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May 29, 2014

Ms. Laura King Moon
Project Manager, Bay Delta Conservation Plan
Department of Water Resources, Executive Division
1416 9th Street
Sacramento, California 95814

SUBJECT: Delta Stewardship Council Comments
Bay Delta Conservation Plan
Draft Environmental Impact Statement/ Environmental Impact Report

Dear Ms. Moon:

The Delta Stewardship Council (Council) is keenly interested in the Bay Delta Conservation Plan (BDCP) because, if it is approved and meets the requirements of the Delta Reform Act, the BDCP will become an important part of the Delta Plan, and a key to the state's effort to achieve the coequal goals of the Delta Reform Act. The issues addressed by the BDCP are extraordinarily complex, and the BDCP's strategy to address them is similarly ambitious and far reaching. The Council has been closely watching the development of BDCP since 2010, exercising our consultative and responsible agency roles by commenting on BDCP's Revised Notice of Preparation and on the 2012 and 2013 administrative drafts of BDCP's EIR/S. During this time, we have appreciated the openness of your process, and the ways that you have encouraged responsible agencies, stakeholders, and the public to participate in review of the preliminary administrative drafts.

The draft BDCP and draft EIR/S reflect your agency's responsiveness to prior suggestions from the Council and others. Examples include the incorporation of the Delta Reform Act's coequal goals into the project's objectives, the embrace of the Delta Plan's three-phase process for adaptive management, refinement of conveyance alternatives to reduce impacts to agriculture and other Delta values, and acknowledgment of the roles of the Delta Science Program and the Delta Independent Science Board in the BDCP's implementation. We thank you for these improvements.

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This letter presents our comments on the Draft Environmental Impact Report/Environmental Impact Statement (EIR/S) as posted in December 2013. Our comments are offered in our role as a responsible agency (Water Code Section 85320 (c)). We have undertaken this review: 1) to identify important issues that we believe will need to be more adequately addressed for the BDCP to meet the requirements of the California Environmental Quality Act (CEQA) and the Delta Reform Act for purposes of including the BDCP in the Delta Plan and making it eligible for state funding (see Water Code Section 85320); and 2) to gain an improved understanding of how the BDCP may further the goals established in the Delta Reform Act, and the policies and recommendations of the Delta Plan.

We recognize that the Council eventually may hear an appeal of the Department of Fish and Wildlife's determination that the BDCP meets the criteria of Water Code Section 85320. As such, the Council will be relying on the BDCP's administrative record; these comments, however, will not have a pre-decisional effect on any possible future appeal.

The first attached document was prepared by Council staff working with our consultant team from ARCADIS. It provides our comments on how the EIR/S addresses key CEQA requirements and the unique EIR/S requirements specified in the Delta Reform Act. The second attachment is the report on the draft BDCP EIR/S prepared by the Delta Independent Science Board (ISB), which we reference and make part of the Council's comments to the draft EIR/S. The ISB completed its review pursuant to Water Code 85320(c), which directs it to review the BDCP's EIR/S and submit its comments to the Council and Department of Fish and Wildlife. Please consider and respond to the ISB's comments as if they had been submitted by the Council.

The attachments are generally organized according to CEQA requirements and the requirements of the Delta Reform Act. The requirements often overlap, however, and we have tried not to repeat comments made in one area even though they may apply to other areas as well. Key points include:

- Delta Reform Act requirements. The draft EIR/S is significantly improved in its attention to the requirements of Water Code Section 85320(b)(2) concerning the BDCP's EIR/S's review and analysis of important Delta resources. Our comments suggest several additional improvements.

- Improving understanding of the BDCP's conservation measures 2-22. Assessment of important impacts of the BDCP is hindered because conservation measures other than improved conveyance are assessed only at the programmatic level. We offer an

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approach for more refining regional strategies for the BDCP's habitat restoration measures early during the BDCP's implementation to improve confidence about these actions' benefits and strengthen assessment and mitigation of adverse effects.

- Better mitigating impacts to water quality and the unique values of the Delta. Adverse effects of the BDCP to some of the Delta's unique values may be unavoidable, but better mitigation can reduce harm to in-Delta water quality, agriculture, recreation, communities, aesthetics, and cultural resources, so that necessary changes occur at a pace more compatible with protection of the Delta as an evolving place.

As you know, Council staff meets regularly with BDCP staff to discuss Council comments and other issues of concern, and we have considered your feedback in preparing this set of review comments. To do this, Council staff compiled all comments that had been included in previous Council correspondence to BDCP, and removed all those no longer considered relevant; for example because the nature of BDCP has changed. All comments that we believe remain relevant have been carried forward in the Council's current review, which also includes several new comments based on the public draft of the BDCP EIR/S dated December 2013.

The Council supports successful development and implementation of a BDCP that fulfills the Delta Reform Act's requirements. We offer the opportunity for your staff to meet with ours for additional details on any of the comments in the attachments. Through consultation among our agencies, we believe the comments we offer can be addressed satisfactorily. We look forward to working with you over the coming months as you complete the BDCP's final EIR/S, release the BDCP's implementation agreement for review, and move toward completion and action on the BDCP. Please contact Dan Ray at (916) 445-4294 if you would like to discuss these comments further.

Sincerely,

Randy Fiorini, Chair
Delta Stewardship Council

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REVIEW COMMENTS
BAY DELTA CONSERVATION PLAN
DECEMBER 2013 PUBLIC DRAFT
ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT

Prepared by the

DELTA STEWARDSHIP COUNCIL

May 2014

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I. INTRODUCTION

This document presents comments prepared by Delta Stewardship Council's (DSC) on the December 2013 public review draft of the Environmental Impact Report/Environmental Impact Statement (EIR/S) of the Bay Delta Conservation Plan (BDCP). The purpose of our review is to offer constructive suggestions regarding how, in our judgment, the BDCP EIR/EIS could better meet the requirements of the California Environmental Quality Act (CEQA) and the applicable sections of the 2009 Delta Reform Act. We acknowledge the challenge that the Department of Water Resources and the federal lead agencies face in preparing the EIR/EIS, and realize, too, that the Delta Reform Act contains unique requirements regarding that the EIR/EIS must fulfill if the BDCP is to become part of the Delta Plan as provided by Water Code section 85320.

These comments include:

- A summary of key issues
- A reminder about the Delta Reform Act's provisions with respect to the Delta Stewardship Council's role, special requirements for the BDCP's EIR, and mitigation of conveyance facilities' impacts.
- Comments on the EIR's assessment of impacts and its mitigation proposals for water quality, biological resources, water supplies, agriculture, recreation, community character, aesthetics, and cultural resources,

II. SUMMARY OF KEY ISSUES

Relative to our review of the BDCP EIR/S, we offer the following summary of key issues:

1. Key Concerns

1. The presentation of near term conservation measures (CMs) at the programmatic level contributes to uncertainty in benefits and impacts.
2. The benefits of the habitat restoration CMs are uncertain and conclusions may therefore be overly optimistic.
3. The benefits of tidal marsh restoration to Delta smelt are likely overstated.

4. Timelines for achieving benefits from habitat restoration may be overly optimistic.
5. Modeling uncertainties affect BDCP's ability to accurately predict some mitigation measure's outcomes.
6. Appropriate mitigation for potentially adverse impacts is warranted and should not be deferred to the adaptive management phase.
7. In some cases, identification of feasible and enforceable mitigation measures for adverse impacts to water quality, agriculture, recreation, and cultural resources is postponed for further evaluation and consultation.
8. The EIR/S does not assess the resilience and recovery of conveyance facilities or conveyance operations impacted by levee failure.
9. Water quality impacts are compared to SWRCB water quality objectives with little regard to specific water quality needs of aquatic species of concern.
10. Water quality impacts to in-Delta users from a variety of causes (e.g., impacts from restoration measures, altered mixing, and new constituents of concern) are not adequately mitigated.
11. The programmatic nature of CMs inhibits identifying the quantity and quality of impacts to agriculture, recreation, community character, and historical and archaeological resources in the Delta.
12. The EIR/S does not adequately address or mitigate the BDCP's contribution (conveyance and ecosystem restoration) to cumulative impacts to agriculture, recreation, community character, aesthetics, and historical and archaeological resources in the Delta.

2. Key Recommendations

1. Assess any inconsistencies with the Delta Plan.
2. A staged EIR/S would effectively allow for accumulation of the data needed to reduce uncertainties.
3. Confidence that habitat restoration CMs will perform as intended and that impacts will be effectively assessed and mitigated could be increased by developing regional conservation strategies for each ROA with additional guidance about restoration actions, measures to avoid or reduce impacts to infrastructure (such as drainage or flood control systems) and agriculture, opportunities for nature-based outdoor recreation, and more realistic timelines for realizing benefits. These strategies should be developed early in the BDCP's implementation, without delaying early restoration actions to carry out the current Biological Opinions.
4. The impact of modeling uncertainties should be assessed. Where possible, model outputs should be validated with observational data.
5. The EIR/S should demonstrate that unintended, potentially adverse consequences of proposed CMs have been considered and evaluated.
6. If specific, feasible, and enforceable mitigation measures for adverse impacts cannot be identified at this time, specify performance standards that will mitigate the significant effect of the project.
7. Specific, feasible, and enforceable mitigation measures are merited for significant impacts to water quality.

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8. The BDCP should more thoroughly identify impacts to agriculture, recreation, community character, and historical and archaeological resources in the Delta, and offer specific, feasible, and enforceable mitigation measures.

II. DELTA REFORM ACT REQUIREMENTS

A. The Delta Stewardship Council's Role with Regard to the BDCP

The Delta Reform Act in Water Code (WC) 85320 (c)-(g), gives the DSC several responsibilities with respect to the BDCP:

1. The DSC is a responsible agency in development of the EIR/S.
2. DWR is required to consult with the DSC during development of the BDCP.
3. If the Department of Fish and Wildlife (DFW) approves the BDCP as a Natural Communities Conservation Plan and determines that it meets specified requirements of the Delta Reform Act, DFW's determination may be appealed to the Council. If the DSC determines on appeal that the BDCP meets the Delta Reform Act's requirements, the DSC shall incorporate the approved BDCP into the Delta Plan.
4. The DSC may make recommendations to BDCP implementing agencies regarding BDCP implementation, and the BDCP implementing agencies must consult with the DSC regarding these recommendations.

In addition, the Delta Independent Science Board is tasked in the Delta Reform Act with reviewing the draft EIR/EIS and transmitting its comments to the Council and the Department of fish and Game (Water Code 85320(c)).

The BDCP will not be incorporated into the Delta Plan and its public benefits will not be eligible for state funding if it does not meet the requirements of Water Code 85320 (b).

A. The Delta Reform Act's Requirements Regarding the BDCP EIR

The Delta Reform Act also lays out specific requirements regarding the BDCP's EIR/S (Water Code Section 85320(b)(2)(A-G)). We emphasized the importance of these requirements in our June 28, 2010 scoping comments on the BDCP's EIR and in our June 2013 comments on the administrative draft EIR. The current version of the dEIR/EIS' Appendix 3I provides a much improved roadmap on where information is contained, but can be improved to better demonstrate that BDCP satisfies all the requirements in Water Code Section 85320.

1. **Meeting the Requirements of California Water Code Section 85320(b) (2).** The second paragraph in this section misquotes Water Code section 85320(b), which states that *all* the "public benefits associated with the BDCP shall not be eligible for state funding," not just the "public funding benefits."
2. **Flow Criteria, Rates of Diversion, and Operational Criteria.** The latest version of Appendix 3I contains a more robust discussion of these issues than was included in the 2013 administrative draft and the reader is more easily able to find this information The

description of the various alternatives seems to partly track the law's requirement to address a reasonable range of flow criteria, so long as the effects analysis shows that they meet the needs of fish. It is still not clear how many of the eight different operational scenarios and 15 alternatives carried forward for complete analysis include flow criteria and what the range of such criteria is. Both Appendix 3I and Appendix 3A could be improved with a graphic in this section showing where each alternative fits within the bookends of SWRCB flow criteria on the one end and providing the full amounts of water described in the USBR's and SWP's contracts on the other end. This discussion could be improved and better supported by adding a table (similar to table ES-11) summarizing and comparing the Delta outflow and exports for each alternative and the bookend flows. (3I-5 lines 25-27).

The BDCP EIR does not "identify the remaining water available for export and other beneficial uses" (Water Code 85320(b)(2)(A). To fully comply with Water Code 85320(b)(2), the BDCP should quantify the water supply needs of in-Delta beneficial uses and compare its flow criteria against a range of hydrologic conditions to determine the remainder of flows available to support exports and other beneficial uses in the Delta. The EIR should include a water balance to show how proposed flows will be apportioned between exports, Delta ecological needs, as well as flows for other beneficial in-Delta uses. If this information is embedded or implied within chapter 3 of the EIR/S or in some other section, then Appendix 3I could be improved by explicitly including this information for each alternative in a table under the category: "remaining water available for export and other beneficial uses"

3. **Climate Change Considerations.** To fulfill Water Code 85320(b)(2)(C), the EIR should better explain how new facilities are adapted to account for the increased water levels in the Delta that will accompany sea level rise. As our July 11, 2013, comment letter states, sea level rise (SLR) will also raise water levels in the Delta, yet neither chapters 3 nor 29 of the EIR/S acknowledges the need to increase the height of levees and to adapt facilities to accommodate this change. Some of the necessary information to assess this issue in the body of the EIR is included in Appendix 3E.

4. **Sacramento and San Joaquin River flood management.** To better fulfill the Water Code 85320(b)(2)(E), EIR/S should evaluate and provide mitigation for both 1) the hydraulic impacts associated with construction of cofferdams in flood conveyance channels, which may restrict channel flood capacity for six to ten years during CM 1's construction; and 2) the impacts to the structural integrity of levees from construction traffic.

   In addition, the EIR/S should explicitly acknowledge how implementation of the BDCP CMs will alter facilities of the State Plan of Flood Control, for example, by altering the Yolo Bypass, by setting back project levees, or by integrating habitat restoration with the proposed San Joaquin River floodway at Lathrop/Paradise Cut. Our July 11, 2013, comment letter included a reminder to consult with the Central Valley Flood Protection Board (CVFPB) regarding setback levees. Chapter 3 of the EIR/S says: "All construction and modifications

will comply with applicable state and federal flood management, engineering, and permitting requirements." While the BDCP was developed by DWR, the EIR/S does not provide evidence of consultation with the CVFPB, nor sufficient discussion of impacts to its State Plan of Flood Control that may result from enhancing channel margins, setting back levees, and restoring habitat such as the activities identified in CMs 2,4-7, and 10.

5. **Resilience and recovery of conveyance alternatives**. Water Code 85320 (b) (2) (F) requires that the BDCP include a comprehensive review and analysis of "the resilience and recovery of Delta conveyance alternatives in the event of catastrophic loss caused by earthquake or flood or other natural disaster." The National Infrastructure Advisory Council defines infrastructure resilience as: "the ability to reduce the magnitude and/or duration of disruptive events. The effectiveness of a resilient infrastructure or enterprise depends upon its ability to anticipate, absorb, adapt to, and/or rapidly recover from a potentially disruptive event."

   The EIR/S does not assess the resilience and recovery of conveyance facilities or conveyance operations impacted by levee failure. Chapter 6 states that Delta levees are currently at risk of failure from factors such as overtopping, under- and through-seepage, subsidence, animal burrows, and earthquake loading. The risks of levee failure will increase in the future as sea level rises and subsidence continues. Levee failures would severely impact water supply reliability, and would be catastrophic to Delta communities. The resulting flooding would inundate homes, farms, and infrastructure in the Delta (including proposed conveyance facilities), causing significant environmental, social, cultural, and economic impacts.

   New BDCP conveyance facilities will be protected to withstand a flood with a recurrence interval of 1 in 200 years. The BDCP does not, however, adequately describe how levees and other conveyance facilities could be recovered in the event of larger floods, which may occur more frequently with climate change. In addition, there is no discussion about how earthquake- or flood-related levee failures would affect Delta hydrodynamics and resulting impacts on the operation of the existing through-Delta conveyance system, or of how alternative conveyance facilities would be recovered and resume operations in the event of such failures. Such a discussion is warranted because the conveyance facilities should be considered critical lifeline facilities, and should be resilient to large floods and major earthquakes.

   The summary of the risks that may result from construction and operation of the conveyance in the EIR/S Appendix 3I is not fully responsive to Water Code 85320 (b) (2) (F). It primarily discusses risks resulting from construction of conveyance and restoration actions, rather than providing an assessment of the resilience and recovery of the conveyance alternatives in the event of catastrophic loss. Our April 18, 2012, and July 11, 2013, comment letters point out that while the EIR/S addresses continued water delivery via the tunnels in the event of levee failure along the through-Delta conveyance route, there is no discussion of how long it will take to fully recover conveyance operations and restore

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water quality. If levees that help maintain Delta water quality or levees along the through-Delta conveyance corridor fail, how difficult will it be to restore them to service condition, and how long will conveyance operations and/or water quality be affected before full recovery?

Appendix 3E includes information that can help inform the additional analysis of the conveyance facilities' resilience in the event of disasters.

Finally, the BDCP EIR/S should acknowledge that alternatives 1-8 do not address improving levee stability.

6. **Effects of Delta Conveyance Alternatives on Water Quality.** Regarding approaches to better fulfill the Water Code 85320(b)(2)(E), see the comments about water quality below.

B. Mitigation of conveyance impacts.

The Delta Reform Act requires that "construction of a new Delta conveyance facility shall not be initiated until the persons or entities that contract to receive water from the State Water Project and the federal Central Valley Project or a joint powers authority representing those entities have made arrangements or entered into contracts to pay for … (a) the costs of ... mitigation, including mitigation required pursuant to[CEQA], required for the construction, operation, and maintenance of any new Delta water conveyance facility" (Water Code Section 85089).

Accordingly, the BDCP mitigation measures proposed in the EIR/S should be clearly specified and their relationship to impacts of construction, operation, and maintenance of the conveyance facilities for the preferred alternative should be plainly identified, so that the specific costs and financial implications to water contractors or others are apparent and can be considered in the BDCP's finance plan.

C. Delta Plan Conflicts.

Although the Delta Reform Act does not require that the BDCP conform to the Delta Plan, CEQA requires analysis of the policy and planning context in which a project is proposed, including inconsistencies between the proposed project and applicable regional plans, such as the Delta Plan (Sec'y for Resources Guidelines 15125(d)). The EIR/S should include such an assessment of any inconsistencies between the Delta Plan's policies and recommendations and the BDCP. The Delta Reform Act requires that, if successfully approved by DFW as a natural community conservation plan and if it meets the criteria of Water Code Section 85320, the BDCP shall be incorporated into the Delta Plan. Thus, the Delta Plan may need to be revised if and when the BDCP is incorporated into it to eliminate any inconsistencies. Identification of those conflicts would be an important first step in assessing potential environmental impacts of such changes, which the BDCP's EIR/S ought to identify and evaluate so that the DSC can rely on it when the BDCP is incorporated in the Delta Plan.

III. EVALUATION OF ALTERNATIVES

A. Scope and Detail of Analysis: a Suggestion for a Staged Approach.

The presentation of CMs 2-22 at only the programmatic level in the BDCP EIR/S contributes to uncertainty about both the BDCP's benefits and its impacts. This makes it difficult to comparatively assess and quantify impacts and then to evaluate proposed mitigation for impacts to biological resources, water quality, agriculture, cultural resources, and community character.

Preparation of regional conservation strategies for each restoration opportunity area, no later than early during the BDCP's implementation, could be a way to reduce these uncertainties, guide restoration and adaptive management, and better direct mitigation efforts. These regional conservation strategies would also help ensure application of landscape ecology, as emphasized in Delta Plan (p. 138), in implementation of the BDCPs habitat restoration CMs. Near term implementation of restoration actions to carry out the Biological Opinions should not be delayed until these strategies are complete. Rather, these near term actions should help inform the strategies' development, clarify uncertainties, and test approaches to be further explored in the regional strategies.

In combination with development of these strategies, a staged EIR/S as described in EIR Guidelines Section 15167, could present an approach worthy of the BDCP's consideration. In this case, the BDCP current EIR/S provides programmatic evaluation of these CMs, but acknowledges the need for subsequent environmental documents when each regional conservation strategy is completed. Staging the EIR/S in this way would effectively allow for accumulation of the data needed to reduce uncertainties in the current draft of the EIR/S. A staged EIR/S could be amended as more information is gathered, and the management approach could be tailored to those findings.

B. Range of alternatives for habitat restoration conservation measures, CMs 4-10.

As described in our July 11, 2013, comment letter, CEQA requires alternatives to be addressed in meaningful detail before they are eliminated from consideration, and requires an explanation for the reasons selecting or eliminating alternatives. While the EIR/S presents a range of alternatives for CM 1, the EIR/S still does not present a similar range of alternatives for its habitat restoration conservation measures (CMs 4-10), which hinders evaluation of whether these CMs are the least environmentally damaging way to achieve the BDCP's biological goals and objectives. Each conveyance alternative in CM 1 includes the same CMs 2-22, except for alternatives 5 and 7, which change the construction and restoration area footprints for CMs 4 and 6. An additional alternative could be considered for CMs 4-10 that emphasizes, for example, restoration of Suisun Marsh while de-emphasizing the taking Delta farmland for habitat restoration.

C. Adequately specifying mitigation measures

CEQA requires discussion of the significant environmental impacts of the proposed project, and of the mitigation measures proposed to minimize those impacts. In the dEIR/S, however identification of feasible and enforceable mitigation measures for some impacts to water quality, agriculture, recreation, and cultural resources is postponed for further evaluation and consultation. This likely does not meet the requirements of CEQA Guidelines section 15126.4(a) (1) (B), which provides that "formulation of mitigation must not be deferred to a future time." As an alternative, the EIR/S could offer measures that "specify performance standards which would mitigate the significant effect of the project and which

may be accomplished in more than one specified way." We have noted several instances of this issue in the comments that follow.

III. BIOLOGICAL RESOURCES EVALUATION

A. Details on Restoration Opportunity Areas.

Details on Restoration Opportunity Areas (ROAs) are not presented, which makes it difficult to assess both impacts and benefits. We recommend that as ROAs are restored In the future, the BDCP should identify clearly articulated regional conservation strategies to maximize benefits to covered species and habitat while minimizing impacts to biological resources. Adoption of regional strategies may also enable reduction of adverse impacts on other resources such as agriculture and recreation in the Delta.

B. Uncertain benefits of conservation measures, CMs 2-22.

The benefits of CMs are uncertain and conclusions may therefore be overly optimistic because:

- Specific restoration sites have not yet been identified, and, success will depend on critical details regarding the siting and design of habitat restoration measures at particular locations.
- The likelihood of success of the measures has not yet been demonstrated, and the time required to achieve the benefits of restoration is as yet unknown.
- The effectiveness of the ecosystem restoration measures in contributing to the recovery of covered species is only partly understood.

Similar concerns were raised by the Delta Independent Science Board (ISB) and the Delta Independent Science Review Panel (IRP) including the observation that the BDCP impact assessments rely on overly optimistic expectations regarding feasibility, effectiveness, and timing of proposed conservation actions, especially habitat restoration (ISB Appendix B, 2014, and IRP 2014).

C. Benefits of tidal marsh restoration.

In particular, chapter 11 of the EIR/S (as informed by the effects analysis in chapter of the BDCP) likely overstates the benefits of tidal marsh restoration to Delta smelt. Success depends on siting and design of restored habitat areas. Independent scientists concur that "restoration of tidal marsh benefits many fish, mammals, and birds. These benefits can be very important for the growth and survival of individuals of desirable species on site" (Herbold et al, 2014). The success of such measures, however, will depend on the location of restoration sites within the ROAs, and on how they are designed – neither of which are currently known because the measures are only described at the programmatic level in the BDCP and EIR/S.

D. Timelines for restoration.

The proposed timelines for habitat restoration in the BDCP may be overly optimistic, as also identified by the ISB (ISB Appendix B, 2014), and the benefits may not be achieved in a timely manner so as to offset negative impacts of the project. For example, the BDCP forecasts that implementation of restoration measures can occur within five years of site acquisition. However, a survey by Council staff of similar restoration projects in the San Francisco Bay and the Central Valley shows that they typically took 12-13 years following land acquisition to permit, design, and construct. This does not include the additional time needed for establishment of habitat conditions and functionality to provide the intended benefits to covered species

E. Impact Assessment.

The EIR/S chapter 11 of the EIR/S impact analysis still does not fully compare the anticipated ecological benefits of the proposed project to existing baseline estimates for abundance and distribution of species and habitat types. For example, the EIR/S should include a table showing the pre-project extent and distribution of existing low-salinity habitat (critical to both longfin and Delta smelt) in comparison to the post-project anticipated changes in low-salinity habitat.

The BDCP EIR/S states: "The methods used to analyze impacts to covered and non-covered fish and aquatic species in Chapter 11 rely on the models and data included in the BDCP Effects Analysis (Chapter 5 of the BDCP)." (Appendix 3I.7, p 3I-14, lines 21-23). Since the effects analysis pertains only to Alternative 4 (the preferred alternative in the BDCP EIR/S), Appendix 3I and EIR/S chapter 11 should clearly describe how impacts to covered and non-covered fish and other species were analyzed at similar levels for other alternatives.

The EIR/S should provide modeling results or other assessments showing a comparative analysis for both early-long-term (ELT) and late-long-term (LLT) conditions for each covered species, particularly fish species, and for each alternative. The current modeling results presented in the impact analysis are primarily focused on LLT conditions. ELT conditions, which are not presented, would provide an earlier indication of the project's biological impacts and benefits as opposed to only looking at projections at the end of the 50 years during LLT. The proposed 50-year project duration suggests it would be appropriate to present impact analysis results for both ELT and LLT. One benefit of this approach would be to provide a benchmark against which to measure mid-term outcomes of the BDCP's implementation.

F. Uncertainties in modeling.

Modeling uncertainties can lead to inaccuracies in predicting outcomes, which may contribute to an incomplete assessment of impacts. Specifically, we are concerned with the BDCP's ability to predict outcomes and support decision-making given the strong potential for compounding and propagating uncertainties through reliance on multiple models (including use of 2-D and 3-D models) that were used to support impact analysis and mitigation. There is no assessment of how these model assumptions and attributes influence the BDCP modeling results. A similar concern was identified by the ISB (ISB Appendix B, 2014)

G. Unintended consequences.

The EIR/S should demonstrate how unintended and potentially adverse consequences of proposed CMs have been considered and evaluated. For example, potential adverse impacts can occur from: 1) increases in invasive nonnative species; 2) increases in predation; 3) effects on existing downstream tidal wetlands; and 4) increased applications of herbicides. The EIR/S should evaluate the impacts of these factors and offer appropriate mitigation. For example, the EIR/S should address potential adverse ecological effects associated with reduced downstream sediment transport (suspended sediment loads and associated turbidity) that may result from proposed north Delta diversions and from tidal habitat restoration.

As noted in our July 11, 2013, comment letter, the EIR/S should also address the potential impacts caused by reduced flushing of the Sacramento River water that will result in increased hydraulic residence times, and, as a consequence, the potential production of *microcystis*, a harmful algal bloom. Increased residence times could also lead to warmer temperatures and potentially adverse fluctuations in dissolved oxygen levels, which could lead to less favorable habitat conditions for Delta smelt and other covered fish species. The BDCP EIR/S should not defer evaluation of these potentially adverse impacts to the adaptive management phase.

IV. WATER SUPPLY

A. New storage.

The possibility of new storage, especially north of the Delta, should be included in the cumulative impacts analysis. Although new storage projects are in various stages of review, the array of projects under study and the broad interest in new storage suggest that added storage, either above- or below-ground, or operated conjunctively, is likely. Appendix 3D of the EIR/S discusses projects considered in the cumulative impacts analysis. The Los Vaqueros reservoir expansion is the only project included in the No Action/No Project (NA/NP) and cumulative impacts analysis. While raising Shasta Dam, constructing Temperance Flat, and the Delta Wetlands projects were mentioned in Appendix 3D, none were actually included in NA/NP or cumulative impacts analysis. The proposed Sites reservoir project is not mentioned in the appendix. These, and perhaps other potential future storage projects (e.g., groundwater banking) merit consideration in the cumulative impacts analysis.

B. Assess the contributions of water conservation and diversifying local water supplies to reduced reliance on the Delta.

The EIR/S does not consider reducing water demands from the Delta as an alternative, although Appendix 1C provides an overview of water use efficiency programs to reduce water demand in the state. While the Delta Plan highlights several approaches to reducing demand for this water, the alternatives summarized in the BDCP do not include reducing reliance on water from the Delta except in Appendix 5B, where they are described as responses to public policies, levee failures, or climate changes

that reduce water supplies. The BDCP could go further in considering demand-reduction actions and relating them to current and future demands for water exported from the Delta.

VI. Water Quality

A. Decision tree.

EIR/S evaluations of the preferred alternative (Alternative 4) were conducted for all four decision tree options in operations Scenario H. In the case of water quality, however, there is no indication of which decision tree option was used as the basis for determining impacts of Alternative 4. The EIR/S presents results of the analysis of the four operational scenarios, but conclusions regarding the impacts of Alternative 4 as a whole are drawn without differentiating between the operational scenarios. How accurately can impacts be predicted from a wide range of flows that the operational scenarios span in the decision tree process?

B. Use of historical data results in limited characterization.

Historical data used to support the water quality analysis provide limited ability to characterize water quality conditions in the Delta. An improved understanding of existing water quality dynamics in a complex system such as the Delta is not possible without additional data regarding water quality. Furthermore, as noted by the ISB (Appendix A, 2014), the EIR/S should provide for enhanced monitoring of pesticides in the Delta to offset the lack of historical monitoring data.

C. San Francisco Bay.

Many species that rely on the Delta, Suisun Bay, and Suisun Marsh also use areas downstream in San Francisco Bay including salmonids, sturgeon, salt marsh harvest mice, and rails. For this reason, to comprehensively evaluate the project's impacts to these species and their habitats, San Francisco Bay should be included in the scope of the analysis, especially for water quality. The BDCP states that the strong influences of tidal fluctuations in San Francisco Bay form the basis for concluding that potential water quality impacts to the Bay are insignificant. However, the ISB and the Independent Science Review Panel (IRP) note that the Delta and the Bay should be treated as an interconnected system. The ISB says that potential impacts of various BDCP alternatives on water quality downstream of the Delta should be evaluated, and indicates that this was a specific recommendation of the National Research Council (ISB Appendices A and B, 2014, and IRP 2014).

Especially important are the BDCP's impacts on sediment transport associated with the North Delta diversions and tidal marsh restoration in the Delta and Suisun Marsh, which may adversely affect development of tidal marshes in the San Francisco Bay estuary that are already deprived of beneficial sediments under current conditions. The ISB also noted that impacts on sediment would affect the ability of marshes to adapt to sea level rise (Appendices A and B, 2014).

D. Water quality needs of aquatic species.

The dEIR/S' discussions of water quality impacts are limited to potential changes in meeting water quality objectives with little regard to specific water quality needs of aquatic species of concern, in

particular to sensitive aquatic species with needs that are not addressed by existing water quality objectives. The EIR/S should consider potential impacts to specific sensitive ecological receptors in the project areas and that are in the food chain associated with the covered species. The ISB commented that the EIR/S evaluation of nutrients is too limited and that nutrient impacts on algae should be considered; specifically the potential of altered nutrient ratios to either encourage or reduce toxic algal blooms should be considered (Appendix B, 2014).

E. Constituents from historic land use and construction.

Constituents associated with construction activities and historic land uses in the Delta (including aromatic hydrocarbons [PAHs] from construction equipment, pH, and legacy contaminants such as pesticides) should be more thoroughly evaluated. For example, the EIR/S should evaluate impacts of construction or proposed restoration actions that could result in release of various constituents including legacy contaminants during construction and throughout their establishment; this is particularly important for those in areas that would be subject to frequent tidal inundation or floodwater flows. The ISB noted that the remobilization during construction of soil and sediment with legacy contaminants was not addressed in the EIR/S (Appendix B, 2014). Many legacy contaminants have a tendency to bioaccumulate, which could exacerbate this impact. . For example, PAHs that impact ecosystems originate not only as combustion byproducts, but also potentially from spilled petroleum products, which is a heightened risk during construction. While environmental commitments such as an Erosion and Sediment Control Plan and Storm Water Pollution Prevention Plan are intended to control pollutants related to construction activities, the risks legacy pollutants pose to Delta water quality resulting from the BDCP construction activities should be more thoroughly assessed. Historical records and descriptions of past farming systems should be consulted to assess whether these legacy pollutants may pose water quality risks in the project area and if needed, propose mitigations to prevent remobilization of these legacy pollutants. Information gained from previous water quality monitoring efforts and studies in areas near and down-gradient from current large scale restoration actions in the ROAs should be used in the EIR/S analysis to identify the various water quality constituents that could be released during proposed restoration activities. The ISB also noted that the anticipated efficacy with which wastewater treatment plants remove contaminants of emerging concern is very optimistic in the EIR/S (ISB, 2014).

F. Modeling limitations and uncertainty.

The BDCP modeling is based on past conditions instead of projected future conditions during the project time frame. As discussed by the ISB, it is unclear whether models include likely scenarios of future conditions in the Delta, since it appears that existing conditions were used to support the water quality modeling efforts. The ISB noted that for a proposed permit term of 50 years, modeling should reflect the BDCP impacts throughout and at the end of the permit term. Additionally, the BDCP should include provisions for additional modeling using performance monitoring data to inform adaptive management (ISB, 2014).

Limited modeling methods are applied to assessments of water quality impacts; the assessments use CALSIM and DSR2 without explanation of limitations or of the conditions under which they were run. As noted by the ISB, the model outputs have not been adequately validated with observational data, and

the results have not been presented in a way that acknowledges the uncertainties associated with the models. Additionally, the use of qualitative analysis complicates the comparison of alternatives because constituents of concern are not evaluated in an equivalent manner (ISB, Appendix B, 2014).

G. ROAs and salt water intrusion.

Because the BDCP will significantly impact Delta hydrodynamics, the ROAs must be selected with particular attention to the effect that their locations may have relative to the hydrodynamics of the greater Delta system. The positioning and connectivity of proposed ROAs and the hydrodynamic impacts of the BDCP should be considered with respect to impacts associated with the intrusion of saltwater and impacts to water quality.

H. In-Delta water quality.

Water quality impacts to in-Delta users, and impacts from restoration measures are not well described. The water quality for in-Delta agricultural and municipal users will be significantly adversely affected by changes in the mix of flow between the Sacramento and San Joaquin Rivers, which may require upgrades to water treatment facilities.

I. Mitigation of water quality impacts.

Many impacts are described as significant and unavoidable with no recommended feasible or enforceable mitigation measures. Analyzed constituents with significant and unavoidable impacts for the preferred alternative include bromide, chloride, salinity, mercury, organic carbon, and pesticides. CEQA requires development of implementable and enforceable mitigation measures for these impacts such as treatment before use, or increased fresh water flows.

Chapter 8 of the EIR/S only offers deferred mitigation despite exceeding water quality objectives for many constituents, which may adversely affect in-Delta water quality for agricultural uses. Exceeding water quality objectives is a significant impact, which requires that fully-defined mitigation measures be included in the EIR/S.

VII. DELTA AS A PLACE

Constructing and operating the proposed BDCP conveyance and restoration measures will significantly and adversely affect important attributes of the Delta's regional character, including values that the Council's Delta Plan describes as contributing to making the Delta a distinctive and special place. The Delta Reform Act and Delta Plan anticipate that changes to these attributes will occur and may be necessary to achieve the coequal goals, but seeks to accommodate these changes while preserving the fundamental characteristics and values that contribute to the Delta's special qualities and that distinguish it from other places.

The effects on the Delta's agricultural, recreational, and cultural resources should be considered in the context of larger past and likely future trends in the Delta:

- Agriculture. Between 1984 and 2008, approximately 89,000 acres of agricultural land were lost to development in the Delta. By 2050 (before the 50-year term of the BDCP is complete), the Delta

Protection Commission's *Economic Sustainability Plan* forecasts that an additional 26,000 acres may be lost to development. Further threats to Delta farmlands arise from the region's fragile levees, which are at significant risk of failure over the BDCP's 50-year life. In this timeframe, potential failure of levees on 18 to 23 agricultural islands leading to catastrophic flooding of about 74,000 to 120,000 acres, could not be cost-effectively reclaimed, Suddeth (2011) concludes.

- Recreation. The Delta has significant areas of public land, but facilities encouraging recreation on them are few in comparison to other regions, such as the Bay area. For example, State Parks' Brannan Island SRA has been threatened with closure, and its Delta Meadows property is unimproved. Legal public access for simple recreation pursuits, such as bank fishing or walking, is in short supply. Most Delta recreation facilities are provided at private resorts, marinas, and other visitor-serving commercial facilities. The Delta Protection Commission's *Economic Sustainability Plan* found that many of these commercial recreation facilities were aging and struggling to remain competitive with tourism regions such as the Wine County and the Sierra.
- Historical and archeological resources. Historical and archeological resources in the Delta are continually being lost due to deterioration, incremental disturbances from various land uses, and limited financial resources for upkeep and preservation.

These trends provide important context for both the consideration of the BDCP's effects on the Delta's unique resources and for selection of mitigation measures. As such, they should be acknowledged and discussed in the environmental setting of the EIR/S, in its No Project Alternative, and/or in its assessment of cumulative impacts.

The BDCP's proposed mitigation measures, in some instances, may not reduce impacts to less-than-significant; the EIR/S would be greatly improved by: 1) recognizing that collective impacts from a variety of proposed actions will adversely affect the Delta's agricultural, social, and economic character; and 2) by offering additional mitigation measures to better offset adverse impacts.

A. Agriculture.

Agriculture is the Delta's primary land use and a valued resource. The EIR should better describe and more carefully mitigate impacts to agriculture arising in several ways, as discussed below.

1. Impacts of Habitat Restoration CMs. The EIR/S evaluates a variety of impacts to Delta agriculture caused by habitat restoration conservation measures; however, because CMs are presented at a programmatic level of detail, it is not possible to identify impacts to agriculture with any degree of certainty. The BDCP presents a broad and somewhat inconsistent range of restoration targets (p 11 of the BDCP Executive Summary indicates roughly 83,000 acres will be restored compared to 153,000 acres on p 14-22 of the EIR/S). Specific locations, however, have not been selected for restoration CMs, and the EIR does not identify which farmlands, and how many acres of them will be impacted. The EIR/S states that of the 182,000 acres Restoration Opportunity Areas, roughly 20,600 acres are targeted for restoration in (p 14-3 and 14-4). 98,900 acres of the ROAs are in agricultural use. The impact of the BDCP on agriculture in the ROAs apparently depends partly on how much of the 20,600 targeted acres for

restoration fall within lands currently in agricultural use, as well as the extent of effects on farm lands outside of the ROAs, such as the Yolo Bypass or areas affected by setting back levees.

It may be possible, however, to roughly estimate the magnitude of impacts on existing agricultural land by applying the hypothetical footprint associated with these CMs in a manner similar to that used to assess restoration benefits in the Effects Analysis. In this way, the discussion of agricultural impacts in section 14.3.3 of the EIR/S could describe the range of potential project footprints for CMs 2 and 4-10 to evaluate the possible impact to crop production based on current cropping pattern. The implications of the loss of those lands could then be characterized to establish the general magnitude of impacts to agriculture and to establish the scale of mitigation programs, such as the general amount of funding to be committed to purchasing conservation easements to compensate for lands converted to habitat or the scale of efforts to mitigate any environmentally-significant impacts to the regional farm economy.

2. **Infrastructure Disruption.** Section 14.1.1.6 lists infrastructure that is critical to agriculture sustainability (for example, fuel and seed suppliers, irrigation and drainage infrastructure, post-harvest facilities, and equipment supply, etc.). However, the EIR/S does not discuss secondary effects of proposed alternatives; for example, project impacts caused by losses of important agricultural infrastructure, or by fragmenting parcels. Section 14.3.3 should consider how agricultural infrastructure may be affected by the BDCP project alternatives, and by estimating secondary effects to the region.

3. **Water Quality for In-Delta Agriculture.** As described earlier, water quality may be degraded for in-Delta users. Section 14.1.1.6 discusses how high salinity levels in water or soil can damage crops, and Impact AG-2 discusses "other effects on agriculture as a result of constructing and operating the proposed water conveyance facility." There is currently no discussion, however, of which crops would be affected by increased salinity concentrations, nor of how much acreage would be lost or impaired.

Section 14.3.3 of the EIR/S should estimate the quality and quantity of agricultural lands affected by salinity changes, and quantify the loss in both crop yield and production value under each alternative. Specifically, how many acres of farmland may be impacted by degraded water quality, and what actions are necessary to mitigate this loss?

4. **Increased Farm-to-Market Travel Times.** Impact ECON-6 (p. 16-168, lines 16-17) anticipates an increase in agricultural production costs from "operational constraints and longer travel times due to facilities construction," though there is no discussion or analysis of the impact of these longer travel times on agriculture. The EIR/S should evaluate how CM 1 construction impacts may affect transportation to and from key agricultural areas.

Chapter 19 (Table 19-25) indicates that the designated "Farm-to-market" corridor (Highway 99 between Bakersfield and Sacramento,) will not be impacted; however, during construction Level of Service (LOS) thresholds will be exceeded (made worse than previous LOS) on segments of state highways and local roadways (Impact TRANS-1). The EIR/S identifies mitigation measures (TRANS 1a-c) to reduce the severity of the impact. However, "the BDCP proponents cannot ensure that the improvements will be fully funded or constructed prior to the project's contribution to the impact," (page 19-173 lines 5-7).

The EIR/S should explain the constraints that limit full funding of these mitigation measures, and the basis for determining that mitigation is not feasible.

If all mitigation measures to reduce traffic impacts are not implemented successfully, the impacts to LOS on these roads will remain significant and unavoidable. The impacts of the decrease in LOS on roadways serving key agricultural areas due to construction will likely remain considerable, and the economic effect and any related environmental effects should be explicitly evaluated in chapter 15, Impact ECON-

6. **Agricultural Economics.** The EIR/S indicates that construction of the BDCP CMs will cause many significant and adverse direct and indirect impacts to agriculture, and that the BDCP will significantly alter the agricultural character and regional economy. For example, impact ECON-3 comprises a clear change in the agricultural character of the Delta region. Farmland will be permanently converted to non-agricultural uses by: 1) construction and operation of conveyance facilities; 2) disruption of agricultural infrastructure due to construction of CM 1; 3) degraded in-Delta water quality; and 4) implementation of habitat restoration conservation measures.

The long-term footprint of construction and the disruption to infrastructure are expected to indirectly impact agriculture by increasing production costs (ECON-6) and by causing a decline in agricultural employment during construction, estimated at $3.5 million (Impact ECON 1, Table 16-42). According to the EIR/S, impacts to agriculture under alternative 4 will remain "Significant and Unavoidable." The commitment to providing appropriate mitigation for these effects should be strengthened.

The EIR/S states that the BDCP proposed actions will have a major regional economic impact, which should be described in sufficient detail to enable meaningful comparison of alternatives. For example, what are the expected increases in agricultural production costs? What is the regional significance of the $3.5 million decline in agricultural related income and the associated loss of jobs (Table 16-42)? What does the loss of a particular crop mean for the viability of that crop in the region as a whole? What are the impacts to high value crops (e.g., vineyards) and heirloom crops (e.g., pears and asparagus)? What other environmentally significant changes may these economic impacts trigger?

5. **Integrating Agricultural Mitigation with Regional Conservation Strategies.** As restoration is implemented in the ROAs, selection of mitigation measures could be integrated into the regional conservation strategies recommended earlier in this letter. These regional strategies could: 1) incorporate agricultural considerations into regional conservation measures; 2) provide a framework for project selection and design; 3) contribute to a system of protected agricultural resources; and 4) provide a framework for evaluating and mitigating impacts to agriculture and other land uses. It could also help avoid or reduce impacts to the most valuable agricultural areas, enable interconnected agricultural zones and habitat corridors, and minimize edge effects. The following techniques should be used in the regional conservation strategies to preserve and protect agriculture:

- Use easements to protect land where development threats are greater. For example, at a minimum, losses of farmlands converted to non-farmed habitat could be mitigated by securing conservation easements that protect other agricultural lands threatened by development, such as land in the Delta's secondary zone. The Delta Plan proposes mitigation for farmland losses at a ratio of one acre protected for each acre converted to non-farm use.

- Identify mitigation within the regional conservation strategy framework so that the effects on drainage, cropping systems, etc can be integrated with restoration strategies
- Implement safe harbor agreements, as described on pages 143 and 186 of the Delta Plan, and propose other good neighbor arrangements.
- Compensate for crop losses where necessary.

6. **Recommendations from the Delta Plan.** Potential mitigation measures included in the Delta Plan's recommendations for supporting the Delta's agricultural economy should be considered to mitigate environmentally-significant economic impacts to agriculture. For example, the Delta Plan recommends that local governments and economic development organizations, in cooperation with the Delta Protection Commission and the Delta Conservancy, encourage value-added processing of Delta crops in appropriate locations (DP R8 Promote Value-Added Crop Processing). Similarly, DP R9 (Encourage Agritourism) recommends support for agritourism, particularly in and around Delta legacy communities.

B. Recreation.

Five million people live within a 20 minute drive of the Delta and Suisun Marsh, the typical distance Californians drive to reach a favorite recreation area. About 12 million visitor days occur in the Delta annually. Demand for recreation that can be provided in the Delta is growing, both with the forecast doubling of the region's population during the BDCP's implementation and with the potential to attract visitors from other regions. Protecting these valued recreation opportunities is important.

1. **Impacts to recreation facilities in construction zones**. The ten or more years of conveyance construction will result in the long-term reduction of recreational opportunities and experiences in the Delta both on land and in water (Impact ECON 5, REC 2 and 3). Traffic delays, disturbance, noise, and water quality impacts may reduce visits to, or prevent access to specific recreational sites. This, in turn, may cause local recreation related businesses to suffer or close from reduced spending, with potential cumulative effects to private visitor-serving facilities vulnerable to a decline in regional recreational-related economic activity.

   Though proposed mitigation measures offer noise abatement programs, new access roads, alternative waterways, and other activities to minimize disturbances, the impacts of CM 1 construction activities on recreation in construction zones are still significant. A more comprehensive assessment of impacts is warranted, and additional mitigation should be offered to offset the impacts. For example, impact ECON-5 discusses the qualitative effects on recreational economics as a result of constructing conveyance, and Impacts REC 1-4 discusses general impacts qualitatively. Quantifying the effects on recreational uses and opportunities would enable comparison of alternatives to assess which alternative most significantly impacts recreation in the Delta (Section 16.3.3.9, page16-166, 167, lines 15-36).

2. **Impacts on Recreational Boating.** The Delta Protection Commissions' *Economic Sustainability Plan* (2012) and California State Parks' *Recreation Proposal for the Sacramento-San Joaquin Delta* (2011) indicate that boating comprises 60 percent of Delta recreation-days and contributes 80 percent of tourism spending. Chapter 15 (p 15-103) states that "Although there could be a marginal effect on the recreation experience if boaters are delayed at the boat launch, it is expected that there would be no adverse effect on recreational boating" with little supporting rationale or analysis. Given the importance of boater recreation to the Delta, the impacts of CM 20 on boater recreation should be more fully assessed. Impact ECON 17, "Effects on Recreational Economics as a Result of Implementing the Proposed Conservation Measures 2–22," could be improved with a discussion and assessment of the effects of CM 20 on recreational boating, and by offering mitigation of those recreational impacts where warranted.

3. **Impacts on RV Parks and Resorts.** Housing for construction workers may include extended use of recreational vehicle parks and hotels and motels (p 16-163), which could displace people seeking recreational opportunities in the Delta. Housing for migrant farm labor may also be affected. The extent of this potential impact to recreation is unclear and no mitigation is currently provided. While the EIR/S does not anticipate a large influx of out-of-area workers, this impact to recreation and need for mitigation should be more thoroughly evaluated.

4. **Mitigation for Recreation Impacts.** Chapter 15 of the EIR/S should provide explicit mitigation measures for the significant and unavoidable recreation impacts caused by the BDCP construction and operation. Determinations of appropriate mitigation should be made as part of the EIR/S, and appropriate mitigation commitments should be included in the final EIR/S. Potential mitigation measures include the Delta Plan's recommendations for encouraging recreation and tourism. For example, the Delta Plan recommendation DP R11 (Provide New and Protect Existing Recreation Opportunities) asks ecosystem restoration agencies to provide recreation opportunities at new facilities and restored habitat areas whenever feasible, and to protect existing recreational facilities using California State Parks' *Recreation Proposal for the Sacramento-San Joaquin Delta and Suisun Marsh* (2011) and the Delta Protection Commission's *Economic Sustainability Plan* (2012) as guides.

   The environmental commitments listed in Appendix 3B, proposal 3B.2.3 (Fund Efforts to Carry-out the Recreation Recommendations Adopted in the Delta Plan) are an example of the vague and unenforceable nature of some proposed mitigation measures. Of the six actions listed, three could not feasibly be implemented during the CM-1 construction period because they: 1) either depend on the outcomes of actions that occur during construction (reusable tunnel material and the CM 2 alterations of the Yolo Bypass); or 2) later (Barker Slough restoration). Three others, Wright-Elmwood Tract and Brannan Island SRA and improvements to the Yolo Bypass Wildlife Area, are distant from the CM 1 construction zone where impacts would occur, and therefore do little to lessen or compensate for the project's effects. California State Parks staff familiar with its Central Valley Vision and Delta planning should be consulted to assess how a contribution of funds could facilitate meaningful progress at Delta Meadows-Locke Boarding House.

C. Community Character.

The Delta's Legacy Communities are valued resources, appreciated by both their residents and by visitors. Special care to protect them is warranted.

Construction of CM 1 will result in numerous impacts, which are described in various places throughout the EIR/S. However, the scale of collective impacts in the construction zone over ten or more years of construction is difficult to comprehend. Because the collective construction impacts will have a major effect on numerous resource categories, the EIR/S should aggregate the description of impacts associated with CM 1 construction activities in one location and summarize them, including the time frames for each impact. In this aggregation, the EIR/S should discuss the overall construction footprint. Each alternative should be compared to enable improved evaluation of direct and indirect effects on these communities associated with each alternative.

The EIR/S states that construction and implementation of the BDCP will result in significant changes in community character caused by: 1) declining property values; 2) building abandonment near construction activities with associated loss of sales tax revenue; and 3) changes in the agricultural landscape, regional economy, labor, and employment (impact AG1, 2, and ECON-1 and 3). The EIR/S also anticipates declining economic stability in communities closest to construction activities and in those most heavily influenced by agriculture and recreation. These indirect and secondary impacts caused by construction of the conveyance facility will have physical effects on the Delta environment that must be evaluated and mitigated in the EIR/S. For example, impacts that cause building abandonment can be considered a physical impact that warrants mitigation. Actions to reduce or mitigate adverse impacts should be taken.

The EIR/S highlights that "notable decreases in population or employment, even if limited to specific areas, sectors, or the vacancy of individual buildings, could result in alteration of community character stemming from a lack of maintenance, upkeep, and general investment." The BDCP offers a list of environmental commitments to reduce these effects (16.3.3.9, pps 16-165, and Appendix 3B); however the environmental commitments may be insufficient.

Precedents elsewhere from local housing authorities and from redevelopment agencies may provide successful examples of mitigation that could be offered to reduce the effects of these significant changes on the Delta as a Place. Examples from blight elimination programs could offer mitigation for community improvement and enhancement including making contributions toward community centers and libraries, or funding programs to curb foreclosures.

D. Aesthetics.

Scenic Highway 160 and other riverside roads are important resources, supporting recreational travel, providing a pleasing backdrop for recreational boating, and contributing to the setting of the Delta's Legacy Communities. The EIR/S indicates that permanent visual changes in the riverside landscape near intakes will dramatically alter the Delta's scenic character along scenic Highway 160 and at Clarksburg, Courtland, and Hood (EIR/S chapter 17 Impact AES-2). The dEIR/S' narrative description of impacts should be enhanced with illustrative images of these impacts as viewed by travelers on scenic highway State Rt. 160 and by recreational boaters. The illustrative images should show conditions before

construction and impacts both during construction and after construction is complete. Mitigation measures should be proposed that are consistent with CalTrans' practices for scenic highways and/or the Federal Highway Administration's report *Scenic Byways: A Guide for Roadside Improvements.*

E. Cultural Resources.

The entire Delta region is rich in cultural resources with archeological significance, and the EIR/S identifies major impacts in chapter 18, most of which are considered significant and unavoidable. While the EIR/S identifies specific sites of cultural value, the EIR/S should consider whether areas significantly affected by the BDCP construction may qualify for consideration as significant cultural landscapes under the Secretary of the Interior's *Guidelines for the Treatment of Cultural Landscapes.* In cases where the impacts would remain significant and unavoidable, the BDCP could offer additional mitigation adequate to preserve and protect the Delta's historic and cultural resources.

Recognizing that impacts to cultural resources from the BDCP will likely be similar to impacts caused by other large infrastructure projects in similar environments, the EIR/S could draw on experience from other infrastructure projects to describe a range of possible impacts on cultural resources and commit to a range of appropriate mitigation measures. There is precedent from large infrastructure projects across the country under section 106 of the National Historic Preservation Act to provide additional mitigation or compensation for lost cultural resources. For example, the BDCP could:

- Offer financial support to relocate significant resources to a museum.
- Support archaeological research by local universities focused in the Delta.
- Offer financial support to facilitate the listing of eligible artifacts, sites, or structures on the National Historic Registry.
- Offer financial support to preserve or rehabilitate deteriorating buildings and structures of historical significance in the Delta such as in the Locke Historic District, the Japanese School in Clarksburg, or the Bacon Island Road Bridge.

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