Urban Stormwater Treatment (CM19) – Under this conservation measure, the BDCP Implementation Office would provide a mechanism, through funding, for implementing stormwater treatment measures in urban areas that would result in decreased discharge of contaminants to the Delta.	The proposed action does not specify the area nor location where it would take place. It is not possible to adequately evaluate the benefit, impacts, or costs of the alternative without a clear specification of the intended scope of the action.
3.6.3.8	3-162	30-31	CM19	Reducing pyrethroids and other chemicals from urban areas and stormwater, which would improve the health of covered fish species.	It is not an established fact that urban runoff pyrethroids have effects outside of localized locations near to outfalls. In fact, the research cited in the BDCP documents by Weston and Lydy confirmed these localized effects. The benefits of "reducing the amount of pollution in stormwater runoff entering Delta waterways" need to be better understood before implementation of CM19 or any contaminant reduction strategy.
3.6.3.8	3-162	40-41	CM19	This conservation measure would be in effect over the 50-year BDCP period.	The BDCP does not clearly state that CM19 would be in effect for the 50-year period, but it provides funding for only the first ten years. The EIR/EIS should clearly state if the benefits claimed for the EIR/EIS are based on this initial 10 years of funding or continued efforts for the entire 50 years, and who would then fund these continued efforts. Before implementation of any contaminant control measures, a detailed assessment on control of all types of sources and their benefit to the covered species should be performed. This evaluation should consider costs relative to benefits and prioritize any control measure recommendations.
3.6.3.8	3-163	29-34	CM19	Implementation of this conservation measure will be informed through compliance and effectiveness monitoring and adaptive management, as described in Chapter 3, Conservation Strategy, (Section 3.4.19) of the BDCP. The BDCP Implementation Office, in coordination with the fish and wildlife agencies, may discontinue effectiveness monitoring for this measure in future years if monitoring results indicate a strong correlation between reduction in stormwater pollution loads entering the Delta and responses of covered fish species.	It is insufficient to assess effectiveness with correlations when so many other factors contribute to covered species health. Better assessment tools are needed to be developed and agreed upon before developing the conservation measures.
3D.2.2	3D-3	12-16	AM, WQ	As the NEPA baseline, the No Action Alternative, sometimes referred to as the future no action condition, considers no action conditions to include continuation of operations of the SWP and CVP as described in the 2008 USFWS and 2009 NMFS BiOps and other relevant plans and projects that would likely occur in the absence of BDCP actions and which are well-defined enough to allow for meaningful analysis.	As per this definition, it seems that the DWR Reoperation Program should have been included as a relevant plan that would likely occur. The climate change analysis should have considered the potential operational adaptation and mitigation strategies in development. http://www.water.ca.gov/system_reop/
5A.D.7	5A-D133	5-7	WQ, WS	For the selected sea level rise scenarios, three-dimensional UnTRIM Bay-Delta model was simulated to evaluate the Delta hydrodynamic and salinity conditions under historical conditions.	This evaluation should have been expanded to see how far upstream the projected effects of sea level rise extends, to determine if there is an increase in reverse flow impacts or an increase in the reach of the upstream of the Delta area that could be affected by reverse flows or backwater effects.

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5A.D.10.2	5A-D157	9-14	WQ	The results show that the effects on the upstream operations are primarily due to the climate change effect on the reservoir inflows, river temperatures, and the increased salinity intrusion in the Delta due to the projected sea level rise. The proposed BDCP operations did not impact the upstream reservoir conditions, both at end-of-May and end-of-September, because of the increased flexibility in the system. The proposed restoration under BDCP has limited effect on the overall system operations.	The information presented in this section is unclear and difficult to review. The data cannot be reviewed to confirm the conclusion stated by the BDCP. This section should be revised to allow better review of the information.
5A.D.10.3	5A-D167	8-11	WQ	The incremental changes between the No Action Alternative and the BDCP Alternative without considering the projected changes in climate and sea level were found to be similar to the results presented in the EIR/EIS, which included the climate change and sea level rise effects.	The information presented in this section is unclear and difficult to review. The data cannot be reviewed to confirm the conclusion stated by the BDCP. This section should be revised to allow better review of the information.
8	8-1		WQ	Water Quality	Additional comments are provided on various appendices to Chapter 8 and are incorporated as applicable to the various sections.
8.1	8-1	4-5	WQ	Chapter 8, Water Quality, describes the environmental setting and potential impacts of the BDCP on water quality in and upstream of the Sacramento-San Joaquin Delta.	The BDCP purports that this Chapter describes impacts on water quality upstream of the Delta. Yet there is very little data evaluation to support such evaluation. This Chapter needs to be expanded to provide a complete evaluation of water quality upstream of the Delta in accordance with this statement.
8.1.6	8-5	8-18	SCOPE	In some instances, the NEPA and CEQA discussions differ for a particular impact discussion becaus NEPA and CEQA have different points of comparison (or "baselines" in CEQA terms). The NEPA point of comparison for each alternative is based on the comparison of the action alternative (Alternatives 1A through 9) at 2060, with the no action alternative which supposes conditions at 2060 in the absence of the proposed project. The CEQA baseline is based on the comparison of the action alternative (Alternatives 1A through 9) at 2060 with existing conditions. Consistent with this, the NEPA point of comparison accounts for anticipated climate change conditions at 2060, whereas the CEQA baseline is assumed to occur during existing climate conditions. Therefore, differences in model outputs between the CEQA baseline and the action alternative (Alternatives 1A through 9) are due primarily to both the impacts of proposed alternative as well as future climate change conditions (sea level rise and altered precipitation patterns).	The alternatives examined are insufficient and do not constitute a reasonable range. The alternatives should look at a broader range of alternatives for water quality in addition to the Delta Reform Act covered species-focused activities. Because the baseline is considered continued operation of the existing facilities, additional alternatives that support regionally independent solutions and less conveyance should be required for an adequate evaluation. This is also true for the Antidegradation Analysis.

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8.2	8-5	20-26	SCOPE	This section defines the environmental setting/affected environment for surface water quality, reviews the environmental and regulatory setting with respect to water quality, and provides an assessment of existing water quality conditions in the study area (the area in which impacts may occur), shown in Figure 1-4, which includes the Plan Area (the area covered by the BDCP), upstream of the Delta, and the State Water Project/Central Valley Project (SWP/CVP) Export Service Areas. Water quality conditions refer to the chemical and physical properties of the surface water in the study area. setting/affected environment for surface water quality, reviews the environmental and regulatory setting with respect to water quality, and provides an assessment of existing water quality conditions in the study area (the area in which impacts may occur), shown in Figure 1-4, which includes the Plan Area (the area covered by the BDCP), upstream of the Delta, and the State Water Project/Central Valley Project (SWP/CVP) Export Service Areas. Water quality conditions refer to the chemical and physical properties of the surface water in the study area.	Earlier in Section 8.1.5, the text states that the tributary "watersheds" are covered in the assessment. In this section, it is stated that Figure 1-4 defines the study area. However, Figure 1-4 and the previous discussion include only the upstream waterways, but not the tributary watersheds, which would add a significantly larger area and is more accurate.
8.2	8-5	33-35	ERROR	The term nonpoint source is defined to mean any source of water pollution that does not meet the legal definition of point source in Section 502(14) of the CWA and includes urban and irrigation runoff.	Stormwater covered NPDES permits (MS4) is considered a point source within Section 502(14), which does not apply to agricultural "stormwater". Clean Water Act amendments in 1987 clarified this categorization.
8.2.1	8-6	20-22	SCOPE, WQ	The Delta environment is much more complex and dynamic than the rest of the study area and requires a more detailed approach. Hence, the water quality conditions in the Delta were reviewed at a greater level of detail.	The detailed assessment should occur in the areas where there are effects. While tidal influence adds complexity to the modeling, the higher level of detail is necessary upstream of the selected water quality locations (e.g., up to Veterans Bridge, etc.).
8.2.1.1	8-7	28-29	ERROR	Section 8.1.2, Selection of Monitoring Stations for Characterization of Water Quality, includes detailed discussions of the selected water quality constituents of concern in the study area.	Incorrect reference to previous section.
8.2.1.4	8-13	22-23	ERROR	Figure 8-6 shows land uses and major point sources (consisting primarily of municipal WTPs) and nonpoint sources (e.g., urban storm water runoff) of pollutants.	Urban stormwater is considered a point source.
8.2.1.4	8-14	14-23	WQ, WS	Both variations in watershed hydrology and SWP and CVP operations affect the variability of water quality in the study area; also both SWP/CVP and non-SWP/CVP water diversions reduce the amount of water available for dilution and assimilation of contaminant inputs and hydrodynamic conditions associated with channel flows and tidal action in the Delta. Water quality can vary seasonally in response to winter-spring runoff and summer-fall lower-flow periods or seasonal agricultural practices and cropping; water quality also can vary from year to year as a result of precipitation and snowpack levels in the upper watersheds and the resulting releases from upstream reservoirs for water supply, flood management, and environmental obligations (e.g., fish flows, Delta water quality objective compliance), operations of the Delta Cross Channel, and seasonal and annual variations in SWP and CVP pumping rates.	This text displays the wide variability in source water quality and supports the need to evaluate constituents for short term impacts. The use of long term averages in the water quality assessment in this chapter needs to be reconsidered, and the data should be reevaluated for shorter term impacts, such as the periods applicable for drinking water regulations.

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8.2.1.4	8-13, 8-14	16-40,1-13	WQ	Primary Factors Affecting Water Quality	This section presents a summary of some of the potential sources of contamination in the watershed that could impact water quality and the associated constituents of concern. This section is not comprehensive and does not provide any relative comparison or assessment of the specific sources' ability to impact source water quality. Text should be added to qualify the discussion and discuss the presence of additional sources and constituents of interest, especially at more local levels.
8.2.1.6	8-21	20-37	ERROR	*Omission*	This section on other Water Quality Plans does not identify several critical water quality planning efforts that are relevant, including CV-SALTS, salt and boron, pesticide and other TMDLs, Delta nutrient objective development, and the Central Valley Drinking Water Policy.
8.2.1.7	8-23	Table 8-2	ERROR	*Omission*	The table title should include Sacramento and San Joaquin River tributaries that are referenced in table. It is unclear when the EIR/EIS evaluation is including these watershed reaches.
8.2.1.7	8-24	Table 8-3	ERROR	*Omission*	Delta Methylmercury TMDL adoption status should be included.
8.2.1.8	8-26	39-42	ERROR	The constituent-specific sections described subsequently (Section 8.1.3) characterize the potential effects on beneficial uses and various receptors, including known information regarding specific locations in the Delta most affected by the constituents.	Reference to Section 8.1.3 appears in error.
8.2.2.2	8-27	34-36	WQ, WS	Based on data availability, data continuity, and geographic location, a total of 20 water quality monitoring stations were selected to characterize the water quality conditions in the study area (Figure 8-7).	Limiting data collection to those sets easily accessed through DWR likely precluded a comprehensive data evaluation in the areas upstream of the Delta. These sites should have been supplemented with reputable local programs, such as current MUN users regulatory compliance monitoring data, to ensure a sufficient number of data points. http://www.cdph.ca.gov/certlic/drinkingwater/Pages/EDTlibrary.aspx. Moreover there are a number of active data collection efforts by California Department of Pesticide Regulation, the Coordinated Monitoring Program (SSQP permit required river monitoring), and others.
8.2.2.2	8-31	Table 8-6	SCOPE, WQ	Delta Source Water Locations	Selection of Sacramento River at Hood over the legislative definition of the Delta is inconsistent with the 'boundary' approach and excludes the upstream reach where a number of existing and proposed municipal drinking water intakes are located. The reach from I Street (or further upstream) to Hood should be evaluated in more detail as this is the area of increased impact from the BDCP intakes and other existing proposed intakes in the vicinity. Certainly, immediately upstream and downstream of the CM1 intakes should be evaluated.
8.2.2.3	8-32	20-38	SCOPE, WQ	However, these locations generally represent the water quality occurring at these perimeter locations in the Delta.	Immediately upstream and downstream of the BDCP intakes should be evaluated in greater detail to understand with higher resolution the effects on water quality in this critical area. Hood is much further downstream than the I Street Bridge.
8.2.3	8-34	33-34	ERROR	For more information on the comparisons made to the Existing Conditions modeling run for assessment purposes, see Section 8.3.3.2, Comparisons.	This section reference is incorrect, needs to be reviewed and revised.

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8.2.3.8	8-58	35-37	WQ	Data for most EDCs, PPCPs, and nitrosamines in the Delta and the north- and south-of-Delta locations are very sparse because most compounds are not typically part of water quality sampling programs.	The previously mentioned water quality monitoring programs (DWR, BDAT, WDL) do not have significant data on these constituents, but there is data available in the watershed from USGS, MUN users, as well as some industrial dischargers (such as Aerojet on the American River). This data should have been collected to contribute to a more thoughtful evaluation of these constituents. References to studies outside of the Project Area are not technically supported due to the site specific nature of the sources. http://www.cdph.ca.gov/certlic/drinkingwater/Pages/EDTlibrary.aspx, http://cida.usgs.gov/nawqa_public/apex/f?p=136:1:0, https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/CiwqsReportServlet?inCommand=reset&reportName=esmrAnalytical, http://www.ceden.us/AdvancedQueryTool
8.2.3.9	8-63	Table 8-14	SCOPE, WQ	Omission	Data used is limited. However, significantly more data are available at the locations.
8.2.3.11	8-77	8-9	ERROR, WQ	Peak concentrations are important to municipal drinking water purveyors because of regulations that require advanced treatment depending on TOC concentrations.	It is stated elsewhere in the document that drinking water purveyors are concerned about annual averages of TOC, not peak concentrations. The median concentrations are most relevant to facility operation.
8.2.3.11	8-77	Table 8-20	ERROR	Omission	The table does not indicate the Sacramento River site location.
8.2.3.11	8-78	22-23	ERROR	The lowest observed mean concentrations of TOC in the Delta during the water years 2001–2006 ranged from 2.7 to 3.0 mg/L, occurring at the Sacramento River at Hood	It is not clear if the range of mean values at Hood is seasonal mean, annual mean, etc. It does not seem to match the median value shown in Table 8-20.
8.2.3.11	8-78	Figure 8-42	ERROR	*Presentation*	In presenting side-by-side plots from different sites, it would be useful to use the same scale, especially if the intent is comparison. More information should be provided on whether monitoring programs have sample collection targets. For example, Sacramento River at Veterans Bridge is known to be biased to wet weather events.
8.2.3.12	8-80	16-19	WQ	Most data that exist regarding pathogens are for coliform bacteria, which are indicators of potential fecal contamination by humans or other warm-blooded animals because of their relative abundance and ease of measuring in water samples.	The text needs to be modified to add language to clarify that fecal coliform or E. coli are indicators of fecal contamination, not total coliform.
8.2.3.13	8-83	13-16	WQ	Current use pesticides include carbamates (e.g., carbofuran), organophosphates (e.g., chlorpyrifos, diazinon, methyl parathion, malathion), thiocarbamates (e.g., molinate, thiobencarb), and more recently pyrethroids (e.g., permethrin, cypermethrin), a class of synthetic insecticides applied in urban and agricultural areas.	The identification of current use pesticides is incomplete and does not consider use of the pesticides in the upstream watersheds. This process should be reevaluated to include DPR reporting (http://calpip.cdpr.ca.gov/main.cfm) to identify pesticides of key interest to various beneficial uses. The MUN use potential pesticides of interest for consideration of monitoring and/or evaluation in the Sacramento Valley have been identified to the Central Valley Regional Board as part of the Irrigated Lands Regulatory Program by the Sacramento River Joint Source Water Protection Program (TDC Environmental; Rice Pesticide Prioritization memo dated 9/13/13 and Sacramento River Watershed Pesticide Prioritization memo dated 10/7/13).

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8.2.3.13	8-83	25-28	WQ	The critical pathways for pesticides entering the rivers, streams, and the Delta include agricultural and urban stormwater runoff, irrigation return water, drift from aerial or ground-based spraying, and periodic release of agricultural return flows from rice production (Werner and Oram 2008).	Another pathway documented by the Central Valley Regional Board in the Irrigation Lands Regulatory Program is seepage through levees (Rice Pesticides Program 2013 Annual Monitoring Report) and subsurface tile drains (Attachment A to the WDR [R5-2014-XXXX] for Sacramento Valley Rice Growers), and these should be added to the text.
8.2.3.13	8-83	35-36	WQ	The timing of pesticide input to Delta waters is related to application rates, when pesticides are applied to farmed land, runoff events, and other transport processes (Kuivila and Jennings 2007).	Another factor affecting pesticide input to waters is the application method as well as best management practices (such as pesticide hold times) implemented through management programs such as the Irrigated Lands Regulatory Program.
8.2.3.13	8-85	Table 8-23	ERROR	Diazinon Concentrations, by Water Body Category	Data is irrelevant and not representative of current conditions, because it is based on a 2006 study. More recent data should be used after the diazinon and chlorpyrifos bans became effective.
8.2.3.13	8-85	Table 8-24	ERROR	Table 8-24. Chlorpyrifos Concentrations, by Water Body Category	Data are irrelevant and not representative of current conditions because it is based on a 2006 study. More recent data should be used after the diazinon and chlorpyrifos bans became effective.
8.2.3.13	8-85	4- 5	WQ	Monitoring efforts at the north-of-Delta stations since 2001 have resulted in no pesticide detections, while monitoring at the south-of-Delta stations resulted in various detections.	This text needs to be expanded to explain that the evaluation was based on a few selected sites (four), and three of those were located above the major agricultural areas in the Central Valley. The conclusion that this is not a significant concern is based on too little data not sufficiently representing source contributions. This evaluation could easily be supplemented with data from the Central Valley Regional Board Irrigated Lands Regulatory Program. http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/water_quality_monitoring/index.shtml
8.2.3.16	8-101	25-28	WQ	Their study showed that cadmium, copper, and zinc were transported primarily in dissolved form upstream of major agricultural activities but primarily in colloidal form downstream. Iron and lead were transported primarily in colloidal form at all mainstem Sacramento River sites.	The source analysis of the trace metals needs to be expanded to evaluate the contribution of the reservoirs to dissolved metal concentrations and better explain the transformation in downstream rivers.
8.2.3.16	8-102	35-36	WQ	Sources of copper contamination include natural deposits, industrial and urban wastewater, and urban stormwater runoff (Buck et al. 2006; U.S. Environmental Protection Agency 2009j).	Another source of copper in the Central Valley watershed is from agricultural use as an herbicide (http://calpip.cdpr.ca.gov/main.cfm). This text needs to be expanded to include that source, and the evaluations need to be expanded. Senate Bill 346 initiated the phase out of copper in brake pads, which is a signifcant source of copper in urban runoff.
8.4.1	8-127, 8-128	37-40, 1-2	WQ, SCOPE	1. Would implementation of the Alternatives result in water quality changes to the Plan Area, Upstream of the Delta, or SWP/CVP Export Service Areas that would result in exceedances of water quality criteria/objectives, or substantially degrade water quality, of/by sufficient frequency, magnitude, and geographic extent as to cause or substantially contribute to significant adverse effects on the beneficial uses of water in these areas of the affected environment?	This assessment is incomplete. Why is the assessment limited to the Plan Area? If there are effects in other areas they should be assessed as well.

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8.4.1	8-128	3-4	WQ, SCOPE	2. Would implementation of the Alternatives result in beneficial effects on water quality in these areas?	Does "beneficial effects on water quality" refer to support of beneficial uses? This phrase should be revised for clarity.
8.4.1	8-128	11-15	WQ	Moreover, models available for use in addressing such questions have been previously developed for the effects of operations of the SWP-CVP facilities for only a few water quality parameters (e.g., EC, DOC, and temperature) in defined portions of the affected environment (i.e., the Delta), and are poorly developed or not developed at all for nearly all other water quality parameters and locations, nor for most of the conservation measures proposed for implementation.	There are other models that cover the same area for additional constituents (ammonia, nitrate, phosphorus, and others) or could be expanded to consider other constituents (methylmercury, pesticides, etc.). It is within the scope of this larger project to better develop these tools. The Central Valley Drinking Water Policy modeling efforts could be built on to better develop this. (http://www.waterboards.ca.gov/rwqcb5/water_issues/drinking_water_policy/dwp_wrkgrp_synthesis_rpt.pdf)
8.4.1	8-128	14-17	WQ	Conservative parameters were evaluated using available models used for SWP-CVP planning and operations (i.e., California Water Resources Simulation Model [CALSIM II, Delta Simulation Model 2 [DSM2], and Reclamation's Temperature Model) wherever applicable, as well as constituents directly addressed by these models, and included EC, DOC, and temperature.	DOC should not be considered a conservative constituent over large areas or time scales.
8.4.1	8-128	28-30	WQ, AM	In general, the fewest water quality changes of importance are expected to occur Upstream of the Delta, followed by the SWP/CVP Export Service Areas, with the greatest number and magnitude of water quality changes expected for the Plan Area.	We are concerned about the assumption that it is expected that the fewest water quality changes of importance are expected to occur upstream of the Delta. Potential water quality changes associated with revised CVP and SWP system operations to upstream waterbodies could be very significant to local users. This statement needs to be supported by water quality evaluations and verified in the future through the Adaptive Management program.
8.4.1	8-128	34-35	WQ	Models are available to simulate hydrodynamic and water quality changes within the Delta region.	Modeling should be performed in all BDCP affected areas so that all impacts can be sufficiently assesed. There are models such as WARMF that have also been developed for the watershed areas tributary to the Delta that were successfully integrated with CALSIM and DSM2.
8.4.1	8-129	3-13	WQ	The constituents of concern in the affected environment included both physically and chemically conservative and non-conservative parameters. The concentrations of conservative constituent tend to not be affected substantially by physical, chemical, or biological mechanisms that woul result in a loss of the constituent from the system. Thus, the concentrations of conservative constituents can be reasonably estimated and changes assessed with mass-balance accounting of the mixing of known volumes and concentrations of different water sources.	Conservative constituents can also have complex sources and sinks within the system that need to be accounted for, and simple mass balances over large areas and time periods must be accounted for in a model. This mass balance is essentially a conceptual model when it is used over these larger areas. The mass balance approach over large areas leads to additional uncertainty; incorrect conclusions can be drawn when time scales cannot be aligned properly.
8.4.1	8-129, 8-130	41-43, 1-4	WQ	It was determined that the action alternatives would result in all three categories of potential water quality effects within the Plan Area. However, based on the description of BDCP alternatives (see Chapter 3, Description of Alternatives) for construction activities or other conservation measures in the Upstream of the Delta and the SWP/CVP Export Service Area, water quality changes were expected to be minimal and, hence, are not addressed in as much detail. For those Alternatives that include specific CM1 measures in the Plan Area, however, a project specific level of analysis is included.	Insufficient information in the "Upstream of the Delta" areas is provided, especially impacts due to reservoir operations and reservoir stage. The areas just upstream from CM1 intakes past the CM2 diversions to the Feather River, in particular, could see thermal, flow, and reservoir impacts that could affect water quality and drinking water treatment. This reach of the river should be examined in detail.
8.4.1	8-130	28-30	WQ	Quantitatively evaluates constituents of primary concern where modeling tools were developed and were available for doing so, and qualitatively assesses effects where appropriate modeling tools were unavailable	Limiting assessment to available tools and science is insufficient for the scale of the project. The EIR/EIS does not adequately discuss the evaluated tools.

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8.4.1	8-130	17-21	WQ	If the estimated water quality conditions for a constituent under an Alternative triggers one or more of the five water quality conditions defined as effects assessment criteria (NEPA) and thresholds of significance (CEQA) (see Section 8.3.2.3) at one or more of the assessment locations, then that Alternative was determined to have an adverse water quality effect (under NEPA) and a significant impact on water quality (under CEQA) for that water quality constituent or parameter.	This section reference is incorrect, and needs to be reviewed and revised.
8.4.1.1	8-130, 8-131	38-41, 1-39	WQ	*Ommissions*	The model assessment should include additional models or frameworks to evaluate non-conservative constituents and larger model domains (WARMF, HSPF, etc.). Also, the areas nearest to the proposed intakes should have higher resolution modeling for the adjacent areas.
8.4.1.2	8-131	41-43	WQ, SCOPE	Water quality changes in the affected environment upstream from the north-Delta boundary, which includes the Sacramento River to Shasta Lake, the Feather River to Lake Oroville, and the American River to Folsom Lake, were primarily assessed qualitatively.	The model domain and areas need to be described more specifically (e.g., Sacramento River at I Street to Keswick, etc.). Also, it is not clear where the 'detailed' modeling in the Sacramento Urban Area starts.
8.4.1.3	8-132	14-17	WQ	Using the methodology described below, changes in boron, bromide, chloride, mercury, methylmercury, nitrate, organic carbon, and selenium, within the Delta were determined quantitatively at 11 assessment locations (Figure 8-7),	The referenced Figure 8-7 has more than 11 "monitoring" points identified, and it is unclear which constituents were evaluated. Please provide a table that shows the constituents, types (e.g., quantitative), and locations of the assessments.
8.4.1.7	8-145	Table 8-42	ERROR	Table Footnote C - In some cases, data were reported as non-detects, and the entry contained an accompanying reporting limit. “Yes” indicates that at least one non-detect was replaced with the reporting limit in order to calculate summary statistics, while “No” indicates that this was not done, generally because no data were reported as non-detect.	For the purposes of calculating summary statistics it is not accurate to substitute "non-detects" with the reporting limit. The table should be updated to use an alternate presentation that is more reflective of conditions. See <http://pubs.acs.org/doi/pdf/10.1021/es053368a> for a discussion of appropriate methods.
8.4.1.7	8-162	44	WQ	DOC in the Delta is generally considered to act conservatively; thus, the mass-balance modeling approach employed.	DOC is not a conservative constituent. Provide the basis for this assumption over the scope of the Delta residence time.
8.4.1.7	8-163	35-37	WQ	Assessing pesticide-related effects is substantially challenged by: 1) limited available monitoring data in the Delta and other water bodies of the affected environment, and 2) a continually changing pesticide use market.	Although there are many challenges associated with assessing pesticide effects, monitoring data is not a controlling issue in the Central Valley. The Central Valley Regional Board Irrigated Lands Regulatory Program has collected and evaluated large amounts of data that should have been reviewed as part of this assessment. These evaluations can contribute to a better understanding of the priorities and vulnerabilities of the watershed. http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/water_quality_monitoring/index.shtml and http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/monitoring_plans_reports_reviews/index.shtml

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8.4.1.7	8-164	23-32	WQ	Perhaps more challenging than a limited monitoring effort is the dynamic state of the pesticide market. Regulatory and pest resistance pressures have left the pesticide market, namely the insecticide market, in a state of flux. Pesticide use varies from year to year depending on numerous external factors such as climate and associated pest outbreaks, cropping patterns, and economic trends in housing construction and urban development. Layered upon this year-to-year variation is an overall trend of decreased OP insecticides use and increased pyrethroid use, primarily due to the early regulatory phase-out of many OP insecticide uses initiated in early 2000. The market has yet to balance and reach equilibrium, and what limited and relatively short-term monitoring data that is available ultimately only represents a snapshot of a trend in the gradual replacement of many OP uses with that of pyrethroids. Until markets stabilize, trends will inevitably continue to develop.	Pesticide use is registered and relatively well understood. While urban uses are difficult to track, product availability is a good indicator. The "equilibrium" actually seems to be reached relatively quickly, and the noted paragraph should be further researched and updated for accuracy.
8.4.1.7	8-164, 8-165	44-46, 1-7	ERROR	And finally, if transported to surface waters, sufficient amounts of pesticide must be present that once diluted by surface water flows, the resulting concentration is of a magnitude capable of eliciting a measurable effect in aquatic life. All of these factors contribute in the end to the potential for adverse beneficial use effects, but of the many factors involved, CVP/SWP operations only affect river flows and, thus available dilution. In an estuary environment, where substantial dilution capacity typically occurs, duration of aquatic life exposure in addition to pesticide concentration is important. While the capacity of the Delta to dilute pesticide inputs is largely unaffected by CVP/SWP operations, the duration of exposure, or residence time, can be affected by operations. Therefore, in the Delta, changes in source water fractions represent long-term changes in exposure potential.	Concentrations of contaminants could increase in areas of lesser flow downstream from the North Delta intakes as the higher quality Sacramento River water is exported. Therefore, the qualitative conclusion should be that an increase is expected due to CM1.
8.4.1.7	8-165	22-24	WQ	Effects of alternatives on pesticides are primarily incidental and indirect, as existing and future sources of pesticide loading are largely unrelated.	Concentrations could increase in areas of lesser flow downstream from the intakes as the higher quality Sacramento River water is exported. Therefore, the qualitative conclusion should be that an increase in pesticides is expected.
8.4.2.1	8-174	1	WQ	Table 8-61	Footnote 'e' needs to be revised to include chromium and iron.
8.4.2.2	8-174 to 8-175	9-10, 1-2	WQ	The CEQA baseline, “Existing Conditions”, is defined in Appendix 3D, and for the purposes of the quantitative water quality assessments, is represented by Existing Conditions modeling runs, not historical water quality monitoring data as presented in Section 8.1.3.	The section reference is incorrect and needs to be reviewed and revised. Also, it is unclear why modeling output was used over real data to provide the basis for the Existing Conditions water quality assessment.
8.4.2.3	8-177	30-35	WQ	As such, effects criterion/threshold #1 will identify significant impacts under CEQA when water quality under an alternative is anticipated to change substantially, thereby causing adverse effects to beneficial uses, and will avoid making such determinations when the violation of a water quality standard is too infrequent, low in magnitude, and/or isolated geographically to actually cause any adverse effects on beneficial uses of the water body or water body segment.	It is not clear what the phrase "low in magnitude" is intended to refer to relative to water quality standard exceedances. The 303(d) impairment listing guidance does not consider the magnitude of exceedances when finding impairments to beneficial uses. More specific guidance that demonstrates consistency with water quality regulation should be used and cited so that the review can properly evaluate the assessment of water quality impacts.
8.4.3.1	8-210	2-3	WQ	Therefore, the pesticide assessment focuses on the present use pesticides for which substantial information is available, namely diazinon, chlorpyrifos, pyrethroids, and diuron.	The basis for selection of present use pesticides assessed in this report is insufficient. More information needs to be presented to explain why other pesticides of interest were not included, other than a lack of data for the limited sites included in the data evaluation.

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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	8-439	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. For consistency with the Antidegradation Policy, 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. If, after the evaluation, the cost of mitigation is not to the benefit of the people of California, the basis for this finding should be documented and clearly state its consistency with the State and Federal Antidegradation Policies.

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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	8-456	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	8-458	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. This potential DOC increase (0.5 mg/L) is a significant impact that should be considered in a detailed antidegradation analysis and modeling study. Potential treatment at sources or intake costs should also be considered as part of the antidegradation analysis to ensure that this potential degradation of water quality is to the benefit of the people of California.
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 objectives are not properly evaluated and the finding of "not adverse" is inconsistent with the State and Federal Antidegradation Policy due to the fact that alternatives are not evaluated to determine whether the project is to the benefit of the people of California.

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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	8-467	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.
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.
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.1.1	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.

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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.1.3.5	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.
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.

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Section	Page	Line	Type	Key Document Text	Comment
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.
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.

Attachment 2. Sacramento Stormwater Quality Partnership Specific Comments on Bay Delta Conservation Plan Environmental Impact Report and Environmental Impact Statement

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
SAC	Sacramento River
SDWA	Safe Drinking Water Act
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

List of Acronyms (continued)

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